



Biodiversity Financing and Tracking

Final Report

May 2022

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Biodiversity Financing and Tracking

Final Report

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Biodiversity financing and tracking: abstract	7
Executive summary/Résumé	7
1. Introduction to the Project	23
1.1 Introduction to Biodiversity Tracking	23
1.2 Introduction to Biodiversity Financing	24
2. Biodiversity tracking	25
2.1 Ex-post assessment of tracking in the EU budget 2014-2020.....	25
2.1.1 Summary of EU biodiversity tracked expenditure 2014-2020.....	26
2.1.2 Biodiversity tracking methods in the 2014-2020 period	27
2.1.3 Approach taken to tracking in shared management.....	28
2.1.4 Approach taken to tracking in direct management	30
2.1.5 Approach taken to tracking in indirect management expenditure	30
2.1.6 Programme-by-programme account of the 2014-2020 tracking methodology	30
2.1.7 Copernicus.....	30
2.1.8 Horizon 2020	33
2.1.9 Structural and cohesion policy: ERDF and Cohesion Fund	35
2.1.10 Structural and cohesion policy: European Social Fund (ESF)	38
2.1.11 Common Agricultural Policy: European Agricultural Guarantee Fund (EAGF)...	39
2.1.12 Common Agricultural Policy: European Agricultural Fund for Rural Development (EAFRD).....	45
2.1.13 European Maritime and Fisheries Fund (EMFF)	49
2.1.14 LIFE (Financial Instrument for the Environment).....	51
2.1.15 Development cooperation, DCI, ENI and PI	53
2.1.16 Instrument for Pre-Accession Assistance (IPA II).....	56
2.2 Biodiversity tracking 2021-2027: recommendations on tracking methodology ..	57
2.2.1 Overall recommendations	58
2.2.2 Programme specific recommendations.....	60
2.3 Alternative approaches to biodiversity tracking.....	69
2.4 International reporting on biodiversity expenditure: towards a common EU approach	74
2.5 Biodiversity tracking: Summary of recommendations on improving tracking methodology	77
3. Biodiversity financing: Assessment of the financial needs to implement the Biodiversity Strategy to 2030	79
3.1 Methodological approach taken to Subtask 2.1.....	79
3.1.1 Distinguishing 'baseline' EU biodiversity investment needs from those introduced by the Strategy for 2030.....	81
3.1.2 Defining the objectives of the BDS for 2030.....	83

3.2	Key data points and assumptions used in Sub-task 2.1	84
3.2.1	Considering overlaps	85
3.3	Summary of financial needs	87
4.	Biodiversity financing: Assessment of current levels of biodiversity funding in the EU	94
4.1	Methodological approach taken to Sub-task 2.2.....	96
4.1.1	Biodiversity funding under the MFF.....	97
4.1.2	Member States' domestic and international expenditure.....	98
4.1.3	Private investment	99
4.2	EU-level biodiversity funding under the MFF	100
4.2.1	EU level funding	100
4.2.2	Overview of PAF spending in the EU budget and Member States	103
4.3	Member State expenditures.....	106
4.3.1	Establishing a reliable methodology for domestic expenditure tracking under current frameworks	106
4.3.2	Establishing a reliable methodology for international expenditure tracking under current frameworks	107
4.3.3	Member State domestic expenditure	108
4.3.4	Member State international expenditure	111
4.4	Private investments	114
4.4.1	Philanthropic foundations	115
4.4.2	Non-Governmental Organisations	118
4.4.3	Sustainable commodities	121
4.4.4	Private sector finance	123
4.4.5	Summary of private investment into biodiversity	128
4.5	Overview estimate of total biodiversity funding in the EU	130
5.	Comparison of current funding and future needs.....	123
5.1	Forecast expenditure on biodiversity	123
5.2	Comparison of financing needs and expenditures.....	126
5.2.1	Estimate of financing needs by Member State	128
6.	List of Annexes.....	131
	Annex 1: Biodiversity tracking 2014-2020: Member State case studies (see separate file)	
	Annex 2: Biodiversity tracking 2021-2027: Programme recommendations (see separate file)	
	Annex 3: Biodiversity tracking: Member State examples (see separate file)	
	Annex 4: Biodiversity financing: Detailed costing of objectives (see separate file)	
	Annex 5: Biodiversity financing: Domestic funding methodologies (see separate file)	
	Annex 6: Biodiversity financing: List of external stakeholders consulted (see separate file)	
	Annex 7: Stakeholder workshop report	

List of Figures

Figure 1: Biodiversity expenditure by programme, 2014-2020 (EUR million and % of budget)	27
Figure 2: Biodiversity Tracked Expenditure ERDF and CF according to Intervention Fields (40%/100%) for 2016 to 2020	38
Figure 3: Methodology for Estimating Financing Needs	80
Figure 4: Conceptual framework of task 2.2 highlighting the three-tier approach	95
Figure 5: Expenditure in MFF funds and the percentage ratio of tracked biodiversity expenditure	101
Figure 6: Overview of Natura 2000 spending per fund, indicating percentage contribution from EU and Member State co-financing	104
Figure 7: Expenditure under PAFs per Member State, by national and EU funding, for the period of 2014-2020	105
Figure 8: Expenditure of Member States tracked under COFOG 05.4 for 2014 - 2019	108
Figure 9: Estimated annual total biodiversity expenditure of EU Member States	110
Figure 10: DAC Member States total commitments to international aid (sum of 2014 – 2019 data) to principal (100%) and significant (40%) contributions to biodiversity (converted from USD to EUR millions)	112
Figure 11: Total biodiversity-relevant funding of philanthropic foundations and number of reporting organisations. Source: own calculation, derived from EFC (vol.3, vol.4, vol.5)	118
Figure 12: Output value of the environmental goods and services sector for selected CEPAs, in million EUR. Adapted from: Eurostat EGSS database	127
Figure 13: MFF historic and future planned biodiversity expenditure (blue line reported, orange line planned expenditure)	133
Figure 14: MFF expenditure on biodiversity: past, committed and projected to 2030	124
Figure 15: Member state expenditure on biodiversity: past and projected	124
Figure 16: Estimated annual expenditure on biodiversity from the European Commission, Member States and private sector, 2021-2030	126
Figure 17: Estimated scale of investment needed to deliver the BDS for 2030, and estimated future expenditure from 2021 to 2030	127

List of Tables

Table 1: EU budget spending tracked as biodiversity expenditure (EUR million)	26
Table 2: Biodiversity markers applied to ERDF and CF expenditure, 2014-2020	36
Table 3: CAP Interventions available to Member States under the EAGF	40
Table 4: Contribution of direct payments to biodiversity financing (EUR million)	42
Table 5: Contribution of EAFRD to biodiversity financing (EUR million).....	48
Table 6. Committed biodiversity programming for development and cooperation programmes (million Euros).....	55
Table 7: Suggested approach to biodiversity tracking for each programme.....	60
Table 8: Comparison of CBD reporting and Eurostat data on domestic biodiversity expenditure	76
Table 9: Consistent data applied to multiple objectives	84
Table 10: Consideration of overlapping expenditure on objectives.....	86
Table 11: Summary of financing needs per Strategy's objective per year (in EUR million)	88
Table 2: Estimated expenditure of EC and MS, domestic and international funding...95	
Table 13: Summary of private expenditure on biodiversity	96
Table 14: Total financing programme and biodiversity tracked expenditure per fund for 2014 -2020.....	102
Table 15: MFF reported biodiversity expenditure for 2014 – 2021 annually.....	103
Table 16: General government expenditure by function (COFOG) as extracted from GOV_10A_EXP.....	109
Table 17: Total international aid expenditure (100% and 40%) per DAC Member State as per OECD Aid	113
Table 18: Biodiversity-relevant funding allocated by foundations to recipients in Europe, in million EUR. Source: own calculation, derived from EFC (vol.3, vol.4, vol.5) (extrapolated figures shown in italics).....	117
Table 19: Biodiversity-relevant funding allocated by NGOs in Europe, 2016, in million EUR	119
Table 20: Biodiversity-relevant expenditure by Friends of the Earth Europe, 2016-2019, in thousand EUR.....	119
Table 21: Biodiversity-relevant expenditure by WWF Europe, 2015-2020, in thousand EUR.....	120
Table 22: Biodiversity-relevant funding spent by WWF Europe, 2015-2020, in thousand EUR.....	120
Table 23: Biodiversity-relevant funding spent by Rewilding Europe, 2014-2020, in thousand EUR.....	120
Table 24: Data used for estimating the contribution to biodiversity deriving from certified timber in the EU27	122
Table 25: Examples of biodiversity-relevant bonds	125

Table 26: Biodiversity-relevant green bonds funding allocated by the private sector (financial and non-financial corporate) to recipients in Europe, 2014-2021, in million EUR	126
Table 27: Summary of private investment expenditure extracted from literature (in EUR million)	128
Table 28: Summary of EU domestic biodiversity tracked expenditure	131
Table 29: Summary of EU international biodiversity tracked expenditure	131
Table 30: Summary of total domestic and international tracked biodiversity expenditure	131
Table 31: MFF draft budget 2021-2027 planned biodiversity commitments.....	132
Table 32: Estimated future expenditure on biodiversity, estimated average financing needs for biodiversity, and estimated financing gap, 2021-2030, EUR millions (undiscounted)	128
Table 33: Estimated annual financing gap per Member State based on share of land area, 2021-2030, EUR millions (undiscounted).....	129

BIODIVERSITY FINANCING AND TRACKING: ABSTRACT

This report provides information from a consultancy project carried out to assist the European Commission in its implementation of the Biodiversity Strategy for 2030. It evaluates the biodiversity expenditure tracking methodology used by the Commission for the 2014 to 2020 Multiannual Financial Framework, and, on the basis of those findings and in the light of changes to the structure of programmes, makes recommendations for tracking in the 2021-2027 period. It also offers suggestions on possible alternative methodologies, and on improving the consistency of EU Member State international reporting on biodiversity.

The second part of the report then estimates the financing needs for delivery of the 41 objectives under the EU biodiversity strategy for 2030. Current levels of financial expenditure from the EU, from Member States public expenditure, and from private sources, are then estimated. Estimates of future expenditure from these sources for the period 2021-2030 are then developed, based on a combination of extrapolation and published budgetary plans. In a final step, these estimates are compared to the estimated financing needs, and an estimated average gap of EUR 18.69 billion a year is identified.

SUIVI ET FINANCEMENT DES DÉPENSES LIÉES À LA BIODIVERSITÉ: RÉSUMÉ

Ce rapport présente les résultats d'un projet de conseil réalisé pour aider la Commission européenne dans sa mise en œuvre de la Stratégie en faveur de la biodiversité à l'horizon 2030. Il évalue la méthode de suivi des dépenses en matière de biodiversité utilisée par la Commission pour le Cadre Financier Pluriannuel 2014 à 2020 et, sur la base de ces conclusions et à la lumière des changements apportés à la structure des programmes, formule des recommandations pour le suivi au cours de la période 2021-2027. Il propose également des suggestions sur d'éventuelles méthodologies alternatives et sur l'amélioration de la cohérence de la communication des statistiques sur la biodiversité par les États membres de l'UE dans les instances internationales.

La deuxième partie du rapport estime les besoins de financement pour la réalisation des 41 objectifs de la Stratégie de l'UE en faveur de la biodiversité à l'horizon 2030. Les niveaux actuels des dépenses financières de l'UE, des dépenses publiques des États membres et des dépenses concrètes provenant de sources privées sont ensuite estimés. Des estimations de dépenses futures provenant de ces sources pour la période 2021-2030 sont ensuite développées, en se fondant sur une combinaison d'extrapolations et de plans budgétaires publiés. Dans une dernière étape, ces estimations sont comparées aux besoins de financement estimés, et un écart moyen estimé à 18,69 milliards d'euros par an est identifié.

EXECUTIVE SUMMARY

This study was launched by the Commission to contribute to its understanding of domestic and international biodiversity expenditures, funding needs, gaps and priorities, to assist in implementation of the EU Biodiversity Strategy for 2030, in particular its ambition that “at least €20 billion a year should be unlocked for spending on nature”¹, and as part of its preparation for the 15th Conference of the Parties to the UN Convention on Biological Diversity. The work has gained further relevance as a result of the Interinstitutional Agreement² for the 2021-2027 Multiannual Financial Framework which sets out that biodiversity should be reported on annually by the Commission

“with a view to working towards the ambition of providing 7,5 % in 2024 and 10 % in 2026 and in 2027 of annual spending under the MFF to biodiversity objectives, while considering the existing overlaps between climate and biodiversity goals”.

This has led to greater emphasis on the need for an accurate, evidence-based, and readily implementable methodology for tracking biodiversity-related expenditures, and renewed urgency in mainstreaming biodiversity in EU programmes.

The study comprises two largely separate pieces of work, which have been brought together in this final report. The first task was a detailed analysis of the 2014-2020 Commission methodology for biodiversity tracking in the EU budget, and of other biodiversity tracking systems, accompanied by recommendations for improvement. The second was an assessment of financing needs for achieving the EU’s biodiversity policy objectives for 2030, with a comparative assessment of current finance flows from the EU budget and other sources. Initial findings from the two tasks were presented to, and discussed with, stakeholders at an online workshop in November 2021, and this final report benefits from a wide range of insights and information gathered from those discussions and from subsequent interviews and correspondence.

Task 1 on tracking of biodiversity expenditure was aimed at updating the Commission methodology to track biodiversity in the EU budget. The objectives of Task 1 were to:

- Improve understanding of biodiversity tracking in the EU budget over the 2014-2020 period.
- Identify strengths and weaknesses, and the potential impact of different approaches.

¹ “EU Biodiversity Strategy for 2030: bringing nature back into our lives”, COM (2020) 380, p 17

² [Inter-Institutional Agreement of 16 December 2020](#) on budgetary discipline, cooperation in budgetary matters and sound financial management, article 16 (e).

- Assess current biodiversity tracking implications of negotiations on the new (2021-2027) budget period.
- Develop evidence-based proposals and suggestions for improvement.

Task 2 on biodiversity financing was designed to deliver two main outputs:

- 1) to assess the total financing needs including baseline expenditure that will be required to implement the Biodiversity Strategy for for2030 (“BDS for 2030”) and
- 2) to assess the current levels of funding allocated to biodiversity-related activities within the EU, to assess the remaining financing gap.

Sub-task 2.1 assessed these financing needs by analysing the activities required to meet the Biodiversity Strategy targets; sub-task 2.2 estimated current levels of funding for biodiversity by the EU, MS, and private entities. These elements were then combined to illustrate the scale of the financing gap.

Biodiversity tracking

Biodiversity expenditure has been tracked by the Commission throughout the 2014-2020 multiannual financial framework, with summary information published annually as part of the Budget documentation (in early years in an annex to the Statement of Estimates, but more recently as part of the working document on Programme Statements of Operational Expenditure). Total expenditure relevant to biodiversity, according to the tracking methodology, amounted to EUR 13.6 billion in 2020, 8.3% of the total EU budget. Of this amount, expenditure of EUR 10.7 billion (79% of the total) came under budget Heading 2 (Sustainable growth: natural resources), the bulk of which came from the Common Agricultural Policy. In addition, around 11% of the tracked biodiversity expenditure is from cohesion expenditure under Heading 1b, also under shared management. The approach taken to biodiversity tracking of expenditure under shared management is therefore a determining factor in the totals reported under the 2014-2020 financial perspective.

Biodiversity tracking 2014-2020

The Commission’s approach to biodiversity tracking in 2014-2020 has been based on the OECD Rio Markers approach. The OECD specifies the following guidelines for the application of the markers:

- Rio Marker 2: An activity can be marked as “principal” when biodiversity is explicitly stated as fundamental in the design of, or the motivation for, the activity. The Commission has counted such expenditure as contributing 100% towards biodiversity objectives.
- Rio Marker 1: An activity can be marked as “significant” when biodiversity is explicitly stated but is not the fundamental driver or motivation for

undertaking and designing the activity. The Commission has counted such expenditure as contributing 40% towards biodiversity objectives.

- Rio Marker 0: “Not targeted” means that the activity was found not to target biodiversity in any significant way.

The report assesses the methodology used for each programme reporting biodiversity expenditure in the 2014-2020 period, noting strengths and weaknesses. Given the importance of expenditure under cohesion policy and the Common Agricultural Policy, our analysis was informed by case studies of shared management programmes and other expenditure under these policies in Member States, which are included in Annex 1 to the report.

Biodiversity tracking 2021-2027

Our approach in developing the recommendations for the 2021-2027 period which are set out in Table 7 of the report (and explained in detail in Annex 2) reflected the urgency of developing a clear methodology, and has been to:

- Avoid major change to current methodologies; in particular, this means that the Rio Markers approach should be maintained for now.
- To focus on expected impacts, wherever possible, rather than only on the stated objectives of expenditure (although where evidence on impact is limited or unavailable, the stated objectives may still need to be used as a guide to the coefficient applied);
- Aim for consistency, wherever possible, with the methodology adopted for climate tracking in the 2021-2027 period, except where this is not feasible or does not allow for accurate and consistent results.

Specifically, in relation to the final point, our recommendations reflect the Commission’s preference to align biodiversity tracking with the 2021-2027 climate tracking approach. This means moving from a system based largely on the stated objectives of expenditure and focusing instead on the expected impacts of expenditure in practice.

While the programme-by-programme recommendations do not lend themselves to summary here, we offer two overall recommendations. The first is that particular care needs to be taken with the use of the 40% expenditure marker, which has a significant impact on overall totals of expenditure reported, in some cases based on expenditure where biodiversity impacts are necessarily uncertain, on the basis of the current programme legislation. The second is that when reporting on and communicating the results of biodiversity tracking, a clearer distinction should be drawn (based in part on the uncertainty surrounding the use of the 40% marker) between 100% tracked expenditure (where, generally, there should be a high level of confidence that it is spending “on” biodiversity), and expenditure under the 40% marker, which is a relatively crude estimate.

The report also provides a review of possible alternative approaches to biodiversity tracking methodologies (see section 2.3), and an analysis of Member States' approaches to reporting their international and domestic expenditure to the UN Convention on Biological Diversity (see section 2.4), with recommendations for steps which could be taken to improve the consistency and accuracy of the EU's collective reporting.

Costing objectives under the Biodiversity strategy for 2030

The project team adopted a methodological process for costing the strategy's objectives that is broadly consistent with the Biodiversity Financial Needs Assessment as found in the 2018 BIOFIN Workbook developed by UNDP³. It involved in particular defining the scope and clarifying the components of the biodiversity targets, distinguishing between 'baseline' biodiversity expenditure through to 2030, and then additional expenditure needed to deliver the BDS. To identify the latter a detailed analysis of each objective of the BDS was undertaken. The costs identified were then refined with expert input, through consultation with key stakeholders, both at the project workshop and subsequently. The resulting estimates of financing needs are set out in Table 11 of the report and explained in detail in Annex 4.

Assessing current levels of biodiversity funding

Our assessment of the most recent levels of biodiversity expenditure in the EU takes a three-tier approach to cover different components. The task focuses on:

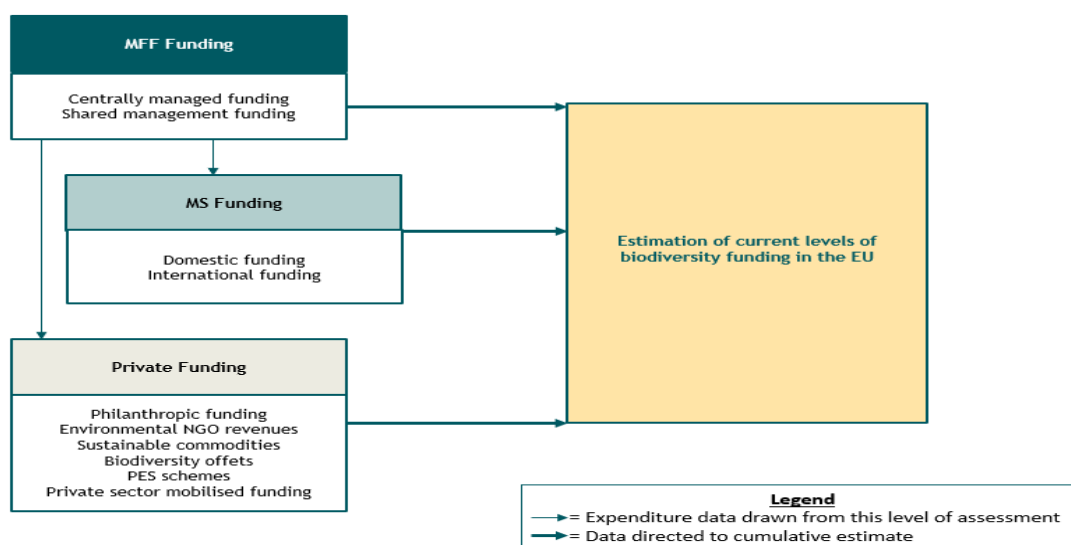
1. Biodiversity funding under the Multiannual Financial Framework 2014-2020
2. Member States' levels of funding within the same period
3. Private financing for biodiversity in the same period.

Particularly for data regarding MFF funding and related co-funding from Member States, the analysis conducted complements our ex-post assessment of biodiversity expenditure tracking in the EU budget.

Using data gathered for the three components, we focused on providing an estimate of biodiversity funding implemented at EU and Member State level, to give an estimation on the overall levels of biodiversity expenditure. However, the method applied (summarised in the Figure below) and the form in which data is reported, risks double counting, particularly between MFF funding and MS funding. The risks were mitigated through research into reporting methodologies to ensure data collected for the estimations limited double-counting, while allowing for stable comparisons.

³ UNDP (2018). The BIOFIN Workbook 2018: Finance for Nature. The Biodiversity Finance Initiative. United Nations Development Programme: New York.

Figure: Conceptual framework of biodiversity funding assessment, highlighting the three-tier approach



Our estimate of the total expenditure of Member States and EU from 2014-2019 amounts to EUR 144 billion. The table below shows estimated biodiversity expenditure of the EU Budget and of all Member States, for domestic and international funding.

Private investment was not included in the overall values above due to the difficulty in compiling a comprehensive and coherent set of data; our assessment, based on the data we have identified, is included in Table 13 of the report.

As a final step, we estimated future expenditure from the EU, Member State public expenditure, and private finance, based on an extrapolation from 2014-2020 data (for Member States and the private sector), and plans announced for the 2021-2027 period (for the EU).

Table: Estimated expenditure of EC and MS, domestic and international funding

Source	Expenditure (million Euros)						
	2014	2015	2016	2017	2018	2019	Total
EC domestic	6,917	11,422	13,993	12,522	12,651	12,906	70,410
EC international	129	182	531	293	491	552	2,178
MS domestic	9,535	9,747	9,503	9,555	10,164	10,426	58,930
MS international	1,515	2,226	2,188	2,799	2,192	1,973	12,893
Total Domestic	16,452	21,169	23,496	22,077	22,815	23,331	129,340
Total International	1,643	2,408	2,719	3,092	2,683	2,525	15,071
Grand Total	18,095	23,577	26,215	25,169	25,497	25,856	144,411

Projections were computed with lower and upper confidence intervals in order to estimate variability. Due to our research indicating that some Member States report MFF co-financing under their domestic expenditure, we assume that the lower interval

represents a more conservative value of biodiversity expenditure in Europe. The lower interval accounts for any possible double-counting of Member States domestic financing and the MFF. For this and other reasons, the investment gap may therefore be larger than estimated. However, due to the unknown scale of double-counting, we based the assessments of the investment gap on the projected estimates rather than the lower interval.

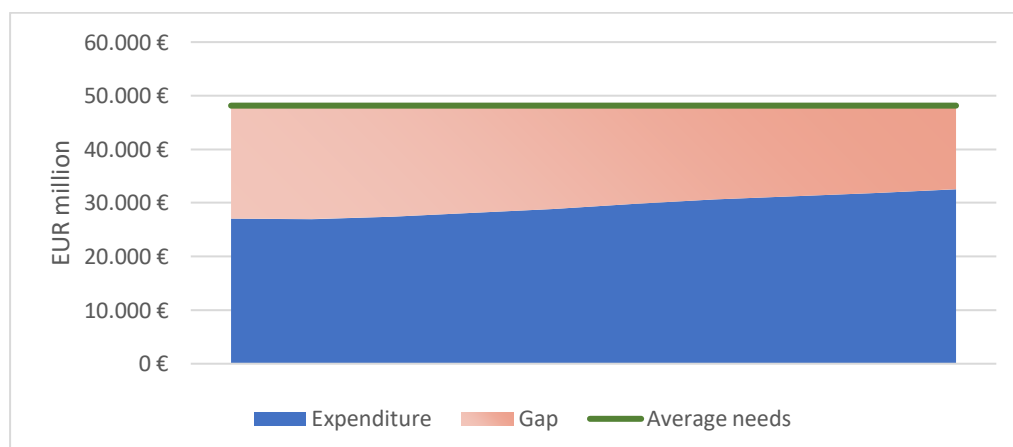
These estimates were then compared with the estimates of investment needed to implement the Biodiversity Strategy for 2030. Some key limitations to this exercise need to be underlined:

- The expenditure estimates represent all expenditures related to biodiversity, rather than those specifically directed toward the implementation of the strategy.
- In addition, the effectiveness of expenditure in addressing biodiversity issues is not assessed in this analysis.

Our comparison of estimated expenditures for biodiversity with financing needs for the BDS for 2030 is thus likely to underestimate the scale of financing gap.

With that context in mind, the scale of financing needs to deliver the strategy, including baseline expenditure, is estimated at around **EUR 48.15 billion annually** between 2021 and 2030. Our estimate of expenditure on biodiversity averages **EUR 29.46 billion annually** over 2021-2030, starting at EUR 27 billion in 2021 and increasing to EUR 32.5 billion in 2030 (represented in the blue area in the figure below). This includes an estimated average EUR 15.22 billion annually from the MFF, and an estimated average of EUR 13.87 billion of Member State expenditure. Considering that estimated annual expenditure for 2014 – 2020 averaged at around 24 billion annually, there would be an estimated EUR 5 billion annual increase in biodiversity expenditure. This leaves an estimated financing gap of around EUR 186.89 billion over this time period, or **EUR 18.69 billion per year** from 2021 to 2030. This represents an increase on current estimated expenditure of 63% over this time period.

Figure: Estimated scale of investment needed to deliver the BDS for 2030, and estimated future expenditure from 2021 to 2030



RÉSUMÉ EXÉCUTIF

Cette étude a été lancée par la Commission pour améliorer sa compréhension des dépenses nationales et internationales en matière de biodiversité, des besoins de financement, des lacunes et des priorités, pour aider à la mise en œuvre de la Stratégie en faveur de la biodiversité à l'horizon 2030, en particulier son ambition que « au moins 20 milliards EUR par an devraient être consacrés aux dépenses en faveur de la nature », et dans le cadre de sa préparation à la 15e Conférence des parties à la Convention sur la diversité biologique. La pertinence du projet a grandi suite à l'Accord Interinstitutionnel sur le Cadre Financier Pluriannuel pour la période 2021-2027, qui stipule que la Commission fasse un rapport annuel sur la biodiversité :

« en vue d'œuvrer à la réalisation de l'ambition consistant à consacrer 7,5 % en 2024 et 10 % en 2026 et en 2027 des dépenses annuelles au titre du CFP aux objectifs en matière de biodiversité, tout en tenant compte des chevauchements existants entre les objectifs en matière de climat et de biodiversité. »⁴

Cela a conduit à mettre davantage l'accent sur l'opportunité d'une méthodologie précise, fondée sur des données factuelles et facile à mettre en œuvre pour le suivi des dépenses liées à la biodiversité, ainsi que sur l'urgence de mieux prendre en compte la biodiversité dans les dépenses de l'UE.

L'étude comprend deux travaux largement distincts, qui ont été rassemblés dans ce rapport final. La première tâche consistait en une analyse détaillée de la méthodologie de la Commission pour le suivi de la biodiversité dans le budget de l'UE pour la période 2014-2020, et d'autres systèmes de suivi de la biodiversité, accompagnée de recommandations d'amélioration. La seconde était une évaluation des besoins de financement pour atteindre les objectifs de la Stratégie de l'UE en matière de biodiversité pour 2030, ainsi qu'une évaluation comparative des flux financiers actuels provenant du budget de l'UE et d'autres sources. Des conclusions initiales de ces deux tâches ont été présentées et discutées avec les parties prenantes lors d'un atelier en ligne en novembre 2021, et le rapport final bénéficie d'un large éventail d'idées et d'informations recueillies lors de ces discussions ainsi que lors d'entretiens et de correspondances ultérieurs.

La Partie 1 concernant le suivi des dépenses liées à la biodiversité visait à mettre à jour la méthodologie de la Commission pour suivre ces dépenses dans le budget de l'UE. Les objectifs étaient les suivants :

⁴ [Accord Interinstitutionnel du 16 décembre 2020](#) sur la discipline budgétaire, la coopération en matière budgétaire et la bonne gestion financière, ainsi que sur de nouvelles ressources propres, comportant une feuille de route en vue de la mise en place de nouvelles ressources propres, article 16 (e).

- Enrichir la connaissance du suivi de la biodiversité dans le budget de l'UE sur la période 2014-2020.
- Identifier les forces et les faiblesses, ainsi que l'impact potentiel des différentes approches.
- Évaluer les implications des négociations sur la nouvelle période budgétaire (2021-2027) pour le suivi des dépenses liées à la biodiversité dans le budget.
- Développer des propositions et des suggestions d'amélioration basées sur des preuves.

La Partie 2 relatif au financement de la biodiversité a été conçue pour fournir deux résultats principaux :

- 1) Évaluer les besoins totaux de financement, y compris les niveaux de référence, qui seront nécessaires pour mettre en œuvre la Stratégie en faveur de la biodiversité à l'horizon 2030
- 2) Évaluer les niveaux actuels de financement alloué aux activités liées à la biodiversité au sein de l'UE, afin d'évaluer le déficit de financement restant.

La sous-partie 2.1 a évalué ces besoins de financement en analysant les activités requises pour atteindre les objectifs de la Stratégie en faveur de la biodiversité ; la sous-partie 2.2 a estimé les niveaux actuels de financement de la biodiversité par l'UE, les États membres et les entités privées. Ces éléments ont été combinés pour illustrer l'ampleur du déficit de financement.

Le suivi des dépenses liées à la biodiversité

Les dépenses liées à la biodiversité ont été suivies par la Commission tout au long du Cadre Financier Pluriannuel (CFP) 2014-2020, avec des informations récapitulatives publiées chaque année dans le cadre de la documentation budgétaire (pour les premières années, cela se trouvait dans une annexe à l'état prévisionnel, mais plus récemment dans le cadre du document de travail sur les déclarations de dépenses opérationnelles des programmes). Selon la méthode de suivi, les dépenses totales liées à la biodiversité se sont élevées à 13,6 milliards d'euros en 2020, soit 8,3 % du budget total de l'UE. Sur ce montant, des dépenses d'un montant de 10,7 milliards d'euros (79 % du total) relevaient de la rubrique budgétaire 2 (croissance durable : ressources naturelles), dont la majeure partie provenait de la Politique Agricole Commune (PAC). En outre, environ 11 % des dépenses liées à la biodiversité proviennent de la politique de cohésion sous la rubrique 1b, également en gestion partagée. L'approche adoptée pour le suivi des dépenses liées à la biodiversité relevant de la gestion partagée joue donc un rôle déterminant dans le calcul des totaux indiqués dans les perspectives financières 2014-2020.

Le suivi des dépenses pour la période 2014-2020

L'approche de la Commission en matière de suivi de la biodiversité pour la période 2014-2020 a été fondée sur l'approche des marqueurs Rio de l'OCDE. L'OCDE précise les lignes directrices suivantes pour l'application des marqueurs :

- Marqueur Rio 2 : une activité peut être marquée comme "principale" lorsque la protection de la biodiversité est explicitement déclarée comme fondamentale dans la conception de l'activité ou dans sa raison d'être. La Commission a comptabilisé ces dépenses comme contribuant à 100% aux objectifs de biodiversité.
- Marqueur Rio 1 : une activité peut être marquée comme "significative" lorsque la protection de la biodiversité est explicitement mentionnée mais n'est pas le moteur ou la motivation fondamentale pour entreprendre et concevoir l'activité. La Commission a comptabilisé ces dépenses comme contribuant à hauteur de 40 % aux objectifs de biodiversité.
- Marqueur Rio 0 : "Non ciblé" signifie que l'activité n'est pas considérée comme étant ciblée sur la protection de la biodiversité de manière significative.

Le rapport évalue la méthodologie utilisée pour chaque programme rapportant les dépenses en matière de biodiversité au cours de la période 2014-2020, en notant ses forces et faiblesses. Compte tenu de l'importance des dépenses provenant de la politique de cohésion et de la PAC, notre analyse s'est appuyée sur des études de cas de programmes en gestion partagée et d'autres dépenses au titre de ces politiques dans les États membres, qui figurent à l'annexe 1 du rapport.

Le suivi des dépenses pour la période 2021-2027

Notre approche dans l'élaboration des recommandations pour la période 2021-2027 qui sont présentées dans le tableau 7 du rapport (et expliquées en détail dans l'annexe 2) a reflété l'urgence d'élaborer une méthodologie claire. Nos recommandations sont de :

- Éviter toute modification majeure des méthodologies actuelles ; en particulier, cela impliquerait que l'approche des marqueurs Rio soit maintenue pour le moment.
- Se focaliser sur les impacts attendus, dans la mesure du possible, plutôt que sur les seuls objectifs déclarés des dépenses (bien que lorsque les preuves de l'impact sont limitées ou indisponibles, les objectifs déclarés peuvent encore être utilisés comme guide pour le coefficient appliqué) ;
- Viser, dans la mesure du possible, la cohérence avec la méthodologie adoptée pour le suivi des dépenses pour le climat au cours de la période 2021-2027, sauf lorsque cela n'est pas faisable ou que cela ne permet pas d'obtenir des résultats précis et cohérents.

Sur ce dernier point, nos recommandations reflètent la préférence de la Commission pour l'alignement du suivi des dépenses pour la biodiversité sur l'approche adoptée pour le suivi des dépenses pour le climat dans la période 2021-2027. Cela signifie qu'il faut s'éloigner d'un système fondé en grande partie sur les objectifs déclarés des dépenses, et se concentrer plutôt sur les impacts attendus des dépenses en pratique.

Les recommandations pour chaque programme ne peuvent être résumées ici. Nous proposons deux recommandations générales. La première recommandation est de faire particulièrement attention à l'utilisation du marqueur de 40 %, qui a un impact significatif sur les totaux globaux des dépenses déclarées, dans certains cas sur le fondement de dépenses dont les impacts sur la biodiversité sont nécessairement incertains, compte tenu de la législation actuelle du programme. La seconde est que, lors de la communication des résultats du suivi des dépenses liées la biodiversité, une distinction plus claire devrait être établie (étant donné l'incertitude entourant l'utilisation du marqueur de 40 %) entre les dépenses marquées à 100 % (où, généralement, il devrait y avoir un niveau élevé de confiance dans le fait qu'elles sont dépensées "pour" la biodiversité), et les dépenses marquées à 40 %, qui sont estimées de manière relativement grossière.

Le rapport passe également en revue les autres approches possibles en matière des méthodologies de suivi des dépenses liées à la biodiversité (voir section 2.3), et analyse les approches des États membres en matière de communication de leurs statistiques de dépenses internationales et domestiques à la Convention de l'ONU sur la diversité biologique (voir section 2.4), en recommandant des mesures qui pourraient être prises pour améliorer la cohérence et la précision du rapport collectif de l'UE.

Calcul du coût de mise en œuvre des objectifs de la Stratégie en faveur de la biodiversité à l'horizon 2030

L'équipe du projet a adopté un procédé méthodologique pour évaluer le coût des objectifs de la Stratégie qui est largement cohérent avec la méthode d'Évaluation des Besoins Financiers pour la biodiversité telle qu'elle figure dans le manuel BIOFIN 2018 élaboré par le PNUD⁵. Il s'agissait notamment de définir le cadre et de clarifier les composantes des objectifs, en distinguant le niveau de référence des dépenses sur la biodiversité jusqu'en 2030, puis les dépenses supplémentaires nécessaires à la réalisation de la Stratégie. Pour identifier ces dernières, une analyse détaillée de chaque objectif de la Stratégie a été entreprise. Les coûts identifiés ont ensuite été affinés avec des apports d'experts, par le biais de consultations avec les principales parties prenantes, lors de l'atelier en ligne et par la suite. Les estimations des besoins de financement qui en résultent sont présentées dans le tableau 11 du rapport, et expliquées en détail dans l'annexe 4.

⁵ UNDP (2018). The BIOFIN Workbook 2018: Finance for Nature. The Biodiversity Finance Initiative. United Nations Development Programme: New York.

Évaluation des niveaux actuels du financement de la biodiversité

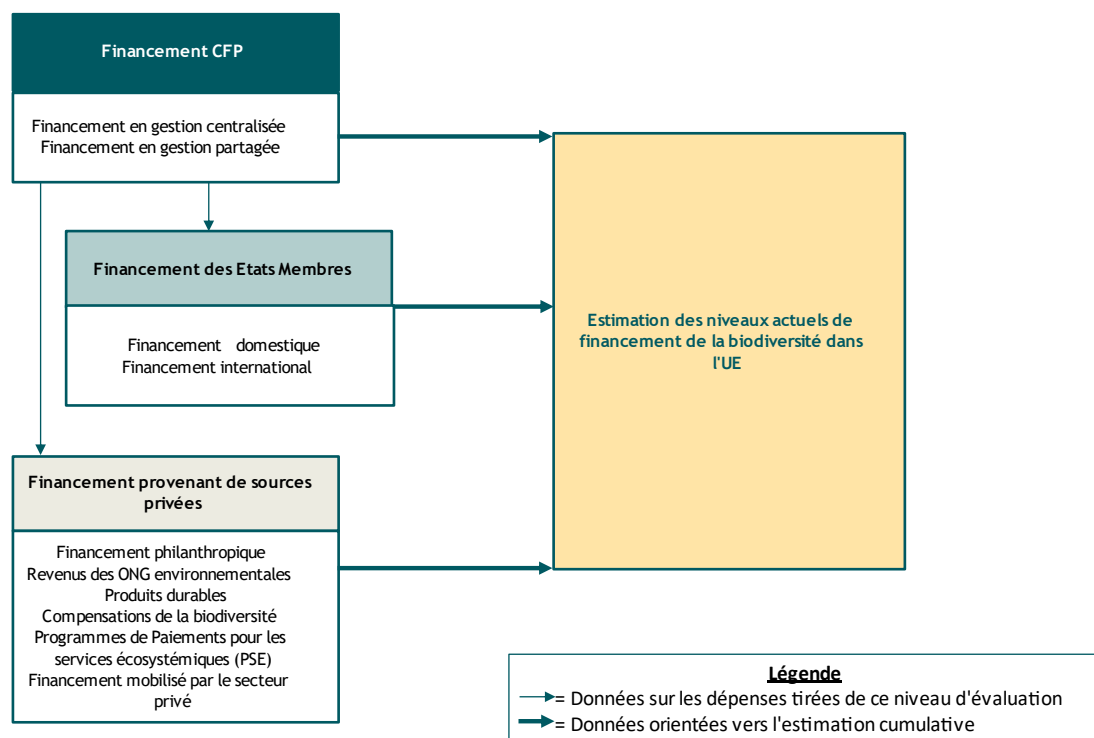
Notre évaluation des niveaux les plus récents de dépenses en faveur de la biodiversité dans l'UE adopte une approche à trois niveaux pour couvrir les différentes composantes. La tâche se concentre sur :

1. Le financement de la biodiversité au titre du cadre financier pluriannuel 2014-2020.
2. Les niveaux de financement des États membres au cours de la même période.
3. Le financement provenant de sources privées pour la biodiversité au cours de la même période.

En particulier pour les données concernant le financement du CFP et le cofinancement des États membres, l'analyse réalisée est complémentaire à notre évaluation ex post du suivi des dépenses en matière de biodiversité dans le budget de l'UE.

En utilisant les données recueillies pour ces trois composantes, nous nous sommes attachés à fournir une estimation du financement de la protection de la biodiversité mis en œuvre au niveau de l'UE et des États membres, afin de pouvoir fournir une estimation des niveaux globaux de dépenses en matière de biodiversité. Cependant, la méthode appliquée (résumée dans la figure ci-dessous) et la forme sous laquelle les données sont rapportées, risquent d'entraîner un double comptage de dépenses, en particulier entre le financement du CFP et celui des États membres. Ces risques ont été atténués par des recherches sur les méthodologies utilisées pour la communication des statistiques budgétaires afin de garantir que les données collectées pour les estimations limitent les doubles comptages, tout en permettant des comparaisons stables.

Figure : Cadre conceptuel de l'évaluation du financement de la biodiversité, mettant en évidence l'approche à trois niveaux



Notre estimation des dépenses totales des États membres et de l'UE de 2014 à 2019 s'élève à 144 milliards d'euros. Le tableau ci-dessous présente les dépenses estimées en matière de biodiversité du budget de l'UE et de tous les États membres, pour les financements domestiques et internationaux.

Les investissements privés n'ont pas été inclus dans les valeurs globales ci-dessus en raison de la difficulté à compiler un ensemble complet et cohérent de données. Notre évaluation, basée sur les données que nous avons identifiées, est incluse dans le tableau 13 du rapport.

Dans un dernier temps, nous avons estimé les dépenses futures provenant de l'UE, des dépenses publiques des États membres et des financements privés, sur la base d'une extrapolation des données 2014-2020 (pour les États membres et pour le secteur privé), et des plans annoncés pour la période 2021-2027 (pour l'UE).

Tableau : Estimation des dépenses de la Commission (EC) et des États Membres (EM), financement domestique et international

Source	Dépenses (en million d'Euros)						
	2014	2015	2016	2017	2018	2019	Total
EC - domestique	6,917	11,422	13,993	12,522	12,651	12,906	70,410
EC - international	129	182	531	293	491	552	2,178
EM - domestique	9,535	9,747	9,503	9,555	10,164	10,426	58,930
EM - international	1,515	2,226	2,188	2,799	2,192	1,973	12,893
Total Domestique	16,452	21,169	23,496	22,077	22,815	23,331	129,340
Total International	1,643	2,408	2,719	3,092	2,683	2,525	15,071
Grand Total	18,095	23,577	26,215	25,169	25,497	25,856	144,411

Les projections ont été calculées avec des intervalles de confiance inférieurs et supérieurs afin d'estimer la variabilité. Étant donné que nos recherches indiquent que certains États membres déclarent le co-financement du CFP sous le titre de leurs dépenses domestiques, nous supposons que l'intervalle inférieur représente une valeur plus prudente des dépenses en matière de biodiversité en Europe. L'intervalle inférieur tient compte d'un éventuel double comptage du financement national des États membres et du CFP. Pour cette raison, entre autres, le déficit d'investissement peut donc être plus important que prévu. Cependant, en raison de l'ampleur inconnue du double comptage, nous avons basé les évaluations du déficit d'investissement sur les estimations projetées plutôt que sur l'intervalle inférieur.

Ces estimations ont ensuite été comparées aux estimations des investissements nécessaires pour mettre en œuvre la Stratégie en faveur de la biodiversité à l'horizon 2030. Il convient de souligner certaines limites importantes :

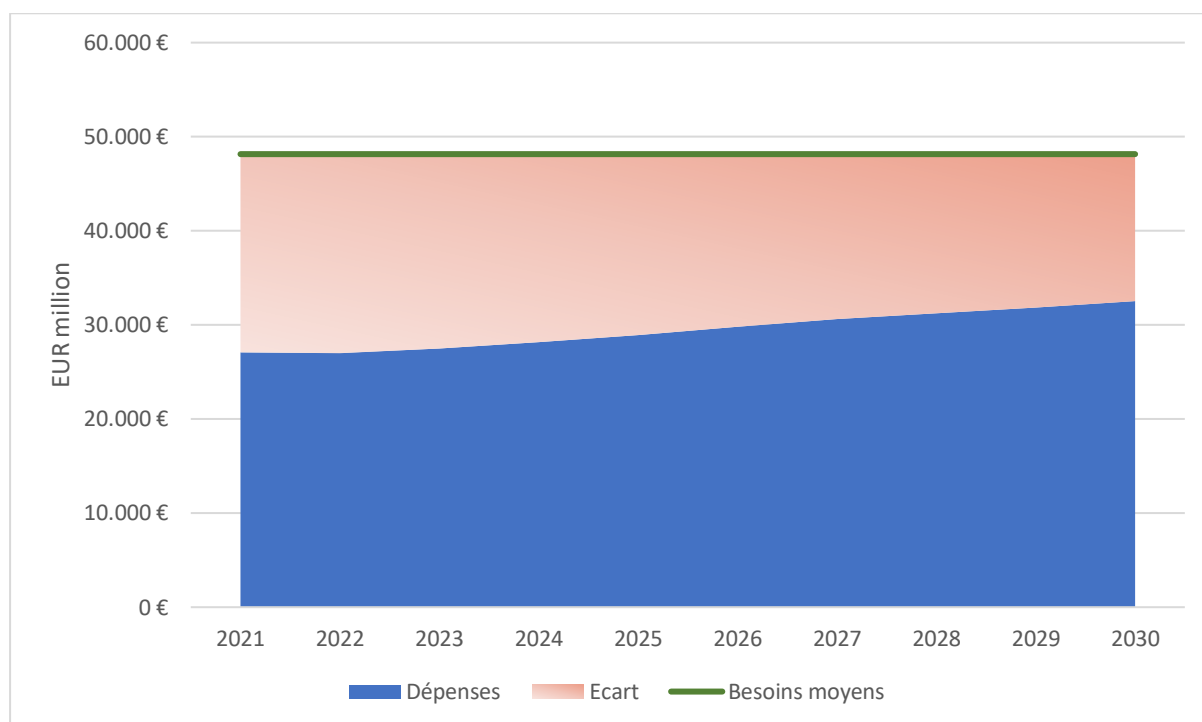
- Les estimations des dépenses représentent toutes les dépenses liées à la biodiversité, plutôt que celles spécifiquement destinées à la mise en œuvre de la Stratégie.
- En outre, l'efficacité des dépenses en termes de réponse aux défis liés à la protection de la biodiversité n'est pas évaluée dans cette analyse.

Notre comparaison des dépenses estimées pour la biodiversité avec les besoins de financement de la Stratégie jusqu'en 2030 est donc susceptible de sous-estimer l'ampleur du déficit de financement.

Dans ce contexte, l'ampleur du financement nécessaire pour mettre en œuvre la Stratégie, y compris les niveaux de dépenses de référence, est estimée à environ **48,15 milliards d'euros par an**. Notre estimation des dépenses prévues s'élève à une moyenne de **29.46 milliards d'euros par an** pour la période 2021-2030, soit 27 milliards d'euros en 2021 augmentant jusqu'à 42,5 milliards d'euros en 2030

(représentés dans la zone bleue de la figure ci-dessous). Ces estimations comprennent 15.22 milliards d'euros par an provenant du CFP, ainsi qu'une moyenne annuelle estimée à 13.87 milliards d'euros pour les dépenses des États Membres. Si l'on considère que les dépenses annuelles estimées pour la période 2014-2020 s'élèvent en moyenne à environ 24 milliards d'euros par an, on peut estimer à 5 milliards d'euros l'augmentation annuelle des dépenses liées à la biodiversité. Il reste donc un déficit de financement estimé à environ 186,89 milliards d'euros sur cette période, soit **18,69 milliards d'euros par an** de 2021 à 2030. Cela représente une augmentation de 63 % des dépenses actuelles estimées sur cette période.

Figure : Estimation de l'ampleur des investissements nécessaires à la mise en œuvre de la Stratégie jusqu'en 2030, et estimation des dépenses futures de 2021 à 2030



1. INTRODUCTION TO THE PROJECT

This study was launched by the Commission to contribute to its understanding of domestic and international biodiversity expenditures, funding needs, gaps and priorities, to assist in implementation of the EU Biodiversity Strategy for 2030, and as part of its preparation for the 15th Conference of the Parties to the UN Convention on Biological Diversity. It has gained further relevance as a result of the decision by the European co-legislators to require the Commission to report annually on biodiversity expenditure⁶:

“with a view to working towards the ambition of providing 7,5 % in 2024 and 10 % in 2026 and in 2027 of annual spending under the MFF to biodiversity objectives”.

This, following on the heels of the commitment in the EU Biodiversity Strategy that “at least €20 billion a year should be unlocked for spending on nature”, has led to a greater emphasis on an accurate, evidence-based, and readily implementable methodology for tracking biodiversity-related expenditures.

The study comprises two largely separate pieces of work, which have been brought together in this final report. The first task was a detailed analysis of the 2014-2020 Commission methodology for biodiversity tracking in the EU budget, and of other biodiversity tracking systems, accompanied by recommendations for improvement. The second was an assessment of financing needs for achieving the EU’s biodiversity policy objectives for 2030, with a comparative assessment of current finance flows from the EU budget and other sources. Initial findings from the two tasks were presented to, and discussed with, stakeholders at an online workshop in November 2021, and this final report benefits from a wide range of insights and information gathered from those discussions and from subsequent interviews and correspondence.

1.1 Introduction to biodiversity tracking

Task 1 on tracking of biodiversity expenditure was aimed at updating the Commission methodology to track biodiversity in the EU budget. The objectives of Task 1 were to:

- Improve understanding of biodiversity tracking in the EU budget over the 2014-2020 period.
- Identify strengths and weaknesses, and the potential impact of different approaches.
- Assess current biodiversity tracking implications of negotiations on the new (2021-2027) budget period.

⁶ [Inter-Institutional Agreement of 16 December 2020](#) on budgetary discipline, cooperation in budgetary matters and sound financial management, article 16 (e).

- Develop evidence-based proposals and suggestions for improvement.

We provide a final report here on the following subtasks:

- 1.1 Ex-post assessment of the biodiversity expenditure tracking in the EU budget.
- 1.2 Assessment of relevant developments for the 2021-2027 period.
- 1.3 Development of alternative tracking methodologies.
- 1.4 Comparative assessment of biodiversity tracking in Member States.
- 1.5 Recommendations for improvement.

1.2 Introduction to biodiversity financing

Task 2 on biodiversity financing was designed to deliver two main outputs:

- 3) to assess the total financing needs including baseline expenditure that will be required to implement the Biodiversity Strategy for 2030 (“BDS for 2030”) and
- 4) to assess the current levels of funding allocated to biodiversity-related activities within the EU, to assess the remaining financing gap.

Sub-task 2.1 assessed these financing needs by analysing the activities required to meet the Biodiversity Strategy targets; sub-task 2.2 estimated current levels of funding for biodiversity by the EU, MS, and private entities. This ultimately led to a comparative analysis of the two sub-tasks to derive insights on the funding gap between financing needs and the current scale of finance allocation.

2. BIODIVERSITY TRACKING

Our assessment of biodiversity tracking was based primarily on a detailed analysis of the methodology used by the Commission for the 2014-2020 period, accompanied by analysis of other methodologies used at Member State and international level. On the basis of this assessment, and an analysis of the legislation adopted for programmes for the 2021-2027 multi-annual financial framework, we developed recommendations for biodiversity tracking in the new period. We emphasise that the views set out here and throughout this report are those of the authors of this study, and should not be misrepresented as the official opinion of the Commission.

Our analysis has been significantly improved by helpful comments and advice from Commission services in a broad range of Directorates General; and also by stakeholders input, including comments from Member State representatives on specific issues (for example, tracking methodologies used at Member State level, and our assessment of Member States' implementation of EU programmes). We also received some particularly valuable contributions from stakeholders who took part in a workshop held in November 2021, designed to learn from stakeholder perspectives and test some of our emerging findings. The report on the stakeholder workshop is attached as Annex 7.

Our recommendations on tracking in the EU budget are also accompanied by suggestions on how the EU can coordinate its input to international biodiversity tracking systems, particularly the work of the UN Convention on Biological Diversity (CBD), in section 2.4.

2.1 Ex-post assessment of tracking in the EU budget 2014-2020

The aim of this subtask was to provide a review of information from the ex-post assessment of biodiversity expenditure tracking in the EU budget in the 2014 to 2020 funding period. The EU budget-wide summary is backed up by programme-by-programme fiches setting out results of the ex-post assessment and comparing against reported tracked expenditure; and assessing relevance of Rio Markers applied.

The programme fiches are informed by a series of case studies that assessed implementation of expenditure in specific programmes in Member States or regions as follows:

- Common Agricultural Policy (CAP) – European Agricultural Guarantee Fund (EAGF) in France.
- CAP – European Agricultural Fund for Rural Development (EAFRD) in the Netherlands, Hungary, and in Germany (Baden-Wurttemberg).

- Cohesion policy: European Regional Development Fund (ERDF) and European Social Fund (ESF) in Greece – Operational Programme Crete.
- Cohesion Policy: ERDF and Cohesion Fund in Romania – Large Infrastructure Programme.
- Cohesion Policy: ERDF and Cohesion Fund in Czechia - Operational Programme Environment.
- CFP: European Maritime and Fisheries Fund in Portugal.

The case studies are provided in Annex 1.

2.1.1 Summary of EU biodiversity tracked expenditure 2014-2020

Biodiversity expenditure has been tracked by the Commission throughout the 2014-2020 multiannual financial framework, with summary information published annually as part of the Budget documentation (in early years in an annex to the Statement of Estimates, but more recently as part of the working document on Programme Statements of Operational Expenditure)⁷.

Table 1 presents the Commission’s 2020 estimates of biodiversity expenditures in the 2014-2020 period. Total expenditure relevant to biodiversity, according to the tracking methodology, amounted to EUR 13.6 billion in 2020, 8.3% of the total EU budget. Of this amount, expenditure of EUR 10.7 billion (79% of the total) came under budget Heading 2 (Sustainable growth: natural resources), the bulk of which came from the Common Agricultural Policy.

Table 1: EU budget spending tracked as biodiversity expenditure (EUR million)

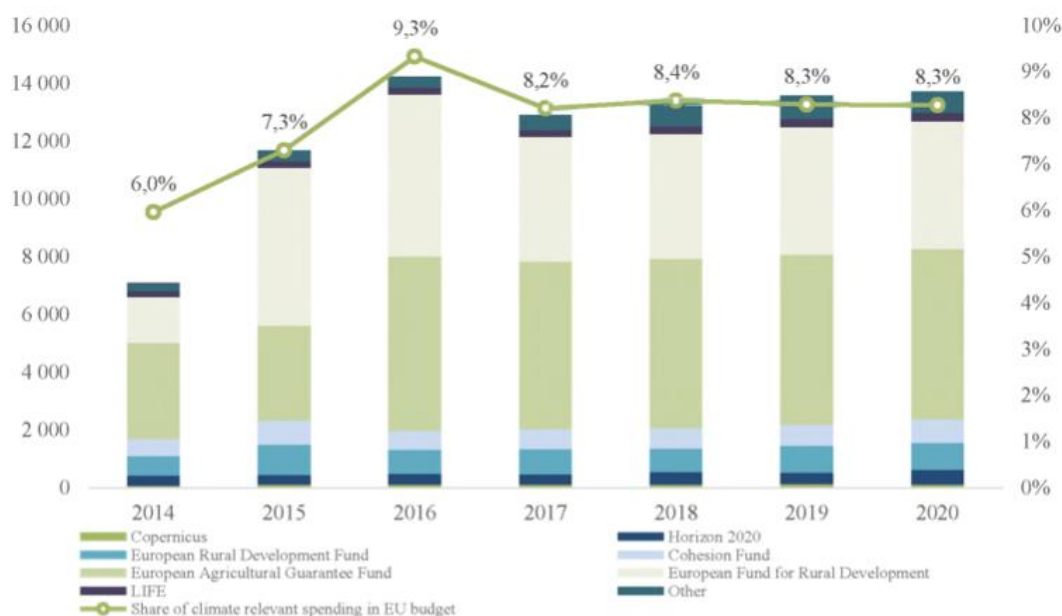
		2014	2015	2016	2017	2018	2019	2020
Heading 1A	Competitiveness for growth and jobs	419.2	449.9	491.1	467.4	535.7	523.5	613.9
Heading 1B	Economic, social and territorial cohesion	1,274.1	1,878.8	1,481.6	1,556.5	1,527.6	1,668.3	1,742.3
Heading 2	Sustainable growth: natural resources	5,216.0	9,067.2	11,992.2	10,477.5	10,566.9	10,691.8	10,747.8
Heading 4	Security and Citizenship	128.7	182.2	160.3	293.0	490.7	552.1	502.5
Total		7,038.0	11,578.1	14,125.2	12,794.4	13,120.9	13,435.7	13,606.5
% of EU Budget		6.0%	7.3%	9.3%	8.2%	8.4%	8.3%	8.3%

⁷ The most recent year’s budget documentation, published in 2021 for the year 2022, includes information on projected biodiversity expenditure both in the Statement of Estimates (SEC(2021) 250 – see section 4.5.2 on page 83), and on a programme-by-programme basis in the working document on Programme Statements of Operational Expenditure (COM (2021) 300, working document part 1, “Programme statements of operational expenditure”).

Source: 2020 programme statement (COM(2020) 300)⁸

The changes in tracked biodiversity expenditure over the course of the 2014-2020 period, and distribution across the programmes, are further illustrated by the Commission in the graph we have reproduced in Figure 1 below.

Figure 1: Biodiversity expenditure by programme, 2014-2020 (EUR million and % of budget)



Source: 2020 programme statement (COM(2020) 300)⁹

2.1.2 Biodiversity tracking methodologies in the 2014-2020 period

The Commission's overall approach to tracking biodiversity is based on the OECD's Rio Markers system. The OECD system¹⁰ specifies the following guidelines for the application of the markers:

- Rio Marker 2: An activity can be marked as "principal" when biodiversity is explicitly stated as fundamental in the design of, or the motivation for, the activity.

⁸ European Commission (2020) DRAFT GENERAL BUDGET of the European Union for the financial year 2021: Working Document Part I Programme Statements of operational expenditure. COM(2020) 300, European Commission, Brussels. https://ec.europa.eu/info/publications/eu-budget-performance_en

⁹ European Commission (2020) DRAFT GENERAL BUDGET of the European Union for the financial year 2021: Working Document Part I Programme Statements of operational expenditure. COM(2020) 300, European Commission, Brussels. https://ec.europa.eu/info/publications/eu-budget-performance_en

¹⁰ See "OECD DAC Rio Markers for Climate: Handbook", OECD. https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf

- Rio Marker 1: An activity can be marked as “significant” when biodiversity is explicitly stated but is not the fundamental driver or motivation for undertaking and designing the activity.
- Rio Marker 0: “Not targeted” means that the activity was found not to target biodiversity in any significant way.

While the Commission’s approach to tracking of climate expenditure adapted the Rio Markers approach, it differs from the biodiversity tracking methodology in that it makes an explicit decision to focus on the impact, rather than the motivation and objectives, of the expenditure. However, where similar mechanisms are used for both climate and biodiversity tracking (for example, the application of markers to “intervention fields” for cohesion programmes¹¹), the difference in practice is not significant. Both the climate tracking and biodiversity tracking methodologies applied percentage coefficients of 100%, 40%, and 0% to expenditure assigned Markers 2, 1, and 0 respectively.

Section Programme-by-programme account of the 2014-2020 tracking methodology below provides a programme-by-programme account of the approach taken to track biodiversity expenditure in the 2014-2020 period. Below, we set out some general characteristics of the approach adopted.

2.1.3 Approach taken to tracking in shared management

The bulk of expenditure tracked as biodiversity relevant is concentrated in shared management programmes under Heading 2 – particularly the Common Agricultural Policy, with expenditure from the EAGF and EAFRD representing 77% of the total for the period from 2014 to 2020. In addition, around 10-11% is from cohesion expenditure under Heading 1b, also under shared management. The approach taken to biodiversity tracking of expenditure under shared management is therefore a determining factor in the totals reported under the 2014-2020 financial period.

The nature of shared management expenditure creates some specific problems for a consistent and accurate tracking methodology. Implementation of programmes at national and regional level, addressing a wide range of policy and economic circumstances, and with a wide range of biodiversity issues to address, inevitably leads to a range of different approaches. In addition, it requires EU rules on expenditure to be interpreted and implemented by a range of different actors in a range of different political and executive cultures. This heterogeneity of situations is itself one explanation for the adoption of the shared management approach in these programmes.

The challenge for biodiversity tracking (and also for climate tracking) is therefore to ensure that information on biodiversity-relevant expenditure is generated at a

¹¹ See section Structural and cohesion policy below.

satisfactory level of accuracy, and in a consistent way. The need for consistency has led to the choice of mechanisms which rely primarily on information which is produced by Member States and programme authorities as a normal part of their implementation and reporting of programmes. The approach to using information provided by Member States varies:

- For the EAGF, where rules are tightly prescribed at EU level, with relatively limited scope for Member States to make choices on the objectives to pursue, the markers are applied to the budget at the EU level.
- For the EAFRD and EMFF, where there is greater flexibility for programme authorities to pursue different goals, markers are applied to the amounts programmes allocate to specific objectives (priority areas for EAFRD, and thematic objectives for EMFF); and
- For cohesion expenditure under the ERDF and Cohesion Fund, where programme authorities can allocate funding to a wide variety of types of project, programme authorities are asked to record expenditure under “intervention fields”, which describe over 100 possible types of investment, and the markers are applied by the Commission to reported expenditure at intervention field level.

Programme authorities are thus not asked or required to make an assessment of their biodiversity expenditure. This has the advantage of avoiding the use of different approaches to how to assess biodiversity expenditure, or of inconsistent approaches being adopted to similar expenditure in different countries and regions. It does not, however, entirely avoid the problem of inconsistency; for example, programme authorities can and do take different approaches to the classification of projects by intervention field.

Moreover, while this approach has the advantage of avoiding complexity and administrative burdens for programme authorities, it has the related disadvantage that it does not explicitly ask Member States and programme authorities to address the issue of how much of their programme is being spent on biodiversity. Results from the EU-level biodiversity tracking of EU expenditure are not reported on a Member State basis, although it would be relatively straightforward for the Commission to do so. There are, as the programme fiches for the relevant funds make clear, a number of mechanisms relied on by the Commission to encourage the mainstreaming of environmental priorities, including the use of ex ante conditionalities relevant to the ecosystems priority of the Rural Development Regulation. However, requiring Member States to consider, as part of their programme documentation, and as part of their reporting on expenditure, the total allocated to biodiversity would be an additional mechanism to help ensure that biodiversity is addressed. The absence of reporting on biodiversity tracking at **an operational programme level**, allowing a comparison between biodiversity expenditure in different Member States and regions, also misses an opportunity for encouraging debate on biodiversity expenditure.

2.1.4 Approach taken to tracking in direct management

Direct management, where the Commission has full control over expenditure choices, allows for a more case-by-case approach to biodiversity tracking, and this is what we have observed in the case of overseas development assistance and other external expenditure, on research and satellite observation programmes, and on LIFE (the financial instrument for the environment). In principle, the Commission can apply a consistent approach to its own decision-making. In practice, the Commission, like any other institution, is composed of a number of individuals making or proposing decisions under the institution's authority. There is thus a risk that different approaches are used to decide whether to apply biodiversity markers, and which to apply, between different desk officers and different programmes; we have noted some evidence of this risk, and it has been identified in reports on climate tracking¹².

2.1.5 Approach taken to tracking in indirect management expenditure

A relatively small part of the expenditure tracked as biodiversity relevant is carried out under indirect management – particularly expenditure under the external programmes which will be brought together under the new Neighbourhood, Development, and International Cooperation Instrument (NDICI). In principle, this creates similar challenges as with shared management; but in practice, the delegation of expenditure to bodies like the EIB, or UN agencies, is generally done with specific objectives which can be assigned a Rio marker. Generally, the Commission adopts this approach, applying a 100%, 40%, or 0% marker to the expenditure delegated. One issue that potentially needs to be addressed is that of consistency, however; where the relevant agencies also report on their biodiversity expenditure, do they take a similar approach to the Commission's, or is their tracking carried out at a more granular level?

2.1.6 Programme-by-programme account of the 2014-2020 tracking methodology

Expenditure programmes which have reported biodiversity expenditure in the 2014-2020 period are discussed below in the order in which they are addressed in the EU budget headings.

2.1.7 Copernicus

The Copernicus programme is the EU's earth observation and monitoring programme offering information services that draw from satellite Earth Observation and in-situ (non-space) data. The programme is implemented by the European Commission, in partnership with the Member States, the European Space Agency (ESA), the European Organisation for the Exploitation of Meteorological Satellites

¹² European Court of Auditors (2016) Spending at least one euro in every five from the EU budget on climate action: ambitious work underway, but at serious risk of falling short. European Court of Auditors, Brussels.

(EUMETSAT), the European Centre for Medium-Range Weather Forecasts (ECMWF), EU Agencies and Mercator Océan.

The Copernicus Regulation¹³ stipulates five general objectives, of which three are relevant for biodiversity:

- Monitoring the earth to support the protection of the environment and the efforts of civil protection and civil security;
- Maximising socio-economic benefits, thereby supporting the Europe 2020 strategy and its objectives of smart, sustainable and inclusive growth promoting the use of Earth observation and geo-information services, thereby enabling Europe to achieve independent decision-making and action;
- Ensuring autonomous access to environmental knowledge and key technologies for Earth observation and geo-information services, thereby enabling Europe to achieve independent decision-making and action.

Of the three specific objectives, one is directly relevant for biodiversity: delivering accurate and reliable data and information to Copernicus users, supplied on a long-term and sustainable basis to enable the Copernicus atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security services, and responding to the requirements of the Copernicus core users.

The Copernicus programme has three components: a service component, a space component and an in-situ component. The service component is most relevant for biodiversity and includes the following six services:

- The atmosphere monitoring service;
- The marine environment monitoring service;
- The land monitoring service;
- The climate change monitoring service;
- The emergency management service;
- The security service.

The marine environment monitoring, land monitoring and climate change services cover actions with relevance to biodiversity. All except the climate change service were operational by 2017.

¹³ Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010, Official Journal of the European Union, L 122 44-66, 24.2.2014
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0377>

The assessment of the contribution to biodiversity of Copernicus was so far conducted at the programme statement level and Copernicus's tracked contribution to biodiversity appears to be limited to the land monitoring service (from the service component), operational since 2012, and the contribution made from the Sentinel satellites. However, even within the land monitoring service, the same set of data can be used very differently by individual projects, for instance a high-resolution layer soil permeability map can be used both to produce a map of habitat for species related to soil permeability (100% contribution to biodiversity) or for assessing the feasibility of civil engineering works in the area (0% contribution to biodiversity). Therefore, the application of a Rio Marker 1 (40%) at the programme statement level may lead to over-estimation of its biodiversity contribution and the 30% coefficient applied (based on past experience) to the output produced by the land monitoring service may be more appropriate.

The three categories of Rio Markers may sometimes be challenging to apply for the Copernicus programme, resulting in a potential for over or under-estimation. A need for more nuanced markers to refine the tracking process has been noted for some areas as the Rio marker 1 seems insufficient to cover all the different intermediary situations that can occur; while additional levels (e.g. 20% and 60%) might increase accuracy, they might also bring additional administrative burden due to a more complex application of markers. For Copernicus, it may be more useful to apply the Rio Markers to more detailed levels of an instrument e.g. at the project level instead of the programme statement level. As described above, other services like the marine environment monitoring service for example can also have primary effects on biodiversity, however this ultimately depends on the use of the indicators Copernicus monitoring provides. Nevertheless, the current tracking methodology misses such additional potential benefits.

Tracking at the level of the annual work programme and at the level of individual projects was suggested by Medarova-Bergstrom et al. (2015)¹⁴. The study team also noted that although the land monitoring service is the most relevant for biodiversity conservation, some actions under the marine environment monitoring service and the climate change service can also have biodiversity objectives at the project level. Nevertheless, there is no biodiversity contribution calculated by these two services, which is likely to lead to an underestimation of the overall biodiversity relevance of the Copernicus programme.

¹⁴ Medarova-Bergstrom, K, Kettunen, M, Illes, A, Baldock, D, Rayment, M and Hart, K (2015) Tracking biodiversity expenditure in the EU Budget: Part I – Guidance on definition and criteria for biodiversity expenditure in the EU budget. Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, London/Brussels.

2.1.8 Horizon 2020

Horizon 2020, the Framework Programme for Research and Innovation, is the financial instrument implementing the Innovation Union, with a budget of EUR 77 billion over the 2013-2020 period. The legal basis for the programme is set out in the Horizon 2020 Regulation¹⁵.

Horizon 2020 has three mutually reinforcing priorities dedicated to:

- Excellent science – aiming to boost top level research in the EU;
- Industrial leadership – supporting R&D in new technologies and SMEs; and
- Societal challenges – supporting research that addresses major social, environmental and economic issues and challenges.

Research and innovation plays an important role in addressing the EU's biodiversity policy priorities, so Horizon 2020 represents a major and important source of funding. All three of the priorities have supported biodiversity related actions. While the "societal challenges" priority specifically identifies biodiversity related research as one of its objectives, the "industrial leadership" priority funds research in particular technologies, some of which may benefit biodiversity, and the "excellent science" priority helps to strengthen the capacity, skills, infrastructure and basic science underpinning research into biodiversity, as well as other research topicsⁱ.

Biodiversity relevant research is therefore supported through thematic research programmes under the societal challenges priority, as well as through individual projects supported through the excellent science and industrial leadership priorities.

The societal challenge "climate action, environment, resource efficiency and raw materials" was allocated a budget of €3.1 billion over the 2014 to 2020 period, roughly 4 per cent of the Horizon 2020 budget, and addressed a range of challenges related to ecosystems, raw materials, eco-innovation, global environmental observation and information systems as well as climate change. Part of its rationale is to ensure that "ecosystems and biodiversity are protected, valued and appropriately restored in order to preserve their ability to provide resources and services in the future" and that "water challenges need to be addressed and to protect aquatic ecosystems". The challenge "Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bio-economy" also makes specific mention of biodiversity objectives, while two others relating to sustainable energy and transport can be expected to benefit biodiversity indirectly by supporting solutions that reduce pollution and address climate change.

¹⁵ Regulation (EU) No 1291/2013

A methodology for tracking biodiversity-relevant expenditures through Horizon 2020 was defined by Medarova-Bergstrom et al (2015)¹⁶, based on the Rio-markers methodology, and has informed tracking in the 2014-20 programme period.

This methodology is based on an understanding that some expenditures under Horizon 2020 are thematically defined, enabling a “top down” approach to tracking at the specific objective or Work Programme topic level, while others (particularly under the “Excellent Science” priority) are cross-cutting and require a “bottom up” analysis of projects.

Ex ante tracking of expenditures can therefore be applied at three levels:

1. Broad assessment based on marking of specific objectives within Annual Programme Statements.
2. Assessment of Annual Work Programmes and marking of topics within them.
3. Analysis of individual projects.

The level of accuracy in tracking increases from level 1 to 3. Tracking at the specific objective level is rather crude and broad-brush, because of the breadth of the specific objectives against which annual budgets are allocated. Analysis of Work Programmes enables a much more accurate picture of relevant expenditures to be gained, for those parts of Horizon 2020 where actions are topic based. However, the Work Programmes do not allow a complete analysis, as some parts of Horizon 2020 (especially the Excellent Science) priority are not thematically determined but defined on a “bottom-up” basis, in line with the priorities of individual applicants. These “bottom-up” actions require analysis at the project level to identify relevant expenditures. This is achieved by requiring project managers to report on the biodiversity relevance of each project, enabling markers to be applied in the project database.

In practice, while it is possible to apply markers ex-ante at the specific objective level for expenditures with relevant thematic objectives, a more refined approach has been developed which combines ex-post and ex-ante data. Actual data on historic expenditures under specific objectives that are biodiversity relevant have been used to predict the proportion of biodiversity relevant expenditures in similar programmes in future.

As Horizon 2020 is a centrally managed programme, tracking of expenditures is undertaken centrally by DG Research and Innovation, and by the Joint Research Centre.

¹⁶ Medarova-Bergstrom, K, Kettunen, M, Illes, A, Baldock, D, Rayment, M and Hart, K (2015) Tracking biodiversity expenditure in the EU Budget: Part I – Guidance on definition and criteria for biodiversity expenditure in the EU budget. Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, London/Brussels.

2.1.9 Structural and cohesion policy: ERDF and Cohesion Fund

The Cohesion Fund (CF), and the European Regional Development Fund (ERDF) are managed through operational programmes (OPs) developed by Member States and agreed with the Commission. OPs can be thematic programmes covering the whole country (on the environment or transport, for instance) or regional programmes channelling funds to a particular part of the country. Member States could choose to combine funds in an OP. Together with the European Social Fund (see Structural and cohesion policy: European Social F), the European Agricultural Fund for Rural Development (see Common Agricultural Policy: European Agricultural Fund for Rural Development (EAFRD) and EMFF (see European Maritime and Fisheries Fund (EMFF), they are managed in accordance with the Common Provisions Regulation (CPR)¹⁷. The CPR defined eleven thematic objectives (TOs) for the cohesion policy funds designed to contribute to the implementation of the Europe 2020 Strategy, including TO6 'Preserving and protecting the environment and promoting resource efficiency (including through investment in Natura 2000)'. Investments under these TOs were further defined in 'priority axes' of the programmes for each fund. Member States were required to set out national commitments to achieve the EU objectives in partnership agreements with the Commission in 2013, setting out investment priorities for each fund and fund programming and delivery.

The tracking method for ERDF, ESF and Cohesion Fund in the 2014 to 2020 funding period is applied at the level of **intervention fields**¹⁸. Intervention fields classify the types of actions financed (ERDF and CF) or the investment priority under which the operation is supported (ESF)¹⁹. Member States have been required to report annually the allocations to selected operations (project selections) and the total eligible expenditure declared by beneficiaries to the managing authority (i.e. after eligibility checks by MS) according to a variety of characteristics including the relevant thematic objectives and intervention fields²⁰. Where operations are jointly funded through ERDF and CF or ESF, Managing Authorities were asked to report the respective support to the same operation separately by Fund (even where the operation may be integrated in its design and/or implementation).

¹⁷ Regulation (EU) No 1303/2013

¹⁸ as defined in Commission Implementing Regulation (EU) No 215/2014, and in the Guidance Note on Nomenclature of Categories of Intervention and the Methodology for Tracking of Climate Change Related Expenditure under Cohesion Policy

¹⁹ Additional codes describe the type of funding or financial instruments, the type of territory and the economic sectors funded. As each operation under these funds could be implemented through several forms of finance, Member States could allocate several finance codes on an estimated pro rata basis to each operation.

²⁰ Regulation (EU) No 2011/2014, Annex II, Table 2.

The biodiversity tracking method applied the Rio markers to the intervention fields programmed in each Operational Programme as set out in Table 2²¹:

Table 2: Biodiversity markers applied to ERDF and CF expenditure, 2014-2020

Intervention field (Nomenclature defined in Annex I of the Implementing Regulation (EU) No 215/2014)	Coefficient for the calculation of support to biodiversity objectives
085 Protection and enhancement of biodiversity, nature protection and green infrastructure	100%
086 Protection, restoration, and sustainable use of Natura 2000 sites	100%
022 Wastewater treatment	40%
087 Adaptation to climate change measures and prevention and management of climate-related risks e.g. erosion, fires, flooding, storms and drought, including awareness-raising, civil protection and disaster management systems and infrastructure	40%
091 Development and promotion of the tourism potential of natural areas	40%
All other intervention fields	0%

This approach largely avoids Member States and programme authorities making any assessment of the biodiversity relevance of expenditure under their programmes; totals are generated based on information supplied for other purposes. The self-declaration by Member States of the intervention codes and DG REGIO's limited power to steer Member State allocations is a potential source of inaccuracy; however, the method has the advantage that it requires little additional administration. The markers are applied automatically in the database so there is currently no scope for adjustments to take account of the actual character of the investment. It is worth noting that the European Court of Auditors' examination²² of the tracking system for climate did not find any major issues, and the Commission accepted all recommendations made by the auditors on improving climate tracking in cohesion funding.

That said, the accuracy of the tracking method in capturing real biodiversity benefits will only become clear through the ex-post assessments and evaluations. We understand that the Commission's evaluation of cohesion spending in the 2014-2020 period includes a study which will provide a detailed analysis of the range of types of project assigned to each intervention field, and we recommend careful analysis by DG ENV of this information when it becomes available, in order to provide a better assessment of the accuracy of biodiversity tracking through the markers assigned to intervention fields.

²¹ European Commission (2015) Draft General Budget of the European Union for the financial year 2016. COM(2015) 300.

²² European Court of Auditors (2020) Tracking climate spending in the EU budget. Review No 01/2020, European Court of Auditors, Brussels.

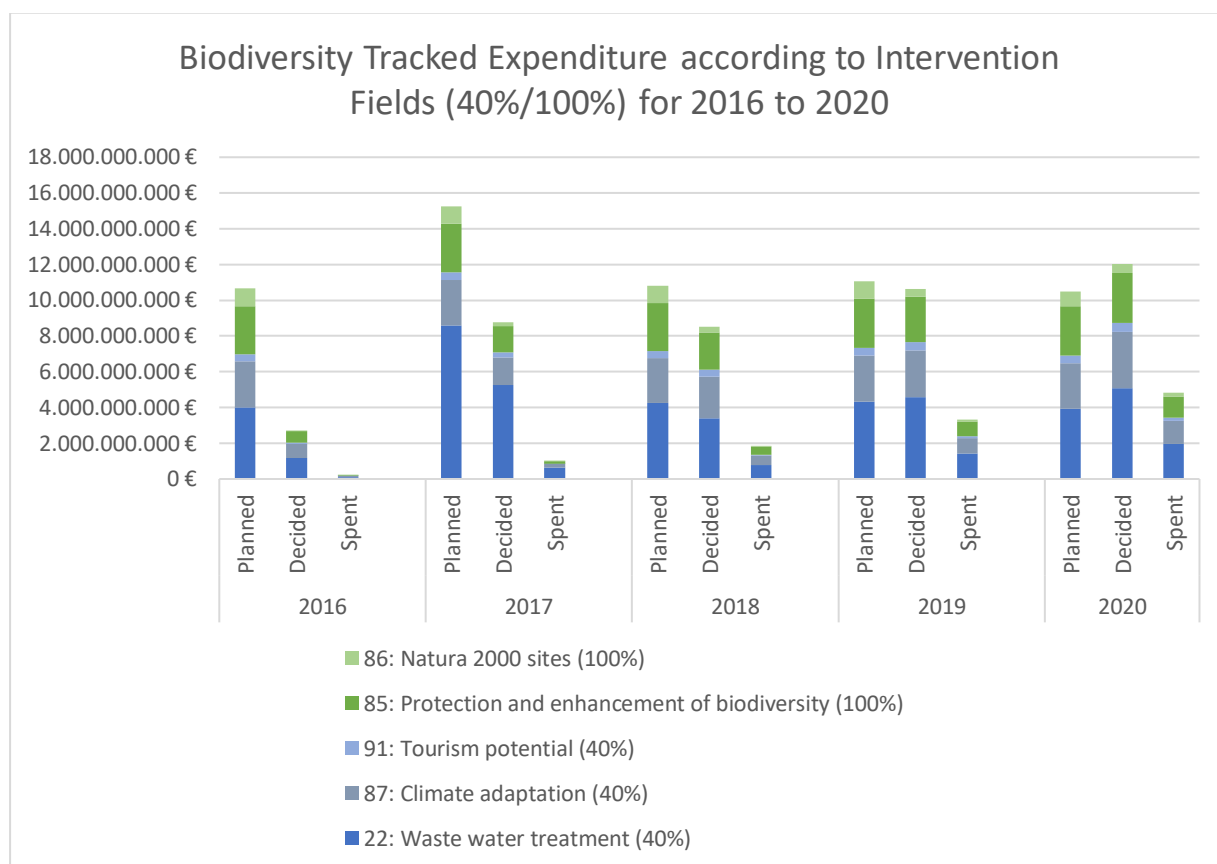
A 2017 study commissioned by DG ENV to examine the biodiversity tracking method concluded that the main weakness of the current approach lies in the allocation of the 40% marker to expenditure for which the biodiversity benefits are uncertain²³. Thus, expenditure on climate adaptation could involve either nature-based solutions, which potentially have significant biodiversity benefits, or flood defence and coastal defence investments, which are unlikely to have positive impacts and may have negative impacts. Investment in wastewater treatment may be focused on improving emissions to water bodies with significant biodiversity impacts, but may also be more focused on urban areas, or on improving the efficiency of wastewater treatment operations. An analysis of the ways in which Member States allocated the five intervention fields to the Thematic Objectives showed that the funding allocations to Thematic Objective 6 (protecting the environment and promoting resource efficiency), were dominated by spending on wastewater treatment²⁴. Whilst this has indirect biodiversity benefits through the improvement in water quality, these are not necessarily targeted on biodiversity outcomes or in proportion to the amount of spending. Thus, an expensive treatment upgrade in an urban area may produce a relatively marginal water quality improvement downstream, whilst a small investment in a rural area may lead to a significant improvement for downstream biodiversity.

The three case studies on operational programmes in Czechia, Greece and Romania carried out as part of the current project, and which are included at Annex 1, further underline the dominance of the 40% marker intervention fields. In all three cases, significantly greater levels of expenditure were programmed for the 40% marker intervention fields 022 (waste water treatment) and 087 (climate adaptation) than for the intervention fields which address biodiversity outcomes directly; and in practice, significantly lower levels of expenditure have been committed for the 100% fields than planned (see Annex 1, Figures 5.1, 6.3, and 7.1). This leads to a situation where the contribution of these individual programmes to biodiversity tracked expenditure currently appears to be dominated by expenditure where the extent of biodiversity impacts of projects is uncertain. While the EU-wide level financial data (see Figure 2) does not show the same pattern of slower progress in expenditure on the 100%-tracked intervention fields, the relative importance of the 40%-tracked intervention fields in the reported biodiversity expenditure totals is clear. The pattern observed in the three case study programmes, which were selected because of their relatively high initial ambition for biodiversity expenditure, may warrant further analysis.

²³ EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

²⁴ EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

Figure 2: Biodiversity Tracked Expenditure ERDF and CF according to Intervention Fields (40%/100%) for 2016 to 2020



2.1.10 Structural and cohesion policy: European Social Fund (ESF)

No biodiversity expenditure is tracked under the European Social Fund in the 2014-2020 period. It should be noted that the approach adopted to tracking of climate expenditure (which would presumably be similar to the basis for tracking any biodiversity expenditure) was based on an assumption that ESF expenditure had a 0% marker; but that Member States could also choose to identify a “secondary theme” capturing expenditure related to the low-carbon transition (for example, developing skills in areas relevant to the low-carbon economy)²⁵. This departure from the automatic nature of tracking under ERDF and the Cohesion Fund shows that in some cases it has been considered feasible to base tracking on Member State identification of relevant expenditure.

²⁵ DG Climate Action, “Tracking climate expenditure: The common methodology for tracking and monitoring climate expenditure under the European Structural and Investment Funds (2014-2020)”, https://ec.europa.eu/clima/sites/clima/files/docs/tracking_climate_expenditure_en.pdf; see also Implementing Regulation (EU) No 215/2014, Article 1 (3) and Annex 1.

2.1.11 Common Agricultural Policy: European Agricultural Guarantee Fund (EAGF)

The European Agricultural Guarantee Fund (EAGF) of the Common Agricultural Policy (CAP) funds income support for farmers (through direct payments²⁶) and market measures²⁷. Together they account for 83.6% of the total EU expenditure under the CAP, the remainder coming from the European Agriculture Fund for Rural Development (EAFRD)²⁸. The current EAGF regulations came into force in 2015 and will operate until the end of 2022, since a two-year extension (transition period) was agreed in December 2020²⁹.

Biodiversity expenditure tracking has only been applied to the direct payments part of the EAGF. Market measures are intended to deal with difficult market situations such as a sudden drop in demand due to a health scare, or a fall in prices as a result of a temporary oversupply on the market³⁰, and do not have identifiable benefits for biodiversity.

The rules governing the EAGF are set at EU level, however Member States are responsible for implementation under the 'shared management' principle. There is some flexibility about how the interventions under the EAGF are designed and implemented to take account of national and regional conditions, although this flexibility is far less than that available under the EAFRD.

Table 3: CAP Interventions available to Member States under the EAGF

sets out the interventions available for Member States to implement under the EAGF, and identifies whether or not they have biodiversity objectives. In 2015, the green direct payments were introduced for the first time – payments supporting agricultural practices beneficial for the climate and the environment – to which 30% of direct payments must be allocated. In addition, in order to receive direct payments, all farmers must comply with a set of cross-compliance requirements, both Statutory Management Requirements (SMRs)³¹ and standards of Good Agricultural and Environmental Condition (GAEC) relating to the environment, climate change, animal health, plant health and animal welfare³². The purpose of cross-compliance is to

²⁶ Regulation (EU) No 1307/2013

²⁷ Regulation (EU) No 1308/2013

²⁸ DG AGRI Data Portal, accessed March 2021 – figures for 2018 and excluding the UK: Direct Payments: 38 149.4 million EUR; Market measures 2 378.6 million EUR; rural development: 13 062.0 million EUR

²⁹ Regulation (EU) 2020/2220

³⁰ *ibid*

³¹ The SMRs require adherence to certain provisions of EU Directives relevant to agricultural land management. These requirements apply to farmers and other land managers whether or not they are in receipt of CAP support.

³² GAEC standards follow general principles laid down in EU legislation but are specified at the national or regional level by Member States' own authorities to address a country's local characteristics. As a result there tend to be significant differences between the specific rules applied in different countries.

contribute to the 'development of a sustainable agriculture through a better awareness of beneficiaries of the need to respect basic standards [and] to make the CAP more compatible with the expectation of the society through a better consistency of that policy with the environment, public health, animal health, plant health and animal welfare policies'³³.

Table 3: CAP Interventions available to Member States under the EAGF³⁴

CAP Intervention	Compulsory / Voluntary for MSs to implement	Biodiversity objectives?
Horizontal		
Cross-compliance – all payments are subject to cross-compliance conditions (Statutory Management Requirements and standards of Good Agricultural and Environmental Condition)	Compulsory	Yes (some elements)
Direct Payments		
Basic Payment	Compulsory	No
Payment for agricultural practices beneficial to climate change and the environment – comprising: <ul style="list-style-type: none"> - Crop diversification - Maintenance of permanent grassland: <ul style="list-style-type: none"> a. Maintaining the ratio of permanent grassland as a proportion of total UAA b. Protection of Environmentally Sensitive Permanent Grassland - Ecological Focus Areas 	Compulsory - 30% of direct payments must be allocated to these measures No a. No b. Yes Yes	
Young farmers scheme	Compulsory	No
Coupled Support	Voluntary	No
Support in areas of natural constraint	Voluntary	No
Redistributive payment	Voluntary	No

Overall, the literature available shows that the positive effects of the EAGF on farmland biodiversity are limited.

Of the interventions available, the greening measures have the potential to improve biodiversity, but the choices that Member States have made for their implementation have meant that the majority of options taken up by farmers have either led to little change in management or have very limited biodiversity effects.

While there is some evidence that cross-compliance raises awareness of, and improves implementation of, environmental legislation, there is little evidence available on its actual biodiversity impact. The GAEC standards have the potential to deliver some

³³ Recital 54 of Regulation (EC) 1306/2013

³⁴ Excluding those under the Common Market Organisation Regulation (Regulation (EU) No 1308/2013)

biodiversity benefits, particularly since all Member States must provide advice on cross-compliance to farmers via their Farm Advisory Services.

There is little information available on the biodiversity impact of other EAGF interventions, such as Voluntary Coupled Support (VCS). In theory, VCS could be used to deliver biodiversity benefits (for example, if moderate grazing by specific livestock is necessary to maintain a particular habitat), however it could also lead to negative impacts.

The European Commission's draft general budget for 2021 (European Commission, 2020a) sets out the methodology used to track biodiversity expenditure under the EAGF.

Only the direct payments part of the EAGF is tracked for biodiversity. Market measures under the Common Market Organisation regulation are not included in the calculations; while certain instruments are used to deliver environmental benefits, including biodiversity (e.g. the minimum requirement for 10% of expenditure under operational programmes in the fruit and vegetable sector to cover environmental actions³⁵) this is a small proportion of total expenditure. The methodology applied for tracking biodiversity expenditure during the 2014-2020 programming changed in 2016 when the reformed CAP took effect.

- The **financial years 2014 and 2015** operated under the rules of the previous CAP and for this period a 40% marker was applied to a 20% share of direct payments (budget line 0503) to take account of the biodiversity related elements of cross-compliance. This meant that 8% of the direct payments budget line was counted as biodiversity expenditure.
- From the **financial year 2016 onwards**, a revised approach was taken to account for the introduction of the 'green direct payments' within the EAGF and the changes made to cross-compliance. This increased the proportion of the direct payments budget line that was counted as biodiversity expenditure to 14.8%, calculated as follows:
 - for the greening measures (payment for agricultural practices beneficial for the climate and the environment) a Rio marker of 40% is applied: since 30% of the EAGF must be spent on these measures, this equates to 12% of the direct payment element of the EAGF (40% of 30% = 12%);
 - a Rio marker of 40% is then applied to 10% of the majority of the remaining 70% of direct payments (minus the allocation for the Small Farmers Scheme which is not subject to cross-compliance requirements) to take account of the benefits expected for biodiversity from the cross-compliance

³⁵ See Regulation 1308/2013, Article 33 (5).

requirements (standards of Good Agricultural and Environment Condition and Statutory Management Requirements) to which farmers must adhere to receive their direct payments. This equates to 2.8% of the direct payment element of the EAGF (10% of 70% = 7%, at a 40% marker = 2.8% of the total).

This generates an estimated total of €36,041 million of expenditure tracked as being relevant to biodiversity over the seven years of the MFF. The rationale relied on by the Commission to apply the 40% biodiversity marker to part of the direct payments outside greening³⁶ is that cross-compliance applies to them, and thus (by virtue of the GAEC standards), payments contribute to biodiversity by preventing soil erosion, maintaining soil organic matter and soil structure, ensuring a minimum level of maintenance and avoiding the deterioration of habitats, and protecting and managing water through the standards of good agricultural and environmental condition.

The current CAP regulations will continue to apply for 2021 and 2022 according to the provisions set out in the transitional regulations³⁷. It is understood that the existing methodology, as outlined above, will be used to track this contribution.

The 2021 draft budget sets out the total contribution of the EAGF that is considered to contribute to financing biodiversity for the financial years from 2014-2020. The 2020 Statement of Estimates provides consolidated information on biodiversity finance from different funds in the 2014-20 programming period. The 14.8% of the total EAGF budget that is calculated as financing biodiversity equates to:

- 42% of the total biodiversity finance in the EU budget for 2014-2020³⁸
- the equivalent of 3.4 % of the total EU budget for 2014-20.

Table 4: Contribution of direct payments to biodiversity financing (EUR million)

Relevant objective/output of the EAGF
Contribute to the enhancement of the environmental performance of the CAP through the greening component of the direct payments. Contribute to the development of sustainable agriculture and to making the Common Agricultural Policy more compatible with the expectations of the society through cross-compliance. Contribute to preventing soil erosion, maintaining soil organic matter and soil structure, ensuring a minimum level of maintenance and avoiding the deterioration of habitats, and protecting and managing water through the standards of good agricultural and environmental conditions.

³⁶ Including the single area payment, basic payment, payments for young farmers, redistributive payment, natural constraints payment, and voluntary coupled support (but excluding the small farmers payment as this is not subject to cross-compliance). The rationale is set out in the text from the 2020 Programme Statements document reproduced in Table 4 below.

³⁷ Regulation (EU) 2020/2220

³⁸ NB: The EAFRD part of the CAP is covered in a separate fiche. The total CAP (EAGF and EAFRD) contribution accounts for 77% of biodiversity finance in the 2014-2020 EU Budget.

2014-2018					2019/2020 are estimates		
2014	2015	2016	2017	2018	2019	2020	Total
3,316.0	3,273.0	6,030.0	5,795.0	5,856.0	5,868.0	5,903.0	36,041.0
NB: The appropriations for the year 2014 have been reviewed to take account of the transfer to subsequent years of the allocations not used in 2014 (reprogramming exercise carried out in 2015 in accordance with Article 19 of the Multiannual Financial Framework Regulation).							

Source: European Commission (2020a)

The calculation of the contribution of direct payments to biodiversity financing is based on the annual direct payment commitment appropriations for Member States and subsequently corrected according to the figures for payment appropriations (i.e. the payments made to beneficiaries in that financial year). The data are sourced from CATS (Clearance of Accounts Audit Trail System) which is the database used for audit, based on information received from Member States.

The calculations are carried out by the European Commission based on the data provided to them by Member States on their direct payments budgets and expenditure. These are data that Member States provide annually to the European Commission.

As noted above, the anticipated benefits of the green direct payments and cross compliance for biodiversity were the foundation of this approach. The Commission's justification for applying the 40% marker was based on the assumptions:

- That the requirement for farmers to adhere to cross-compliance requirements in order to receive their direct payments was likely to increase compliance with the articles of the Birds and Habitats Directives that are included under the SMRs; and
- That the application of certain GAEC standards would bring about benefits for biodiversity – those relating to 'preventing soil erosion, maintaining soil organic matter and soil structure, ensuring a minimum level of maintenance and avoiding the deterioration of habitats, and protecting and managing water'.

In relation to the greening measures the 40% marker was proposed overall as biodiversity is only one among a number of objectives for the payments, not the principal or only objective. Other objectives include improving soil quality, and carbon sequestration. Even for the EFA measure, whose objective is 'in particular, to safeguard and improve biodiversity on farms', in reality the final suite of EFA types agreed were not all biodiversity focussed.

The way that EAGF expenditure is tracked for biodiversity has come under criticism, both the blanket 40% marker applied to the greening measures and particularly the attribution of a 40% marker to 10% of the remaining 70% of direct payments (excluding the greening measures), justified on the assumed biodiversity benefits of cross-compliance. In discussions during the development of the CAP biodiversity tracking system, a number of stakeholders argued that the markers should not be applied to direct payments on the basis of cross-compliance, since this is an ex-post penalty system that cannot guarantee the delivery of biodiversity benefits, adherence in practice is difficult to verify; and that doing so would distort the picture of funding benefiting biodiversity (Medarova-Bergstrom et al, 2015)³⁹.

In its 2020 report on biodiversity on farmland, the European Court of Auditors concluded that 'The Commission's tracking of CAP spending benefiting biodiversity is unreliable because of methodological weaknesses: some coefficients were set at higher levels than suggested by OECD methodology, and the tracking arrangements include certain expenditure types without clear proof that they are beneficial for biodiversity'⁴⁰.

With respect to the greening measures, it concluded that 'The Commission applies a coefficient of 40 % to all greening payments even though their positive impact on farmland biodiversity cannot be clearly demonstrated. Moreover, greening requirements are generally undemanding and largely reflect normal farming practice' (ECA, 2020, para 34). In relation to the marker applied to direct payments on the basis of cross-compliance requirements, it concludes that, 'The impact of the cross-compliance element ... on farmland biodiversity raises some difficulty ... The cross-compliance coefficients may generally overstate the cross-compliance contribution' (ECA, 2020, para 35). Finally it also criticised the tracking method because it does not track and offset expenditure from schemes that may reduce farmland biodiversity, using Voluntary Coupled Support as an example.

However the Commission has rejected these criticisms (see the detailed point by point responses in its reply⁴¹). In particular, it reaffirms that 'cross-compliance contributes to reaching ambitious biodiversity goals by linking some CAP payments with a set of basic legislative rules, serving as baseline for incentive measures supported by CAP funds'. Indeed it goes further to say that advice under the Farm Advisory System (FAS), which must be provided by Member States to support the implementation of cross-compliance, also aids the achievement of biodiversity benefits. Since the marker applied in conjunction with the weighting factor leads to only 2.8% of the non-greening direct payments being tracked as biodiversity expenditure, the Commission judges this to be reasonable, 'taking into account the wide area covered by practices

³⁹ See footnote 14

⁴⁰ European Court of Auditors (2020) Biodiversity on farmland: CAP contribution has not halted the decline, Special Report 13/2020. European Court of Auditors, Brussels.

⁴¹ Commission reply available at <https://www.eca.europa.eu/en/Pages/Doctem.aspx?did=53892>

under cross-compliance (90% of the total agricultural area) and the fact that it includes basic but important practices for biodiversity’.

In relation to the greening measures, the Commission justifies the 40% marker stating that ‘greening has a significant potential to improve the biodiversity situation, in particular because of its wide area coverage (77% of the total agricultural area)’. However, it acknowledges that ‘this potential was not fully exploited by Member states and farmers’.

2.1.12 Common Agricultural Policy: European Agricultural Fund for Rural Development (EAFRD)

The EAFRD is one of the five European Structural and Investment (ESI) funds, governed by the Common Strategic Framework. The rules governing the EAFRD are set at EU level, however Member States are responsible for implementation under the ‘shared management’ principle. The EAFRD funds rural development measures and is commonly referred to as Pillar 2 of the CAP. In 2018, it accounted for 16.6% of the total EU expenditure under the CAP (€13,062 million), the remaining 83.6% coming from the EAGF. The current EAFRD regulations⁴² came into force in 2016 and will operate until the end of 2022, since a two-year extension (transition period) was agreed in December 2020⁴³.

The EAFRD sets out six Union priorities for rural development, broken down into 18 ‘focus areas’ or sub-priorities. Priority 4 is the one objective that specifies biodiversity explicitly, although actions pursued under other priorities also have the potential to deliver positive benefits for biodiversity, particularly actions under Focus Area 5e - fostering carbon conservation and sequestration in agriculture and forestry. For 2014-2020 the EAFRD also has a cross-cutting objective which states that ‘all of the priorities shall contribute to the cross-cutting objectives of innovation, environment and climate change mitigation and adaptation’. In the 2014-2020 programming period, for the first time Managing Authorities are permitted to develop thematic sub-programmes within their RDPs, if there are specific needs that cannot be addressed through use of the measures individually or in combination. Biodiversity is included on the list of sub-programmes in Article 7.

The EAFRD includes a range of measures that can be used to support area-based payments, investments, advice and training and cooperation, *inter alia*. These can be used by Member States for a variety of purposes, including promoting the maintenance and enhancement of biodiversity and ecosystem services. Member States develop Rural Development Programmes (RDPs), setting out how they intend to use the EAFRD measures to address the six priorities, which require formal approval from the Commission. In their RDPs, Member States are required to set out how the

⁴² Regulation (EU) 1305/2013

⁴³ Regulation (EU) 2020/2220

funding allocated to each of the rural development measures is apportioned to each of the six EAFRD priorities and individual focus areas under these (sub-priorities).

The EAFRD's Common Monitoring and Evaluation Framework shows that in 2018:

- 14.97% of agricultural land was under management contracts supporting biodiversity and/or landscapes (focus area 4A) (R.07) – NB: This includes the area programmed under priority 4 for payments in areas facing natural or other specific constraints (the ANC measure), which is not tracked as biodiversity expenditure.
- 0.36% of forest or other wooded area was under management contracts supporting biodiversity (focus area 4A) (R.06)
- 0.73% of agricultural and forest land under management contracts were contributing to carbon sequestration or conservation (focus area 5E) (R.20).

In general terms, the evaluation study on the biodiversity effects of the CAP, carried out in 2018/19⁴⁴ concluded that:

- More could be done by Member States to ensure that the biodiversity priorities identified in their Prioritised Action Frameworks (PAFs) are reflected in their RDPs.
- Some EAFRD measures, particularly the agri-environment-climate measure (AECM), but also the Natura 2000 measure provide a significant contribution to achieving biodiversity outcomes, particularly where they maintain semi-natural habitats, as these are threatened and of very high biodiversity and landscape importance, especially for habitats and species that are the focus of the Birds and Habitats Directives. However, the design and funding of AECM support for intensive cropping farms has been insufficiently attractive to bring about the changes in management necessary to improve their biodiversity performance;
- The organic farming measure delivers biodiversity benefits, particularly in more intensively farmed landscapes;
- Although no studies were found that directly assessed the biodiversity impacts of the Natura 2000 compensation measure, it is extremely likely that biodiversity benefits are delivered, because the interventions that are compensated for have been identified by the nature authorities to be necessary to achieve the conservation objectives of the site.
- It is not possible to assess the biodiversity impact of the forest measures as they are not adequately monitored, but since they are used to a limited extent by Member States and cover very small areas, their impact is likely to be limited, although it could be locally significant.

⁴⁴ "Evaluation of the impact of the CAP on habitats, landscapes, biodiversity: Final Report", Alliance Environnement 2019

The methodology applied for tracking biodiversity expenditure during the 2014-2020 programming changed in 2016 when the reformed CAP took effect.

- The **financial years 2014 and 2015** operated under the rules of the previous CAP and for this period the 40% marker was applied to all EAFRD expenditure, on the basis that this was a reasonable estimate of the contribution of the EAFRD to biodiversity, since 45% of total programmed amounts in the period 2007-2013 has been allocated to Axis 2 measures and these were measures that were most likely to have had a biodiversity impact.
- From the **financial year 2016 onwards**, when the new EAFRD came into being, a revised approach was taken in which markers were applied to two of the new Priorities/Focus Areas as follows:
 - o A 100% marker is applied to annual commitments for all measures programmed under Priority 4⁴⁵ with the exception of the measure for Areas facing Natural Constraints (ANC) – this marker applies to all focus areas under priority 4 as Member States do not break down their expenditure by focus area for Priority 4 (unlike for other Priorities).
 - o A 40% marker is applied to annual commitments for all measures programmed under Focus Area 5E (Fostering carbon conservation and sequestration in agriculture and forestry).

This generates an estimated total of €30,267 million of biodiversity relevant expenditure over the seven years of the MFF, which is about 33% of the total EAFRD budget (see Table 5). Of the EAFRD expenditure that is tracked as biodiversity expenditure, 98% was spent under Priority 4 and only 2% under Focus Area 5E (figures for eligible expenditure to 2020⁴⁶). Of this, expenditure under the agri-environment-climate measure (M10) accounts for 58.6% of the total, with the organic farming measure accounting for a further 26.5% (M11). Other expenditure is at a much lower level, with the next highest contributor to biodiversity expenditure being investments in forest area development and improvement of the viability of forests (M8) at 5.8% and investments in physical assets (M4) at 3.7%.

The CAP regulations for the 2014-2020 period will continue to apply for 2021 and 2022 according to the provisions set out in the transitional regulations⁴⁷. It is understood

⁴⁵ Restoring, preserving and enhancing ecosystems related to agriculture and forestry, with a focus on the following areas: (a) restoring, preserving and enhancing biodiversity, including in Natura 2000 areas, and in areas facing natural or other specific constraints, and high nature value farming, as well as the state of European landscapes; (b) improving water management, including fertiliser and pesticide management; (c) preventing soil erosion and improving soil management.

⁴⁶ Figures are from the ESIF Funding Portal – accessed 24 February 2021

⁴⁷ Regulation (EU) 2020/2220

that the existing methodology, as outlined above, will be used to track this contribution.

The 2020 Statement of Estimates (European Commission, 2019) provided consolidated information on biodiversity finance from different funds in the 2014-20 programming period. This shows that 33% of the total EAFRD budget is calculated as financing biodiversity, which equates to:

- 35% of the estimated total biodiversity finance in the EU budget for 2014-2020⁴⁸
- the equivalent of 2.8 % of the total EU budget for 2014-20.

Table 5: Contribution of EAFRD to biodiversity financing (EUR million)

Relevant objective/output of the EAFRD							
Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry							
Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors							
2014-2018					2019/2020 are estimates		
2014	2015	2016	2017	2018	2019	2020	Total
1,592.0	5,489.0	5,640.0	4,336.0	4,339.0	4,433.0	4,438.0	30,267.0
NB: The appropriations for the year 2014 have been reviewed to take account of the transfer to subsequent years of the allocations not used in 2014 (reprogramming exercise carried out in 2015 in accordance with Article 19 of the Multiannual Financial Framework Regulation).							

Source: European Commission (2020a)

The ANC measure is excluded from the biodiversity tracking methodology as it does not have biodiversity objectives and payments are generally not associated with any specific management requirements. However, this is also true for direct payments (outside the greening element) under the EAGF, a small proportion of which is tracked as biodiversity expenditure on the grounds that cross-compliance provides benefits. As with direct payments, those in receipt of ANC payments under EAFRD must adhere to cross-compliance requirements. The same logic has not been applied the ANC measure since the approach to tracking biodiversity expenditure under the EAFRD is focused on attributing markers to 'priorities' rather than 'intervention types'. In addition, it is likely that most farmers receiving ANC payments are also in receipt of direct payments, and therefore already have to meet cross-compliance standards.

⁴⁸ NB: The EAGF part of the CAP is covered in a separate fiche. The total CAP (EAGF and EAFRD) contribution accounts for 77% of biodiversity finance in the 2014-2020 EU Budget.

Counting a positive impact from the same cross-compliance standards for ANC payments in addition to direct payments would be likely to lead to double counting.

A number of criticisms have been levelled at the way in which the biodiversity tracking methodology has been applied to the EAFRD.

In its 2020 report on biodiversity on farmland the ECA concluded that the tracking methodology used for the CAP as a whole 'is not entirely robust or reliable' (ECA, 2020). In relation to the EAFRD the main criticism is that fact that a 100% marker is applied to the whole of Priority 4 (see above), which includes not just expenditure on 'Restoring, preserving and enhancing biodiversity' (focus area 4A), which specifically targets biodiversity, but also to expenditure under 'Improving water management' (4B) and 'Preventing soil erosion and improving soil management' (4C). It concluded that 'as biodiversity is not the principal objective of these two focus areas, they do not meet the criteria for the 100% coefficient' (ECA, 2020).

The European Commission responded to this criticism by explaining its justification for applying the 100% marker to all three Focus Areas as follows: 'the Commission considered ... that farming practices supported in view of supporting biodiversity contribute at the same time to improving the general environment including water and soil, and vice versa. This strong interconnectivity in terms of environmental impact of practices programmed under each of the three focus areas led the Commission to apply coefficient 100% for the contribution of each focus area of this priority, including water and soil' (European Commission, 2020b).

2.1.13 European Maritime and Fisheries Fund (EMFF)

Tracking is performed at two levels, Thematic Objectives, and at measure level. Both are based on information recorded by each Member State: allocation and spending is reported for each measure in the Annual Report and linked to the different Thematic Objectives (see section above for an explanation of thematic objectives for the European Structural and Investment Funds).

At a high level, the contribution to financing biodiversity under the EMFF is tracked at the level of Thematic Objectives. A Rio marker of 40% is applied of the total applied budget to Thematic Objective 6 (protecting the environment and promoting resource efficiency). 40% of the relevant funding in direct management (scientific advice and knowledge, control and enforcement and voluntary contributions to the Regional Fisheries Management Organisation) is also included. The articles do not have specific biodiversity coefficients or markers that would allow a calculation per article.

At operation-level, a wide range of EMFF measures have the potential to contribute to the protection and restoration of biodiversity. The measures do not have specific biodiversity coefficients or markers and are calculated as equally contributing to the Thematic Objective. The annual implementation report by the Fisheries and

Aquaculture Monitoring and Evaluation support unit (FAME)⁴⁹ provides an estimation of the contribution to biodiversity at the level of EMFF measures. Tracking of biodiversity is therefore performed at measure level, in the implementation report, but at the level of Thematic Objectives in the programme statements and in the overall EU Budget-wide reporting of biodiversity expenditure. The calculations are made by the European Commission on the basis of the information on expenditure by thematic objectives provided by the programme authorities.

By contrast, climate expenditure is tracked on the basis of the spending on individual measures. The coefficients for calculating amounts of support for climate change objectives are provided in Annex III of the Commission Implementing Regulation (EU) No 1232/2014, which refers to the relevant individual articles in the EMFF regulation itself⁵⁰. The EMFF Operational Programme guidance document sets out specific requirements for climate change mitigation objectives, as per Article 27(6) of the CPR. Member States report the climate objectives of their choice and the indicative amount of support they plan to use for climate change objectives when drafting their OPs.

In total 14 measures of the EMFF are given markers for contributing to climate change objectives; some have been criticised for their generosity⁵¹. A number of the tracked articles overlap with those that are considered as biodiversity related in the FAME reports but also, in the examples of annual implementation reports from Portugal and Germany as previously discussed. For example, articles related to Natura 2000 sites are also given a 40% marker for climate objectives. As with other funds, there is thus a significant overlap between the tracked expenditure totals for climate and biodiversity.

The EMFF format for tracking biodiversity expenditure at the level of Thematic Objectives is thus not as structured and detailed as that for tracking climate expenditure. While the concept of tracking anything linked to TO6 using the 40% marker is valid and could indeed function well, the measures that are linked to TO6 are not themselves defined clearly; the purpose of the co-decided legislation setting them out is, after all, to reflect agreement on what the EMFF funds may be spent on, rather than to facilitate the identification of biodiversity expenditure. This lack of precision ultimately impacts on how well Member States' reporting of expenditure by thematic objective provides an accurate assessment of biodiversity expenditure. Furthermore, various studies have shown that there are certain measures that do a lot more for biodiversity than others (and could be given a 100% marker rather than a 40% marker). However, with the current method of tracking, all measures are equally weighted. This raises some questions regarding the reliability of the biodiversity tracking

⁴⁹ EUROPEAN COMMISSION – Directorate-General for Maritime Affairs and Fisheries, Unit D.3 (2020): FAME SU, EMFF implementation report 2019, Brussels

⁵⁰ Regulation (EU) No 508/2014

⁵¹ See for example European Court of Auditors Special Report 31, 2016; and Nesbit et al., "Documenting climate mainstreaming in the EU budget", European Parliament 2020

methodology, as Member States can focus their investments on measures that technically contribute less to biodiversity objectives, but still arrive at high estimates of biodiversity-relevant expenditure. For example, instead of investing in Article 40.1.b-g,i specific to Natura 2000 sites, double the investment could go into Article 43.2 on fishing ports and landing sites, where the existence of and extent of a contribution to biodiversity is highly dependent on the nature of the projects funded. The overall expenditure tracked would still show a 40% contribution to biodiversity when ultimately however, the two measures have very different degrees of impact. This issue is not unique to the EMFF; it reflects the combined effect of the Rio Marker approach, with a 40% marker covering the full range of “significant” impacts, applied through legislative mechanisms which are not designed for the purpose of tracking.

For the period 2021-2027 the Fund’s architecture has changed; now termed the European Marine Fisheries and Aquaculture Fund (EMFAF), it has acquired new specific objectives and adopted an approach to the tracking of climate and environmental objectives linked to types of intervention. The impact on tracking decisions, and our recommendations on those decisions, are set out in Table 7 below, and in more detail in Annex 2.

2.1.14 LIFE (Financial Instrument for the Environment)

The LIFE Programme is an instrument dedicated to funding environmental, nature conservation and climate action projects throughout the EU. It began in 1992 and completed five programme cycles in 2020 while the sixth commenced in 2021. The **general objectives** of the 2014-2020 LIFE Programme, as set out in Article 3 of the LIFE Regulation⁵², are:

- to contribute to the shift towards a resource-efficient, low-carbon and climate-resilient economy, to the protection and improvement of the quality of the environment and to halting and reversing biodiversity loss, including the support of the Natura 2000 network and tackling the degradation of ecosystems;
- to improve the development, implementation and enforcement of Union environmental and climate policy and legislation, and to act as a catalyst for, and promote, the integration and mainstreaming of environmental and climate objectives into other Union policies and public and private sector practice, including by increasing the public and private sector's capacity;
- to support better environmental and climate governance at all levels, including better involvement of civil society, NGOs and local actors;
- to support the implementation of the 7th Environment Action Programme.

⁵² Regulation (EU) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007

These objectives were operationalised through the **Environment** and **Climate Action sub-programmes**. The LIFE Regulation sets three **priority areas** for the Environment sub-programme – namely, Nature and Biodiversity; Environment and Resource Efficiency; and Environmental Governance and Information – and three priority areas for the Climate Action – Climate Change Mitigation; Climate Change Adaptation; Climate Governance and Information. To set the framework for the implementation of the two sub-programmes the Commission adopted two consecutive LIFE multiannual work programmes (MAWP) 2014-2017⁵³ and 2018-2020⁵⁴.

The specific objectives of the three priority areas of the **Environment sub-programme** in 2014-2020 were all directly or indirectly relevant to biodiversity. The *Nature and Biodiversity* priority area focused on biodiversity policy and legislation and specifically supported the Natura 2000 network. The *Environment and Resource Efficiency* priority area included projects on water, waste, air quality, and the link between health and environment, while the *Environmental Governance and Information* priority area focused on awareness raising on environmental issues and support dissemination of results.

The specific objectives of the three priority areas of the **Climate Action sub-programme** were mostly indirectly relevant to biodiversity. The *Climate Change Mitigation* and *Adaptation* priority areas contributed to the development and implementation of the EU policy and legislation on mitigation and adaptation, improved the knowledge base and enhanced capacities to apply this knowledge, facilitated the development of integrated approaches, and contributed to the development and demonstration of innovative mitigation and adaptation solutions. The *Adaptation* priority area in particular emphasised climate change adaptation through ecosystem-based approaches. Similar to the other sub-programme, the *Climate Governance and Information* priority area focused on awareness raising on climate change issues and support dissemination of results.

As mentioned in the LIFE Regulation 2014-2020 (Recital 40), the monitoring of the LIFE Programme should track biodiversity-related expenditure as defined in “A Budget for Europe 2020”⁵⁵. LIFE’s biodiversity tracking is based on the ‘Rio markers’. Tracking LIFE’s biodiversity expenditure, using the Rio markers methodology, was first implemented in the 2014 call for proposals.⁵⁶

⁵³ 2014/203/EU: Commission Implementing Decision of 19 March 2014 on the adoption of the LIFE multiannual work programme for 2014-17

⁵⁴ Commission Implementing Decision (EU) 2018/210 of 12 February 2018 on the adoption of the LIFE multiannual work programme for 2018-2020

⁵⁵ https://ec.europa.eu/info/sites/info/files/about_the_european_commission/eu_budget/com-2011-500-2_2011_en.pdf

⁵⁶ EY & biotope (2017). Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Final Report

The Commission's approach to track biodiversity-related expenditure in the LIFE Programme was developed and then informed by two studies,⁵⁷ Medarova-Bergstrom et al. (2015)⁵⁸ and EY & biotope (2017)⁵⁹. Tracking can take place at both programme and project level. At programme level, the Rio markers are applied to the priority areas, and the biodiversity-related expenditure then is estimated on the basis of the allocations of the MAWP. According to this approach, the following spending is estimated as contributing to biodiversity financing:

- 100% of the total operational budget for the priority area Nature and Biodiversity;
- 100% of the budget for projects focused on nature and biodiversity under the priority area Environmental Governance and Information;
- 40% of the budget dedicated to projects financed under the priority area Resource Efficiency;
- 40% of the total operational budget for the priority areas Climate Change Adaptation; and
- 100% of the amount of the financial instrument Natural Capital Financing Facility (NCCF).

2.1.15 Development cooperation, etc: Development Cooperation Instrument (DCI), European Neighbourhood Instrument (ENI) and Partnership Instrument (PI)

These programmes were centrally managed by the Directorate General for Development and Cooperation (DG DEVCO), which became the Directorate General for International Partnerships (DG INTPA) in January 2021, and (in the case of the Partnership Instrument) by the Service for Foreign Policy Instruments (FPI). The Commission follows an established finance tracking methodology by making annual submissions to the OECD DAC (Development Assistance Committee) using the Rio markers. The Commission's methodology is set out in a 2010 information note, which includes definitions of biodiversity expenditures (based on OECD guidelines) and gives examples of relevant activities and policies. Since then, the Commission's methodology to track biodiversity finance has been updated through two studies, one carried out in

⁵⁷ EC (website). Environment. Biodiversity financing. Available at:

https://ec.europa.eu/environment/nature/biodiversity/financing_en.htm

⁵⁸ Medarova-Bergstrom, K., Kettunen, M., Illes, A., Hart, K., Baldock, D., Newman, S., Rayment, M., and Sobey M. (2015). Tracking Biodiversity Expenditure in the EU Budget, Part II – Fund specific guidance documents, Final Report for the European Commission – DG ENV

⁵⁹ EY & biotope (2017). Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Final Report.

2013⁶⁰ and one in 2017.⁶¹ Rio Markers are encoded at the identification stage via the Common Relex Information System (CRIS). The information in the CRIS database, including the Rio markers, is updated during the formulation phase. The CRIS database allows different levels to be coded using the Rio markers, namely decisions and contracts, which in some cases relate directly to projects, therefore achieving a high level of tracking granularity. Nonetheless, as was pointed out in previous assessments, larger programmes of work are encoded, which can include several components or projects. These are Rio marked collectively, potentially reducing the tracking precision⁶².

The markers reflect the specific features of each policy area and assign a weighting to activities based on their contribution towards biodiversity objectives: principal (100%), significant (40%) or insignificant (0%). The assessment is based on the programme statements in the context of the annual budget procedure. A percentage of 100% is used for activities with a Rio marker score of 2; 40% is used for activities with a Rio marker score of 1; and 0% for activities with a Rio marker score of 0⁶³.

The European Commission uses the following definition to describe “principal” and “significant” objectives:

- A “principal” objective “must be explicitly stated as fundamental in the design of, or the motivation for, the action. Promoting the objective will thus be stated in the activity documentation to be one of the principal reasons for undertaking the action. In other words, the activity would not have been funded (or designed that way) but for that objective”.
- A “significant” objective “must also be explicitly stated, but is not the fundamental driver or motivation for undertaking and designing the activity. The activity has other prime objectives but has been formulated or adjusted to help meet the relevant environmental concerns”⁶⁴.

⁶⁰ Medarova-Bergstrom, K., Kettunen, M., Illes, A., Hart, K., Baldock, D., Newman, S., Rayment, M., and Sobey M. (2015) Tracking Biodiversity Expenditure in the EU Budget, Part II – Fund specific guidance documents, Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, London/Brussels

⁶¹ EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

⁶² Medarova-Bergstrom, K., Kettunen, M., Illes, A., Hart, K., Baldock, D., Newman, S., Rayment, M., and Sobey M. (2015) Tracking Biodiversity Expenditure in the EU Budget, Part II – Fund specific guidance documents, Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, London/Brussels

⁶³ European Commission (27.7.2020) *DRAFT Union's annual budget for the financial year 2021*. Document, COM(2020) 300 final, 27.7.2020, European Commission, Brussels.

⁶⁴ Source: DG International cooperation and development

In the 2013 study on biodiversity tracking, a three stage approach was proposed for the 2014-2020 MFF:

1. Annual Programme Statement - Estimates have been made for the Annual Programme Statement, based on historic expenditures.
2. Multi-Annual Programming Documents – DG DEVCO proposed to estimate relevant expenditures using multiannual programming documents. This should give broad estimates of relevant expenditures which should be more accurate than those in the annual budget but less accurate than those made by tracking decisions at the project level. This makes it possible to estimate likely expenditures ex ante, at an earlier stage than by examining individual decisions.
3. Project level tracking, based on individual decisions.

As reported in the 2017 EC study on biodiversity tracking,⁶⁵ DCI, ENI and PI were subject to project-level tracking, the most precise level of tracking, carried out by the then DG DEVCO. In particular, the study noted that tracking for ENI and DCI is well established and is also used to regularly report biodiversity expenditure to the OECD DAC and CBD. The study claims that the application of only three levels of budget attribution to Rio Markers is rather challenging for DCI, potentially leading to over or under-estimations, depending on the nature of the instrument. Especially the application of Rio Marker 1 is challenging as the contribution of an instrument can range from significantly less than to significantly more than the 40% marker.

The working document on programmes' annual statements for 2021 is the latest one available, and provides an in-depth reporting of programmes' activities and expenditures. Table 6 reports the data on budget expenditures for the three programmes combined. The figures reported constitute ex ante amounts. As explained in the document, these are committed amounts, and are mostly based on past budget allocations.

Table 6. Committed biodiversity programming for development and cooperation programmes (million Euros)

Instrument	Relevant objective/output	2014-2018					2019-2020 estimates		Total
		2014	2015	2016	2017	2018	2019	2020	
DCI	<i>Poverty reduction and fostering sustainable economic, social and environmental development</i>	89,8	119,2	100,8	201,4	275,4	319,3	223,8	1 329,7

⁶⁵ EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

ENI	<i>Specific objective 4 and 6</i>	38,5	55,6	41,4	50,6	135,3	153,0	173,0	647,4
PI	<i>Specific objective 1</i>	0,4	7,0	6,4	18,5	9,8	5,0	11,1	58,2

Concerning DCI, for the period 2014-2018, the amount identified as contributions to biodiversity objectives for each commitment is proportional to the Rio markers used. The use of Rio markers was quality checked by DG DEVCO for the period 2014-2018, and was based on the analysis of the 2014-2017 Multiannual Indicative Programming Documents for DCI (geographic and thematic). This control is consistent with the data reported to the OECD/DAC, following Rio markers encoding at the projects' identification phase.

For 2019, an early statistical estimate was provided based on final committed amounts at 31/12/2019. For 2020, estimates were provided using the multiannual average of biodiversity commitments and applying a standardized calculation formula across programmes⁶⁶.

Similarly to the DCI, ENI estimates reflect the OECD/DAC reporting methodology for the Rio-marker on biodiversity. Rio markers were applied to actions funded in all sectors, while it is noted that past trends indicate that these tend to concentrate in the sectors of rural development, environment, energy and management of natural resources. These themes are associated with specific objectives 4 (country-based programmes) and 6 (regional cooperation programmes).

For the PI, the annual statement document does not provide a detailed justification for the committed biodiversity expenditure. However, as explained by the 2017 study on biodiversity tracking by the EC, given the limited number of projects under the PI, project level tracking is followed. Moreover, the Service for Foreign Policy Instruments produces a broad and relatively conservative estimate of biodiversity expenditure based on the Multiannual Indicative Programme (currently the 2014-2017 MIP) and on experience with previous AAP. Tracking is conducted at the level of actions defined in AAP and Rio Markers are applied to these actions. The other three steps of tracking – Programme Statement level, MIP level, reporting level – are currently not explicitly used⁶⁷.

2.1.16 Instrument for Pre-Accession Assistance (IPA II)

IPA expenditure is tracked on essentially the same case-by-case basis, in accordance with the OECD DAC methodology, as the other external funding programmes covered

⁶⁶ 7.26 % of [operational chapter 21 02 - BL 21 02 40 Commodities agreements - BL 21 02 30 Agreement with the Food and Agriculture Organisation (FAO) and other United Nations bodies - BL 21 02 20 Erasmus+ - Contribution from the development cooperation instrument (DCI).

⁶⁷ European Commission, Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget Project number: ENV.B.2/ETU/2014/0031 Final Report June 2017.

in section Development cooperation, etc: Development Cooperation Instrument (DCI), European Neighbourhood Instrument (ENI) and Partnership I above. While the amounts tracked remain small, they have gradually increased to reach 6% of projected annual expenditure in 2020, according to the programme statement document⁶⁸. The IPA addresses four “specific objectives”: support for political reforms; support for smart, sustainable and inclusive economic, social and territorial development; preparation for obligations of EU membership, including implementation of the acquis and management of structural and cohesion funds; and strengthening regional integration and territorial cooperation. Actions assigned biodiversity markers tend to concentrate in the sectors of rural development, environment, energy and management of natural resources, generally under specific objective 2 (sustainable development), but with some relevance also to specific objectives 3 (preparation for Membership – with particular relevance to rural development) and 4 (regional integration). The current beneficiaries of the fund are Albania, Bosnia and Herzegovina, Kosovo^{*69}, Montenegro, North Macedonia, Serbia, and Turkey.

2.2 Biodiversity tracking 2021-2027: recommendations on tracking methodology

This section sets out the project team’s proposals regarding tracking methodology for biodiversity expenditures in the EU budget in the 2021-27 period. Programmes are addressed below in the order of their proposed appearance in the new budget architecture for the 2021-2027 period. Table 7: Suggested approach to biodiversity tracking for each programme

below sets out a summary of the recommendations; detailed explanations of our approach are provided in Annex 2. Both the table and the programme-by-programme descriptions in the Annex are ordered according to the new budget headings for the 2021-2027 period.

A key change in the context for biodiversity tracking, which was not foreseen when the Terms of Reference for this project were drawn up, is the agreement by the co-legislators to set a formal target (expressed as an “ambition”) for biodiversity expenditure in the new multiannual financial framework. Article 16 of the Interinstitutional Agreement on operation of the budget from 2021 to 2027⁷⁰ commits the Commission to report annually on a number of issues, including:

⁶⁸ See EC (2020) “Draft general budget of the European Union for the financial year 2021 (COM (2020) 300), Programme Statements of operational expenditure - Working document Part I”, p 627

⁶⁹ * This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

⁷⁰ [Interinstitutional Agreement](#) of 16 December 2020 between the European Parliament, the Council of the European Union and the European Commission on budgetary discipline, on cooperation in

“expenditure contributing to halting and reversing the decline of biodiversity, on the basis of an effective, transparent and comprehensive methodology set out by the Commission, in cooperation with the European Parliament and with the Council, and, where relevant, in accordance with sectoral legislation, with a view to working towards the ambition of providing 7,5 % in 2024 and 10 % in 2026 and in 2027 of annual spending under the MFF to biodiversity objectives, while considering the existing overlaps between climate and biodiversity goals”.

The introduction of this ambition, and the need for publication of an “effective, transparent and comprehensive methodology”, places much greater emphasis on early and consistent decision-making on biodiversity tracking than was the case in the previous (2014-2020) MFF.

In addition, we understand that the Commission wishes to move from the current approach for biodiversity tracking, which is based largely (although not exclusively) on the stated objectives or expenditure, and – in line with the 2021-2027 climate tracking methodology – to focus instead on the expected impacts of expenditure in practice.

2.2.1 Overall recommendations

Our approach in developing the detailed recommendations for each programme in below has therefore reflected the urgency of developing a clear methodology, and has been to:

- Avoid major change to current methodologies, except where necessary to improve accuracy, to reflect differences in the legislation underpinning programmes and their operation, or in the case of new programmes; in particular, this means that the Rio Markers approach should be maintained for now.
- To focus on expected impacts, wherever possible, rather than only on the stated objectives of expenditure (although where evidence on impact is limited or unavailable, the stated objectives may still need to be used as a guide to the coefficient applied);
- Aim for consistency, wherever possible, with the methodology adopted for climate tracking in the 2021-2027 period, except where this is not feasible or does not allow for accurate and consistent results.

One general recommendation, based on the findings of our assessment of the 2014-2020 methodology (see section Ex-post assessment of tracking in the EU budget 2014-2020 above), and stakeholder feedback from the workshop held to discuss findings, is that **great care needs to be taken on the use of the 40% expenditure marker**, with

budgetary matters and on sound financial management, as well as on new own resources, including a roadmap towards the introduction of new own resources

an increased focus on ex post evaluation of its accuracy. There are, as noted above, two main categories of expenditure where this marking is used, both of which justify further information-gathering through the course of implementation of programmes:

- The first category is where there is a **clear understanding that the expenditure does produce significant biodiversity benefits**, but not at a level which would justify a 100% marker. Here, there is a need for continued assessment of the biodiversity impact of expenditure, in order to identify whether it is having the expected impact, and whether steps could be taken which intensify that impact.
- The second category, which is particularly relevant to structural funds programmes, is where interventions are categorised in a way which **groups together expenditure with a biodiversity impact and expenditure with little or no biodiversity impact**: a case in point is cohesion policy expenditure on wastewater treatment plants (intervention field 022 in 2014-2020, 041 in 2021-2027 programmes). Ex post assessment of the nature of the investments recorded under these intervention fields would help to identify if the 40% marker is justified (i.e. if a sufficient proportion of the investments are of a kind which can be expected to have biodiversity benefits), and we recommend that this should be a focus of relevant ex post evaluation studies.

A further recommendation, based in part on the uncertainty surrounding the use of the 40% marker, addresses the Commission's use of the information generated by the tracking process in its public communications. Using the total of expenditure tracked with the 100% marker, and the 40% of expenditure tracked with the intermediate marker, and referring to it as "expenditure on biodiversity" is potentially misleading. Commission communications material generally refers more cautiously to "contributing to" or "addressing" biodiversity, and this approach should continue. The Interinstitutional Agreement calls for the Commission to report on expenditure "contributing to" halting and reversing biodiversity decline. A distinction could also be drawn between the 100% tracked expenditure (where, generally, there should be a high level of confidence that it is spending "on" biodiversity), and expenditure under the 40% marker, which is a relatively crude estimate. We suggest formulations such as:

"The EU Budget spends [EUR Xbn], or [A%] of the total budget, directly on biodiversity; and an estimated additional [EUR Ybn] on programmes which contribute to biodiversity objectives. A total of [EUR Zbn], or [B%] of the total budget is therefore estimated to contribute directly or indirectly to biodiversity objectives."

In line with the Terms of Reference for this project, we have also provided a review of possible alternative approaches to biodiversity tracking methodologies (see section Alternative approaches to biodiversity tracking below). These could be developed

further and implemented in the later stages of the current MFF or in preparation for the following MFF, if the Commission’s view was that they represent a significant improvement. This is, however, an issue which is wider than the current project can address, given the legislative requirement for a biodiversity tracking methodology in the 2021-2027 MFF, and the clear desirability of ensuring that the methodologies adopted for biodiversity and climate expenditure are mutually coherent.

2.2.2 Programme specific recommendations

Table 7 below summarises our recommendations for each programme, and the rationale underlying them. We have included recommendations covering a broader range of programmes than those which were included in biodiversity tracking in the 2014-2020 period. Annex 2 provides more detail on our approach to each programme.

Table 7: Suggested approach to biodiversity tracking for each programme

Programme and main elements	Suggested application of markers	Rationale
Horizon Europe		
Pillar 1	Project level tracking as at present, with relevant expenditure under ERC funding and Marie Skłodowska-Curie Actions, and research infrastructures. Application of markers at project level enables proportion of biodiversity relevant expenditures to be estimated to inform ex ante estimation.	Tracking methodology developed for Horizon 2020 can be applied to Horizon Europe. This includes marking of biodiversity relevance of “bottom-up” actions, which in turn can inform definition of metrics for ex-ante marking of budget lines. Further guidance on marking biodiversity relevance of different research subjects, and defining consistent approaches to biodiversity, climate and digital tracking would be helpful.
Pillar 2	Marking of relevant topics in work programmes, with a particular focus on the “Food, Bioeconomy, Natural Resources, Agriculture and Environment” Cluster. Marking at project level for non-biodiversity focused topics. Only expenditure with relevant biodiversity targets should be tracked.	Guidance is being developed on assessment of biodiversity relevance of topics in work programmes; this could also help to ensure biodiversity mainstreaming in work programmes, calls and project proposals, identifying the scope for setting research objectives and defining outcomes which are relevant to the biodiversity strategy.

Pillar 3	Likely to be limited potential, with tracking necessary at project level.	Current tracking includes funding for the JRC (€4.2 m); tracking methodology for JRC, EIT, Art 185 initiatives and financial instruments applies bespoke approach rather than using standard Horizon Europe IT tools.
InvestEU		
Commission guidance on climate and environmental tracking	% marker applied in accordance with the Commission guidance	The relevant Annex of the Commission guidance is based on Annex VI of RRF and Annex I of CPR. However, partners may choose to use their own EU Taxonomy aligned methodology in reporting on climate, and presumably biodiversity, expenditure.
Expenditure identified by partners on a voluntary basis as meeting the definition of biodiversity expenditure under the Taxonomy Regulation	100%	To note that this option will only be available when the relevant legislation on biodiversity investments is adopted.
Expenditure identified by partners on a voluntary basis as meeting the definition of either climate mitigation, or climate adaptation expenditure under the Taxonomy regulation	40% (or proportion of the investment relevant for biodiversity)	Some projects under both climate mitigation and climate adaptation could have significant biodiversity benefits; we recommend an initial assumption of a 40% contribution or by way of estimating the proportion of the investment benefiting biodiversity
EU Space Programme		
All expenditure	Case-by-case assessment of each service to identify proportion of expenditure relevant to biodiversity	Current methodology (Copernicus) reflects specificity of programme and appears accurate.
Connecting Europe Facility		
Transport and Energy projects	Isolation of biodiversity-relevant expenditure for all projects as part of the biodiversity mainstreaming approach; where a project can with reasonable confidence be identified as making a net positive overall contribution to	Significant expenditure is expected on biodiversity-relevant aspects in order to mitigate the negative impacts of infrastructure projects. However, the majority of projects are expected to have no net positive impact on biodiversity, so it would be inappropriate to include the

	biodiversity, the biodiversity-relevant expenditure can be tracked at 40% or 100%, depending on the significance of the impact.	expenditure in biodiversity totals except in cases where a net overall positive contribution can be demonstrated.
European Regional Development Fund and Cohesion Fund – based on Intervention Fields defined in the Common Provisions Regulation		
058: Climate adaptation/risk management: floods	40%	The category description now <u>includes</u> (but is not limited to) ecosystem based approaches to flood prevention. Neither 100% nor 0% are appropriate. Ex post assessment of what is funded in practice would be valuable.
059: climate adaptation/ risk management: fire	40%	Potential contribution focused on prevention of fire in forest and biodiverse habitats
060: Adaptation to climate change measures and prevention and management of climate related risks: others, e.g. storms and drought	40%	The category description now <u>includes</u> (but is not limited to) ecosystem-based approaches to storm and drought management. Neither 100% nor 0% are appropriate. Ex post assessment of what is funded in practice would be valuable.
065: waste water collection and treatment	40%	40% overstates the connection between waste water treatment and biodiversity benefits. Ex post assessment of investments assigned this field, with a subsequent adjustment of the marker as appropriate, would be useful. If a reduced / intermediate rate band is introduced in future (e.g. 10% see Section Alternative approaches to biodiversity tracking), it could be appropriate to choose it here; or if ex post evaluation revealed that only a limited proportion of projects had primary or significant biodiversity benefits, markers could be applied on that basis .

066: waste water collection and treatment compliant with energy efficiency criteria	40%	The same concerns as noted above apply, as would any lessons learned from ex post assessment of the current waste water treatment intervention field. It will also be important to ensure that this intervention field, and the 40% marker, are not used for investments which are wholly or mainly concerned with improving energy efficiency of existing plant, with no benefit in terms of improved control of emissions to water. Guidance from the Commission could usefully clarify that in such cases, intervention field 026 (Energy efficiency renovation or energy efficiency measures regarding public infrastructure) should be used.
073: Rehabilitation of industrial sites and contaminated land	40%	Some investments under this heading can be very positive for biodiversity; others may have little or no biodiversity benefit. This is another area where updating the coefficient on the basis of ex post evaluation would be helpful.
074: Rehabilitation of industrial sites and contaminated land compliant with efficiency criteria	40%	Similar arguments to 073 apply. The risks noted for 066 do not apply here, since the “efficiency criteria” refer to creating a carbon sink.
078: protection, restoration etc of Natura 2000 sites	100%	
079: Nature and biodiversity protection, green infrastructure	100%	Subject to further assessment of how expenditure is categorised as “green infrastructure”, and whether it is always relevant to biodiversity outcomes.
080 - Other measures to reduce greenhouse gas emissions in the area of preservation and restoration of natural areas with high	100%	“Preservation and restoration of natural areas” implies a 100% marker; but the example of landfill gas capture is puzzling, and suggests some projects may be less relevant to biodiversity.

potential for carbon absorption and storage		We propose 100%, but it would be helpful to have clarification that landfill gas capture is only relevant to this intervention field when associated with restoration of natural areas.
167 - protection, development and promotion of natural heritage and eco-tourism	40%	Needs a careful assessment of the balance of expenditure under the intervention field – how much is “protection”, and how much is “eco-tourism promotion”, and what are its impacts.
European Social Fund +		
Intervention Field 01: Contributing to green skills and jobs and the green economy	Programme authorities may identify expenditure as relevant to biodiversity on a case-by-case basis, with a marker of 40% or 100% depending on intensity of impact	While the Intervention Field added to the RRF Regulation Annex (and which we assume is also present in the Common Provisions Regulation) is shown as 100% for climate, it appears unlikely that a high proportion of the interventions under it will target biodiversity. However, adding an option for programme authorities to identify relevant expenditure may help increase the profile of the option of supporting biodiversity-relevant skills and jobs.
Recovery and Resilience Facility		
All expenditure that can be assigned to an Intervention Field in Annex VI of the RRF Regulation	% marker applied in the RRF Regulation, Annex VI	To be consistent with the approach adopted for ERDF and CF expenditure.
Just Transition Fund		
All support	Same approach as for ERDF and CF (above).	Intervention fields are designated in the same way, under the CPR. Our assumption is that there will be a limited range of JTF interventions which could be relevant to biodiversity; although site restoration (Article 4.2 (f)) may contribute projects falling under Intervention Field 050.
European Agricultural Guarantee Fund and European Agricultural Fund for Rural Development		
Commitments allocated to CAP specific objective 1:	0%	No direct impact on biodiversity

'support viable farm income and resilience across the Union to enhance food security'		
Commitments allocated to CAP specific objective 2: 'enhance market orientation and increase competitiveness'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 3: 'improve farmers' position in the value chain'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 4: 'contribute to climate change mitigation and adaptation'	40%	No automatic direct impact on biodiversity, but potential for significant benefits if measures are appropriately designed.
Commitments allocated to CAP Specific Objective 5: 'Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e)) - excluding ANC	40%	A proportion of the commitments programmed under this objective could benefit biodiversity.
Commitments allocated to CAP Specific Objective 6: 'Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f))	100%	All commitments allocated under this objective should have biodiversity at their core, and the Commission should ensure that this is the case through the approvals process. All interventions with funding allocated under this objective would be included as long as the anticipated biodiversity benefits duly justified. This would include any expenditure allocated to this objective for the BISS and ANC interventions.
Commitments allocated to CAP Specific Objective 7: 'attract young farmers and facilitate business development in rural areas	0 %	No direct impact on biodiversity
Commitments allocated to CAP Specific Objective 8 'Promote employment	0 %	No direct impact on biodiversity

growth, social inclusion and local development in rural areas'		
Commitments allocated to CAP Specific Objective 9 'improve the response of EU agriculture to societal demands on food and health'	0 %	No direct impact on biodiversity
Commission technical assistance expenditure (0.25% of EAFRD total)	0%	No direct impact on biodiversity
European Maritime Fisheries and Aquaculture Fund – based on intervention types defined in Annex IV of the EMFAF Regulation		
1. Reducing negative impacts and/or contributing to positive impacts on the environment and contributing to Good Environmental Status	100%	Clear biodiversity focus.
2. Promoting conditions for economically viable, competitive and attractive fishing, aquaculture and processing sectors	0%	No biodiversity relevance.
3. Contributing to climate neutrality	40%	Unclear precisely what types of expenditure are likely to be included here but some may have additional biodiversity benefits
4. Temporary cessation of fishing activities	40%	Our suggested marker assumes that some temporary cessations of fishing activities are required in order to address biodiversity issues; in which case, the availability of EMFAF expenditure may make it easier for Commission and national authorities to take such action.
5. Permanent cessation of fishing activities	40%	The impact of expenditure on biodiversity is indirect, since support can be triggered only in cases where an imbalance between fishing opportunities and fleet capacity is identified by the relevant Member State (i.e. it follows, rather than leads to, a reduction in available catch). However, the regulation requires

		that the reduction in fleet size be permanent, which would have lasting benefits in future years. We also recommend further research to assess the biodiversity impact in practice of temporary and permanent cessation support, in order to inform future programme design.
6. Contributing to Good Environmental Status through implementing and monitoring Marine Protected Areas including Natura 2000	100%	Clear biodiversity focus.
7. Compensation for unexpected environmental, climatic or public health events	0%	Unlikely to be a biodiversity focus.
8. Compensation for additional costs in Outermost Regions	0%	No biodiversity focus.
9. Animal health and welfare	0%	Subject to further clarity on what is expected to be included under “animal health and welfare”; there does not appear to be an obvious biodiversity benefit.
10. Control and enforcement	40%	On the assumption this primarily concerns expenditure which contributes to control and enforcement <i>beyond the standard required of Member States</i> .
11. Data collection, analysis, and promotion of marine knowledge	40%	A significant proportion of such expenditure is likely to have biodiversity benefits. It might also be useful to enable Member States to propose a 100% marker for expenditure which is primarily focused on improving knowledge of biodiversity issues
12. Maritime surveillance and security	40%	Some evidence of a contribution to better-targeted enforcement of biodiversity and catch legislation.
13. Community-led Local Development (CLLD) – preparation actions	0%	No clear biodiversity focus.

14. CLLD – implementation of strategy	40%	This may lead to some overestimation; however, some strategies should have specific biodiversity impacts (rather than just a generalised focus on sustainability); and such approaches should be encouraged.
15. CLLD – running costs and implementation	0%	No clear biodiversity focus.
16. Technical assistance	0%	No clear biodiversity focus.
LIFE (Financial Instrument for the Environment)		
Nature and Biodiversity	100%	To note that a link between LIFE “strategic nature projects” and more detailed tracking of EAFRD expenditure may be possible in future years.
Other sub-programmes	Case-by-case assessment of projects	There may be scope for using clearer criteria on biodiversity tracking, and to ensure consistency with NDICI expenditure (see below).
Neighbourhood, Development and International Cooperation Instrument		
Geographic component	Application of markers on a case-by-case basis, based on Commission services assessment of individual projects or groups of projects	
Thematic component	Application of markers on a case-by-case basis, based on Commission services assessment of individual projects or groups of projects	Particularly relevant to the Global Challenge of “ensuring a healthy environment and tackling climate change”. Criteria for tracking biodiversity expenditure, and guidance on how to ensure biodiversity mainstreaming, could be valuable.
Rapid response component	Application of markers on a case-by-case basis, based on Commission services assessment of individual projects or groups of projects	While there is less scope for systematic inclusion of biodiversity considerations in crisis situations, there are cases where a biodiversity marker has been appropriate. Care should continue to be taken to ensure that positive markers are not

		applied simply because actions are taking place in biodiversity hotspots, and that there continues to be a focus on positive contributions.
Instrument for Pre-Accession Assistance (IPA III)		
All expenditure	Application of markers on a case-by-case basis, based on Commission services assessment of individual projects or groups of projects	Consistent with NDICI approach above
Union Civil Protection Mechanism		
Expenditure on forest fires	40%	While expenditure under the civil protection mechanism is not currently tracked as biodiversity relevant, there is a good case for considering emergency assistance addressing forest fires as a 40% contribution.
Technical Support Instrument		
Biodiversity policy and delivery support	Case-by-case allocation of markers	Dependent on Member States bringing forward requests for assistance which are genuinely focused on biodiversity issues.

2.3 Alternative approaches to biodiversity tracking

The Terms of Reference for our project asks us to “Explore opportunities for developing an alternative tracking methodology to the current one”.

A key issue for the Commission to address in designing its tracking methodology is: what is the tracking of biodiversity expenditure designed to achieve? Clarity on this point will help the Commission in designing and adapting its tracking mechanism. Among the possible rationales (some of which overlap) are:

- To demonstrate to international negotiating partners in the UN Convention on Biological Diversity that **commitments on biodiversity financing are being met**. This, for example, underpins the use of Rio Markers for Official Development Assistance (ODA) expenditure.
- To track **trends in biodiversity expenditures over time**, so as to enable an assessment of whether an increasing proportion of the EU budget is being allocated to biodiversity priorities.

- To **compare biodiversity expenditures between Member States**, enabling an assessment of allocations of resources and how they vary across the EU;
- To **encourage greater use of public expenditure to deliver biodiversity objectives**. This may be achieved by setting a challenging target which will not be met without changes in spending priorities, to force the commitment of more expenditure to biodiversity objectives.
- To assess whether **biodiversity policy has been sufficiently mainstreamed** in spending programmes;
- To **demonstrate** to co-legislators, citizens, and civil society organisations that national or EU-level **expenditure is appropriately focused on biodiversity policy** (which could be in association with a numerical target for expenditure);
- To identify whether a **funding gap** identified for achieving biodiversity objectives is being filled; and how much more needs to be done if it is not.

In practice, of course, the Commission is committed, both politically and in the legislation establishing the MFF, to monitoring biodiversity spending against the ambition of dedicating 7.5% of the 2021-2027 MFF to biodiversity as of 2024, and 10% as of 2026; and had already committed in the Biodiversity Strategy to unlocking “at least €20 billion a year ... for spending on nature”⁷¹. These ambitions are relevant to the fourth and sixth indent identified above; but it will be important to develop a clear view of what is intended to be achieved by the application of these ambitions/targets. **We recommend that the Commission develops a clear statement of its rationale for biodiversity tracking, and the policy outcomes it aims to achieve through its implementation.**

Each of the potential rationales identified above requires that the methodology for tracking biodiversity expenditures is as robust as possible and fit for the purpose to which it is designed. However, each rationale has its own implications for the methodology chosen. For example:

- Reporting expenditures internationally, under the UN CBD and OECD DAC, suggests a need to adhere to the Rio-markers methodology;
- Reporting trends in biodiversity expenditures over time requires a consistent approach – either adhering to the same methodology over time or adjusting the assessment to re-estimate the analysis correcting for changes in methodology; this may conflict with the need for a comparison of methodologies between Member States and the EU level.
- Comparison of expenditures between Member States requires a common methodology to be used across the EU; this may conflict with the need for consistency over time.

⁷¹ “EU Biodiversity Strategy for 2030: brining nature back into our lives”, COM (2020) 380, p 17

- Comparison of expenditures against needs requires both to be defined in similar units and applying common definitions.

If the objective is to encourage greater mainstreaming, mechanisms like those used in shared management programmes, which do not require specific decision-making or reporting by national and regional authorities, may be less appropriate. If the rationale is focused on demonstration, there is a risk that tracking decisions tend to overestimate the true biodiversity-relevance of expenditures, in order to ensure that a political commitment is seen to be delivered. This may be particularly relevant if those making tracking decisions need to demonstrate a particular level of biodiversity expenditure in order to access funding (see the concerns outlined in Annex 2, section 5). The objectives also have implications for timing of tracking efforts – i.e. the extent to which tracking aims to quantify expenditures in advance for planning purposes and/or takes place after spending occurs, to assess actual expenditures as accurately as possible. The current methodology relies on an approach broadly based on the OECD Rio Markers⁷²; however, the OECD’s handbook makes it clear (p.6) that

“..the markers are considered descriptive rather than strictly quantitative. Instead, they allow for an approximate quantification of [...] finance flows”.

Because of the need for methodologies to be consistent over time, and across the EU, and linking to international reporting methods, caution needs to be exercised in considering any divergence from the current OECD Rio Markers approach.

The following changes in methodology could be considered:

An increase in the number of markers/changes in % factors applied: The use of the Rio Markers approach, and the Commission’s choice of the 100%, 40%, and 0% factors to apply to them, addresses to some extent the problem of a binary approach (in which expenditure is judged either to contribute or not to contribute, i.e. 100% or 0%); but it still leaves significant boundary issues. The application of only three markers has been criticised for being coarse, and the use of a 40% marker for any expenditure deemed to have a significant but not primary biodiversity objective may be seen as arbitrary. For example, the Commission’s approach to climate tracking for CAP Direct Payments in the 2014-2020 period was criticised by the ECA and others for being over-generous⁷³, but arguably any approach to applying 40% or 100% markers to such a significant proportion of the EU budget would fail to provide meaningful and accurate information. Ireland’s report on biodiversity tracking in the national budget (see Annex 2 below) used 6 coefficients (100%, 75%, 50%, 25%,

⁷² See “OECD DAC Rio Markers for Climate: Handbook”, OECD. https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf

⁷³ European Court of Auditors (2020) Tracking climate spending in the EU budget. Review No 01/2020, European Court of Auditors, Brussels.

5%, 0%), with a trade-off in increased complexity against the ability to make more appropriate judgements for expenditure with less than a 100% contribution. The small number of markers defined in the OECD methodology is most problematic where they are applied to broad expenditure lines such as the CAP.

Any system applying percentages to categories of expenditure will face boundary issues. However, introducing more categories, particularly below the current 40% marker (e.g. a 10% marker for expenditure which has minor impacts on biodiversity) could reduce the problem that marginal decisions on very large areas of expenditure have a significant impact on the overall tracking data reported (a key problem for the Commission, given the CAP's impact on overall tracked expenditure). An alternative would be to apply markers at a more granular level, with case-by-case assessments, either at the level of Member State programmes or at the level of individual articles in legislation, and potentially informed by ex-post assessments of the biodiversity relevance of expenditures in recent years, rather than a blanket assumption that all expenditure in a given category or investment field should have the same marker applied. This effectively enables a wider range of percentage markers to be applied (e.g. x% of a budget line could be marked at 100% and y% at 40% based on historic experience), while still being consistent with the Rio markers approach. However, this implies significantly greater administrative input, and a risk of inconsistency in decisions on which markers to apply.

Moving away from markers – identifying expenditure which contributes to biodiversity outcomes without identifying intensity: An alternative would be to recognise that boundary issues create significant problems in assessing expenditure totals, and that information on where expenditure has been biodiversity mainstreamed is more relevant. The French Government has introduced a system⁷⁴ which assesses whether expenditure lines are favourable, neutral, or unfavourable in respect of six types of environmental impact (essentially, the six environmental dimensions identified in the Taxonomy Regulation). The assessment is made on the basis of either the stated objectives of the expenditure or proven impacts in practice; no additional assessment is made of the intensity of the favourable impacts. This leads to the identification of totals of expenditure which are “favourable” to biodiversity, rather than the identification of expenditure “on” biodiversity. Such an approach would fit best with a rationale that focuses on assessing whether mainstreaming has taken place, rather than one based on meeting a quantitative expenditure target. It might also be difficult to apply to expenditure under shared management,

⁷⁴ See “[Rapport sur l’impact environnemental du budget de l’État](#)”, September 2020

where the impact of programmes in different Member States and regions may vary.

A focus on the EU biodiversity strategy for 2030: One weakness of the current tracking methodology is that it does not provide a good measure of the extent to which the EU budget is focused on delivery of the EU biodiversity strategy. All expenditure with a favourable impact on biodiversity is, in principle, tracked, regardless of whether the expenditure is targeted on the priority areas identified under the strategy. One option for achieving a greater focus on the strategy would be to focus attention primarily on expenditure identified in each Member State's Prioritised Action Framework (PAF) under Natura 2000 as a reference point, since there is a much greater confidence that these funds will be aimed at biodiversity outcomes. This approach could potentially involve tracking expenditures according to their contribution to more than one type of biodiversity objective – e.g. overall relevance for biodiversity, relevance for delivering the 2030 strategy, and relevance for implementing the Nature Directives/ Natura 2000 network. While this multi-tier approach to tracking could yield valuable data for policy makers, it would also significantly increase the administrative effort involved.

A greater focus on measuring outcomes of expenditure: One option identified by researchers on climate tracking is to track only expenditure which sets clear mitigation objectives commensurate with the level of public investment. This is more problematic for climate adaptation, and similarly for biodiversity tracking, which lack the simple carbon metric of climate mitigation. However, a system could be envisaged which is based on greater ex ante setting of biodiversity policy objectives for expenditure, with clear monitoring of the achievement of biodiversity outcomes in practice, and only expenditure with significant, relevant outcomes being considered as a contribution to a biodiversity expenditure target.

- 7. Including an assessment of negative biodiversity impacts of expenditure:** Finally, the current methodology does not address potential negative impacts on biodiversity of other expenditure under the EU budget. In principle, such expenditure should be avoided. The adoption of the 8th Environmental Action Programme in March 2022 marks a further EU commitment in that direction, with a commitment to "phasing out environmentally harmful subsidies, in particular fossil fuel subsidies, at Union, national, regional and local level, without delay"⁷⁵. However, expenditure with negative impacts clearly does take

⁷⁵ See Article 3 (h), "Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2030, March 16 2022". The official journal text is not available, although the informal text can be found on the European Parliament website, and in the Council documents register at PE-CONS 83/21.

place, in particular through infrastructure development, or expenditure which risks encouraging over-exploitation of natural resources, and is likely to continue at some level in future. While EU nature legislation, and a range of requirements in shared management programmes, should mitigate such negative impacts, tracking expenditure which (despite mitigation) nevertheless has significant negative impacts would provide a clearer and more accurate depiction of the overall impact of the EU budget on the delivery of biodiversity targets. However, mechanisms to identify such expenditure are likely to require case-by-case assessment of projects and other commitments of expenditure, so may be difficult to combine with a system based on low administrative costs. To the extent that approaches based on applying the Taxonomy Regulation's "do no significant harm" criterion are successfully implemented, tracking negative expenditure may be less necessary.

2.4 International reporting on biodiversity expenditure: towards a common EU approach

One further source of potential insights into how domestic biodiversity expenditure can be tracked is the reporting by the EU and Member States under the Financial Reporting Framework of the UN Convention on Biological Diversity (CBD). The Financial Reporting Framework is a template intended for use by Parties to the CBD in providing baseline information and reporting on their financial contribution to reach the global financial targets under Aichi Biodiversity Target 20⁷⁶ and the 2014 Conference of the Parties in Decision XII/3 'Resource mobilisation'.⁷⁷ Article 3 of the decision states that progress towards the target will be reviewed based on information provided by the parties in their Financial Reporting Frameworks. Articles 24 to 33 further describe the reporting framework mechanism and its implementation. Parties to the Convention were requested to provide financial information in 2015, and then on a regular basis thereafter; information was to cover both international finance flows and current levels of domestic biodiversity expenditure.

In practice, the performance of Member States in reporting to the CBD under the framework has been patchy, particularly in respect of domestic expenditure. While reporting on international flows can rely on a common methodology, in the form of

⁷⁶ "By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties." UNEP/CBD/COP/DEC/X/2, 29 October 2010, <https://www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf>.

⁷⁷ UNEP/CBD/COP/DEC/XII/3 17 October 2014, <https://www.cbd.int/doc/decisions/cop-12/cop-12-dec-03-en.pdf>.

the Rio Markers (see further information in section below), there is no equivalent standard for reporting on domestic expenditure. A total of 22 Member States provided information on their domestic biodiversity expenditure in the 2015 reporting exercise, covering both amounts of expenditure and a description of the methodology used to calculate them; in the 2020 exercise, only 7 Member States provided information (via the report on behalf of the EU)⁷⁸. In contrast to the 2015 returns, little information was provided in 2020 on the methodologies used to identify domestic biodiversity expenditure, and, as Table 8 below shows, the amounts reported varied significantly when compared with other mechanisms for estimating domestic biodiversity expenditure at Member State level. We have used as a comparator the Eurostat Classification of the functions of Government data, which is described in more detail in section 4.3.1 below. As section 4.3.3 notes, there may also be some biodiversity benefits from wider expenditure under the "environment" heading of the COFOG categorisation, so we have included as an additional point of comparison a broader estimate based on applying a 40% coefficient to additional categories of environmental expenditure.

As can be seen from the table, even for those Member States reporting domestic expenditure via the EU submission there is little consistent relationship between the data reported to the CBD, and the data available from Eurostat – for some, the COFOG figures are higher, for some they are lower. We sought further information from these Member States through a questionnaire, supplemented by follow-up correspondence and interviews in some cases, and are grateful for the input from relevant national officials; a full analysis of the information provided is being passed to the Commission alongside this final report.

Key points that stand out are that:

- Some CBD submissions are based on central government expenditure only, and do not attempt to estimate finance from local or regional authorities; others aim to include wider government expenditure.
- Some submissions also include estimates of private sector and NGO expenditure on biodiversity.
- Some submissions include both the EU budget and national cofinancing elements of ESIF and rural development expenditure; some exclude the EU budget contribution.
- Some submissions were based on an admittedly subjective assessment of which projects were considered as "biodiversity expenditure"; others attempted a

⁷⁸ See "Submission by the European Union and its Member States to CBD Notification 2021-034 Information regarding Financial Reporting Frameworks from the EU and its Member States", available on the [CBD website](#)

more systematic approach, including through the application of percentage markers.

Table 8: Comparison of CBD reporting and Eurostat data on domestic biodiversity expenditure

Member State	Biodiversity expenditure reported by Member States in 2019 (million Euros)			
	COFOG direct biodiversity expenditure		COFOG Estimated total biodiversity expenditure with 40% marker ⁷⁹	CBD data
	General government	General + Central + State government		
Bulgaria	5.9	11.7	172	10.7*
Germany	1772		10075	1724.0
Malta	41.9	83.7	119	41.9
Poland	97.5	199.5	1214	263.8
Portugal	171.2	342.4	677	394.1
Slovenia	21.1	45.6	130	9.5
Sweden	166	336.1	1106	735.0

* 2020 data

Colour-code:

COFOG data similar to expenditure reported to the CBD
COFOG data higher than expenditure reported to the CBD
COFOG data lower than expenditure reported to the CBD

Source: General government expenditures by function (Eurostat, 2019); EU submission to the CBD, 2020 (see footnote 78)

This lack of consistency, together with the limited number of Member States reporting, means that the data is of little value in providing international partners with an understanding of what finance is being mobilised domestically to deliver the objectives of the CBD. Although we are aware that the Commission and the then Council Presidency pressed Member States to provide data, there was a disappointing response (possibly because of technical challenges in collating and submitting data). While we have not examined other Parties' financial reporting, it is at least possible that similar inconsistency in data affects a broader range of submissions to the CBD.

Addressing this issue at EU level is not straightforward. The Commission does not have regulatory levers at its disposal; it is unlikely that any attempt to legislate would meet a Commission interpretation of the subsidiarity principle, still less find favour with the Council. Attempts to achieve a voluntary harmonisation have not been successful in

⁷⁹ This data is not reported in this form by Member States; it represents our calculation, based on the COFOG data reported.

the past. We recommend an approach to future reporting cycles based on the following:

- Commission and Member States to support broader efforts to harmonise financial reporting to the CBD;
- Commission to provide Member States, 2 years in advance of reporting deadlines, with a clear voluntary template for reporting on domestic expenditure, aiming at least to identify expenditure directly addressing biodiversity objectives; and to encourage Member States to provide a full description of the methodology used highlighting any divergence from the suggested common approach;
- Encourage Council Presidencies to find time for discussion of CBD financial reporting in relevant Council working groups, on the basis of early returns from Member States, in order to focus attention of national officials on the issue (and on the need for consistency of reporting), and;
- As a fallback, in the event of significant gaps or inconsistencies in reporting, Commission and Council could, on behalf of the EU, provide illustrative estimates in the EU report based on COFOG data, potentially using category 05.4 expenditure as a lower bound estimate, supplemented by a higher estimate based on inclusion of other categories of environment expenditure with a 40% marker applied.

2.5 Biodiversity tracking: Summary of recommendations on improving tracking methodology

The focus of Task 1 was to provide a set of detailed recommendations for improving the biodiversity tracking methodology. The urgency introduced by the introduction of a legislation requirement to monitor biodiversity spending against a specific ambition, however, changed the focus of the task, with a much greater emphasis on assisting the Commission in its consideration of the tracking methodology to be applied from the beginning of the new MFF.

Our detailed recommendations on immediate tracking options are summarised in section 2.2 above, and explained in more detail in Annex 2. They should be read in the light of the contextual information provided at the beginning of that section. In particular, we have focused on ensuring that the recommendations are consistent with the Commission's current broad approach to biodiversity tracking, while responding where necessary to significant changes in design of programmes, and avoid the imposition of significant additional administrative burdens, and avoid inconsistency with the approach adopted to climate tracking.

The initial design of the project included a greater focus on more radical changes to the biodiversity tracking methodology. The decision by the co-legislators to require a

biodiversity tracking methodology, and the clear desirability of consistency with the climate tracking methodology, has meant that (in agreement with the Commission) we reduced the focus on these alternative options. In addition, we have found fewer relevant Member State systems for comparative purposes than we had hoped. Section Alternative approaches to biodiversity tracking above offers a number of possible directions for a different, or significantly modified, approach to biodiversity tracking. One recommendation we can make based on this assessment is that the design of a tracking methodology should be closely related to the policy purpose of expenditure tracking, and it would be valuable for the Commission to set out more clearly how it understands that policy purpose. And, while there may be little scope for replacing the current methodological design, based on a Rio Marker 100%/40%/0% structure, there may be value in a parallel assessment of all or parts of the EU Budget on the basis of an alternative design, carried out as a one-off exercise, in order to compare results with the official tracking methodology and gain insights into the range of biodiversity impacts from EU expenditure, and options for improving those impacts.

3. BIODIVERSITY FINANCING: ASSESSMENT OF THE FINANCIAL NEEDS TO IMPLEMENT THE BIODIVERSITY STRATEGY FOR 2030

Subtask 2.1 aims to assess the financial investment required to implement the objectives of the Biodiversity Strategy for 2030. This will then be compared against the estimates of previous financial expenditure on biodiversity in the EU undertaken in subtask 2.2, to explore the estimated gap in financing that may be expected in future years to 2030.

3.1 Methodological approach taken to Subtask 2.1

The project team has adopted a methodological process for this subtask that is broadly consistent with the Biodiversity Financial Needs Assessment as found in the 2018 BIOFIN Workbook developed by UNDP⁸⁰. The BIOFIN approach was initially designed to assist developing countries to develop rigorous assessments of financial needs associated with biodiversity outcomes; however, it is essentially a stepwise and transparent process for assessing financial needs and is entirely applicable to the EU process. The BIOFIN methodology involves six logical steps as described below for the project.

The BIOFIN methodology involves six logical steps as described below for the project.

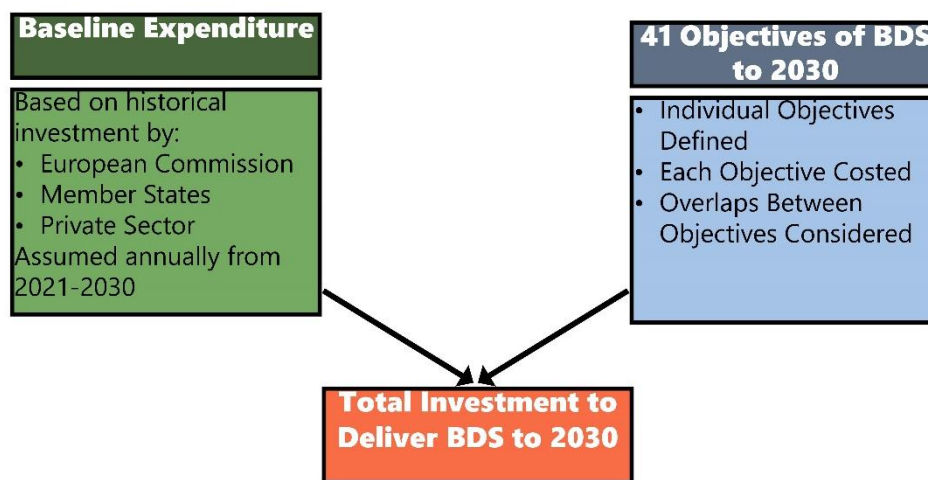
- Step 1: prepare an appropriate team, define key stakeholders and roles, and develop a consultation plan. For the current project, this was undertaken in selecting the consortium, and stakeholders were identified in the inception report.
- Step 2: define the scope and clarify the components of the biodiversity targets. This was undertaken by the project team through distinguishing between 'baseline' biodiversity expenditure through to 2030, and then additional expenditure needed to deliver the BDS for 2030. To identify the latter a detailed analysis of each objective of the BDS for 2030 was undertaken.
- Step 3: desktop data collection and costing estimates. This was recorded by the consortium in an Excel spreadsheet, the results of which are provided in the sections below, and which will be made available to the Commission.
- Step 4: refine costs with expert input. This was carried out through consultation with key stakeholders, both at the project workshop and subsequently.
- Step 5: analyse costing results. This involved incorporating adjustments developed through the consultation process.

⁸⁰ UNDP (2018). The BIOFIN Workbook 2018: Finance for Nature. The Biodiversity Finance Initiative. United Nations Development Programme: New York.

- Step 6: estimate unmet finance needs. This involves a comparison with the finance estimates developed under Task 2.2.

To estimate financing needs, the project team distinguished between baseline expenditure on biodiversity in the EU that will occur even in the absence of the BDS for 2030, and additional expenditure that will be incurred to achieve the specific objectives of the BDS for 2030. Financing estimates were then developed of the costs that are likely to be incurred to deliver on those objectives by all parties (the EC, Member State and sub-national governments, and non-government actors), after considering overlaps between objectives (whereby the delivery of one objective also delivers in part or in whole of another). Figure 3, below, provides a representation of the methodological approach used in this subtask.

Figure 3: Methodology for Estimating Financing Needs



It is important to note that the methodology involves several key decisions:

- The methodology seeks to assess financial needs for delivering the BDS for 2030. We interpret this to mean the direct financial expenditures (combined with baseline nature expenditure) that will be required to achieve these objectives.
- We adopt a broad interpretation of the scope of entities undertaking financial expenditures to achieve the outcomes: this includes any agencies of the European Commission, any agencies of the individual Member States at any governmental level, and expenditures from any affected non-government actors (such as farmers, landowners, private businesses).
- Any further impacts of delivering the strategy on different actors, including reduced future revenue streams or other limits on economic activity due to implementation of the strategy (so called “opportunity costs”) are included where they are compensated and/or reflected in incentives paid to deliver the actions required.

- As supporting information about the objectives is lacking at this early stage, judgements must be made by the consortium about what each of the objective means in practice.

This last point is critical to understand in order to be able to interpret the results produced in this report appropriately. As at the time of undertaking this study (end 2021 and early 2022), the BDS for 2030 is a collection of ambitions, actions and intended outcomes relating to biodiversity within the EU to 2030 – these are called ‘objectives’ within this report. While some have been defined in some detail, many have so far only been defined at a high level by the EC, without a detailed work plan or costings. Indeed, how they will be delivered in practice is subject to significant additional policy work outside the scope of this project.

The purpose of this subtask is to establish the expected broad scale of financial cost needed to deliver on the BDS for 2030, in the absence of this detailed planning and costing for each component. Thus in some cases assumptions and estimates must inevitably be used, based on existing information and expert opinion.

Additionally, as noted elsewhere in this report, in several cases the commitment of expenditure needed to deliver on one objective is also likely to contribute to one or more other objectives of the Strategy. For example, ecosystem restoration investments are likely to contribute to reversing pollinator decline. In the absence of detailed work plans, it is not possible to estimate precisely the scale and nature of this overlap, but to ignore overlaps would be likely to significantly overestimate the total scale of investment needed to deliver on the BDS for 2030 as a whole. The project team has therefore considered overlaps when they are likely to occur, although we have not been able to estimate this overlap in fine detail due to the absence of detailed work plans for each separate objective.

3.1.1 Distinguishing ‘baseline’ EU biodiversity investment needs from those introduced by the Biodiversity Strategy for 2030

The scope of Task 2.1 of this project is to assess the financing needs of implementing the Biodiversity Strategy for 2030. The methodology adopted to estimate this has focused on the additional action needed from 2021 to achieve the objectives and deliver on the actions identified in the Strategy.

However, this estimation of the marginal increase in activity must assume a starting point of financing for biodiversity that the additional financing requirements of the Strategy build upon. As detailed in Task 2.2, which identifies biodiversity expenditure from 2014 to 2020, there has been considerable and increasing expenditure from public and private sources on biodiversity in recent years. This ‘baseline’ expenditure

on biodiversity must be continued and is not included in costings for the individual Objectives of the Strategy undertaken within this study. Conceptually, this is the investment that will be needed to underpin additional investments to deliver on the Strategy to 2030.

There is no methodology that can be implemented simply and perfectly to establish the ongoing baseline expenditure that will be needed for biodiversity in addition to costings of the objectives of the BDS for 2030. The previous biodiversity expenditures estimated in Task 2.2 from 2014 to 2020 are not individually itemised, but rather are provided in aggregate form across the EC, Member States and private sector. Additionally, some expenditures from the past are one-off additions that will not need repeating (such as an investment to add an area to the Natura 2000 network), while in future expenditure will be needed to appropriately maintain the biodiversity values associated with those additions.

Lastly, it must be recognised that the state of biodiversity within the EU was not perfectly in balance in 2020. The support study for the Evaluation of the Biodiversity Strategy to 2020⁸¹ found that despite the identification of successful biodiversity actions, they have been insufficient to prevent continued biodiversity loss.

In the absence of the ability to estimate a 'bottom-up' baseline expenditure for biodiversity in 2020, we have made the assumption that the scale of biodiversity investment provided by all sources in 2020 is *at least* that which must be maintained in subsequent years to avoid further decline in key biodiversity indicators.

Based on data assembled in Task 2.2, we estimate an annual baseline expenditure with the following composition:

- Expenditure on biodiversity from the EU Budget at EUR 13.63 billion annually (in 2020) - see Section EU level funding for detailed analysis.
- Member State expenditure on biodiversity at EUR 12.7 billion annually, drawing on estimated Member State expenditure as reported in COFOG 05.5 (protection of biodiversity and landscape, which has a 100% Rio marker and specifically targets expenditure whose primary purpose is related to biodiversity) to 2019 (most recent data) and projected forward based on trend data to 2020. See Section Member State domestic expenditure for detailed analysis.
- Private sector expenditure of EUR 370 million annually, comprising most recent expenditure data for green bonds, philanthropic and NGO expenditure.⁸²

Taken together, in 2020 the scale of this baseline expenditure supporting biodiversity is estimated at **EUR 26.36 billion** per year. The project team assumes the need for this baseline expenditure annually from 2021 to 2030, to underpin existing biodiversity

⁸¹ Trinomics et al, 2021. Not yet published.

⁸² This is an imperfect estimate based on available data, discussed further in Subtask 2.2

settings within the EU over this time period. Additional expenditure is estimated for the implementation of each component of the BDS for 2030 on top of this baseline, as described below.

3.1.2 Defining the objectives of the BDS for 2030

The EU BDS for 2030 is defined as a "...comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030, and contains specific actions and commitments."⁸³

As a strategic document, the Strategy combines a mix of specific actions as well as broader ambitions and objectives across different ecosystems and approaches to intervention. However, at 23 pages in length, the core communication does not fully detail each component identified in the Strategy, and clearly additional work will be undertaken in the intervening years to build specific work plans for each relevant aspect of the Strategy. The EC also provided the project team with a tracking table identifying 101 'actions' to be delivered as part of the Strategy that was also considered by the project team.

As the project team has been tasked with estimating the financing needs of the Strategy, we have analysed the Communication and the Commission's progress tracking table, and identified distinct actions and outcomes sought by the Strategy, to allow separate definition and costing. These are defined as 'objectives' in this report, and there are 41 such objectives identified. Please see Appendix 1 for detailed assessment of each Objective of the BDS for 2030.

The methodology breaks down each objective into specific actions and each action into "quantifiable activities". The actions that compose each of the objectives are a synthesis of the Strategy's actions drawn from the Commission's progress tracking table and actions identified by the team as necessary to be undertaken for each of the objectives to be delivered. Implementation action by all parties were considered within this scope (EC entities, Member States, non-government entities).

Inevitably, in the absence of official detail, a number of assumptions on implementation has been made by the project team. Some overarching assumptions are explained in the next section, and individual assumptions made for specific objectives are provided in the relevant sections.

⁸³ https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en

3.2 Key data points and assumptions used in Sub-task 2.1

As noted above, our approach to estimating the financial needs of the BDS for 2030 involves the individual assessment of each of the 41 objectives (see Table 11 in section 3.3) of the BDS, considering administration costs of the EC and Member States required to implement the objectives, as well as the on-the-ground⁸⁴ implementation costs of each objective.

As it is not possible to estimate accurately the administrative costs expected to arise from each individual objective based on EC planning, we have developed a number of consistent assumptions to use across the objectives, which have then been applied to each objective based on the consortium’s knowledge of the function and experience in similar tasks.

These data points are provided in Table 9 below.

Table 9: Consistent data applied to multiple objectives

Description	Assumed cost methodology	Assumption	Source
Support from external specialised consultants	We assume a fixed amount for each external specialised assistance activity when data is not available on e-tendering	€EUR 250,000	Consortium assumption based on consulting experience
Organising and attending meetings	Assumption based on possible travel costs, equipment, and other logistics.	€EUR 20,000	Consortium assumption based on consulting experience
Average annual salary European Commission	Average calculated from average salary of staff in function groups AD and AST	€EUR 114,132	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1211(01)&from=EN
Annual salary in MS public administration (EU average)	Total labour costs per NACE economic activity is estimated by Eurostat. We assume that the EU average cost per public administration employee per year is given by the	€EUR 44,898	https://ec.europa.eu/eurostat/databrowser/view/LC_NCOST_R2_custom_354_128/default/table?lang=en

⁸⁴ 'On the ground' or 'on-ground' refers to physical implementation of an action (as opposed to an administrative action).

	EU-27 total labour costs per employee of the "Public administration and defence; compulsory social security" category.		
Low administrative services	10% of 2 employees over 12 months. Average FTE cost for staff	EC: €EUR 22,826 MS: €EUR 8,980	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1211(01)&from=EN
Medium administrative services	50% of 2 employees over 12 months. Average FTE cost for staff	EC: €EUR 114,132 MS: €EUR44,898	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1211(01)&from=EN
High administrative services	100% of 5x staff full time over 12 months. Average FTE cost for staff.	EC: €EUR 570,660 €EUR 224,490	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1211(01)&from=EN

3.2.1 Considering overlaps

Considering each objective of the BDS for 2030 individually allows for a consistent and transparent methodology for estimating financial costs of implementing each objective. However, to consider the financial expenditure of each objective independently of all others would ignore the impact that action on one objective can have on another – this would risk double-counting costs across the objectives.

Thus a key methodological choice made by the project team in this assessment is to recognise that the implementation of some specific objectives will also contribute to the on-the-ground implementation of a number of other objectives, thus reducing the total implementation costs across those objectives, and to identify and quantify this overlap in each case. This choice helps to ensure that double-counting of financial needs is avoided.

As an example, Objective 16 is to restore at least 25,000 km of free-flowing rivers. At the same time, Objective 6 proposes legally-binding nature restoration targets by 2021 with estimated investment including ecosystem surveys, development of restoration plans, administration, reporting and most importantly, restoration work in each Member State to meet restoration targets estimated to cost EUR 11.7 billion to 2030. It is an assumption of the project team that this expenditure includes the investment

that will be needed for on-the-ground implementation to meet the restoration of at least 25,000 km of free-flowing rivers.

The key overlapping expenditures on objectives are summarised in Table 10.

Table 10: Consideration of overlapping expenditure on objectives

Objective	Overlap description
1: Legally protect 30% of EU's land and 30% of EU's seas	The costs for the legal protection of land and sea include the cost for the designation of strictly protected land areas and seas (Objective 2) and cover some of the costs for the development of ecological corridors (Objective 3). The cost for the designation of marine protected areas overlaps with costs under Objective 17, which aims to reduce the negative effects of fisheries and extractive activities in marine habitats and species.
4: Effectively manage all protected areas	Implementation costs for this objective also account for the management and monitoring of marine protected areas, which aim to reduce the negative impacts of fisheries and extraction activities on sensitive marine habitats and species under Objective 17.
6: Propose legally binding EU restoration targets	On-the-ground implementation costs for this objective also account for on-the-ground implementation needs of Objectives 3, 7, 8, 10, 12, 14, 16, and 21. Urban ecosystem restoration is assumed to be covered by action in relation to Objective 19 (ambitious urban greening strategies).
7: Protected habitats and species show no deterioration and at least 30% reach favourable conservation status or show a positive trend	The costs for achieving this objective overlap with the costs for delivering Objectives 4, 6, and 17.
8: Reverse the decline of pollinators	It is assumed that Objectives 1, 2, 4, 6, 7, and 9 will account for on-the-ground actions required to reverse the decline of pollinators.
9: Reduce the use of chemical pesticides	On-the-ground costs of Objective 20 on the elimination or minimization of pesticide use in sensitive areas is assumed to be completely covered by action under Objective 9.
12: Increase the uptake of agro-ecological practices	Objective 12 is an input to the delivery of objectives 9, 10, 11 and 13, and as such is not viewed as imposing additional costs.
16: Restore at least 25,000 km of free-flowing river	The restoration costs involved in achieving the objective of this objective are estimated under Objective 6.

3.3 Summary of financial needs

This section summarises the overall financing needs for delivering each of the identified objectives of the Biodiversity Strategy for 2030, as well as summary estimates of baseline biodiversity financing needs over the same time period. As can be seen in the summary table below, according to our estimations, the total financing needs for achieving the objectives of the Strategy amounts to about **EUR 481.48 billion** (undiscounted) between 2021 and 2030, including baseline biodiversity expenditure. This translates broadly to an annual financing need of **EUR 48.15 billion per year**.

The most significant expenditures are expected to be undertaken under objectives that require on-the-ground restoration / conservation work. More specifically, the financing needs related to the expansion and connectivity of a network of protected areas (Objectives 1 to 4 and 7) are estimated at about EUR 53.3 billion until 2030. The legally binding restoration targets (Objective 6), which at the time of writing are expected to be proposed soon by the Commission, are estimated to require the highest level of investment, totalling about EUR 64.1 billion between to 2030. Delivering on the Invasive Alien Species objective is estimated to require EUR 37.7 billion over this time period. The agriculture-related actions of the Strategy (Objectives 9 to 13) are estimated to require about EUR 12.4 billion until 2030, while marine biodiversity actions under Objective 17 are estimated at around EUR 396 million by 2030, although marine objectives are likely underestimated given the current absence of detail relating to the composition of key actions (such as the Action Plan to conserve fisheries resources and protect marine ecosystems- which is under development).

The project team has attempted to place expenditure needs across the years of the Strategy duration, although these are drawn largely from logical expectations. As depicted in the summary cost table below, financing needs in 2021 are substantially lower than in the following years. This is because most implementation, especially on-the-ground intervention, is expected in latter years. However, we also note that the annual estimates are in most cases assumed by the project team and the overall expenditure over this time period is of greater interest than annual estimates.

Table 11: Summary of financing needs per Strategy's objective per year (in EUR million)

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
Baseline expenditure for biodiversity	26,364	26,364	26,364	26,364	26,364	26,364	26,364	26,364	26,364	26,364	263,635	222,385
1. Legally protect 30% of EU's land and 30% of seas	1	895	894	895	894	894	894	894	894	894	8,049	6,650
2. Strictly protect at least a third of the EU's protected land and sea areas ⁸⁶	0.1	0.1	12.8	-	-	-	-	-	-	-	13.0	12.1
3. Create and integrate ecological corridors	2,750	2,771	2,756	2,750	2,750	2,750	2,750	2,750	2,750	2,750	27,527	23,223
4. Effectively Manage all protected areas	-	2	1,030	1,046	1,063	1,079	1,096	1,112	1,129	1,145	8,702	7,020
5. Support OCT to adopt similar measures	-	-	1	-	1	-	1	-	1	-	5	4
6. Legally binding nature restoration targets	-	7,369	7,368	7,369	7,002	6,997	6,997	6,997	6,997	6,997	64,095	53,062
7. 30% of protected areas in favourable status	900	900	900	900	900	900	900	900	900	900	9,000	7,592

⁸⁵ Values in future years beyond 2021 are discounted using a 4% discount rate as per recommendations in the Better Regulation Toolbox

⁸⁶ Or put differently: 10-10% of the EU's total land and sea areas, respectively.

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
8. Reverse the decline of pollinators	0	14.3	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	125	104
9. Reduce the use of chemical pesticides	-	424	423	423	423	423	423	423	423	423	3,810	3,148
10. 10% of agricultural area under high-biodiversity landscape features	-	313	313	313	313	313	313	313	313	313	2,815	2,326
11. 25% of agricultural land under organic farming	-	539	538	538	538	538	538	538	538	538	4,846	3,849
12. Increase the uptake of agro-ecological practices	-	3.6	-	-	-	-	-	-	-	-	4	3
13. Reduce by 50% the loss of nutrients from fertilisers	-	610	39	39	39	39	39	39	39	39	922	839
14. Plant 3 billion additional trees	4	6	800	800	800	800	800	800	800	800	6,412	5,190
15. Make progress in remediating contaminated soil sites	7	1,261	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	11,348	9,377
16. Restore 25,000 km of free-flowing river	0.7	14.5	6.1	0	0	0	0	0	0	0	21	20
17. Reduce the impact of fishing, extraction and other	-	55.2	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	396	329

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
human activities incl. on marine habitats and species												
18. Cities with at least 20,000 inhabitants to adopt Urban Greening Plans	0.9	140.7	2,239.1	2,239.1	2,239.1	2,239.1	2,099.0	2,099.0	2,099.0	2,099.0	17,494	14,214
19. Minimize or eliminate the use of pesticides in sensitive areas	-	-	-	-	-	-	-	-	-	-	-	-
20. Halve the number of Red List species threatened by IAS	3,767.1	3,766.9	3,766.6	3,766.7	3,766.6	3,766.7	3,766.6	3,766.7	3,766.6	3,766.7	37,667	31,773
21. Create win-win for energy generation	1.1	0.9	1.6	0.2	-	-	-	-	-	-	3	3
22. Establish a strengthened European biodiversity framework	1.9	1.3	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	14	12
23. Step up implementation and enforcement of EU's environmental legislation	1.4	77.3	76.7	76.7	83.3	82.1	82.1	82.1	82.1	82.1	726	598
24. Initiative for sustainable corporate governance	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2
25. Strengthen Commission's biodiversity proofing framework	0.5	1.3	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	5	4

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
26. Unlock EUR 20 billion per year for nature	51.7	1.0	0.7	0.7	0.7	0.7	0.7	0.1	0.1	0.1	56	56
27. Establish a common classification of economic activities that contribute to biodiversity	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	2
28. Encourage changes in national fiscal systems to shift tax burden to pollution	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
29. Introduce in Horizon Europe a biodiversity research agenda	157.7	156.3	156.3	156.3	156.3	156.3	156.3	100.6	100.6	100.6	1,397	1,082
30. Propose a Council Recommendation on Education for sustainability	0.4	0.4	-	-	-	-	-	-	-	-	1	1
31. Use the new Skills Agenda to help biodiversity restoration	0.4	0.1	0.1	-	-	-	-	-	-	-	1	1
32. Broker an agreement for an ambitious global framework for post-2020 at the 15th CBD	2.3	2.3	-	-	-	-	-	-	-	-	5	5
33. Broker an agreement on marine biodiversity of areas beyond national jurisdiction	0.1	0.1	0.1	-	-	-	-	-	-	-	0	0

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
and designate Marine Protected Areas in the Southern Ocean												
34. Work with partner countries to protect sensitive maritime ecosystems and species	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	13	11
35. Apply zero tolerance on illegal, unreported and unregulated (IUU) fishing	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1
36. Advocate that marine minerals in the international seabed area cannot be exploited before research into the effects	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14
37. Full implementation and enforcement of the biodiversity provisions in all trade agreements	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	8	6
38. Introduce measures to avoid placing products associated with deforestation on the EU market	0.7	0.3	1,274.2	1,274.2	1,274.2	1,274.2	1,274.2	1,274.2	1,274.2	1,274.2	10,194	8,250
39. Revise the EU Action Plan against Wildlife Trafficking	-	0.8	-	-	-	-	-	-	-	-	1	1

Objectives	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total undiscounted	Total present value ⁸⁵ (in EUR 2021)
40. Propose a further tightening of the rules on EU ivory trade	0.8	-	-	-	-	-	-	-	-	-	1	1
41. Cooperate with partners to mainstream biodiversity into all development and partnership policies	291	291	291	291	291	291	291	38	38	38	2,150	1,899
Total	34,323	45,984	50,573	50,563	50,219	50,228	50,106	49,812	49,829	49,845	481,481	403,069

4. BIODIVERSITY FINANCING: ASSESSMENT OF CURRENT LEVELS OF BIODIVERSITY FUNDING IN THE EU

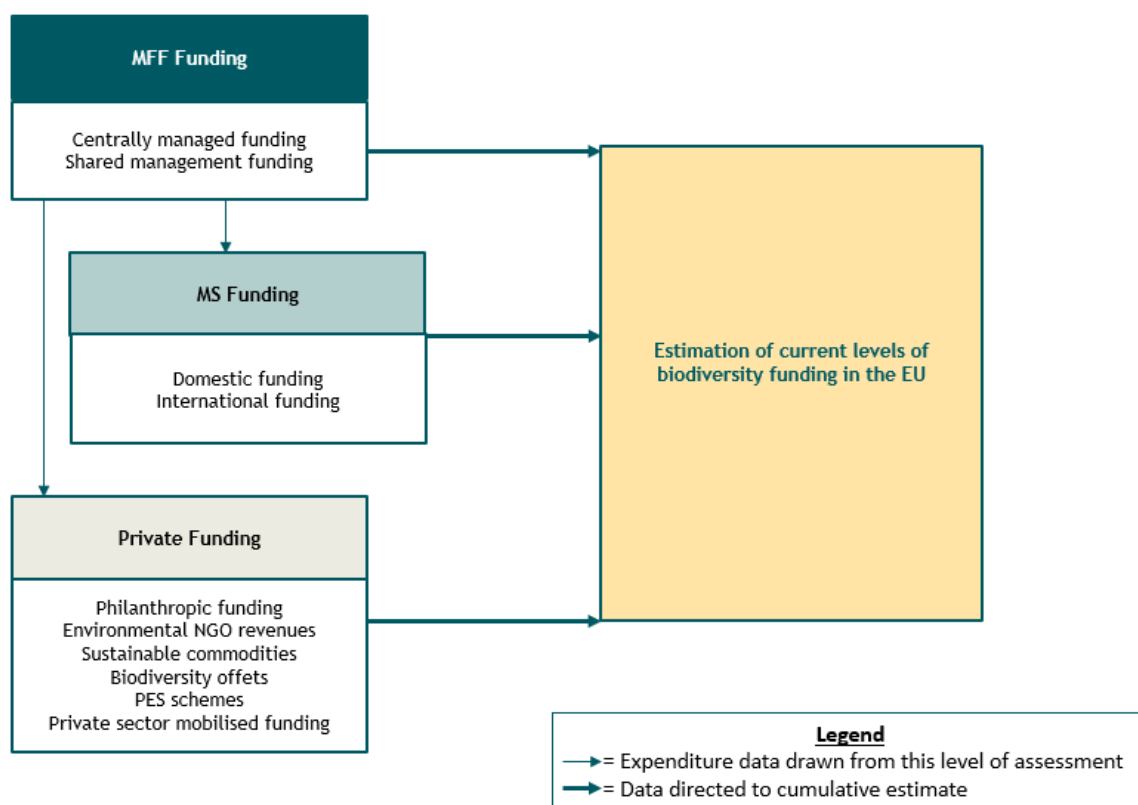
The aim of this sub-task is to assess the most recent levels of biodiversity expenditure in the EU, based on available data covering the years 2014 -2020. The assessment takes a three-tier approach to cover different components of spending. The task focuses on:

4. biodiversity funding under the Multiannual Financial Framework (MFF) period between 2014-2020,
5. the examination of Member States' levels of funding within the same programming period paying particular attention to domestic and international finance and
6. the level of private financing for biodiversity in the same time-period. The assessment is partially based on the outputs from Sub-Task 2.1.

Particularly for data regarding MFF funding and related co-funding from Member States, the analysis conducted complements the review of information on the ex-post assessment of biodiversity expenditure tracked in the EU budget under Task 1. Using data gathered for the three components, sub-task 2.2 is focused on providing an estimate on the biodiversity funding implemented at EU and Member State level, to give an estimation on the overall levels of biodiversity expenditure in the EU.

It is important to note however, that the method applied (see Figure 4) and the form in which data is reported, risks double counting, particularly between MFF funding and MS funding. The risks are mitigated through extensive research into reporting methodologies that ensure data collected for the estimations limit double-counting while still allowing for stable comparisons. Figure 4 gives a visual representation of our approach to data collection and analysis, which reduces the risks of double-counting. Different data sources are assessed and explained in sections 4.3.1 Establishing a reliable methodology for domestic expenditure tracking under current frameworks and Establishing a reliable methodology for international expenditure tracking under current frameworks. In addition, where possible, we have identified other risks and taken appropriate actions in our analysis.

Figure 4: Conceptual framework of task 2.2 highlighting the three-tier approach



The results of this Sub-task provide a basis for understanding current biodiversity-related expenditure in the EU. This can then be compared with the estimates of financial needs outputs from task Sub-task 2.1 to provide an overview of the potential funding gap for delivery of biodiversity actions.

Our estimate of the total expenditure of Member States and European Commission from 2014 - 2019 amounts to EUR 144 billion. We were unable to provide estimates for Member States' domestic and international biodiversity expenditure for 2020 and 2021 due to the data not having been publicly reported at the time of writing. The summary table below shows the estimated biodiversity expenditure of the EU Budget and of all Member States, for domestic and international funding.

Table 12: Estimated expenditure of EC and MS, domestic and international funding

Source	Expenditure (million Euros)						
	2014	2015	2016	2017	2018	2019	Total
EC domestic	6,917	11,422	13,993	12,522	12,651	12,906	70,410
EC international	129	182	531	293	491	552	2,178
MS domestic	9,535	9,747	9,503	9,555	10,164	10,426	58,930
MS international	1,515	2,226	2,188	2,799	2,192	1,973	12,893

Total Domestic	16,452	21,169	23,496	22,077	22,815	23,331	129,340
Total International	1,643	2,408	2,719	3,092	2,683	2,525	15,071
Grand Total	18,095	23,577	26,215	25,169	25,497	25,856	144,411

Private investment was not included in the overall values above due to the difficulty in compiling a comprehensive and coherent set of data. Given the voluntary nature of reporting on private expenditure, the available data is sporadic and incomplete for most categories of spending. For the assessment of biodiversity expenditure through sustainable commodities and green bonds, we focused on specific case studies to illustrate the possible contributions. However, the values cannot be confidently extrapolated to cover the wider market. As such, we compiled a collection of available information encompassing a more representative range. The sporadic data points obtained result in what can be regarded as 'snapshot' estimates of expenditure in specific years, or over selected periods of time. The available data is summarized in Table 13 below.

Table 13: Summary of private expenditure on biodiversity

Category of spending		Expenditure (in million EUR)						
		2014	2015	2016	2017	2018	2019	2020
Philanthropic organizations		111.62	89.7	67.78	77.445	87.11	87.11	87.11
NGOs	Aggregate			157.14				
	WWF		0.24	0.36	0.34	0.30	0.52	0.49
	Friends of the Earth		0.02	0.02	0.02	0.03		
	Rewilding Europe	0.15	0.12	0.11	0.12	0.07	0.17	0.30
Private sector finance (green bonds)		33.65	17.65	26.67	100.07	144.52	230.80	284.13

4.1 Methodological approach taken to Sub-task 2.2

While the three different components – namely EU funding, domestic expenditure at Member State level, and private sector investment – ultimately can be brought together to provide an overview of biodiversity expenditure, the available data and their comparability vary significantly. To obtain a complete overview of the quality and availability of expenditure data on each of the three components, we consulted a range of databases (see individual method section below). Following

an investigation of the types of data reported, their relevance to the assignment and their comparability, we selected key information sources. From these sources we have extracted relevant data to build the foundation of individual components of this assignment, from which overall biodiversity expenditure in the EU can be estimated.

4.1.1 Biodiversity funding under the MFF

Information on EU-level biodiversity funding is based on the Commission's reported biodiversity expenditure in the MFF budget, set against the information on the biodiversity tracking approaches of different funds derived from the outputs of Task 1.1. Information on the different funds, their reporting mechanisms and their overall contribution to the EU's biodiversity expenditure has been presented in the first interim report from this study, and is therefore not repeated here. Instead, biodiversity expenditure tracked in each fund is compared to the overall budget of the fund for 2014-2020 to give an overview of the spending ratio that biodiversity takes in each. This provides a perspective on the proportion of biodiversity expenditure in different funds, considering their main purposes and target use. As a basis for the assessment, we use the latest draft budget by the Commission⁸⁷ to extract data on the total financial programme of each fund and the relevant biodiversity expenditure reported. Co-financing by Member States for biodiversity relevant objectives, which is required under five different funds (under the European Structural and Investment Funds (ESIF) and LIFE programme), is already integrated in the assessment of Member States' domestic biodiversity expenditure.

For further insights, we assessed the Natura 2000 Prioritised Action Frameworks (PAFs) of all Member States. Data from the PAFs regarding nature financing in the Member States was aggregated as part of a study for DG ENV on Natura 2000 financing in the post 2020 period (by IEEP with N2K group - unpublished). The PAFs detail allocations under the main EU funds to Natura 2000 in 2014-2020 including MS contributions, and give some rough estimates of overall national funding (but not private sector funding). We use this data to give an overview of the spending of specific funds on Natura 2000 sites, and the total spending in each Member State (EU budget plus national co-financing). We also contextualise the Natura 2000 expenditure in relation to GDP and total Natura 2000 surface area per Member State to obtain a better understanding of expenditure.

⁸⁷ EC (2020) Draft general budget of the European Union for the financial year 2021. Programme Statements of operational expenditure – Working document Part I.

4.1.2 Member States' domestic and international expenditure

Domestic funding represents the level of public funding allocated by Member States to expenditure programmes related to biodiversity, including co-financing of the MFF funds outlined in the previous section. International funding relates to public investments in activities which target global environment objectives. While Member States report biodiversity expenditure, through public expenditure data provided by their National Statistics offices, the methods used vary significantly and therefore do not allow for comparisons. We have reviewed the following databases for possible data extraction:

1. Domestic: The CBD Finance Reporting framework includes a section on domestic annual financial support to biodiversity-related activities, in addition to international funding through Official Development Assistance (ODA) and Other Official Flows (OOF).
2. Domestic: EUROSTAT Classification of the functions of Government (COFOG) dataset presents high-level data on the following COFOG Division 05 themes: waste management, wastewater management, pollution abatement, R&D environmental protection, and protecting biodiversity and landscape. All themes represent 'Environmental protection' within the COFOG division system. The MS domestic expenditure data is reported on an annual basis, currently covering 2009-2018. Of specific interest was COFOG 05.4 'protecting biodiversity and landscape'. All 05 category and 05.4 data was extracted for all Member States. It has to be noted, that COFOG data may also contain some EU funding (beyond true national expenditure) for some EU Member States that is not filtered out.
3. International: OECD Creditor Reporting System (CRS) presents details of aid activities made by Development Assistance Committee members, currently consisting of 19 EU MS (AT, BE, CZ, DK, FI, FR, DE, GR, HU, IE, IT, LU, NL, PL, PO, SK, SI, ES, SE). Data can be disaggregated to show activities undertaken which are aimed specifically towards biodiversity, on an annual basis (latest data available in 2018) using the Rio marker system of 40% and 100%. Both were extracted for all Member States.

To expand our understanding of the reporting requirements of these databases and therefore obtain a better overview of the comparability of the data, we further conducted a series of interviews (see Appendix C)⁸⁸ with relevant UN, OECD and

⁸⁸ Specifically, the following institutions from Appendix C were contacted for this task: 1) National Accounts Team, OECD. 2) Environmental Performance and Indicators Division, OECD. 3) The

national ministries and departments related to reporting to the relevant databases. We use the information obtained from these interviews and the analysis conducted to better understand the reporting mechanisms of these databases, and assess how best to avoid double counting, while obtaining as comprehensive an overview as possible of EU wide biodiversity spending at Member State level. A detailed review of the analysis of data quality, data limitations and the approach taken to selection of relevant data is provided in section below. We use these data sources to provide a best estimate of the domestic and international expenditure of Member States.

4.1.3 Private investment

Private financial flows to biodiversity represent a wide-ranging category of spending, characterised by limited availability of tracking and reporting data, both globally and at EU level. Given the lack of rules and guidelines on the reporting of private spending, coherent aggregated data on private expenditure into biodiversity is not available. Our aim in the context of this study is to identify available data on private finance to biodiversity programs, as well as the gaps and incomplete information. We have provided an overview of available data across five categories of private spending:

1. Philanthropic foundations;
2. Non-Governmental Organizations;⁸⁹ (privately and publicly funded);
3. Sustainable Commodities;
4. Private sector finance.

For each of these categories, desk research has identified the available information across a variety of databases and secondary sources. We identify the gaps in the available information, which varies significantly across the categories, and briefly summarize the total private expenditures on an annual basis that could be tracked. Throughout the individual sub-sections of section 4.2 below we note the missing data points and make suggestions on different options and strategies to fill the data gaps. It is our view that the data is currently of insufficient quality to justify its use in a quantitative assessment. Our concerns and proposed next steps are further elaborated on in section 3.6.

Biodiversity Finance Initiative (BIOFIN) of the United Nations Development Programme (UNDP). 4) Department of Policies, Planning and External Relations, Institute for Nature Conservation and Forests, Portugal. 5) Office of Economic and Social Summaries on the Environment, France

⁸⁹ When reporting on NGO expenditure, we subtracted funding from public authorities and foundations, in order to avoid double counting.

4.2 EU-level biodiversity funding under the MFF

Biodiversity expenditure has been tracked by the Commission throughout the 2014-2020 multiannual financial framework. Total expenditure relevant to biodiversity, according to the tracking methodology, amounted to EUR 13.6 billion in 2020, 8.3% of the total EU budget. The detailed tracking methodologies and differences in approaches taken to track direct, shared, and indirect management expenditure have previously been discussed in Task 1. While Task 1 notes some concerns over a generous approach to tracking of some areas of expenditure, we have taken the totals recorded by the Commission's methodology as given. To the extent that readers are concerned by those risks of over-estimation, they should read the totals for expenditure in Task 2.2 accordingly.

4.2.1 EU level funding

Task 1 provided a summary of biodiversity expenditure tracked in 2014 – 2020 and mapped out the annual spending on biodiversity distributed across the different programmes, according to the Commission's tracking methodology. The data presented indicates the total recorded spending on biodiversity and its distribution across the different funds, but does not account for the financial size of the funds. To gain a better understanding of the ratio of biodiversity spending per fund, we investigate the actual spending reported in comparison to the fund's total budget for the funding period of 2014 -2020, as reported in the MFF programme statements for 2020 (Figure 5). When looking at proportions of a budget being invested in biodiversity it provides a clearer understanding of the actual contribution to biodiversity in relation to the funds size. Looking at absolute values does not account for larger funds also having more resources to invest, and as such, percentage ratios provide means to compare funds⁹⁰.

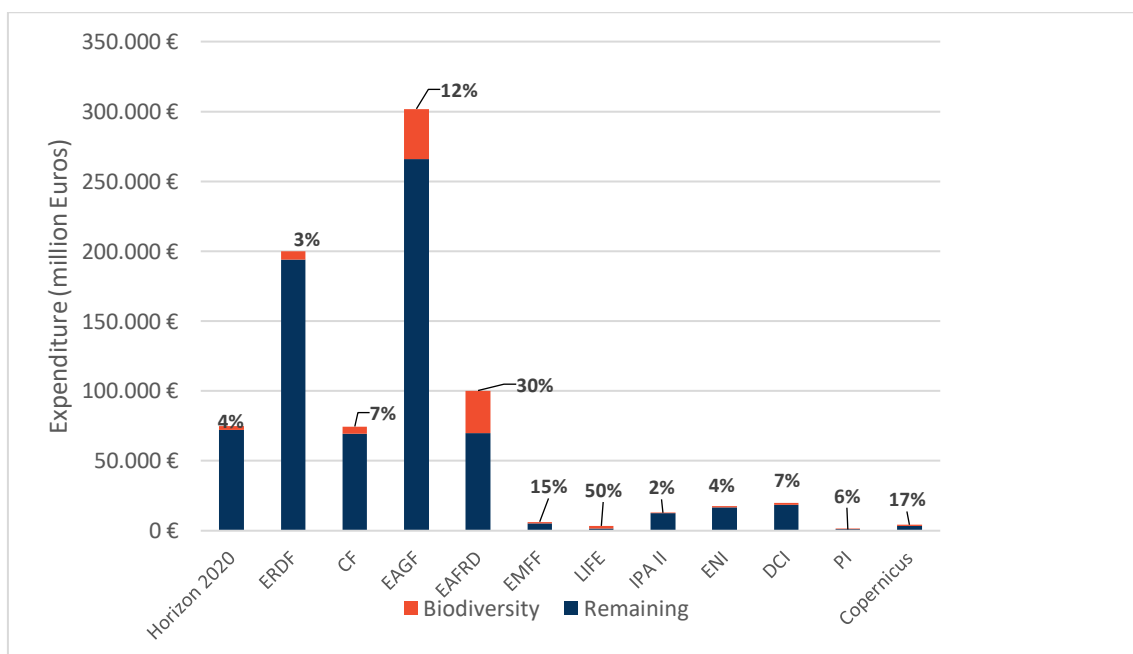
Actual spending provides rather reliable figures as it is developed based on ex-post data of invested amounts over the past years (historic spending trends) up to the last available year (2018, current spending). Note that for 2019 and 2020 data in the draft budget is considered provisional. For the purpose of understanding each fund's proportion of investment to biodiversity, the total financial planning per fund and their reported biodiversity contribution according to the annual statements of programme expenditure accompanying the Draft Budget provide relevant insights.

⁹⁰ Note that these comparisons are for the investment to biodiversity without consideration of the purpose of the fund, but rather for a high level overview.

The bar-chart indicates the size of the funds, which vary significantly, together with the volume of biodiversity tracked expenditure per fund (indicated by the percentages). Note that the purpose of the actual fund should be kept in mind when comparing biodiversity spending – some funds (e.g. LIFE) have more environmentally focused objectives that others (e.g. ENI or Horizon 2020).

As expected, LIFE project expenditure has the highest ratio of tracked contribution to biodiversity with 50% of its total expenditure tracked as biodiversity relevant (Figure 5), although the budget itself is one of the smallest across the compared funds (EUR 3,466 million, see Table 14). The European Agriculture Fund for Rural Development (EAFRD) follows, indicating 30% of the total fund tracked as biodiversity investment. The EAFRD contributes to funding for many terrestrial Natura 2000 sites funding, although the tracked expenditure covers a much wider range of measures, as explained in the first interim report.

Figure 5: Expenditure in MFF funds and the percentage ratio of tracked biodiversity expenditure⁹¹



Interestingly, Copernicus is the fund with the third highest ratio in biodiversity expenditure, with 17% of the total budget of the fund tracked as biodiversity. Our review of the Copernicus programme tracking (see section 2.1.7), noted that the application of Rio markers at programme statement level may lead to over-estimation of the fund's contribution and that markers are sometimes challenging

⁹¹ EC (2020) Draft general budget of the European Union for the financial year 2021. Programme Statements of operational expenditure – Working document Part I

to apply. This may be the reason for the comparatively high proportion of biodiversity expenditure observed here.

On the other hand the European Regional Development Fund (ERDF) and Cohesion Fund (CF), which have specific intervention fields to track biodiversity expenditure, show less than 10% of the total budget as spent on biodiversity. Similarly, the EMFF budget only shows 15% biodiversity allocation, which is also relatively low considering it is the only fund that specifically targets marine biodiversity. It should be noted that there is no imperative obligation of any fund to focus more or less on biodiversity, and funds usually balance their financial allocations carefully across different political priorities. Nevertheless, as biodiversity protection and restoration continues to play a critical role, in particular to 2030 targets, the expenditure should be regularly monitored and evaluated. Biodiversity tracking under international development funds (e.g. European Neighbourhood Instrument (ENI), Development Cooperation Instrument (DCI) and Partnership Instrument (PI)) show that at the MFF level, the funding for international biodiversity protection remains low in general with a total of EUR 2,680 million, while domestic funds spent EUR 83,536 million.

Table 14: Total financing programme and biodiversity tracked expenditure per fund for 2014 - 2020

Fund	Total fund (EUR millions)	Biodiversity tracked (EUR millions)
Horizon 2020	75	2,795
ERDF	199,954	6,102
CF	74,588	5,027
EAGF	301,897	36,041
EAFRD	100,311	30,267
EMFF	6,396	870
LIFE	3,466	1,730
IPA II	12,855	274
ENI	17,393	647
DCI	20,036	1,330
PI	959	58
Copernicus	4,251	706
Total	816,934	85,848

Table 15: MFF reported biodiversity expenditure for 2014 – 2021 annually

Source	Expenditure (EUR millions)							Total
	2014	2015	2016	2017	2018	2019	2020	
Total	7,046	11,604	14,153	12,815	13,142	13,457	13,629	85,848

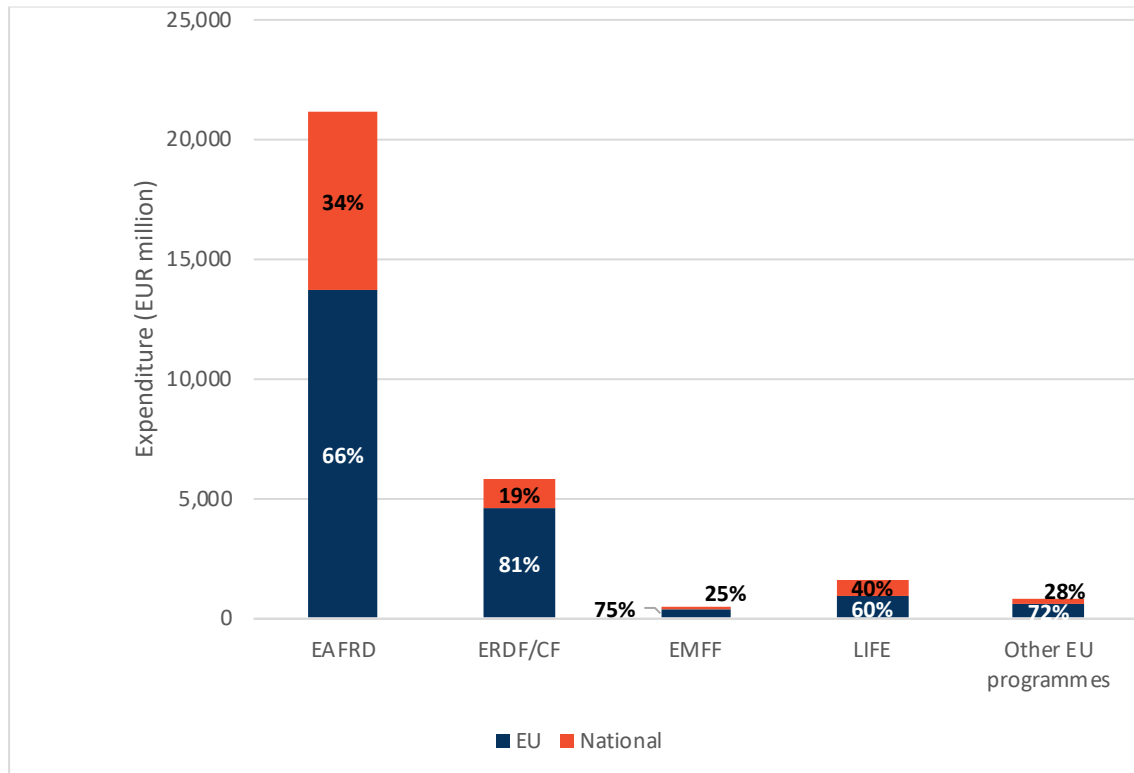
In total the Commission reported EUR 86 billion spent on measures, relevant to biodiversity, which represented 8.03% of the MFF. The highest total amount of biodiversity relevant expenditure came from the EAFRD and the European Agricultural Guarantee Fund (EAGF) (EUR 30 billion and €EUR 36 billion respectively). In the case of the EAGF the contributions are a small proportion of the overall fund size (12%), and are sensitive to the assumptions employed in the tracking methodology. The first interim report makes a number of recommendations for improving the rigour of the tracking methodology. However, the aggregated amount of tracked biodiversity expenditure under the two Common Agriculture Policy funds (EAGF and EAFRD) accounts for 42% of the total tracked biodiversity expenditure across the MFF. The analysis provides an overview of the distribution of biodiversity expenditure across the MFF in relation to the individual funds' actual size.

4.2.2 Overview of PAF spending in the EU budget and Member States

Under the PAFs, Member States estimate their spending needs from EU programmes for Natura 2000 sites and relevant species-related and green infrastructure spending for 2014 – 2020. The expenditure needs identified include Member States' co-financing contributions for each fund (EAFRD, ERDF/CF, EMFF and LIFE) as well as additional expenditure from other programmes and sources. The spending allocations and needs assessments under the PAFs are submitted prior to the funding period, and provide a partial overview of the proposed plan for spending of EU funding. It should be kept in mind, however, that PAFs, do not provide insights into the actual funding needs, or whether spent funding has successfully had biodiversity impacts. Furthermore, spending for Natura2000 sites is included in both the EU MFF as well as in Member States expenditure. As such, the below analysis is only meant to provide a more detailed overview of funding allocations for Natura2000.

For the period of 2014 – 2020, a total financing requirement of EUR 42 billion was identified. Figure 6 provides an overview of the breakdown between Member State co-financing and EU funding contribution to Natura 2000 sites under each fund (excluding the UK).

Figure 6: Overview of Natura 2000 spending per fund, indicating percentage contribution from EU and Member State co-financing



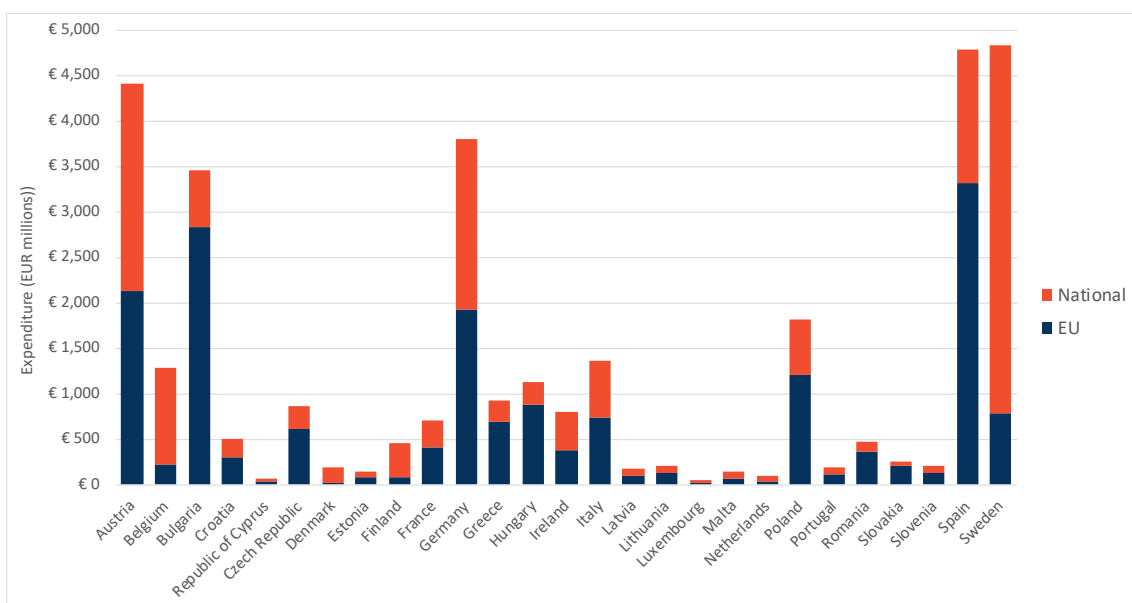
Note that the data in Figure 6 do not include national finance estimated by Member States as contributing to EU nature policy and focus only on the expenditure co-financing EU funding (i.e. it does not include financing allocated to implementation of EU nature policy and associated green infrastructure, for measures or projects not benefiting from any EU co-funding). The EU contributes around 48% (in total EUR 20.3 billion from 2014-2020) of the total funding for Natura 2000 sites. The analysis shows that MFF funds are large contributors to ensuring the preservation and maintenance of Natura 2000 sites. Under the LIFE programme, 60% is funded by the EU while Member States need to contribute 40% across all projects (see task 1.1). When assessing the fund's contribution to Natura 2000 sites it is important to consider the overall fund's budget size. The total commitment of the LIFE budget to Natura 2000 PAFs was almost 50% of the entire budget. This was followed by EAFRD, where PAF commitments reflected 21% of the total budget. The EMFF and ERDF/CF overall showed the lowest ratio in budget commitment to Natura 2000 sites, with only 8% and 2% of the total budget committed. As such, while the EMFF may have the smallest commitment in total, the sum represents a larger proportion of the total budget than the ERDF/CF. The graph, together with the ratio analysis, therefore indicates that while total amounts may differ they must be considered in the context of the total

budget for each fund, while also bearing in mind the different functions and/or objectives of the funds.

To obtain an overview of Member State expenditure, we mapped out the total expenditure per Member State according to their PAFs for the period of 2014 – 2020 (see supplementary excel file). Figure 7 shows the total expenditure for Natura 2000 per Member States, and further separates total national expenditure from EU provided funds. Note that here we include the ‘other spending’ category used in PAFs to delineate national expenditure for other EU policy and associated green infrastructure for projects not benefiting from any EU co-funding. This clearly has a significant impact on Member States financing regarding biodiversity investments under the PAF that is missed when assessing only co-financing for EU programmes. Overall, the highest expenditure for biodiversity under PAFs is seen in Austria, Bulgaria, Germany, Poland, Spain and Sweden.

The ratio between EU funding and co-financing under PAFs (Figure 7) show a large variability across Member States. In some instances, Member States contribute as little as 15% of the total PAF funding (e.g. Slovakia) while in other cases more than 90% of funding comes from the Member State (e.g. Sweden). The addition of ‘other’ expenditure from the PAFs clarifies the picture significantly and shows that certain Member States invest a lot more funding into Natura 2000 and other biodiversity relevant policies beyond the MFF co-finances (in some cases, of course, this will reflect a relatively low share of EU funding allocation). As such, the support for Natura 2000 sites provided by EU programmes plays a more significant role in certain Member States than others.

Figure 7: Expenditure under PAFs per Member State, by national and EU funding, for the period of 2014-2020



However, simply reporting the total expenditure on Natura 2000 per Member State ignores important nuances such as the total area of Natura 2000 per Member State as well as a country's economic situation (represented through GDP and other components – see supplementary excel file). As such, it is important to consider the factors driving Natura 2000 expenditure, such as the extent to which green infrastructure and species protection measures are included. To understand the correlation between expenditure, surface area of Natura 2000 sites and GDP, we ran a Pearson's correlation statistical analysis. The analysis revealed that GDP and other components had a similar low positive correlation to Natura 2000 expenditure ($r=0.28$) as did total area of Natura 2000 in a Member State ($r=0.30$).

The analysis indicates that a large surface area of Natura 2000 sites is not the only determining factor of expenditure. It is difficult to dissociate whether higher observed costs per hectare would stem from higher investment per se or from the generally higher cost of labour and inputs into the management of these sites in countries with high GDP. In addition, marine areas can complicate and impact the cost assessment, as Member States with large Natura 2000 areas in marine environments can influence overall extent of the network but with less impact on the overall costs. These nuances are important to consider, when planning on how to address finance gaps for achieving the Biodiversity targets to 2030.

While for the period of 2014 – 2020, a total financing requirement of EUR 42 billion was identified, the new 2021-2027 has a financial need of EUR 10.6 billion per year, totalling an estimated EUR 74.2 billion over the time period.

4.3 Member State expenditures

4.3.1 Establishing a reliable methodology for domestic expenditure tracking under current frameworks

For Member State's domestic expenditure on biodiversity we relied on data submitted to the CBD Resource Mobilization and Finance Reporting framework and EUROSTAT as primary sources to investigate (see section 4.1.2 above). We analysed the reporting requirements, obligations and availability of data in both sources in order to assess the statistical robustness and therefore the comparability of available expenditure between Member States. A critical analysis of our assessment is in Annex 5.

For European countries the transmission of data under the COFOG divisions (level 1 since 1995) and groups (level II since 2001) is compulsory. COFOG data from Member States is aggregated by EUROSTAT and communicated to the OECD, so that the data across the two platforms is coherent. The COFOG reporting system

under EUROSTAT has stringent reporting obligations and a concrete framework that is designed to ensure consistency and hence comparability between data of Member States. Domestic expenditure analysis for Member States in this study is therefore based on COFOG data reported under EUROSTAT. It has to be noted however, that COFOG data may contain some EU funding for some EU Member States that is not filtered out.

The structure of COFOG splits into level 1 divisions and level 2 groups, helping delineate national expenditure into different 10 different components such as general public services (01), economic affairs (04), health (07) and environmental protection (05). Under 05 on environmental protection, six groups of expenditures are reported: 05.1 waste management, 05.2 waste water management, 05.3 pollution abatement, 05.4 protection of biodiversity and landscape, 05.5 R&D environmental protection and 05.6 environmental protection not elsewhere classified (n.e.c.). The division 05 environmental protection is based on the Classification of Environmental Protection Activities (CEPA).

Based on the guidance provided, the group of interest for biodiversity tracked expenditure is primarily 05.4 biodiversity and landscape protection. It is defined as 'activities relating to the protection of fauna and flora species (including the reintroduction of extinct species and the recovery of species menaced by extinction), the protection of habitats (including the management of natural parks and reserves), and the protection of landscapes for their aesthetic values (including the reshaping of damaged landscapes for the purpose of strengthening their aesthetic value and the rehabilitation of abandoned mines and quarry sites)'.

In consideration of the limitations of COFOG in tracking biodiversity specific expenditure, we therefore chose to apply a variant of the Rio marker system to the tracked expenditure. A **100% marker** was applied to group 05.4 since it is most clearly targeting only biodiversity specific expenditure.

4.3.2 Establishing a reliable methodology for international expenditure tracking under current frameworks

For international expenditure, the OECD CRS database was used (see section Methodological approach taken to Sub-task 2.2). All countries which are members of the Development Assistance Committee (DAC) are required to report their international development aid to the OECD using reporting standards and obligations stringently set. In the EU, 19 Member States are members of the DAC.

In their reporting to the DAC Creditor Reporting System, donors are requested to indicate for each activity whether or not it targeted environment and the Rio

conventions. Biodiversity relevant development aid is tracked using Rio markers of 100% and 40% (marked as 'principal' and 'significant').

However, the dataset contains bilateral commitment data on aid support of biodiversity from DAC Member States. Thus, the data shows commitments rather than disbursements. Total commitments per year comprise all new undertakings entered in that year, regardless of when the disbursements are expected to happen. A disbursement is the actual placement of resources at the disposal of a recipient county or agency and can take several years to occur.

While commitments are generally tied to projects that originated in the year of interest, disbursements can be tied to a project from any year, paid out at a specific time⁹². Therefore, it can be difficult to track the full value of a project through disbursement; the OECD thus primarily reports DAC countries' commitments to biodiversity, rather than actual disbursements.

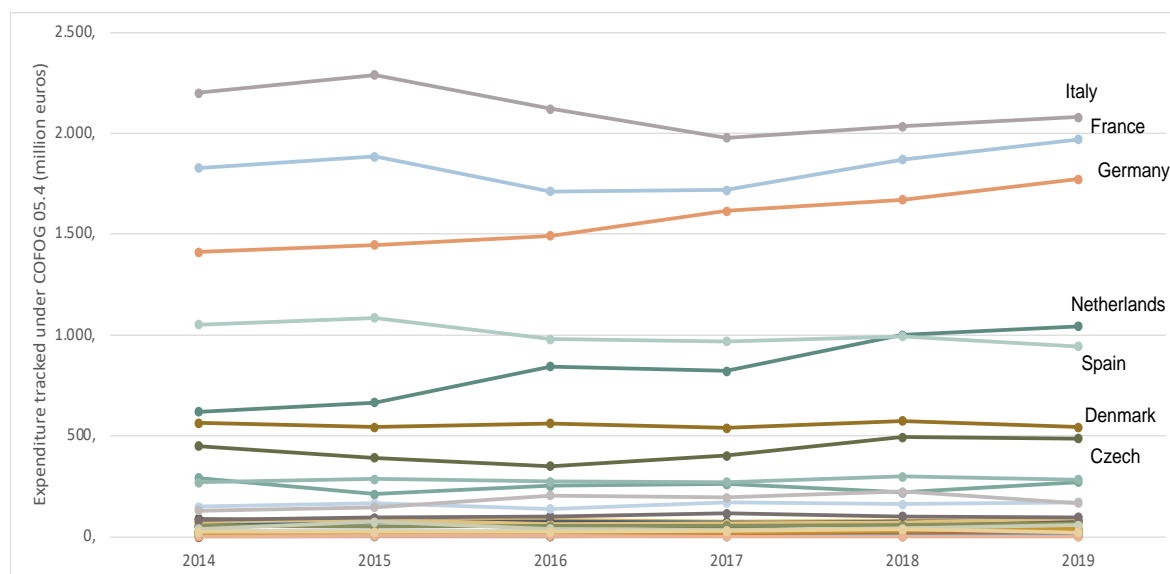
We extracted data annually per Member State for the period 2014 - 2019 using the 'Aid activities targeting Global Environment Objectives' data focusing on the bilateral aid in constant prices. In order to capture all sectors and any multi-sector or cross-cutting contribution to biodiversity, we allowed all sectors to be included (Sector 1000) and used the marker 'biodiversity' to estimate the total biodiversity expenditure per Member State using both 100% and 40% biodiversity markers.

4.3.3 Member State domestic expenditure

We mapped out the annual expenditure per Member State only in relation to specifically COFOG 05.4 on protection of biodiversity and landscape, which has a 100% Rio marker and specifically targets expenditure whose primary purpose is related to biodiversity (raw data is provided alongside this report in a supplementary excel file). Figure 8 shows the top spenders in projects specifically aiming at biodiversity protection: Italy, France, Netherlands, Spain, Germany, Denmark and Czech significantly stand out in their annual expenditure compared to other Member States. Italy, France, Netherlands and Germany are also the ones that exhibit the largest increase in spending per annum. The observed drops in expenditure in most Member States between 2016 -2017 may have been linked to market turbulences of 2016, in particular linked to the Brexit vote. Overall, the average annual expenditure of Member States to biodiversity and landscape protection was around EUR 360 million. In 2019 the total biodiversity expenditure of all Member States (EU-27) amounted to EUR 10.4 billion.

Figure 8: Expenditure of Member States tracked under COFOG 05.4 for 2014 - 2019

⁹² <https://www.aiddata.org/pages/faqs-about-our-data>



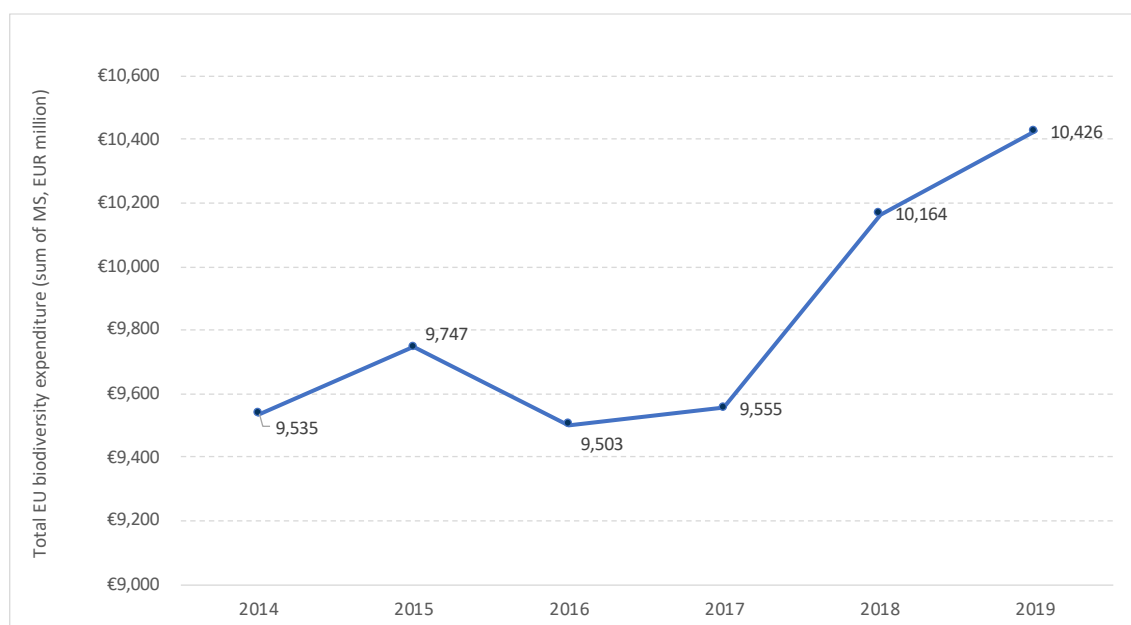
When assessing the total domestic expenditure contributed to biodiversity by all Member States we see a general trend of increase (Figure 9, Table 16). While in 2014 the total expenditure amounted to around EUR 48.2 billion, the latest calculations for 2019 show a total of EUR 54.3 billion spending on biodiversity by Member States. The grand total of domestic expenditure for all Member States for the period of 2014 – 2019, under our broad approach applying a 40% marker to other environmental expenditure, adds up to the significantly higher total of EUR 300 billion.

Table 16: General government expenditure by function (COFOG) as extracted from GOV_10A_EXP

MS	COFOG 05.4 Protection of biodiversity and landscape (EUR million)						
	General government						
	2014	2015	2016	2017	2018	2019	Total
Austria	63.8	72.4	81.8	74.7	79.5	82.7	454.9
Belgium	292.9	211.3	252.5	260.9	219.6	271.9	1,509.1
Bulgaria	0.0	4.5	0.8	6.6	3.8	5.9	21.6
Croatia	52.4	70.6	75.2	71.0	68.4	75.5	413.1
Cyprus	0.0	1.2	1.1	1.0	1.3	2.0	6.6
Czechia	449.2	391.1	350.8	402.6	493.2	487.1	2,574.0
Denmark	563.5	542.9	561.2	539.3	573.8	544.3	3,325.0
Estonia	24.7	24.5	23.2	47.7	22.9	29.4	172.4
Finland	89.0	81.0	70.0	67.0	74.0	80.0	461.0
France	1,829.0	1,886.0	1,712.0	1,719.0	1,871.0	1,971.0	10,988.0
Germany	1,412.0	1,446.0	1,492.0	1,615.0	1,672.0	1,772.0	9,409.0
Greece	11.0	4.0	4.0	4.0	4.0	4.0	31.0
Hungary	78.2	83.0	61.8	66.0	70.6	92.8	452.4

Ireland	269.9	285.9	273.3	270.7	297.7	283.4	1,680.9
Italy	2,201.0	2,290.0	2,121.0	1,978.0	2,034.0	2,081.0	12,705.0
Latvia	5.0	6.3	6.2	8.5	10.5	7.6	44.1
Lithuania	23.7	15.0	8.0	14.7	24.5	23.3	109.2
Luxembourg	53.9	50.9	53.6	55.1	56.9	66.9	337.3
Malta	18.4	18.2	19.1	22.7	28.4	41.9	148.7
Netherlands	620.0	666.0	845.0	822.0	1,000.0	1,044.0	4,997.0
Poland	82.6	95.4	100.5	115.1	101.0	97.5	592.1
Portugal	148.2	164.8	138.1	169.8	161.7	171.2	953.8
Romania	0.3	4.6	5.9	0.4	0.5	0.5	12.2
Slovakia	39.1	74.5	39.2	31.8	40.9	56.6	282.1
Slovenia	24.5	23.9	24.3	27.7	37.3	21.1	158.8
Spain	1,053.0	1,086.0	979.0	970.0	994.0	945.0	6,027.0
Sweden	129.3	147.2	203.7	194.1	222.5	167.0	1,063.8
TOTAL	9,534.60	9,747.20	9,503.30	9,555.40	10,164.00	10,425.60	58,930.1

Figure 9: Estimated annual total biodiversity expenditure of EU Member States



We contextualise the domestic biodiversity expenditure using the GDP and main component expenditure of Member States. Correlation analysis revealed a highly significant positive relationship between GDP and domestic biodiversity expenditure (Pearson's Correlation, $r=0.87$). The results therefore show that the amount of domestic expenditure that a Member State invests in biodiversity is strongly linked to GDP, and thus the economic wealth of the country.

Remembering that COFOG 05.4 is a sub-category of the general environmental protection portfolio of COFOG 05, it is worth noting, that specific 05.4 biodiversity tracked expenditure only represented a fraction of total COFOG environmental protection expenditure under category 05. In 2019, COFOG 05.4 expenditure amounted to EUR 10.4 billion and over the period of 2014 – 2019, Member States tracked a total of EUR 58.9 billion specifically under COFOG 05.4. However, in total COFOG 05 expenditure amounted to an estimated EUR 602 billion across Member States. Therefore, biodiversity protection specific investment represented only around 10% of the total environmental protection related expenditure.

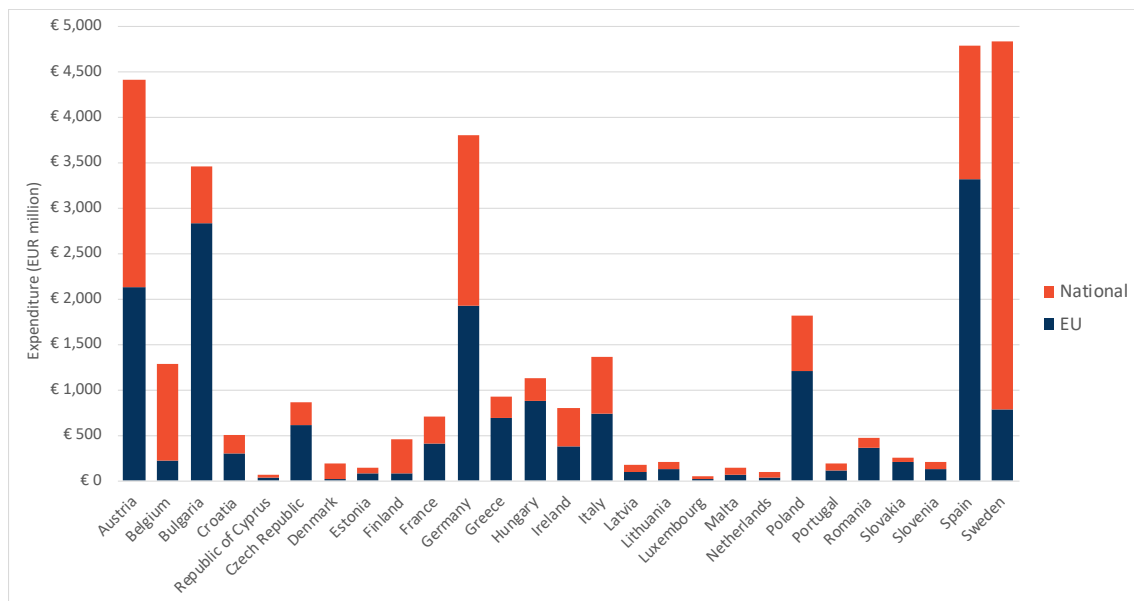
Due to the previously described limitations of the COFOG system, in which expenditure can only be assigned one COFOG category, using the COFOG 05.4 expenditure as the only measure for biodiversity expenditure may be limiting. There is likely to be biodiversity relevant expenditure happening in other COFOG variables as well. On the other hand, the current reporting methodologies do not allow an estimate of the extent to which expenditure recorded under other COFOG variables besides 05.4 are directly contributing to biodiversity.

However, it is important to consider the positive biodiversity impacts from other environmental protection actions (and possibly other COFOG groups such as education, agriculture, forestry and fisheries) when attempting to incentivize a shift in society where the protection of the environmental and biodiversity takes a central position. The lack of transparency in accessible data shows that there is a dire need for improved biodiversity tracking methodologies in government accounts. As such, the lack of available information that would allow us to account for other biodiversity relevant expenditure outside COFOG 05.4 limits the extent to which biodiversity can be estimated at Member State level in this study.

4.3.4 Member State international expenditure

Comparing the OECD reported expenditure for biodiversity committed as principal (100%) and significant (40%), immediately shows that international expenditure of principal commitments in DAC Member States was lower than significant commitments (i.e. there is less investment in projects that specifically target biodiversity, and a higher commitment to projects where biodiversity protection is a co-benefit). This indicates again the importance of accounting accurately for biodiversity benefits in multi-purpose investments. Figure 10 maps out the total objectives per DAC Member State for 100% and 40% marked projects for the period of 2014 -2019.

Figure 10: DAC Member States total commitments to international aid (sum of 2014 – 2019 data) to principal (100%) and significant (40%) contributions to biodiversity (converted from USD to EUR millions)



Only in Germany was the total commitments under principal aid with 100% contribution to biodiversity higher than significant aid with 40%, where biodiversity protection is a co-benefit: Germany committed EUR 4.3 million to principal biodiversity aid (100%) and EUR 3.9 million to significant aid (40%). Since the reporting mechanisms under OECD CSR is quite stringent, the approach taken to report expenditure should be comparable between DAC members. Similar to data observed in domestic expenditure, the largest DAC contributors to international biodiversity aid were Belgium, Denmark, France, Germany, Italy, Netherlands and Spain, which is unsurprising given their economic weight.

To obtain a better representation of DAC Member State expenditure on biodiversity protection, we applied the 40% marker to the expenditure tracked as significant, and converted all values to euro based on 2019 conversion rates. We then summed the total objective quantities under 100% and 40% marked projects to obtain an estimated annual commitments per Member State to biodiversity related aid, as shown in Table 17 below.

Table 17: Total international aid expenditure (100% and 40%) per DAC Member State as per OECD Aid

MS	OECD Aid activities targeting global environmental objectives. Total per year (EUR million)						Grand Total for 2014 – 2019 (EUR million)
	2014	2015	2016	2017	2018	2019	
Austria	10.00	8.98	9.03	10.00	11.73	10.71	60.44
Belgium	68.02	78.21	53.06	73.54	50.34	36.89	360.05
Czechia	1.91	1.68	1.86	1.57	0.84	1.46	9.32
Denmark	114.90	56.21	15.06	19.20	17.96	5.58	228.91
Finland	5.12	8.71	3.34	1.32	13.04	3.45	34.97
France	369.86	954.33	1,182.87	1,232.00	706.08	199.81	4,644.95
Germany	735.27	859.35	696.77	1,266.33	9,89.96	1,395.58	5,943.27
Greece	0.19	0.18	0.24	0.21	0.00	0.00	0.81
Hungary	0.00	0.00	0.00	0.00	0.00	0.13	0.13
Ireland	11.81	10.83	21.46	12.63	12.86	17.67	87.27
Italy	26.34	33.47	23.82	65.74	75.96	72.92	298.25
Luxembourg	6.39	4.78	4.67	3.98	2.59	4.00	26.42
Netherlands	3.60	80.86	35.00	3.56	14.62	16.00	153.64
Poland	0.75	0.86	0.33	0.36	0.22	0.48	3.00
Portugal	0.52	0.67	0.68	0.73	0.64	0.85	4.08
Slovakia	0.02	0.02	0.04	0.12	0.18	0.44	0.82
Slovenia	0.00	0.01	0.15	0.01	0.03	0.04	0.24
Spain	22.78	15.35	13.72	20.99	40.85	23.17	136.85
Sweden	137.01	111.47	125.62	86.85	254.02	184.32	899.30
TOTAL	1,514.51	2,225.96	2,187.70	2,799.13	2,191.94	1,973.49	12,892.73

In total, the DAC Member States committed, over the period from 2014 -2019, EUR 12.8 billion to international biodiversity protection. Note that we took 40% of the total investment under 'significant' to track total biodiversity objectives. Within this list, several countries stand out with significant objectives declared, namely France, Germany and Sweden. Over a period of six years, the three countries committed EUR 4.6 billion, EUR 5.9 billion and EUR 899 million to

biodiversity aid internationally. It should be noted that these values represent objectives, and not actual expenditure on projects.

4.4 Private investments

This section comprises an evaluation of the current levels of private investment on biodiversity, estimating the finance from different categories of private entities, organisations and instruments.

Global private sector biodiversity related expenditure has been estimated at an annual level of **USD 6.6-13.6 billion** by the latest OECD study on global biodiversity spending on the period 2015-2017⁹³. The estimate covers a diverse set of instruments, including biodiversity offsets, sustainable commodities, payments for ecosystem services, water quality trading and offsets, philanthropic spending and private contributions to conservation non-governmental organisations (NGOs).

A precise estimate of private biodiversity finance is no simple task. This is because private actors are not required to monitor and report their biodiversity expenditure; and if they do, the monitoring and reporting requirements follow diverse and poorly defined criteria. The inaccuracy and variability in the monitoring and tracking methodologies for biodiversity finance in the private sector results in a wide range of including double counting, and creates difficulties in comparing across different sources and datasets.

Another source of inaccuracy is an inconsistency across databases in the years covered. Most reports and studies merely rely on the last available year for each data source, leading to possible inconsistencies between findings. Nevertheless, some level of data reporting and/or estimation is available for certain categories of spending.

In the context of this study, four categories of private expenditure are addressed, as listed below. This selection comprises the categories of spending included by the OECD report on global biodiversity finance,⁹⁴ excluding those not relevant for the EU scope, as well as those (such as biodiversity offsets) for which data is too scarce for reliable conclusions to be drawn.

⁹³ OECD (2020) A Comprehensive Overview of Global Biodiversity Finance, available at: <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

⁹⁴ OECD (2020) A Comprehensive Overview of Global Biodiversity Finance, available at: <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

Our analysis covers the following types of expenditures, which are considered the four main types of non-governmental finance:

- philanthropic foundations;
- non-governmental organisations;
- contributions linked to financial flows for sustainable commodities
- private sector finance.

In the light of the significant uncertainty in the estimation of private biodiversity finance, the aim in this part of the study is to identify available sources of information and datasets for the EU, summarise them, and identify the current gaps and limitations. As such, the data presented in the following chapters indicates the basis of available information, and notes the significant limitations, including that it does not allow for estimates of financial flows, or for a proper estimation of the scale of private investments in the EU. The findings in this chapter therefore act as a high level overview across different sectors.

4.4.1 Philanthropic foundations

Philanthropic foundations are independent legal entities set up for charitable or public benefit purposes, and funded by private actors (individuals, families, corporations, etc.). The most comprehensive overviews of biodiversity-related financing by philanthropic foundations in Europe are published either biennially or triennially by the European Foundation Centre (EFC). Three reports include financial data within the period 2014-2020: volume 3 (on year 2014),⁹⁵ volume 4 (on year 2016),⁹⁶ and volume 5 (on year 2018),⁹⁷. The total number of reporting foundations has increased, from 75 in volume 3 to 127 in volume 5.

The EFC reports split foundations' spending into themes, four of which are at least to some extent relevant to biodiversity:

- Biodiversity and species preservation, which covers work that protects particular species (plant or animal, vertebrate or invertebrate). This includes support for botanic gardens and arboretums, academic research on botany and zoology, and the protection of (endangered) species and

⁹⁵ EFC (2016) Environmental funding by European foundations volume 3:

<https://efc.issuelab.org/resources/25711/25711.pdf>

⁹⁶ EFC (2018) environmental funding by European foundations volume 4:

<https://www.efc.be/uploads/2019/03/Environmental-Funding-by-European-Foundations-Volume-4.pdf>

⁹⁷ EFC (2021) environmental funding by European foundations volume 5:

<https://www.efc.be/uploads/2021/04/Environmental-Funding-by-European-Foundations-vol.5.pdf>

their habitat. Therefore, this theme is fully relevant to biodiversity protection;

- Coastal and marine ecosystems, which includes support for work on fisheries, aquaculture, coastal lands and estuaries, marine protected areas and marine pollution. This category is partly relevant to biodiversity protection through work to protect and maintain marine ecosystems;
- Fresh water, which includes support for all work relating to lakes and rivers, canals and other inland water systems, as well as issues of groundwater contamination and water conservation and projects relating to wetlands. Therefore, this category is partly relevant to biodiversity protection through work to protect and maintain freshwater ecosystems;
- Terrestrial ecosystems & land use, which includes support for land purchases and stewardship, national or regional parks, landscape restoration and landscape scale conservation efforts, tree planting, forestry, and work directed to stopping de-forestation and the impacts of mining. By working on preserving land ecosystems, activities in this category are partly relevant to biodiversity protection.

Estimates of relevant funding were extracted as follows:

1. Calculating the share of funding under the four relevant themes that was received by European recipients, using a single percentage provided in the reports;
2. Application of the Rio Markers. For biodiversity and species protection, a 100% marker was applied. For the other, partly-relevant themes, a 40% marker was applied.

To fill in data gaps for the years 2015, 2017, 2019 and 2020, the average between the previous and following year was used. When this data was unavailable (i.e., for 2019 and 2020), the total from the latest year available was used.

The results are shown in Table 18 and in Figure 11 below. Notably, results show that reported expenditure on Biodiversity and species has decreased between 2014 and 2018, even as the number of reporting organizations increased. In the 4th EFC report,⁹⁸ the authors note that a change in the total value of grants made to a given thematic issue from a year to the next does not necessarily mean that foundations have been changing the mix of thematic issues within their grant

⁹⁸ EFC (2018) environmental funding by European foundations volume 4: <https://www.efc.be/uploads/2019/03/Environmental-Funding-by-European-Foundations-Volume-4.pdf>

portfolios; rather, it may simply reflect that a foundation that is active on a given thematic issue has increased or decreased its overall level of environmental grant-making. The report does not, however, offer potential explanations for the decrease in expenditure observed for biodiversity and species preservation.

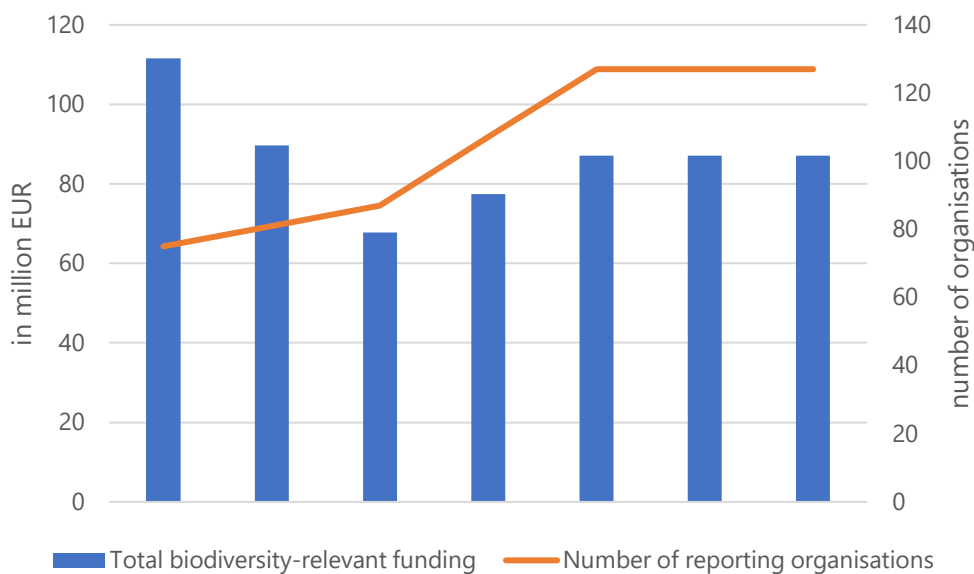
Table 18: Biodiversity-relevant funding allocated by foundations to recipients in Europe, in million EUR. Source: own calculation, derived from EFC (vol.3, vol.4, vol.5)⁹⁹ (extrapolated figures shown in italics)¹⁰⁰

Theme	2014	2015	2016	2017	2018	2019	2020
Biodiversity & species	75.50	<i>59.51</i>	43.52	<i>48.07</i>	52.62	<i>52.62</i>	<i>52.62</i>
Terrestrial ecosystems	23.95	<i>17.03</i>	10.10	<i>13.01</i>	15.91	<i>15.91</i>	<i>15.91</i>
Coastal and marine	8.09	<i>9.21</i>	10.32	<i>13.08</i>	15.83	<i>15.83</i>	<i>15.83</i>
Freshwater	4.08	<i>3.96</i>	3.83	<i>3.29</i>	2.75	<i>2.75</i>	<i>2.75</i>
TOTAL	111.62	<i>89.7</i>	67.78	<i>77.45</i>	87.11	<i>87.11</i>	<i>87.11</i>

⁹⁹ EFC (2016) Environmental funding by European foundations volume 3: <https://efc.issuelab.org/resources/25711/25711.pdf> ; EFC (2018) environmental funding by European foundations volume 4: <https://www.efc.be/uploads/2019/03/Environmental-Funding-by-European-Foundations-Volume-4.pdf> ; EFC (2021) environmental funding by European foundations volume 5: <https://www.efc.be/uploads/2021/04/Environmental-Funding-by-European-Foundations-vol.5.pdf>

¹⁰⁰ The years for which the data presented is based on averages from other years are shown in italics.

Figure 11: Total biodiversity-relevant funding of philanthropic foundations and number of reporting organisations. Source: own calculation, derived from EFC (vol.3, vol.4, vol.5)¹⁰¹



The main data limitation for this estimation relates to our inability to undertake a comparison of aggregate funding across years, as the number of organisations in the database increased from one report to the next. Nevertheless, the three EFC reports from which data was extracted do reflect on comparability across years by isolating the organisations that provided data for the previous edition.

4.4.2 Non-Governmental Organisations

Non-Governmental Organizations (NGOs) are non-profit groups which function independently from governments. The 4th volume of the EFC reports on funding by European foundations includes a section on demand-side (i.e., how money was spent by NGOs), which contains data for the year 2016 on biodiversity-relevant spending from 95 European civil society organisations.

This data was extracted from the same four themes described in section 4.4.1 Philanthropic foundations, using the following steps:

¹⁰¹ EFC (2016) Environmental funding by European foundations volume 3:

<https://efc.issuelab.org/resources/25711/25711.pdf> ; EFC (2018) environmental funding by European foundations volume 4: <https://www.efc.be/uploads/2019/03/Environmental-Funding-by-European-Foundations-Volume-4.pdf> ; EFC (2021) environmental funding by European foundations volume 5: <https://www.efc.be/uploads/2021/04/Environmental-Funding-by-European-Foundations-vol.5.pdf>

1. Removing funding provided by foundations and public sources, in order to avoid double counting with data reported in other sections of this report. The EFC report breaks down the sources of income of the NGOs. Removing the share of funding from foundations and public sources, we obtain 72.1% of relevant funding;
2. Application of the Rio Markers, as in section 4.4.1.

The results obtained are shown in Table 19 below. Although this data encompasses information from a high number of NGOs, the report authors make clear that this total should not be seen as representative of the sector as a whole; rather, it provides a “snapshot” of funding. In addition, data on funding is only available for one year.

Table 19: Biodiversity-relevant funding allocated by NGOs in Europe, 2016, in million EUR

Theme	2016
biodiversity and species	121.21
terrestrial ecosystems	13.46
coastal and marine	11.51
freshwater	10.96
Total	157.14

In order to gather additional information on more years within the 2014-2020 period, spending on biodiversity was also assessed for 3 major European NGOs in the field of environmental sustainability and biodiversity, using the same steps outlined above: Friends of the Earth Europe, WWF Europe, and Rewilding Europe. These organisations were selected based on their size, their relevance, and the availability of data. Data was extracted from the annual reports of these organisations. The results obtained for each of them are shown in the tables below.

Table 20: Biodiversity-relevant expenditure by Friends of the Earth Europe, 2016-2019, in thousand EUR

	2016	2017	2018	2019
Food, Agriculture & Biodiversity	21.85	19.55	23.95	28.91

Table 21: Biodiversity-relevant expenditure by WWF Europe, 2015-2020, in thousand EUR

	2016	2017	2018	2019
Food, Agriculture & Biodiversity	21.85	19.55	23.95	28.91

Table 22: Biodiversity-relevant funding spent by WWF Europe, 2015-2020, in thousand EUR

	2015	2016	2017	2018	2019	2020
Wildlife					212.51	171.90
Forests					28.18	75.76
Freshwater					110.23	87.78
Oceans		85.23	93.87	104.73	171.87	157.94
Natural Resources and Land Use	242.76	279.60	250.81	199.29		
Total	242.76	364.83	344.67	304.02	522.79	493.39

Table 23: Biodiversity-relevant funding spent by Rewilding Europe, 2014-2020, in thousand EUR

	2014	2015	2016	2017	2018	2019	2020
Wildlife comeback			3.20	2.40	2.46	14.39	246.74
Wilder nature ¹⁰²	24.04	19.94	1.52	1.04	1.08	15.4	49.67
Rewilding areas	125.86	104.32	103.84	118.05	61.71	140.38	
Total	149.90	124.26	108.57	121.49	65.25	170.13	296.40

In 2019, Friends of the Earth allocated about 60% of this expenditure on salaries, 19% on its own activities, and 21% on sub-granting within campaigns. According to its website, activities in the field of forest and biodiversity include work with local communities and indigenous peoples to conserve forests, strengthening communities' rights and community management of forests, and campaigning.¹⁰³ WWF Europe's annual reports do not break down thematic expenditure per type of activity; however, as stated on its website, this NGO primarily focuses on advocating for strong EU environmental policies at EU and MS level.

In the field of biodiversity, this entails work to ensure and support the implementation of the Birds and Habitats Directive, to enforce existing EU laws

¹⁰² This includes work on facilitating a return to natural processes such as flooding, natural grazing, predation, scavenging, etc. which play a vital role in shaping landscapes and ecosystems, leading to more functional ecological landscapes. Source: Rewilding Europe (2019) Annual review: <https://www.rewildingeurope.com/wp-content/uploads/publications/rewilding-europe-annual-review-2019/>

¹⁰³ Friends of the Earth Europe (n.d.) Forests and biodiversity: <https://www.foei.org/what-we-do/forests-biodiversity>

on nature protection, to integrate biodiversity protection into key economic sectors, and to improve green connectivity.^{104, 105} Finally, Rewilding Europe undertakes ecosystem conservation and restoration work and activities supporting the re-introduction and protection of wildlife.¹⁰⁶ The biodiversity-relevant funding listed in the three above tables is likely an overestimate of what these NGOs spent on biodiversity expenditure to meet the Biodiversity Strategy targets, as it also includes activities such as campaigning.

Biodiversity-relevant spending varies annually within each of the three NGOs. This can be partly attributed to variation in the overall spending spent on each theme across years, but also to the variation in the origin of the funds. Indeed, the more an NGO relied on public or foundation funds in one year, the higher the share of money excluded from this analysis in order to avoid double counting. While this share was relatively constant in the cases of Friends of the Earth Europe and WWF Europe, it varied more for Rewilding Europe (between 10.9 to 39.5% was kept).

Data cannot be extracted for all potentially relevant NGOs. For instance, Greenpeace Europe and Birdlife Europe and Central Asia, despite conducting critical work in the field of biodiversity, do not publish information sufficiently detailed to conduct an assessment of their biodiversity spending.

4.4.3 Sustainable commodities

Sustainable commodities are a broad category of goods and products that include sustainability criteria in their supply chain. The term therefore encompasses a rich variety of products, complying with a broad collection of criteria and definitions underpinning their alleged sustainability, whether it be environmental, social or economic in character. The definition of a sustainable commodity is usually based on a product certification system, with major sustainable commodities including palm oil, cocoa, coffee, rubber, spices, and timber. A report¹⁰⁷ by the Nature Conservancy, based on calculations performed by the OECD,¹⁰⁸ broke down sustainable commodities into four groupings: sustainable forestry products, sustainable agricultural products, sustainable fisheries and seafood products, and sustainable palm oil.

¹⁰⁴ WWF Europe (n.d.) WWF: <https://www.wwf.eu/>

¹⁰⁵ WWF Europe (n.d.) Biodiversity: https://www.wwf.eu/what_we_do/biodiversity/

¹⁰⁶ Rewilding Europe (n.d.) Making Europe a wilder place: <https://rewildingeurope.com/>

¹⁰⁷ Paulson Institute, Nature Conservancy (2019) Financing Nature https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE-Full-Report-Final-with-endorsements_101420.pdf

¹⁰⁸ OECD (2020) A Comprehensive Overview of Global Biodiversity Finance, available at: <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

The estimates of the Nature Conservancy suggest that for all commodities 1-1.5% (respectively lower and upper estimate) of the sustainable market valuation is reinvested into biodiversity initiatives in that sector (that is, financial flows contributing to biodiversity as a share of total market value). The scale and range of commodities that could result in beneficial impacts on biodiversity mean that a comprehensive analysis of this component would lie beyond the scope of this study. However, we have taken one commodity as a case study in order to give a sense of the contribution to biodiversity of this type of private scheme at EU level.

The selected sustainable commodity that is analysed in this study is **certified roundwood**. The estimation of the contribution to biodiversity deriving from this commodity follows the methodology employed in the studies by the OECD and the Nature Conservancy. Notably, similar parameters are used to estimate the contribution of sustainably sourced roundwood. Table 24 presents the data employed for the estimation and the resulting estimated contribution to biodiversity.

Table 24: Data used for estimating the contribution to biodiversity deriving from certified timber in the EU27

	Total roundwood production, 2020, EU27 (1000m ³)	Share of certified forest for supply, 2015 (%)	FSC post-certification costs (EUR per m ³)	Estimated contribution to biodiversity (million EUR)
Roundwood	488,602	54	2.94-3.59	776.85 -948.61

Data on EU total roundwood production have been retrieved from the Eurostat dataset on forest removal for the year 2020.¹⁰⁹ The share of certified (either FSC or PEFC) forest available for supply has been retrieved from the database of UNECE (2015)¹¹⁰, representing the basis for estimating the share of sustainably produced roundwood coming from certified forests. Based on this data, the total sustainable roundwood production in the EU in 2020 is estimated approximately at 264.236 million m³. The FSC price premium for certification has been estimated between EUR 2.94-3.59 per m³.¹¹¹ This figure reflects expenditure into biodiversity since most forest management requirements to be met in order to access the certification relate to the protection and enhancement of the forest's

¹⁰⁹ Eurostat (2021) Roundwood removals by type of wood and assortment, available at: https://ec.europa.eu/eurostat/databrowser/view/for_remov/default/table?lang=en

¹¹⁰ UNECE (2015). UNECE Statistical database - Forest area (Indicator 1.1a.).

¹¹¹ OECD (2020) A Comprehensive Overview of Global Biodiversity Finance, available at: <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

biodiversity.¹¹² This range of values is multiplied by the volume of certified roundwood, yielding the estimated contribution to biodiversity of certified roundwood production in the EU.

Therefore, it is estimated that the annual contributions to biodiversity from EU expenditure in sustainable roundwood amount between EUR 776.854 and 948.608 million in 2020. This figure provides an estimation of one sustainable commodity, and therefore captures only one fraction of total biodiversity contributions stemming from this typology of private finance. The intention in this section was to apply an existing methodology for the quantification of sustainable commodities' contribution to biodiversity in the EU. This case study conveys that the methodology is easily applicable to the European forestry sector, with most challenging data to be retrieved being the share of certified forests (data available only from 2015), and the costs associated with certification (figures adopted through third party's estimates, only available for FSC and not for PEFC).

4.4.4 Private sector finance

This section contains information on private-sector finance flows that were not included in sections 4.4.1 to 4.4.3, notably on co-financing of GEF Biodiversity Focal Area projects, green bonds, and data from the Environmental goods and services sector (EGSS) database. Due to important data gaps in the available evidence and the lack of comprehensive reporting by most private institutions, this section on private sector finance is by no means exhaustive; rather, it provides a snapshot of a limited number of private finance trends within the EU. In addition, the scarcity of information on private sector finance may carry the risk of including other biodiversity-related expenditures, and risks double counting (e.g. biodiversity offsets). The precise overlaps between different categories of spending cannot be confidently estimated based on currently available data. Nonetheless, given the substantial lack of expenditure data, even in the case of double counting, the amounts here calculated would likely represent an underestimation of actual spending.

A recent OECD study¹¹³ found that between 2015-2017, the total private co-financing of GEF projects for biodiversity (excluding Civil Society Organizations and foundation financing) reached USD 87 million (mid-range estimate). This

¹¹² OECD (2020) A Comprehensive Overview of Global Biodiversity Finance, available at: <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

¹¹³ <https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf>

figure represents global financing, with no split per world region provided in the report.

The European fund for strategic investments (EFSI) is managed by the European Investment Bank (EIB) and aims to help use public funding, including funding from the EU budget, to mobilise private investment for a wide range of projects carried out in the EU. According to the latest evaluation of the EFSI,¹¹⁴ a total of EUR 328.8bn of private finance was mobilised over the 2018–2020 period. The report does not specify the thematic split of this total for private investment, but presents this split for public and private investment combined. Two themes appear to be partially relevant to biodiversity, although this term is not explicitly used: Environment and resource efficiency and Sustainable agriculture, forestry, fishery, aquaculture and other elements of the wider bioeconomy. Between 3.4% and 7.5% of total investment was allocated to the theme Environment and resource efficiency, amounting to approximately between EUR 11.17 billion and EUR 24.66 billion of private investment. Between 0.6 and 2% of the total investment was allocated to the theme Sustainable agriculture, forestry, fishery, aquaculture and other elements of the wider bioeconomy, amounting to approximately EUR 1.97 billion to EUR 6.57 billion. The share of biodiversity-relevant funding within these streams is however uncertain. In addition, no data was found on private biodiversity financing under the Natural Capital Financing Facility (NCFF), which is funded by the EIB and the EC.

Bonds are an additional source of private finance for biodiversity investment. The OECD has captured in a report¹¹⁵ a steep increase at global level in green bond annual issuance, from USD 37 billion in 2014 to USD 168 billion in 2018. This increase is attributed *inter alia* to the diversification of the issuer sectors, countries and targeted projects such as the 2019 Climate Bonds Initiative¹¹⁶. The EU's cumulative green bond issuance over the past decade has reached USD 569 billion while globally it surpassed 1 trillion USD. In the 2014–2020 period, the EU's green bond issuance totalled 464.5 billion USD (equivalent to EUR 402.4 billion)¹¹⁷.

The report highlights that green bonds focus principally on climate change, and rarely include concrete biodiversity finance, which so far represents only a limited fraction of green bonds. Nevertheless, the Climate Bonds data show for the EU that in 2014–2020 (on average) 5% of the proceeds from green bonds supported

¹¹⁴ EIB (2021) Evaluation of the European Fund for Strategic Investments 2021 – Thematic Report.

¹¹⁵ OECD (2019) Biodiversity: Finance and the Economic and Business Case for Action.

¹¹⁶ <https://www.climatebonds.net/resources/reports/2019-green-bond-market-summary>

¹¹⁷ Converted using the average USD – EUR exchange rate in the period 01/01/2014–31/12/2020 given by the EIB.

water and 6% land use, which can be to some extent related to biodiversity (see later). More effort needs to be invested in the identification and classification of what can be considered biodiversity-relevant bonds. As part of a list of examples of biodiversity-relevant bonds, the following European initiatives were mentioned in the report, as reported in Table 25: Examples of biodiversity-relevant bonds. More generally, the OECD report highlights how institutional investors can play a major role in leveraging private finance and steering it towards biodiversity programs.

Table 25: Examples of biodiversity-relevant bonds¹¹⁸

Company	Finance
Stora Enso, Finland ¹¹⁹	Published a Green Bond Framework which includes projects related to Forest Stewardship Council and Programme for the Endorsement of Forest Certification-certified forests among its eligible categories, signalling its intention to enter the market
France (government)	16% of EUR 9.7 billion for biodiversity conservation (outstanding at the end of 2017) Sovereign Green OAT, i.e. EUR 1.55 billion
Danone	EUR 300 million partly for “sustainable” agriculture
European Investment Bank (EIB)	EUR 500 million for sustainable water projects

An estimate of green bonds financing of biodiversity in Europe was calculated using data from the Climate Bonds Interactive Data Platform.¹²⁰ This organization defines climate bonds as fixed-income financial instruments that have positive environmental and/or climate benefits, and which must be repaid over a certain period of time, in addition to a fixed or variable rate of return.¹²¹ To extract relevant data from this report, the following steps were followed:

1. Application of the Rio Markers to the two relevant green bond categories. For both water and land use, a 40% Marker was applied;

¹¹⁸ OECD (2019) Biodiversity: Finance and the Economic and Business Case for Action, Chapter 7 <https://www.oecd-ilibrary.org/sites/e615440d-en/index.html?itemId=/content/component/e615440d-en#>

¹¹⁹ Stora Enso, Sustainable Finance at Stora Enso: <https://www.storaenso.com/en/investors/storaenso-as-an-investment/debt-investors/green-bonds>

¹²⁰ <https://www.climatebonds.net/market/data/#issuer-type-charts>

¹²¹ <https://www.climatebonds.net/resources/understanding>

2. Isolating the expenditure from the private sector (financial and non-financial corporate), in order to avoid double counting with other sections of this report.

The results obtained are presented in Table 26.

Table 26: Biodiversity-relevant green bonds funding allocated by the private sector (financial and non-financial corporate) to recipients in Europe, 2014-2021, in million EUR¹²²

	2014	2015	2016	2017	2018	2019	2020	2021
Water	20.19	14.94	19.26	54.97	74.81	126.85	86.20	58.27
Land Use	13.46	2.71	7.41	45.10	69.71	103.95	197.93	135.98
Total	33.65	17.65	26.67	100.07	144.52	230.80	284.13	194.25

The EGSS database is produced by Eurostat and compiles EU-wide data on the production, value added and exports in the environmental goods and services sector.¹²³ The data is collected from all entities in their capacity as environmental producers, i.e., undertaking the economic activities that result in products for environmental protection and resource management.¹²⁴ This database contains relevant information on the value of products produced for environmental protection or resource management, which are subsequently purchased on the market, as well as on the goods produced for producers' own final use.

The database splits data into themes, based on the Classification of Environmental Protection Activities (CEPA). Of relevance to biodiversity are:

- CEPA 4: Protection and remediation of soil, groundwater and surface water
- CEPA 6: Protection of biodiversity and landscapes

The data was extracted from the EGSS database for CEPA 4 and CEPA 6, using the following steps:

1. Extraction of the output value¹²⁵ for the EU27, for all relevant years available (2014-2018)

¹²² Data converted from USD to EUR using average annual exchange rate from the EIB

¹²³ This database was recommended for consideration in this report during a conversation held with Eurostat and French government staff responsible for Eurostat data compilation, held within the scope of this project.

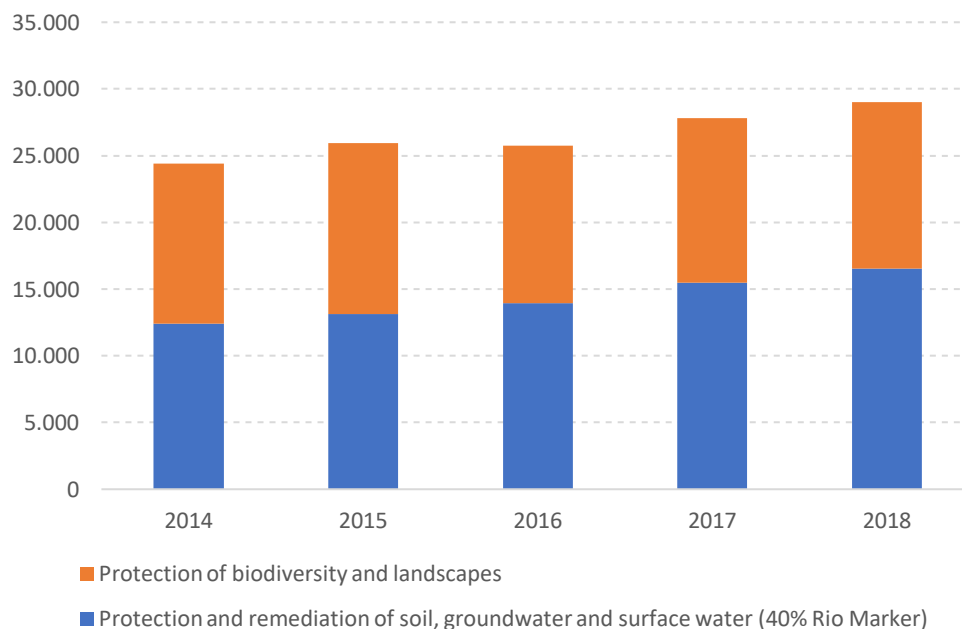
¹²⁴ <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-16-011>

¹²⁵ In the EGSS database, output is defined as "(i) products that become available for use outside of the producer unit, (ii) any goods and services produced for own final use and (iii) goods that remain in the inventories at the end of the period in which they are produced. Apart from market

2. Calculating the share of funding under the four relevant themes that was received by European recipients, using a single percentage provided in the reports;
3. Application of the Rio Markers. For CEPA 6, a 100% marker was applied. For CEPA 4, which is only partly relevant, a 40% marker was applied.

The results are displayed in Figure 12 and show a slight upward trend in the total output value of the of the two environmental goods and services sub-sector, from EUR 24.4 billion in 2014 to EUR 28.9 billion in 2018. Data shows a sizeable value in biodiversity-relevant output produced; however, this value includes outputs from both private and public entities and cannot be further broken down to distinguish between these two types of entities.

Figure 12: Output value of the environmental goods and services sector for selected CEPAs, in million EUR. Adapted from: Eurostat EGSS database



Large data gaps on the quantification of private sector finance in sources not covered in previous sections remain, for instance with regards to finance in natural infrastructure and nature-based solutions, carbon-markets, and green financial products. The desk research conducted within the scope of this study provides an estimate of biodiversity-relevant green bonds financing; however, the non-systematic or even non-existent nature of reporting on this issue by major private institutions prevents the compilation of a more comprehensive dataset on remaining sources of private finance. Eurostat does compile some data on the

output, output for own final use and non-market output, EGSS statistics also include ancillary output, comprising output intended for use within an enterprise.”

production of environmental protection services and on environmental protection investments by the private sector; however, reporting is not mandatory on the protection of biodiversity and landscapes, hence very few MS submit this data to Eurostat.

4.4.5 Summary of private investment into biodiversity

The above provides an overview of the available information, and of our estimates, regarding private finance contributions to biodiversity expenditure. Table 27 reports a summary per year – when available – of the total figure for each category of private spending:

Table 27: Summary of private investment expenditure extracted from literature (in EUR million)

Category of spending		Expenditure (in million EUR)						
		2014	2015	2016	2017	2018	2019	2020
Philanthropic organizations		111.62	89.7	67.78	77.445	87.11	87.11	87.11
NGOs	Aggregate			157.14				
	WWF		0.24	0.36	0.34	0.30	0.52	0.49
	Friends of the Earth		0.02	0.02	0.02	0.03		
	Rewilding Europe	0.15	0.12	0.11	0.12	0.07	0.17	0.30
Private sector finance (green bonds)		33.65	17.65	26.67	100.07	144.52	230.80	284.13

Aggregated information on private financial flows to biodiversity in European and international databases is not consistent and comprehensive enough to reach sound inferences and estimations on total spending. Given the scarcity of data on this wide-ranging category of spending, as well as significant inconsistency across databases in the years covered, the focus within this study has been to identify available data on private finance to biodiversity programs, as well as to show the gaps and incomplete information.

Regarding **philanthropic foundations**, reporting activities by the EFC have been used as a main repository of information on European foundations' spending that is relevant to biodiversity. Remarkably, results show that reported expenditure on Biodiversity & species has decreased between 2014 and 2018, even as the number of reporting organizations increased. The main data limitation for this estimation relates to our inability to undertake a comparison of aggregate funding across

years, as the number of organisations in the database increased from one report to the next.

Turning to expenditure by **NGOs**, Biodiversity-relevant spending varies annually within each of the three selected organizations, which with regards to data and relevance were identified as most significant. This can be partly attributed to variation in the overall spending allocated to each theme across years, but also to the variation in the origin of the funds. This led to the exclusion of certain shares of funds to avoid double counting with philanthropic or public spending (where these represented a significant source of funding in a given year). Moreover, the biodiversity-relevant funding listed in the three above tables is likely an overestimate of what these NGOs spent on biodiversity expenditure to meet the Biodiversity Strategy targets, as it also includes activities such as campaigning. It was shown that this share varies significantly between organizations. Data could not be extracted for all potentially relevant NGOs, due to the lack of public information sufficiently detailed to assess biodiversity spending.

Concerning **sustainable commodities**, this analysis provides the case study of EU sustainable roundwood. Based on the methodology used in several relevant reports to measure the contribution to biodiversity from sustainable forestry products at global level, it is estimated that the annual contributions to biodiversity from EU expenditure in sustainable roundwood range between EUR 776 and 948 million. The aim of this analysis is not to summarize in any way the whole category of spending related to sustainable commodities. Rather, it provides an illustration of how such types of commodity expenditure can be estimated at EU level. It therefore only captures a fraction of total biodiversity contributions stemming from this typology of private expenditure.

Finally, concerning **private sector finance**, the aim of the desk research conducted in this study, is to provide an estimate of biodiversity-relevant green bonds financing, based on secondary data and existing reports. However, the sporadic, at times absent, reporting of spending by major private institutions does not allow to compilation of a comprehensive dataset on private finance expenditure.

In conclusion, the main findings of this study concerning private expenditure into biodiversity are the identification of a significant lack of coherence in data, which can be attributed primarily to the lack of mandatory reporting requirements. The category of private spending with most consistent data is philanthropic organizations, where an integrated database is available, even though significant limitations prevent comparisons across years and between foundations. Moreover, the absence of a consistent methodology or framework for the

reporting of biodiversity expenditure prevents comparability between organizations. This can be seen in the data obtained for NGOs, where organizations employ different methods for reporting and estimation. Particularly, these approaches are not in line with existing methods at EU and national levels, where a common approach based on Rio Markers brings about some extent of comparability.

The adoption of similar approaches on the part of NGOs and other private organizations, could significantly improve the estimation of these financial contribution, as well as their comparison with other actors. Private sector finance constitutes the most uncertain estimation, where data gaps and a lack of established reporting procedures make the data a mere snapshot, or an illustration of some segments of identifiable expenditure and finance trends.

In this section, we presented the methodologies and existing databases for these snapshots at European level. While not providing all-encompassing figures for the estimation of a total private biodiversity expenditure, the analysis highlights the available data, the data gaps, and the methodologies which could be deployed for estimating major categories of private spending. Significant improvements in alignment in both data reporting and methods are needed in order reach reliable inferences on the volume of finance flows into biodiversity spending by private actors at EU and international level

4.5 Overview estimate of total biodiversity funding in the EU

In this section we present summary data for expenditure on biodiversity by the EC and Member States, considering both spending domestically within the EU, and internationally outside of the EU. Due to the lack of data for 2020, our estimates mainly focus within the range of 2014 -2019; however, data for 2020 is reported where available. Note that MFF funds are separated into domestic and international expenditure, as the IPA II, ENI, DCI and PI only contribute to international biodiversity protection. Furthermore, it should be noted that data from PAF expenditure was not included for total expenditure calculations presented here. This is due to the previously mentioned risk of double-counting, since the COFOG reported values may already account for a significant amount of the co-financing and PAF recorded expenditure. As such, we focus on the COFOG reported values, which have a stringent reporting structure and validation, and thus ensure comparability between Member States.

Table 28 and Table 29 show the total expenditure tracked for the MFF as well as the total by all MS, domestically and internationally. Note that the estimates for EU expenditure below only show the total up to 2019, to align with available data

from MS's. In 2020 the EC reported an additional EUR 13.126 billion and EUR 503 billion of domestic and international expenditure, respectively.

Table 28: Summary of EU domestic biodiversity tracked expenditure

Source	Expenditure (EUR million)						
	2014	2015	2016	2017	2018	2019	Total
EU domestic	6,917	11,422	13,993	12,522	12,651	12,906	70,410
MS domestic	9,535	9,747	9,503	9,555	10,164	10,426	58,930
Total	16,452	21,169	23,496	22,077	22,815	23,331	129,340

Table 29: Summary of EU international biodiversity tracked expenditure

Source	Expenditure (EUR million)						
	2014	2015	2016	2017	2018	2019	Total
EU international	129	182	531	293	491	552	2,178
MS international	1,515	2,226	2,188	2,799	2,192	1,973	12,893
Total	2,143	2,197	2,547	2,310	2,509	2,571	14,277

Table 30: Summary of total domestic and international tracked biodiversity expenditure

Source	Expenditure (EUR million)						
	2014	2015	2016	2017	2018	2019	Total
Total Domestic	16,452	21,169	23,496	22,077	22,815	23,331	129,340
Total International	1,643	2,408	2,719	3,092	2,683	2,525	15,071
Grand Total	18,095	23,577	26,215	25,169	25,497	25,856	144,411

In total, we estimate that for the period of 2014 – 2019 all public sector actors in the EU (EU funds, Member State public expenditure) domestically spent an estimated EUR 129 billion on biodiversity protection (excluding private investment estimates). It is worth noting that that some Member States may be partially including MFF funding into their domestic 'total expenditure' values. Although this should not be the case with COFOG since there is a strict reporting system, during our research and interviews it became clear that this can happen, however at unquantifiable scales. As such, there may be some double-counting between Member State and MFF tracked expenditure to an unknown degree. Annual domestic expenditure in the EU amounted to EUR 61 billion on average between 2014-2019. Meanwhile, international expenditure from the EU MFF amounted to EUR 2.6 billion, while Member States' commitments equalled EUR 12.8 billion.

For the current MFF (2021 – 2027), the Interinstitutional Agreement¹²⁶ sets an overall target of 30% of expenditure from the EU Budget and the NextGenerationEU, and requires that the Commission “work toward” an “ambition” of providing 7,5 % in 2024 and 10 % in 2026 and in 2027 of annual spending under the MFF to biodiversity objectives. The total planned biodiversity investment from the EU draft budget published in 2022¹²⁷ is summarized in Table 31 below. Individual Member State investment commitments could not be determined.

Table 31: MFF draft budget 2021-2027 planned biodiversity commitments

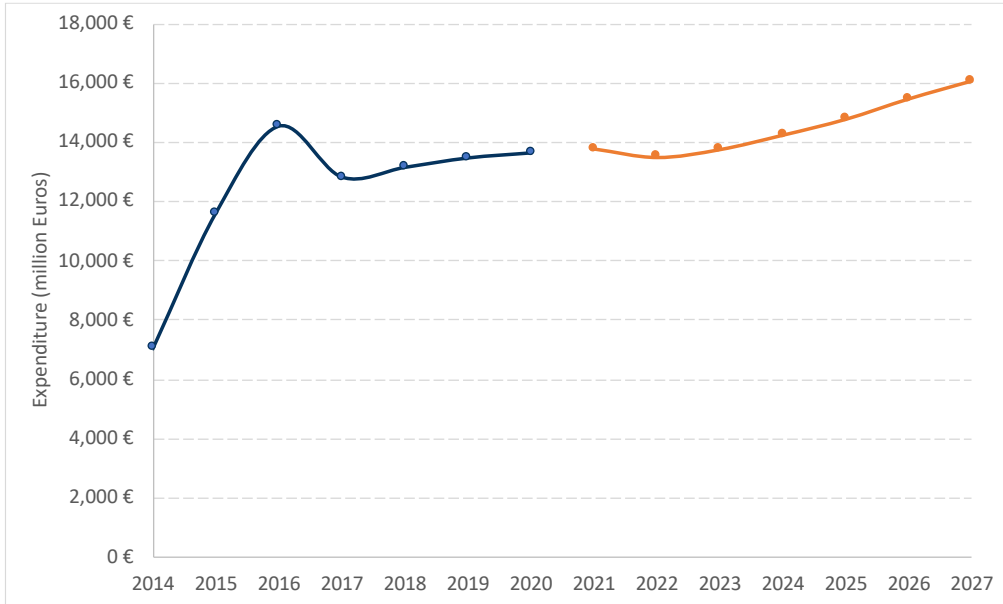
	Commitment appropriations (EUR million)							
	2021	2022	2023	2024	2025	2026	2027	Total
Total biodiversity finance in EU budget	13,780	13,492	13,755	14,236	14,769	15,449	16,046	101,527
Share of EU budget	8%	8%	8%	8%	9%	9%	9%	9%

Both the planned annual biodiversity investment and the total investment over the 2021-2027 MFF have increased, by comparison with the 2014-2020 MFF. Figure 13 shows the historic annual expenditure versus the planned budget for the current funding period, as well as the cumulative values. The figure clearly shows that significant policy efforts to protect and fund biodiversity have led to very steep increases in annual investments in the MFF. Momentum for investment in biodiversity protection has picked up since 2014 and the rate of increase in annual investment from 2014-2020 was fast. For the 2021-2027 cycle we observe that planned expenditure should overall increase the total amount by almost EUR 20 billion.

¹²⁶ Interinstitutional Agreement of 16 December 2020 between the European Parliament, the Council of the European Union and the European Commission on budgetary discipline, on cooperation in budgetary matters and on sound financial management, Article 16 (d) and (e)].

¹²⁷ EC (2022) Draft General Budget of the European Union for the financial year 2022. Working Document part I. Available at: https://ec.europa.eu/info/publications/working-documents-2022_en

Figure 13: MFF historic and future planned biodiversity expenditure (blue line reported, orange line planned expenditure)



5. COMPARISON OF CURRENT FUNDING AND FUTURE NEEDS

The concluding task of this project is to draw on the data produced in previous sections to compare the estimated future financial needs of the BDS for 2030 with the scale of expenditures made on biodiversity that can be expected based on data in previous years and forecasts based on public commitments. The purpose of this comparison is to understand the scale of additional investment that is likely to be needed to deliver on the BDS for 2030, compared to the level of investment expected under current settings over that time period.

5.1 Forecast expenditure on biodiversity

To commence with an estimate of forecast expenditure on biodiversity to 2030, we construct an estimate comprised of European Commission expenditure, Member State expenditure and private expenditure.

Annual EC expenditure from 2014 to 2020 is provided in Figure 14, with the data drawn from Task 2.2. In addition to this, the EC has forecast expenditure out to 2027 on biodiversity-relevant MFF programmes. As can be seen in the chart, this expenditure aligns quite neatly with the estimates of historical expenditure developed in Task 2.2, but trends upward over the period 2022-2027. To complete the time series, the project team has extended this data to 2030 using the trend data from 2022-2027, under the explicit assumption that annual increases in expenditure continue for the final three years of the decade.

For Member State expenditure, no such forecast data exists with which to estimate future expenditure. In the absence of this, we draw on historical expenditure provided in Task 2.2, and project the trend data forward annually to 2030. As noted above in Task 2.2, Member State data is only available until 2019 and so projections commence from 2020 drawing on the trend data from 2014-2019. This sees annual expenditure rising from EUR 12.4 billion in 2019 to EUR 14.8 billion in 2030, growth of 1.5% annually (Figure 15). Confidence intervals are provided to indicate the range of the computed estimates, accounting for unknown variations. Considering the possibility of Member States reporting some elements of EU funding as their own expenditure, thus ultimately double-counting biodiversity financing, the lower interval is of particular importance. It can be assumed that the lower interval accounts for any double-counting of MFF funding inside Member State budgets, and therefore represents a more conservative estimate of biodiversity expenditure looking forward.

Figure 14: MFF expenditure on biodiversity: past, committed and projected to 2030¹²⁸

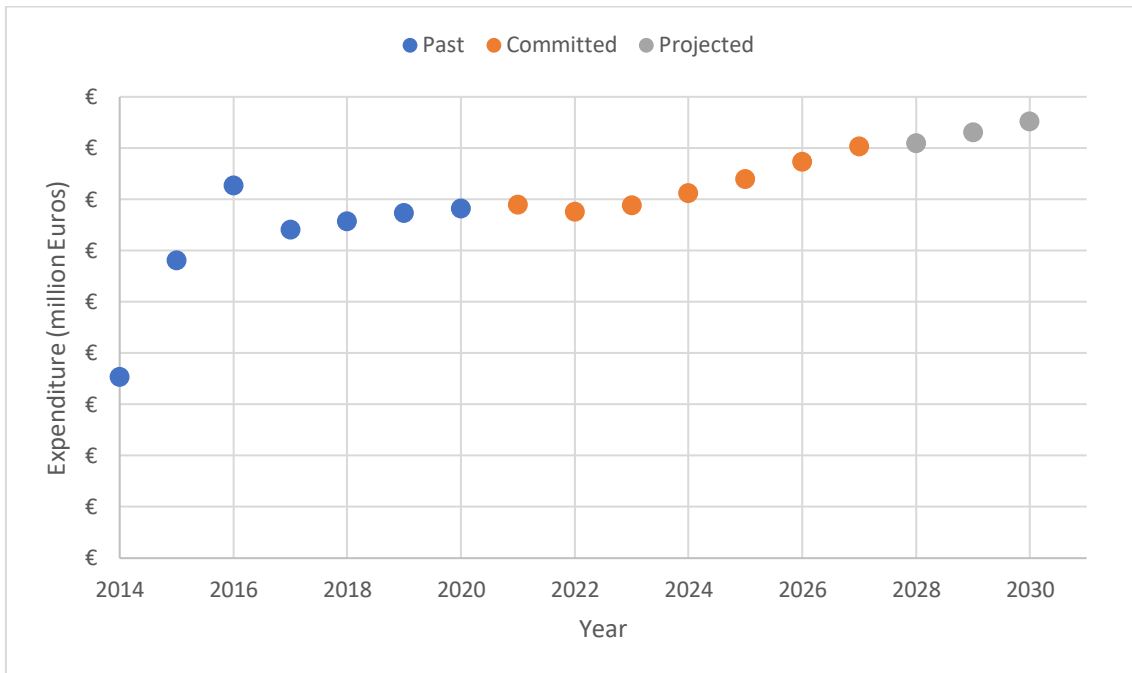
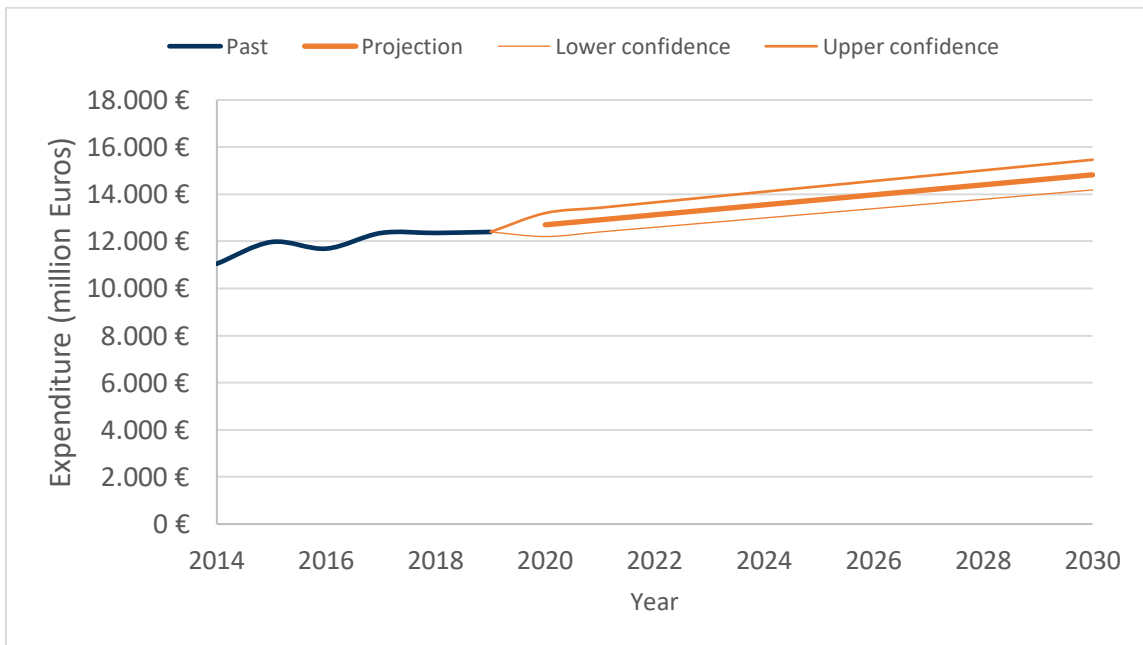


Figure 15: Member state expenditure on biodiversity: past and projected



Forward estimates of private sector investment in biodiversity within the EU is even more uncertain, given the significant data gaps as described in Task 2.2

¹²⁸ Source: project team analysis based on MFF data

above. However, for completeness and consistency we include a conservative estimate of expected private expenditure out to 2030, acknowledging that it is likely to be an underestimate.

To do this, we combine some of the core components of private biodiversity expenditure assembled in Task 2.2, drawing on most recent data for each, to compile a total annual estimate of private sector expenditure that we can project forward annually to 2030:

- Philanthropy, estimated at EUR 87.11 million in 2018
- NGO, estimated at EUR 0.79 million in 2020
- Green Bonds, estimated at 284 million in 2020

Assuming these estimates are fixed annually after their most recent estimate, this produces annual private investment in biodiversity at **EUR 411.95 million** per year. As noted, the project team believes this likely underestimates private sector expenditure on biodiversity, but notes the difference in scale between private and public sources, as illustrated in Figure 16. In 2021, the estimated scale of private investment in biodiversity is around 3% of either Member State or European Commission expenditure (and around 1.5% of combined public sector expenditure).

Although annual expenditure may seem elevated, the project values should not be surprising as annual expenditure tracked for Member States and under the MFF in 2014 – 2019 was already around 24 billion. The MFF alone saw an average annual expenditure increase (by commitment) from 12 billion in the 2014-2020 cycle to 14.5 billion for the 2012 2027 cycle. The Member State contribution to biodiversity is likely to increase similarly due to the European Union's and national commitments, but also simply as a result of the co-financing requirements for some of the MFF instruments. Further policy initiatives are likely to drive more private investment as well as incentivise more transparent tracking of private sector biodiversity expenditure.

Figure 16: Estimated annual expenditure on biodiversity from the European Commission, Member States and private sector, 2021-2030

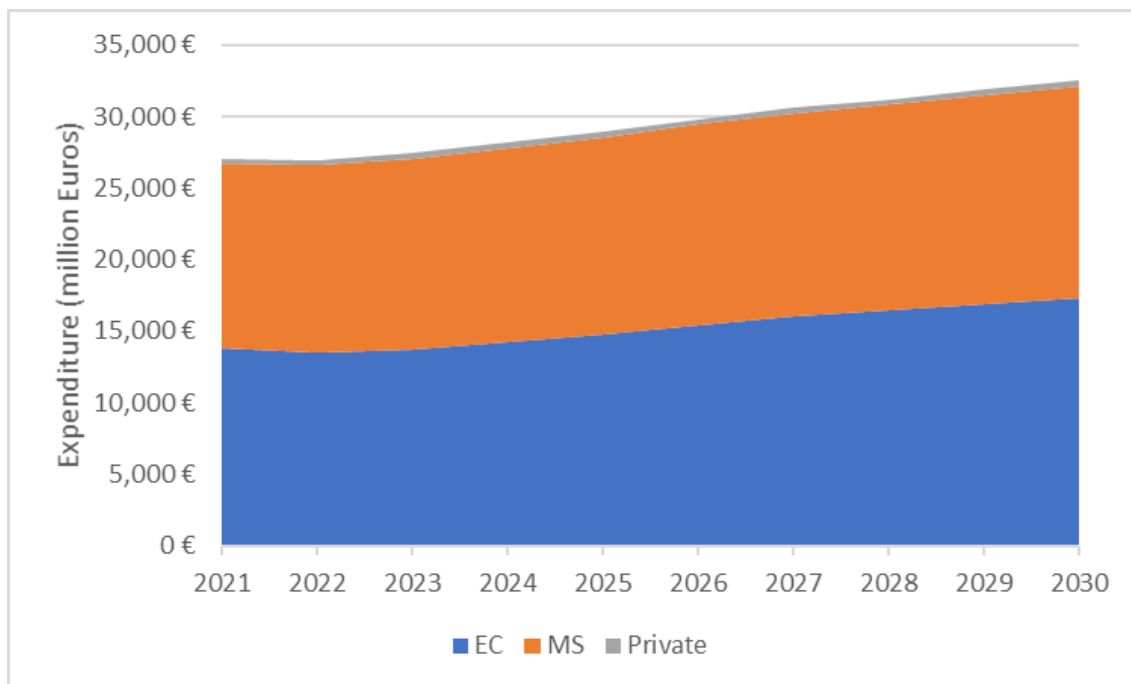


Figure 16 compiles the three sources of expenditure on biodiversity discussed above, with expenditure growing annually from EUR 27 billion in 2021 to EUR 32.5 billion in 2030.

5.2 Comparison of financing needs and expenditures

Having estimated future expenditures on biodiversity based on previous expenditures and some forecasts (for the EU), it is now possible to compare these estimated expenditures with the estimates of investment needs to implement the BDS for 2030 developed within Task 2.1.

This can only be undertaken in recognition of some key limitations:

- Expenditures estimated in Task 2.2 represent all expenditures related to biodiversity, rather than those specifically directed toward the implementation of the BDS for 2030.
- In addition, those expenditures estimated in Task 2.2 reflect expenditures receiving a 100% Rio Marker, and their effectiveness in addressing biodiversity issues is not assessed in this analysis.

Therefore, by comparing general estimated expenditures for biodiversity with specific estimates of financing needs for the BDS for 2030, this is likely to underestimate the scale of financing gap related to biodiversity within the EU.

As the purpose of this exercise is to estimate the overall scale of the gap between current expected expenditure and the financing needs of the BDS for 2030, we smooth remaining financing needs over the remaining nine years, and compare these with estimated expenditure over the same period. This is illustrated in the orange area in Figure 17.

This can be compared against the expected amount of expenditure by all sources (public and private) as estimated in the previous section. The scale of financing needs to deliver the strategy, including baseline expenditure, is estimated at around **EUR 48.15 billion** annually between 2021 and 2030. Estimated expenditure on biodiversity averages **EUR 29.46 billion annually** over 2021-2030, starting at EUR 27 billion in 2021 and increasing to EUR 32.5 billion in 2030 (represented in the blue area in the figure below). This includes an estimated average EUR 15.22 billion annually from the MFF, and an estimated average of EUR 13.87 billion of Member State expenditure. This leaves an estimated financing gap of around **EUR 186.89 billion** over this time period, or **EUR 18.69 billion per year** from 2021 to 2030. This represents an increase on current estimated expenditure of 63% over this time period.

Figure 17: Estimated scale of investment needed to deliver the BDS for 2030, and estimated future expenditure from 2021 to 2030

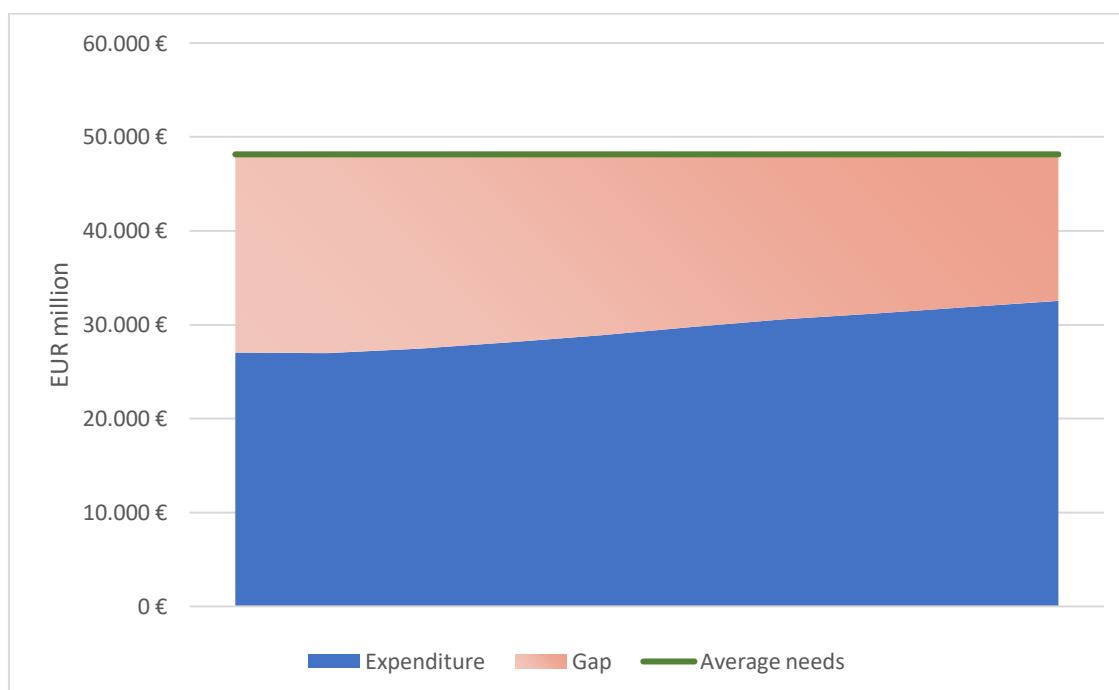


Table 32: Estimated future expenditure on biodiversity, estimated average financing needs for biodiversity, and estimated financing gap, 2021-2030, EUR millions (undiscounted)

Year	Expenditure	Average needs	Annual Gap	Cumulative gap
2021	27,065	48,148	21,083	21,083
2022	26,989	48,148	21,159	42,242
2023	27,464	48,148	20,684	62,926
2024	28,158	48,148	19,991	82,916
2025	28,903	48,148	19,245	102,162
2026	29,795	48,148	18,353	120,515
2027	30,604	48,148	17,544	138,059
2028	31,214	48,148	16,934	154,993
2029	31,869	48,148	16,279	171,272
2030	32,533	48,148	15,615	186,886
Total	294,595	481,481	186,886	186,886

5.2.1 Estimate of financing needs by Member State

A detailed breakdown of estimated biodiversity financing needs by Member State is beyond the scope of this assessment. The combination of baseline expenditures and the many different aspects of the Strategy to 2030 makes an accurate dissection of total financing needs by Member State extremely challenging. However, as an illustrative of broad scales of financing needs,

Table 33 provides a breakdown of the annual needs estimate by Member State according to **relative land area as a share of the EU**. This is illustrative only and not a detailed estimate.

Table 33: Estimated annual financing gap per Member State based on share of land area, 2021-2030, EUR millions (undiscounted)

Member State	Land area (km ²)	Proportion of total	Average annual needs (EUR million)
Austria	82,520	2.1%	993.39
Belgium	30,280	0.8%	364.52
Bulgaria	108,560	2.7%	1,306.86
Croatia	56,590	1.4%	681.24
Cyprus	9,240	0.2%	111.23
Czech Republic	77,200	1.9%	929.35
Denmark	40,000	1.0%	481.53
Estonia	43,470	1.1%	523.30
Finland	303,920	7.6%	3,658.64
France	547,557	13.7%	6,591.58
Germany	349,380	8.7%	4,205.90
Greece	128,900	3.2%	1,551.72
Hungary	91,260	2.3%	1,098.60
Ireland	68,890	1.7%	829.31
Italy	297,730	7.4%	3,584.12
Latvia	62,090	1.6%	747.45
Lithuania	62,630	1.6%	753.95
Luxembourg	2,430	0.1%	29.25
Malta	320	0.01%	3.85
Netherlands	33,670	0.8%	405.33
Poland	306,170	7.7%	3,685.73
Portugal	91,606	2.3%	1,102.76
Romania	230,080	5.8%	2,769.74
Slovak Republic	48,080	1.2%	578.80
Slovenia	20,136	0.5%	242.41
Spain	499,604	12.5%	6,014.31
Sweden	407,310	10.2%	4,903.27
Total	3,999,623	100%	48,148.14

6. LIST OF ANNEXES

Annex 1: Biodiversity tracking 2014-2020: Member State case studies	Pg. 147
Annex 2: Biodiversity tracking 2021-2027: Programme recommendations	Pg. 303
Annex 3: Biodiversity tracking: Member State examples	Pg. 354
Annex 4: Biodiversity financing: Detailed costing of objectives	Pg. 366
Annex 5: Biodiversity financing: Domestic funding methodologies	Pg. 473
Annex 6: Biodiversity financing: List of external stakeholders consulted	Pg. 476
Annex 7: Stakeholder workshop report	
Appendix to Annex 2 - CAP methodology	Pg. 320

ANNEX 1 – BIODIVERSITY TRACKING 2014-2020: MEMBER STATE CASE STUDIES

Case study 1: CAP – EAGF in France

Case study 2: CAP – EAFRD in the Netherlands

Case study 3: CAP – EAFRD in Hungary

**Case study 4: CAP – EAFRD in Baden-Wurttemberg in
Germany**

**Case study 5: ERDF and Social Fund in Greece – Operational
Programme Crete (2014GR16M2OP011)**

**Case study 6: ERDF and Cohesion Fund in Romania – Large
Infrastructure Programme (2014RO16M1OP001)**

**Case study 7: ERDF and Cohesion Fund in Czechia -
Operational Programme Environment (2014CZ16M1OP002)**

Case study 8: EMFF in Portugal

1. CASE STUDY: CAP – EAGF IN FRANCE

Researcher: Kaley Hart, IEEP

1.1 Background to case study

France was selected as a case study for investigating biodiversity tracking in relation to the CAP's European Agriculture Guarantee Fund (EAGF) because it receives the largest proportion of the EAGF of all Member States and therefore is the country with the largest amount of expenditure under the EAGF tracked as being for biodiversity.

The direct payments part of the EAGF for 2014-2020¹ includes a series of interventions, some of which are compulsory for Member States to implement and some of which are voluntary (see EAGF programme fiche). The only intervention under the EAGF that has an explicit environmental / biodiversity objective is the 'payment for agricultural practices beneficial for the climate and the environment', commonly referred to as 'greening'. Member States are also required to put in place a series of cross-compliance requirements² with which farmers must comply in order to receive payments. These include requirements that relate to biodiversity.

France is required (as are all other Member States) to notify to the Commission of the decisions it makes about how to implement the EAGF, in accordance with the underlying legal provisions of Regulation (EU) No 1307/2013 and its delegated and implementing acts.

The Biodiversity Priorities that are relevant for agriculture in France (but not necessarily addressed via the EAGF) are set out in the PAF for 2014-2020, which is drafted at the national level. Four measures are identified:

- Implementation of Natura 2000 contracts for agricultural areas through agri-environmental measures at territorial level
- Management measures: maintenance and improvement of the conservation status of habitats in coordination with regulatory protection tools in force
- Management measures: maintenance and improvement of the conservation status of species in coordination with the regulatory protection tools in force
- Compensation measures to compensate for loss of income related to the implementation of required management

A range of specific priority measures for agricultural habitats and species are identified and set out by biogeographical region and by administrative region.

The French National Biodiversity Strategy (2011-2020) is set at a more strategic level. It attaches particular importance to increasing biodiversity information and education for all stakeholders; biodiversity mainstreaming in development projects (especially in overseas

¹ The Common Market Organisation part of the EAGF is not covered in this case study as expenditure under this part of the EAGF is not tracked for biodiversity.

² Statutory Management Requirements (SMRs) and standards of Good Agricultural and Environmental Condition (GAEC)

territories where exceptionally rich biodiversity has significant socioeconomic and cultural value for the local populations); as well as to biodiversity governance at all levels (global to local). The following targets have relevance for agriculture:

- Target 4 Preserve species and their diversity
- Target 5 Build a green infrastructure including a coherent network of protected areas
- Target 6 Preserve and restore ecosystems and their functioning
- Target 11 Control pressures on biodiversity

Beneath this plan sits the national action plan for agriculture, revised in 2010, and setting out 20 objectives for 2011-2020 including: sustainable management of natural resources in the farming, forest, and fishery sectors (Objective 12), and more effective policies and projects on ecological aspects (Objective 15). In June 2018, a Biodiversity plan was approved by the Ministry of Ecology in order to accelerate the implementation of the national biodiversity strategy. This plan followed the adoption of a law on biodiversity as of 1 September 2018, which introduced as one element a ban on neonicotinoids. The Biodiversity plan includes a number of actions relating to the farming sector, including:

- Helping farmers to reduce their use of pesticides by 25 per cent by 2020 and by 50 per cent by 2025, and stop using glyphosate within five years, through changes in the farm advisory services, dedicated funding for research projects on alternatives to pesticides, the further implementation of the plan (known as *Écophyto*);
- Promoting the development of agro-ecology through the introduction of a label “high environmental value” (created in 2008), the introduction of biodiversity criteria into PDO/PGIs and a commitment to increase the proportion of land under organic farming to 15 % by 2022;
- Reinforcing the protection of pollinators;
- Developing payments for ecosystem services for farming practices going beyond regulatory requirements, in advance of the post 2020 CAP;
- Promoting conservation tillage, without glyphosate; and
- Protecting and promoting cultivated genetic resources and rare local breeds.

In addition, all regions in France have developed a **Schéma Régional de Cohérence Ecologique** (SRCE) which provides information on the state of biodiversity locally, as well as a plan of action, and details on how the ‘green and blue infrastructure’ (Trame Verte et Bleue) will be implemented.

Finally, France introduced its agro-ecology project in 2012, implemented since 2014³. Although it is not a biodiversity policy as such, it aims to reconcile the economic, environmental and social performance of the farming sector, and has been the framework for policy action in the sector since 2014. Some of the priorities under this project are covered in the Biodiversity plan highlighted above. This project is based on six action plans targeting six objectives:

³ <https://agriculture.gouv.fr/quest-ce-que-lagroecologie>

- Reduction of pesticide use (Plan Écophyto);
- Reduction of antibiotic use in animal breeding (Plan Écoantibio);
- Better management of nitrate production in animal breeding (Plan Azote/Méthanisation);
- Improvement of bee health and development of beekeeping (Biodiversity and sustainable beekeeping plan);
- Contribution to forage autonomy of holdings (Vegetal protein plan); and
- Development of organic farming (National Programme for Organic Ambition for 2017).

1.2 Programme priorities

Member States do not set out their priorities for spending under the EAGF for 2014-2020 in the way that this occurs for the other CAP fund, the European Agricultural Fund for Rural Development (EAFRD). Rather the EAGF includes a series of interventions which are either compulsory or voluntary for Member States to implement, underpinned by cross-compliance requirements which must be put in place but can be tailored to national circumstances. Some of the interventions involve some elements of choice which can be made by the Member State. Once these decisions are made, a Member State is simply required to notify their decisions to the European Commission.

In the period leading up to the introduction of the 2014 CAP there was no national agricultural strategy in France, although in October 2014, a new law for agriculture, food and forests was introduced⁴. However, during the 2012 French elections, Francois Hollande, who later won the election made clear his main political priorities for agriculture in relation to the CAP.⁵ Elements of these were specifically related to Pillar 1 of the CAP:

1. To increase the legitimacy of direct payments through the green payments and the convergence of direct payments to a single value (EAGF)
2. To support employment and maintain holdings through the redistributive payments (EAGF)
3. To achieve balanced territorial development through the support of animal production systems in mountainous areas through the use of Voluntary Coupled Support (EAGF) and the Areas with Natural Constraints payment (EAFRD).
4. To contribute to the aims of the 'agro-ecological project' which was instigated in 2012/13 and whose aim was stated to be to facilitate and accelerate the transition towards more sustainable farming systems (EAGF and EAFRD).

⁴ <https://www.legifrance.gouv.fr/eli/loi/2014/10/13/AGRX1324417L/jo/texte>

⁵ Ecorys, IEEP and WUR (2016) Mapping and analysis of the implementation of the CAP. Final Report to the Directorate-General for Agriculture and Rural Development, Brussels.
https://ec.europa.eu/agriculture/sites/agriculture/files/external-studies/2016/mapping-analysis-implementation-cap/fullrep_en.pdf

In France, support under the EAGF accounts for approximately 78% of the total CAP budget - €7.45 billion out of a total CAP budget of €9.5 billion in 2018. Of this, €6.9 billion is allocated to direct payments (DG AGRI CAP data portal).

The interventions that France chose to implement for the 2014-2020 period are set out in Table 1. Of these, the only intervention to have biodiversity as one part of its objectives is the 'greening' payment. Greening measures have been implemented to a very extensive extent in France, so as to provide farmers with the greatest flexibility to receive the greening payment.

Table 1.1: Pillar 1 implementation choices in France for 2014-2020

For claim year 2019	Compulsory (C)/ Voluntary (V)		% of budget allocated	Choices made – where applicable
Basic Payment Scheme	C	Yes	34%	Regionalised BPS in accordance with Article 23
Payments for young farmers	C	Yes	1%	
Redistributive payment	V	Yes	20%	Opted to apply the 'reduction of payments' mechanism
Payment for Areas with Natural Constraints	V	No		
Voluntary Coupled Support	V	Yes	15%	
Small Farmer Scheme	V	No		
Greening	C	Yes	30%	Choices made: Equivalence: Certification Scheme for maize production in place of crop diversification Level of application of the ratio of permanent grassland: Regional Environmentally Sensitive Permanent Grassland: Only in Natura 2000 areas List of Ecological Focus Areas offered to farmers: <ul style="list-style-type: none"> - Land lying fallow - Land lying fallow with melliferous plants - Buffer strips and field margins - Agroforestry - Strips along forest edges - Short Rotation coppice - Areas with miscanthus - Afforested Areas - Catch crops/green cover - Nitrogen Fixing Crops - Landscape Features (all that are permissible) Application of regional/collective EFA: No Use of the EFA forest exemption: No

Source: European Commission, 2019⁶

Receipt of support for these interventions is conditional upon meeting cross-compliance requirements. These comprise both Statutory Management Requirements (various pieces of EU legislation transposed into national law) and standards of Good Agricultural and Environmental Condition (GAEC). The content of the GAEC standards (a framework for which

⁶ https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/simplementation-decisions-ms-2018_en.pdf

is set out in the CAP legislation – Regulation (EU) 1306/2013) can be adapted by the Member State to make sure they apply to regional conditions. Those implemented in France are set out in Table 1.2. Only GAEC 7 has biodiversity as a specific objective, although others relating to water and soils also have the potential to bring about biodiversity benefits. Some of these requirements are also supported via the greening payments as they are permitted under Ecological Focus Areas.

Table 1.2: Cross-compliance GAEC standards applied in France in the 2014-2020 period

Source: European Commission, GAEC database – accessed March 2021

Cross-compliance GAEC standard	Specific rules	Permissible as EFA element?
GAEC 1 – Establishment of buffer strips along water courses	Minimum width: 5 metres No maximum width	Yes
GAEC 2 – Compliance with water authorisation procedures	Covers all irrigated land	
GAEC 3 – Protection of ground water against pollution	No release of dangerous substances into the soil – as defined by the appendix to the EU Groundwater Directive	
GAEC 4 – Minimum soil cover	Requires cover on fallow land before May 31 – with exceptions	
GAEC 5 – Minimum land management reflecting site specific conditions to limit erosion	No working of waterlogged/flooded soils No ploughing on field with a slope >10% between 1 Dec – 15 Feb unless carried out perpendicularly or there is a vegetated strip of at least 5m at the bottom of the field	
GAEC 6 – Maintenance of soil organic matter	Ban of burning straw residues and residues of oilseed, protein and cereal crops	
GAEC 7 – Landscape features	Requires the maintenance of certain landscape features. Those included are: <ul style="list-style-type: none"> - Hedges - Ponds - Group of trees/field copses Also bans cutting of hedges and trees during the bird breeding and rearing season – set to be between April 1 and July 31	All landscape features covered by GAEC 7 are also eligible as EFA.

1.2.1 Biodiversity priorities identified

The CAP has three overarching objectives set out at EU level for the 2014-2020 period. One of these is environmentally focussed, namely the ‘sustainable management of natural resources and climate action’. This can be addressed through the combined effects of a number of different CAP measures from both CAP Pillars, including cross-compliance requirements and direct payments under the EAGF, specifically the green direct payments, officially ‘agricultural practices beneficial for the climate and the environment’.

There is no requirement to set out priorities for the EAGF. Nonetheless elements of the EAGF do have biodiversity objectives contained within them and these are subsequently implemented in France.

For example, the objective of cross-compliance as set out in Regulation (EU) 1306/2013 is to 'contribute to the development of sustainable agriculture through better awareness on the part of beneficiaries of the need to respect those basic standards. It aims also to contribute to make the CAP more compatible with the expectation of society through improving consistency of that policy with the environment, public health, animal health, plant health and animal welfare policies.'

Several the greening measures also have biodiversity as a stated objective in the EU legislation (Regulation 1307/2013), namely:

- Environmentally Sensitive Permanent Grassland, whose objective is to support carbon sequestration, support species and habitats of biodiversity value, protect against soil erosion and protect soil quality; and
- Ecological Focus Areas, whose objective is to safeguard and improve biodiversity on farms.

In addition, although the main objective of the crop diversification measure is to improve soil quality, this can also bring benefits to soil biodiversity.

An information note provided for farmers on the French Ministry of Agriculture's webpage⁷ states that the greening payment is a *'direct payment for farmers which pays for specific actions beneficial to the environment and contributes to supporting incomes. It requires a large number of farmers to follow similar practices which in turn should contribute to improving the environmental performance of agriculture in relation to biodiversity, water protection and climate change'*. There are no further environmental objectives set out in the specific guidance notes for each of the greening measures.

Most of the biodiversity priorities identified for France for the 2014-2020 period, as identified above, highlight the EAFRD as being the main funding stream under the CAP to support their achievement. This is confirmed in the Partnership Agreement (PA), which highlights the EAFRD as playing an important role to 'improve performance of Natura 2000 network, sustainable resource management and safeguard biodiversity'⁸.

1.2.2 Output and outcome measurements relevant to biodiversity

There is no monitoring of cross-compliance for the 2014-20 period and therefore there are no indicators to illustrate how cross-compliance is delivering for biodiversity. The only indicator available is:

- Output indicator OIH_01_1a: Number of hectares subject to cross-compliance (BPS+ SAPS)

⁷ <https://agriculture.gouv.fr/paiements-decouplés-le-paiement-vert>

⁸ https://ec.europa.eu/info/sites/info/files/partnership-agreement-france-summary-aug2014_en.pdf

For the three greening measures, Member States are required to report annually against a series of output indicators as set out in the table below.

Table 1.3: Output indicators for the greening measures relevant to biodiversity

Greening payment	Output indicator	Description
Crop diversification	OID_07_2a	Hectares of arable land declared by farmers subject to crop diversification
Maintenance of Permanent Grassland ratio	OID_08_2	Hectares of permanent grassland declared by the farmers counting for the ratio
Environmentally Sensitive Permanent Grassland (ESPG)	OID_08_4a	hectares covered by ESPG (i.e. declared) – Total
	OID_08_4b	hectares covered by ESPG (i.e. declared) in Natura 2000
	OID_08_4c	hectares covered by ESPG (i.e. declared) outside Natura 2000
	OID_08_5a	Hectares of designated environmentally sensitive permanent grassland – Total
	OID_08_5b	Hectares of designated environmentally sensitive permanent grassland – Inside Natura 2000
	OID_08_5c	Hectares of designated environmentally sensitive permanent grassland – outside Natura 2000
Ecological Focus Areas	OID_09_3	Hectares of EFA
	RPI_13_3	Share of EFA in arable land – Total
	OID_09_4a	Land lying fallow
	RPI_13_4a	Share of EFA in arable land – Land lying fallow
	OID_09_4b	Terraces
	RPI_13_4b	Share of EFA in arable land – Terraces
	OID_09_4e	Landscape features – total
	RPI_13_4c	Share of EFA in arable land – Landscape features
	OID_09_4f	<i>Hedges or wooded strips</i>
	OID_09_4g	<i>Isolated trees</i>
	OID_09_4h	<i>Trees in line</i>
	OID_09_4i	<i>Trees in group</i>
	OID_09_4j	<i>Field margins</i>
	OID_09_4k	<i>Ponds</i>
	OID_09_4l	<i>Ditches</i>
	OID_09_4m	<i>Traditional stone walls</i>
	OID_09_n	<i>Other</i>
	OID_09_4o	Buffer strips
	RPI_13_4d	Share of EFA in arable land – Buffer strips
	OID_09_4r	Agroforestry
RPI_13_4e	Share of EFA in arable land – Agroforestry	
OID_09_4s	Strips along forest edges	
RPI_13_4f	Share of EFA in arable land – Strips along forest edges	

	OID_09_4v	Short rotation coppice
	RPI_13_4g	Share of EFA in arable land – Short rotation coppice
	OID_09_4w	Afforested areas
	RPI_13_4h	Share of EFA in arable land – Afforested areas
	OID_09_4x	Catch crops or green cover
	RPI_13_4i	Share of EFA in arable land – Catch crops or green cover
	OID_09_4y	Nitrogen fixing crops
	RPI_13_4j	Share of EFA in arable land – Nitrogen fixing crops
Greening – exemptions	OID_06_2a	Hectares of arable land declared by farmers exempted from greening – Total exempted (including small farmers – excluding partial exemptions)
	OID_06_2b	Hectares of arable land declared by farmers exempted from greening – total from farmers who comply with organic farming
	RPI_14_1	Share of area under greening practices

1.3 Funding allocated to biodiversity-tracked measures

1.3.1 Allocations

Table 1.4 below sets out the amount of EAGF expenditure that is estimated to be tracked as biodiversity expenditure for the years 2015-2018 (14.8%), based on expenditure information provided via the DG AGRI data portal. The calculations are based on applying the biodiversity tracking markers to the relevant expenditure categories.

As the funding under the EAGF is not intended specifically to address Natura 2000 objectives, beyond protecting some areas of environmentally sensitive permanent grassland from ploughing in Natura 2000 areas, there is no link between the funding requirements identified in the PAF and the expenditure identified under the EAGF.

Table 1.4: Estimate of biodiversity expenditure under the EAGF in France for 2015-2018

NB: Own calculations based on data via the AGRI data-portal. Data available only for 2015-2018. [Calculation: Greening: all expenditure * 40% / for all other categories 10% of total expenditure * 40%]

France	Indicator	2015	2016	2017	2018
Expenditure Basic Payment Scheme	OID_01_3	135,671,457	127,066,559	122,486,977	116,547,564
Expenditure redistributive payment	OID_04_3	13,998,817	28,729,541	28,126,312	27,133,970
Expenditure young farmers	OID_12_3	1,755,537	1,979,886	2,012,382	3,241,164
Expenditure voluntary coupled support	OID_14_5	40,414,942	41,545,949	41,708,527	40,282,822
Expenditure greening	OID_05_4	824,453,291	858,859,669	838,781,822	806,131,545
TOTAL		1,016,294,044	1,058,181,604	1,033,116,020	993,337,065

Table 1.5: Total expenditure – before Rio markers applied

Source: DG AGRI data portal – accessed March 2021

France	Indicator	2015	2016	2017	2018
Expenditure Basic Payment Scheme	OID_01_3	3,391,786,434	3,176,663,978	3,062,174,430	2,913,689,094
Expenditure redistributive payment	OID_04_3	349,970,423	718,238,525	703,157,803	678,349,258
Expenditure young farmers	OID_12_3	43,888,419	49,497,153	50,309,561	81,029,090
Expenditure voluntary coupled support	OID_14_5	1,010,373,560	1,038,648,719	1,042,713,168	1,007,070,541
Expenditure greening	OID_05_4	2,061,133,226	2,147,149,173	2,096,954,555	2,015,328,863
TOTAL		6,857,152,063	7,130,197,548	6,955,309,517	6,695,466,845

1.3.2 Expenditure in practice

Please see above. As EAGF expenditure is based on an annual cycle, there is a relatively small level of discrepancy between what is committed and what is spent in practice. It was only possible to source data for actual expenditure for France.

1.4 Information from programme monitoring

There are no monitoring data on the results of the implementation of cross-compliance in France (or other Member States) beyond enforcement statistics which are not in the public domain. The only indicator available is the Output indicator OIH_01_1a: Number of hectares subject to cross-compliance (BPS+ SAPS). The figures for France are set out in the table below and show that the area subject to cross-compliance is about 88% of total utilisable agricultural area and is declining over time, in line with the decline in agricultural area.

Table 1.6: Area subject to cross-compliance in France, 2015-2018

Source: DG AGRI data portal – accessed March 2021

Year	Hectares subject to cross-compliance	Ha of Utilised Agricultural Area	Ha as % of UAA
2015	26,064,381	29,115,250	89.5%
2016	25,706,804	29,088,880	88.4%
2017	25,738,386	29,101,330	88.4%
2018	25,613,741	29,020,160	88.3%

The monitoring data on the greening measures are set out in Table 1.7 below.

These show that in 2018, 82.3% of UAA was subject to one or more of the greening measures. This does not mean, however, that this area was under active management for biodiversity. To understand this, it is necessary to look at each of the greening measures in turn.

Ecological Focus Areas:

The indicators show that 12.95% of total arable area was managed as EFA. However not all the EFA elements have the potential to deliver biodiversity outcomes. The evaluation studies on the biodiversity effects of the CAP and of the greening measures showed that the following elements had the greatest potential for biodiversity^{9 10}:

- Fallow land
- multiannual-fodder crops (e.g. alfalfa); and
- landscape features (e.g. hedgerows, trees and ponds)

It also highlighted that other EFA elements such as catch crops, and nitrogen fixing crops (with no pesticide use) had low biodiversity benefits for most farmland species, other than soil fauna, although they can reduce water pollution with benefits for aquatic ecosystems and biodiversity.

Table 1.7 below shows that in France, the greatest proportion of arable land under EFA in 2019 was under catch crops/green cover (8.77%), with nitrogen fixing crops covering 1.81% and fallow only 1.78%. The reason for the high proportion of area under green cover is likely to be due to this also being required under the French Nitrate Action Plan to meet its requirements under the Nitrates Directive. In addition, all the landscape features that can be supported via the EFA measure are also subject to cross-compliance requirements.

In summary, therefore, a very small proportion of the EFA measure is under management that has the potential to deliver significant biodiversity benefits.

Environmentally Sensitive Permanent Grassland:

The evaluation study on the biodiversity effects of the CAP found that “the Pillar 1 ESPG greening measure plays an important role in preventing the ploughing of designated semi-natural permanent grassland habitats (as well as other wetlands and carbon rich soils which are often of high biodiversity value)”¹¹. It goes on to note that these areas should already be protected via the Nature Directives, but that it is likely to be bolstering protection in these areas, given evidence of ongoing losses of permanent grassland within the Natura 2000 network.

France only applies the ESPG greening measure within Natura 2000 areas. In France there are 1.47 million ha of permanent grassland in Natura 2000 areas. Of this, 80% or 1,175,941 ha was designated as ESPG in 2019. Of the permanent grassland designated as ESPG, 61% or 716,856 ha was declared as ESPG in 2019 – i.e., subject to the greening measure requirements. This equates to 48.7% of the total area of permanent grassland areas within Natura 2000 areas.

⁹ Alliance Environnement and Thünen-Institut (2017) Evaluation study of the payment for agricultural practices beneficial for the climate and the environment. Alliance Environnement, Brussels.

¹⁰ Alliance Environnement (2019) Evaluation of the impact of the CAP on habitats, landscapes, biodiversity. Alliance Environnement (IEEP and Oréade-Brèche), Brussels.

¹¹ Alliance Environnement (2019) Evaluation of the impact of the CAP on habitats, landscapes, biodiversity. Alliance Environnement (IEEP and Oréade-Brèche), Brussels.

In France, although national rules for Natura 2000 sites do not ban ploughing, since 2010, to respect the Habitats Directive at national level, an Environmental Impact Assessment (EIA) has been required prior to ploughing permanent grassland. In some Natura 2000 areas, charts (signed by farmers) identify areas which could and could not be ploughed, which removed the need to implement the EIA. Given these rules, it is difficult to estimate the extent to which the ESPG requirements provide additional protection against the ploughing of permanent grassland in these areas, but as noted above, it is likely to have some effect.

Maintenance of the ratio of permanent grassland

The requirement under the greening measure is for Member States to ensure that the ratio of the land under permanent grassland in relation to the total agricultural area declared by farmers does not decline by more than 5% compared to the reference level. France was one of four Member States to apply this measure at the regional level. This has led to a higher level of restrictions on grassland ploughing, particularly in some regions (e.g., Hauts-de-France where some areas that had been ploughed had to be reconverted to grassland in 2016; and Normandie where the proportion to be ploughed went over the 2.5% level, triggering a pre-authorisation process to be put in place). The results of the 2020 agricultural census should shed light on more up to date figures on changes in the areas of permanent grassland, when these become available.

Nonetheless, it is difficult to assess the biodiversity impact of the measure as this will depend the types of grassland affected and the effectiveness of current protection on which there are no data.

Crop diversification

Although the main objective of the crop diversification measure is to improve soil quality, diversifying the number of crops that are cultivated may also have some effects on biodiversity (particularly soil biodiversity). These effects, however, depend on the types of crops grown and when the crops are grown (e.g., spring sown versus autumn sown).

The indicators show that 79% of arable land (14.4 million ha) is subject to the crop diversification measure in 2019. However, analysis for the evaluation study on the greening measures estimated that in France, changes in cropping patterns had taken place on only 0.2% of arable land. The main changes seen were slight decreases in maize and common wheat areas, with increases in barley, rape, and turnip rape. However, the data used for this analysis was not able to discriminate between spring and winter crops which limits the ability to determine the likely effect on biodiversity. The availability of an 'equivalence' measure in France which allows the continuation of single cropping of maize further limits its biodiversity benefits.

Table 1.7: Output indicator data for the Pillar 1 greening measures in France – 2019 figures

Source: DG AGRI data portal – accessed March 2021

Greening payment	Output indicator	Description	Values for France (2019)	Output Indicator	Description	Values for France (2019)
Crop diversification	OID_07_2a	Hectares of arable land declared by farmers subject to crop diversification	14,406,751.66			
Maintenance of Permanent Grassland ratio	OID_08_2	Hectares of permanent grassland declared by the farmers counting for the ratio	7,597,657.59			
Environmentally Sensitive Permanent Grassland (ESPG)	OID_08_4a	hectares covered by ESPG (i.e. declared) - Total	716,855.72			
	OID_08_4b	hectares covered by ESPG (i.e. declared) in Natura 2000	716,855.72			
	OID_08_4c	hectares covered by ESPG (i.e. declared) outside Natura 2000	0			
	OID_08_5a	Hectares of designated environmentally sensitive permanent grassland - Total	1,175,940.93			
	OID_08_5b	Hectares of designated environmentally sensitive permanent	1,175,940.93			

		grassland - Inside Natura 2000				
	OID_08_5c	Hectares of designated environmentally sensitive permanent grassland - outside Natura 2000	0			
Ecological Focus Areas	OID_09_3	Hectares of EFA	2,378,701.66	RPI_13_3	Share of EFA in arable land - Total	12.95%
	OID_09_4a	Land lying fallow	301,493.48	RPI_13_4a	Share of EFA in arable land - Land lying fallow	1.78%
	OID_09_4b	Terraces	Not used in France	RPI_13_4b	Share of EFA in arable land - Terraces	Not used in France
	OID_09_4e	Landscape features - total	93,715.55	RPI_13_4c	Share of EFA in arable land - Landscape features	0.31%
	OID_09_4f	<i>Hedges or wooded strips</i>	<i>79,596.91</i>			
	OID_09_4g	<i>Isolated trees</i>	<i>1,995.06</i>			
	OID_09_4h	<i>Trees in line</i>				
	OID_09_4i	<i>Trees in group</i>				
	OID_09_4j	<i>Field margins</i>				
	OID_09_4k	<i>Ponds</i>	<i>718.36</i>			
	OID_09_4l	<i>Ditches</i>	<i>4,794.59</i>			
	OID_09_4m	<i>Traditional stone walls</i>	<i>5.49</i>			
	OID_09_n	<i>Other</i>				
	OID_09_4o	Buffer strips		RPI_13_4d	Share of EFA in arable land - Buffer strips	n/a
	OID_09_4r	Agroforestry	165.36	RPI_13_4e	Share of EFA in arable land - Agroforestry	0%
	OID_09_4s	Strips along forest edges	5,242.96	RPI_13_4f	Share of EFA in arable land - Strips along forest edges	0.03%

	OID_09_4v	Short rotation coppice	855.82	RPI_13_4g	Share of EFA in arable land - Short rotation coppice	0.01%
	OID_09_4w	Afforested areas	459.22	RPI_13_4h	Share of EFA in arable land - Afforested areas	0%
	OID_09_4x	Catch crops or green cover	1,599,673.64	RPI_13_4i	Share of EFA in arable land - Catch crops or green cover	8.77%
	OID_09_4y	Nitrogen fixing crops	334,759.86	RPI_13_4j	Share of EFA in arable land - Nitrogen fixing crops	1.81%
Greening - exemptions	OID_06_2a	Hectares of arable land declared by farmers exempted from greening - Total exempted (including small farmers - excluding partial exemptions)	1,746,281.18			
	OID_06_2b	Hectares of arable land declared by farmers exempted from greening - total from farmers who comply with organic farming	1,746,281.18			
	RPI_14_1	Share of area under greening practices	82.3% - 2018 data			

1.5 Summary of findings

- There are no explicit biodiversity objectives identified for the EAGF, as this is not a requirement of the fund. However, elements of the EAGF, namely cross-compliance and the greening payments do feature biodiversity amongst their objectives within the EU legislation and this should follow through into implementation decisions in France. The French information note on the greening measures states that one of the purposes of these measures is to improve the environmental performance of agriculture in relation to biodiversity (alongside other environmental objectives). However, it also makes clear that an equally important objective of these measures is to support farm incomes.
- Biodiversity considerations were not the key consideration behind the choices taken about how to implement the greening measures in France. Rather, the aim was to ensure that as many farmers as possible were able to access the payments.
- All interventions that had the potential to deliver for biodiversity were implemented in France as it is compulsory to make these payments available to farmers.
- In terms of delivering biodiversity outcomes in practice:
 - There is little empirical evidence to show the impact of the cross-compliance GAEC standards on biodiversity, although GAEC 7 protecting landscape features may prevent the removal of these over time. The cross-compliance Statutory Management Requirements simply require adherence to relevant articles of EU legislation – in the case of biodiversity this is the Birds and Habitats Directives.
 - The greening measures have delivered little for biodiversity in practice.
 - Under the EFA measure, the greatest proportion of EFA is under catch crops/green cover, something that is required under the French Nitrate Action Plan and is not likely to deliver significant benefits for biodiversity. Only a very small proportion of the arable area (1.77%) is under fallow, the EFA element which would be most beneficial for biodiversity.
 - Under the ESPG measure, 61% of the total area designated as ESPG within Natura 2000 areas is subject to the ESPG requirements and this accounts for only 49% of the total area of permanent grassland within these areas. On the areas subject to requirements, this should bolster the requirements already in place to maintain permanent grassland.
 - The requirement to maintain of the proportion of permanent grassland in relation to total UAA within certain limits is implemented at a regional level in France which helps restrict grassland conversions to a greater extent than if this were applied nationally. However, the impact on biodiversity is difficult to ascertain without information on the types of grassland that are being protected/ploughed.
 - Crop diversification has brought about very little change in cropping patterns in France and therefore has not had any discernible biodiversity effect.

On the basis of these findings, it is likely that the tracked biodiversity expenditure for the EAGF in France represents a significant overestimate of the biodiversity impacts that are achieved in practice.

1.6 Annex: Sources of information

Alliance Environnement (2019) Evaluation of the impact of the CAP on habitats, landscapes, biodiversity. Alliance Environnement (IEEP and Oréade-Brèche), Brussels.

Alliance Environnement and Thünen-Institut (2017) Evaluation study of the payment for agricultural practices beneficial for the climate and the environment. Alliance Environnement, Brussels.

Ecorys, IEEP and WUR (2016) Mapping and analysis of the implementation of the CAP. Final Report to the Directorate-General for Agriculture and Rural Development, Brussels. Available at:
https://ec.europa.eu/agriculture/sites/agriculture/files/external-studies/2016/mapping-analysis-implementation-cap/fullrep_en.pdf

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https://ec.europa.eu/info/sites/info/files/partnership-agreement-france-summary-aug2014_en.pdf

France Agriculture Ministry (22/04/2013) Qu'est-ce que l'agroécologie?
<https://agriculture.gouv.fr/quest-ce-que-lagroecologie>

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<https://agriculture.gouv.fr/paiements-decouples-le-paiement-vert>

France Government (2014) LOI n° 2014-1170 du 13 octobre 2014 d'avenir pour l'agriculture, l'alimentation et la forêt (1).
<https://www.legifrance.gouv.fr/eli/loi/2014/10/13/AGRX1324417L/jo/texte>

2. CASE STUDY: CAP – EAFRD IN THE NETHERLANDS

Researchers: Elisa Kollenda (IEEP) and Erik Gerritsen (Trinomics)

2.1 Background to the case study

The Netherlands implements its rural development programme (RDP) in a centralised way at the national level, therefore it is the national RDP for the 2014 – 2020 period (in Dutch, Plattelands Ontwikkelings Programma, or POP for short, and more specifically POP3 for the 2014 – 2020 period) that is the focus of this case study.

The Dutch rural development programming directorate *Regiebureau POP* is responsible for implementing the RDP, part of the Ministry of Agriculture, Nature and Food Quality (LNV). As the Managing Authority, the LNV is the department responsible to the European Commission for the implementation of the programme, however responsibility for implementation of rural policy in the Netherlands largely lies with the twelve provinces.¹²

The Dutch Enterprise Agency *Rijksdienst Voor Ondernemend Nederland* (RVO) is the paying agency and is responsible for checking EU compliance and for administering the payment of the subsidies to beneficiaries (idem).

The process for developing the RDP, included public bodies or NGOs with a biodiversity focus at several stages:

- The RDP 2014 - 2020 was drawn up in close cooperation with the 12 provinces, the Ministry of Economic Affairs and the Union of the Water Boards. The role of the provinces increased in comparison to the previous programming period to better align the priorities with the needs of the countryside in the respective regions.¹³
- In October 2013, the Dutch national government together with the regional provinces held a **large stakeholder conference** where the outline of the RDP was presented to 180 invited stakeholders, including farmers, their interest group *Land- en Tuinbouw Organisatie Nederland* (LTO), value chain actors, the water boards, municipalities, think tanks as well as nature and environmental organisations. In addition, an open invitation for public consultation was posted online.¹⁴
- The **Strategic Environmental Assessment (SEA)** was carried out by the consultancy Grontmij¹⁵ and was submitted for a public consultation together with the RDP 2014 - 2020

¹² POP Regiebureau Website (Retrieved): <https://www.netwerkplatteland.nl/wat-is-pop3/organisatie-pop3>

¹³ Ecorys (2015), Ex ante evaluatie van het Plattelands OntwikkelingsProgramma 3 (POP3): <https://www.rootsadvies.nl/downloads/content/269/8d7f0561a24fd60/nl0626831-final-rep-2015.pdf>

¹⁴ Rural Development programme 2014 –2020, Version 1 (2015), Chapter 3 and 16

¹⁵ The Strategic Environmental Assessment can be accessed here: <https://www.netwerkplatteland.nl/binaries/netwerkplatteland/documenten/publicaties/2014/04/14/bijlage-1.2-sea-pop3/bijlage+1.2+sea+pop3.pdf>

to civil society organizations and the public. A consultation on the final draft RDP and the strategic environmental assessment took place from March to April 2014.

Rural development funding in The Netherlands is largely dedicated to nature conservation, which is implemented through the Agricultural Nature and Landscape Management scheme (ANLb)¹⁶. The scheme, which entered into force on 1 January 2016, aims to conserve and restore habitat for 68 EU-protected target species mostly breeding birds¹⁷, but also amphibians, fish, bats, rodents, mustelids, and insects. The ANLb is implemented through an area-based approach in which the Provinces with a wide range of stakeholders agree on provincial nature management plans with conservation objectives. Based on these plans, certified collectives of farmers and other land managers can apply for six-years of funding, for which they need to develop and implement annual management plans. Management agreements with individual farmers are made by the collectives themselves, and it is the collectives who also need to organise independent monitoring and evaluation, which the Province uses to assess future eligibility.¹⁸

2.1.1 Priorities set out in national biodiversity policy documentation

The Netherlands does not have a **national biodiversity strategy** with concrete goals and objectives. In 2014, the national government published a national vision document entitled '**The Natural Way Forward**' which is mainly focussed on nature policy. It consists of three sections exploring the changing socio-economic context of nature conservation in the Netherlands, the current Dutch nature policy framework, and an outlook towards a desired future. In the document, the Netherlands acknowledges that, even though its primary strategy for a long time has been one of spatially separate functions, meaning that the strategy for nature is for action outside of agriculture, with the key element of this being the Netherlands' National Nature Network (hereafter NNN, for short explanation see the box below), in the long term the Dutch nature conservation objectives can only be achieved if more resources for biodiversity can be drawn down than those provided by the Network alone. For this reason, the Netherlands aims to realize combinations of nature and other uses such as agriculture, namely, to achieve biodiversity objectives also through other means, such as agricultural land management. So-called 'nature-inclusive agriculture' is

¹⁶ Bij12 (2021) ANLb webpage 'Het Agrarisch Natuurbeheer', Available at: <https://www.bij12.nl/onderwerpen/natuur-en-landschap/subsidiestelsel-natuur-en-landschap/agrarisch-natuurbeheer-anlb/> [Accessed 23 March 2021]

¹⁷ In particular species breeding in wet grasslands (or 'meadow birds') for which the Netherlands represent an international hotspot and therefore carry a particular legal conservation responsibility, see for example Trouwborst, A. (2016) *Weidevogels en de Europese en internationale verplichtingen van Nederland: Een juridische analyse (Translated title of the contribution: Meadow birds and the European and international obligations of the Netherlands: A legal analysis)*. Available at: <https://research.tilburguniversity.edu/en/publications/meadow-birds-and-the-european-and-international-obligations-of-th>

¹⁸ For an English summary of the new system, see The Netherlands Ministry of Economic Affairs (2016) *The cooperative approach under the new Dutch agri-environment climate scheme*. Available at: https://enrd.ec.europa.eu/sites/enrd/files/w12_collective-approach_nl.pdf

emphasised in the government's vision document as the most critical nature-contribution that the Netherlands must make.¹⁹

Another key document is the 2013 intergovernmental 'Nature Pact' which set out the main objectives of 'domestic' nature conservation including a special section on agricultural nature management.²⁰ It introduces the new approach of CAP payments to collectives as part of the ANLb system, as described above.

The Prioritised Action Framework (PAF) in the Netherlands outlines six general priorities for the 2014-2020²¹ period. These are to:

1. Make Natura 2000 areas more 'robust' among other things by investing in buffer zones around sites, reducing external pressures on Natura 2000 sites, reducing peak loads (nitrogen), improving hydrological conditions.
2. Strengthen Natura 2000 species protection within and outside of Natura 2000 sites, to reduce the vulnerability of these species.
3. Implement more quickly certain measures within the first period that were initially foreseen for the second period, where EU-funding is particularly invested in supporting the additional effort.
4. Focus agricultural nature management to places in and around Natura 2000 sites.
5. Link economy and ecology under the theme 'natural entrepreneurship' along the following lines:
 - promoting carbon capture in agriculture, forestry and nature
 - focus on investments that contribute to strengthening the public (experience) value of N2000
 - 'physical investments' to promote the use of N2000 by tourists. For example, construction of small infrastructure, signposting, visitor centres, promotion etc.
6. Conducting studies and initiating stakeholder processes for monitoring and drawing up management plans for N2000 marine areas.

Except for the 6th priority, all the others have a direct relevance to agriculture. This is also reflected in the use of EU funding to fund investments in Natura 2000 areas, of which the EAFRD represents by far the largest share.

¹⁹ Government of The Netherlands (2014) The Natural Way Forward, Government Vision 2014. Ministry of Economic Affairs, The Hague.

²⁰ <https://www.rijksoverheid.nl/documenten/brieven/2013/09/18/natuurpact-ontwikkeling-en-beheer-van-natuur-in-nederland>

²¹ PAF for 2014 – 2020 for the Netherlands:

https://www.asktheeu.org/en/request/7390/response/24492/attach/6/PAF%2014%2020%20Report.pdf?cookie_passthrough=1

2.2 Programme priorities

List of the documents consulted:

- All seven versions of the **Rural Development programme 2014 –2020** can be found here: <https://www.netwerkplatteland.nl/wat-is-pop3/inhoud-programma/versies-van-het-pop3>. The last modification of the RDP was completed on 17 December 2020.
- **Partnership agreement** with the Netherlands - 2014-2020: https://ec.europa.eu/info/publications/partnership-agreement-netherlands-2014-20_en
- **Annual reports Regiebureau POP:** <https://www.netwerkplatteland.nl/over-ons/jaarverslagen/jaarverslagen-regiebureau-pop>
- European Network for Rural Development (ENRD), 2014 – 2020 **Rural Development Programme key facts and figures:** https://enrd.ec.europa.eu/sites/enrd/files/nl_rdp_qnt_summary_v2_0.pdf

2.2.1 Biodiversity priorities identified

The SWOT (Strength, Weaknesses, Opportunities and Threats) of the **Rural development programme**, carried out in 2014/15 identified the need to improve specific habitats and species (groups):

- Farmland bird populations had declined. For example, the population of Black-tailed Godwit had declined by two thirds and the Lapwing population by about one third.
- The management status of grasslands within Natura 2000 areas was identified as insufficient or poor. This assessment is based, among other things, on the number of species and the structure/function of the habitat.

As a consequence, the Netherlands focused its use of the agri-environment-climate measure, among other things, on the conservation of meadow birds. As highlighted in the SWOT, particular efforts were proposed for: meadow bird management, field fauna management, landscape and botanical management.

To operationalise the national targets under the Europe 2020 strategy, eleven thematic goals were identified as part of the partnership agreement. Objective 5 “promotion of the adaptation to climate change, risk prevention and risk management” and Objective 6 “Protecting the environment and promoting resource efficiency” are the most relevant ones for biodiversity delivery. The link between the two financing priorities and its intended contribution to the rural development priorities under Focus Area 4A (restoring and improving ecosystems) and 4B (improving water quality) are:

The actions to support the **delivery of the EAFRD’s focus area 4(a) restoring and improving ecosystems** and the preservation of biodiversity are said to be in line with the European and/or Dutch nature targets as well as the Dutch Prioritised Action Plan for Natura 2000. The concrete planned actions are:

- the improvement and construction of ecological corridors to halt the rapid deterioration of biodiversity in agricultural areas.

- support and protect nature areas, particularly Natura 2000 areas to improve their quality and quantity in Natura 2000 areas and/or meadow bird core areas.

Focus area 4(b) on improving water quality aims to indirectly deliver biodiversity by promoting low-emission agriculture and optimising water management by agriculture and is said to be guided by the Nitrates Directive and the Water Framework Directive. Actions contributing directly or indirectly to improving water quality and meeting the goals of the Water Framework Directive and the Nitrates Directives are planned to be implemented through RDP Measures 04 (Investment in physical assets) and 10 (Agri-environment-climate measures) and more specifically:

- the Netherlands intends to make €20 million available from the first pillar for targets for improving water quality. These funds will be added to innovations for water quality through knowledge dissemination, investments and partnerships.
- hydrological measures in Natura-2000 areas under the programmatic approach to nitrogen (PAN) are a priority. This will be implemented in the form of non-productive investments, such as the construction of rainwater buffers and weirs, (water conserving) drainage systems and wet buffer zones, rerouting streams and raising water levels.

No programme measures or budget has been programmed under Priority Area 5 (Resource efficiency & climate). The rural development programme does not give a justification of this programming decision.

2.2.2 Output and outcome measurements relevant to biodiversity

In the Netherlands, a Monitoring Committee is responsible for evaluating the implementation of the RDP and the progress made in achieving its objectives. In doing so, it uses, *inter alia* financial data, common indicators (output, results and impact indicators) to measure the progress of POP3 in relation to its targets and milestones.

Data for the result indicators are collected three times over the course of the program (2016, 2018 and ex-post).

Table below gives an overview of biodiversity-relevant result indicators, and their respective target values which are set for the result indicators. Data for the results indicators are reported in section 4.

Table 2.1 Relevant Result & Target indicators

Source: European Commission, Common monitoring and evaluation framework (CMEF) to assess the performance of the common agricultural policy (CAP): https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cmef_en & https://agridata.ec.europa.eu/extensions/DataPortal/cmef_indicators.html

Indicator	Name	FA	Target value
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R07/T9	% of agricultural land under management contracts supporting biodiversity and/or landscapes	4A	5.9 %
R08/T10	% of agricultural land under management contracts to improve water management	4B	5.9 %
R09	% of forestry land under management contracts to improve water management	4B	
R11/T12	% of agricultural land under management contracts to improve soil management and/or prevent soil erosion	4C	0.5 %

As part of the European Commission Common monitoring and evaluation framework (CMEF), there are two types of output indicators reported for the EAFRD. The first one relates to the total area supported under different focus areas (i.e., the total of all land under agreement of all measures programmed under a particular focus area), while the second set of indicators reports on outputs achieved under each measure (e.g., number of participants that received training under M1 or physical areas supported under a certain measure). As part of the output indicator monitoring, there are many data gaps for the Netherlands. For example, no data is reported as part of M04 (investments), in the CMEF reporting framework.

In 2017, 83,624 hectares of physical area supported under payment for agri-environment-climate commitments (M10.1) were reported. This equates to approximately 4.6% of all UAA in the Netherlands. No other area-based measures are funded under Priority 4.

2.3 Funding allocated to biodiversity-tracked measures

2.3.1 Allocations

As part of the rural development programme, implementation choices placed a strong emphasis on the use of the AECM (M10) and non-productive investments (M4) to deliver on biodiversity objectives. Both measures are programmed under Priority Area 4 (A & B, as C is not directly programmed in the Dutch RDP). No budget has been programmed under Priority Area 5 in the Netherlands. The RDP does not explain this programming choice.

While the M10 (Agri-environment-climate) budget was 100% programmed under P4, measure 4 (Investments in physical assets) was partly programmed under P4 (53%), which relates to the non-productive investments under this measure, and partly under FA2A (Farm's performance, restructuring & modernisation) (47%).²²

²² European Network for Rural Development (ENRD), 2014 – 2020 Rural Development Programme key facts and figures: https://enrd.ec.europa.eu/sites/enrd/files/nl_rdp_qnt_summary_v2_0.pdf

The total public expenditure (comprising the EAFRD support and the national contribution) allocated between rural development priorities is (idem):

- P2: Competitiveness: 32.9%
- P3: Food chain & risk management: 4.1%
- **P4: Ecosystem management: 51.3%**
- **P5: Resource efficiency & climate: 0%**
- P6: Social inclusion & local development: 8.4%

Table shows the Measure 4 and Measure 10 spending which is programmed under Priority Area 4 (Ecosystem management).

Table 2.2: Programmed biodiversity-tracked EAFRD spending in the Netherlands

Source: European structural and investment funds data: <https://cohesiondata.ec.europa.eu/overview>

Measure	Biodiversity spending (EAFRD) as programmed in 2014	Biodiversity spending (EAFRD) as programmed in 2020
M04	120,110,000	175,818,431
P4	120,110,000	175,818,431
M10	237,820,000	316,130,000
P4	237,820,000	316,130,000
Total	357,930,000	491,948,431

In the Netherlands, 491.9 million of programmed EAFRD expenditure is tracked as biodiversity relevant in 2020. Approximately 65% of this amount has been allocated to M10 and the remaining budget to M04.

Compared to the beginning of the 2014-2020 period, total EAFRD allocations programmed to biodiversity have increased by approximately 38%, i.e. from 357.9 million EUR to 491.9 million EUR. At measure level, M10 allocations increased by 33% and M04 allocations by 46%. The annual implementation reports (AIRs) provide no detailed explanation of the reasons for these changes.

2.3.2 Expenditure in practice

Based on the data shown in Table 2.3, the following observations can be made regarding programmed and actual spending at the measure level:

M04 Investments in physical assets: For priority 4 there was no spending under this measure until 2016. The cumulative actual EU spending under Priority 4 under this measure remains below the programmed spending. In fact, cumulative actual spending in 2020 was only 26.8% of the programmed EU funding. The actual spending steadily increased between 2016 and 2020, both in terms of budget spend each year and consequently also the cumulative amount spend each year. The programmed amount increased every two years between 2016 and 2020. According to the implementation report 2018, a high share of the remaining unspent funds has been provided to the government or are in the application stage.

Notable changes: In January 2016, a change to Priority 4 was decided, among other reasons because a transfer from Pillar 1 was undertaken. The transfer led to an increase of EAFRD funds (€ 84 million) for the measures M04.4 - Support for non-productive investments linked to the provision of agri- environmental climate objectives, including biodiversity conservation status of species and habitat as well as enhancing the public amenity value of a Natura 2000 or other high nature value area & M10.1 Agri-environment-climate commitments.²³

M10 agri-environment climate: For priority 4 there was no spending under this measure until 2015. Overall actual spending has remained slightly below what was programmed und Priority 4 for agri-environment climate measures. At the end of 2020, the actual spending reached 80.0% of the programmed EU funds. The actual spending started in 2015 and steadily increased between 2016 and 2020, both in terms of budget spend each year and consequently also the cumulative amount spend each year. The programmed amount increased every two years between 2016 and 2020.

Table 2.3 provides an overview of committed and actual spending tracked as being relevant for biodiversity as % a proportion of the total programmed amount for each measure. For M04 commitments exceed programmed expenditure by 48.72% (2020), while actual spending for this measure is much lower (26.8%). For M10 on the other hand, commitments remain at 73.35% as of 2020.

²³ AIR 2017

Table2.3: Actual biodiversity-tracked spending (EAFRD) as % of programmed biodiversity allocations

Source: European structural and investment funds data: <https://cohesiondata.ec.europa.eu/ov>

	2014		2015		2016		2017		2018		2019		2020	
	Committed	Actual	Committed	Actual	Committed	Actual	Committed	Actual	Committed	Actual	Committed	Actual	Committed	Actual
M04	0.00%	0.00%	5.33%	0.00%	12.50%	1,3%	48.84%	3,2%	74.71%	6,0%	121.08%	10,9%	148.72%	26,8%
M10	0.00%	0.00%	12.1%	12,2%	29.14%	23,0%	47.36%	39,6%	65.01%	54,0%	86.09%	72,8%	73.35%	80,0%

2.3.3 Examples of expenditure

A description follows below on measures or investments tracked as relevant to biodiversity, and whether they appear to be genuinely delivering on biodiversity objectives. The description of programmed measures as originally planned draws on the Rural Development Programme (Version 1).

As the programme underwent a significant re-design in 2016, the Annual Implementation Reports of 2016 and 2017 (*Jaarlijks uitvoeringsverslag*) as well as Version 2 of the Rural Development Programme (published in January 2016) are used as an important resource to describe the changes in programming.

2.3.3.1 Examples of expenditure biodiversity-tracked expenditure as part of Measure 4

In the Dutch RDP 53% of **Measure 4** (Investments in tangible assets) is programmed under Priority Area 4 (Measure 4.4), which is tracked as 100 percent contributing to Biodiversity spending, while the remaining budget is programmed to contribute to Priority 2 and more specifically Focus Area 2A (M 4.1 & 4.3). Measure 4.4 (investments in non-productive investments) includes several sub measures, of which sub-measure 4.4.1 is most relevant for biodiversity delivery.

The following sub-measures are programmed as part of the Dutch Rural Development programme as biodiversity relevant²⁴:

Measure 4.4:

- 04.4.01 non-productive investments for biodiversity, nature, landscape and hydrological measures PAN (Programmatic Approach to Nitrogen)
- 04.4.02 non-productive investments for water.

Sub-measure 4.4.1 (Non-productive investments for biodiversity, nature, landscape and hydrological measures) described under this measure are all genuinely biodiversity-relevant: Hydrological measures under the PAN, restoration of landscape elements (hedgerows, ditches and ponds), ecological measures for meadow bird core areas.

Sub-measure 4.4.2 is programmed as contributing to focus area 4(b), improving water management, including soil and fertiliser and pesticide management.

²⁴ Rural Development Programme V1, Chapter 8

2.3.3.2 Examples of expenditure biodiversity-tracked expenditure as part of Measure 10

All expenditure of Measure 10 (Agri-environment) has been programmed under Focus Area 4, which is 100 percent tracked as biodiversity-relevant spending under the Rio-marker methodology.

Changes implemented in the year 2016

As of 2016, the following sub-measures were revised:²⁵

- 10.1.01 Meadow bird management will be phased out and replaced with open grassland habitat.
- 10.1.02 Field fauna management will be phased out and replaced with open field habitat.
- 10.1.03 Botanical Management. Botanical management will not return as habitat.
- 10.1.04 Landscape Management. Landscape management will be phased out and replaced by two habitats: wet and dry veining.

As of 2016, an additional commitment was made to water measures (supported by the Delta Plan for Agricultural Water Management)²⁶ aiming to mitigate the large negative impact of farming on both water quality- and quantity required to protect and restore habitats and species mainly through diffuse pollution of nutrient and chemicals, and especially drainage of adjacent wetlands. This was also triggered by the fact that the Netherlands did not meet its obligations under the EU Water Framework Directive. Improving water quality aims indirectly to benefit biodiversity by promoting low-emission agriculture and optimizing water management by agriculture. The problems identified in this area include the contamination of the water with too many fertilizers or pesticides, and drainage of wetlands.

Measurable biodiversity impact of EAFRD supported measures

The implementation of the new ANLb system is both implemented through M10 and most of M4, which is why their impact is not assessed individually but as part of the new agriculture nature management model. The ex-ante evaluation²⁷ already assessed that the new system is not expected to be sufficient to turn around the negative trends in meadow bird populations as neither the overall area of land under management nor

²⁵ As described in Version 2 of the Rural Development Programme (Year 2016) in Chapter 8.2

²⁶ The Delta Plan for Agricultural Water Management, DAW for short, is an initiative of LTO Nederland, fostering cooperation with the Union of Water Boards, nature organizations, provinces and drinking water companies.

²⁷ Melman, T C P, Schotman, A G M, Meeuwssen, H A M, Smidt, R A, Vanmeulebrouk, B and Sierdsema, H (2016) Ex-ante-evaluatie ANLb-2016 voor lerend beheer : een eerste blik op de omvang en ruimtelijke kwaliteit van het beheer in het nieuwe stelsel. [Ex-ante evaluation ANLb2016 for learning management; a first look at size and spatial quality of managed units in the new agri-environmental system in the Netherlands] Wageningen Environmental Research (Rapport / Wageningen Environmental Research 2752) - 75, Wageningen, The Netherlands.

the geographic distribution of efforts will be sufficient as many core meadow bird breeding areas are excluded.

A first evaluation of the ANLb in 2019²⁸ makes a more positive assessment. The authors assess the ANLb as an important instrument for realizing (international) nature goals as it supports the management of nature areas by connecting different nature areas with each other. While the authors point to a lag effect of at least eight years between the management measures taken and the effect on biodiversity, they find it likely that the commitment to a collective, area-specific approach, working together and learning about more effective management will contribute to better ecological conditions for the target species.

However, they also point to the fact that the overall ANLb area is modest with approximately 77,000 hectares, compared to the total area of in agricultural use in the Netherlands, which is approximately 1.7 million hectares²⁹. It is therefore becoming increasingly clear that, in addition to ANLb, much more is needed to strengthen biodiversity in agricultural areas.

2.3.3.3 Expenditure on non-biodiversity-tracked projects or measures providing biodiversity benefits

M1 – Knowledge transfer and information (programmed under P1): Knowledge transfer and information was very broadly defined in the RDP and ‘the preservation and the enhancement of biodiversity and environmental quality’ was mentioned as one of seven areas where innovative cooperation could be supported. Two sub-measures were defined to support 1) Trainings, workshops, and coaching of entrepreneurs; and 2) Demonstration activities.

M16 – Cooperation (programmed under P2): Same as under M1, cooperation measures were also very broadly defined in the RDP and biodiversity included as one of seven priorities. Two sub-measures were defined to support 1) cooperation for all sectors and across the food chain that support RDP objectives and 2) the establishment of EU Investment Partnership operational groups.

Both measures also indirectly contribute to the need for knowledge flow in the field of soil management **Focus area 4(c)**, which is not directly programmed in the POP3.

²⁸ Boonstra, F G and Nieuwenhuizen, W (2019) Voortgangsrapportage Agrarisch Natuur- en Landschapsbeheer: Bijdrage aan Jaarverslag Plattelandsontwikkelingsprogramma 2018. [Agricultural Nature and Landscape Management progress report: Contribution to the 2018 Annual Report on Rural Development] Wageningen Environmental Research, Wageningen.

²⁹ Netherlands Statistics CBS (2019)

2.4 Information from programme monitoring

The following information is reported from the Annual Implementation Reports (available for the years 2016 and 2017). Data is only reported consistently only for agricultural land under management contracts supporting biodiversity and/or landscapes (R07 against the target T9). Table 2.4 shows that the supported area under R07 in year one of the programming period was higher than target indicator value but is continuously declining. The reason for this is that the new ANLb from 01 January 2016 is designed to deliver conservation impact by focussing efforts on smaller areas, but with more ambitious measures and more suitable locations (only where there is still biodiversity to protect/restore, e.g. right next to protected areas).

Table 2.4: Realised progress on Target indicators as part of Priority Area 4 (Restoring, Preserving and Enhancing Ecosystems)

Source: Annual Implementation Reports (available for the years 2016 and 2017)

Indicator	Name	FA	Target value 2023	Result 2015	Result 2016	Result 2017
R07/T9	% of agricultural land under management contracts supporting biodiversity and/or landscapes	4A	5,87 % (110.000,00 ha)	6,93	6,02	6,02
R08/T10	% of agricultural land under management contracts to improve water management	4B	5,87 % (110.000,00 ha)	0,00	0,00	0,05
R09	% of forestry land under management contracts to improve water management	4B	N/A	N/A	N/A	N/A
R11/T12	% of agricultural land under management contracts to improve soil management and/or prevent soil erosion	4C	0,48 % (9.000,00 ha)	0,00	0,00	N/A

Table 2.5: Realised progress on Measure 4 and 10 expenditure indicators

Source: Annual Implementation Reports (available for the years 2016 and 2017)

	2014-2016 realised expenditure in EUR	Implementation (%)	2014-2017 realised expenditure in EUR	Implementation (%)	Planned expenditure from RDP
M04	4.115.772,00	0,98	10.072.758,00	2,39	421.320.000,00

M10	76.949.681,00	15,50	132.176.330,00	26,62	496.450.000,00
Tota l	81.065.453,00	8,83	142.249.088,00	15,50	917.770.000,00

2.5 Summary of findings

To what extent was the programme focused on delivery of biodiversity outcomes? The 2014 -2020 Rural Development Programme in the Netherlands had an important focus on biodiversity, but the implementation model did not deliver on outcomes, which led to a major overhaul from 2016. Given the critical evaluations on agricultural nature and landscape management in the Netherlands in the past, the first Rural Development Programme of this programming period in 2014 already announced the new collective approach to be implemented by 2016.

To what extent was biodiversity a key consideration behind the expenditure priorities of the programme? Biodiversity was a key funding priority, as the largest investment and overall, more than half of the whole budget was programmed under Priority 4 (Ecosystem management). The old system was very much focussed on farm bird species, which was partly due to the cultural heritage (egg hunting), and the refocus on broader habitats and species was an improvement from a biodiversity needs perspective.

Were expected biodiversity-relevant expenditures delivered in practice? Yes, but the implementation data suggests underspending in the first years of the programming period.

Were expected biodiversity outputs and outcomes recorded in practice? It can be expected that the newly introduced Agricultural Nature and Landscape Management (ANLb), make an important contribution to nature goals as it supports the management of nature areas by connecting different nature areas with each other. However, as the system was only introduced in 2016 and a lag effect between the measure uptake and the effect on biodiversity exists, it is difficult to fully assess at this point. Generally, it can be noted that new system is more outcome oriented compared the system before 2016, which was much more output focused.

Does the tracked biodiversity expenditure represent, in your view, an accurate account of the programme's real contribution to biodiversity policy objectives? Are there areas which are, in your view, over-estimating biodiversity impacts? Whether the RDP measures are sufficiently effective to deliver on biodiversity objectives is yet to be seen. One shortcoming of the biodiversity-tracking of Measure

4 could be that both Measure 04.4.01 (non-productive investments for biodiversity, nature, landscape, and hydrological measures) and Measure 04.4.02 (non-productive investments for water) are programmed under Priority 4, which is tracked as 100 percent biodiversity relevant. Non-productive investments for water reportedly only have indirect biodiversity benefits.

Are there areas where biodiversity-relevant expenditure is not recorded? Measures 1 and 16 have the potential of delivering indirect biodiversity benefits, however the impact will likely not be significant.

2.6 Annex: Sources of information

Bij12 (2021) ANLb webpage 'Het Agrarisch Natuurbeheer', Available at: <https://www.bij12.nl/onderwerpen/natuur-en-landschap/subsidiestelsel-natuur-en-landschap/agrarisch-natuurbeheer-anlb/> [Accessed 23 March 2021]

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European Commission, Common monitoring and evaluation framework (CMEF) to assess the performance of the common agricultural policy (CAP): https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cmef_en & https://agridata.ec.europa.eu/extensions/DataPortal/cmef_indicators.html

European Network for Rural Development (ENRD), 2014 – 2020 Rural Development Programme key facts and figures: https://enrd.ec.europa.eu/sites/enrd/files/nl_rdp_qnt_summary_v2_0.pdf

Government of The Netherlands (2014) The Natural Way Forward, Government Vision 2014. Ministry of Economic Affairs, The Hague.

<https://www.rijksoverheid.nl/documenten/brieven/2013/09/18/natuurpact-ontwikkeling-en-beheer-van-natuur-in-nederland>

Government of the Netherlands (2015) Rural Development programme 2014 –2020, Version 1 (2015), Chapter 3 and 16

Government of the Netherlands (2014) Partnership Agreement 2014-2020. https://ec.europa.eu/info/publications/partnership-agreement-netherlands-2014-20_en

Government of the Netherlands (2014) PAF for 2014 – 2020 for the Netherlands: https://www.asktheeu.org/en/request/7390/response/24492/attach/6/PAF%2014%2020%20Report.pdf?cookie_passthrough=1

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Melman, T C P, Schotman, A G M, Meeuwsen, H A M, Smidt, R A, Vanmeulebrouk, B and Sierdsema, H (2016) Ex-ante-evaluatie ANLb-2016 voor lerend beheer : een eerste blik op de omvang en ruimtelijke kwaliteit van het beheer in het nieuwe stelsel. [Ex-ante evaluation ANLb2016 for learning management; a first look at size and spatial quality of managed units in the new agri-environmental system in the Netherlands] Wageningen Environmental Research (Rapport / Wageningen Environmental Research 2752) - 75, Wageningen, The Netherlands.

Netherlands Statistics CBS (2019)

Rural Network (2021) POP Regiebureau Website (Retrieved 2021): <https://www.netwerkplatteland.nl/wat-is-pop3/organisatie-pop3>

Rural Network (2014) Strategic Environmental Assessment of Rural Development Programme: <https://www.netwerkplatteland.nl/binaries/netwerkplatteland/documenten/publicaties/2014/04/14/bijlage-1.2-sea-pop3/bijlage+1.2+sea+pop3.pdf>

The Netherlands Ministry of Economic Affairs (2016) The cooperative approach under the new Dutch agri-environment climate scheme. Available at: https://enrd.ec.europa.eu/sites/enrd/files/w12_collective-approach_nl.pdf

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3. CASE STUDY: CAP – EAFRD IN HUNGARY

Researcher: Anna Lóránt, IEEP

3.1 Background to case study

EAFRD institutional framework & process for developing the programme

There have been several changes in the relevant institutional framework since 2014 in Hungary. Based on Government Decree no 1085/2014, the Deputy State Secretary for Agricultural and Rural Development Programmes within the Prime Minister's Office was the Managing Authority until 2018. At that time, the Agricultural and Rural Development Agency fulfilled the function of Paying Agency and the Ministry of Agriculture acted as competent authority and professional support entity. Key changes in these institutional arrangements occurred in 2017 and 2018, when Agricultural and Rural Development Agency ceased to exist and concurrently the Hungarian State Treasury became the Paying Agency in 2017. After the formation of Hungary's new government in 2018, the Managing Authority function was shifted from the Prime Minister's Office to the Ministry of Agriculture (Office of Deputy Minister of State for the Implementation of Rural Development Programmes). Compliance monitoring is carried out by the State Treasury and the County Government Offices.

The Deputy State Secretary of Conservation within the State Secretariat for Environmental Affairs is responsible for conservation activities within the central government administration.

The planning of the 2014-2020 RDP started already in 2012 and the first draft version, outlining the needs, broad content of measures as well as focus areas and priorities, was ready by mid-2013. The draft version was based, among others, on the input from 9 thematic working groups, including one on environment and natural resources. These working groups consisted of representatives from various organizations, such as ministries, farmers unions, civil society as well as researchers, but no detailed information was found in the public domain about these groups and the work they had carried out³⁰. The draft programme went through numerous consultations between 2012 and 2015 involving also green NGOs (two are mentioned specifically: WWF Hungary and the Hungarian Biokultura Federation) among other stakeholders. The RDP provides a summary of each of these consultations, but biodiversity relevant topics do not appear frequently³¹.

³⁰ The National Chamber for Agriculture were involved in the planning and published information brochures.

³¹ The public consultation summary and each comment are available here
<https://www.palyazat.gov.hu/node/56582>

During the preparation of the Hungarian Rural Development Program a Strategic Environmental Assessment (SKV – SEA) was carried out³². The SEA was done with pre-defined methodology and with clear and stable milestones and it is part of the Hungarian RDP. The aim of the SEA was to improve the quality of the documents and their environmental consistency, and to mitigate negative environmental effects during the implementation of the RDP.

Summary of priorities set out in national policy documentation

Hungary's second National Biodiversity Strategy, covering the period 2015-2020, aims to halt the loss of biological diversity and to stop any further decline in Hungary's ecosystem services by 2020 and to improve their status as much as possible. Similarly to the EU Biodiversity Strategy, it focuses on 6 strategic areas and sets out 20 objectives with measurable targets and related actions, as well as a number of indicators for measuring progress. Amongst its objectives are the integration of biological and landscape diversity into sectoral policies and the promotion of varied, mosaic-patterned agriculture. The interim evaluation of the strategy reported uneven progress and stressed the need for better coordination between sectors³³.

Biodiversity considerations have been integrated into several strategies and plans, including the National Sustainable Development Framework Strategy (2012 – 2024), the National Landscape Strategy (2017 – 2026), the National Rural Development Strategy (2012 – 2020) as well as the 4th National Environmental Programme (2015 – 2020) that includes the specific objective of protecting natural values and halting biodiversity loss.

Hungary's Prioritised Action Framework 2014 - 2020 (PAF) includes 9 strategic conservation priorities related to 4 main intervention areas:

1. Direct investment in infrastructure
 - 1.1. wetlands and floodplains
 - 1.2. living communities of aquatic habitats
 - 1.3. grasslands, forests and grassland-forest habitat-complexes of lowlands
 - 1.4. woodlands of hills and mountains
 - 1.5. grasslands, open forests and peripheral habitats of hills and mountains
 - 1.6. species dependent on areas under intensive economic use and human habitation
2. Improving the knowledge based
 - 2.1. research, monitoring and ex-situ conservation

³² The SEA documents approved by the Managing Authority can be found online at: <https://www.palyazat.gov.hu/vidkfejlesztési-program-kapcsn-kszlt-krnyezeti-jelents->

³³ Midterm review of the National Biodiversity Strategy 2015-2020. Available at: http://www.biodiv.hu/convention/cbd_national/nemzeti-biodiverzitas-strategia/biologiai-sokfeleseg-megorzesenek-2015-2020-kozotti-idoszakra-szolo-nemzeti-1/download/hu/1/A%20biol%C3%B3giai%20sokf%C3%A9les%C3%A9g%20meg%C5%91rz%C3%A9s%C3%A9nek%202015-2020%20k%C3%B6z%C3%B6tti%20id%C5%91szakra%20sz%C3%B3l%C3%B3%20nemzeti%20strat%C3%A9gi%C3%A1ja%20-%20f%C3%A9lid%C5%91s%20%C3%A9rt%C3%A9kel%C3%A9s.pdf

3. Developing institutional capacity
 - 3.1. interpretation, awareness raising and capacity building
4. Sustainable use of potential socio-economic benefits
 - 4.1. the sustainable utilization of socio-economic benefits of Natura 2000 sites

The measures identified to achieve these objectives are mainly financed through public sources, the role of private funding is not significant. The PAF provides an estimate of financial needs for the management of Natura 2000 sites (approx. EUR 180 million per year) without breaking it down to specific measures or sources. Amongst the 41 listed measures, the following ones were foreseen to be (partially) financed through EAFRD:

- Introducing/applying specific management regimes to ensure the protection of species and habitats of Community interest of forest ecosystems, with a special accent on specific needs of open steppic forests and forestry systems ensuring permanent forest cover (PAF M2)
- Small-scale investments improving the status of habitats, to support the introduction and application of specific forest management regimes (PAF M3)
- Introducing/applying specific and targeted management regimes to ensure the protection of grassland habitats (PAF M5)
- Introducing/applying specific and targeted management regimes to ensure the protection of species of grassland ecosystems (PAF M6)
- Introducing/applying general management regimes to ensure the protection of species and habitats of Community interest (PAF M7)
- Small-scale investments to improve the conservation status of grassland habitats and supporting the conservation of species, related to the introduction and application of specific management regimes (PAF M8)
- Compensation for the introduction of specific conditions related to land use and farming to be applied for ensuring the protection of species and habitats of Community interest (PAF M12)
- Creation of agro-forestry systems (extensive orchards, wooded pastures etc.) (PAF M13)
- Monitoring the effects of farming and forestry conducted on Natura 2000 sites on species and habitats of Community interest (assessing the impacts of applied management methods, developing and testing of new management methods) (PAF M29)
- Methodological and other basic research to support the ex-situ conservation, reintroduction and translocation of animal and plant species of Community interest as well as of other species that play a key role in the conservation of species and habitats of Community interest (PAF M31)
- General Natura 2000 campaigns, development of sector-specific guidance documents and the implementation of training programmes (PAF M33)
- Preparation and updating of Natura 2000 management plans (PAF M37)
- Development of eco-tourism building on the interpretation of natural values of Natura 2000 sites (PAF M39)
- Supporting the marketing of local products made with the application of environmentally sound methods and of natural raw materials originating from Natura 2000 sites (PAF M40)
- Enhancing SMEs and micro-enterprises of rural areas providing services related to the interpretation natural values of Natura 2000 sites (PAF M41)

3.2 Programme priorities

Priorities mentioned in the next section were extracted from Hungary's Partnership Agreement for the 2014-2020 programming period³⁴ and its Rural Development Programme (RDP) as submitted to the European Commission in July 2015³⁵. Note however that there have been several amendments to the RDP since 2015 concerning mainly budget allocation across measures³⁶.

3.2.1 Biodiversity priorities identified

Both the Partnership Agreement (PA) and the Rural Development Programme (RDP) identifies a few biodiversity-related priorities. Both documents include references to relevant national and European policies, including the EU Biodiversity Strategy, the Birds and Habitats Directive as well as Hungary's Prioritised Action Framework.

Biodiversity considerations are covered under the 6th thematic objective in the PA together with issues related to water and waste management as well as urban environment. The PA identifies the following biodiversity relevant priorities, which are very general in nature:

- Habitat protection and improvement focusing on green infrastructure taking into account the impacts of climate change
- Promotion of natural/semi-natural land management practices amongst farmers
- Supporting agri-environmental and organic production as well as compensating farmers and land managers for losses arising in relation to Natura 2000 and WFD obligations
- Improvement of existing agri-environmental and forest measures to better serve biodiversity purposes

In the Hungarian RDP, relevant objectives are set out under Priority 4 ('Restoring, preserving and enhancing ecosystems related to agriculture and forestry'), although some indirect contributions are also expected from Priority 5 (Forestry and some investments) and Priority 2 (Investments related to resource efficiency and renewables). In general, the focus of Priority 4 is on the promotion of eco-friendly and sustainable agricultural and forestry practices, including actions addressing soil degradation and water preservation. Amongst the more detailed objectives are:

- preservation and improvement of biodiversity, the state of water and soil by creating a cultivation structure suitable for local conditions,

³⁴ Partnership Agreement with Hungary for 2014-2020. Available at:

https://www.palyazat.gov.hu/szechenyi_2020

³⁵ Hungarian Rural Development Programme version 1.3

³⁶ Some of the changes in the yearly amendments of the Hungarian Rural Development Program also affected the content.

- elimination of negative impacts on the environment, enhancing farming practices based on sustainable use of natural resources,
- maintenance of farming activities by compensating adverse site conditions and environmental restrictions,
- improving the balance between animal husbandry and plant production by promoting extensive livestock farming,
- increasing quality food and timber production by promoting environmentally beneficial farming practices,
- combating adverse effects of climate change and adaptation to it with the help of proper production structures and land-use change,
- protection of water bases, preservation, or achievement of good ecological status/potential of waters through the facilitation of land use conversion,
- promotion of water retention in forest areas through forest-environmental commitments and innovative cooperation

Several RDP measures could potentially contribute to the achievement of these objectives, many of which are in line with the proposed interventions in the PAF. For example, one of the horizontal agri-environmental climate schemes targets specifically grassland habitats (cf. PAF M5). Another example is the support provided for establishing agroforestry systems (cf. PAF M13).

3.2.2 Output and outcome measurements relevant to biodiversity

The most relevant output indicators are set out in Table 3.1.1 providing an overview about the activities foreseen to be realised by each Pillar II measure by the end of the 2014-2020 programming period. Following the amendments to the RDP, expected outputs have changed since the beginning of the programming period (cf. expected as of 2015 vs 2020 columns). The most important changes concern:

- Area expected to be covered by the agri-environmental climate measure (M10.1: increased by 11%)
- Area expected to be benefiting from compensation payments provided to Natura 2000 forest areas (M12.2: decreased by 7%)
- Area expected to be benefiting from compensation payments for other areas with major natural constraints (M13.2: decreased by 54%)
- Area expected to be covered by the forest-environmental and climate measure (M15.1: decreased by 75%)

Table3.1: Priority 4 and Focus area 5E output indicators³⁷

Source: Extracted from RDP v 1.3 and RDP v7.0 and AIR, 2019

Measure	Indicator code	Indicator Description	Expected as of 2015 (RDP v1.3)	Expected as of 2020 (RDP v7.0)	Achievement as of December 2019
Priority 4					
M01	OI_M01_nbr_part_train_1.1	Training/skills acquisition (1.1) - Nbr of participants in trainings	16,000	16,000	17
M02	OI_M02_nr_ben_2.1	Nr of beneficiaries advised (2.1)	18,000	18,000	2
M04	OI_M04_nr_oper_4.4	Nr of operations of support for non-productive investment (4.4)	2,000	2,000	5
M08	OI_M08_area_8.5	Areas concerned by investments improving resilience and environmental value of forest ecosystems (8.5)	4,000	4,000	0
M08	OI_M08_nr_benef_8.3	Nr of beneficiaries for preventive actions (8.3)	0	0	0

³⁷For M1.1, M2.1, M4.4., M8.5 the table includes cumulative figures (i.e. outputs delivered in the period of 2014-2019). For M8.3, M10.1, M11, M12, M13 and M15 the table include annual figures (i.e. outputs delivered in 2019).

M08	OI_M08_nr_oper_8.5	Nr of operations (investments improving resilience and value of forest ecosystems) (8.5)	200	200	2
M10	OI_M10_area_10.1	Area (ha) under agri-environment-climate (10.1)	538,876	600,000	597,979
M11	OI_M11_area_11.1	Area (ha) - conversion to organic farming (11.1)	26,134	26,134	48,282
M11	OI_M11_area_11.2	Area (ha) - maintenance of organic farming (11.2)	84,669	84,669	77,350
M12	OI_M12_area_12.1	Area (ha) - NATURA 2000 AG land (12.1)	241,790	241,790	295,667
M12	OI_M12_area_12.2	Area (ha) - NATURA 2000 FO land (12.2)	90,000	84,054	87,740
M12	OI_M12_area_12.3	Area (ha) - WFD (12.3)	0	0	0
M13	OI_M13_area_13.1	Area (ha) - mountain areas (13.1)	0	0	0
M13	OI_M13_area_13.2	Area (ha) - other areas with significant NC (13.2)	217,737	100,000	162,984
M13	OI_M13_area_13.3	Area (ha) - areas with specific constraints (13.3)	0	0	0
M15	OI_M15_area_15.1	Areas under forest environment contracts (15.1)	32,400	8,082	9,618
Focus area 5E					
M01	OI_M01_nbr_part_train_1.1	Training/skills acquisition (1.1) - Nbr of participants in trainings	2,500	2,500	17

M02	OI_M02_nr_ben_2.1	Nr of beneficiaries advised (2.1)	4,500	4,500	2
M08	OI_M08_area_8.1	Area to be forested (8.1) - hectare	20,000	14,073	1,784.81
M08	OI_M08_area_8.2	Area of new agro-forestry systems (8.2) - hectare	1,800	2,000	0
M08	OI_M08_nr_oper_8.5	Nr of operations (8.5)	800	1,336	315

In general, expected activities have largely been delivered by the end of 2019. The exceptions include outputs linked to non-productive investments, training, and advisory services and to the forestry measure (M08). There are mandatory training requirements attached to certain RDP measures (e.g., M10.1 & M12.1), and our understanding is that the figure of only 17 participants attending training is either a typographical error or a misunderstanding of the target.. Activities delivered in relation to non-productive investments (M4.4) also remain below expectations, which is explained by the low interest of farmers³⁸; uptake was also low in the 2007-2013 period, and, while there has been some increase in response to a simplification of conditions for support, this has not met the ambitions set out in the programme.

As indicated in Table3.2, Hungary already met all its relevant targets by the end of 2017, only two years after the first payments had been granted from the 2014-2020 RDP. Since then, more has been achieved especially in relation to indicators set for agricultural land.

Table3.2: Priority 4 and Focus area 5E result indicators

Source: Based on AIR, 2017and 2020³⁹

Indicator	Name	Target value (2023)	Achievement as of December 2017	Achievement as of December 2019
R6/T8	percentage of forest/other wooded areas under management contracts supporting biodiversity (focus area 4A)	5.08%	5.55%	5.68%
R7/T9	percentage of agricultural land under management contracts supporting biodiversity and/or landscapes (focus area 4A)	11.79%	13.06%	17.72%
R8/T10	percentage of agricultural land under management contracts improving water management (focus area 4B)	3.57%	3.92%	5.32%
R9/T11	percentage of forestry land under management contracts to improve water management (focus area 4B)	0.59%	0.63%	0.65%
R10/T12	percentage of agricultural land under management contracts to improve soil management and/or prevent soil erosion (focus area 4C)	8.39%	9.14%	12.41%

³⁸Annual Implementation Report 2018). Available at: <https://www.palyazat.gov.hu/vidkfejlesztési-program-vp#>

³⁹Annual Implementation Report (2017) and (2020). Available at: <https://www.palyazat.gov.hu/vidkfejlesztési-program-vp>

R11/T13	percentage of forestry land under management contracts to improve soil management and/or prevent soil erosion (focus area 4C)	0.77%	0.84%	0.86%
R20/T19	percentage of forest land under management contracts contributing to carbon sequestration and conservation (focus area 5E)	0.59%	0.59%	0.03%

3.3 Funding allocated to biodiversity-tracked measures

3.3.1 Allocations

An overview of EAFRD funding⁴⁰ that is tracked as biodiversity expenditure (Priority 4 and Focus Area 5E) in Hungary is provided in Table3.3. There are 9 measures with spending allocated under Priority 4 (excluding payments for areas with natural constrains – M13) and 4 measures with spending allocated under Focus area 5E. The figures in Table3.3 are allocations for the entire 2014-2020 period (not annual allocations programmed for individual years) with the application of the following markers:

- EAFRD funding programmed to Priority 4 (except under M13): 100%
- EAFRD funding programmed to Focus Area 5E (except under M13): 40%
- EAFRD funding programmed to M13: 0%

⁴⁰ i.e. only the EU element – this excludes national co-financing.

Table3.3: Programmed expenditure tracked as biodiversity spending in Hungary

Source: European Commission, 2021⁴¹

Measure	Priority	Biodiversity spending (EAFRD) as programmed in 2015 (RDP v1.3)	Biodiversity spending (EAFRD) as programmed in 2020 (RDP v7)	Difference in EUR (and in %)
M01: Knowledge transfer and information actions		14,044,291.40	13,210,692.47	- 833,598.93 (-5.94%)
	P4	12,796,289.00	12,036,766.85	- 759,522.15 (-5.94%)
	FA5E	1,248,002.40	1,173,925.62	- 74,076.78 (-5.94%)
M02: Advisory services		9,399,627.00	9,399,627.00	0
	P4	8,283,477.00	8,283,477.00	0
	FA5E	1,116,150.00	1,116,150.00	0
M04: Investments in physical assets		14,256,465.00	14,256,465.00	0
	P4	14,256,465.00	14,256,465.00	0
M08: Forest investments		51,014,434.80	55,191,588.11	4,177,153.31 (+8.19%)
	P4	5,340,000.00	5,340,000.00	0
	FA5E	45,674,434.80	49,851,588.11	4,177,153.31 (+9.15%)

⁴¹European Commission (2021), ESIF 2014-2020 Finance Implementation Details. Available at: <https://cohesiondata.ec.europa.eu/2014-2020-Finances/ESIF-2014-2020-Finance-Implementation-Details/99js-gm52>

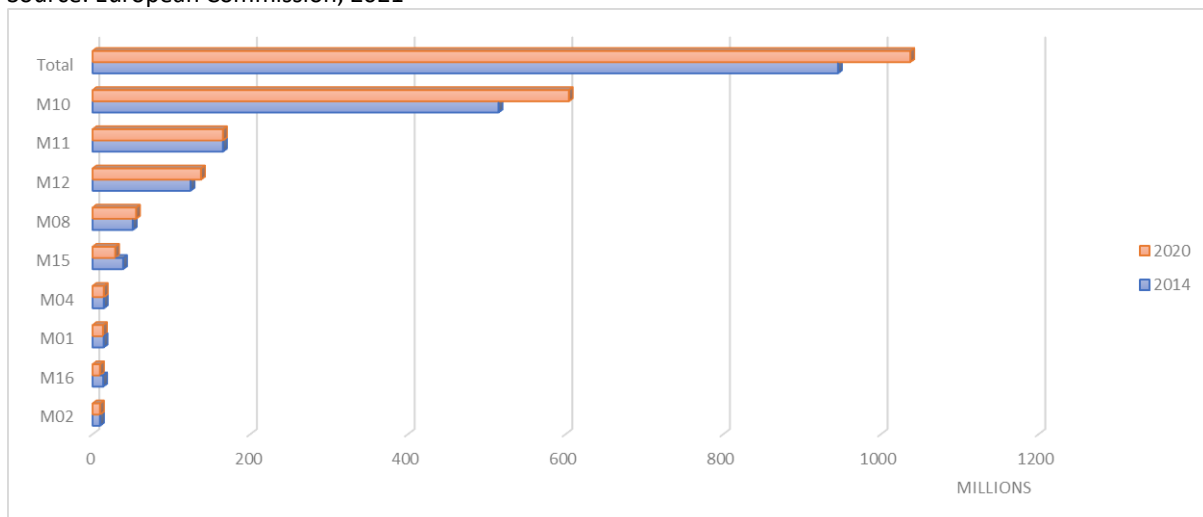
M10: Agri-environment-climate		514,951,681.00	604,201,950.45	89,250,269.45 (+17.33%)
	P4	514,951,681.00	604,201,950.45	89,250,269.45 (+17.33%)
M11: Organic farming		165,412,677.00	165,412,677.00	0
	P4	165,412,677.00	165,412,677.00	0
M12: Natura 2000 and Water Framework Directive		124,293,847.00	137,568,450.76	13,274,603.76 (+10.68%)
	P4	124,293,847.00	137,568,450.76	13,274,603.76 (+10.68%)
M15: Forest-environment-climate		38,768,400.00	28,658,771.55	-10,109,628.45 (-26.08%)
	P4	38,768,400.00	28,658,771.55	-10,109,628.45 (-26.08%)
M16: Cooperation		13,427,377.60	9,385,698.42	-4,041,679.18 (-30.10%)
	P4	12,694,468.00	8,652,788.82	-4,041,679.18 (-31.84%)
	FA5E	732,909.60	732,909.60	0
Total		945,568,800.80	1,037,285,920.76	91,717,119.96 (+9.70%)

Using the tracking methodology, in Hungary EUR 1.04 billion of programmed EAFRD expenditure is considered to be relevant to biodiversity. Approximately 90% of this amount has been allocated to M10 (58%), M11 (16%) and M12 (13%).

Compared to the beginning of the 2014-2020 period total EAFRD allocations programmed to biodiversity have increased by approximately 10%; i.e., from EUR 945.6 million to EUR 1.04 billion (Figure 3.1). At measure level, the most significant changes can be observed at M10 (17% increase), M12 (10% increase) as well as M15 & M16 (26% and 30% decrease respectively). The AIRs provide no detailed explanation about these changes.

Figure 3.1: Changes in programmed spending tracked as biodiversity expenditure in Hungary between 2014 and 2020 (€ millions)

Source: European Commission, 2021



Total programmed EAFRD allocations that are calculated to be relevant to biodiversity in Hungary (using the tracking methodology) exceed the available EAFRD funding for Natura 2000 indicated in the draft 2021-2027 Prioritised Action Framework⁴². The difference is approximately 30%. Note however that the table in the PAF includes committed amounts (incl. national top-ups) therefore it is difficult to draw any more detailed conclusion from this comparison.

⁴² Draft Priority Action Framework (2021-2027). Available at: http://termesztvedelem.hu/user/browser/File/Natura2000/PAF/2021-27/Natura2000_IntezkedesiTerv_2021_2027.pdf

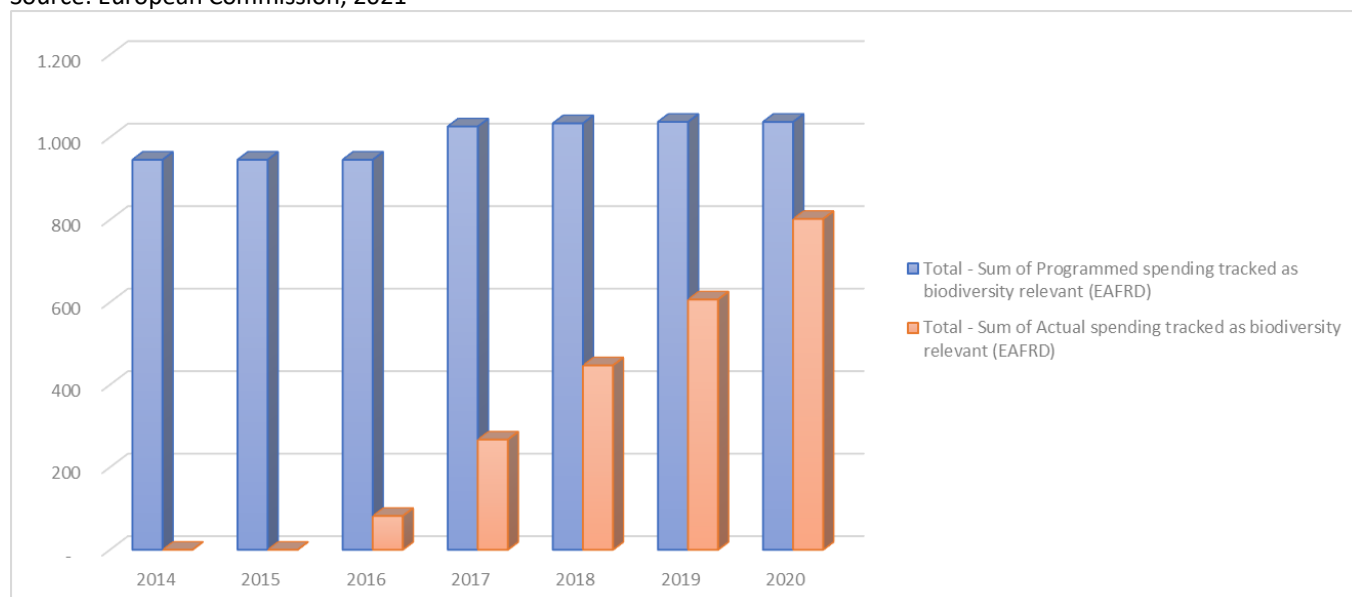
3.3.2 Expenditure in practice

Figure below provides an overview of programmed and actual spending tracked as biodiversity expenditure in Hungary. Programmed allocations are for the entire 2014-2020 period (and not for individual years), while actual spending figures are cumulative values, i.e., all expenditure made until the end of each year) hence they should not be aggregated.

The RDP became operational in 2016, with the first commitments also made that year. Across all relevant measures, 77% of EAFRD allocations programmed to biodiversity had been spent already by the end of 2019; i.e. EUR 802 million out of EUR 1.04 billion. Member States have 3 years to spend committed funding ('N+3' rule), which means resources committed in 2020 must be spent by 2023.

Figure 3.2: Programmed and actual spending tracked as being for biodiversity, 2014-2020 (€ millions)

Source: European Commission, 2021⁴³



An overview of actual spending tracked as being relevant for biodiversity as a proportion of the total programmed amount for each measure is provided in Table 3.4. M10 & M12 stand out with the highest share of programmed expenditure already spent, 88% and 96% respectively. For M02, M04 and M16 actual spending was still below 10% by the end of 2019.

⁴³ Ibid.

Table3.4: Committed and actual expenditure tracked as biodiversity spending (EAFRD) as % of programmed biodiversity tracked allocations

Source: European Commission, 2021⁴⁴

	2014	2015	2016	2017	2018	2019	2020
M01	0%	0%	0%	6%	23%	45%	58%
M02	0%	0%	0%	0%	0%	0%	0%
M04	0%	0%	0%	1%	1%	1%	7%
M08	0%	0%	13%	21%	25%	33%	43%
M10	0%	0%	9%	27%	49%	67%	88%
M11	0%	0%	4%	16%	28%	39%	56%
M12	0%	0%	14%	49%	66%	75%	96%
M15	0%	0%	9%	13%	16%	29%	37%
M16	0%	0%	0%	0%	0%	0%	0%

⁴⁴ ibid

3.3.3 Examples of expenditure

M10 – Agri-environment-climate (AECM)

Under M10.1 there are 16 thematic schemes targeting different land uses. Each scheme includes a compulsory basic package (i.e., a list of requirements that beneficiaries must implement) and several voluntary requirements of which farmers can freely choose at least two, subject to some limitations. Out of the 16 schemes, 4 are horizontal (i.e., to all active farmers without territorial restrictions) and 12 are zonal (i.e., only in designated areas):

- Horizontal schemes
 - Arable land
 - Grassland
 - Plantation
 - Reeds
- Zonal schemes:
 - HNV arable – great bustard protection areas
 - HNV arable – red-footed falcon protection areas
 - HNV arable – Great Plain bird protection areas
 - HNV arable – bird protection areas in mountains and hills
 - HNV grassland – great bustard protection areas
 - HNV grassland – Great Plain bird protection areas
 - HNV grassland – bird protection areas in mountains and hills
 - HNV grassland – butterfly protection areas
 - Arable lands with water protection purposes – erosion sensitive arable land
 - Arable lands with water protection purposes – surface water sensitive arable land
 - Arable lands with water protection purposes – drought sensitive arable land
 - Grasslands with water protection purposes – surface water sensitive grassland

The biodiversity relevance of requirements under these schemes varies greatly. Mandatory requirements of the horizontal schemes are designed to improve agri-environmental aspects in general through for example forbidding the use of wastewater and sewage sludge and requiring the preparation of nutrient management plans. The zonal and especially HNV schemes on the other hand have several requirements with higher relevance to biodiversity, e.g., maintenance of permanent green fallow/bee pasture free of any plant protection agents, forbidding the use of insecticides etc. Also, the zonal schemes prescribe a larger number of mandatory requirements than the horizontal ones. It is important to remember that only some of these requirements are mandatory, farmers can choose from the others freely. While this provides farmers with flexibility to choose options which fit with their farm management priorities, the biodiversity benefits largely depend on which of the more biodiversity relevant elements are taken up.

M08 – Forest investments

M8.1 provides support for afforestation, including “traditional” afforestation (forestry utilisation) and the plantation of fast-growing tree species for the purpose of producing industrial raw materials. From a biodiversity point of view, these two activities differ greatly. Also, support can be obtained for afforestation with alien species (albeit at lower rates than for “traditional” species), which is not in line with biodiversity considerations. M8.5 on the other hand seems genuinely biodiversity relevant as it provides support for forest restructuring as well as for other interventions aiming at increasing the resilience and environmental value of forest ecosystems. This is the only M08 sub-measure programmed to Priority 4.

M11 – Organic farming (conversion and maintenance)

Support is available both for maintaining organic production (M11.2) and for conversion to organic farming (M11.1). Both sub-measures can be considered relevant from a biodiversity point of view.

M12 – Natura 2000 and Water Framework Directive

Hungary only programmed M12.1 and M12.2 that provide compensation for Natura 2000 agricultural and forest areas. Both sub-measures can be considered relevant from a biodiversity point of view.

M15 – Forest-environment-climate

Support can be obtained for forest-environmental and climate commitments (M15.1) as well as for maintaining forest genetic resources (M15.2). Activities covered include among other the postponement of final harvest for soil and habitat protection purposes and nature-friendly handling during logging. In general, the measure seems to be genuinely biodiversity relevant.

M01 – Knowledge transfer and information actions

Among others the measure (M1.1) is used to finance mandatory trainings for beneficiaries of M8.4, M8.5, M10.1, M11.1 and M12. In addition, support can be obtained for demonstration activities (M1.2) focusing on how to improve environmental performance. Beneficiaries receive more general information (compared to advisory services) through different channels such as online, publication, event or phone call. The description of M1.3 does refer to climate adaptation, organic farming and water management but it does not seem particularly biodiversity-focussed. Overall, the most relevant M1 activities are the mandatory trainings supported under M1.1.

M04 – Investments in physical assets

The non-productive investment measure (M4.4) provides support for a number of relevant activities, including creation of wetland habitats, establishment of bee pasture on arable land, creation of hedges, establishment of grassland and permanent green fallow (the latter two contribute to the maintenance of Nature 2000 sites). In some cases, maintenance of non-productive investments is then required as a commitment under the ACEM measure.

3.4 Information from programme monitoring

The number of studies evaluating the impact on biodiversity of the EAFRD measures discussed above is limited. Apart from the midterm review of the Hungarian Rural Development Programme, there are a few academic papers assessing the biodiversity and wider environmental impacts of one or more selected measure(s). In general, these studies and evaluations tend to report limited impacts on biodiversity. There are several reasons for this, including the low uptake of relevant measures by farmers and land managers as well as the prioritisation of less effective measures by the Managing Authority. In some cases, potential impacts are not yet visible because of the delays in the implementation. The next paragraphs provide more detailed information about some of the measures and sub-measures.

- M4.4 has the potential to deliver substantial benefits for biodiversity by providing support for non-productive investments such as wetland creation; however because of the extremely low uptake by farmers its impacts on the ground are limited, although the impacts are enhanced by the combination with the ACEM measure.
- M8.1 provides support for afforestation on both agricultural and non-agricultural land. Because of the relatively low uptake, eligibility rules (expanded to cover low value food and feed producing areas) and support rates (increased) were changed in 2019. Table3.5 below does not capture the potential impacts of these changes. In response to the similarly low uptake of M8.2 (claims submitted until January 2019 cover 1,600 ha), the Managing Authority changed the eligibility rules in 2019 expanding the target area to short rotation agroforestry systems for energy purposes. Again, it is too early to see any impacts on the ground arising in relation to these changes. Until the end of 2019, €1,306,198 commitments were made in relation to M8.5 (out of which €1,304,183 were made in 2019) but without making any actual payments, which makes it difficult to assess the actual biodiversity impacts of this sub-measure.

Table3.5: Uptake of Measure 8.1 (afforestation) as reported in the Annual Implementation Report in 2019

Source: AIR 2019

Type	Support requested (ha)	Support granted (ha)
------	------------------------	----------------------

False acacia (industrial plantation)	440	190
Hybrid poplar (industrial plantation)	1689	543
False acacia (afforestation)	3945	2173
Other soft leaved (afforestation)	1339	793
Hybrid poplar (afforestation)	407	260
Oak-beech and Other hard leaved (afforestation)	4570	1801

Farmers and landowners could apply for AECM (M10.1) support twice in the 2014-2020 programming period, and again in 2021 for a 3 year commitment period. In 2015, calls were open for both the horizontal and zonal schemes, while in 2016, applications were only accepted for the horizontal schemes, in an effort to achieve higher area coverage. The support was granted for five years, annually, as area-based and non-refundable support. The majority (i.e., 80%) of AECM areas are supported under horizontal schemes, the share of more targeted zonal (HNV) schemes is much lower (Table3.6). Compared to the 2007-2013 period, there has been a reduction in the size of supported HNV areas. Evidence shows that negative biodiversity trends have been halted and even reversed in areas covered by HNV schemes⁴⁵. Horizontal schemes on the other hand were found to be less effective in addressing biodiversity challenges (considered as 'broad and shallow' measure), some expert suggests that these horizontal schemes are actively contributing to the loss of biodiversity. They refer to the decline of the farm bird index and more intense fertiliser use in areas covered by these schemes as evidence⁴⁶.

Table3.6: AECM schemes: supported area per scheme type

Based on AIR 2019

Scheme type	Area supported (ha)
Horizontal	527,140,68
- <i>grassland</i>	36,703.78
- <i>reeds</i>	2,307.13

⁴⁵Trecon (2021) A természetvédelmi fejlesztések átfogó értékelése – zárójelentés.

⁴⁶Toth, P (2018)A Közös Agrárpolitika természetvédelmi vonatkozásai. Presentation.

- <i>arable</i>	419,727.2
- <i>plantation</i>	68,402.57
Zonal (incl. HNV)	131,678.38
- <i>HNV arable – Great Plain bird protection areas</i>	14,943.15
- <i>HNV grassland – Great Plain bird protection areas</i>	30,558.83
- <i>HNV grassland – bird protection areas in mountains and hills</i>	5,086.46
- <i>HNV grassland – butterfly protection areas</i>	328.2
- <i>HNV grassland – great bustard protection areas</i>	53,027.31
- <i>HNV arable – bird protection areas in mountains and hills</i>	291.79
- <i>HNV arable – red-footed falcon protection areas</i>	1,781.91
- <i>HNV arable – great bustard protection areas</i>	16,588.46
- <i>Arable land with water protection purposes – erosion sensitive arable land</i>	5,370.14
- <i>Arable land with water protection purposes – surface water sensitive arable land</i>	780.95
- <i>Arable land with water protection purposes – drought sensitive arable land</i>	1,627.36
- <i>Grassland with water protection purposes – surface water sensitive grassland</i>	1,293.82

Organic producers could apply for support twice in the 2014-2020 period, i.e. in 2016 and 2018. The support was granted for five years, annually, as area-based and non-refundable support. Most supported areas are grassland and arable, plantations have a much lower share (Table3.7).

Table3.7: Supported M11 areas by land use

Based on AIR 2019⁴⁷

Land use	Area supported, in ha (% of total)
Grassland	115,097.84 (46%)

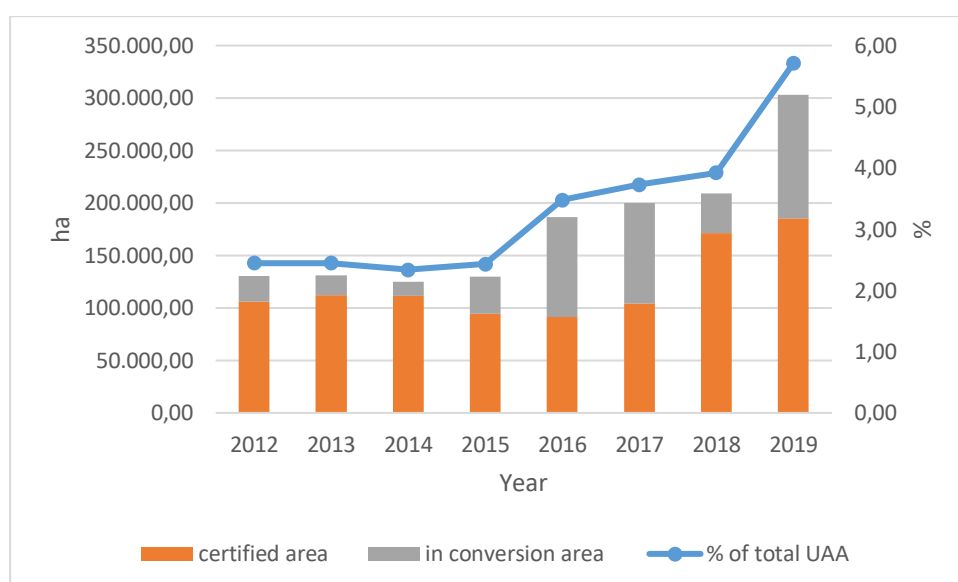
⁴⁷ *ibid*

Arable	112,545.45 (45%)
Plantation	24,013.49 (9%)
Total	251,656.78 (100%)

The share of organically managed land has increased significantly in Hungary since 2015, however its share in total UAA remains below of the EU average, which was 8.5% in 2019 (Figure 2). Permanent grassland accounts for approximately 60% of the organic area while 34% of the organic land is utilised for arable production. A recent review of the Hungarian Operational Programmes (including the RDP) found more stable and favourable biodiversity trends in areas with a higher proportion of organic farming.⁴⁸

Figure 2.3: Agricultural area under organic farming in Hungary (2012-2019)

Based on Eurostat [org_croppo]



Annual compensations for Natura 2000 agricultural and forest areas could be claimed since 2016 under the 2014-2020 programming period. In 2019 296,000 ha of agricultural land received compensation under the respective sub-measure (M12.1). The number of claims for forests (M12.2) is on average 3400 each year, submitted predominantly for secondary, semi-natural and cultivated forest areas (Table 3.8). These sub-measures helped slow down the loss of biodiversity.⁴⁹

⁴⁸ibid

⁴⁹ibid

Table3.8: Types of forest and number of forest compartments supported by M12.2

Based on AIR, 2019⁵⁰

Transitional	Plantation	Cultivated	Secondary	Natural	Semi-natural
2130	1650	6678	10652	1	6961

There is no information available about the impacts of the other relevant measures and sub-measures.

3.5 Summary of findings

Hungary's Rural Development Programme has identified several needs relevant to biodiversity. Amongst these are the promotion of extensive and organic farming, improvement of the natural condition of agriculture-related species, development of green infrastructure, sustainable forest management conservation of landscape types and protection of soil and water resources. In response, the programme funds many measures aiming to address these needs, in particular M04, M08, M10, M11, M12 M15 and M16. In addition, there is a strong emphasis on knowledge transfer and advisory services to support the implementation.

Hungary programmed 28% of its EAFRD funding available in the 2014-2020 period to Priority 4 (P4) aiming at 'restoring, preserving, and enhancing ecosystems related to agriculture and forestry. Amongst the six rural development priorities, this has the highest share in the total budget. Out of the EUR 953 million programmed to P4, EUR 514 million has been allocated to the agri-environmental climate measure (M10). Following some amendments to the programme, the total EAFRD amount programmed to P4 has increased slightly (by 6%, i.e., to EUR 1,02 billion) with no major changes in the allocations between measures.

Due to delays in programming, the first commitments were only made in 2016. However, by 2020, 77% of programmed EAFRD allocations tracked as biodiversity relevant⁵¹ has already been spent. Amounts committed in year N can be paid in up to three years ('N+3 rule') therefore the execution rate is expected to further improve in the coming years.

By 2017, with one exception Hungary has met all its biodiversity relevant targets set in its RDP, which could indicate a relatively low level of ambition. Expected outputs have

⁵⁰ Annual Implementation Report (2019). Available at: <https://www.palyazat.gov.hu/vidkfejlesztési-program-vp>

⁵¹100% of P4 allocations + 40% of FA5 allocations

largely been delivered by the end of 2019, although expectations have changed in some cases (including both upward and downward adjustments). Nevertheless, the programme's actual contribution to biodiversity conservation might be more limited than what these indicators suggest. This is on the one hand linked to agricultural intensification (often driven by interventions outside rural development programmes), compared to which the impacts of RDP measures are limited. In addition, the implementation modalities of relevant measures do not always pay sufficient attention to biodiversity considerations. A particular example is M10.1 under which horizontal schemes were prioritised over more targeted and beneficial (from a biodiversity point of view) HNV schemes. This is important to note as M10.1 has the highest budget share in P4. Another example is the support provided for afforestation, which can also be obtained for alien species. In other cases, and especially in relation to the forest investment (M08) and non-productive investment (M4.4) measures, the limited impact can be explained by the low uptake of measures by farmers. In response, the Managing Authority amended the programme in 2019 but the impacts of those changes are yet to be seen. Amongst all the programmed measures HNV schemes seem to be the only ones that can reverse negative biodiversity trends. Other measures are less effective and have been only able to slow down and stabilise negative trends.

From the current indicators framework, it is not possible to identify these nuances that have a major impact on biodiversity. The research did not reveal any non-recorded biodiversity relevant expenditures. It is more likely that the programme's overall impact on biodiversity is overestimated.

4. CASE STUDY: CAP – EAFRD IN BADEN-WÜRTTEMBERG IN GERMANY

Researcher: Lisa Kopsieker, IEEP

4.1 Background to case study

4.1.1 EAFRD institutional framework, national and regional co-funding & programmes

The Baden Württemberg Rural Development Programme 2014-2020 (MEPL III) was chosen because it offers many measures and schemes with a primary and secondary focus on biodiversity and nature conservation issues (P4A). The Baden-Württemberg RDP has 14 schemes with a primary focus on biodiversity, including under M4, M7, M10, M12. The RDP assigned one third of the EAFRD funds (approx. 570 million Euro) and almost half the total public expenditure planned for 2014-2020, including additional national and regional funding, to priority area 4⁵².

Both the Baden-Württemberg Ministry for Rural Affairs (Ministerium für ländlichen Raum und Verbraucherschutz) and the Ministry of Environment, Climate and Energy (Ministerium für Umwelt, Klima und Energiewirtschaft) are involved in the programming and implementation of EAFRD. The Agriculture department in the Ministry for Rural Affairs is the main body responsible for the programming. The Baden-Württemberg agriculture administration includes 35 lower agricultural authorities at the district offices of the respective districts. The Ministry of Environment, Climate and Energy is responsible for programming and managing the RDP measures that fall under the Landscape Conservation Regulation (LCR), including several initiatives that do not use EU funds (see below).

The district authorities' agriculture departments i.e., Regional councils (Regierungspräsidien), and the regional agricultural and nature conservation authorities (untere Landwirtschafts- und Naturschutzbehörden) are responsible for the implementation of the measures. Nature conservation measures are initiated by the nature conservation authority or Landschaftserhaltungsverbände at the local level, which approach individual farmers in a targeted way to address specific needs within their territory.

The funding program for agri-environment, climate protection and animal welfare (Förderprogramm für Agrarumwelt, Klimaschutz und Tierwohl-FAKT) is the Baden-Württemberg agri-environment and non-productive investment programme to which

⁵² Alliance Environnement (2019) Evaluation of the impact of the CAP on habitats, landscapes, biodiversity, Brussels: Alliance Environnement (IEEP and Oréade-Brèche). Available at: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/evaluation-policy-measures/sustainability/impact-cap-habitats-landscapes-biodiversity-0_en.

all farmers in the region can apply, including 18 agri-environment schemes (M10), organic farming conversion and maintenance support (M11) and animal welfare schemes (M14). FAKT is co-funded by EAFRD.

The Landscape Conservation Regulation (LCR)⁵³ in Baden-Württemberg influences the programming of the EAFRD and the associated EU funding allocations by defining funding programmes and schemes targeted at protected habitats and other protected areas. Only farmers approached by the public authorities can participate. The LCR provides the regulatory frame for six conservation-contract schemes (M10.1.1. – M10.1.6) and includes both EU co-funded and completely nationally or regionally funded measures. It includes PLENUM, the funding programme for the conservation and development of nature and the environment of the Ministry of Environment, Climate and Energy in Baden-Württemberg, which provides Baden-Württemberg state co-funding and EAFRD funding for regional nature conservation projects⁵⁴. It also includes the funding programme for the UNESCO biosphere reserves Schwäbische Alb and Schwarzwald.

4.1.2 Summary of priorities set out in national policy documentation

The German Prioritised Action Framework (2014-2020) identified priority measures per habitat type and per federal state. Baden-Württemberg chose the following priority measures to focus on during the 2014 - 2020 funding period⁵²:

- Establishment of management capacity and structures; consultation and cooperation with landowners;
- Evaluation of management plans, strategies and procedures and their implementation and agreements with owners and land and water managers to comply with agricultural, forest and water-environmental regulations;
- Nature conservation management measures, preservation of a favourable conservation status of habitats and species, and further improvement;
- Wildlife friendly production methods, reestablishment of habitats on agricultural land, extensive livestock production, protection of grassland;
- Compensation payments for income loss and increased acceptance in relation to the neighbours;
- Infrastructure needed to restore habitats or species.

The goal of the German National Biodiversity Strategy (2007-2020)⁵⁵ is to improve the conservation status of all 'unfavourable' habitats and species by at least one level, thereby setting out the strategic priorities for ecosystems and related habitat and species types (according to the Nature Directives) dependent on or associated to agriculture and forestry

⁵³ In german: Landschaftspflegeleitlinie LPR

⁵⁴ <https://foerderung.landwirtschaft-bw.de/pb/Lde/Startseite/Foerderungswegweiser/Projekt+des+Landes+zur+Erhaltung+und+Entwicklung+von+Natur+und+Umwelt+ PLENUM>

⁵⁵ Nationale Strategie zur biologischen Vielfalt.
https://www.bmu.de/fileadmin/Daten_BMU/Pool/Broschueren/nationale_strategie_biologische_vielfalt_2015_bf.pdf
Accessed online 05/03/2021

management in Baden-Wuerttemberg. It targets, among others, wild species typical for agriculturally cultivated landscapes, species-rich grasslands, orchards, meadows, semi-natural landscape elements and semi-natural forest management⁵².

The Nature Conservation Strategy in Baden-Württemberg (2013)⁵⁶ targets the conservation of habitats and species in the agricultural sector and sets goals to address biodiversity and nature conservation issues in the agricultural sector⁵²:

- Securing populations of wild flora and fauna species that are typical for the cultural landscape and improve the status of endangered species to significantly improve biodiversity in agro-ecosystems;
- Engaging to reform the agricultural subsidy system for 2014-2020 to be in line with the principle 'public money for public goods', by removing incentives that negatively affect the cultural landscape;
- Increasingly promote nature-friendly methods of land management that take into account and implement specific objectives of nature conservation, such as organic farming as well as other approaches;
- Reducing the 'consumption' of land by building and transport infrastructure;
- Ensuring the maintenance of cultural landscapes through sustainable management and production of high quality products which allow for sufficient income and increase the attractiveness of agricultural landscapes for recreation and tourism;
- Counteract negative impacts of biomass production for energy use by introducing methods of biomass production compatible with nature and biodiversity;
- On a voluntary basis, long-term, aiming for 'farm related biotope networking' on 10% of the farm area;
- Stopping the decline of orchard meadows and increasing their economic profitability for farmers;
- Develop and support extensive grassland in low mountain ranges and pasture management strategies.

The goals of the national and regional biodiversity strategy and support for the Natura 2000 network and other protected areas are the aims of the Landscape Conservation Regulation (LCR) adopted in 2015⁵⁷. This is the central integrated funding instrument for nature conservation and landscape management in Baden-Württemberg, providing various funding options (e.g., contract nature conservation, species and biotope protection, land acquisition and investments and services for nature and landscape conservation purposes). It provides the regulatory frame for the six conservation-contract schemes programmed in the RDP under the agri-environment-climate measure (M10.1.1-M10.1.6) and aims for the:

- Protection, conservation and development of habitats and landscapes as a basis of life and as recreational areas;
- Protection and conservation of animal and plant species and their habitats;

⁵⁶ Naturschutzstrategie Baden-Württemberg. https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/Dokumente/2_Presse_und_Service/Publikationen/Umwelt/Naturschutz/Naturschutzstrategie_Langfassung.pdf Accessed online 05/03/2021

⁵⁷ Landschaftspflegeberichtlinie Baden-Württemberg. https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/Dokumente/2_Presse_und_Service/Publikationen/Umwelt/Naturschutz/Landschaftspflegeberichtlinie_BW.pdf Accessed online 15/02/2021

- Security and development of the cultural landscape through sustainable land management, taking into account nature conservation issues.

PLENUM⁵⁸ is a regional funding programme of the Ministry of Environment, Climate and Energy in Baden-Wuerttemberg. It is the project of the region for the conservation and development of nature and the environment. Core areas include particularly valuable nature and cultural landscapes that should be preserved and valued. It supports projects within the region that have positive effects on nature conservation through start-up financing and competent advice. The cornerstones of the PLENUM strategy are nature-friendly use; environmentally friendly business practices; marketing of regional, nature-friendly products combined with sustainable tourism and environmental education.

In addition to this funding framework, the 'Special Programme for strengthening biodiversity' Baden Württemberg⁵⁹, adopted in 2017, allocated 36 million Euro to biodiversity measures to be implemented between 2018-2019 (both on areas that are eligible and ineligible for CAP funding), combining the efforts of the Ministry of Environment, Climate and Energy, the Ministry of Rural Affairs, and the Ministry of Transport. The priorities for the Ministry of Environment, Climate and Energy under this programme are the maintenance and development of Natura 2000 sites, extensification measures in the cultural landscape to create habitats for endangered species, moorland protection, biotope network and the quality assurance of protected areas.

4.2 Programme priorities

4.2.1 German national programme priorities

The information below has been sourced from the partnership agreement between Germany and the European Commission on the implementation of the ESIF 2014-2020, unless stated otherwise⁶⁰.

The most relevant thematic objectives for biodiversity under rural development, and receiving the largest allocation of funds in Germany are:

Objective 5- Promoting climate change adaptation, risk prevention and management (pg. 101-102).

⁵⁸ Projekt des Landes zur Erhaltung und Entwicklung von Natur und Umwelt in enger Zusammenarbeit mit der Bevölkerung (PLENUM). <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/plenum> Accessed online 15/02/2021

⁵⁹ Für Fauna und Flora, mit Herz und Verstand. Das Sonderprogramm zur Stärkung der biologischen Vielfalt Baden-Württemberg. https://mlr.baden-wuerttemberg.de/fileadmin/redaktion/mlr/intern/dateien/publikationen/Landwirtschaft/Fuer_Flora_und_Fauna.pdf Accessed online 15/-2/2021

⁶⁰ Partnership agreement between Germany and the European Commission for the implementation of the European Structural and Investment Funds in the 2014-2020 funding period. https://www.bmwi.de/Redaktion/DE/Downloads/P-R/partnerschaftsvereinbarung-zwischen-deutschland-und-der-eu-kommision-fuer-die-umsetzung-der-esi-fonds-unter-dem-gemeinsamen-strategischen-rahmen-in-der-foerderperiode-2014-2020-teil-1.pdf?__blob=publicationFile&v=7

- Flood risk management and prevention- promotion of water management investments, like those that contribute to flood protection and measures for precautionary land management and land security.
- Development of sustainable water management, for example through the creation of water storage zones on farms, support of cultivation programmes with good water efficiency, protection against high groundwater levels and the wetting of agricultural areas as well as establishment and management of forest belts to protect against erosion.
 - Measures to continue and improve the development of water bodies to achieve near natural structures are compensated and there are measures for the conservation-oriented conversion of water bodies of the 1st and 2nd order, for the retention of water in the area through near-natural design of surface water and reduction of substance inputs into surface water bodies.
- Introduction and strengthening of resilient land use systems that are less susceptible to climate change, including improved soil management by supporting practices that avoid soil degradation and reduce the carbon storage capacity of soils, soil-conserving cultivation, winter greening and the establishment of agroforestry systems.
 - By supporting small structures on arable land for water and soil protection, biodiversity in the agricultural landscape should be maintained or improved and endangered species and habitats should be protected.
- Improved soil management by supporting practices that avoid soil degradation and which decrease the soil carbon storage capacity, such as soil-conserving cultivation, winter greening, establishment of agroforestry systems and reforestation of new forests with location appropriate tree species.
 - Measures encompass erosion protection measures and the protection of hummus-rich soil, as well as the prevention of soil compaction/surface sealing. Another contribution should be the maintenance of permanent grassland and the conversion of arable land into grassland or floodplain forests (Auenwaelder) in sensitive areas and the expansion of organically farmed area.
- Investment in environmentally friendly development and adaptation of forests to climate change and improving the resilience of forests (in addition to afforestation and conversion, also the ecological strengthening of forests and forest damage prevention).
 - Near-natural forest management, restoring the protective function of damaged forests. An aim is to increase the proportion of ecologically valuable foliage and mixed stands. Forest environment measures can also improve the maintenance of the condition of habitats in Natura 2000 protected area system.
- Objective 6 - Preserving and protecting the environment and promoting resource efficiency (pg. 107-108)
 - Biodiversity and agricultural and forestry systems of high nature value should be restored, maintained, and strengthened.
 - Objectives of the WFD should be achieved through measures that ecologically upgrade waters.
 - Reduction of nitrogen surpluses and nitrate pollution and to contribute to compliance with the requirements of the nitrate directive (e.g., by reducing or avoiding mineral fertilizers, extensification of animal husbandry, extensive use of grassland or arable land, conversion of arable land into grassland, erosion and water protection strips, advice)
 - Improvement of water quality

- Resource conserving and environmentally friendly agriculture and forestry implemented through agri-environment climate measures; promotion of water efficiency and efficient irrigation; promotion of measures for soil protection; promotion of measures to reduce ammonia emissions, supported by advice and training.

4.2.2 Baden-Württemberg programme priorities

The regional RDP of Baden-Württemberg (2014-2020) set out the objectives under priority 4 ('Restoring, preserving and enhancing ecosystems related to agriculture and forestry') as:

- Preservation and improvement of biodiversity
- Sustainable management of agricultural and forested land through agri-environment climate measures
- Decrease the greenhouse gas emissions from farming
- Reduction of the nitrogen surplus in agriculture
- Strengthening animal welfare
- Strengthening organic farming
- Preservation of grassland in disadvantaged areas
- Preservation of cultural landscapes
- Provision of areas for 'ökologische Vorhaben'
- Preservation of the natural and cultural rural heritage
- Disentangling the conflicts of land use between agriculture and nature conservation
- Improvement in water management for water bodies of category I and II
- Improvement in the soil structure in forests
- Raising awareness for nature conservation in forests
- Improvement in the recreational services of forests

Additionally, some objectives under priority 5 ('Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food, and forestry sectors') may also be considered relevant for biodiversity conservation, for example:

- Adaptation of forests to climate change to improve their resilience and ability to fulfill their multiple services and functions through high structural diversity (regarding tree species composition and diverse age structure)
- Maintenance of permanent grasslands as CO₂ sinks

The RDP designed over 40 schemes with a primary or secondary focus on biodiversity and nature conservation (Table 4.1). Fourteen schemes have a single primary focus on nature protection and biodiversity issues. The schemes are managed in the following programmes: the agri-environment, animal welfare and organic farming programme for all farmers (FAKT), targeted agri-environment for nature conservation (under the Landscape Conservation Regulation), the Nature Parks funding programme, the

forestry funding programmes, ANC payments, and horizontal measures such as advisory services and those under the LEADER programme.

Table 4.1: Measures and sub-measures recorded as having primary and secondary relevance for biodiversity conservation (under priority 4A) in Baden Württemberg

Sources: according to the RDP evaluation report 2019⁶¹ and using information from the CAP biodiversity evaluation case study report⁶²

Notes:

- LCR = Landscape Conservation Regulation (Landschaftspflegerichtlinie, LPR)
- SFM = Sustainable forest management (Nachhaltige Waldwirtschaft, NWW)
- ESF = Environmental supplement forest (Umweltzulage Wald, UZW)
- CAA = Compensatory allowance for agriculture (Ausgleichzulage Landwirtschaft, AZL)
- UAA = Agricultural land (landwirtschaftliche Nutzfläche, LF)

RDP measure	RDP Code	Title	Programme & scheme(s)	Focus on P4A
M02 Advisory services, farm management and relief services	M2.1.1	Promotion of advisory services	Advisory	Primary
M04 Investments in physical assets	M4.1.2	Investment in small farms	LCR	Primary
	M4.2.2	Investments in the processing and marketing of products produced in accordance with nature conservation requirements	LCR	Primary
	M4.4.1	Species and biotope protection	LCR	Primary
	4.4.3	Investments in nature conservation and landscape management	LCR	Primary
M07 Basic services and village renewal in rural areas	M7.1.1	Development and updating of plans for nature parks	Nature parks	Primary
	M7.5.1	Development of the recreational value and areas with high nature value	Nature parks	Primary
	M7.6.1	Development of natural and cultural heritage in nature parks and improvement of rural landscapes	Nature parks	Primary
	M7.6.3	Services for nature conservation and landscape management (plans, conceptions, environmental awareness)	LCR	Primary
	M7.6.4	Projects for the conservation, restoration and improvement of rural landscapes and areas of high nature value	LCR	Primary

⁶¹ https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_Monitoring/Evaluierung%202019/Bewertungsbericht_2019_MEPL%20III.pdf?attachment=true

⁶² Germany (Baden-Württemberg) case study in: Alliance Environnement (2019) Evaluation of the impact of the CAP on habitats, landscapes, biodiversity. Alliance Environnement (IEEP and Oréade-Brèche), Brussels.

M08 Investments in forest area development and improvement of the viability of forests	M8.5.1	Nature conservation in forest and improvement of the forests' regeneration function	SFM	Primary
M10 Agri-environment climate	M10.1.1	Contract nature conservation - arable farming	LCR	Primary
	M10.1.2	Contract nature conservation - conversion from arable farming to extensive grassland management	LCR	Primary
	M10.1.3	Contract nature conservation - grassland management	LCR	Primary
	M10.1.4	Contract nature conservation - grazing	LCR	Primary
	M10.1.5	Contract nature conservation - maintaining management	LCR	Primary
	M10.1.6	Contract nature conservation - maintenance of non-agricultural land (non-eligible land under the Regulation (EU) No 1307/2013)	LCR	Primary
	M10.1.7	Crop diversification (at least 5-crops rotation)	FAKT A1	Primary
	M10.1.08	Extensive management of permanent grassland with livestock up to 1.4 (p)LU/ha MFA (MSA)	FAKT B1.1	Secondary
	M10.1.09	Extensive management of certain permanent grassland areas without nitrogen fertilization in holdings above 0.3 (p)LU/ha permanent grassland	FAKT B1.2	Secondary
	M10.1.12	Management of species-rich grassland	FAKT B3.1, B3.2 and B6	Primary
	M10.1.15	Conservation of orchard meadows	FAKT C1	Primary
	M10.1.16	Winegrowing on steep slopes	FAKT C2	Primary
	M10.1.17	Prohibition of chemical fertilizers and plant protection products	FAKT D1	Secondary
	M10.1.20	Greening of fallow land with flowering mixtures (with and without combination with EFA)	FAKT E2.1 and E2.2	Primary
	M10.1.22	Prohibition of herbicide in agriculture	FAKT E3	Primary
	M10.1.23	Application of Trichogramma on corn/maize	FAKT E4	Primary
	M10.1.24	Application of beneficial insects under the glass	FAKT E5	Primary
	M10.1.25	Application of pheromones in orchards	FAKT E6	Primary
	M10.1.26	Extensive use of biotopes protected under Art. 30 BNatSchG and Art. 32 NatSchG of Baden-Württemberg	FAKT B4 and B6	Primary
	M10.1.27	Extensive use of the flora-fauna-habitat (FFH) lowland hay meadows and mountain hay meadows	FAKT B5 and B6	Primary
M10.1.28	Silage waiver in the entire farm (hay milk)	FAKT A2	Primary	

	M10.1.34	Conservation of endangered indigenous livestock breeds	FAKT C3	Primary
	M10.1.35	Planting of flowering, breeding, and retreat areas (habitats for small game) (new from 2019 onwards)	FAKT E7	Primary
M11 Organic farming	M11.1.1	Conversion to organic farming	FAKT D2.1	Secondary
	M11.2.1	Maintenance of organic farming	FAKT D2.2	Secondary
M12 Natura 2000 and Water Framework Directive payments	M12.2.1	Conservation of FFH forest habitat types	ESF	Primary
M13 Payments to areas facing natural or other specific constraints	M13.1.1	Mountain areas	CAA	Primary
	M13.2.1	Areas other than mountain areas which are disadvantaged for significant natural reasons ('not-mountain areas')	CAA	Primary
M16 Cooperation	M16.7.1	Project coordination for nature parks	Nature parks	Primary
	M16.7.3	Project coordination of integrated municipal development		Secondary
	M16.8.1	Forest management plans	SFM	Secondary
M19 LEADER and CLLD	M19.2.1	Promotion of projects in the context of local strategies	LEADER	Secondary
	M19.3.1	Cooperation activities	LEADER	Secondary

Of note for the analysis of biodiversity expenditure tracking are that Baden-Württemberg programmed:

- the **payments for areas of natural constraint** to the biodiversity objective (focus area 4A) without specifying any secondary focus areas. The RDP described the rationale for this as that it is supporting permanent grassland farming in high nature value areas including a large proportion of Natura 2000 sites and other protected areas⁶³. The RDP includes payments for mountainous areas and for other areas with natural constraints and introduced an additional eligible area from 2021 that covers areas with more than 60% as permanent grassland and protected area, and at least 66% part-time farmers, that are not included in the other two categories. The payments are graded according to the soil productivity, in association with the proportion of arable crops not including livestock fodder (for the non-mountain payments). There are, however, no specific criteria or conditions attached to the payments that would enhance their benefits for biodiversity.
- support for **organic farming** (conversion and maintenance) to the soil priority (focus area 4C) with secondary benefits for biodiversity (4A), water (4B), reducing climate emissions (5D), and

⁶³ pp 753 in MEPL III https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_III_gesamt/2021-02-17-MEPL_III_nach_5.AeA.pdf#page=492&zoom=100,56,82

carbon sequestration (5E)⁶⁴. However, the RDP implies that the organic farming measure contributes more or less equally to all these focus areas.

- support for the **biodiversity focus area 4A** through non-productive investments for species and habitats (M4.4.1), projects in protected areas and areas of high nature value (M7), and investments in forest nature conservation and resilience (M8).
- support for **carbon sequestration** (focus area 5E) through non-productive investments for habitats (M4.4.1), forest investments for nature conservation and resilience (M8), and agri-environment schemes for extensive grassland management (low stocking density, no fertiliser).

4.2.3 Output and outcome measurements relevant to biodiversity

The following information is sourced from the yearly implementation reports, unless stated otherwise⁶⁵.

The output indicators for the measures that have been recorded as relevant for biodiversity under priority 4 and focus area 5E are listed in Table4.2. It is important to note that these indicators refer to the uptake of the measures and do not necessarily reflect the biodiversity-relevant outputs. According to the evaluation report of the RDP from 2019⁶⁶, there are multiple measures and sub-measures with primary effect on biodiversity, which are laid out in Table4.1. Therefore, the output indicators associated with these are important to record. Alongside this the measures and sub-measures with a secondary effect on biodiversity, should also be considered (Table4.1).

⁶⁴ pp 706 to 707 in MEPLIII https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_III_gesamt/_2021-02-17-MEPL_III_nach_5.AeA.pdf#page=492&zoom=100,56,82

⁶⁵ Yearly implementation reports, Germany- Rural Development Programme (Regional)- Baden-Wuerttemberg. Consulted 2014-2019 period. Administrative body: Ministry for Rural Areas and Consumer Protection Baden-Wuerttemberg. <https://foerderung.landwirtschaft-bw.de/pb/,Lde/Startseite/Agrarpolitik/Begleitung+und+Bewertung>

⁶⁶ https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_Monitoring/Evaluierung%202019/Bewertungsbericht_2019_MEPL%20III.pdf?attachment=true

Table4.2: Output indicators for priority focus area 4: uptake, realised, planned

Source: Information from the MEPL III document (updated 2020)⁶⁷

*The arrow denotes a change in the planned 2023 value, which occurred with the 3rd amendment.

Sub-measure	Priority focus area (agriculture, forestry)	Output indicator	Realised 2014-2015	Uptake (%)	Realised 2014-2016	Uptake (%)	Realised 2014-2017	Uptake (%)	Realised 2014-2018	Uptake (%)	Realised 2014-2019	Uptake (%)	Planned 2023*
M02	4 (ag)	Total public expenditure			76967.42	2.7%	258307.40	9.2%	443185.45	15.0%	587945.90	19.9%	280000.00 -> 296000.00
M02.1	4 (ag)	Number of beneficiaries who received advice	0.00	0.0%	116.00	6.1%	342.00	18.0%	578.00	385.3%	777.00	518.0%	1900.00 -> 150.00
M04	4 (ag & for)	Total public expenditure	14756167.91	12.1%	28919305.79	23.8%	45555412.35	37.4%	67413935.01	53.1%	89868112.76	70.8%	121650000 -> 562508868
M04	4 (ag & for)	Total investments	374005.70	0.2%	1700477.76	0.9%			87855042.87	44.6%	116298885.66	59.0%	197000000.00
M04.4	4	Number of supported projects	4488.00	12.6%	9078.00	25.5%	14049.00	39.5%	19939.00	56.1%	26003.00	73.1%	35550.00
M07	4	Total public expenditure	3691916.75	3.1%	14395706.00	12.1%	30682326.50	25.7%	45394763.47	48.5%	65057561.11	69.5%	119200000.00 -> 93540000
M07.1	4	Number of supported projects for the preparation of plans for the development of villages or for the	0.00	0.0%	0.00	0.0%	2.00	28.6%	3.0%	42.86	4.0%	57.1%	7.00

⁶⁷ Information from the MEPL III document (updated 2020) https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_III_gesamt/_2020-02-19-MEPL_III_nach_4.AeA.pdf

Sub-measure	Priority focus area (agriculture, forestry)	Output indicator	Realised 2014-2015	Uptake (%)	Realised 2014-2016	Uptake (%)	Realised 2014-2017	Uptake (%)	Realised 2014-2018	Uptake (%)	Realised 2014-2019	Uptake (%)	Planned 2023*
		management of Natura 2000 areas/HNV areas											
M08	4 (for)	Total public expenditure	0.00	0.0%	2370865.19	13.3%	4976026.55	27.9%	10550571.10	59.1%	13751382.63	77.0%	17850000
M08.5	4 (for)	Public expenditure	0.00	0.0%	2352047.45	14.3%	4817943.67	29.6%	10241550.37	63.0%	13367946.59	82.3%	16450000 -> 16250000
M08.5	4 (for)	Number of supported measures/projects	0.00	0.0%	54.00	7.7%	110.00	15.7%	149.00	21.3%	185.00	26.4%	700
M08.5	4 (for)	Total area (ha)	0.00	0.0%	8177.29	16.3%	20802.23	41.6%	64119.00	128.2%	85036.27	170.1%	50000
M08.6	4 (for)	Total public expenditure	0.00	0.0%	18817.74	1.3%	158082.88	9.9%	309020.73	19.31	383436.04	24.0%	1400000 -> 1600000
M10	4	Total public expenditure	48419946.24	10.9%	112345898.93	25.3%	188772373.98	42.5%	264078263.56	54.6%	342413565.75	70.9%	444481595 -> 483233867
M10.1	4	Total area (ha)	193127.70	64.1%	337602.68	111.9%	388662.73	128.9%	399772.40	86.5%	415751.48	90.0%	301537.00 -> 461934
M11	4	Total public expenditure	44257095.28	26.9%	71575144.86	43.7%	102710732.06	62.5%	138413130.04	77.4%	176663925.81	98.7%	164255000 -> 178917832.73
M11.1	4	Total area (ha)			5977.47	91.2%	13825.36	210.9%	23072.82	95.7%	23001.07	95.4%	6554.00 -> 24100
M11.2	4	Total area (ha)	128202.67	143.7%	96791.52	108.5%	98700.99	110.6%	103981.55	93.2%	113928.59	102.2%	89208.00 -> 111520
M12	4 (for)	Total public expenditure	361723.47	8.6%	361723.47	8.6%	1424283.36	33.9%	1780804.95	42.4%	1819274.34	43.3%	4200000
M12.2	4	Total area (ha)	53.00	0.7%	0.00	0.0%	21258.53	265.7%	7131.89	89.1%	769.38	9.6%	8000

Sub-measure	Priority focus area (agriculture, forestry)	Output indicator	Realised 2014-2015	Uptake (%)	Realised 2014-2016	Uptake (%)	Realised 2014-2017	Uptake (%)	Realised 2014-2018	Uptake (%)	Realised 2014-2019	Uptake (%)	Planned 2023*
M13	4	Total public expenditure	56018766.12	24.3%	79855676.66	34.7%	115562784.31	50.2%	145641270.20	63.3%	175766316.21	76.4%	230099654
M13.1	4	Total area (ha)	87721.85	88.6%	88048.03	88.9%	112888.10	114.0%	104404.76	105.5%	99688.24	100.7%	99000
M13.2	4	Total area (ha)	258437.41	80.0%	232685.34	72.0%	386402.62	119.6%	309174.33	72.4%	385934.93	90.4%	323000 -> 427000
M13.3	4	Total area (ha)	9013.04	64.4%	4761.12	34.0%	17998.53	128.6%					14000
M16	4 (ag & for)	Total public expenditure			0.00	0.0%	67489.02	2.4%	203558.76	7.27	284334.94	10.2%	2800000

The Priority 4 results indicators relevant to the Baden-Württemberg RDP are shown in Table 4.3.

Table 4.3: Priority 4 result indicators – target, achievement, absorption

Based on AIR 2019⁶⁸

Focus area	Indicator	Name	Target value (2023)	Achievement as of December 2019	absorption (%)
4A	R6/T8	percentage of forest/other wooded areas under management contracts supporting biodiversity	0.58%	0.05%	8.56%
4A	R7/T9	percentage of agricultural land under management contracts supporting biodiversity and/or landscapes	8.52%	17.8%	208.97%
4B	R8/T10	percentage of agricultural land under management contracts improving water management	4.10%	10.82%	263.95%
4C	R10/T12	percentage of agricultural land under management contracts to improve soil management and/or prevent soil erosion	6.79%	9.69%	142.67%

Progress on the targets is discussed in the section on monitoring below.

Key changes in targets in the third amendment (2017) were:

- Advisory services (M02): Increase in public expenditure target (+6%), but a decrease in the number of beneficiaries target (-92%). No explanation of this change is provided.
- Investments in physical assets (M4): High demand, especially for M4.4.1 meant that the public expenditure indicator was raised. 74% of the funds for M4.4.1 had already been earmarked by the end of 2018 at €72,725,347. A good 83 % of the total budget for M4.4.1 results from additional national funds (Land). For the investments for nature conservation and landscape management (M4.4.3), this share is a good 46 %.
- Basic services and village renewal in rural areas (M7): Increase in public expenditure target corresponding to new allocation of regional funding (see below).
- Agri-environment climate measures (M10): The area-based targets for FAKT measures were adjusted (for nine sub measures decreased and for eleven sub measures increased). Especially the large increase in the target area for protected biotopes (M10.1.26) and crop diversification (M10.1.7) should be noted.

⁶⁸ Annual Implementation Report (2019). Available at: <https://foerderung.landwirtschaft-bw.de/pb/Lde/Startseite/Agrarpolitik/Begleitung+und+Bewertung>

- Organic farming (M11): Due to the high demand, funding and area targets have been increased and it has been foreseen that the available funds will not be sufficient to cover demand.

The biodiversity-relevant indicators specified under priority 4 are also relevant under priority 5E and may reflect biodiversity action, however the most recent evaluation report⁶⁹ does not attribute progress in biodiversity conservation to measures programmed under priority 5E. Nevertheless, from the indicators alone, biodiversity-relevant progress cannot be isolated, therefore the commentary in the sections below explores to what extent these measures have impacted biodiversity.

⁶⁹ Institut für Ländliche Strukturforschung, Forschungsgruppe Agrar- und Regionalentwicklung Triesdorf (2019): Bewertung des Maßnahmen- und Entwicklungsplans Ländlicher Raum Baden-Württemberg 2014 – 2020 (MEPL III). Bewertungsbericht 2019; Frankfurt am Main, Weidenbach-Triesdorf. https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepl_extern/MEPL_Monitoring/Evaluierung%202019/Bewertungsbericht_2019_MEPL%20III.pdf?attachment=true

Table4.4: Output indicators for priority focus area 5E measures and submeasures: uptake, realised, planned

Based on AIR 2019⁷⁰

Sub-measure	Priority Focus Area	Output indicator	Realised 2014-2015	Uptake (%)	Realised 2014-2016	Uptake (%)	Realised 2014-2017	Uptake (%)	Realised 2014-2018	Uptake (%)	Realised 2014-2019	Uptake (%)	Planned 2023*
M04	5E	Total public expenditure	0.00	0.00	53371.33	0.95	378405.41	6.76	805004.42	14.38	1616315.95	28.86	5600000.00
M04	5E	Total investments	0.00	0.00	81498.42	1.02			1744991.98	21.81	3555616.14	44.45	8000000.00
M08	5E (for)	Total public expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	350000.00
M08.4	5E (for)	Total public expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	350000.00
M10	5E	Total public expenditure	16459820.62	18.43	25288328.40	28.32	34203741.23	38.30	43240924.87	54.55	52236904.08	65.89	89301469.09 -> 79275000.00

⁷⁰ Annual Implementation Report (2019). Available at: <https://foerderung.landwirtschaft-bw.de/pb/,Lde/Startseite/Agrarpolitik/Beleitung+und+Bewertung>

M10.1	5E	Total area (ha)	125887.74	148.02	61511.71	72.33	61969.42	72.86	62448.09	82.71	62292.55	82.51	85048.00 -> 75500.00
M16	5E (for)	Total public expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	875000.00

4.3 Funding allocated to biodiversity-tracked measures

4.3.1 Allocations

An overview of EAFRD funding that the EU has tracked as biodiversity expenditure in Baden-Württemberg is provided in Table 4.5. These are allocations for the entire 2014-2020 period (not annual allocations programmed for individual years) with the application of the following markers:

- EAFRD funding programmed to Priority 4 (except under M13): 100%
- EAFRD funding programmed to Focus Area 5E (except under M13): 40%
- EAFRD funding programmed to M13: 0%

Table 4.5: Biodiversity tracked EU EAFRD allocations in Baden-Württemberg

Source: Open Cohesion Data Portal

Measure	Priority	Biodiversity tracked funding (EAFRD) as programmed in 2015 (EU only)	Biodiversity tracked funding (EAFRD) as programmed in 2020 (EU only)	Difference in EUR	Difference in %
M02 Advisory services, farm management and relief services		1,400,000	1,400,000	0	0
	P4	1,400,000	1,400,000	0	0
M04 Investments in physical assets		17,415,000	17,415,000	0	0
	P4	16,575,000	16,575,000	0	0
	FA5E	840,000	840,000	0	0
M07 Basic services and village renewal in rural areas		24,150,000	14,400,000	-9,750,000	-40.37
	P4	24,150,000	14,400,000	-9,750,000	-40.37
M08 Investments in forest area development and improvement of the viability of forests		8,470,000	8,470,000	0	0
	P4	8,400,000	8,400,000	0	0
	FA5E	70,000	70,000	0	0
M10 Agri-environment climate		198,489,298.2	201,115,101.4	2,625,803	1.32
	P4	178,842,975	187,124,251	8,281,276	4.63
	FA5E	19,646,323	13,990,850	-5,655,473	-28.79
		90,340,250	122,822,656	32,482,406	35.96

M11 Organic farming	P4	90,340,250	122,822,656	32,482,406	35.96
M12 Natura 2000 and Water Framework Directive payments		1,400,000	1,400,000	0	0
	P4	1,400,000	1,400,000	0	0
M16 Cooperation		1,540,000	1,540,000	0	0
	P4	1,400,000	1,400,000	0	0
	FA5E	140,000	140,000	0	0
Total		343,204,548.20	368,562,757.40	25,358,209	7.39

Key findings:

There was a significant (-40%) decrease in the EAFRD allocation to M07. This was because of a shift in EAFRD funding to other measures. The 'Special Programme for strengthening biodiversity' Baden Württemberg, adopted in 2017, allocated 36 million Euro to biodiversity measures to be implemented between 2018-2019 (both on areas that are eligible and illegible for CAP funding). This extra funding increased the budget programmed to M7 without EU co-funding. However, it was not possible from the published documents to split up the M7 funding into the share co-funded by EAFRD and the proportion that is funded only by Baden-Württemberg (under the LCR regulation). This makes it difficult to compare the RDP reporting with the results of the EU tracking. There was an increase in the available state funding during the RDP period, so it is possible that EU funding was re-allocated away from M7 to another measure because additional regional funding sources were made available for the M7 sub-measures.

Generally, the uptake of organic farming (M11) has been very high, leading to a transfer of 32 million EUR of EAFRD funds from other measures to organic farming.

With the third amendment request, the targets for agri-environment measures (M10) were adjusted (increased) to reflect the high demand, which exceeded expectations. The planned public expenditure was increased by 28.7 million EUR and half of this was already spent by the end of 2018.

4.3.2 Expenditure in practice

Baden-Württemberg is the German region that has given the highest financial weight to P4, reaching more than 65% of the total expenditure in Baden-Württemberg.⁷¹

An overview of programmed and actual biodiversity spending in Baden Württemberg is provided in Table 4.6, according to the cohesion data portal. Programmed allocations are for the entire 2014-2020 period (and not for individual years), while actual spending represents cumulative values, i.e., all expenditure made until the end of each year hence they should not be aggregated.

⁷¹ Umsetzung der ELER-Förderperiode 2014 bis 2020 für ländliche Räume in Deutschland.
<https://www.bmel.de/DE/themen/laendliche-regionen/foerderung-des-laendlichen-raumes/eu-foerderung/eler-2014-2020-umsetzung.html> Accessed online 15/02/2021.

Table4.6: Programmed and actual biodiversity spending (EAFRD) per measure (under priority 4 and focus are 5E) – EU contribution only

Source: Cohesion Data Portal

	2014		2015		2016		2017		2018		2019		2020		Comments
	Programmed	Spent	Programmed	Spent	Programmed	Spent	Programmed	Spent	Programmed	Spent	Programmed	Spent	Programmed	Spent	
M 02	1,400,000	0	1,400,000	0	1,400,000	38,483.7	1,400,000	82,330.24	1,400,000	132,054.8	1,400,000	193,691.5	1,400,000	254,840.7	Actual spending remained below the programmed amount but there has been a steady yearly increase in the amount spent between 2016-2020.
M 04	17,415,000	0	17,415,000	0	17,415,000	327,649.5	17,415,000	6,482,409.6	17,415,000	5,557,801	17,415,000	4,192,234.3	17,415,000	2,506,384.9	For priority 4 actual spending has increased between 2016-2019 and then remained the same from 2019-2020. Nevertheless, overall actual spending has remained significantly below what was programmed. For priority 5E actual spending also remained below the programmed amount, however, from 2017-2020 there was a slight yearly increase in actual expenditure.

M 07	24,150,000	0	24,150,000	0	24,150,000	1,997,585.8	24,150,000	5,103,879.5	14,400,000	8,752,377	14,400,000	9,420,690.4	14,400,000	10,165,631.2	Actual spending increased yearly from 2016 onwards.
M 08	8,470,000	0	8,470,000	0	8,470,000	319,900.2	8,470,000	3,019,059	8,470,000	5,253,350.82	8,470,000	6,844,088.9	8,470,000	7,409,708.5	For priority 4 there was a significant increase in actual spending from 2016 to 2017 (difference of 2699158.84 EUR). Thereafter, spending continued to increase but at a slower rate. Nothing was spent under priority 5E, although 70,000 EUR was programmed.
M 10	198,489,298.2	0	198,489,298.2	516,478,115.4	198,489,298.2	500,190,563.8	198,489,298.2	462,426,619.7	220,358,475	393,744,867.7	220,358,475	302,895,389.6	201,115,101.4	195,105,072.9	Under priority 4, actual spending increased yearly, with the largest increase occurring between 2016 and 2017. For priority 5E actual spending also increased yearly.
M 11	90,340,250	0	90,340,250	24,332,729.4	90,340,250	39,431,132.3	90,340,250	56,301,983.1	98,404,808	75,704,548.9	98,404,808	96,519,297.5	122,822,656	117,996,450.7	Actual spending has been increasing over the programming period until 2020 where actual spending is close to

																the programmed amount of 122822656 EUR.
M 12	1,400,000	0	1,400,000	180,857.42	1,400,000	180,857.4	1,400,000	362,087.6	1,400,000	362,272.3	1,400,000	362,272.3	1,400,000	362,272.3		The actual spending remained the same for 2015 and 2016 (differing only very slightly), although the actual spent quantity remained below the programmed amount. Thereafter, the amount spent stabilized at around 362272 EUR, remaining significantly below the programmed amount of 1400000 EUR.
M 16	1,540,000	0	1,540,000	0	1,540,000	3,209.9	1,540,000	53,661.7	1,540,000	115,619.4	1,540,000	178,175.7	1,540,000	254,693.2		For priority 4 actual spending remained below the programmed amount and the total eligible cost quantity for all years. Actual spending increased each year (ranging from 50451.81 EUR increase between 2016 and 2017 to 76517.58 EUR increase between 2019 and 2020). There was no spending under

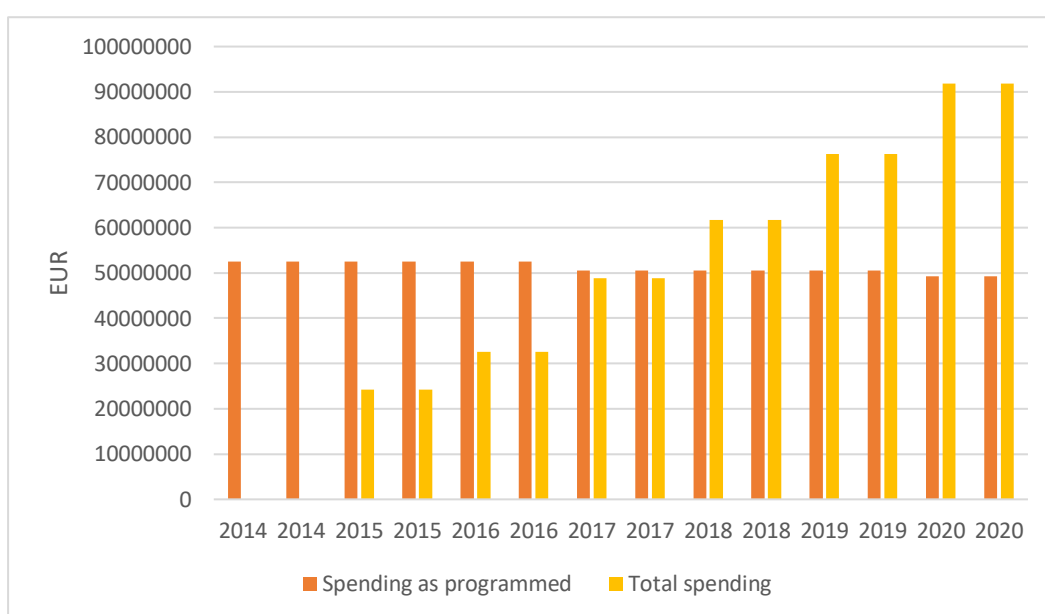
																priority	5E,
																although	350000
																EUR	was
																programmed under	
																this measure.	

Key differences between allocations and spending relevant to biodiversity:

Of the measures programmed by Baden-Württemberg to priority 4A, by the end of 2018 a total of 459.2 million EUR was spent. Priority 4A spending was made up of 43% for M10 (agri-environment climate measures), 32% for M13 (payments for areas facing natural constraints), and another 13% solely for M4.4.1 (species and biotope protection).

For M13 (payments for areas with natural constraints), which have been recorded as having primary effect on biodiversity in Baden Württemberg, actual spending has been steadily increasing and exceeded the programmed amount between 2018 and 2020 (Figure 3.1).

Figure 3.1: Programmed and spent amount under measure 13, payments for areas facing natural constraints.



Non-productive measures (M4.4.1 and M4.4.3) are doing well with increased funding cases (and also spending). Overall, the public expenditure indicator for sub-measures, which Baden-Württemberg programmed as relevant for P4A (M4.1.2, M4.2.2, M4.4.1, M4.4.3) has increased, however this does not necessarily show in the EU funding proportion because, as mentioned above, a large proportion of these sub-measures is funded through regional funds (83 % of the total budget for M4.4.1 results from additional national funds (Land); for the investments for nature conservation and landscape management (M4.4.3), this share is around 46 %). For the other measures under M4, which Baden-Württemberg did not programme as having a primary relevance (but which the EU tracking methodology captures as biodiversity relevant) to P4A (M4.2.1, M4.3.1), the uptake has been limited up to 2017/2018 and public expenditure remained significantly below budget. This was partially due to large amounts of multiple funding cases per farmer and lack of information dissemination to new target groups. With increased focus on informing farmers of the options under these sub-measures, uptake has increased since 2018.

Organic farming also received a large share of the funding and has been reallocated a significant part of the budget between 2014 and 2020.

4.3.3 Examples of expenditure

The following text examines the measures and schemes that were identified by Baden-Württemberg as having a primary effect on the achievement of priority 4A (as listed in Table 4.1). The following information is sourced from the most recent evaluation report from 2019⁷² unless stated otherwise.

Advisory services, farm management and relief services (M02)

a) Promotion of advisory services (M2.1.1)

In total 578 cases modules with a focus on biodiversity and extensive grassland use or ecological/integrated plant protection were booked, exceeding the adjusted target of 150. The evaluation report also states that due to the high demand for themes like organic agriculture, horticulture, viticulture and fruit growing, in which the topic of biodiversity is integrated, it can be assumed that the advisory services reach a large quantity and wide range of land users.

Investments in physical assets (M04)

a) Investments in small farms (M4.1.2)

The small farm investments programme is directly focused on supporting smaller producers in areas at risk of abandonment (and focused on grassland). The uptake figures show that investments cover mainly stables for cattle and machinery for steep slopes. Success with the uptake of investments and machinery in free range stables (to transition away from a tethered setup) is likely positive for biodiversity as these suggest that continued management of grassland will take place (either pasture or mowing).⁷³ Nevertheless, the overall impact on biodiversity is limited because it is unclear what effect the preservation of the cultural landscape has on biodiversity.

Over 80% of the approved investments occur on farms with over 50% grassland, 30% are on mountainous areas and 57% are on less-favoured areas, meaning that generally the areas important for conservation are reached. However, ecological priorities are only of limited relevance for these investments and a third of investment cases are reported as having no relevant for ecological conservation.

b) Investments in the processing and marketing of products produced in accordance with nature conservation requirements (M4.2.2)

The effect on biodiversity of these investments is limited due to the regional limitations and low amount of investment cases overall. Few areas of biodiversity-importance are reached. The major relevance for biodiversity is for the preservation of orchards and the associated

⁷² Institut für Ländliche Strukturforschung, Forschungsgruppe Agrar- und Regionalentwicklung Triesdorf (2019): Bewertung des Maßnahmen- und Entwicklungsplans Ländlicher Raum Baden-Württemberg 2014 – 2020 (MEPL III). Bewertungsbericht 2019; Frankfurt am Main, Weidenbach-Triesdorf. https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepi_extern/MEPL_Monitoring/Evaluierung%202019/Bewertungsbericht_2019_MEPL%20III.pdf?attachment=true

⁷³ Institut für Ländliche Strukturforschung, Forschungsgruppe Agrar- und Regionalentwicklung Triesdorf (2019)

habitats at the local level, which can have multiplier effects for orchard owners, while increasing the utilisation of orchards for personal use.

c) Species and biotope protection (M4.4.1) and Investments in nature conservation and landscape management (M4.4.3)

These sub measures aim to complement the agri-environment climate measures (M10). The species and biotope protection (M4.4.1) focuses on non-productive investments for biotope and landscape conservation, while the investments in nature conservation and landscape management (M4.4.3) mainly include the promotion of structural facilities, machinery and equipment.

The most positive effect on biodiversity is from non-productive investments under M4.4.1 focused on species and biotope protection. 74% of the operations (and 80% of the public expenditure) concerned area-based measures (totalling 9.656 ha), 26% of operations (and 20% of expenditure) equipment and other non-area-based measures. For the area-based measures where a biotope type was recorded, the majority were on grassland (70% of this on meadows and pastures, 9% on juniper heath), 10% were for tree lines, field trees and bushes, and 5% were for water protection or other (i.e. maintenance of buffer strips, control of invasive alien species, species protection measures). On grassland, most measures consisted of mowing or grazing to prevent succession. Measures carried out on arable land were mainly to create habitats for bird species. Non-area-based measures were mostly species-specific measures, wood and tree care, suppression of succession, fruit tree care and replanting of fruit trees, mowing and disposal of cuttings, amphibious control systems etc.

59% of the investments for species and biotope protection (68% of the funds) explicitly targeted the Natura 2000 objectives and 62% were focused on biotopes in the national nature conservation regulation and 50% on the areas protected under the EU nature directives (measures focused mostly on the protection of species and the development of habitat types).

Under M4.4.3 (investments for nature protection and landscape maintenance), most funds went towards structural facilities, however this included funding of investments for the support of grazing, mostly by sheep and goats. 68% of the funds were explicitly used for the Natura 2000 objectives and half of the funding cases were linked to areas under the EU nature directives, one third each were linked to areas listed under the national nature conservation regulation and other landscape protection areas.

Basic services and village renewal in rural areas (M07)

The sub measures addressing nature parks are most relevant for biodiversity (and are implemented across the seven nature parks in Baden Württemberg). The measures aim to preserve and promote biodiversity and the uniqueness and beauty of nature parks and to safeguard and develop an attractive recreational landscape. Funding of nature parks consists of M7.1.1 developing and updating nature park plans, M7.5.1 developing recreational value, M7.6.1 developing the natural and cultural heritage of the nature parks and M16.7.1 project coordination for nature parks.

a) Development and updating of plans for nature parks (M7.1.1)

Only one nature park evaluation (out of the seven nature parks) has been completed (for the Südschwarzwald) and the implementation of activities for the restoration and preservation of biodiversity and land use have only just begun. Therefore, information is lacking on the effect of this sub measure.

b) Developing recreational value (M7.5.1)

This measure includes investments in tourism infrastructure, measures for landscape conservation, nature conservation and investments and studies in connection with the creation, development and construction of new visitor guidance systems and the provisioning of visitor information. Of the 195 funded cases/projects, 74 were related to hiking trails and 44 to mountain bike trails. Generally, nature conservation is considered a side benefit from the development of recreational value.

c) Developing natural and cultural heritage (M7.6.1)

This includes support for studies and investments in natural and cultural heritage and awareness-raising activities. Overall, 33 projects have directly contributed to the conservation of natural heritage including activities like biotope maintenance, habitat development and general activities like tree planting and the development of flowering meadows. The evaluation report deems the contribution of this sub measure to the preservation and improvement of biodiversity as very high.

d) Services for nature conservation and landscape management (plans, conceptions, environmental awareness) (M7.6.3) and Projects for the conservation, restoration and improvement of rural landscapes and areas of high nature value (M7.6.4)

These sub measures are funded by the LCR (some co-funding by CAP, the exact split of co-funding with purely state funds was not available). Under M7.6.3 funding is directed towards services supporting the biotope network, landscape management, preservation of rural areas and the cultural landscape, alongside awareness raising activities. The aim of the biotope networking concept is to preserve and promote near natural and landscape typical areas and valuable habitats for animal and plant species. Under M7.6.4 measures are implemented via the LCR in areas with an integrated nature conservation concept (i.e. under the framework of PLENUM or biosphere areas). Funding is also available for projects that help to preserve and develop diverse landscapes at the level of individual districts, which also includes support for the offices of the landscape conservation authorities (so called Landschaftserhaltungsverbände, LEV).

Overall, funding of measures for biotope connectivity and measures in relation to fields and water are seldomly used. A significant proportion of funded schemes address the goals of Natura 2000, although mostly indirectly. Particularly the development of management plans for Natura 2000 has advanced and the funding to support landscape conservation associations beyond the RDP to implement further measures

has been helpful. Under M7.6.3 the LCR funding has been critical to advance the development of management plans for protected areas, going beyond the support from the RDP. Of the 212 SACs and 90 SPAs in Baden Württemberg, management plans have been completed for 200 areas and in a further 8 this is partially the case. 92 management plans are in progress. Overall, 67% of the cases of management planning are completed and LCR funding has been the driving force. Nevertheless, the focus under 7.6.3 is on the conceptualisation and development of the management plans themselves and not on their actual impact on biodiversity. However, the measures enable the requirements for a coordinated implementation of activities for the protection of biodiversity. Furthermore, under 7.6.3 a monitoring framework for species and biotopes measures can be developed to evaluate progress. Additionally, work under 7.6.3 can help to raise awareness amongst society, for example through the communication process when developing management plans.

Under M7.6.3 18% of funded projects related to Natura 2000 management planning, 15% to species protection measures and 7% for monitoring measures. For the projects that were evaluated, over 70% included measures with primary focus on Natura 2000 objectives. Under M7.6.4 most funding is directed into organisational/business costs (44%) and the implementation of measures and investments by a third party in the field of nature conservation, landscape maintenance and national culture (40%). 9% of funding related to investments in agricultural businesses and 7% for conception and advice-related activities. This involves mainly support for equipment to care and manage orchard meadows (mowing, harvesting, tree care) and in some cases investments in sheep or goat husbandry, information, marketing, and public relations support.

Investments in forest area development and improvement of the viability of forests (M08)

a) Nature conservation in forest and improvement of the forests' regeneration function (M8.5.1)

The aim of funding under this sub measure is to strengthen the resilience and ecological value of forest ecosystems by supporting creation, development and expansion of biotopes, species habitats, wetlands and water courses within forests and along their outer edges. Additionally, funding can be directed towards the development of infrastructure to improve the recreational value of forests. Implementation is carried out via the administrative regulation on sustainable forest management of the Ministry of Rural Areas and Consumer Protection. The funding is provided as project funding in the form of grants for corporate and private forest owners via partial financing.

Due to the low demand for its four schemes, this sub measure has played only a small role in biodiversity conservation in forests. The low uptake of the four available schemes is partially due to regional differences in the available biotopes and differing

levels of engagement from the local forestry authorities. Additionally, the funding rates are reported as being too low to be attractive for forest owners and potential participants are nervous about being legally bound in the long-term beyond the funding period, with potential yield limitations.

Agri-environment climate measures, M10

Agri-environment climate measures are implemented via FAKT and Part A of the Landscape Conservation Regulation (LCR). The decline of species in intensively farmed areas occurs mostly due to the loss of intermediate structures in the agricultural landscape, intensive grassland management (i.e. high nitrogen loads), a restricted range of crops, and the intensive use of PPPs and unselective tillage techniques. Particularly for these areas, there is a wide range of agri-environment climate measures that can help to restore and maintain biodiversity (refer to table 4.1 above for the exact sub-measures with primary effect on biodiversity). These measures are especially important to promote crop diversification, flowering areas, orchards and vineyards, avoid herbicide use, use particular mowing techniques and to maintain endangered and regionally important livestock breeds.

Almost all agri-environment climate measures have been reported as having a positive effect on biodiversity. Especially measures that ensure extensive land management have direct benefits for biodiversity. The schemes with targeted effects on biodiversity in grassland (i.e. species-rich grassland and to a lesser extent the no silage option) reached 14.7% (totaling 82,170 ha) of the permanent grassland area. However, only 2% of arable land (15,774 ha) was covered by agri-environment climate measures with specific biodiversity effects, although there has been an improvement in the design of measures and an increase in funding areas over the last few years.

a) LCR nature conservation contracts

The LCR schemes funded nature conservation contracts for the extensification of agricultural land up to complete abandonment of cultivation (sub measures M10.1.1-10.1.6). Nature conservation contracts support targeted measures to preserve and create habitats through the extensification of agricultural land, conversion of arable to grassland, restrictions on the intensity of cultivation, or complete abandonment of cultivation through the support of environmentally friendly forms of cultivation on arable and grassland that are important for nature conservation. The specific aims are discussed with the land users and as the measures are voluntary, land users rely on significant support by the technical authorities or the relevant landscape conservation authorities (so called Landschaftserhaltungsverbände, LEV) to develop tailored measures, conditions, and suggestions. On arable land, measures of contractual nature conservation (M10.1.1-10.1.6) were only carried out on areas that are considered valuable from the nature conservation perspective (i.e. protected areas, Annex I habitats, biotope network areas). The uptake of these arable schemes was low due to the relatively low payment levels, so the overall effect on biodiversity remained limited.

b) FAKT sub measures M10.1.7-10.1.36

Area-based measures under FAKT mostly have an unspecific effect on biodiversity. For example, avoiding herbicide use (M10.1.17 and 10.1.22) can help to enable the development of arable wild herbs, however these schemes only reached 1% of the arable area. Crop diversification (M10.1.7) has been a popular measure and can have a significant positive effect on biodiversity, particularly by increasing landscape heterogeneity. However, the effectiveness of this measure depends on the extent to which farmers have changed their crop rotation and the use intensity and surrounding landscape structure, which are not altered by the measure.

Crop diversification and measures targeting changes in operation/management and application of chemicals were assessed in the evaluation report as only indirectly benefiting biodiversity⁷⁴. This indicates that although the schemes for crop diversification (M10.1.7), prohibition of herbicide and application of *Trichogramma* (M10.1.22-10.1.23), application of beneficial insects and application of pheromones in orchards (M10.1.24-10.1.25) were programmed as having a primary focus on biodiversity, their real impact on biodiversity is likely to be overestimated.

Organic farming (M11)

The area funded by this measure is composed of 60% permanent grassland, 37% arable land and 2.6% permanent crops. Although organic farming is attributed a 100% marker in the current tracking methodology, it is not considered as having a primary effect on biodiversity in Baden-Württemberg. Organic farming has been documented as having indirect/unspecific effects on biodiversity (through reduction of mineral fertilizers and chemical synthetic pesticides, greater variety of crops). This is most relevant on arable land, with positive effects on the arable flora, soil fauna, birds, and insects. Organic farming can also play an important role in reducing pressures on biodiversity by reducing pesticide application. Nevertheless, this measure only reaches 15% of the permanent grassland area, 6% of the arable area and 7% of permanent crop area.

Natura 2000 and Water Framework Directive payments (M12)

a) Conservation of FFH forest habitat types (M12.2.1)

The objective of this sub measure is to compensate farmers for disadvantages resulting from the 'no deterioration' rule in FFH forest habitat types according to the nature conservation act of Baden Württemberg. Funding is provided in the form of fixed amounts per year and per hectare for private forest owners, community forests and forest management associations.

⁷⁴ (table 62 in evaluation report)

The payments have supported the maintenance and restoration of forest within Natura 2000 according to the site restrictions on an area of 7,132 ha. Forest owners were supported mostly in the selection of tree species and for setting aside areas of forest to support biodiversity. The Baden-Württemberg Natura 2000 network contains 266,000 ha of forest, so the measure supported only 2.68% of the forest area in the network. The demand for this scheme is high, however the minimum payment of 150 EUR per year excluded small forest owners who do not have sufficient forest area to reach this minimum amount. The payment is on a flat rate basis, independent of actual measures, which does not incentivise forest owners to actively develop and improve the conservation status of their forest habitat types. Additionally, the funding does not differentiate between the different areas and how affected they are (i.e. whether protection, maintenance or management is required for an optimal effect on biodiversity).

M13-Areas of Natural Constraint

The objective under this measure is to ensure the permanent use of agricultural land in less favoured areas and to thus contribute to the preservation of the landscape and the promotion of sustainable management measures. Support for compensatory allowance relevant for biodiversity is that granted to mountain areas and less favoured agricultural zones.

In mountain areas, the total possible funding area of around 99,000 ha has been fully covered in the funding period. 88% of this area is grassland. Analysis of the HNV indicator shows that around 50% of the agricultural landscapes in mountainous areas have high nature value (HNV), demonstrating the importance of M13 for nature conservation. Furthermore, although M13 sub measures may not necessarily contain requirements for biodiversity conservation, the evaluation report shows that a large proportion of FAKT measures with relevance for protection and improvement of biodiversity, are implemented on the ANC in mountain regions (specifically M10.1.12, M10.1.26 and M10.1.27). These FAKT measures cover more farms in ANC compared to farms outside of ANC. This is not surprising as the HNV indicator shows that ecologically valuable areas with species-rich grassland in mountain areas are more represented compared to those not in ANC.

Although the ANC measure is not counted as biodiversity expenditure according to the EU tracking methodology, Baden-Württemberg has classed this measure as having a primary effect on biodiversity as the measure covers a significant amount of HNV grassland. The Area of Natural Constraints payment (M13) acts as a kind of basic income support that contributes to maintaining land management, particularly the biodiversity and cultural heritage associated with grassland (especially in mountainous regions), and thus also makes an indirect contribution to biodiversity conservation.

4.4 Information from programme monitoring

The output and results indicators described in section 2 showed that the target related to priority area 4A on agricultural land was rapidly achieved between 2014-2016 and exceeded thereafter. However, for forests there was no progress until 2017 and the target was only just reached, without significant increase since then.

The progress on the area of agricultural land under contracts for biodiversity was mainly due to the demand for the FAKT schemes on arable land. There was a low demand for the more demanding and targeted contractual nature conservation sub-measures on arable land (as explained above this is likely due to relatively low payment levels). The area of grassland covered by FAKT agri-environment contracts has not increased significantly and the area covered by contracts targeted at species-rich grassland decreased compared to the previous RDP period.

Baden Württemberg considers area payments (in the case of agri-environment climate measures and organic farming, for voluntary environmental services and to compensate for areas facing natural constraints) to be a central element for biodiversity conservation⁷⁵. Furthermore, contractual nature conservation has been important to promote targeted measures to preserve, improve and create habitats through extensive land management and the abandonment of cultivation. FAKT measures, offered on an area-basis or targeted to defined areas, have also been highlighted as key for biodiversity conservation mainly through⁷⁶:

- Adapting the management of valuable grassland
- Creating or upgrading fallow land for the benefit of biodiversity
- Extensification of grassland areas and in arable farming
- Crop diversification
- Reduction of pesticide use
- Support to traditional cultural landscapes e.g. orchards and vineyards

4.5 Summary of findings

Baden-Württemberg places a strong focus on biodiversity conservation under the EAFRD. A large number of measures and schemes programmed under priority 4 have a primary and secondary focus on biodiversity and nature conservation issues, making

⁷⁵ Institut für Ländliche Strukturforschung, Forschungsgruppe Agrar- und Regionalentwicklung Triesdorf (2019): Bewertung des Maßnahmen- und Entwicklungsplans Ländlicher Raum Baden-Württemberg 2014 – 2020 (MEPL III). Bewertungsbericht 2019; Frankfurt am Main, Weidenbach-Triesdorf. https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepi_extern/MEPL_Monitoring/Evaluierung%202019/Bewertungsbericht_2019_MEPL%20III.pdf?attachment=true

⁷⁶ Annual Implementation Report (2018) - Rural Development Programme (Regional) - Baden-Württemberg https://foerderung.landwirtschaft-bw.de/pb/site/pbs-bw-new/get/documents/MLR.LEL/PB5Documents/mlr/MEPL/mepi_extern/MEPL_Monitoring/2018/_J%C3%A4hrlicher%20Durchf%C3%BChrungsbericht%202018.pdf?attachment=true

Baden-Württemberg the German region with the highest financial weight given to priority 4 (reaching more than 65% of the total expenditure). Nature conservation and biodiversity were an important consideration in the planning and implementation of measures under the EAFRD, facilitated by the additional national and regional funding allocated to particular measures under the LCR framework.

Nevertheless, the non-productive investments under measures 4 and 7 and contractual nature conservation under the agri-environment climate measure seem to have positive effects on biodiversity. Unproductive investments in species-specific action and biotope protection have the most direct effect on biodiversity, being especially relevant on grassland areas, however some options, like funding for biotope connectivity are seldomly used. Furthermore, support under M4 and M7 for developing management plans of Natura 2000 areas has been recorded as a significant contribution towards biodiversity conservation, however in reality, the funding does not guarantee actual implementation and therefore benefits for biodiversity.

Contractual nature conservation under agri-environment climate measures can have positive effects on biodiversity, however more funding was allocated towards measures with indirect effects on biodiversity (e.g. through reducing pesticide use). Although the agricultural area covered by contracts with a primary contribution to the support of biodiversity has exceeded the targets set in the RDP, in reality the measures have varying degrees of effectiveness in terms of biodiversity support and especially on arable land agri-environment climate measures with specific biodiversity effects only cover a very small area.

For forests, although funding under M8.5.1 and M12.2.1 has been recorded as having a primary effect on biodiversity, in reality, due to limited uptake and problems for foresters in accessing the funds (due to not reaching the minimum required forest area), the actual effects have been limited.

It was not possible from the published documents to split up the funding allocations in some of the key biodiversity targeted measures into the share co-funded by EAFRD and the proportion funded only by Baden-Württemberg under the LCR regulation. This makes it difficult to compare the results reported in the RDP annual reports with the results of the EU tracking.

With organic farming, although the EU tracking methodology attributes this measure with 100% marker, Baden-Württemberg considers the impact of this measures to be of only a secondary/indirect nature for biodiversity. Contrastingly, although M13 is not attributed as biodiversity relevant under the EU tracking methodology, in Baden-Württemberg, it is considered as having a primary effect on biodiversity. In reality however, the impact seems to be of an indirect nature, contributing to maintaining land management practices important for maintaining grasslands in mountain areas.

Overall, there seems to be an overestimation of the biodiversity value of specific measures.

Measures do have a positive impact on biodiversity at the farm-level but less so at the local and regional levels. The EU level tracking methodology seems to over-estimate the biodiversity contribution as it does not capture the significant differences in biodiversity impact of specific sub-measures and actions, for example in Baden-Württemberg under M4, M7 and M10. For this a more fine-grained approach would be needed.

5. CASE STUDY: ERDF AND SOCIAL FUND IN GREECE – OPERATIONAL PROGRAMME CRETE (2014GR16M2OP011)

Researcher: Foivos Petsinaris, Trinomics

5.1 Background to case study

The Crete – ERDF/ESF programme has been selected because a higher share of its budget is allocated to biodiversity-related measures compared to the other ERDF programmes in Greece. In addition, Crete is a biodiversity hotspot in terms of number of species and diversity of habitats found on the island, and therefore, there are ample opportunities for biodiversity action.

The Managing Authority of the Operational Programme (OP) of Crete 2014-2020 is the administrative body of the Region of Crete responsible for the management, monitoring, and control of the actions that receive funding under the programme. There are also intermediate public bodies to which the Managing Authority has delegated the management of certain actions of the OP. These are:

- the Municipal authorities of Chania and Heraklion
- the Managing Authority of the OP for “Competitiveness, Entrepreneurialism, and Innovation”
- four Organisations for Local Action
- the Intermediate Body of the Operational Programmes for Competitiveness and Entrepreneurialism (ΕΦΕΠΑΕ)

The Monitoring Committee of the OP Crete 2014-2020 includes representatives of public authorities, ministries, the Association of Greek Regions, civil society and NGOs, and intermediate bodies that manage OP actions.

The process of developing the OP was initiated by the Region of Crete who established the Programme Development Group in 2012. The Group developed the first Development Plan and submitted it to the Ministry of Development to be used in national development planning. For the development of the first plan, the Region of Crete conducted a series of consultation activities, including written notification of economic and social stakeholders, meetings with economic actors, two online surveys, and a workshop with more than 400 participants. A wide range of stakeholders, including individual citizens, participated in these consultation activities; however, there is no reference as to who these stakeholders were, and thus it is not possible to determine whether any of them had a biodiversity focus.

The Crete ERDF/ESF programme addresses all 11 thematic objectives of EU Cohesion Policy; however, it further specifies them and narrows their scope. Based on these objectives, the programme provides support under 7 priority axes, namely:

- a) Priority Axis 1 "Reinforcement of competitiveness, innovation and entrepreneurship in Crete" (ERDF)
- b) Priority Axis 2 "Sustainable development with environmental upgrade and climate change adaptations" (ERDF)
- c) Priority Axis 3 "Reinforcement of education and social cohesion in Crete" (ERDF)
- d) Priority Axis 4 "Promotion of employment and worker's adaptation to changes (ESF)
- e) Priority Axis 5 "Promotion of social inclusion and combating poverty in Crete" (ESF)
- f) Priority Axis 6 "Technical assistance ERDF"
- g) Priority Axis 7 "Technical assistance ESF"

In terms of its biodiversity policy, Greece is implementing the EU Biodiversity Strategy to 2020 and has ratified and is implementing CBD's Strategic Plan for Biodiversity 2011-2020. In addition, Greece has adopted a National Strategy for Biodiversity 2014-2029, which represents the primary biodiversity-related policy instrument in the country and is operationalised by accompanying consecutive 5-year Action Plans. The priorities of the Strategy are expressed in its 13 targets. The vision of the Strategy is that by 2050 the biodiversity of Greece and the ecosystem services are recognised for their national importance, they are evaluated to be rationally managed and effectively protected and restored, and all destructive changes caused by biodiversity loss are prevented.

5.2 Programme priorities

The Partnership Agreement with Greece 2014-2020 is the fundamental document that sets the scene for the programming interventions in Greece and links them to the Europe 2020 growth strategy. Using this as a reference, regions in Greece developed their own programmes according to the main development needs that the regions wanted to cover.

The Crete – ERDF/ESF programme was approved by the Commission in 2014⁷⁷ and constitutes the main reference document for the programming interventions from the ERDF and ESF that are implemented in Crete. The programme has been amended four times. The relevant documents that have been consulted are:

⁷⁷ Decision C(2014) 10175 final/18.12.2014

- The Partnership Agreement with Greece 2014-2020⁷⁸;
- The Crete – ERDF/ESF programme⁷⁹;
- The Evaluation of the programme Part A⁸⁰ and Part B⁸¹;
- The Strategic Environmental Assessment of the programme⁸²
- The 1st amendment of the programme⁸³;
- The 2nd amendment of the programme⁸⁴;
- The 3rd amendment of the programme⁸⁵;
- The 4th amendment of the programme⁸⁶;

5.2.1 Biodiversity priorities identified

Biodiversity protection is mentioned in Greece’s Partnership Agreement (PA) for 2014-2020 and in the Crete – ERDF/ESF programme. The PA refers to biodiversity protection under Thematic Objective (TO) 5 (pg. 17) “Promoting climate change adaptation, risk prevention and management” and TO 6 (pg. 19) “Preserving and protecting the environment and promoting resource efficiency”. More specifically, in terms of TO 5, the PA mentions the importance of minimizing the adverse effects of climate change mitigation on biodiversity protection, while under TO 6, it highlights the implementation of the Action Plan of the national Biodiversity Strategy 2014-2029, including targeted agri-environment measures and investments in the Natura 2000 network. The main biodiversity-related results of TO 6, as presented in the PA (pg. 91), were expected to be the finalisation of the Natura 2000 network, including marine sites, and their rational management; the protection, maintenance, and restoration of biodiversity and ecosystems; and restoration of the ecosystems that depend on agriculture. In addition, the same objective underlines biodiversity protection concerns within economic sectors, especially within tourism. Apart from the thematic objectives, the PA lists the main funding priorities that, among others, include the “protection of the environment – transition to an environment-friendly economy”, which reiterates the need to consider biodiversity protection when implementing climate change mitigation actions. The Agreement also presents the national Strategy for Research, Technological Development, and Innovation 2014-2020, which also aims to contribute to biodiversity and ecosystem service research, but only as part of the support provided to the agri-food sector.

⁷⁸ https://ec.europa.eu/info/publications/partnership-agreement-greece-2014-20_en

⁷⁹ https://www.espa.gr/el/Documents/Kriti_2014GR16M2OP011_1_4_el.pdf

⁸⁰ http://www.pepkritis.gr/wp-content/uploads/2016/03/ex_ante1.pdf

⁸¹ http://www.pepkritis.gr/wp-content/uploads/2016/03/ex_ante2.pdf

⁸² https://www.pepkritis.gr/wp-content/uploads/2015/06/smpe_epikairopoiomenh_mh_texnikh_perilhpsh_V.5.pdf

⁸³ http://www.pepkritis.gr/wp-content/uploads/2018/02/Programme_2014GR16M2OP011_2_2_el.pdf

⁸⁴ http://www.pepkritis.gr/wp-content/uploads/2018/12/Programme_2014GR16M2OP011_3_2_el.pdf

⁸⁵ http://www.pepkritis.gr/wp-content/uploads/2020/05/1_Programme_2014GR16M2OP011_4_1_el.pdf

⁸⁶ http://www.pepkritis.gr/wp-content/uploads/2020/08/Programme_2014GR16M2OP011_5_0_el-1.pdf

The Crete – ERDF/ESF programme closely follows the PA and refers to biodiversity also under TO 5 (pg. 9) and TO 6 (pg. 10). Again, under TO 5 biodiversity is mentioned in the context of climate change mitigation and under TO 6 in relation to the protection of ecosystems and the environment. The relevant results to be achieved are the formulation of climate change adaptation interventions in biodiversity-rich Natura 2000 areas (TO 5) and the protection and effective management of marine and terrestrial ecosystems according to the objectives of the Greek National Prioritised Action Framework for Natura 2000 (PAF) (TO 6).

Under TO5 Investment Priority 5b was adopted, which aims at “Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems”. The target to be achieved by 5b is Target 8 “Mitigation of impact of natural and technological disasters on the natural and build environment”. Under TO 6, Investment Priorities 6a – 6e were adopted, with only 6d “Protection and restoration of biodiversity, and promotion of ecosystem services through NATURA 2000 network and green infrastructures” directly mentioning biodiversity. As specified in the programme, 6d will focus on the implementation of the objectives of the PAF. Priority 6d aims to achieve two targets (pg. 46), Target 13 “Increase the degree of implementation of the framework for the management of habitats” and Target 14 “Increase the degree of specialisation of the spatial planning at a local level”. From the rest of the TO 6 Investment Priorities, only 6b “investing in the water sector to meet the requirements of the Union's environmental acquis and to address needs, identified by the Member States, for investment that goes beyond those requirements” is indirectly relevant to biodiversity. Priority 6b should achieve Target 10 “Improve the quality of water in Crete’s coastal areas and protect the water table” and Target 11 “Improve resource efficiency of water resources and ensure good quality of drinking water for all citizens of Crete”, both with a focus on water supply for human use rather than water quality in the wider environment.

5.2.2 Output and outcome measurements relevant to biodiversity

The tables below present the output indicators of the Investment Priorities and the outcome indicators that accompany the targets adopted under each Investment Priority as well as their level before the start of the programme and the value that they aim to reach by 2023.

Table 5.1: Summary of output indicators per Investment Priority

Thematic Objective	Investment Priority	Output indicators	Target value in 2023
5	5b	T3003 – Population equivalent benefited by risk prevention and management measures.	623.000 population equivalent
6	6b	CO18 – Water supply: Additional population served by improved water supply services	30.000 people
		CO19 – Wastewater treatment: Additional population served by improved wastewater treatment services	75.000 people
		02109 – Water supply master plans	6 plans
		SO002 – Interventions for the implementation of basin management plans	7 interventions
	6d	CO023 – Nature and biodiversity: Surface of habitats receiving support for improving their conservation status	126.000 hectares

Table5.2: Summary of outcome indicators per Target

Thematic Objective	Investment Priority	Target	Outcome indicators	Baseline	Target value in 2023
5	5b	Target 8 – Mitigation of impact of natural and technological disasters on the natural and build environment	T3108 – Percentage of areas covered by nature and urban protection measures to the total area of the region.	79% (in 2014)	90%
6	6b	Target 10 – Improve the quality of water in Crete’s coastal areas and protect the water table	T3110 – Percentage of population covered by networks and facilities of sewage treatment at a region level	80,9% (in 2014)	90%
		Target 11 – Improve resource efficiency of water resources and ensure good quality of drinking water for all citizens of Crete	T3111 – Daily available quantity of drinking water from water resource management projects, supply of drinking water	191.095 m ³ /day (in 2014)	211.780 m ³ /day
	6d	Target 13 – Increase the degree of implementation of the framework for the management of habitats	T3113 – Percentage of total habitat surface under conservation to the total surface area of the region	34% (in 2013)	54%
		Target 14 – Increase the degree of specialisation of the spatial planning at a local level	T3114 – Percentage of surface area under duly constituted spatial planning to the total surface area of the region	60% (in 2013)	90%

5.3 Funding allocated to biodiversity-tracked measures

5.3.1 Allocations

Table 5.3: Allocations to biodiversity related actions from 2014 to 2020 through the Crete ERDF/ESF programme

Source: Data are extracted from the Cohesion Data Portal: ESIF 2014-2020 categorisation ERDF-ESF-CF planned vs implemented⁸⁷

Planned = planned EU funds for biodiversity, Actual spending = EU funding only

Intervention field	2016			2017			2018			2019			2020		
	Planned biodiversity spending	Actual biodiversity spending	%	Planned biodiversity spending	Actual biodiversity spending	%	Planned biodiversity spending	Actual biodiversity spending	%	Planned biodiversity spending	Actual biodiversity spending	%	Planned biodiversity spending	Actual biodiversity spending	%
22	20266826,8	2810528,56	13.8%	20266826,8	4050701,94	20%	21866826,8	7085497,85	32.4%	21866826,8	9304194,18	42.5%	18826826,8	10667741,53	56.7%
85	4000000	-	-	4000000	0	0.0%	5600000	0	0%	5600000	0	0%	1440000	563804,07	39.1%
86	4000000	-	-	4000000	-	-	-	-	-	-	-	-	-	-	-
87	6033532,4	119673,6	2%	6033532,4	280232,53	4,6%	4113532,4	452644,08	11%	4113532,4	642194,93	15.6%	2385532,4	748155,7	31.4%
	34300359,2	2930202,16	8.5%	34300359,2	4330934,47	12.6%	31580359,2	7538141,93	23.9%	31580359,2	9946389,11	31.5%	22652359,2	11979701,3	52.9%

⁸⁷ <https://cohesiondata.ec.europa.eu/2014-2020-Categorisation/ESIF-2014-2020-categorisation-ERDF-ESF-CF-planned-/3kkx-ekfq>

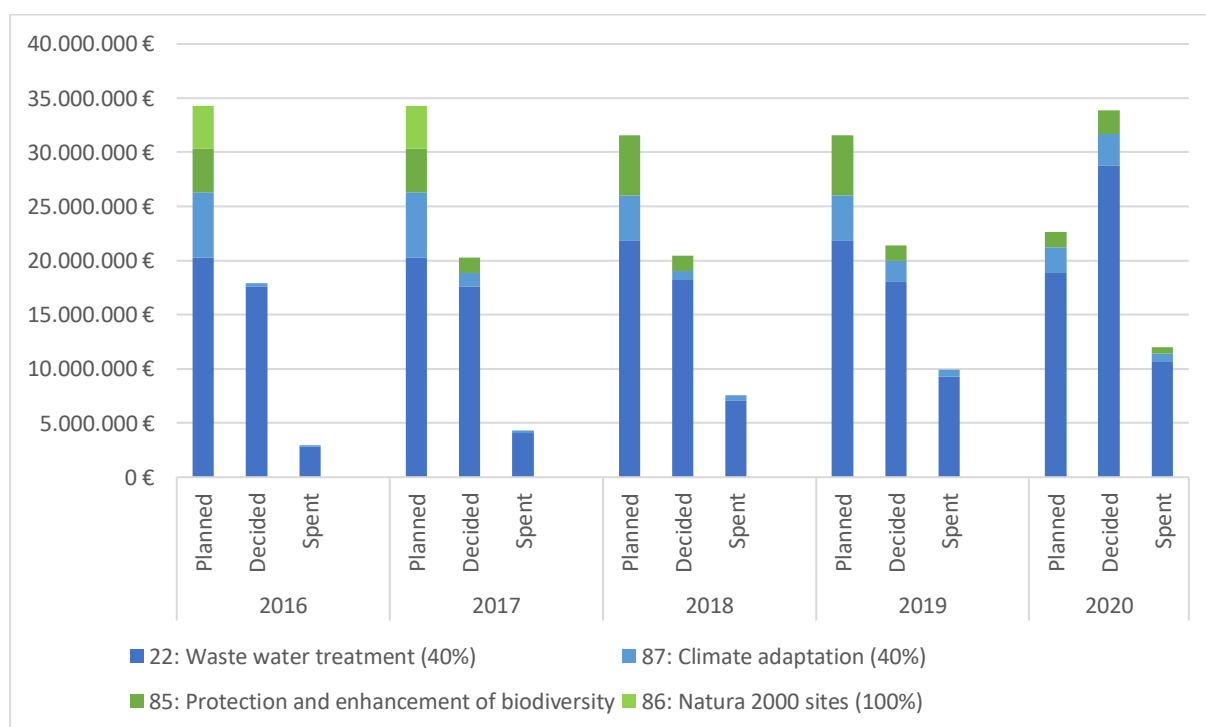
5.3.2 Expenditure in practice

The annual programme reports do not specify the part of expenditure that has been completed per investment priority. As can be seen in Figure 5.1, the sum of biodiversity spending planned under intervention fields 22, 85, 86, and 87 under this programme was significantly reduced from about EUR 34 million in 2016 to about EUR 22 million in 2020. Intervention fields 85 and 86 that specifically target biodiversity had the largest reduction in the planned amount from EUR 8 million to about EUR 1,5 million in 2020. The share of funding towards Priority 2 “Sustainable development with environmental upgrade and climate change adaptations” slightly varies in the amended versions of the programme (between 58,5% and 54,1% of total EU allocation). This programme modification could partially explain the observed reduction in planned biodiversity spending. However, there were no other funding allocation changes in the programme’s amendments that could affect the planned biodiversity spending.

In terms of the Commission’s biodiversity tracking of expenditure, the reduction is even more marked, because it is focused on the intervention fields where expenditure is tracked at 100%. Figure below shows planned, decided, and spent expenditure from EU funds for the four biodiversity-tracked intervention fields relevant for the Crete OP. Initial aims for expenditure on the biodiversity-focused 100% tracked intervention fields have not been translated into significant expenditure; and allocations to these intervention fields have been substantially reduced.

Figure 5.1: Biodiversity tracked expenditure by intervention field 2016-2020, OP Crete

Source: own calculations based on data downloaded from the ESIF Open Data Portal



5.3.3 Examples of expenditure

A dedicated website⁸⁸ presents all the projects selected by the Crete – ERDF/ESF programme. Four projects selected under Investment Priority 6d are directly relevant to biodiversity. Two of these projects, however, seem to focus more on sustainable tourism rather than on conservation, restoration, and sustainable management of ecosystems. One of these refers to the creation of 130km total length of hiking paths and the other to the development of an alternative sports facility and environmental education centre by turning an old ski centre to a mountain hut in a Natura 2000 site. These are important interventions that contribute to the provision of cultural ecosystem services; however, their outputs only partially benefit biodiversity and ecosystems.

Under the Investment Priorities which are not directly linked to biodiversity, there are 14 selected projects under Investment Priority 5b and 46 under 6b. The projects under 5b mainly relate to flood protection of coastal areas and supply of equipment for dealing with disasters. Although flooding can have detrimental effects on ecosystems and biodiversity and therefore flood prevention measures do create biodiversity benefits, preparations for dealing with technological and natural disasters cannot really be considered biodiversity relevant. In addition, the main adaptation measures selected focus more on hard engineering approaches, which can have a detrimental effect on biodiversity. In terms of Priority 6b, all 46 projects relate to the expansion of the water supply and sewage collection system, upgrade of the wastewater treatment facilities, and development of management plans for water supply and studies for Crete's water resources. Most of the selected projects under 6b do benefit biodiversity policy objectives to some extent by avoiding damage to ecosystems; therefore, attributing part of their investments to biodiversity is arguably appropriate.

5.4 Information from programme monitoring

All annual programme reports (2015 – 2018) are published on the same dedicated website⁸⁹. The table below presents the actual progress towards the outcome indicators and not the planned milestones for each outcome.

⁸⁸ <https://www.pepkritis.gr/ενταγμένες-πράξεις/>

⁸⁹ See footnote 88

Table5.5: Progress towards output indicators per Investment Priority between 2015 and 2018

Source:

Priority	Outcome indicator	2015	2016	2017	2018	2019	2020	Target value in 2023
5b	T3003 – Population equivalent benefited by risk prevention and management measures.	0	0	0	0	-	-	623.000 population equivalent
6b	CO18 – Water supply: Additional population served by improved water supply services	0	0	0	0	-	-	30.000 population equivalent
	CO19 – Wastewater treatment: Additional population served by improved wastewater treatment services	0	0	0	210.000	-	-	75.000 population equivalent
	02109 – Water supply master plans	-	-	-	0	-	-	6 plans
	SO002 – Interventions for the implementation of basin management plans	-	-	-	0	-	-	7 interventions
6d	CO023 – Nature and biodiversity: Surface of habitats receiving support for improving their conservation status	0	0	0	0	-	-	126.000 hectares

The outcome indicators of the targets of the Investment Priorities are not recorded in any of the annual reports (essentially because they are meant to capture medium term objectives, and are affected by a range of factors including many external to the programme, and are therefore not tracked on a yearly basis).

5.5 Summary of findings

While the highest share of the budget of the Crete ERDF/ESF programme is dedicated to the “Environment Protection & Resource Efficiency” theme, biodiversity-related targets are quite limited. From the Investment Priorities adopted by the programme, only one is directly relevant to biodiversity (6d) and two are indirectly relevant (5b, 6b). In addition, the initially planned budget dedicated to these priorities have changed significantly over the years, allocating a lower amount to biodiversity outcomes. Although the outcome indicators per Investment Priority are monitored by the annual implementation reports of the programme, these reports do not include any evidence on the outcome indicators of the targets of the Investment Priorities. The annual

reports indicate significantly limited progress between 2015 and 2018 towards achieving the outcomes of the Investment Priorities, although this largely reflects an expected lag in expenditure, and the impact of that expenditure on medium-term outcomes.

Expenditure under Investment Priority 6d is considered as fully allocated to biodiversity spending, while only a part of expenditure under Priorities 5b and 6b is considered biodiversity related. A closer look at the projects financed under these priorities showed that not all tracked biodiversity expenditure contributed to biodiversity policy objectives. The main area in which biodiversity expenditure is overestimated is climate change adaptation (5b) as it involves projects that either focus on dealing with the aftermath of a disaster or refer to 'grey' construction projects. As regards 6d and 6b, although there are some concerns about the focus of projects, they generally appear to make a contribution to biodiversity.

6. CASE STUDY 6: ERDF AND COHESION FUND IN ROMANIA – LARGE INFRASTRUCTURE PROGRAMME (2014RO16M1OP001)

Researcher: Andreea Beznea, Trinomics

6.1 Background to case study

The **Large Infrastructure Operational Programme (LIOP) (2014-2020)** has been selected as the basis for a case study for Romania, because at the time the case studies began (early 2020) it had the **highest level of expenditure on biodiversity-related interventions** from the European Regional Development Fund (ERDF) and the Cohesion Fund (CF) (i.e. intervention fields 022, 085, 086, 087, and 091)⁹⁰ (see Figure 6.3).⁹¹ Examples of funding through the OP include management plans for Natura 2000 sites; restoration and conservation measures proposed in the plans; relevant studies, assessments, and monitoring systems; as well as green infrastructure.⁹²

The OP was approved by the European Commission in 2015, through Commission Implementation Decision 4823⁹³, and is the funding programme with the largest allocation in the 2014-2020 period in Romania.⁹⁴ It receives funding from the ERDF and CF, amounting to **€9.1 billion** (with a total programme expenditure, including national contributions, of **€10.6 billion**).⁹⁵ The Managing Authority (MA) for the OP is the **Ministry of European Projects and Investments**.⁹⁶ The OP covers areas such as transport, energy, and environment, and has been updated to include health, in the context of the Covid-19 pandemic.⁹⁷

Various stakeholders were consulted while developing the OP (see programme documents for a full list).⁹⁸ Stakeholders with a biodiversity focus included the National Agency for Environmental Protection; the state-owned enterprise responsible for dealing with the protection, preservation and development of publicly owned forests of the Romanian state (Romsilva); the foundation TERRA Mileniul III; the World Wildlife

⁹⁰ These represent intervention fields with a 40% coefficient of biodiversity spending.

⁹¹ <https://cohesiondata.ec.europa.eu/stories/s/Tracking-cohesion-policy-biodiversity-investments/tdxi-ibcn/>

⁹² https://ec.europa.eu/environment/nature/natura2000/financing/docs/Natura2000_integration_into_EU%20funds.pdf

⁹³

<https://ec.europa.eu/transparency/regdoc/index.cfm?fuseaction=list&coteld=3&year=2015&number=4823&language=EN>

⁹⁴ According to the first monitoring report (2016): [https://www.fonduri-](https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/RAI.POIM.2015.Rezumat.cetateni.pdf)

[ue.ro/images/files/programe/INFRASTRUCTURA/POIM/RAI.POIM.2015.Rezumat.cetateni.pdf](https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/RAI.POIM.2015.Rezumat.cetateni.pdf)

⁹⁵ https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/romania/2014ro16m1op001

⁹⁶ <https://mfe.gov.ro/>

⁹⁷ <https://mfe.gov.ro/wp-content/uploads/2021/09/db102c10b0f65b0871b0d016d7a564d3.pdf>

⁹⁸ E.g. [https://www.fonduri-](https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2019/09.01/POIM_2014_2020_Decembrie_2018.pdf)

[ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2019/09.01/POIM_2014_2020_Decembrie_2018.pdf](https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2019/09.01/POIM_2014_2020_Decembrie_2018.pdf)

Fund (WWF); and several producer responsibility organisations such as ECOROM and ECOTIC.⁹⁹ As part of the environmental assessment of the programme, a public debate was organised, which included several stakeholders with a focus on sustainable development (e.g., Fundația Convergențe Europene)¹⁰⁰.

Following the approval of the OP, the MA began the process of setting up a programme-specific monitoring committee (in accordance with Articles 5, 49, and 110 of Regulation (EU) No 1303/2013 laying down the common provisions of the various EU funds).¹⁰¹ The Monitoring Committee (MC) takes an active role in identifying possible problems and solutions, together with the MA. At the beginning of the funding period, it was reported that the MC had a total of 62 members, of which 25 members had voting rights (13 from the central public authorities, including the Ministry of European Funds¹⁰², and 12 non-public institutions). The remaining participants were observer members or permanent guests (including DG REGIO, the EIB, EBRD, and JASPER, and, on some occasions, DG ENV).¹⁰³

According to the latest version of the OP (version VII, dating 2021), its focus on large infrastructure covers four main pillars: **transport infrastructure, environmental protection and risk management, clean energy and energy efficiency, and response to the Covid-19 pandemic.**^{104,105} These are further structured according to ten Priority Axes (PAs).

⁹⁹ https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2019/09.01/POIM_2014_2020_Decembrie_2018.pdf

¹⁰⁰ https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2017/29.06.2017/Aviz_de_mediu_POIM.pdf

¹⁰¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1303&from=en>

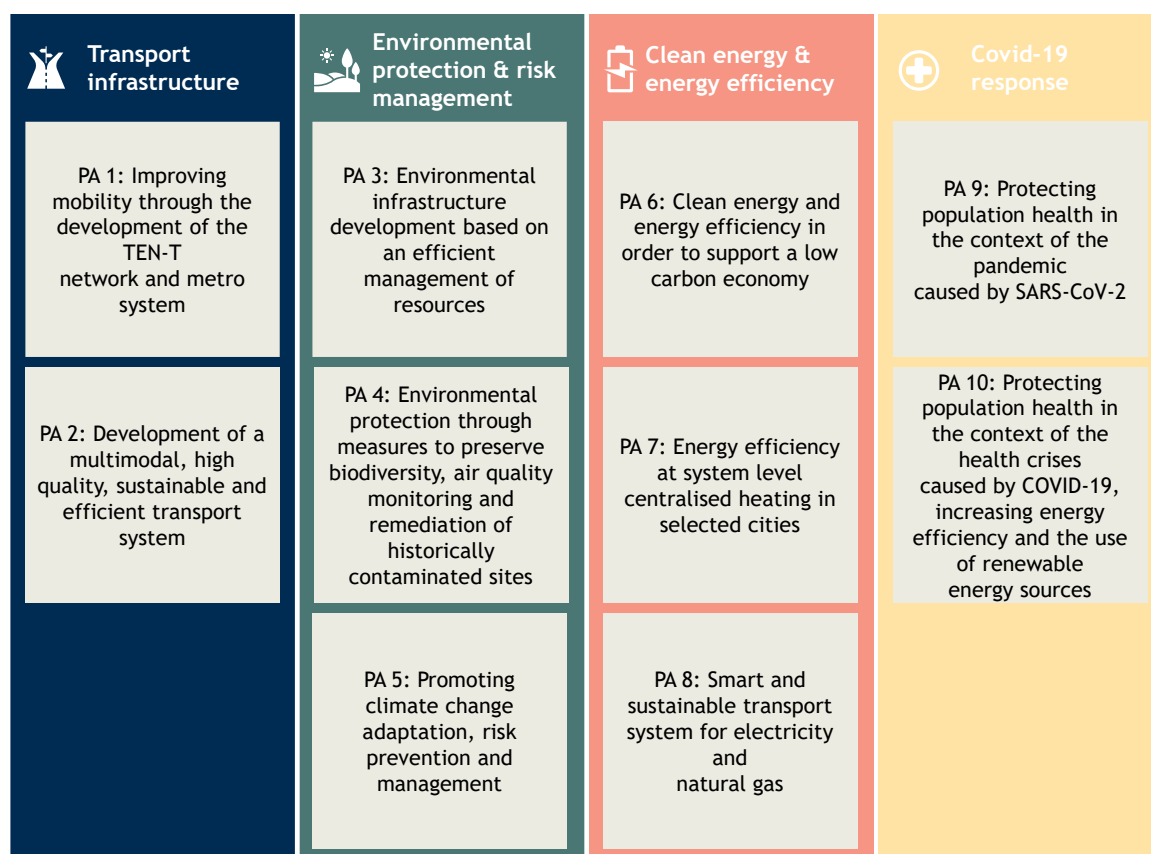
¹⁰² Now Ministry of European Projects and Investments (<https://mfe.gov.ro/>).

¹⁰³ <https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/RAI.POIM.2015.Rezumat.cetateni.pdf>

¹⁰⁴ <https://mfe.gov.ro/wp-content/uploads/2021/09/db102c10b0f65b0871b0d016d7a564d3.pdf>

¹⁰⁵ Recent amendments to the OP result from REACT-EU resources having been made available to Romania as part of the EU's Recovery & Resilience efforts. For more information, please see Commission Implementing Decision [C\(2021\) 6449](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0644&from=en).

Figure 6.1 Priorities of the Large Infrastructure Operational Programme, as of 2021



Source: Own development based on information in Commission Implementing Decision C(2021) 6449.¹⁰⁶

Amongst these priorities, those falling under the environment pillar directly or indirectly target biodiversity or include a biodiversity-relevant component.¹⁰⁷ The relevant PAs are listed below with their respective budgets (total allocations and EU contribution) (Figure 6.2).¹⁰⁸ PA 4 is the only PA that includes an explicit mention of biodiversity preservation in its title; however, it only makes up 7.7% of allocations to environmental objectives (PA 3 to PA 5). Although all environmental PAs may indirectly impact biodiversity preservation, the distribution of funds across the three environmental PAs shows a lower prioritisation of biodiversity in contrast to other environmental objectives.

¹⁰⁶ <https://mfe.gov.ro/wp-content/uploads/2021/09/69a07cf968c4f133093e2121a3a295aa.pdf>

¹⁰⁷ https://www.euro-access.eu/programm/large_infrastructure_romania

¹⁰⁸ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

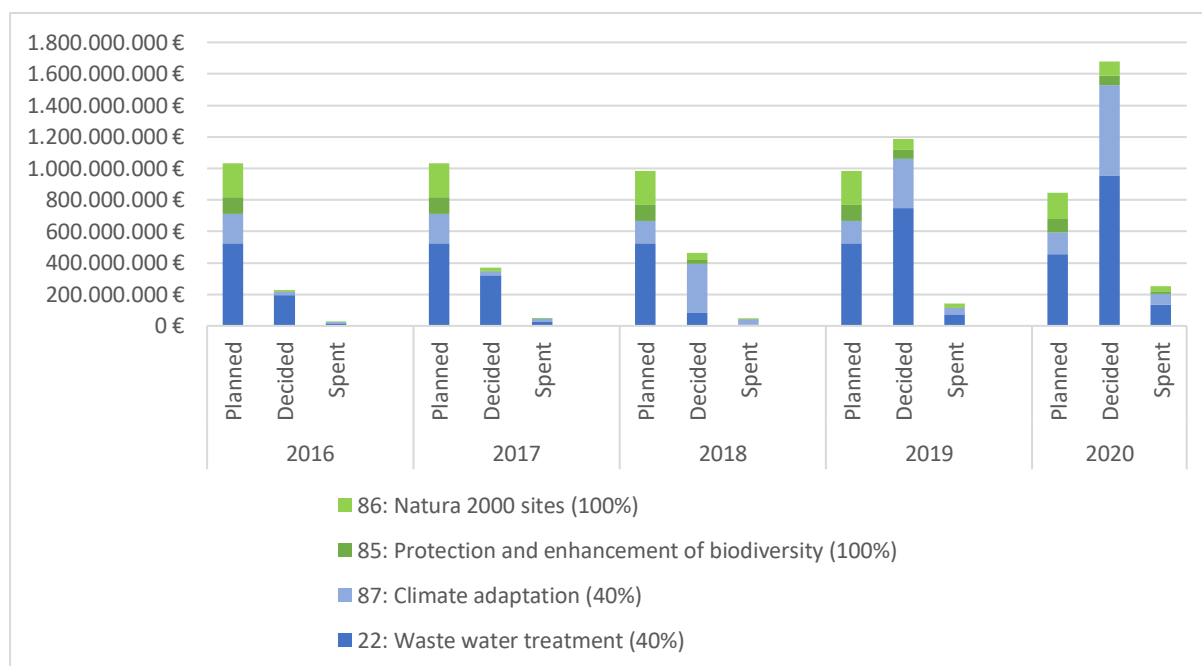
Figure 6.2 PAs under the environment pillar of the LIOP (€3.8 billion in allocated funds)

	Allocated funds	EU contribution & source
PA 3 - Environmental infrastructure development based on an efficient management of resources	2,991,110,336	2,542,443,785 (CF)
PA 4 - Environmental protection through measures to preserve biodiversity, air quality monitoring and remediation of historically contaminated sites	297,346,684	252,744,681 (ERDF)
PA 5 - Promoting climate change adaptation, risk prevention and management	574,468,085	488,297,872 (CF)

Source: Own development based on Annex II of Commission Implementing Decision C(2021) 6449.¹⁰⁹

Biodiversity-relevant investments are tracked under the Commission’s methodology according to five intervention fields. Romania’s OP recorded planned investments across four of the five fields in 2016-20, as shown in the figure below: 022: waste water treatment (tracked at 40%), 085: biodiversity, nature protection and green infrastructure (tracked at 100%), 086: Natura 2000 sites (100%), and 087: climate change adaptation and risk prevention (40%). Note that the chart shows the biodiversity tracked amounts – thus the amounts shown for 022 and 087 are only 40% of the total amounts for those intervention fields.

Figure 6.3 Biodiversity Tracked Expenditure according to Intervention Fields (40%/100%) for 2016 to 2020 – Romania Large Infrastructure OP



Source: Own development based on data from the Cohesion Data Portal

¹⁰⁹ <https://mfe.gov.ro/wp-content/uploads/2021/09/f8d293e8085b27b616fd5c82c4ef705d.pdf>

Bearing in mind this caveat about the presentation, two important points can be seen from the chart: initial plans for expenditure were heavily weighted towards the 40% tracked intervention fields; and in practice, these intervention fields were significantly more favoured by decisions on projects, with very little committed to the most biodiversity-focused interventions (shown in green).

Romania's biodiversity objectives are outlined in the country's **National Strategy and Action Plan on Biodiversity Conservation to 2020**.¹¹⁰ The Strategy aims to promote innovative traditional knowledge, practices, methods, and clean technologies in support of biodiversity conservation; integrate biodiversity conservation policy into all sectoral policies; restore degraded systems and protect against the decline of biological diversity; as well as improve communication and education in the field of biodiversity. These priorities are also described in the Partnership Agreement (PA)¹¹¹ and the Prioritised Action Framework (PAF) for Natura 2000, including a list of relevant actions. For the implementation of its strategic objectives, concrete actions have been developed within the Action Plan (revised in 2014 by the Ministry of Environment) and the institutions responsible for the implementation of each action have been nominated.

6.2 Programme priorities

As indicated above (Figure 6.1), the LIOP consists of four pillars and 10 PAs. The pillar on the response to the Covid-19 pandemic and its associated PAs were added to the OP in 2021, with funding from the ERDF, Coronavirus Response Investment Initiative (CRII), and REACT-EU. Among the 10 PAs, three relate to the OP's environmental objectives, representing approximately €38 billion or 36% of allocated funds (including national contributions) (Figure 6.2).

The most relevant documents defining and describing the priorities of the LIOP during its inception include:

- The **Partnership Agreement (PA)** outlines the country's priorities at national level and covers all EU funds and national programmes.¹¹² Its priorities in terms of biodiversity are described in more detail below.
- The **programme documents** (including Commission Implementing Decisions, programme outlines, announcements on amendments to the programme), which identify investment priorities and actions to be taken, as well as

¹¹⁰ <https://biodiversitate.mmediu.ro/implementation/legislaie/politici/strategia-nationala-si-planul-de-actiune-pentru-conservarea-biodiversitatii/anexa-strategia-nationala-si-planul-de-actiune-pentru-conservarea/snpacb.pdf/download/en/1/SNPACB.pdf?action=view>

¹¹¹ https://www.fonduri-structurale.ro/Document_Files/Stiri/00014830/sfvjd_Acord%20de%20parteneriat%20oficial.pdf

¹¹² https://www.fonduri-structurale.ro/Document_Files/Stiri/00014830/sfvjd_Acord%20de%20parteneriat%20oficial.pdf

stakeholders consulted during the elaboration of the programme. All relevant documentation on the programme can be found on the MA's website.^{113,114}

- In terms of environmental objectives and biodiversity preservation, the **Prioritised Action Framework (PAF)** for Natura 2000 is an important basis for decisions. It sets out the priorities of the Natura 2000 network in Romania, which receives funding from the LIOP.

In addition, the **Strategic Environmental Assessment**¹¹⁵ shaped the LIOP in its initial planning stages by integrating environmental considerations into the programme. It provided recommendations on OP monitoring, relevant projects, as well as areas of improvement to enhance environmental considerations in the OP. The document also provides the state of play across various environmental indicators (e.g., Natura 2000 network coverage).

6.2.1 Biodiversity priorities identified

Romania's **Partnership Agreement (PA)**¹¹⁶ refers to the Prioritised Action Framework (PAF) for Natura 2000 in Romania 2014-2020, the EU Biodiversity Strategy to 2020, the National Biodiversity Strategy and Action Plan (2013-2020), the Common Fisheries Policy, the National Rural Development Programme (2007-2013), as well as the Roadmap for Romania ("Support to MS in improving waste management based on assessment of MS' performance").

One of the challenges underlined in the PA are challenges related to **natural resources and their preservation**. Romania notes that "*environmental quality and biodiversity remain under pressure from both natural process and economic activity*" (p. 9 of the PA)¹¹⁷. More specifically, challenges include degraded ecosystems, loss of biodiversity due to urban development, and abandonment of agricultural activity in rural regions. The PA expands on the need to restore degraded systems, strengthen the Natura 2000 network on the Romanian territory and other protected areas, and promote green infrastructure (through e.g. ecological corridors, green bridges, and eco-ducts) (pp. 67-68 of the PA)¹¹⁸. In terms of forests and wooded areas, the PA mentions the need to develop measures to enhance the value of forest protection, to adopt an integrated

¹¹³ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

¹¹⁴ The latest iteration of the LIOP is presented here: <https://mfe.gov.ro/wp-content/uploads/2021/09/db102c10b0f65b0871b0d016d7a564d3.pdf>.

¹¹⁵ https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2017/29.06.2017/Aviz_de_mediu_POIM.pdf

¹¹⁶ https://www.fonduri-structurale.ro/Document_Files/Stiri/00014830/sfvjd_Acord%20de%20parteneriat%20oficial.pdf

¹¹⁷ https://www.fonduri-structurale.ro/Document_Files/Stiri/00014830/sfvjd_Acord%20de%20parteneriat%20oficial.pdf

¹¹⁸ https://www.fonduri-structurale.ro/Document_Files/Stiri/00014830/sfvjd_Acord%20de%20parteneriat%20oficial.pdf

management of mountain forests and watercourses, and to use Sustainable Forest Management (SFM) practices.

The PA notes that, in 2013, only 5 management plans and 11 management regulations had been approved, out of the total of 272 plans/regulations drafted through the Sectoral Operational Programme for Environment (SOP ENV). The long and difficult approval process, the lack of resources and administrative capacity, the poor quality of certain management plans, and the lack of compensation for landowners were listed as some of the main obstacles to adopting Natura 2000 management plans and regulations. According to the PA, an important priority for Romania is to **improve and speed up the approval process of Natura 2000 management plans**.

Citing the PAF, the PA lists certain priorities for ensuring an effective implementation of the management plans: finalising the process of assigning the administrators for Natura 2000 sites, the implementation of the management plans (especially the ones that support the management process), providing the resources and infrastructure for the management process, and educating the population (pp.67-68 of the PA).

In line with the priorities defined in the PA, the LIOP's overarching objective is to respond to the development challenges identified at national level in terms of infrastructure and natural resources, focusing on **transport, environment, and energy infrastructure** (and, more recently, the Covid-19 outbreak). The environmental assessment undertaken during the development of the programme underlined the wide range of environmental benefits that the OP would bring, including reducing traffic jams and travel times, improving air quality and reducing noise pollution, creating new habitats through green infrastructure, enhancing the management of natural protected areas, promoting the efficient use of natural resources, maintaining and boosting ecosystems and their services, raising energy efficiency, and stimulating socio-economic development¹¹⁹. The assessment also provided several recommendations and conclusions on the relationship between the OP and Romania's network of protected areas (of community interest). In brief, it did not identify any significant (negative) interaction between the programme and the network but cautioned that all projects funded under the programme should carefully consider their impact on natural protected areas.

The PAF 2014-2020 was developed in 2015 to identify priorities for the implementation of EU strategies and directives in nature conservation and biodiversity protection. Most **investments made in the Natura 2000 network** come through projects financed by different European programmes. In Romania, this is the case for the LIOP (especially PA 4 – "environmental protection through measures for biodiversity conservation,

¹¹⁹ https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2017/29.06.2017/Aviz_de_mediu_POIM.pdf

monitoring of air quality and decontamination of historically polluted sites”)¹²⁰ and the former Sectoral Operational Programme for Environment (SOP ENV) 2007-2013 (PA 4 – “protection and improvement of biodiversity and natural patrimony through supporting the management of the protected areas, including implementation of Natura 2000 network”)¹²¹. According to the PAF 2014-2020, ERDF/CF funding contributing to the Natura 2000 network covers the elaboration of management plans, the implementation of measures presented in the management plans, actions to improve the level of knowledge on biodiversity and ecosystems, and the maintenance and remaking of degraded ecosystems and their services.

To address the challenges and opportunities described in the PA, PAF, the OP defines priorities according to 10 axes, as depicted in Figure 6.1.^{122,123} Environmental objectives make up around 36% of the programme’s budget (including national contributions). The preservation and conservation of biodiversity is an even smaller component thereof. PA 4 has a direct link to biodiversity, citing **the preservation and conservation of biodiversity and restoration of degraded ecosystems** as one of its sub-objectives (specifically, investment priority 6d). Other sub-objectives relate to air quality monitoring and the de-contamination of former industrial sites. Other environmental PAs (3 and 6) could have a more indirect impact on biodiversity through improved waste management, wastewater treatment, and measures to improve climate adaptation and resilience.

Box 6.1 Protection of biodiversity and ecosystems in Romania, as described in the Large Infrastructure Operational Programme

Biodiversity is not sufficiently protected in Romania. The country must actively promote measures to halt the decline of biodiversity by ensuring the proper management of its Natura 2000 network and protected natural areas, as well as by protecting biodiversity outside of these areas. The LIOP explains that this should be achieved by **restoring degraded ecosystems** and by **promoting green infrastructure** as a horizontal measure to ensure the integration of biodiversity considerations across other policy areas (including at the level of infrastructure investments funded by the OP).

Investment needs in this respect include the (further) development of **management plans and conservation and protection measures** for Natura 2000 sites and other protected natural areas (in line with the objectives of the PAF). At the same time, actions are needed to improve the

¹²⁰ LIOP – PA 4 has an allocation of €335.4 million, from which €58 million has been used on 48 contracts that were signed up to 2018. These have covered 110 Natura 2000 sites and tackled two main requirements: the development of management plans and the implementation of existing plans. For 37 contracts, the beneficiaries have been protected-area custodians, and for 11 contracts, the beneficiaries have been partnerships between NGOs and other entities. Country profile on nature directives implementation in Romania, unpublished document.

¹²¹ SOP Environment – PA 4 represented the most important financing source in the last years for conservation activities of Natura 2000 sites. The programme financed 141 projects which produced 244 management plans, and covered 3 million ha and 415 protected areas (as noted here: <http://www.fonduri-ue.ro/images/files/legislatie/nationala/Memorandum.12.pdf>). The total budget spent on PA4 was €171.9 million.

¹²² <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

¹²³ <https://mfe.gov.ro/wp-content/uploads/2021/09/69a07cf968c4f133093e2121a3a295aa.pdf>

administrative capacity for approving the management plans. Investments are also needed for the restoration of degraded ecosystems. The latter requires an improved **knowledge base** of natural biodiversity, ecosystems, and their services.

Given that the LIOP promotes a number of measures that can have negative impacts on biodiversity, projects should take into account GI solutions and ecosystem services, as explained in the environmental impact assessment.¹²⁴

Source: Ministry of European Projects and Investments (2021).¹²⁵

The LIOP has been modified several times over the years. Through a review of the different versions of the OP, it is possible to observe how the budget has changed across different PAs, and how the share devoted to biodiversity-relevant actions has evolved over time. Table 6.1 shows that PA 4 represents only 3% of the programme's budget in 2021, down from 5% in 2015. The share of biodiversity-relevant actions within this PA ranges from 67% in 2015 to nearly 88% in 2021 (or €285 million and €221 million, respectively), meaning that biodiversity represents an even smaller share of the OP budget: **2% in 2021**, down from 3% in 2015.

PA 4 is also the axis that has encountered **downward revisions** more frequently compared to other axes (Table 6.2), first between 2015 and 2017 (-23.5%), then between 2018 and 2019 (-7%), and once more the following year (-16.5%). In absolute terms, these revisions remain small (in the range of €22-100 million) because of the PA's relative size in comparison to other PAs. Nonetheless, this exemplifies the lower prioritisation of biodiversity in relation to other policy areas.

Table 6.1 Share of budget across PAs and years (EU contribution only)

Version	1.3	2	4	5.1	6.1	7
Year of MS decision	2015	2017	2018	2019	2020	2021
PA 1: Improving mobility through the development of the TEN-T network and metro system	36%	37%	37%	37%	39%	37%
PA 2: Development of a multimodal, high quality, sustainable and efficient transport system	18%	17%	17%	17%	13%	12%
PA 3: Environmental infrastructure development based on an efficient management of resources	31%	31%	31%	31%	29%	28%
PA 4: Environmental protection through measures to preserve biodiversity, air quality monitoring	5%	4%	4%	3%	3%	3%

¹²⁴ https://www.fonduri-ue.ro/images/files/programe/INFRASTRUCTURA/POIM/2017/29.06.2017/Aviz_de_mediu_POIM.pdf

¹²⁵ <https://mfe.gov.ro/wp-content/uploads/2021/09/db102c10b0f65b0871b0d016d7a564d3.pdf>

Version	1.3	2	4	5.1	6.1	7
Year of MS decision	2015	2017	2018	2019	2020	2021
and remediation of historically contaminated sites						
PA 5: Promoting climate change adaptation, risk prevention and management	5%	5%	5%	5%	6%	5%
PA 6: Clean energy and energy efficiency in order to support a low-carbon economy	2%	2%	2%	2%	1%	1%
PA 7: Energy efficiency at system level centralised heating in selected cities	3%	3%	3%	3%	3%	3%
PA 8: Smart and sustainable transport system for electricity and natural gas	1%	1%	1%	1%	2%	2%
PA 9: Protecting population health in the context of the pandemic caused by SARS-CoV-2					4%	4%
PA 10: Protecting population health in the context of the health crises caused by COVID-19, increasing energy efficiency and the use of renewable energy sources						5%

Source: Own analysis based on information from the Ministry of European Projects and Investments.¹²⁶

Table 6.2 Percentage change in distribution of budget across PAs (EU contribution only)

OP version	1.3	2	4	5.1	6.1	7
Year of MS decision	2015	2017	2018	2019	2020	2021
PA 1: Improving mobility through the development of the TEN-T network and metro system		0.0%	0.0%	0.0%	0.0%	0.0%
PA 2: Development of a multimodal, high quality, sustainable and efficient transport system		-5.9%	0.0%	0.0%	-31.2%	0.0%
PA 3: Environmental infrastructure development based on an efficient		0.0%	0.0%	0.0%	-12.1%	0.0%

¹²⁶ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

OP version	1.3	2	4	5.1	6.1	7
Year of MS decision	2015	2017	2018	2019	2020	2021
management of resources						
PA 4: Environmental protection through measures to preserve biodiversity, air quality monitoring and remediation of historically contaminated sites		-23.5%	0.0%	-7.0%	-16.5%	0.0%
PA 5: Promoting climate change adaptation, risk prevention and management		0.0%	0.0%	2.0%	0.0%	0.0%
PA 6: Clean energy and energy efficiency in order to support a low-carbon economy		0.0%	0.0%	-6.0%	-43.1%	0.0%
PA 7: Energy efficiency at system level centralised heating in selected cities		0.0%	0.0%	11.7%	-17.9%	0.0%
PA 8: Smart and sustainable transport system for electricity and natural gas		0.0%	0.0%	-6.0%	156.4%	0.0%
PA 9: Protecting population health in the context of the pandemic caused by SARS-CoV-2						0.0%
PA 10: Protecting population health in the context of the health crises caused by COVID-19, increasing energy efficiency and the use of renewable energy sources						

Source: Own analysis based on information from the Ministry of European Projects and Investments.¹²⁷

¹²⁷ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

6.2.2 Output and outcome measurements relevant to biodiversity

Output indicators stemming from the environment pillar of the LIOP include: flood protection (measured in number of persons), improved water supply (also by persons), waste recycling (in t/year), wastewater treatment (in population equivalent), habitats conserved (in ha), and rehabilitated land (in ha). The latter two are indicators that are relevant to the LIOP's biodiversity objectives. The targets are presented in Table 6.3.

Table 6.3: Biodiversity-focused common output indicators for the Large Infrastructure Operational Programme, 2015-2019

Year		Habitats conserved (ha)	Rehabilitated land (ha)
2015	T	60 000	53
2015	D		
2015	I		
2016	T	60 000	53
2016	D		
2016	I		
2017	T	60 000	53
2017	D	41 268	
2017	I		
2018	T	60 000	27
2018	D	41 416	
2018	I		
2019	T	60 000	27
2019	D		
2019	I		

Source: Own development based on data from the Cohesion Data Portal.¹²⁸

Notes: The second column indicates whether the indicator refers to target (T), decided (D), or implemented (I). Decided values refer to values from selected projects (project pipeline) and implemented values refer to values from fully implemented projects. The empty cells indicate missing information or no achievement.

Very little information can be found on actual achievements of the LIOP in relation to these indicators.

6.3 Funding allocated to biodiversity-tracked measures

6.3.1 Allocations

As noted above in relation to Figure 6.3, the EU funding allocated to biodiversity-tracked intervention fields was dominated by the 40% tracked fields (waste water

¹²⁸ <https://cohesiondata.ec.europa.eu/EU-Level/ERDF-CF-Common-Indicator-by-Member-State-Filter-fo/2kgk-bg9r>

treatment and climate adaptation), with the more biodiversity-focused interventions tracked at 100% receiving less emphasis. Waste water treatment (022) was allocated a total of €6389m over the programme, and climate adaptation (087) a total of €1987m; while Natura 2000 (086) was allocated a total of €1034m, and biodiversity protection and enhancement (085) was allocated €499m.

According to the PAF, allocations to measures relevant for Natura 2000 (i.e. via intervention field 086) amount to around **€315.3 million** over the period 2014-2020 (including national cofinancing).¹²⁹ The sum varies significantly from the total planned investments for intervention field 086, implying that some of the biodiversity-related expenditure that is tracked under the latter field falls outside of the scope of PAF investments. The PAF lists several different funding programmes dedicated to the Natura 2000 network in Romania, but it does not cover all biodiversity-relevant funding (only that which is relevant to Natura 2000)¹³⁰ – LIOP being only one of the funding sources. It is to be noted that *“[o]ne of the most important challenges in the completion of [the] PAF was related to the inexistence of a common pool of information relating to Natura 2000. Thus, funding is achieved through quite diverse instruments and the results of projects implementation are only found at beneficiaries. In addition, the statistics carried out do not allow an overall assessment of the way in which funding was distributed in financial year 2014-2020, considering the categories of expenditure set out in the PAF”* (p.17 of the PAF). The PAF describes the relevance of the LIOP in terms of funding projects aimed at **developing and implementing management plans** for protected areas (previously funded through POS Environment 2007-2013), as well as other projects that include a Natura 2000 component¹³¹.

6.3.2 Expenditure in practice

Expenditure since the start of the OP has been rising, but has never reached 100% of the planned annual rate of expenditure, even if decided values (values representing eligible amounts of selected projects) exceeded the planned budget in recent years. Actual expenditure (i.e., eligible spending) reached a maximum of 54% in 2021, demonstrating a low absorption of funds (Figure 6.4). The same trend is even more marked in respect of biodiversity tracked expenditure over the period 2016-2019, where spending reached a maximum of 14% of planned expenditure in 2019 (Figure 6.5).¹³² And, as we have seen, that expenditure was heavily skewed towards the intervention types that are less directly relevant to biodiversity outcomes.

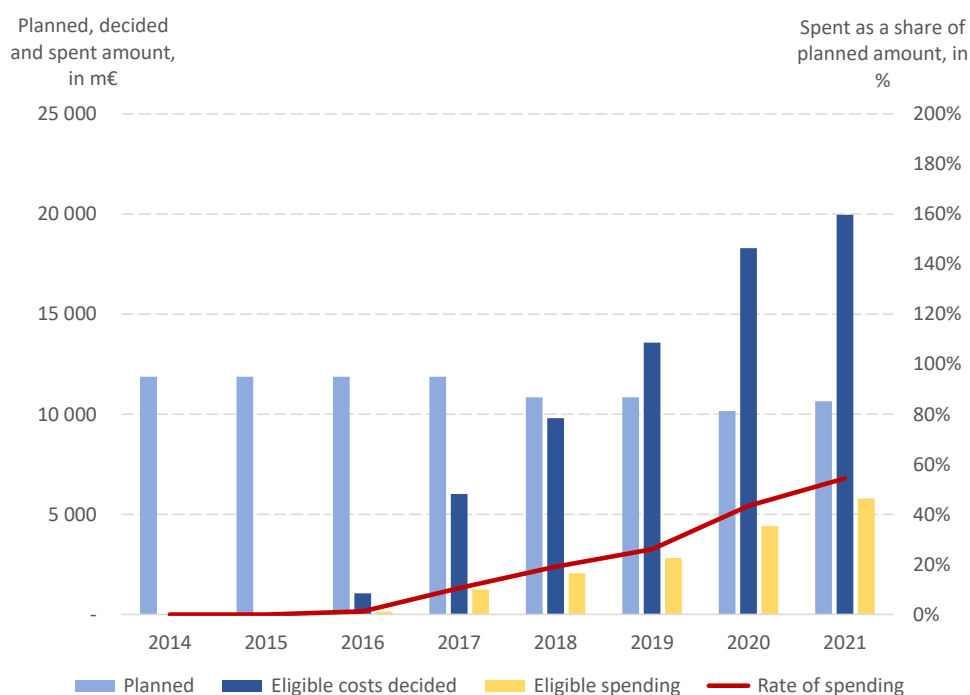
¹²⁹ Draft PAF 5/2/2019.

¹³⁰ See Table 5 of the PAF.

¹³¹ See Table 5 of the PAF.

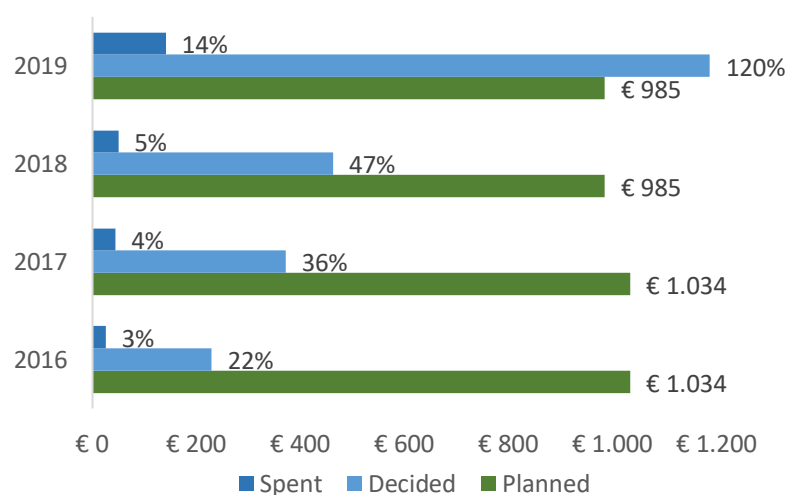
¹³² Based on available data and intervention fields marked with a 40% coefficient for biodiversity.

Figure 6.4 Financial information on the LIOP (total OP budget), 2014-2021



Source: Own development based on European Commission (2022).¹³³

Figure 6.5 Expenditure on biodiversity-related interventions within the Large Infrastructure Operational Programme between 2016 and 2019, in m€ and % of planned expenditure



Source: Own development based on European Commission (2022).

Notes: Decided values refer to values from selected projects (project pipeline) and implemented values refer to values from fully implemented projects. The percentages included in the figure refer to expenditure as a share of planned expenditure.

¹³³ https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/romania/2014ro16m1op001

6.4 Examples of expenditure

The MA's website provides a long list of projects that have submitted financing requests under PA 3 to PA 10 (last updated November 2021).¹³⁴ **166 projects** are listed under PA 4, 90 of which have been approved (contracted), while another 14 are being evaluated. The remaining projects have been rejected or their applications have been withdrawn. The requests for these projects were submitted between 2016 and 2021. The majority of projects financed as part of this PA relate to **management plans for Natura 2000 sites and measures to conserve and protect natural areas**. Examples of such projects are shortly described in the table below.

Table 6.4 Examples of projects financed as part of PA 4

Name & project code	Short description	Project value
Management Plan for the Natura 2000 site "Cheile Doftanei" (101987)	This project requested financing in 2016 for the development of a management plan for a Natura 2000 site (ROSCI0283 "Cheile Doftanei"). The draft management plan was published in 2018 and can be found online. ¹³⁵ It outlines measures and conservation efforts targeted at six animal species and 10 habitats. The beneficiary of the project was the environmental organisation, ADEMED. Results are presented on ADEMED's website. ¹³⁶	€193,132
Biodiversity conservation in the protected natural areas "Coasta Lunii" and "Dealul cu Fluturi" (119010)	The EnviroTeam Association requested financing for the development of a management plan, awareness-raising activities, and administrative capacity-building for the "Coasta Lunii" Natura 2000 site (ROSCI0040) and the conservation area "Dealul cu Fluturi". The project aimed to contribute to and create the enabling conditions for an improved conservation status of the site's species and habitats. More details can be found on EnviroTeam's website. ¹³⁷	€859,677
Protection and conservation measures for the Iron Gates Natural Park	Approved in 2018, this project requested financing for a number of activities related to the protection and conservation of the park's biodiversity and natural landscapes. Activities financed include the mapping of the boundaries of the protected areas of the park, the identification and mapping of the conservation status of critical species, the extraction of invasive wood species, the maintenance and restoration of water holes in areas with compact aquatic vegetation, the maintenance of	€3,949,399

¹³⁴ <https://mfe.gov.ro/wp-content/uploads/2021/12/f20afa0427888bee75ae99203ea40d92.pdf> [relevant as of November 2021]

¹³⁵ <http://plan.ademed.eu/sinteza-plan/>

¹³⁶ <http://plan.ademed.eu/rezultate-proiect/>

¹³⁷ <https://rosci0040.enviroteam.ro/>

	favourable conditions for large mammals, amongst others. The project is ongoing. The project includes awareness-raising and capacity-building activities, as well as technical analyses for the development of tourism infrastructure and the implementation of conservation measures. More details on the project can be found on Romsilva's website. ¹³⁸	
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Note: The project value has been converted from RON to EUR based on the average exchange rate in 2021, 0.2032 (ECB, 2022).¹³⁹

Actions that are eligible for funding under PA 4 are described as follows:¹⁴⁰

- Development of management plans/sets of conservation measures/action plans for protected natural areas (including those located in the marine environment) and for species of Community interest not covered by previous projects, especially:
 - Elaboration of studies for monitoring and evaluating the conservation status of species and habitats of Community importance;
 - Inventory of wild species of Community interest in order to determine the measures for maintaining/improving their conservation status;
- Other necessary activities specific to the elaboration of management plans;
- Implementation of management plans/sets of conservation measures/action plans for protected natural areas (including those located in the marine environment) and for species of Community interest not covered by previous projects, especially:
 - Measures to maintain/improve the conservation status of species and habitats of Community importance, including the ecological reconstruction of ecosystems on the surface of protected natural areas, including Natura 2000 sites;
 - Monitoring and evaluation of the conservation status of species and habitats of Community importance;
 - Reducing the effects of hydro-morphological pressures on watercourses in order to protect biodiversity (passages of ichthyofauna for cross-dam works, restoration of wetlands, restoration of riverbed and floodplain relief of water bodies, etc.);
 - Creating and maintaining ecological corridors, creating and maintaining species migration corridors, preserving ecological connectivity and functionality, maintaining and / or improving connectivity for the network of protected areas, including the Natura 2000 network;
 - Other similar measures according to management plans;

¹³⁸ https://www.pnportiledefier.ro/POIM_2020.html

¹³⁹

https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-ron.en.html

¹⁴⁰ <https://www.fonduri-ue.ro/poim-2014#axe-finan%C8%9Bare>

- Maintaining and restoring degraded ecosystems and their services (afforestation, ecological corridors, etc.), located outside protected natural areas, in accordance with European objectives in the field, including the marine environment;
- Actions to complete the level of knowledge of biodiversity and ecosystems (monitoring and evaluation of species and habitats, knowledge of pressure factors exerted on biodiversity, including invasive species, etc.).

6.5 Information from programme monitoring

Annual implementation reports (AIR) inform on the state of LIOP implementation by providing values for output and result indicators. All reports used to monitor LIOP progress are provided on the MA's website.¹⁴¹ They include details on progress made, challenges faced, and measures taken to address challenges. They also include data on the indicators defined within the programme. Several examples were provided in Section 2.2 above, and more specific examples are provided in the table below. Overall, the **rate of absorption remains low** for projects that have a biodiversity focus, and **progress appears to be very limited** in the period 2015-2020. In the latest AIR, indicators for biodiversity-relevant measures relating to investment priority 6d are still far from their target values (2023).

Table 6.5: Results from annual monitoring reports, with a focus PA4, investment priority 6d

Annual report	Selected results
Annual report 2015	Progress was reported on the development and approval of funding guides (i.e., guides used by beneficiaries to request financing), as well as a methodology for the selection and evaluation of projects (with the contribution of the MC). No progress against the output and results indicators for investment priority 6d was recorded in 2015.
Annual report 2016	Projects from the period 2007-2013 continued to be transferred to the new funding programme. In the area of environment, it was reported that 52 such projects were being transferred (29 projects related to water, 20 related to waste management and

¹⁴¹ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

	<p>contaminated sites, one related to district heating, and two focused on floods), with a total value of nearly €1.3 billion. In 2016, 15 out of the 52 projects received approval for financing (estimated at around €595.18 million).</p> <p>In the area of biodiversity (PA4), 58 projects requested funding in 2016 (total value of €75 million), out of which three were approved, three were rejected, and the rest were under evaluation.</p> <p>Most biodiversity-relevant indicators had values of 0, except for the indicator on the number of Natura 2000 sites with custodians and active conservation measures. The indicator amounted to 149 (vs target value of 531 by 2023) (see p.39 of annual report).</p>						
<p>Annual report 2017</p>	<p>At OP level, 263 projects requested financing in 2017 (total value of €7 billion), and 161 contracts were signed (total value of €5.9 billion). The rate of contracting grew from 5.5% in 2016 to around 50% in 2017, however, progress varied across different PAs. For example, the rate was of 49% for PA 3, 17% for PA 4, and 11% for PA 5 (vs 75% for PA 1 and less than 2% for PA 6 and PA 8).</p> <p>Total spending on PA 4 in 2017 amounted to less than €0.5 million or 0.11% of the allocated expenditure.</p> <p>Progress against the output and results indicators defined for investment priority 6d in 2017 was:</p> <table border="1"> <thead> <tr> <th>Output indicators</th> <th>Cumulative (2017)</th> <th>Target (2023)</th> </tr> </thead> <tbody> <tr> <td>Surface area of habitats supported to attain a better</td> <td>0 ha <i>(forecast based on selected</i></td> <td>60,000 ha</td> </tr> </tbody> </table>	Output indicators	Cumulative (2017)	Target (2023)	Surface area of habitats supported to attain a better	0 ha <i>(forecast based on selected</i>	60,000 ha
Output indicators	Cumulative (2017)	Target (2023)					
Surface area of habitats supported to attain a better	0 ha <i>(forecast based on selected</i>	60,000 ha					

	conservation status [CO23]	projects: 41,268 ha)									
	Measures/management plans/action plans approved [2S38]	0 (forecast based on selected projects: 53)	70								
	Surface of restored previously degraded ecosystems [2S39]	0 ha	2,000 ha								
	<table border="1"> <thead> <tr> <th>Results indicators</th> <th>Cumulative (2017)</th> <th>Target (2023)</th> </tr> </thead> <tbody> <tr> <td>Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]</td> <td>279</td> <td>531</td> </tr> <tr> <td>Restored previously degraded ecosystems* [2S37]</td> <td>0%</td> <td>10%</td> </tr> </tbody> </table>			Results indicators	Cumulative (2017)	Target (2023)	Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]	279	531	Restored previously degraded ecosystems* [2S37]	0%
Results indicators	Cumulative (2017)	Target (2023)									
Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]	279	531									
Restored previously degraded ecosystems* [2S37]	0%	10%									
<i>*Biennial assessment, starting with 2019.</i>											
Annual report 2018	<p>At OP level, 396 projects requested financing and 236 contracts were signed in 2018 (the latter amounting to a total eligible value of €9.8 billion). The contracting rate thus reached 90.84% (as a share of the total revised allocation of €10.84 billion¹⁴²). Focusing only on the environment pillar, the rate of contracting reached 76.73% (as a share of the total revised allocation of €3.78 billion). In 2018, the OP distributed €365.54 million in payments to beneficiaries (or 9.66% of the allocated budget). Progress against the output and results indicators defined for investment priority 6d in 2018 was:</p> <table border="1"> <thead> <tr> <th>Output indicators</th> <th>Cumulative (2018)</th> <th>Target (2023)</th> </tr> </thead> <tbody> <tr> <td>Surface area of habitats supported to attain a better</td> <td>0 ha (forecast based on selected</td> <td>60,000 ha</td> </tr> </tbody> </table>			Output indicators	Cumulative (2018)	Target (2023)	Surface area of habitats supported to attain a better	0 ha (forecast based on selected	60,000 ha		
Output indicators	Cumulative (2018)	Target (2023)									
Surface area of habitats supported to attain a better	0 ha (forecast based on selected	60,000 ha									

¹⁴² In previous version of the OP, the total budget amounted to €11.8 billion. It appears that the budget was revised downward between 2017 and 2018, and once again thereafter. Today, it is reported to be €10.1 billion.

conservation status [CO23]	projects: 41,416 ha)	
Measures/management plans/action plans approved [2S38]	0 (forecast based on selected projects: 84)	70
Surface of restored previously degraded ecosystems [2S39]	0 ha	2,000 ha
Results indicators	Cumulative (2018)	Target (2023)
Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]	292	531
Restored previously degraded ecosystems* [2S37]	0%	10%

**Biennial assessment, starting with 2019.*

[Annual report 2019](#)

At OP level, 532 projects requested financing and the number of contracts signed reached 304 in total (+68 compared to the previous year). Eligible expenditure approved reached €2.87 billion or 26.5% of the total allocated budget of €10.84 billion. Focusing solely on PA 4, 75 contracts were signed corresponding to an eligible financing amount (i.e., decided amount) of nearly €170 million (+€64.23 million compared to the previous year) or 44% of the total budget. Actual expenditure, however, only reached approximately 7% of the total budget. Monitoring on the progress of PA 4 faced difficulties due to a change in the legislation surrounding the management of protected areas.

Progress against the output and results indicators defined for investment priority 6d in 2019 was:

	Output indicators	Cumulative (2019)	Target (2023)
	Surface area of habitats supported to attain a better conservation status [CO23]	0 ha <i>(forecast based on selected projects: 143,720 ha)</i>	48,686 ha
	Measures/management plans/action plans approved [2S38]	0 <i>(forecast based on selected projects: 103)</i>	57
	Surface of restored previously degraded ecosystems [2S39]	0 ha	1,623 ha
	Results indicators	Cumulative (2019)	Target (2023)
	Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]	308	531
	Restored previously degraded ecosystems* [2S37]	0%	10%
	<i>*Biennial assessment, starting with 2019.</i>		
Annual report 2020	<p>According to the AIR, approximately €214 million (or 72% of total allocations) in eligible expenses have been contracted (i.e., decided) (representing 84 signed contracts). As of 2020, three projects have been completed. Actual spending amounts to approximately €58 million, out of which nearly €47 million have been reimbursed (i.e., nearly 19% of ERDF allocations). The number of management plans for protected natural areas under implementation are limited, and no projects tackling contaminated sites have requested financing.</p> <p>Progress against the output and results indicators defined for investment priority 6d in 2020 was:</p>		

Output indicators	Cumulative (2020)	Target (2023)
Surface area of habitats supported to attain a better conservation status [CO23]	46 ha <i>(forecast based on selected projects: 152,511 ha)</i>	48,686 ha
Measures/management plans/action plans approved [2S38]	3 <i>(forecast based on selected projects: 104)</i>	57
Surface of restored previously degraded ecosystems [2S39]	0 ha	1,623 ha

Results indicators	Cumulative (2020)	Target (2023)
Number of Natura 2000 sites with an operational custodian/manager, with active conservation objectives [2S36]	310	531
Restored previously degraded ecosystems* [2S37]	0%	10%

**Biennial assessment, starting with 2019.*

Source: Own development based on references listed in the table and found on the Ministry of European Projects and Investment's website.¹⁴³

6.6 Summary of findings

Romania's Large Infrastructure Operational Programme (LIOP) 2014-2020 was selected for its level of biodiversity-tracked expenditure originating from regional development and cohesion funding (i.e. from the ERDF and CF)¹⁴⁴. The OP is one of Romania's largest funding programmes originating from EU funds, with a budget of €10.6 billion in total.¹⁴⁵ The programme consists of 10 PAs, with three of them having an environmental focus. Although biodiversity-tracked intervention fields within the scope of the present study go beyond interventions that have a direct impact on biodiversity, a large part of the analysis of this case study reflected the evolution and status quo of PA 4 – the axis with the strongest focus on biodiversity. More specifically, investment priority 6d (sub-objective of PA 4) covers the protection and restoration of

¹⁴³ <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

¹⁴⁴ <https://cohesiondata.ec.europa.eu/stories/s/Tracking-cohesion-policy-biodiversity-investments/tdxi-ibcn/>

¹⁴⁵ https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/romania/2014ro16m1op001

biodiversity and the promotion of ecosystem services, including through Natura 2000 sites and green infrastructure.

This case study investigates biodiversity spending through the LIOP over the period 2015-2021. Findings show that only a **small share of the LIOP budget is destined for biodiversity-relevant interventions**, and that this share has declined from 2015 (3% or €285 million) to 2021 (2% or €221 million).¹⁴⁶ In practice, Romania struggles to spend this budget, as can be seen from the **low absorption rate**. Overall, there is a large discrepancy between planned, decided, and actual spending. At OP level, eligible spending reached a maximum of 54% of planned expenditure in 2021. The absorption rate is even lower when we look at biodiversity spending only (i.e., spending relevant to investment priority 6d). Furthermore, **indicators relating to investment priority 6d are still far from their target values** with only 46 ha of habitats supported to achieve a better conservation status (vs target of 48,686 by 2023), three management plans approved (vs target of 57 by 2023), and no degraded ecosystems have been restored. The most successful indicator is the one on the results indicator on the number of Natura 2000 sites with an operational custodian/manager and active conservation objectives, which reached 310 sites (vs target of 531 by 2023).¹⁴⁷ The lack of progress against these targets also resulted in a downward revision of certain targets in 2019.

These findings show that Romania struggles with implementation and that the protection and conservation of biodiversity and ecosystem services are not of high priority. More efforts are needed to meet the targets defined by the LIOP. In addition, investments across all PAs need to carefully consider their impact on biodiversity, as is explained in the programme's environmental assessment.

Meeting some of the OP's biodiversity targets relating to the management of Natura 2000 sites (e.g., custodianship, management plans) is very important, but more is needed in terms of achieving better conservation status and implementing the management plans. A large majority of projects having requested funding under the LIOP consist of management plans for Natura 2000 sites and other protected areas, but the project portfolio does not include any projects aimed at restoring degraded ecosystems. To this end, the evaluation of PAs 3-5 of the LIOP (2020) recommends the promotion of projects aimed at restoring degraded ecosystems.

The MA could try to investigate the lack of projects tackling degraded ecosystems and the low absorption rate in Romania. Future OPs could consider the incentives that indicators represent, and try to define indicators that promote more action in terms of improving biodiversity and conservation status of ecosystems on the ground. Greater focus on facilitation and encouragement of relevant project proposals may be needed.

¹⁴⁶ Calculation based on EU funds, excluding national contributions.

¹⁴⁷ See evaluation of environmental actions (2020) and AIR 2020, found here: <https://mfe.gov.ro/programe/autoritati-de-management/am-poim/>

The LIOP's environmental assessment also specifies the need to integrate biodiversity considerations across other policy areas and intervention fields through horizontal measures (e.g., restoring degraded ecosystems, promoting green infrastructure). This could be better monitored and institutionalised in the future.

7. CASE STUDY: ERDF AND COHESION FUND IN CZECHIA - OPERATIONAL PROGRAMME ENVIRONMENT (2014CZ16M1OP002)

Researcher: Pavla Cihlarova, Trinomics

7.1 Background to case study

Operational Programme Environment has been selected due to its relevance to biodiversity as 'Protection of nature and countryside' is one of its priority topics.

The administrative bodies responsible for the programme are as follows:

- **Ministry of Environment**, being the managing authority / governing body;
- **Ministry of Finance**, being the body responsible for certifications, audits and the body receiving payments from the Union Funds;
- **State Environmental Fund of the Czech Republic and Nature and Landscape Protection Agency of the Czech Republic**, being the bodies responsible for receiving and evaluating applications and administrating approved projects (the latter being the administrative body responsible for the 'protection of nature and countryside').¹⁴⁸

During the **development process** of the OP Environment the governing body (the Ministry of Environment) was required to apply the partnership principle. Consultations with the partners were carried out continuously, including consultations on the process and schedule for the preparation of the programme, and partners received information about its preparation and all steps. During the preparation of the programme, bilateral negotiations with relevant partners, public hearings and presentations (inter alia within the SEA process and ex ante evaluation) were expected. Working versions of the OP Environment were consulted on with relevant departments of the Ministry and then with other stakeholders (e.g. other ministries, NGOs, relevant associations or academia).¹⁴⁹

The scope of the programme covers investments for projects focused on protection of the environment in the following topics: clean water, air quality, waste management, nature protection and energy saving.¹⁵⁰

The key document outlining national biodiversity priorities relevant to the development of the programme was the Czech **National Biodiversity Strategy for**

¹⁴⁸ See <https://www.sfzp.cz/dotace-a-pujcky/operacni-program-zivotni-prostredi/> and [https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/\\$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf)

¹⁴⁹ See [https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/\\$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf); a complete list of the stakeholders involved in the preparation of the program are listed in section 13.3

¹⁵⁰ See <https://www.opzp.cz/>

the years 2016 – 2025¹⁵¹. Its main objective is to maintain, and, in some selected cases, to improve, the state of biodiversity. To achieve that the Strategy has four main priorities:

1. *Society recognising the value of natural resources* - this area is mainly focused on the integration of the conservation of biodiversity in the public and private sectors, increasing awareness of its importance in a global context, the issues of conservation of biodiversity in the context of tourism, and the provision of adequate financial support.
2. *Biodiversity flourishing in the long term and protection of natural processes* - this is aimed at sufficiently ensuring the protection of selected biodiversity components at all levels (even in the form of its sustainable use), and also at supporting natural processes in open landscape and settlements.
3. *Environmental friendly use of natural resources* - here the Strategy focuses in particular on the improvement of practices in the area of economic management and the use of biodiversity components and natural resources in selected ecosystems.
4. *Strategic planning and policy* - Here the Strategy is focused on securing relevant information in the field of knowledge, monitoring and research of biodiversity, establishing procedures for national assessment of ecosystem services, and the definition of priorities in the Czech Republic's involvement in international biodiversity conservation.

Each of these priorities has several objectives that should aid in achieving them. The strategy focuses on a relatively low number of objectives, which, however, are urgent and achievable.

7.2 Programme priorities

The **Partnership Agreement for the Czech Republic**¹⁵² (in its full name the Partnership Agreement for the Programming Period 2014 -2020 – Czech Republic) covers the selected OP Environment and confirms that it is co-financed by CF and ERDF. It identifies particular challenges related to agriculture and forestry, notes the importance of completing the Natura 2000 network, and sets out a range of related development needs.

The **Programme Document for the OP Environment**¹⁵³ provides a thorough description of each of its six priorities. The priorities are the following:

- Priority 1 - Improving water quality and reducing the risk of floods

¹⁵¹ See [https://www.mzp.cz/web/edice.nsf/4A46CA81084E521FC1258050002DAE0C/\\$file/NBS_CR_2016-2025.pdf](https://www.mzp.cz/web/edice.nsf/4A46CA81084E521FC1258050002DAE0C/$file/NBS_CR_2016-2025.pdf)

¹⁵² Partnership Agreement for the Programming Period 2014 -2020 – Czech Republic available at <https://www.dotaceeu.cz/getmedia/4589b39c-4215-4f0b-914d-b296678db1c8/Partnership-agreement-technical-revision-approved-by-the-EC-on-13-April-2016.pdf?ext=.pdf>

¹⁵³ Programme document Operational Programme Environment 2014 – 2020 (available in CS at [https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/\\$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/opzp_2014_2020/$FILE/OFN-PD_OPZP_2014-2020-20200723.pdf))

- Priority 2 – Improving air quality in human settlements
- Priority 3 – Waste and material flows, environmental burdens and risks
- Priority 4 – Protection of nature and landscape
- Priority 5 – Energy saving
- Priority 6 – Technical support

No significant amendments of the contents of the OP have been identified. The only change to the programme that has been identified is that due to the covid-19 situation several deadlines for submission of applications were extended. The Programme Document relied upon throughout this case study is in force as of 12 December 2019 and is the only Programme Document publicly available.

7.2.1 Biodiversity priorities identified

The **Programme Document** has two specific targets relevant to biodiversity, namely specific target 4.1 to 'ensure a favourable condition of the subject of protection of nationally important protected areas' and 4.2 to 'strengthen biodiversity'. Altogether approx. 40% of the total budget allocated to priority 4. Approx. 30% of the priority 4 budget was allocated to specific target 4.1 and approx. 10% of the priority 4 budget was allocated to specific target 4.2.

The programme document describes what should be achieved by 2020 under target 4.1¹⁵⁴:

- the status of populations of rare and endangered species as well as natural habitats is improving; the requirements arising from EU legislation and international conventions are implemented
- the implementation of the Natura 2000 system is completed
- conditions are created for the preservation of natural values, including sufficient information for their protection, especially in protected areas
- the visitor infrastructure in protected areas is optimized in relation to the objects of protection and information of visitors

The types of supported measures to achieve the goals of target 4.1¹⁵⁵ include providing care for nature parks, protected areas or Natura 2000 sites on state-owned land (implementation of measures to ensure or improve the condition of objects protection, including the creation or improvement of visitor infrastructure) or collecting information, creation of information and technical tools and materials to ensure protection and care of these sites and their target species.

¹⁵⁴ Programme document p115

¹⁵⁵ Programme document p121

In relation to specific target 4.1, the biodiversity status that should be achieved by 2020 is¹⁵⁶:

- populations of rare and endangered species as well as natural habitats improving,
- requirements arising from EU legislation and international conventions are implemented,
- conditions are created for the preservation of natural values, including sufficient information for their protection,
- conditions are created for the survival of species in a strongly anthropogenically influenced environment,
- measures are applied to prevent and minimize damage caused by specially protected animal species or non-native species,
- the occurrence and routes of spread are underlined and the occurrence of invasive species threatening biodiversity is limited.

The types of measures supported to achieve the goals of target 4.1 include prevention of the spread and control of invasive species, care for rare species and their habitats or care for valuable habitats and their restoration and creation¹⁵⁷. The target area is the entire territory of the Czech Republic except for the city of Prague. Main target groups are landowners and tenants, government agencies and organizations involved in nature and landscape protection.

The **Partnership Agreement** states that the ERDF will mainly contribute to increasing the sustainable use of natural resources, biodiversity and climate action. Substantial amounts will also be invested to improve the competitiveness of the agri-food sector, as well as the balanced territorial development of rural communities and economies.

7.2.2 Output and outcome measurements relevant to biodiversity

The progress of the Czechia OP towards the output indicators relevant to the ERDF/CF operational fields tracked for biodiversity is summarised in the table below.

Table 7.6: Biodiversity related indicators for ERDF/CF funding in Czechia

Source: European Structural and Investment Funds on ERDF/CF available at <https://cohesiondata.ec.europa.eu/EU-Level/ERDF-CF-Common-Indicator-by-Member-State-Filter-fo/2kgk-bg9r>

Indicator	Priority	Fund	Unit	Target value	Implemented in 2017	Implemented in 2018
Water supply: Additional population	1	CF	Persons	150 000	0	5 708

¹⁵⁶ Programme document p117

¹⁵⁷ Programme document p122

served by improved water supply						
Wastewater treatment: Additional population served by improved wastewater treatment	1	CF	p.e.	70 000	3 364	5 666
Nature and biodiversity: Surface area of habitats supported to attain a better conservation status	4	ERDF	hectares	14 070	116.9	815.8

The programme document explains the nature and biodiversity indicator as meaning the total area on which measures are implemented to strengthen the natural functions of the landscape, i.e. the restoration of natural or near-natural landscapes in a way that enhances ecological stability and biodiversity, improves water regime, reduces risks of soil erosion and contributes to strengthening adaptation to climate change.

7.3 Funding allocated to biodiversity-tracked measures

7.3.1 Allocations

The public expenditure (comprising the ERDF/CF funding and the national funding) allocated to PO 4 was EUR 351.7 million, which amounts to 13.3% of the total budget for the programme.

- Specific objective 4.1 (favourable status of nationally protected areas): 30% of the budget allocated to PO 4.
- Specific objective 4.2 (strengthening biodiversity): 10% of the budget allocated to PO 4.

Table 7.7: Planned expenditure and current spending on measures relevant for Natura 2000

Source: Draft PAF for Czechia 2021-2027 funding period. Values in CZK

Category of intervention (OPE Environment, no differentiation between interventions 85 and 86)	Allocation to measures relevant for Natura 2000		Current spending on measures relevant for Natura 2000		Comments (relevance, experience to-date, challenges for the next period)
	EU	National	EU	National	
Specific objective 4.1 To ensure a favorable status of the subject of protection of nationally protected protected areas.	2.638.013.000	465.532.000	1.491.666.000	30.287.000	Support for the implementation of the Natura 2000 network, care planning and care provision; monitoring, preparation of management plans / summaries of recommended measures, protection, management. This SO is the primary source for the Natura 2000 network from the OPE.
Specific objective 4.2 Strengthen biodiversity	604.338.000	106648000	101288000	16356000	In relation to the Natura 2000 network, it is mainly used for the management of species of European importance and their habitats and the prevention of damage caused by selected species (eg wolf)
Other categories	3.792.351.000	669238000	135405000	3019000	In relation to the Natura 2000 network, it is mainly used for the renewal of pools, wetlands and alleys.
Subtotal	7.034.702.000	1.241.418.000	1.728.359.000	49.662.000	
TOTAL		8.276.120.000		1.778.021.000	

Table 7.8: Total allocations from ERDF and CF to Czechia in 2014 to 2020 period

Source: Draft PAF for Czechia 2021-2027 funding period. Values in CZK

Total allocation from ERDF to the Member State/region:	298.517.091.000	CZK
Total allocation from Cohesion Fund to the Member State/region:	153.598.652.000	CZK

7.3.2 Expenditure in practice

The Annual Report¹⁵⁸, published in 2019, reported that as of December 2019, 49 calls were issued for the entire Priority Objective 4 with a total value of EUR 593 mil, and a total of 2 454 requests were registered with a volume of 137% of the allocations to OP 4. 1 170 of these requests were approved and as of December 2019, 77% of the approved projects were implemented or completed. In total, 52% of the PO allocation was committed. The evolution of environmental and biodiversity allocations over the course of the OP is indicated by an updated version of the Annual Report¹⁵⁹. The 2020 Annual Report provided an updated overview, stating that as of December 2020 a total of 54 calls were issued for PO 4, thus an additional 5 calls in the course of 2020. The total value of all calls under PO 4 at that stage was EUR 614 mil.

The 2019 Annual Report stated that not enough interest was expressed in specific objectives 4.2 and 4.4, because many of the measures within these specific objectives do not have any economic added value, their realisation is on a voluntary basis and some of the measures receive relatively low financial support. As a result, a decision

¹⁵⁸ See Annual report on the implementation of the program for 2019 (in CS) available at https://www.opzp.cz/files/documents/storage/2020/08/24/1598277104_V%C3%BDro%C4%8Dn%C3%AD%20zpr%C3%A1va%20OP%C5%BDP%20za%20rok%202019%20v%C4%8D.%20p%C5%99%C3%ADloh.pdf

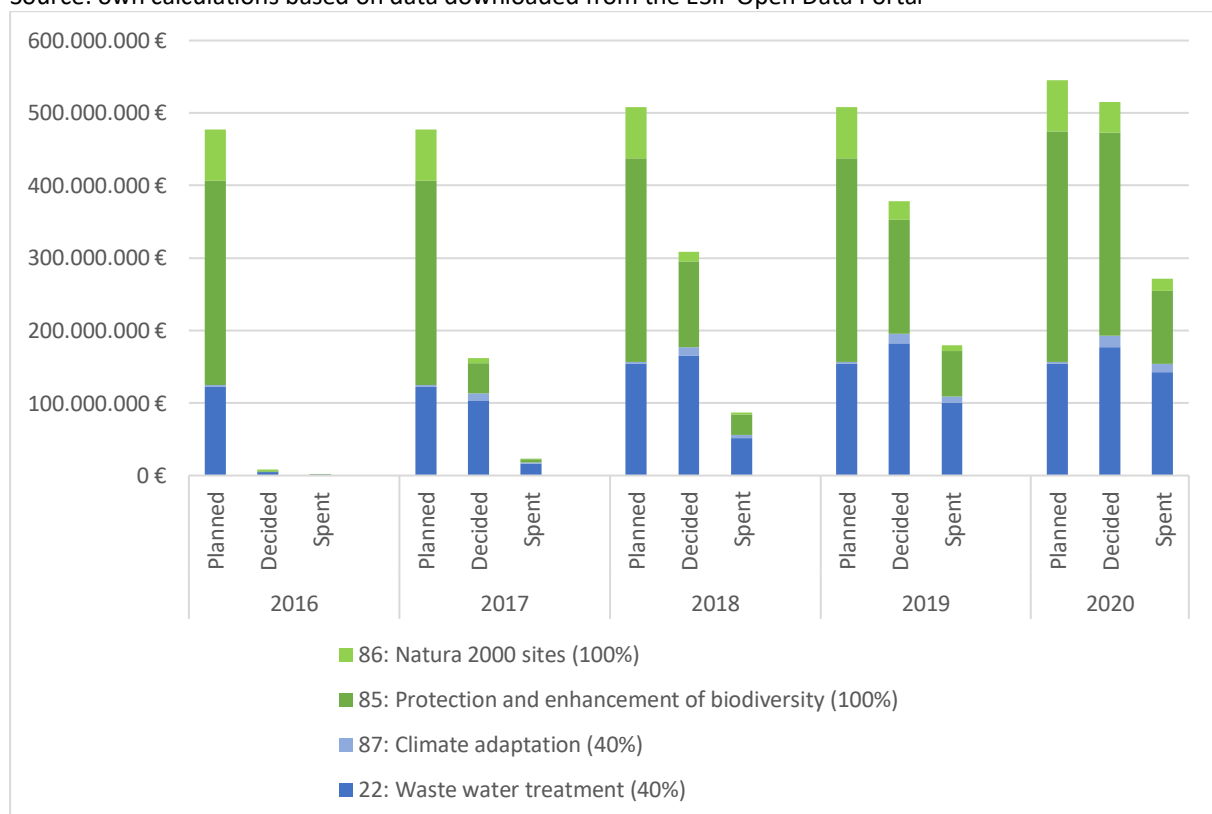
¹⁵⁹ See Annual report on the implementation of the program for 2020 (in CS) available at https://www.opzp.cz/files/documents/storage/2021/07/23/1627029091_Vyrocn%C3%AD%20zpr%C3%A1va%20OPZP%202020-vc%20priloh.pdf

was made to re-allocate funds from SO 4.2 to SO 4.1 and from SO 4.4 to SO 4.3. The re-allocation is said to have had a positive impact on project requests under SO 4.1 and 4.3. In 2020 there was again a much higher interest expressed in relation to SOs 4.1 and 4.3. Considering the continuing lesser interest in specific objectives 4.2 and 4.4, funds from these SOs (as well as from other specific objectives under different priority objectives) were again re-allocated to the other specific objectives.

Analysis of the EU funds allocated to, decided, and spent on projects involving the intervention fields tracked by the Commission for biodiversity confirms the disappointing level of implementation for biodiversity-focused projects. As Figure 7.6 shows, planned expenditure on the 100% tracked fields (i.e. those more directly focused on biodiversity outcomes) represented the bulk of tracked expenditure (and roughly half of the total expenditure on these intervention fields). However, uptake has been very low, and in practice a lower total of tracked biodiversity expenditure has been achieved, delivered primarily through the less relevant (but 40% tracked) waste water treatment intervention field.

Figure 7.6: Biodiversity Tracked Expenditure according to Intervention Fields (40%/100%) for 2016 to 2020 - CZ (OP Environment)

Source: own calculations based on data downloaded from the ESIF Open Data Portal



7.3.3 Examples of expenditure

The official website of the OP Environment provides a 'gallery' of projects funded from the Operational Programme¹⁶⁰. Several projects were identified that can be classified as biodiversity-relevant. Three projects were specifically relevant to SO 4.1:

- *Revitalisation of a national natural monument Pastvisko* - The territory of national natural monument Pastvisko near Lednice is part of the Natura 2000 area of Niva-Dyje. The long-term goal of the protection of this specially protected area is to improve the condition of habitats, stop the aging process of the wetland and the loss of rare and important species of plants and animals. The total value of this project amounts to CZK 10 765 597 and the entire value is being financed from EU funds.
- *Guidance and providing direction in the town of Hrensko* - under this project, the visitor infrastructure in the 1st zone of the Czech Switzerland National Park was repaired. The modifications direct the visitors of the national park in selected parts, which reduces and prevents the negative effects of high attendance on the local nature. The total costs of this project amounted to CZK 9 163 034, where CZK 7 788 579 was financed from the EU funds.
- *Cycling path in the town of Kardasova Recice* - the project directs visitors to the Třeboňsko Protected Landscape Area, in the immediate vicinity of the city. An educational cycle path was built with two circuits - a family circuit and a circuit for the curious, which partially overlap. The bike path is complemented by wooden elements - boards, benches, stands and game elements. The costs of this project were CZK 718 557, out of which CZK 610 774 was financed by EU funds.

Under specific objective 4.2, two other examples of relevant projects have been identified:

- *Revitalization of a historic alley* - The aim of revitalization is to preserve and improve the condition of the represented ecosystems and to ensure suitable conditions for the permanent occurrence of typical and endangered species of wild organisms. Another goal is the treatment of senescent trees. The total cost of this project (CZK 2 666 190) were financed from EU funds.
- *Fencing of drainage ditches to restore the peatland habitat* - The aim of the project is to stop the drying up of the peat bog of the Nová louka nature reserve and to stabilize the groundwater level by building a cascade of wooden dams, which will dam the ditches. Restoring the groundwater level close to the surface will allow the process of natural restoration of a valuable habitat. Majority of the total costs of the project (CZK 1 641 269 out of CZK 1 930 905) were financed from EU funds.

The three most recent Annual Reports publicly available, for 2018,2019 and 2020 make a reference to only one 'significant in size' project financed from the OP Environment,

¹⁶⁰ See <https://www.opzp.cz/galerie-projektu/>

namely finalisation of the sewage system in the city of Brno. However, this project is not biodiversity-relevant, as it was issued under PO 1.

7.4 Information from programme monitoring

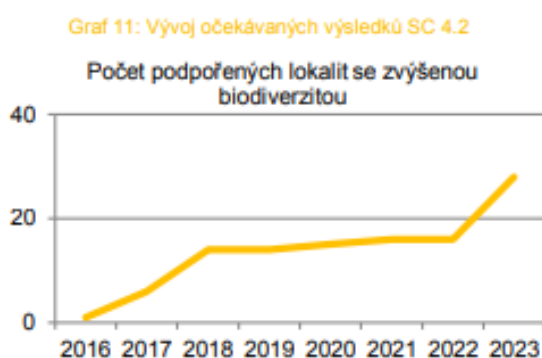
The Programme Document outlines that a monitoring committee was to be established (as required under the Common Provisions Regulation) to monitor the programme, to review its implementation, and its progress towards achieving the objectives of the programme. No outputs other than minutes from the committee meetings, however, have been identified.

In 2017 an evaluation study¹⁶¹ was carried out with the aim to track progress in achieving the objectives. The report tracked progress of implementation of the programme up until and including December 2016. The evaluation concluded that 27.1% of the allocated budget to PO4 was registered as requested for distribution. Out of these 27.1%, 1.2% were committed and 0.02% were paid out.

The study identified a high risk of most of the indicators not being met. No information was provided for specific objective 4.1, however for 4.2 it was expected that the first tangible results of approved projects were to become apparent in 2018. Figure 7.7 outlines the expected development of outcomes of specific objective 4.2 from December 2016 onwards:

Figure 7.7: Expected development of outcomes of specific objective 4.2 from December 2016

Source: Graph 11 in evaluation study¹⁶²



No more recent outputs on the progress achieved because of the programme have been identified.

¹⁶¹ See 2017 Evaluation study available in CS at [https://www.mzp.cz/C1257458002F0DC7/cz/prioritni_osa_6_seznam_projektu/\\$FILE/ofeu-zhodnoceni_%20plneni_cilu_opzp_2017-20200918.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/prioritni_osa_6_seznam_projektu/$FILE/ofeu-zhodnoceni_%20plneni_cilu_opzp_2017-20200918.pdf)

¹⁶² See 2017 Evaluation study available in CS at [https://www.mzp.cz/C1257458002F0DC7/cz/prioritni_osa_6_seznam_projektu/\\$FILE/ofeu-zhodnoceni_%20plneni_cilu_opzp_2017-20200918.pdf](https://www.mzp.cz/C1257458002F0DC7/cz/prioritni_osa_6_seznam_projektu/$FILE/ofeu-zhodnoceni_%20plneni_cilu_opzp_2017-20200918.pdf)

7.5 Summary of findings

Biodiversity-related outcomes were not among the top priorities of the OP Environment. Total allocation to PO 4 was EUR 351.7 million, which amounted to only 13.3% of the total budget for the programme. Of the two specific objectives directly relevant to biodiversity, specific objective 4.2 (improvement of biodiversity) received only 10% of the budget allocated to PO 4, while specific objective 4.1 (favourable status of nationally protected areas) was allocated 30% of the PO4 budget.

It appears that delivery of these objectives has not been very successful. In comparison with other priority objectives, less interest was expressed in the specific objectives related to biodiversity, especially in 4.2 (and 4.4). The reasons given were that these specific objectives do not have any economic added value, their realisation is on voluntary basis, and some of the measures receive low financial support. However, these challenges would already have been apparent at the programming stage, and measures could have been adopted to address them, particularly higher levels of financial support, and greater investment of both time and money by the programme authorities in encouragement facilitation of project development.

A total of 4 projects financed from the OP Environment appear to be genuinely biodiversity relevant. These projects were quite small scale and do not appear to contribute to improvement of biodiversity status on a large scale. It therefore remains a question whether the 40% of the budget allocated to PO 4 has been properly represented in the projects where the expenditure has been spent in practice.

8.CASE STUDY: EMFF IN PORTUGAL

Researcher: Maha Cziesielski, Trinomics

8.1 Background

In 2015, Portugal secured a major investment through the European Marine and Fisheries Fund (EMFF) to support its maritime, fisheries and aquaculture sectors in mainland Portugal as well as the outer regions of Azores and Madeira. The programme was considered to have high potential to address marine biodiversity related issues, in the context of bringing benefits both to society and the environment.

The EMFF is primarily a shared management fund and is one of the European Structural Investment Funds (ESIF). The agreed approach to investment was set out in the Partnership Agreement of Portugal¹⁶³, agreed in 2014, and implemented through the Operational Programme submitted in 2015¹⁶⁴. The programme has been termed MAR2020. The programme was developed in collaboration with relevant territorial actors from civil society, the public, trade unions, business associations, institutional, economic, and social partners, and the National Association of Portuguese Municipalities. Two public consultation sessions were held in 2014, which gave the different stakeholders and representatives of the main institutional bodies interested in the programme the opportunity to discuss a SWOT analysis conducted for the ex-ante evaluation of the programme, and the needs identified for expenditure¹⁶⁵. The meetings were attended by stakeholders from 28 groups including representatives from the Associations, Producers' Organisations, Local Fisheries Action Groups (GAL-PESCA), Regional Directorates of the Autonomous Regions and Public Administration Bodies¹⁶⁶.

Unlike other funds implemented nationally, the programme covers all regions of Portugal. As such, there is only one national monitoring committee that covers the entirety of the implementation of the EMFF programme across Portugal. MAR2020 is the general managing authority, followed by the Instituto de Financiamento da Agricultura e Pescas, I.P. (IFAP, I.P.) as the certifying authority and the audit authority Inspeção Geral de Finanças. Bodies responsible for implementing the control, inspection and enforcement system of the programme include the Directorate General of the Maritime Authority (DGAM), Directorate General of Natural Resources, Security and Maritime Services (DGRM), the Regional Directorate of Fisheries of Madeira (DRPM), Portuguese Air Force (FAP), National Republican Guard - Coastal Control Unit

¹⁶³ Partnership Agreement (2014): Portugal Partnership Agreement for 2014 -2020

¹⁶⁴ Operational Programme (2014): European Maritime and Fisheries Fund – Operational Programme for Portugal, EC(2015)8642 – Version 1.3

¹⁶⁵ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.3

¹⁶⁶ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: list of stakeholders Operational Programme, Annex II

(GNR) and the Regional Fisheries Inspectorate of the Azores (IRPA). The MAR2020 programme focuses, in line with the objectives of the EMFF, on supporting the reform of the Common Fisheries Policy (CFP) and the implementation of the Integrated Maritime Policy (IMP) in Portugal. The programme's objective is to promote competitiveness based on knowledge and innovation, to ensure sustainable exploitation of living biological resources, and to contribute to the good environmental status of marine waters and to the development of coastal areas and employment and promote the integrated maritime policy¹⁶⁷.

8.2 Programme priorities

The Partnership Agreement (PA) of Portugal¹⁶⁸ covers five funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). The agreement focuses on key thematic domains relating to competitiveness and internalisation, social inclusion and employment, human capital, and sustainability and efficient use of resources. Within these, the interventions focus on the following priorities¹⁶⁹:

- Improving entrepreneurship and business innovation – including developing the e-economy, and improving SME access to finance their investments and advanced business services;
- Boosting R&D knowledge transfer between academia and businesses, strengthening research and innovation systems in enterprises and developing an innovation-friendly business environment;
- Increasing economic competitiveness by enhancing the production of tradable goods and services;
- Tackling unemployment, in particular youth unemployment through the Youth Employment Initiative, improving the quality of education and training and a better match with labour market demand, raising the qualifications and skills of the active labour force and preventing early school leaving;
- Poverty reduction through improved access to services and support to the social economy;
- Contributing to the modernisation of the public administration through capacity building and investments in human resources development and e-governance;
- Supporting the shift to a low carbon and resource-efficient economy: energy efficiency and improved management of natural resources.

Here, conservation and enhancement of biodiversity is mentioned in relation to sustainable growth and ensuring improved management of natural resources.

¹⁶⁷ Operation Programme (2014): European Maritime and Fisheries Fund – Operational Programme for Portugal, EC(2015)8642 – Version 1.3

¹⁶⁸ Partnership Agreement (2014): Portugal Partnership Agreement for 2014 -2020

¹⁶⁹ European Commission (2014). Summary of the Partnership Agreement for Portugal, 2014 – 2020

However, biodiversity protection and restoration is not explicitly defined as a primary objective in itself.

The EMFF plays a role in supporting Portuguese communities to unlock sustainable growth and bringing back fish stocks to sustainable levels by investing in better fishing techniques and diversifying maritime activities – ensuring that Portugal can benefit from marine resources in a way that does not endanger its marine environment. The agreement describes the focus of EMFF interventions as based on the principles of smart growth (based on knowledge and innovation), sustainable growth (based on the efficient use of resources and the protection of biodiversity), and inclusive growth (based on the creation and diversification of jobs in coastal areas), as well as the promotion of the other components of the Common Fisheries Policy (CFP) and the IMP.

Portugal benefited from a total ESIF contribution from the EU of EUR 28.84 billion in the 2014-2020 period, supporting programmes amounting (including national funding) to EUR 36.44 billion. The bulk of the EU funding came in the form of the ERDF, Cohesion Fund, and European Social Fund (around 78%). The EU's EMFF contribution was EUR 392.5 million (of a total of EUR 502 million) for the 2014-2020 period, amounting to around 1.4% of the total.

Within the eleven ESIF thematic objectives (TO), Portugal identified the following priorities (Thematic Objectives with allocations > EUR 1 million) for its EMFF expenditure:

- Strengthening research and innovation (TO1)
- Enhancing competitiveness of SME's for agriculture and fisheries (TO3)
- Supporting the shift to a low carbon economy (TO4)
- Promote climate change adaptation (TO5)
- Preserving and protecting environment and promoting resource efficiency (TO6)
- Promoting sustainable and quality employment (TO8)
- Promoting social inclusion, combating poverty (TO9)
- Investing in education and training (TO10)

The Portuguese EMFF Operational Programme (OP), MAR2020, set out the global objective of "Promoting competitiveness based on knowledge and innovation and ensuring the sustainable exploitation of living biological resources, contribute to the good environmental status of marine waters and to the development of coastal areas and employment and to promote the integrated maritime policy"¹⁷⁰ In order to achieve this, the OP focuses on the following national strategic priorities:

1. Promoting competitiveness based on innovation and knowledge (linked to TO3)

¹⁷⁰ Operation Programme (2014): European Maritime and Fisheries Fund – Operational Programme for Portugal, EC(2015)8642 – Version 1.3

2. Ensure the economic, social and environmental sustainability of the sector and contribute to the good environmental status of the marine environment and promote IMP (linked to TO6 and TO4)
3. Contribute to the development of coastal areas, increasing employment and territorial cohesion, as well as the training and qualification of professionals in the sector (linked to TO8)

Nonetheless, the OP itself is set out based on the EMFF's 6 priority axes and has the following allocation of funding for the different priorities:

Table 8.1: EMFF Union Priorities and respective EMFF funding allocation in Portugal's OP

Source: Portuguese EMFF Operational Programme (OP)¹⁷¹

EMFF Priority Axis	Objective	Percentage of EMFF funding
1	Promoting environmentally sustainable, resource efficient, innovative, competitive and knowledge based fisheries	26.4%
2	Fostering environmentally sustainable, resource efficient, innovative, competitive and knowledge based aquaculture	15%
3	Fostering the implementation of the CFP	14.1%
4	Increasing employment and territorial cohesion	8.9%
5	Fostering marketing and processing	28.3%
6	Fostering the implementation of the Integrated Maritime Policy	1.4%

Based on the allocation of funding, the OP shows a clear funding priority towards fostering the marketing and diversification and valorisation of seafood products, followed by promoting sustainable resource efficiency in fisheries.

There have been several amendments to the OP¹⁷², covering almost all priority axes of the EMFF as well as the autonomous regions of the Azores and Madeira individually. Reflecting on the progress of funding under the 6 Union Priorities, MAR2020 releases monthly statements, of which a summary of the most recent December 2021 statement is reflected in Table 8.2 below¹⁷³. Overall, Portugal reports a total planned eligible investment (including public, national and EMFF funding) of approximately EUR 1

¹⁷¹ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3

¹⁷² All amendments can be found under <http://www.mar2020.pt/regulamentacao/>

¹⁷³ MAR2020 – Pontos de Situação a 31/21/2021. Available at <https://www.mar2020.pt/pontos-de-situacao/>

billion (of which EUR 392 million from the EMFF). At the end of December 2021, a total of EUR 649 million has been paid out to beneficiaries, of which EUR 252 million is from the EMFF.

Table 8.2: Portugal's MAR2020 expenditure for EMFF priorities, as per December 2021

EMFF Priority Axis	Objective	Programmed expenditure			Payments made to beneficiaries		
		Public	EMFF	National	Public	EMFF	National
1	Promoting environmentally sustainable, resource efficient, innovative, competitive and knowledge based fisheries	134,760,132 €	96,044,312 €	38,715,820 €	100,910,312 €	70,991,064 €	2,991,949 €
2	Fostering environmentally sustainable, resource efficient, innovative, competitive and knowledge based aquaculture	866,667 €	65,000,000 €	21,666,667 €	55,110,814 €	41,333,112 €	13,777,702 €
3	Fostering the implementation of the CFP	611,824 €	49,902,250 €	11,280,199 €	24,525,117 €	20,056,990 €	4,468,127 €
4	Increasing employment and territorial cohesion	384,824 €	32,710,066 €	5,772,365 €	16,574,441 €	14,088,275 €	2,486,166 €
5	Fostering marketing and processing	1,477,419 €	122,518,781 €	25,223,151 €	112,296,394 €	94,942,727 €	17,353,667 €
6	Fostering the implementation of the Integrated Maritime Policy	69,264 €	5,194,813 €	1,731,605 €	3,041,358 €	2,281,018 €	760,339 €

8.2.1 Biodiversity priorities identified

The Partnership Agreement (PA) addresses biodiversity most strongly in relation to the establishment of further Natura 2000 sites and the Birds and Habitats Directive. Interventions relate to:

- I. collation and revision of knowledge on protected biodiversity;
- II. management of the Natura 2000 Network and enhancement of Protected Areas;
- III. designation of Natura 2000 sites in the marine environment, particularly offshore (p.77).

The priority objective of the national policy on nature and biodiversity is stated as focusing on the consolidation of measures for the active management of protected species and habitats and the biodiversity in general that supports the national system of classified areas, particularly the Natura 2000 Network and commitments made under the 2014-2020 Prioritised Action Framework (PAFs, p.78). The PAFs are strategic multiannual planning tools, aimed at providing a comprehensive overview of the measures that are needed to implement the EU-wide Natura 2000 network and its associated green infrastructure. Member States submit PAFs in line with the Multiannual Financial Framework (MFF), specifying the financing needs for specific nature protection measures and linking them to the corresponding EU funding programmes. In relation to marine areas, the PA notes that the EMFF should support biodiversity measures in relation to fisheries, safeguarding the integrity of marine habitats, maintaining and promoting the favourable conservation status of protected species and natural habitats (p.78).

In the financial priorities set out in the PA, priority 6.4 focuses on the protection and restoration of biodiversity and soils and the promotion of ecosystem services systems, including through the Natura 2000 network and green infrastructure (p. 173). Particular objectives and results to be achieved link to knowledge sharing and education, “protection and conservation of species and habitats with a view to increasing the number of species and habitats” and “consolidation of the effective management regimes of the Natura 2000 Network areas” among others (p. 173). A number of example actions are presented, such as the structural and functional ecosystem restoration of sensitive areas, including terrestrial and marine environments, interventions to prevent and contain risks or severe impacts on natural capital and ecosystems and improving national monitoring programmes for the state of conservation of protected natural values (p.173). The PA notes that the importance of protecting nature and biodiversity is covered as an objective of various funds. The PA also links to two other national strategies in relation to biodiversity, the National Strategy for the Conservation of Nature and Biodiversity for 2030 (ENCNB2030) and the National Strategy for the Ocean (ENM). These focus heavily on the conservation of natural heritage and biodiversity in society. The strategies link commitments to Aichi targets under the Convention on Biological Diversity, Natura 2000, and general

protected area management, including the establishment of 10% of marine protected areas (MPAs) in waters of Portugal by 2020.

The OP for Portugal's EMFF identified in its SWOT analysis that measures had to be taken to achieve environmentally sustainable fisheries and establish biodiversity restoration measures with the protection of marine habitats¹⁷⁴. In the description of the programme, it is clearly stated that MAR2020 will support the sustainable development of the marine sector through the promotion of biodiversity¹⁷⁵ and is also headlined as one of the programmes three main priorities (priority 2, see above). Under priority 2 of the OP restoration and protection of biodiversity is also identified as a priority regarding sustainable fisheries¹⁷⁶ and to the implementation of the IMP¹⁷⁷ The actions under priority 2 should also promote the protection and restoration of biodiversity in NATURA 2000 sites¹⁷⁸.

For the outermost regions (OR) of Madeira and the Azores, the OP aims at the creation of two large Marine Protected Areas (MPAs), one south of the Azores (Great Meteor MPA) and another between the Madeira Archipelago and the Iberian Coast (Madeira-Tore MPA)¹⁷⁹.

8.2.2 Output and outcome measurements relevant to biodiversity

The Commission's biodiversity tracking methodology treats 40% of EMFF spending reported under TO6 as biodiversity related. A set of EMFF measures have been linked by the Commission to TO6, and are therefore relevant to biodiversity expenditure¹⁸⁰ (although the tracking of expenditure depends on whether Member State authorities record expenditure as being under TO6). Table .3 summarizes output indicators for EMFF measures related to biodiversity reported in Portugal's OP. It should be noted that Member States choose their own measures to be applied regionally, however, the budget for the individual measures is not defined and thus only the overall reported output indicators are considered here. It is worth noting that these measures all overlap with the EMFF's measures contributing to climate change objectives.

Table 8.3: Biodiversity expenditure tracked measures under the EMFF, the output indicators and Portugal's targets set for 2023

Source: FAME report¹⁸¹, Portuguese EMFF Operational Programme (OP)

¹⁷⁴ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.13

¹⁷⁵ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.39

¹⁷⁶ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.41; 2.1

¹⁷⁷ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.43; 2.3

¹⁷⁸ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.42

¹⁷⁹ EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3: p.105

¹⁸⁰ FAME (2020): European Commission – Directorate General for Maritime Affairs and Fisheries, Unit D.3 (2020): FAME SU, EMFF implementation report 2019, Brussels.

¹⁸¹ FAME (2020): European Commission – Directorate General for Maritime Affairs and Fisheries, Unit D.3 (2020): FAME SU, EMFF implementation report 2019, Brussels.

Union Priority	Specific objective	EMFF measure	Output indicator	Target for 2023	Unit	Included in Performance Framework
<i>1- Promoting environmentally sustainable, resource efficient, innovative, competitive and knowledge based fisheries</i>	1 - Reduction of the impact of fisheries on the marine environment, including the avoidance and reduction, as far as possible, of unwanted catches	Article 38 Limiting the impact of fishing on the marine environment and adapting fishing to the protection of species (+ art. 44.1.c Inland fishing)	N° of projects on conservation measures, reduction of the fishing impact on the marine environment and fishing adaptation to the protection of species	16	Number	
		Article 40.1.a Protection and restoration of marine biodiversity – collection of lost fishing gear and marine litter	N° of projects on protection and restoration of marine biodiversity, ecosystems	6	Number	
		Article 43.2 Fishing ports, landing sites, auction halls and shelters – investments to facilitate compliance with the obligation to land all catches	N° of projects on added value, quality, use of unwanted catches and fishing ports, landing sites, actions halls and shelters	9	Number	Yes

2 - Fostering environmentally sustainable, resource efficient, innovative, competitive and knowledge based aquaculture

	2 - Protection and restoration of aquatic biodiversity and ecosystems	Article 40.1.b-g, i Protection and restoration of marine biodiversity – contribution to a better management or conservation, construction, installation or modernisation of static or movable facilities, preparation of protection and management plans related to NATURA2000 sites and spatial protected areas, management, restoration and monitoring marine protected areas, including NATURA 2000 sites, environmental awareness, participation in other actions aimed at maintaining and enhancing biodiversity and ecosystem services	N° of projects on protection and restoration of marine biodiversity, ecosystems	5	Number	Yes
		Article 34 Permanent cessation of fishing activities	N° of projects on permanent cessation	7	Number	
	3 - Protection and restoration of aquatic biodiversity and enhancement of ecosystems related to aquaculture and promotion of resource efficient aquaculture	Article 48.1.e, i, j Productive investments in aquaculture - resource efficiency, reducing usage of water and chemicals, recirculation systems minimising water use	N° of projects on productive investments in aquaculture	10	Number	Yes

	Article 53 Conversion to ecomanagement and audit schemes and organic aquaculture	N° of projects on limiting the impact of aquaculture on the environment (ecomanagement, audit schemes, organic aquaculture environmental services)	3	Number		
	4 - Promotion of aquaculture having a high level of environmental protection, and the promotion of animal health and welfare and of public health and safety	Article 54 Aquaculture providing environmental services	N° of projects on limiting the impact of aquaculture on the environment (ecomanagement, audit schemes, organic aquaculture environmental services)	3	Number	
<i>3 - Fostering the implementation of the CFP</i>	1 - Improvement and supply of scientific knowledge and collection and management of data	Article 77 Data collection	N° of projects on supporting the collection, management and use of data	2	Number	
	2 - Provision of support to monitoring, control and enforcement, enhancing institutional capacity and the efficiency of public administration, without increasing the administrative burden	Article 76 Control and enforcement	N° of projects on implementing the Union's control, inspections and enforcement system	6	Number	Yes
<i>6 - Fostering the implementation of the Integrated Maritime Policy</i>	1 - Development and implementation of the Integrated Maritime Policy	Article 80.1.a Integrating Maritime Surveillance	N° of projects on integrating maritime surveillance	2	Number	Yes
		Article 80.1.c Improving the knowledge on the state of the marine environment	N° projects on the protection and improvement of knowledge on marine environment	2	Number	

For the Natura 2000 ambitions it should be noted that the outputs are directly linked to extending the Natura sites in the marine environment by 25,000 km². The OP also focuses on using the EMFF fund to support the implementation of management plans for the preparation of two new MPAs designated under the MFSD. Furthermore, Natura sites in the marine environment will move outside the coastal and sublittoral zones, to cover deep sea mounts and extend the network of habitats protected. The OP also states that funding will support the creation of three Special Protection Area (SPA) and Areas of Special Conservation Interests (SCI) for cetaceans.

Linked to the specific objectives above, to which biodiversity measures are associated, the following results indicators have been given in the OP.

Table 8.4: Results indicators associated with specific objectives with potential for biodiversity tracked expenditure and Portugal’s targets set for 2023

Source: Portuguese EMFF Operational Programme (OP)¹⁸²

Union Priority	Specific objective	Result indicator	Target for 2023	Unit
<i>1- Promoting environmentally sustainable, resource efficient, innovative, competitive and knowledge-based fisheries</i>	1 - Reduction of the impact of fisheries on the marine environment, including the avoidance and reduction, as far as possible, of unwanted catches	1.4.b - Change in unwanted catches (%)	-10	%
	2 - Protection and restoration of aquatic biodiversity and ecosystems	1.10.a - Change in the coverage of Natura 2000 areas designated under the Birds and Habitats directives	25,000.00000	km ²
		1.10.b - Change in the coverage of other spatial protection measures under Art. 13.4 of the Directive 2008/56/EC	265,000.00000	km ²

¹⁸² EMFF Operational Programme for Portugal, EC(2015)8642 – Version 1.3

2 - Fostering environmentally sustainable, resource efficient, innovative, competitive and knowledge-based aquaculture

3 - Protection and restoration of aquatic biodiversity and enhancement of ecosystems related to aquaculture and promotion of resource efficient aquaculture	2.5 - Change in the volume of production recirculation system	60.000.000	tonnes	
4 - Promotion of aquaculture having a high level of environmental protection, and the promotion of animal health and welfare and of public health and safety	2.1 - Change in volume of aquaculture production	2.500.000.000	tonnes	
3 - Fostering the implementation of the CFP	1 - Improvement and supply of scientific knowledge and collection and management of data	3.B.1 - Increase in the percentage of fulfilment of data calls	10	%
2 - Provision of support to monitoring, control and enforcement, enhancing institutional capacity and the efficiency of public administration, without increasing the administrative burden	3.A.1 - Number of serious infringements detected	100	number	
	3.A.2 - Landings that have been the subject to physical control	2	%	
6 - Fostering the implementation of the Integrated Maritime Policy	1 - Development and implementation of the Integrated Maritime Policy	6.1 - Increase in the Common Information Sharing Environment (CISE) for the surveillance of the EU maritime domain	50	%
	6.2.b - Change in the coverage of other spatial protection measures under Art. 13.4 of the Directive 2008/56/EC	132,000.00000	km2	

8.3 Funding allocated to biodiversity-tracked measures

8.3.1 Allocations

The total expenditure under MAR2020 for the period of 2014-2020 is EUR 503,913,685 million, of which EUR 392,485,464 million is EU funding through the EMFF. The Annual Implementation Reports (AIR) indicate the annual allocated budget to each specific measure.

For Natura 2000 sites, Portugal has three separate PAFs, covering respectively Continental Portugal, the Azores and Madeira. Continental Portugal is allocated EUR 13,333,333 million and the Azores EUR 1,725,075 million to support Natura 2000 measures under the EMFF for the period 2014-2020. The region of Madeira did not report any allocation for the period under the EMFF.

8.3.2 Expenditure in practice

We investigated the ESI Funds 2014 – 2020 Financial Implementation detail to obtain information regarding Portugal’s EMFF TO6 planned, and total eligible expenditure¹⁸³. Table 8.5 shows the total amount planned expenditure marked as TO6, and the total eligible spending reported annually to the portal.

Table 8.5: Planned and eligible spending of EMFF TO6 tracked expenditure of Portugal

Planned and spent EMFF TO6 for Portugal (EUR)					
	2016	2017	2018	2019	2020
Total amount planned	137,895,940	137,895,940	137,895,940	107,623,760	90,489,150
Total eligible spending	0	6,400,441	12,782,086	21,217,044	24,157,219

For 2020, the portal reported a total budget of EUR 90,489,150 million in Portugal’s EMFF as spending under TO6. A total of EUR 74,817,273 million were eligible decided cost and EUR 24,157,219 million have been recorded as spent. The breakdown of commitments of funding per Article of the EMFF Regulation can be seen in Table 48.6.

Table 8.6: Expenditure tracked per year for biodiversity related EMFF measures

Source: biodiversity expenditure reported in the AIR (Quadro 4: Indicadores financeiros para o FEAMP - Contribuição pública TOTAL das operações selecionadas para apoio) of MAR2020 (available on www.mar2020.pt)

EMFF measure	Decided cost per year (EUR)				
	2016	2017	2018	2019	2020

¹⁸³ Cohesion Data Portal. <https://cohesiondata.ec.europa.eu/2014-2020-Finances/ESIF-2014-2020-Finance-Implementation-Details/99js-gm52>

Article 38	0	0	0	0	0
Article 40.1.a	0	0	0	0	0
Article 43.2	1,635,068	5,555,850	5,782,643	6,355,381	2,897,658
Article 40.1.b-g, i	0	409,763	12,950,350	13,368,958	13,352,313
Article 34	0	1,907,740	861,339	861,339	861,339
Article 48.1.e, i,	0	0,00	0,00	0,00	0,00
Article 53	0	0,00	0,00	0,00	0,00
Article 54	0	0,00	0,00	0,00	0,00
Article 77	7,328,385	10,229,592	19,624,442	18,133,163	26,376,241
Article 76	0	8,337,328	15,310,712	24,115,029	24,449,551
Article 80.1.a	0	80,000	3,697,337	5,328,059	4,785,509
Article 80.1.c	0	0,00	123,250	1,598,358	1,587,684
Total	8,963,453	26,520,273	58,350,073	69,760,287	74,310,295
40% Biodiversity tracked	3,585,381	10,608,109	23,340,029	27,904,115	29,724,118

There has also been some allocation to Article 51 (Increasing the potential of aquaculture sites)

Article 51	0	0	1,490,619	506,974	506,974
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Based on the data, MAR2020 has not allocated funding for all the articles that the Commission identifies a potentially relevant for TO6, however, those that the programme invested in showed mostly that part of the total appropriation covered with the selected operations over 100% of the investment planned in most years. Other measures that remain unaddressed relate to aquaculture (Art. 48, 53 and 54) and fisheries (Art. 38 and 40.1.a).

It is noteworthy, that the total sum reported under TO6 (EUR 74,817,273) could only be achieved when including Article 51 into the total investment under TO6. However, Article 51 is not one that is officially noted as contributing to biodiversity as per FAME reports. The total planned spending in 2020 without Art. 51 culminates to EUR 74,310,295.

Biodiversity tracking under the EMFF is based on a 40% marker for total expenditure under TO6. As such, all Articles associated to TO6 under a Member State's OP are equally marked with a 40% marker for biodiversity. However, due to Article 51 not being included in the EMFF's FAME reports as a recommended Article for biodiversity tracking, we have removed it from our calculations. Table 8.6 shows that the

biodiversity contribution of decided costs has steadily increased over the years. In total, over 2016 – 2020, Portugal contributed EUR 95,161,752 million to biodiversity. However, over half of the tracked investment has been placed in two specific Articles: 76 (Data collection) and 77 (Control and enforcement). The two main articles that focus solely on the protection and restoration of the marine environment (namely Article 40.1.a and 40.1.b-g,i) have received limited to no funding. Article 40.1.a received no funding throughout the entire funding cycle. Meanwhile, 40.1.b-g,i decided investment only reflects 17% of the total decided investment over the funding period.

These results indicate that the EMFF biodiversity tracking methodology is likely overestimating the biodiversity contributions made within Member State’s funds. We have reviewed the EMFF, and EMFAF, tracking methodology within other sections of the report.

It is also worth noting that Articles with particularly high expenditure are also mainly those used as indicators for the programme’s performance framework (see Table 2). This hints that Portugal may have been focusing investments on those measures that would ensure a better performance outcome at the end. Since Member States can select their own performance indicators in the OP, while only needing to provide a justification, this trend is logical. As such, it is worth considering whether there should be a minimum of set of biodiversity relevant measures dedicated to the performance framework of Member States when submitting the OP.

For Natura 2000 sites, spending in the reported PAFs showed a large spending gap. More than EUR 9 million in total have not been spent in the three regions allocated budgets (Table 8.7). The current spending only reflects 34% of the allocated EMFF budget for Natura 2000 sites. While implementation of Natura 2000 sites may be slow, the budget spending is overall very low especially considering that several Natura 2000 sites already existed prior to 2014 and funds could have supported the further development and protection of these.

Table 8.7: PAFs allocation and spending reported for Natura 2000 sites in Portugal

Source: draft Portugal PAFs 2020¹⁸⁴

Region	Allocated	Spent
<i>Continental Portugal</i>	13,333,333	3,305,123.43
<i>Azores</i>	1,725,075	892,272.00

¹⁸⁴ Priority Action Frameworks for Natura 2000 sites for the period of 2021-2027: Quadro de Acao Prioritaria (QAP) para a rede Natura 2000 em Portugal – Regiao Autonoma dos Acores no ambito do Quado Financeiro Pluriannual para o periodo 2021-2027. Quadro de Acao Prioritaria (QAP) para a rede Natura 2000 em Portugal – Regiao Autonoma da Madeira no ambito do Quado Financeiro Pluriannual para o periodo 2021-2027. Quadro de Acao Prioritaria (QAP) para a rede Natura 2000 em Portugal continental e espaco maritimo adjacente no ambito do Quado Financeiro Pluriannual para o periodo 2021-2027.

Madeira	0	1,002,824.00
Total	15,058,408.00	5,200,219.43

8.3.3 Examples of expenditure

Except for Art.51 the measures indicated above do indeed have the potential to contribute to biodiversity, albeit their overall success in doing so certainly depends on the type of projects being funded. As per the output indicator description in the OP, Art. 51 focuses on increasing the potential of aquaculture sites and measures on public and animal health. Compared to other measures linked to biodiversity, this one appears least relevant. Previous reports¹⁸⁵ recommended specific biodiversity markers for a range of Articles in the EMFF. Included were 100% markers for Articles 38, 40, 54 and 80.1.c. While Art. 43.2 is noted as contributing to objectives in TO6¹⁸⁶, previous analyses and recommendations on biodiversity tracking in the EMFF did not include the tracking of Art. 43.2 or 51¹⁸⁷. If Article 38, 40.1.a, 40.1.b-g, 54 and 80.1.c were tracked at 100% it would equal a total of EUR 43,390,676. If the remaining Articles were tracked with only 40% and added to the above, the total biodiversity contribution of Portugal's EMFF would amount to EUR 121,196,158. The calculations show that the investment into measures with only partial biodiversity impact is significant to the point that they can skew the perceived contributions to biodiversity investment.

8.4 Information from programme monitoring

Outcome indicators and result indicators relevant to the measures are shown in Table 8.9 and Table 8.8 respectively. Only two results indicators had any reported progress in 2019.

Table 8.8: Progress on results indicators in 2019

Source: annual implementation report 2019¹⁸⁸

¹⁸⁵ Kettunen, M, Illes, A, Hart, K, Baldock, D, Newman, S, Rayment, M, Sobey, M and Medarova-Bergstrom, K (2014) Tracking Biodiversity Expenditure in the EU Budget: Part II – Fund specific guidance documents. Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, Brussels. EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

¹⁸⁶ FAME (2020): European Commission – Directorate General for Maritime Affairs and Fisheries, Unit D.3 (2020): FAME SU, EMFF implementation report 2019, Brussels.

¹⁸⁷ Kettunen, M, Illes, A, Hart, K, Baldock, D, Newman, S, Rayment, M, Sobey, M and Medarova-Bergstrom, K (2014) Tracking Biodiversity Expenditure in the EU Budget: Part II – Fund specific guidance documents. Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, Brussels. EY and Biotope (2017) Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget. Study for European Commission.

¹⁸⁸ Relatório Anual de Execução, 2019, MAR2020

Result indicator	Target for 2023	Unit	2019
1.4.b - Change in unwanted catches (%)	-10	%	-10,1
2.1 - Change in volume of aquaculture production	2.500.000.000	tonnes	51

Results related to biodiversity can often take time to show meaningful progress. However, it should be noted that in 3 years of implementation the progress report showed no changes in Natura 2000 sites coverage, nor an increase in coverage of additional special areas of protection.

Table 8.9 shows the reported cumulative outcome indicators as reported in 2019. In total 71 projects are targeted for 2023. So far, 41 have been implemented. However, once more, the distribution of projects so far is not even and reflects the uneven spending between specific articles as stated above. In addition, when investigating the number of projects funded per year in each output indicator, there is an imbalance in frequency. For example, Article 34 sees 12 project funded by 2020 (for a target of 7 by 2023). This may seem successful, but upon investigation it becomes clear that all 12 projects were funded in 2018 and no other permanent cessation of fishing has occurred since. This begs the question on whether a target value of 7 vessels was unambitious for a period of 6 years.

Table 8.9: Output indicators and their reported cumulative values in 2020

Source: Annual Implementation Report 2020¹⁸⁹

EMFF measure	Output indicator	Target for 2023	Unit	Achieved by 2020
Article 38	N° of projects on conservation measures, reduction of the fishing impact on the marine environment and fishing adaptation to the protection of species	16	Number	0
Article 40.1.a	N° of projects on protection and restoration of marine biodiversity, ecosystems	6	Number	0
Article 43.2	N° of projects on added value, quality, use of unwanted catches and fishing ports, landing sites, actions halls and shelters	20	Number	10
Article 40.1.b-g, i	N° of projects on protection and restoration of marine biodiversity, ecosystems	20	Number	2

¹⁸⁹ Relatorio Anual de Execucao, 2019, MAR2020

<i>Article 34</i>	N° of projects on permanent cessation	7	Number	12
<i>Article 48.1.e, i,</i>	N° of projects on productive investments in aquaculture	10	Number	0
<i>Article 53</i>	N° of projects on limiting the impact of aquaculture on the environment (ecomangement, audit schemes, organic aquaculture environmental services)	3	Number	0
<i>Article 54</i>	N° of projects on limiting the impact of aquaculture on the environment (ecomangement, audit schemes, organic aquaculture environmental services)	3	Number	0
<i>Article 77</i>	N° of projects on supporting the collection, management and use of data	9	Number	8
<i>Article 76</i>	N° of projects on implementing the Union's control, inspections and enforcement system	14	Number	6
<i>Article 80.1.a</i>	N° of projects on integrating maritime surveillance	12	Number	4
<i>Article 80.1.c</i>	N° projects on the protection and improvement of knowledge on marine environment	5	Number	2

8.5 Summary of findings

The programme was set up with a degree of ambition and an intention to support biodiversity related projects and improving the quality of biodiversity in marine habitats. Biodiversity was highlighted as one of the main objectives of the programme and generally appeared to play an important role in a socio-economic context. However, based on the monitored and reported results, it appears as though the actual spending and application of allocated funds were not successful in creating measurable results so far.

In 2019 a Portuguese Court of Auditors report¹⁹⁰ reviewed the MAR2020 programme, and criticised the management and operation model of the programme and its commitment to the priorities set out in the OP. The result indicators were generally perceived as specific, measurable, achievable, and relevant. However, the report finds that there is not enough information nor monitoring on the actual results of MAR2020, and therefore the actual positive achievements of the programme so far have been

¹⁹⁰ Tribunal das Contas (2019). Auditoria ao Progama Operacional MAR2020, Relatório, Processo n. 17/2018 – AUDIT.

hard to evaluate. Indeed, our assessment shows that some of the results indicators were not well enough defined in order to track whether projects were actually related to biodiversity protection or not. The programme's priorities relating to monitoring of marine environment and implementation of the Integrated Maritime Policy were considered neglected and "low commitment rates". It was noted that 15 of the 41 output indicators of the Programme¹ had no approved operations at the end of 2017. These included, among others, diversification, and new forms of income in new forms of income in inland fishing, conservation measures, reducing the impact of fishing on the environment and adapting fishing to species protection, projects to protect and restore biodiversity and marine ecosystems. The report concludes that at a point in the Programme where it should be in full swing of realizing its targets, there are priorities and objectives where the potential for their realization is not even close, particularly for employment and environmental protection. The concluding remarks warn that the Programme in its current state may fail to achieve its objectives.

In 2020, MAR2020 was evaluated as part of Portugal2020 Evaluation Plan¹⁹¹, which evaluated the financial data and results achieved up until 2018. A total of 2,564 projects were funded, with 60% of the financial programming allocated and certified expenditure amounting to 17% of the total financial programme. The evaluation noted that the programme is comprehensive, diverse, sensitive and complex (as it encompasses different types of financing instruments. However, the evaluation heavily focused on the management and operational structure of the programme, giving a series of recommendations ultimately not directly linked to an assessment of biodiversity impacts. Notably, the evaluation recommends (recommendation 19) that an analysis of the relevance and effectiveness of the results indicators be conducted to reflect more specific indicators at national level.

Overall, it appears that actual funding does not reflect the biodiversity funding priorities stated in the OP. TO6 related spending was the second highest in the reported spending for the programme. However, the measures with the most investment were mostly only partially linked to biodiversity and have previously been associated to 40% Rio marker. Our calculations showed that biodiversity tracked expenditure under TO6 can be easily skewed due to large investments in particular Articles with indirect biodiversity contributions creating the appearance of large biodiversity protection funding than may be occurring. The results and outcome indicators are also vaguely defined, making it difficult to assess to what extent funded projects actually have contributed to biodiversity protection.

More importantly, between the spending, outcome indicators and results indicators, there is a notable difference between theoretical funding priorities of the OP and the actual funding that has occurred so far. One example that stands out particularly are

¹⁹¹ EY (2020) Evaluation of the implementation of the MAR2020 Operational Programme. Available at: https://mar2020.blob.core.windows.net/mar2020/2020/03/EYAMA_MAR2020-Sum_Exec_EN.pdf

the 9 projects funded under the Art. 43.2. While the landing obligation is an important provision of the Common Fisheries Policy aimed at limiting unwanted catches and overfishing, it cannot be considered that the full spending under Art. 43.2 has direct relevance for biodiversity protection. Commitments of funding for Natura 2000 sites reached over 100% of the programmed amount in 2019, although the total level of commitments across the programme years remain below the total programmed. However, of the initially planned 5 related Natura 2000 projects, only 2 have been funded. In addition, none of these contributed to the results indicators associated with the measure. While the implementation of finances could be in relation to monitoring and updating of protected areas under Natura 2000, the discrepancy in allocated budget between PAF and OP, as well as the spending gap seen in the PAFs, raises concerns about the tracking of biodiversity investments. Finally, Portugal treats spending on an additional measure (Art. 51: increasing the potential of aquaculture sites) as contributing to Thematic Objective 6, which has the result that it is also tracked with a 40% biodiversity marker, whereas this is not a recommended biodiversity measure by the FAME support unit¹⁹². When taking overall numbers, such as total number of projects approved or total budget spent in relation to TO6, it may appear as though there is a significant contribution to biodiversity; a closer look reveals that the biodiversity expenditure recorded over-estimates biodiversity impacts.

¹⁹² FAME (2020): European Commission – Directorate General for Maritime Affairs and Fisheries, Unit D.3 (2020): FAME SU, EMFF implementation report 2019, Brussels.

ANNEX 2: BIODIVERSITY TRACKING 2021-2027 – PROGRAMME RECOMMENDATIONS

This annex provides detailed information underpinning the recommendations included in Table 7 of the main report. They are organised by the budget structure for the 2021-2027 period.

1. Horizon Europe

The legislative framework is set out in Regulation 2021/695¹. Horizon Europe will be structured on three pillars. The first pillar on Open Science will ensure strong continuity with Horizon 2020 in supporting excellent science within a bottom-up approach in order to reinforce the Union's scientific leadership, high-quality knowledge and skills development, through the European Research Council, Marie Skłodowska-Curie Actions and research infrastructures. The principles and practices of open science will be mainstreamed across the entire Programme.

The second pillar on Global Challenges and Industrial Competitiveness will take forward the societal challenges and industrial technologies in a more 'top down' directed approach addressing Union and global policy and competitiveness challenges and opportunities. These are integrated into five clusters ('health'; 'inclusive and secure society'; 'digital and industry'; 'climate, energy and mobility'; and 'food and natural resources'), aligned with Union and global policy priorities (the Sustainable Development Goals) and having cooperation and competitiveness as key drivers. The second pillar will also provide scientific evidence and technical support to Union policies, including through the activities of the Joint Research Centre.

The third pillar on Open Innovation will essentially focus on scaling up breakthrough and market-creating innovation by establishing a European Innovation Council, support the enhancement of European ecosystems of innovation and continued support to the European Institute of Innovation and Technology (EIT). The European Innovation Council will offer a one-stop shop to high-potential innovators. Activities will be defined mainly bottom-up.

The Regulation defines the monitoring and evaluation system for Horizon Europe. Programme performance will be monitored annually, using performance indicators

¹ [Regulation \(EU\) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations](#)

measuring progress towards programme objectives, based on baselines and targets where possible. Annual monitoring of programme performance towards objectives will be structured by defining impact pathways and specifying key impact pathway indicators. Three categories of impact pathways are defined, relating to the scientific, societal, and economic impact of Horizon Europe funding. For each impact category, proxy indicators will be used to track progress in the short, medium, and longer term. These indicators relate to the outputs, outcomes and impacts of Horizon Europe funding in each of the three pathways. They are cross-cutting and relate to the overall effects of the R&I process, rather than relating to specific themes such as biodiversity. The indicators specified in the proposals are generic and will require further definition – for example societal impacts will be measured through outputs and scientific results which address specific EU policy priorities, which are not defined at this stage.

A broadly similar approach can be adopted to biodiversity tracking under the new programme as under Horizon 2020. The first two pillars are similar to Horizon 2020, so tracking of biodiversity expenditures will draw on experience of expenditure tracking in the previous programme. The third pillar includes new activities and establishes a new European Innovation Council. This pillar is less relevant to biodiversity, but tracking of any biodiversity relevant expenditures is likely to be undertaken on a bottom-up/ case-by-case basis.

A shift to an impact-based, rather than objective-based, approach for biodiversity tracking is difficult to achieve in full, since the indicators proposed for the new programme are generic and related to the innovation process, rather than to its ultimate impact; thematic impacts (such as on biodiversity) are not specified. The impact of biodiversity relevant research and innovation funding will be measured using indicators such as publications, skills, research outputs and employment effects rather than through impacts on biodiversity itself (unsurprisingly, given the timescales and indirect pathways for impact on biodiversity on the ground to be observed).

Tracking of biodiversity related expenditures under Horizon Europe should build on the experience and processes developed for tracking Horizon 2020. This includes processes for marking and recording the biodiversity relevance of projects at the point of grant awards, enabling bottom-up tracking of projects under each Pillar.

Pillar 2 addresses thematic societal challenges, enabling ex ante identification of biodiversity relevant expenditures by applying markers to relevant topics in work programmes. The largest levels of biodiversity relevant expenditure are in Cluster 6 of Pillar 2 (food, bioeconomy and biodiversity), which is expected to account for around 60%

of biodiversity related expenditure in Horizon Europe. For topics in Pillar 2 which do not focus on biodiversity, tracking should ideally be undertaken at the project level.

Only limited parts of Pillars 1 and 3 will enable biodiversity related expenditures to be identified at the topic level; instead, tracking will need to be applied to “bottom-up” actions and the markers should be applied to specific projects when approved.

Applying the three Rio markers (0%, 40%, 100%) to specific topics and projects enables metrics estimating the biodiversity relevance of different budget lines to be developed over time. Aggregating the results achieved over relevant budget lines enables estimates to be made of the proportion of different budget lines that are biodiversity relevant. For example, applying the 0%, 40% and 100% markers at project level may identify that 15% of a particular budget line is biodiversity relevant, providing a more accurate marker that can be applied where necessary ex-ante, avoiding the need to apply the Rio markers to broad budget lines. This effectively enables a wider set of markers to be applied in a way that is consistent with the Rio-markers methodology. This approach can be applied for ex-ante estimation in annual budgets, but needs to be followed by marking at project level to provide reliable estimates of actual biodiversity relevant expenditure.

It would be beneficial to develop consistent guidance regarding the criteria to be used in determining the markers applied to different thematic research areas. For example, research projects with broad sustainability objectives would normally receive a 0% marker, but the biodiversity relevance of some areas of environmental research and remote sensing actions may be less clear. As with other EU programmes, there would be benefits in defining a set of rules categorising different types of action to which the three markers are applied. There would also be benefit in developing consistent guidance to tracking of biodiversity, climate and digital expenditures.

DG RTD has provided guidance to staff drafting work programmes in Pillar 2 of Horizon Europe, which covers tracking methodology as well as other topics. Providing consistent guidance to drafters across Horizon Europe would help to ensure a consistent application of the biodiversity tracking methodology.

2. Invest EU

The InvestEU programme brings together various EU financial instruments (guarantees, loans, risk-sharing or equity) that were under the previous MFF supported by different programmes and funds of the EU budget (e.g. the European Fund for Strategic Investments, the Connecting Europe Facility (CEF), the EU programme for the

Competitiveness of Enterprises and Small and Medium- sized Enterprises (COSME), and the EU programme for Employment and Social Innovation (EaSI)). Our understanding is that for climate and environmental tracking under InvestEU Implementing partners will have a choice of using:

- Markers with intervention fields similar to those set out in the Common Provisions Regulation and RRF; or
- The relevant EU Taxonomy criteria.

In the first case, a similar approach to that outlined in section Structural and cohesion policy below could be applied. For implementing partners who choose to track using EU Taxonomy criteria, biodiversity tracking could be based on volumes of financing aligned with different EU Taxonomy objectives.

However, as with climate tracking for this expenditure, the Commission will to some extent be reliant on the methodological choices made by partner organisations.

3. EU Space Programme

For the 2021-2027 period, the Commission has proposed a single instrument creating a combined Space Programme, bringing together the current instruments on Galileo, Copernicus, and satellite observations generally. We recommend a careful re-consideration of the products and services covered under the Space Programme to address some of the risks of over- and under-estimation identified in section **Error! Reference source not found.** above; in particular, if the Commission decides to focus on impacts rather than objectives for its overall approach to biodiversity tracking in the 2021-2027 period, a detailed examination of the use of Space Programme products in biodiversity policy formation and implementation would be valuable.

4. Structural and cohesion policy

The structural and cohesion funds will be governed in the 2021-2027 financial perspective by a renewed Common Provisions Regulation², which identifies five broad policy objectives for the funds, and outlines how tracking for climate and environment issues will operate. As with the current programmes, an Annex to the CPR³ identifies the investment fields (“intervention fields”) that should be used by Member States to record expenditure, and identifies the climate tracking coefficients relevant to each, as well as an

² Insert reference

³ The text of the Common Provisions Regulation is still subject to legal/linguistic correction, and has not yet been published. However, we understand that it essentially replicates the Annex VI to the Regulation on the Recovery and Resilience Facility (Regulation (EU) 2021/241).

environment coefficient. The list of investment fields has been expanded and refined, in particular in order to better identify expenditure which is climate or environment relevant. The table below sets out our recommendations for the biodiversity coefficients to be applied to the investment fields (all those not included in the table would be given a 0% marker). (These recommendations are also presented in the summary **Error! Reference source not found.** above).

Table 1: Recommended approach for Intervention Fields

Investment field	Proposed coefficient	Rationale
058: Climate adaptation/risk management: floods	40%	The category description now <u>includes</u> (but is not limited to) ecosystem based approaches to flood prevention. Neither 100% nor 0% are appropriate. Ex post assessment of what is funded in practice would be valuable.
059: climate adaptation/ risk management: fire	40%	Potential contribution focused on prevention of fire in forest and biodiverse habitats
060: Adaptation to climate change measures and prevention and management of climate related risks: others, e.g. storms and drought	40%	The category description now <u>includes</u> (but is not limited to) ecosystem based approaches to storm and drought management. Neither 100% nor 0% are appropriate. Ex post assessment of what is funded in practice would be valuable.
065: waste water collection and treatment	40%	40% overstates the connection between waste water treatment and biodiversity benefits. Ex post assessment of investments assigned this field, with a subsequent adjustment of the marker as appropriate, would be useful. If a reduced / intermediate rate band is introduced in future (e.g. 10% see Section Error! Reference source not found.), it could be appropriate to choose it here.
066: waste water collection and treatment compliant with energy efficiency criteria	40%	The same concerns as noted above apply, as would any lessons learned from ex post assessment of the current waste water treatment intervention field. It will also be important to ensure that this

		intervention field, and the 40% marker, are not used for investments which are wholly or mainly concerned with improving energy efficiency of existing plant, with no benefit in terms of improved control of emissions to water. Guidance from the Commission could usefully clarify that in such cases, intervention field 026 (Energy efficiency renovation or energy efficiency measures regarding public infrastructure) should be used.
073: Rehabilitation of industrial sites and contaminated land	40%	Some investments under this heading can be very positive for biodiversity; others may have little or no biodiversity benefit. This is another area where updating the coefficient on the basis of ex post evaluation would be helpful.
074: Rehabilitation of industrial sites and contaminated land compliant with efficiency criteria	40%	Similar arguments to 046 apply. The risks noted for 041 bis do not apply here, since the “efficiency criteria” refer to creating a carbon sink, which should not adversely affect the biodiversity impact.
078: protection, restoration etc of Natura 2000 sites	100%	
079: Nature and biodiversity protection, green infrastructure	100%	Subject to further assessment of how expenditure is categorised as “green infrastructure”, and whether it is always relevant to biodiversity outcomes.

4.1 ERDF and Cohesion Fund

The legislation for the 2021-2027 period will include a single regulation covering the ERDF and Cohesion Fund, and sets out specific objectives which should be addressed by the funds under the five newly defined policy objectives under the new CPR. It also sets out the scope of support from the two funds, with the Cohesion Fund continuing to have a particular focus on environmental investment and networks.

4.2 European Social Fund

No biodiversity contribution is currently recorded for European Social Fund; however, the investment fields identified in the RRF Regulation include an additional field 01: “Contributing to green skills and jobs and the green economy”, with a 100% coefficient for climate expenditure. It appears unlikely that a high proportion of the expenditure under this intervention will target biodiversity; the bulk of it can be expected to focus on climate mitigation. However, on the assumption that this investment field is also available for ESF expenditure covered by the Common Provisions Regulation, it would be possible to give programme authorities the opportunity to identify, on a case by case basis, projects where the “green skills” expenditure contributed to biodiversity objectives. Adding this option may help to increase the profile of the option of supporting biodiversity-relevant skills and jobs.

5. Recovery and Resilience Facility

The Recovery and Resilience Facility has been established as part of the Next Generation EU package of investment. It provides funding in the form of grants and loans to the end of 2024; Member States prepare recovery and resilience plans identifying how they intend to use the funds available to them, which are then made available by the Commission. Grant funding will be treated as external assigned revenue, in accordance with the European Recovery Instrument Regulation⁴, and our understanding is that it will not therefore be covered by the biodiversity expenditure “ambition” in the Inter-Institutional Agreement.

Among the objectives of the Facility are the green transition, and achieving the EU’s climate neutrality targets. The mechanisms for control of RRF-funded expenditure are significantly looser than those in traditional structural and investment fund programmes. There are clear statements in the regulation⁵ that expenditure financed by the RRF shall not “substitute recurring national budgetary expenditure”, and shall be “additional to the support provided under other Union programmes and instruments”; however, the additionality requirements for structural funds expenditure do not apply, and this still leaves open the possibility that RRF funding simply substitutes for previously planned Member State investment funding, which would call into question whether there is an additional benefit for EU priorities such as biodiversity.

⁴ [Council Regulation \(EU\) 2020/2094 of 14 December 2020 establishing a European Union Recovery Instrument to support the recovery in the aftermath of the COVID-19 crisis](#)

⁵ Regulation (EU) 2021/241, article 5, article 9

The RRF regulation establishes a list of intervention fields, matching those set in the Common Provisions regulation for Structural and Investment Funds, with climate and environment coefficients. Tracking can therefore follow the approach summarised in Table 1 above. While the legislation includes⁶ the possibility of expenditure which cannot be assigned to one of the Annex VI intervention fields, we understand that this is likely to be a rare occurrence, and that such expenditure is unlikely to have a significant biodiversity focus.

However, there are significant risks of over-estimation in using this approach. The Commission has relatively limited scope for ensuring that the RRF allocations to Member States are in practice used for the interventions included in the Recovery and Resilience Plans. There is an ex ante assessment process, which offers an opportunity for the Commission to question any insufficiently robust choice of intervention fields; and if milestones are not achieved the Commission can withhold funding. Nevertheless, Member States have a potential incentive to over-estimate the expenditure assigned to intervention fields with a positive climate coefficient (which include a number of those for which we propose a positive biodiversity coefficient), given that they will need to meet the requirement of 37% of expenditure under the plan to contribute to climate objectives⁷. Intervention fields have been used in the 2014-2020 period as a broadly neutral source of available information to which tracking coefficients for climate and biodiversity are applied. The approach for the RRF, and for any InvestEU expenditure which relies on the intervention fields, is different: it uses the intervention fields purely as a mechanism for tracking, and with a clear incentive to the authorities allocating projects to intervention fields to choose those with positive coefficients. We therefore recommend keeping the information generated from this process under close review, and ensuring that the annual reports on biodiversity tracking required by the Interinstitutional Agreement also provide information on any evidence of over-estimation.

5.2 Just Transition Fund

The new Just Transition Fund is aimed at supporting the socio-economic transition required in European regions which are relatively reliant on fossil fuel and energy-intensive industries. The funds available to it have been increased further in response to the coronavirus pandemic. The fund is covered by the Common Provisions Regulation, and the approach to tracking expenditure under it can therefore follow the intervention-field based system summarised in Table 1 above.

⁶ Annex V to the Regulation

⁷ Regulation (EU) 2021/241, article 18 (4) (e)

6. Common Agricultural Policy (CAP)

Given the importance of expenditure under the CAP in the overall total of EU expenditure for biodiversity, we have included a more detailed assessment in a separate Appendix on our proposed approach to tracking it. We have assumed in our proposals that for the 2023-2027 period Member States will programme and report all CAP interventions (under both the EAGF and EAFRD) against the nine of the specific CAP objectives (without counting the cross-cutting objective of modernising agriculture and rural areas by fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas). In the same way as the EAFRD measures are currently programmed under those Priorities to which they contribute (with one measure potentially programmed under a number of priorities and focus areas), we have assumed that future funding for CAP interventions from both Pillars could be allocated across the nine CAP specific objectives, depending on their focus and content. Given that under the new CAP, one of the nine objectives will specifically focus on biodiversity, this would enable an approach to biodiversity tracking which focuses on the objectives identified by Member States for their allocation of funds, which we outline in Option 1 in Table A1.14 in the Appendix. To work effectively, this approach would require the Commission to implement a robust approvals process for the CAP Strategic Plans (CSPs) to ensure that the allocation of planned expenditure to the biodiversity objective is justified by clear evidence that the interventions programmed can reasonably be expected to deliver positive biodiversity impacts at an appropriate scale.

This change in the architecture of the CAP is one reason for proposing changes to the biodiversity tracking methodology. In addition, as noted in section 2.1.11 in the main report, the current methodology has been criticised as overstating the biodiversity contribution delivered by cross compliance. While the Commission has rejected those criticisms, we consider that they have some validity, and that if the Commission wishes to demonstrate a robust and conservative approach to its biodiversity tracking it should address them. The biodiversity tracking approach for the EAFRD under the 2014-2020 period has also been criticised for overestimating the proportion of expenditure considered relevant for biodiversity, since a 100% marker is applied to all expenditure under Priority 4, which covers not just biodiversity, but also soils and water. The Commission's reply to the ECA Special Report: "Biodiversity on farmland: CAP contribution has not halted the decline"⁸ stated their view that "*farming practices supported in view of supporting biodiversity contribute at the same time to improving the general environment including water and soil, and vice versa*", and that what they consider "a strong

⁸ European Court of Auditors (2020) Biodiversity on farmland: CAP contribution has not halted the decline, Special Report 13/2020. European Court of Auditors, Brussels.

interconnectivity in the environmental impact of practices programmed under each of the three focus areas justifies applying a coefficient of 100%". They also consider that trying to identify the biodiversity impact of individual measures programmed by Member States would be unrealistically bureaucratic and burdensome.

The approach proposed for tracking biodiversity expenditure for the CAP in the future aims to reflect the new architecture of the CAP, address the criticisms referred to above, and meet the Commission's concerns on potential administrative burdens. It does so by attributing the markers to the CAP objectives for both the EAGF and the EAFRD. For the EAFRD, this is a similar approach to that taken in the current period, but with the significant improvement that under the new CAP architecture, biodiversity is covered by an objective of its own. For the EAGF this constitutes a change in approach from tracking by intervention to tracking by objective. However, since from 2023 all interventions under the EAGF will be programmed against the CAP objectives in the same way as the EAFRD, moving to a single approach for both funds represents a simpler and more coherent approach to biodiversity tracking under the CAP. In principle, this would not remove the ability to account for the biodiversity benefits of enhanced conditionality, since Member States could programme some interventions under EAGF funding under the biodiversity objective, if there were clear evidence to demonstrate that the conditionality requirements underpinning that funding were delivering biodiversity impact.

This approach, however, would differ somewhat to the climate tracking methodology that is planned for the CAP, where an intervention-led approach has been chosen for the EAGF. However, as regards the climate tracking methodology, the Commission is empowered to adopt delegated acts after 31/12/2025 to modify the weightings proposed where such modification is warranted for more precise tracking of expenditure on environmental and climate-related objectives. We are also aware of concerns within the Commission that some EAGF expenditure would no longer be counted towards biodiversity expenditure totals. Our view, and recommendation, is that the approach proposed would make use of the new, more focused, architecture of the CAP, and would demonstrate that the Commission was taking a more robust and conservative approach to biodiversity tracking. However, it also assumes that the process for Commission approval of Member State programming of expenditure under the new CAP objectives are robust enough to ensure that there is a realistic expectation of significant biodiversity impacts being delivered.

Decisions on the tracking methodology are currently under discussion in the Commission, in the light of the legislation now adopted. The Commission may decide to place greater emphasis on alignment with the climate tracking methodology; or may not consider that the process for approving Member State allocation of expenditure to CAP specific objectives provides a sufficiently robust basis for tracking. The Appendix to this Annex

therefore also sets out a second proposal for biodiversity tracking which is more closely aligned to the climate tracking methodology; and provides further background information on the changes in CAP legislation for the 2021-2027 (and particularly 2023-2027) period.

6.1 EAGF

Expenditure allocated to objective 4 (contribute to climate change mitigation and adaptation), and objective 5 (Foster sustainable development and efficient management of natural resources such as water, soil and air) tracked at 40%. Expenditure allocated to objective 6 (Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes) tracked at 100%. Other expenditure would be tracked at 0%. This approach would also encompass expenditure under the Basic Income Support Scheme. (As noted above, an alternative option is outlined in the Appendix).

6.2 EAFRD

Expenditure allocated to objective 4 (contribute to climate change mitigation and adaptation), and objective 5 (Foster sustainable development and efficient management of natural resources such as water, soil and air) tracked at 40%. Expenditure allocated to objective 6 (Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes) tracked at 100%. This approach would also encompass expenditure under the Areas of Natural Constraint (ANC) measure, on the assumption that the Commission is satisfied that its procedures for approving the allocation of expenditure to objectives is sufficiently robust to ensure that expenditure genuinely addresses those objectives. (As noted above, an alternative option is outlined in the Appendix).

6.3 EMFAF

The tracking for climate under the new EMFAF has undergone significant alteration; and the expectation is that biodiversity tracking could follow a similar approach. The new tracking methodology is set out in Annex IV of the EMFAF Regulation, which lists 16 types of intervention for which climate and environment coefficients are specified. This new methodology was developed under the co-decision process, and there is no clear definition or assessment guidelines assigned to the individual intervention types. This lack of definitions or guidelines on how to assign expenditure to intervention types creates a risk of discrepancies between the approaches adopted by Member State programme authorities and increases the risk of some expenditure being tracked despite having little or no positive contribution.

We have reproduced the Intervention Fields from Annex IV to the EMFAF Regulation **Error! Reference source not found.** below, showing the coefficients we recommend for biodiversity tracking, with a rationale in each case. It should be noted that the tracking agreed for “environment” cannot be relied on, since this covers a wide range of environmental outcomes in addition to biodiversity, and the coefficients included for environment in a number of cases can in our view clearly not be justified by reference to biodiversity impacts. The coefficients agreed for climate and environment tracking tend in our view to over-estimate climate and environmental benefits, and it would be helpful to have a good understanding of the rationale in each case before determining a biodiversity tracking coefficient.

As it stands, the broadly defined interventions, and their overlapping coefficients, significantly increase the risk of double counting. The Annual Implementation Reports of the Member States during the 2014-2020 period, as analysed and synthesised in the EMFF Implementation Report 2020 (compiled by FAME), indicate that there were 16 Articles that could potentially contribute to biodiversity (Table 20 in FAME EMFF Implementation Report 2020). For the new EMFAF, providing guidance to Member States on which actions or types of expenditure could be counted towards each of the broadly defined intervention types, could create more consistency and transparency in the new tracking methodology. Additionally, a requirement for programme authorities to report which actions have been assigned to each intervention type would assist in providing a much clearer picture of the real contribution at an operational level of the EMFAF to biodiversity.

Table 2 below sets out our recommendations for the tracking approach to be applied to the intervention types listed in the EMFAF Regulation. (These recommendations are also presented in the summary **Error! Reference source not found.** above). These arguably represent a more robust approach than that adopted in the EMFAF legislation for climate tracking; there is therefore a judgement for the Commission to make on whether it prefers to emphasise a robust and conservative approach, or greater consistency between the climate and biodiversity tracking methodologies.

Table 2: EMFAF intervention types and recommended coefficients

Intervention type	Potential application of biodiversity tracking markers	Rationale
1 Reducing negative impacts and/or contributing to positive impacts on the environment and contributing to Good Environmental Status	100%	Clear biodiversity focus.
2. Promoting conditions for economically viable,	0%	No biodiversity relevance.

competitive and attractive fishing, aquaculture and processing sectors		
3. Contributing to climate neutrality	40%	Unclear precisely what types of expenditure are likely to be included here, but some may have additional biodiversity benefits
4. Temporary cessation of fishing activities	40%	Our suggested marker assumes that some temporary cessations of fishing activities are required in order to address biodiversity issues; in which case, the availability of EMFAF expenditure may make it easier for Commission and national authorities to take such action.
5. Permanent cessation of fishing activities	0%	Limits on catch are set under TAC process – adjustments to the fleet are about enabling the industry to restructure in consequence, and should have no influence on catch. There is thus no evidence of a biodiversity impact.
6. Contributing to Good Environmental Status through implementing and monitoring Marine Protected Areas including Natura 2000	100%	Clear biodiversity focus.
7. Compensation for unexpected environmental, climatic or public health events	0%	Unlikely to be a biodiversity focus.
8. Compensation for additional costs in Outermost Regions	0%	No biodiversity focus.
9. Animal health and welfare	0%	Subject to further clarity on what is expected to be included under “animal health and welfare”; there does not appear to be an obvious biodiversity benefit.
10. Control and enforcement	40%	On the assumption this primarily concerns expenditure which contributes to control and enforcement <i>beyond the standard required of Member States</i> .

11. Data collection, analysis, and promotion of marine knowledge	40%	A significant proportion of such expenditure is likely to have biodiversity benefits. It might also be useful to enable Member States to propose a 100% marker for expenditure which is primarily focused on improving knowledge of biodiversity issues
12. Maritime surveillance and security	40%	Some evidence of a contribution to better-targeted enforcement of biodiversity and catch legislation.
13. Community-led Local Development (CLLD) – preparation actions	0%	No clear biodiversity focus.
14. CLLD – implementation of strategy	40%	This may lead to some overestimation; however, some strategies should have specific biodiversity impacts (rather than just a generalised focus on sustainability); and such approaches should be encouraged.
15. CLLD – running costs and implementation	0%	No clear biodiversity focus.
16. Technical assistance	0%	No clear biodiversity focus.

7. LIFE

A broadly similar approach to that adopted under the current period could be continued, with expenditure under the “nature and biodiversity” sub-programme given a 100% marker. However, projects under the other sub-programmes (Climate adaptation and mitigation; circular economy and quality of life; and clean energy transition) may vary significantly in their contribution to biodiversity objectives, and we therefore recommend a project-by-project approach to the allocation of biodiversity markers.

8. NDICI

The Neighbourhood, Development and International Cooperation Instrument (NDICI) is a new instrument that will comprise areas of action currently covered by the EDF, the DCI, the EIDHR, the IcSP, as well as the ENI, PI and Guarantee Fund for external actions. The NDICI will cover all expenses related to actions in third countries, and will follow a tripartite structure, similar to the one specific to the former DCI program. The budget allocation

will be divided into geographic programmes, comprising by far the largest amount of the total budget; thematic programmes and rapid response actions. The preparation of the programming of the NDICI has already started, where the long-term priorities, objectives, and indicative allocations are set out. The NDICI will thus become the main EU financial instrument for international action, bringing about consistency and coordination as major added value. NDICI will therefore be better equipped to react to unforeseen circumstances, challenges and priorities. This approach will ensure fewer gaps and overlaps between projects and programmes, increasing efficiency and effectiveness.

An overview of the current and expected design of the instrument can be found in the latest programme annual statement by the Commission. The NDICI is expected to address several shortcomings to the programmes it replaces. The new instrument is expected to enter into force in the coming months, after its formal adoption by the Council and the Parliament. Once adopted, the instrument will be implemented through the adoption of multi-annual indicative programmes for the 2021-2027 period for each region, partner country and thematic programme.

The current biodiversity tracking methodology for the programmes that will be replaced by the NDICI mostly follow a case-by-case approach, where individual actions or programmes are Rio marked and submitted through a centralised database, CRIS. Currently, these programmes' coding follows an *ex ante* approach, meaning that the Rio markers are assigned based on the **intended objective** of the programme or action. For these programmes, data on actual disbursements is not available, which appears as crucial if an *ex post* methodology – one based on **actual expenditure** – is to be carried out. Tracking based on impacts may provide a more accurate picture of biodiversity finance as it would be based on results rather than intentions, and have the advantage of taking account of the possible obstacles and unexpected developments relative to *a priori* budget allocations.

However, the identification of impacts of specific funds may be procedurally and technically challenging, potentially adding a significant administrative burden to the tracking. This is particularly the case for the **rapid response** component of the NDICI, given its emergency-driven nature, and whose impacts are therefore more challenging to locate and measure. Therefore, rather than basing the coding on the impacts of projects, the development of an efficient *ex post* tracking of funds could provide the means to evaluate more accurately the biodiversity expenditure of this instrument. This method, nevertheless, would still demand important investments in the follow-up of progress and reporting of programs, requiring significant data and information resources.

Since the NDICI is a new instrument which is yet to come into force, the recommendations here point at the shortcomings that were identified for the **former instruments**, which will be terminated and replaced. These programmes already involve a project-level tracking, which has been described as a rather precise one.⁹ Project-level tracking – based on the submission of individual programmes or actions to the OECD DAC following the encoding of Rio markers – has guaranteed a close level of tracking accuracy, and was made possible by the often limited number of projects funded under the instruments, particularly for those funded under the Partnership Instrument (PI). However, a few improvements have been suggested over the years. In particular, it has emerged that encoding – this has been the case particularly for the DCI – sometimes involves **several projects at once**, which was highlighted as a source of risk for tracking inaccuracy. Therefore, while these programmes already involve a case-by-case tracking methodology, this one should be strengthened and made systematic for all actions. Moreover, studies have highlighted the difficulty in assigning a specific Rio marker to projects, which can also contribute to inaccuracy in tracking of biodiversity contributions.

An instance of this can be found in the distinction between **significant** and **principal** markers. Previous evaluations of the tracking methodology for these programs have stressed the difficulty that can be encountered in differentiating between the two codes. It is therefore recommended to develop more **articulated guidelines** to assist the encoding of specific actions. This may involve, for instance, the provision of examples or templates, leaving as little room as possible for individual interpretation. The case-by-case tracking methodology is particularly relevant for the rapid response component. This third pillar of the NDICI is designed to be triggered in the presence of unexpected crises, and thus presents a high level of **flexibility and immediacy** in implementation. For this type of tool, a case-by-case approach provides the possibility to identify the environmental dimensions of the emergency that the instrument seeks to address. While it seems unlikely that biodiversity will be a priority objective of such emergency funding, scope should be left for identifying and tracking any such contribution.

9. IPA III

The Commission's proposal¹⁰ for the new Pre-Accession instrument, IPA III, focuses on the rule of law, fundamental rights and migration (including strengthening security

⁹ Medarova-Bergstrom, K., Kettunen, M., Illes, A., Hart, K., Baldock, D., Newman, S., Rayment, M., and Sobey M. (2015) Tracking Biodiversity Expenditure in the EU Budget, Part II – Fund specific guidance documents, Final Report for the European Commission – DG ENV, Institute for European Environmental Policy, London/Brussels

¹⁰ European Commission, [Proposal for a Regulation of the European Parliament and of the Council establishing the Instrument for Pre-accession Assistance \(IPA III\)](#), COM(2018) 465

cooperation, the fight against radicalisation and organised crime); EU policies and acquis; socio-economic development; investments for growth; reconciliation, good neighbourly relations and regional and cross-border cooperation. While it mentions the importance of contributing to climate objectives, biodiversity and nature protection are not explicitly mentioned. However, issues such as preparation for the adoption of the EU acquis, and cross-border cooperation, among others, have significant potential for a contribution to biodiversity objectives. A continuation of the current case-by-case approach to tracking is appropriate, bolstered by the same improvements suggested above for NDICI.

10. Union Civil Protection Mechanism

While expenditure under the civil protection mechanism is not currently tracked as biodiversity relevant, we recommend considering emergency assistance addressing forest fires, with a 40% contribution marker. While the biodiversity value of forests varies significantly, effective action to reduce the impact of fires should in general have identifiable benefits; and can in many cases also help in preventing fire spread to areas of high nature value.

11. Technical Support Instrument

The Technical Support Instrument Regulation¹¹ for the 2021-2027 period includes biodiversity within its scope, albeit as part of an extensive list of environmental and sustainability issues (article 5 (e)). There is therefore a possibility that Member States will request, and be given, assistance under the TSI for the development and implementation of biodiversity policies or actions. A case-by-case approach to allocating biodiversity markers seems appropriate, with care taken to ensure that projects are genuinely focused on biodiversity issues. Climate tracking was not applied to expenditure under the predecessor programme (Structural Reform Support Programme) in the 2014-2020 period, despite a number of projects being taken forward with a climate or clean energy focus, so we recommend checking with colleagues responsible for climate tracking to ensure consistency of approach between the two tracking methodologies.

¹¹ [Regulation \(EU\) 2021/240 of the European Parliament and of the Council of 10 February 2021 establishing a Technical Support Instrument](#)

APPENDIX: FURTHER INFORMATION AND BACKGROUND ON POSSIBLE CAP TRACKING METHODOLOGIES

This annex examines the expected contribution to biodiversity of the two CAP funds (EAGF and EAFRD) in the 2021-2027 MFF period and provides an initial assessment of the implications of the likely changes in the focus and content of the funds for the biodiversity tracking methodology. The focus is on the period from **2023 onwards** as this is the point at which the new CAP regulations are due to affect expenditure. We set out two options:

Option 1: applies a single tracking methodology across the EAGF and the EAFRD, taking advantage of the new programming approach for all interventions under the CAP Strategic Plans (CSPs) and attributing the markers to the nine new CAP specific objectives¹²; this is the proposal put forward in the main body of this report.

Option 2: an alternative approach which continues with the current system of maintaining different methodologies for EAGF and EAFRD – specifically, an intervention based approach for the EAGF and an objective led approach for the EAFRD.

1. MS programming of expenditure under the CSPs

We have made the assumption in our proposals that Member States will programme all CAP interventions (under both the EAGF and EAFRD) in future against all nine specific CAP objectives. We have assumed that, in the same way as the EAFRD measures are currently programmed under those Priorities to which they contribute (with one measure potentially programmed under a number of priorities and focus areas), in the future funding for CAP interventions from both Pillars could be allocated across the nine CAP specific objectives, depending on their focus and content.

2. CAP legislation for the 2021-2027 period

A two-year transitional period has been agreed for the CAP to the end of 2022. The rules that apply during this period are set out in the transitional regulation¹³. The European Union Recovery Instrument¹⁴ provides for an additional €8.5 billion for rural development to be implemented through Member States' Rural Development Programmes (RDPs) also

¹² Ignoring for this purpose the cross-cutting objective of modernising agriculture and rural areas by fostering and sharing of knowledge, innovation and digitalisation in agriculture and rural areas.

¹³ Regulation (EU) 2020/2220 adopted on 23 December 2020

¹⁴ Regulation (EU) 2020/2094 adopted on 14 December 2020

to be allocated during 2021 and 2022 and according to rules set out in the transitional regulation.

The transitional regulation states that the governing regulations for the operation of the EAGF and the EAFRD for this two-year period remain those in place during the 2014-2020 period. Therefore for 2021 and 2022 the biodiversity tracking system that was in place for the 2014-2020 period remains operational. For the period from January 2023, the new CAP regulations will govern expenditure.

To determine how biodiversity expenditure might be tracked under the new regulations, first it is helpful to show how these differ from the current EAGF and EAFRD. The key changes are set out in the table below, indicating the extent to which the final text of the regulations differs from the proposals put forward by the Commission (our initial recommendations for tracking, submitted in the first interim report in 2021, were based on the then current state of play in negotiations with the co-legislators).

Table A1.11: Key changes in the CAP regulations relevant to biodiversity for the period from 2023

2014-2020 (and 2021/2022) ¹	Main proposed changes from 2023 onwards (Commission's proposals) ²	Main changes (if any) in final legislation adopted ³	Implications for biodiversity
General:			
<ul style="list-style-type: none"> - Three overarching objectives for the CAP - EAGF: Biodiversity priorities only specified for the 'greening' measures, specifically the EFA and ESPG measures. - EAFRD: 6 priorities identified, of which Priority 4 'Restoring, preserving and enhancing ecosystems related to agriculture and forestry' and Priority 5(e) 'fostering carbon conservation and sequestration in agriculture and forestry' are relevant to biodiversity - The stated issues addressed by cross-compliance include biodiversity 	<p>All objectives are common for the whole CAP, both EAGF and EAFRD:</p> <ul style="list-style-type: none"> - Three 'general objectives' for the CAP and one cross-cutting objective - Nine specific objectives, of which two are relevant to biodiversity: <ul style="list-style-type: none"> o Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f)); o Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e)) 	<p>No particular changes of note regarding biodiversity</p>	<p>Specific biodiversity objectives now apply to EAGF as well as EAFRD</p>
<p>Each Pillar implemented separately, with programming only applicable to Pillar 2</p>	<p>Funding for both Pillars must be programmed in a coherent way to address the three CAP general objectives and nine specific objectives</p>	<p>No particular changes of note regarding biodiversity</p>	<p>Proposals for how to implement interventions under the EAGF will have to demonstrate how they address the biodiversity objectives, as well as proposals for EAFRD spending.</p>
<p>-</p>	<p>- Requirement for MSs to demonstrate that they are delivering increased environmental and climate ambition and that</p>	<p>No particular changes of note regarding biodiversity</p>	<p>This should in theory increase the biodiversity outcomes associated with the CAP. In practice this will depend on MS implementation decisions, the content of</p>

	<p>there is no regression compared to 2014-2020 (article 105 in final text)</p> <ul style="list-style-type: none"> - Links with the PAF and other national environmental plans stemming from EU law 		<p>the PAFs and other national environmental instruments and the extent to which they are followed in implementation decisions, and the rigour of the Commission's CSP approval process.</p>
<p>Detailed rules for how each EAGF intervention and EAFRD measure must be implemented in Member States</p>	<p>More flexibility for Member States to determine what they do in practice – fewer rules set out in the draft CSP regulation</p>	<p>In line with Commission proposals</p>	<p>This could lead to enhanced biodiversity outcomes.</p> <p>Much will depend on MS implementation decisions, the content of the PAF and other national environmental instruments and the extent to which they are followed in implementation decisions, and on the rigour of the Commission's CSP approval process.</p>
Horizontal			
<p>Cross-compliance:</p> <ul style="list-style-type: none"> • A number of GAEC standards, of which 1 is focused on biodiversity – although others also contribute to biodiversity through water and soil management. • SMRs – regulations that already apply in the Member State but which are linked to CAP payments through cross-compliance 	<p>Enhanced conditionality:</p> <p>10 proposed GAEC standards, of which 2 sit under the 'biodiversity and landscape' issue heading, namely:</p> <ul style="list-style-type: none"> • GAEC 9 – minimum share of agricultural area devoted to non-productive features or areas, retention of landscape features, ban on hedge and tree cutting during the bird breeding and rearing season and optional measures for avoiding invasive plant species; and • GAEC 10 – ban on converting or ploughing permanent grassland in Natura 2000 areas <p>Other GAEC standards would also benefit biodiversity, such as:</p> <ul style="list-style-type: none"> • GAEC 1 – Maintenance of a minimum ratio of permanent grassland compared to overall agricultural area • GAEC 2 – appropriate protection of wetland and peatland (Partly new) 	<p>GAEC 1 – scope introduced to Member States to allow for a decrease of 5% in grassland area.</p> <p>Proposed GAEC 5 – nutrients tool: removed from final text</p> <p>GAEC 9 (GAEC 8 in final text) – significant flexibility for Member States to exempt a range of holdings, or to allow a decrease from 4 to 3% for non-productive areas or features in certain cases where the farmer opts for having 7%, but including also productive uses of land</p> <p>GAEC 10 (GAEC 9 in final text) – limited to a much narrower range of land designated as environmentally-sensitive grassland in Natura 2000 areas.</p>	<p>Of the proposed new conditionality requirements that could benefit biodiversity:</p> <ul style="list-style-type: none"> • 4 are the same or similar as under the 2014-20 period • 5 include elements that are brought across from the greening measures under the 2014-20 period but with increased conditions proposed by the Commission (rotation instead of diversification with some exceptions on a range of holdings or derogations, less tolerance for ploughing permanent grassland, no productive elements in biodiversity area, etc) • 1 is new: Appropriate Protection of wetland and peatland (GAEC 2), but implementation of this requirements can be deferred up to 2025.

	<ul style="list-style-type: none"> GAEC 4 – establishment of buffer strips along water courses GAEC 5 – Use of Farm Sustainability Tool for Nutrients (New) GAEC 6 Tillage management reducing the risk of soil degradation GAEC 7 – no bare soil in most sensitive periods GAEC 8 – crop rotation (partly New) 16 SMRs – these are regulations that already apply in the Member State; the list has been expanded, and now includes the Sustainable Use of Pesticides Directive. 	Other GAEC standards adopted broadly as proposed by the Commission (see previous column)	SMRs reduced to 11 in total, although the deletions are focused on animal health and welfare requirements with little implication for biodiversity outcomes.
EAGF (Pillar 1):			
<p>Greening measures (30% of the EAGF budget)</p> <ul style="list-style-type: none"> Ecological Focus Areas Maintenance of Permanent grassland <ul style="list-style-type: none"> Minimum ratio Environmentally Sensitive Permanent Grassland (ESPG) Crop diversification 	<p>Certain elements of greening moved to enhanced conditionality (see above):</p> <ul style="list-style-type: none"> GAEC 1 brings the maintenance of a minimum ratio of permanent grassland compared to overall agricultural area back under conditionality but with stricter conditions GAEC 9 brings elements of the EFA measure under conditionality but extended to all agricultural land and without productive area GAEC 10 moves the ESPG requirement that applies in Natura 2000 areas to conditionality. 	<p>See above under ‘enhanced conditionality’</p> <p>In addition, as regards the GAEC on landscape feature it is calculated in relation to arable land and not to agricultural areas as in the draft regulation.</p>	<p>See above under ‘enhanced conditionality’.</p>
	Eco-schemes (no ring-fencing) – (New)	A minimum of 25% of the direct payments budget to be reserved for eco-schemes (with some flexibility for Member States)	In broad terms, this constitutes additional funding of 25% of the Pillar 1 direct payments budget with the potential to deliver biodiversity outcomes, compared to the 2014-2020 period (since some of

			<p>the 2014-2020 greening measures will now be included in the enhanced conditionality requirements in a more ambitious format); although the weakening of some of the GAEC standards referred to above reduces the <i>additional</i> nature of the funds</p> <p>Actual biodiversity impacts will depend on how MSs decide to design the eco-schemes in their respective CSP.</p>
EAFRD (Pillar 2)			
<p>Ringfencing – 30% of EAFRD expenditure must be used to deliver environmental and climate objectives (seven measures are eligible)</p>	<p>Ringfencing – 30% of EAFRD expenditure must be allocated to deliver environmental and climate objectives. All interventions could in theory be used, with the exception of the ANC intervention.</p>	<p>The minimum ringfenced amount has been increased to 35%, but the range of expenditure used for the calculation has now been specified, and includes also: (i) ANC payments (at a rate of 50%); and (iii) animal welfare measures. There is also scope for redeploying unspent elements of this expenditure on other priorities.</p>	<p>Actual biodiversity impact will depend on how MSs decide to design the EAFRD interventions, and on the uptake of the respective interventions in the MS. However, the potential beneficial impact of the minimum expenditure requirement in the Commission proposal has been reduced by the specification of a range of additional eligible measures, some of which do not provide significant additional biodiversity benefits.</p>

¹ EU Regulations 1305/2013 and 1307/2013

² COM(2018) 392 final

³ Regulation (EU) 2021/2115 establishing rules on support for strategic plans; Regulation (EU) 2021/2116 on the financing, management and monitoring of the common agricultural policy

i. Summary of implications for biodiversity of the new CSP regulation [EAGF/EAFRD]

While the CAP legislation for the 2023-2027 period is weaker than the Commission's proposals, it does not necessarily represent a reduced level of ambition compared with the 2014-2020 CAP.

The CAP as implemented from 2023 onwards might deliver greater biodiversity benefits than in the 2014-2020 (and 2021-22) period since the regulation specifically states that Member States must demonstrate enhanced environmental and climate ambition in their CAP Strategic Plans (CSPs). However the extent to which this enhanced ambition will translate into greater biodiversity outcomes on the ground will be dependent on what Member States propose in their national CSPs, on the uptake of respective interventions in the CSP, the content of the PAF and other national environmental instruments, and the extent to which they are followed in implementation decisions, and the CSP approval process by the European Commission.

There are three elements of the final legislative package that potentially have a significant impact on biodiversity outcomes.

The **ringfencing of 25% for environmental and climate action under Pillar 1** constitutes funding which is broadly additional, given that much of the pre-existing greening requirements of the 2014-2020 have been included in cross-compliance. However, as noted in the table above, the weakening of the Commission's proposals for cross-compliance in the final legislative texts reduces the additionality of this expenditure. In addition, the inclusion of animal welfare in the scope of eco-schemes weakens the focus on environmental outcomes; and the scope for Member States to divert unspent funding under this requirement to other objectives could (if used to any significant extent) also weaken the positive impacts.

The **conditionality** requirements have, as noted above, been strengthened in comparison with the 2014-2020 cross-compliance rules, but weakened by the co-legislators in the final adopted text. Table A1.12 below compares the GAEC standards for the CAP post 2020 with the corresponding requirements of the 2014-2020 greening measures and cross-compliance (where these exist), to give a picture of the extent to which the new conditionality rules offer an improvement or not in terms of their biodiversity impact. Overall, the proposed GAEC standards have potential to improve the biodiversity benefits delivered, but in most cases this potential is to a certain extent dependent on how Member States choose to apply them.

Table A1.12: Comparison of current cross compliance and proposed conditionality with respect to biodiversity impacts

Topic	2014-2020 Greening/cross-compliance	2023-2027 Conditionality	Better/same/worse/inconclusive for biodiversity
Permanent grassland ratio	Greening: Minimum ratio to agricultural land, with exemptions including organic	Minimum ratio (although % is not specified), and reduced exemptions Maximum decrease of 5 % compared to the reference year	Broadly similar: inclusion of a significant range of exemptions and other elements of the 2014-2020 legislation, although organic farms are now covered by the requirement
Protection for peatlands and wetlands	Greening: Possible to ban ploughing by designation as environmentally sensitive permanent grassland, although not widely applied outside Natura areas	Protection compulsory, but implementation can be deferred to 2025 in some cases	Better. This is a new protection; having a separate category should make it more difficult for MS not to protect such land. The main change in the final text is the deletion of the word "appropriate", which potentially creates a more absolute requirement on MS (although this does not appear to have been the motivation behind the amendment). However, Member States may provide in their CAP Strategic Plans that this GAEC will only be applicable as from claim year 2024 or 2025. In such cases, Member States shall demonstrate that the delay is necessary for the establishment of the management system in accordance with a detailed planning. Any such delays would delay biodiversity benefits.
Stubble burning ban	Cross-compliance: Compulsory	Compulsory	Same
Tillage management/cover crops	Cross-compliance: Compulsory	Compulsory	Same
Crop rotation	Greening: requires crop diversification but not rotation.	Compulsory	A possible improvement: but impact will depend on which crops are included in the rotation, and on the extent to which MS make use of the potential exemptions now included.
Minimum share of arable farms	EFA's required under greening but with	Commission proposal limited to genuinely non-	Exemptions included make it unlikely that a sufficient proportion of arable land ¹⁵ will be included under

¹⁵ Evidence suggests 10% of non productive EFAs are required to achieve biodiversity benefits. See: Dicks, L V et al (2015) *How much flower-rich habitat is enough for wild pollinators? Answering a key policy question with*

to be non-productive areas	productive options allowed.	productive options; final text adds exemptions, and productive options.	appropriate measures options; and the productive options also dilute the impact.
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In considering the two options we outline at the beginning of this Annex, the conditionality requirements are more consequential for Option 2 if the Commission chooses to favour continuity of approach over a more robust and conservative approach, an argument could be made for tracking Basic Income Support for Sustainability with a marker of 40% applied to 10% of the total expenditure; based on the assumption that 50% of the conditionality requirement applies to GAEC requirements rather than the Statutory Management Requirements; and that 2 of the 9 GAEC standards are relevant for biodiversity. However, this would not address the criticisms formulated by the ECA and environmental stakeholders; and is likely to weaken the credibility of the biodiversity tracking methodology in the eyes of those stakeholders. The weakening of the GAEC requirements in the final legislative package, in comparison to the Commission’s original proposals, also argues against this approach.

In the current period **payments for Areas facing Natural Constraints (ANC)** count towards the required minimum level of EAFRD environmental spend; the Commission’s proposal that they should be removed from the list of qualifying interventions was rejected by Council and Parliament and, as noted above, the final legislation counts 50% of ANC expenditure towards the minimum environmental expenditure total. This significantly weakens the potential for environmental benefits from the 2023-2027 EAFRD expenditure, depending on the extent to which Member States allocate expenditure between ANC and other constraints payments on the one hand, and environmental schemes on the other.

This outcome was criticised by environmental stakeholders^{16,17} as undermining the European Green Deal objectives and targets and the intention (written into the CAP proposals) that the next CAP would demonstrate greater environmental and climate ambition than currently. The scale of the challenge was brought into stark relief with the publication of Commission’s latest assessment of the state of nature in the European Union¹⁸ in October 2020. This showed that, despite some improvements in

incomplete knowledge; Ecological Entomology No 40 (S1), 22-35; and Martin, E A et al (2019) *The interplay of landscape composition and configuration: new pathways to manage functional biodiversity and agroecosystem services across Europe*; Ecology Letters No 22 (7), 1083-1094.

¹⁶ [https://www.arc2020.eu/wp-](https://www.arc2020.eu/wp-content/uploads/2020/11/open_letter_to_president_von_der_leyen_withdraw_the_cap.pdf)

[content/uploads/2020/11/open_letter_to_president_von_der_leyen_withdraw_the_cap.pdf](https://www.arc2020.eu/wp-content/uploads/2020/11/open_letter_to_president_von_der_leyen_withdraw_the_cap.pdf)

¹⁷ <http://extranet.greens-efa-service.eu/public/media/file/1/6649>

¹⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:635:FIN>

the state of habitats and species protected by the Birds and Habitats directives between 2013-2018, biodiversity in the EU continued to decline, with cumulative pressures from unsustainable agriculture and forestry, land use change, climate change, extraction of natural resources and invasive alien species. Peatlands, grasslands, dune habitats, and species associated with agriculture were identified as being of most concern and it is the CAP that is the most significant source of funding to help address these pressures.

ii. Implications for biodiversity tracking for the EAGF and EAFRD post 2023

Although the CSP regulation defines¹⁹ how climate expenditure will be tracked for the EAGF and EAFRD in the next CAP period, there are no equivalent provisions for tracking biodiversity expenditure. This section sets out some ideas on how the current methodology might be amended to take account of the changes in the structure and content of the EAGF and EAFRD from 2023 onwards. These options are proposed assuming a similar consistent approach between the climate and biodiversity tracking is taken in the future – namely an ex ante assessment of how the EAGF and EAFRD contribute to biodiversity objectives.

The biodiversity tracking methodology applied to the EAGF and EAFRD in the 2014-2020 period (and which will continue to apply for 2021 and 2022) is set out in the table below. This shows that approximately 14.8%²⁰ of EAGF expenditure is considered to contribute to biodiversity objectives. For the EAFRD, the proportion changes year on year depending on any changes to how the EAFRD funds are allocated between priorities and focus areas, and by rates of implementation and rates of uptake by farmers and other beneficiaries. For the 2014-2020 period approximately 33% of the total EAFRD expenditure is tracked as relevant for biodiversity. The total CAP (EAGF and EAFRD) contribution accounts for 77% of biodiversity finance in the 2014-2020 EU Budget.

Table A1.13: Application of the biodiversity tracking methodology to the EAGF and EAFRD in 2014-2020

CAP Intervention/Measure/Priority	Application of the Biodiversity tracking markers
EAGF	
Greening measures (payment for agricultural practices beneficial for the climate and the environment)	<p>A marker of 40% is applied</p> <ul style="list-style-type: none"> since 30% of the EAGF must be spent on these measures, this equates to 12% of the EAGF;

¹⁹ Regulation 2021/2115, Article 100

²⁰ Greening payments accounts for 12% + cross compliance applicable to 10 % of non-greening component which approximatively equates to 2.8%.

Direct Payments (cross-compliance applicable to non-greening measures)	<p>A marker of 40% is applied to 10% of the majority of the remaining 70% of direct payments (minus the allocation to the Small Farmers Scheme) to take account of the assumed benefits to biodiversity of cross-compliance (standards of Good Agricultural and Environment Condition and Statutory Management Requirements) to which farmers must adhere to receive their direct payments.</p> <ul style="list-style-type: none"> • This equates to approximately 2.8% of the EAGF.
EAFRD	
Commitments allocated under Priority 4 under all measures with the exception of payments to Areas Facing Natural Constraints (ANC)	A marker of 100% is applied
Commitments allocated under Focus Area 5e	A marker of 40% is applied

One of the main criticisms of biodiversity tracking to date has centred on the decision to track a proportion of EAGF direct payments as biodiversity expenditure, on the basis that farmers in receipt of the basic payment are obliged to comply with conditionality requirements as a condition for receipt of payment. The principle of cross-compliance (or conditionality in the post 2023 CAP) is an important one, as it requires farmers to adhere to a set of legal requirements and standards as a condition of receiving area-based payments under the CAP. These provide the foundation for all other area payments and aim to ensure a minimum level of environmental protection (alongside food safety and animal welfare). However, no evidence has been found on the effects of cross-compliance to date on biodiversity.

The biodiversity tracking approach for the EAFRD has also been criticised for overestimating the proportion of expenditure considered relevant for biodiversity since the 100% marker is applied to all expenditure under Priority 4, which covers not just biodiversity, but also soils and water.

For the 2023-2027 CAP period, we suggest that there are two main options available, one of which (Option 1) aims for improved coherence in approach for the two funds and improved accuracy based on the new CAP programming structure, and the other (Option 2) provides continuity with the current methodology. We recommend Option 1.

Option 1: The first option, which we recommend, would be to aim for a more coherent and accurate tracking approach for both the EAGF and the EAFRD, taking account of the way in which the expenditure for interventions is programmed under the nine specific CAP objectives. This will enable a more accurate assessment of the extent to which interventions are expected to deliver against the biodiversity objective and should overcome the criticisms of the current system outlined above, as long as sufficient evidence is provided by Member States on the biodiversity benefits of the expenditure allocated to the biodiversity objective. We assume in this proposal that either the CAP Strategic Plans themselves, or Member States reporting of EAFRD expenditure under them, will separately identify which expenditure addresses which of the objectives.

For the EAFRD, this is a similar approach to that taken in the current period, with the advantage that in the future biodiversity is covered by an objective of its own.

For the EAGF this constitutes a change in approach from tracking by intervention to tracking by objective. However, since from 2023 all interventions under the EAGF will be programmed against the nine CAP objectives in the same way as the EAFRD, moving to a single approach for both funds represents a simpler and more coherent approach to biodiversity tracking under the CAP. In principle, this would not remove the ability to account for the biodiversity benefits of enhanced conditionality, since Member States could programme a proportion of their EAGF funding under the biodiversity objective, if there were clear evidence to demonstrate that the conditionality requirements underpinning that funding were delivering biodiversity impact. Since Member States have to set out the intervention logic for each intervention and the justification for how it has been programmed in their CSPPs, this information would be assessed as part of the CSP approval process.

Table A1.14: Option 1 for tracking biodiversity expenditure for the EAGF and EAFRD from 2023

CAP Objective	Potential application of biodiversity tracking markers	Rationale
Commitments allocated to CAP specific objective 1: 'support viable farm income and resilience across the Union to enhance food security'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 2: 'enhance market orientation and increase competitiveness'	0%	No direct impact on biodiversity

Commitments allocated to CAP specific objective 3: 'improve farmers' position in the value chain'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 4: 'contribute to climate change mitigation and adaptation'	40%	No automatic direct impact on biodiversity, but potential for significant benefits if measures are appropriately designed.
Commitments allocated to CAP Specific Objective 5: 'Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e))	40%	A proportion of the commitments programmed under this objective could benefit biodiversity.
Commitments allocated to CAP Specific Objective 6: 'Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f))	100%	All commitments allocated under this objective should have biodiversity at their core, and the Commission should ensure that this is the case through the approvals process. All interventions with funding allocated under this objective would be included as long as the anticipated biodiversity benefits duly justified. This <u>would include</u> any expenditure allocated to this objective for the BISS and ANC interventions.
Commitments allocated to CAP Specific Objective 7: 'attract young farmers and facilitate business development in rural areas	0 %	No direct impact on biodiversity
Commitments allocated to CAP Specific Objective 8 'Promote employment growth, social inclusion and local development in rural areas'	0 %	No direct impact on biodiversity

Commitments allocated to CAP Specific Objective 9 'improve the response of EU agriculture to societal demands on food and health'	0 %	No direct impact on biodiversity
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Option 2: This would apply a similar approach to the one currently applied, but adapted slightly to follow a similar approach to that proposed for tracking climate expenditure under the CSP regulation. This would involve applying markers to specific interventions under the EAGF, but for the EAFRD the markers would be applied according to the new CAP specific objectives under which the interventions were programmed. The reason for this is that most of the EAFRD interventions are capable of addressing multiple objectives; it would not make sense to apply a single marker to individual interventions without taking account of the objective under which it is programmed.

Under this approach, the estimate of expenditure that is biodiversity related should be more accurate for the EAFRD. This improvement in EAFRD accuracy is due to the fact that in biodiversity will have its own specific objective for the 2023-2027 period, whereas in the 2014-2020 period, expenditure under Priority 4 could not be broken down into its three constituent focus areas, only one of which was biodiversity focused. Interventions in CSP may be programmed under more than one specific objective, in which case a pro rata approach to biodiversity tracking would need to be applied.

A key consideration is how to address conditionality for EAGF expenditure, given the criticisms that have been made of the current approach. The important role played by conditionality in providing an environmental baseline for all area-based CAP payments is not in question. However, whether this means that EAGF direct payments (other than the eco-scheme) should be tracked as biodiversity expenditure on the basis that farmers in receipt of the basic payment are obliged to comply with conditionality requirements as a condition for receipt of payment is not so clear cut.

This is particularly the case for the Statutory Management Requirements (SMRs) which require adherence with existing legislation - in this sense they do not introduce significant biodiversity obligations exceeding those which apply to farmers who receive no direct payments, although the fact that they are included within conditionality may mean that there is greater adherence than might otherwise be the case. However, based on the assumption that some GAEC standards lead to biodiversity benefits beyond those required through legislation (generally seeking to apply the principle of 'do no harm' rather than positive action), these potential biodiversity impacts could be recognised through applying the Rio markers to direct

payment interventions that do not themselves have biodiversity objectives (e.g. primarily the BISS).

The relationship between GAEC standards and biodiversity outcomes creates challenges for assigning Rio markers to a specified percentage of the basic payment. The relationship is clearly not close enough to assign the 40% marker to the full value of the interventions; so one solution is to apply the 40% marker to a limited proportion of these payments. However, the question then arises about what data one uses to make a judgement on what proportion might be appropriate. Currently the 40% marker is applied to 10% of direct payments excluding the greening measures – there is no detailed rationale for the 10% available in the public domain that we have been able to find.

Our proposal under Option 2 is to apply the 40% marker to EAGF expenditure according to the proportion of GAEC standards that have biodiversity as an objective (2 out of 9)²¹. SMRs are not taken into account for biodiversity tracking since their purpose is to encourage adherence to existing legislation, which all farmers must do, irrespective of whether or not they are in receipt of CAP funding. It is proposed, therefore that the 40% marker is applied to 10% of BISS expenditure based on the simplifying assumptions that 50% of the conditionality requirement applies to GAEC, and that 2 out of 9 (22.2%, rounded down to 20%) of GAEC standards have biodiversity objectives ($50\% * 20\% = 10\%$).

For the eco-scheme, a 40% marker is proposed, since biodiversity is only one of the potential objectives for this scheme. This does mean that in some Member States, particularly if some choose to focus eco-schemes on biodiversity benefits, this may underestimate the biodiversity-relevant expenditure; in others it may represent an overestimation, depending on the focus of the eco-schemes that are put in place. However, for administrative simplicity this seems the most appropriate marker to apply, based on the range of objectives of the intervention.

²¹ GAEC 8 (Minimum share of agricultural area subject to non-productive features / maintenance of landscape features), GAEC 9 (Ban on converting or ploughing permanent grassland in Natura 2000 sites).

Table A1.15: Option 2 for tracking biodiversity expenditure for the EAGF and EAFRD from 2023

CAP Intervention / Objective	Potential application of biodiversity tracking markers	Rationale
EAGF 2021-27		
Schemes for climate and the environment (eco-schemes)	40% marker	This takes account of the fact that eco-schemes have multiple objectives, of which biodiversity is only one
Basic Income Support Scheme for Sustainability	40% marker applied to 10% of the BISS	To take account of the potential biodiversity benefits of conditionality. This figure is based on the proportion of mandatory GAEC standards (2 out of 9) that have objectives directly related to biodiversity (22.2%, rounded down to 20%). If GAEC requirements are assumed to form half (50%) of the total conditionality impact, then the 40% marker could be applied to 20% of that 50% = 10%.
EAFRD 2021-27		
Commitments allocated to CAP Specific Objective 6: 'Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f)) - excluding ANC	100% marker	All commitments allocated under this objective should have biodiversity at their core, and the Commission should ensure that this is the case through the approvals process. All interventions with funding allocated under this objective would be included as long as the anticipated biodiversity benefits are duly justified.
Commitments allocated to CAP specific objective 4: 'contribute to climate change mitigation and adaptation'	40%	No automatic direct impact on biodiversity, but potential for significant benefits if measures are appropriately designed.

Commitments allocated to CAP Specific Objective 5: 'Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e))	40%	A proportion of the commitments programmed under this objective could benefit biodiversity.
Commitments allocated under all other CAP specific objectives	0 % marker	The other CAP objectives are not directly focused on biodiversity.

Neither of these options should lead to an increase in administrative efforts or costs on either the European Commission or the Member States. It would require the online portal into which the CSP information is uploaded to be designed in a way that makes it straightforward for the expenditure data to be downloaded by both intervention and CAP specific objective. In this way Member States would simply upload their CSPs and their proposed expenditure by intervention and by objective into the online form/database as they would have to do anyway. These data can then be extracted in an automated way and the tracking markers applied.

FURTHER INFORMATION AND BACKGROUND ON POSSIBLE CAP TRACKING METHODOLOGIES

This annex examines the expected contribution to biodiversity of the two CAP funds (EAGF and EAFRD) in the 2021-2027 MFF period and provides an initial assessment of the implications of the likely changes in the focus and content of the funds for the biodiversity tracking methodology. The focus is on the period from **2023 onwards** as this is the point at which the new CAP regulations are due to affect expenditure. We set out two options:

Option 1: applies a single tracking methodology across the EAGF and the EAFRD, taking advantage of the new programming approach for all interventions under the CAP Strategic Plans (CSPs) and attributing the markers to the nine new CAP specific objectives; this is the proposal put forward in the main body of this report.

Option 2: an alternative approach which continues with the current system of maintaining different methodologies for EAGF and EAFRD – specifically, an intervention based approach for the EAGF and an objective led approach for the EAFRD.

1.1.1 MS programming of expenditure under the CSPs

We have made the assumption in our proposals that Member States will programme all CAP interventions (under both the EAGF and EAFRD) in future against all 9 specific CAP objectives. We have assumed that, in the same way as the EAFRD measures are currently programmed under those Priorities to which they contribute (with one measure potentially programmed under a number of priorities and focus areas), in the future funding for CAP interventions from both Pillars could be allocated across the 9 CAP objectives, depending on their focus and content.

1.1.2 CAP legislation for the 2021-2027 period

A two-year transitional period has been agreed for the CAP to the end of 2022. The rules that apply during this period are set out in the transitional regulation¹. The European Union Recovery Instrument² provides for an additional €8.5 billion for rural development to be implemented through Member States' Rural Development Programmes (RDPs) also

¹ Regulation (EU) 2020/2220 adopted on 23 December 2020

² Regulation (EU) 2020/2094 adopted on 14 December 2020

to be allocated during 2021 and 2022 and according to rules set out in the transitional regulation.

The transitional regulation states that the governing regulations for the operation of the EAGF and the EAFRD for this two-year period remain those in place during the 2014-2020 period. Therefore for 2021 and 2022 the biodiversity tracking system that was in place for the 2014-2020 period remains operational. For the period from January 2023, the new CAP regulations will govern expenditure.

To determine how biodiversity expenditure might be tracked under the new regulations, first it is helpful to show how these differ from the current EAGF and EAFRD. The key changes are set out in the table below, indicating the extent to which the final text of the regulations differs from the proposals put forward by the Commission (our initial recommendations for tracking, submitted in the first interim report in 2021, were based on the then current state of play in negotiations with the co-legislators)..

Table A1.11: Key changes in the CAP regulations relevant to biodiversity for the period from 2023

2014-2020 (and 2021/2022) ¹	Main proposed changes from 2023 onwards (Commission's proposals) ²	Main changes (if any) in final legislation adopted ³	Implications for biodiversity
General:			
<ul style="list-style-type: none"> - Three overarching objectives for the CAP - EAGF: Biodiversity priorities only specified for the 'greening' measures, specifically the EFA and ESPG measures. - EAFRD: 6 priorities identified, of which Priority 4 'Restoring, preserving and enhancing ecosystems related to agriculture and forestry' and Priority 5(e) 'fostering carbon conservation and sequestration in agriculture and forestry' are relevant to biodiversity - The stated issues addressed by cross-compliance include biodiversity 	<p>All objectives are common for the whole CAP, both EAGF and EAFRD:</p> <ul style="list-style-type: none"> - Three 'general objectives' for the CAP and one cross-cutting objective - Nine specific objectives, of which two are relevant to biodiversity: <ul style="list-style-type: none"> o Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f)); o Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e)) 	<p>No particular changes of note regarding biodiversity</p>	<p>Specific biodiversity objectives now apply to EAGF as well as EAFRD</p>
<p>Each Pillar implemented separately, with programming only applicable to Pillar 2</p>	<p>Funding for both Pillars must be programmed in a coherent way to address the three CAP general objectives and nine specific objectives</p>	<p>No particular changes of note regarding biodiversity</p>	<p>Proposals for how to implement interventions under the EAGF will have to demonstrate how they address the biodiversity objectives, as well as proposals for EAFRD spending.</p>
<p>-</p>	<p>- Requirement for MSs to demonstrate that they are delivering increased environmental and climate ambition and that there is no</p>	<p>No particular changes of note regarding biodiversity</p>	<p>This should in theory increase the biodiversity outcomes associated with the CAP. In practice this will depend on MS implementation decisions, the content</p>

	<p>regression compared to 2014-2020 (article 92)</p> <ul style="list-style-type: none"> - Links with the PAF and other national environmental plans stemming from EU law 		of the PAFs and other national environmental instruments and the extent to which they are followed in implementation decisions, and the rigour of the Commission's CSP approval process.
Detailed rules for how each EAGF intervention and EAFRD measure must be implemented in Member States	More flexibility for Member States to determine what they do in practice – fewer rules set out in the draft CSP regulation	In line with Commission proposals	This could lead to enhanced biodiversity outcomes. Much will depend on MS implementation decisions, the content of the PAF and other national environmental instruments and the extent to which they are followed in implementation decisions, and on the rigour of the Commission's CSP approval process.
Horizontal			
<p>Cross-compliance:</p> <ul style="list-style-type: none"> • A number of GAEC standards, of which 1 is focused on biodiversity – although others also contribute to biodiversity through water and soil management. • SMRs – regulations that already applies in the Member State but which are linked to CAP payments through cross-compliance 	<p>Enhanced conditionality:</p> <p>10 proposed GAEC standards, of which 2 sit under the 'biodiversity and landscape' issue heading, namely:</p> <ul style="list-style-type: none"> • GAEC 9 – minimum share of agricultural area devoted to non-productive features or areas, retention of landscape features, ban on hedge and tree cutting during the bird breeding and rearing season and optional measures for avoiding invasive plant species; and • GAEC 10 – ban on converting or ploughing permanent grassland in Natura 2000 areas <p>Other GAEC standards would also benefit biodiversity, such as:</p> <ul style="list-style-type: none"> • GAEC 1 – Maintenance of a minimum ratio of permanent grassland compared to overall agricultural area • GAEC 2 – appropriate protection of wetland and peatland (Partly new) 	<p>GAEC 1 – scope introduced to Member States to allow for a decrease of 5% in grassland area.</p> <p>Proposed GAEC 5 – nutrients tool: removed from final text GAEC 9 (GAEC 8 in final text) – significant flexibility for Member States to exempt a range of holdings, or to allow for productive uses of land to count towards the minimum share</p> <p>GAEC 10 (GAEC 9 in final text) – limited to a much narrower range of land designated as environmentally-sensitive grassland in Natura 2000 areas.</p>	<p>Of the proposed new conditionality requirements that could benefit biodiversity:</p> <ul style="list-style-type: none"> • 4 are the same or similar as under the 2014-20 period • 5 include elements that are brought across from the greening measures under the 2014-20 period but with increased conditions proposed by the Commission (rotation instead of diversification, less tolerance for ploughing permanent grassland, no productive elements in biodiversity area, etc) • 1 is new: Appropriate Protection of wetland and peatland (GAEC 2) <p>SMRs reduced to 11 in total, although the deletions are focused on animal health and welfare requirements with</p>

	<ul style="list-style-type: none"> GAEC 4 – establishment of buffer strips along water courses GAEC 5 – Use of Farm Sustainability Tool for Nutrients (New) Tillage management reducing the risk of soil degradation GAEC 7 – no bare soil in most sensitive periods GAEC 8 – crop rotation (partly New) 16 SMRs – these are regulations that already apply in the Member State; the list has been expanded, and now includes the Sustainable Use of Pesticides Directive. 		little implication for biodiversity outcomes.
EAGF (Pillar 1):			
<p>Greening measures (30% of the EAGF budget)</p> <ul style="list-style-type: none"> Ecological Focus Areas Maintenance of Permanent grassland <ul style="list-style-type: none"> Minimum ratio Environmentally Sensitive Permanent Grassland (ESPG) Crop diversification 	<p>Certain elements of greening moved to enhanced conditionality (see above):</p> <ul style="list-style-type: none"> GAEC 1 brings the maintenance of a minimum ration of permanent grassland compared to overall agricultural area back under conditionality but with stricter conditions GAEC 9 brings elements of the EFA measure under conditionality but extended to all agricultural land and without productive area GAEC 10 moves the ESPG requirement that applies in Natura 2000 areas to conditionality. 	See above under ‘enhanced conditionality’	See above under ‘enhanced conditionality’.
	Eco-schemes (no ring-fencing) – (New)	A minimum of 25% of the direct payments budget to be reserved for eco-schemes (with some flexibility for Member States)	In broad terms, his constitutes additional funding of 25% of the Pillar 1 direct payments budget with the potential to deliver biodiversity outcomes, compared to the 2014-2020 period (since some of

			<p>the 2014-2020 greening measures will now be included in the enhanced conditionality requirements in a more ambitious format); although the weakening of some of the GAEC standards referred to above reduces the <i>additional</i> nature of the funds</p> <p>Actual biodiversity impacts will depend on how MSs decide to implement eco-schemes</p>
EAFRD (Pillar 2)			
<p>Ringfencing – 30% of EAFRD expenditure must be used to deliver environmental and climate objectives (seven measures are eligible)</p>	<p>Ringfencing – 30% of EAFRD expenditure must be allocated to deliver environmental and climate objectives. All interventions could in theory be used, with the exception of the ANC intervention.</p>	<p>The minimum ringfenced amount has been increased to 35%, but the range of eligible expenditure is now much broader, including in addition: (i) ANC payments (at a rate of 50%); (ii) compensatory payments for compliance with restrictions under the habitats, birds and water framework directives; and (iii) animal welfare measures. There is also scope for redeploying unspent elements of this expenditure on other priorities.</p>	<p>Actual biodiversity impact will depend on how MSs decide to implement the EAFRD interventions, and on negotiations with the Commission over approval of CAP strategic plans. However, the potential beneficial impact of the minimum expenditure requirement in the Commission proposal has been effectively removed by the inclusion of a range of additional eligible measures, none of which provide significant additional biodiversity benefits.</p>

¹ EU Regulations 1305/2013 and 1307/2013

² COM(2018) 392 final

³ Regulation (EU) 2021/2115 establishing rules on support for strategic plans; Regulation (EU) 2021/2116 on the financing, management and monitoring of the common agricultural policy

1.1.3 Summary of implications for biodiversity of the new CSP regulation [EAGF/EAFRD]

While the CAP legislation for the 2023-2027 period is weaker than the Commission's proposals, it does not necessarily represent a reduced level of ambition compared with the 2014-2020 CAP.

The CAP as implemented from 2023 onwards should deliver greater biodiversity benefits than in the 2014-2020 (and 2021-22) period since the regulation specifically states that Member States must demonstrate enhanced environmental and climate ambition in their CAP Strategic Plans (CSPs). However the extent to which this enhanced ambition will translate into greater biodiversity outcomes on the ground will be dependent on what Member States propose in their national CSPs, the content of the PAF and other national envi-instruments, and the extent to which they are followed in implementation decisions, and the CSP approval process by the European Commission.

There are three elements of the final legislative package that potentially have a significant impact on biodiversity outcomes.

The **ringfencing of 25% for environmental and climate action under Pillar 1** constitutes funding which is broadly additional, given that much of the pre-existing greening requirements of the 2014-2020 have been included in cross-compliance. However, as noted in the table above, the weakening of the Commission's proposals for cross-compliance in the final legislative texts reduces the additionality of this expenditure. In addition, the inclusion of animal welfare in the scope of eco-schemes weakens the focus on environmental outcomes; and the scope for Member States to divert unspent funding under this requirement to other objectives could (if used to any significant extent) also weaken the positive impacts.

The **conditionality** requirements have, as noted above, been strengthened in comparison with the 2014-2020 cross-compliance rules, but weakened by the co-legislators in the final adopted text. Table A1.12 below compares the GAEC standards for the CAP post 2020 with the corresponding requirements of the 2014-2020 greening measures and cross-compliance (where these exist), to give a picture of the extent to which the new conditionality rules offer an improvement or not in terms of their biodiversity impact. Overall, the proposed GAEC standards have potential to improve the biodiversity benefits delivered, but in most cases this potential is to a certain extent dependent on how Member States choose to apply them.

Table A1.12: Comparison of current cross compliance and proposed conditionality with respect to biodiversity impacts

Topic	2014-2020 Greening/cross-compliance	2023-2027 Conditionality	Better/same/worse/inconclusive for biodiversity
Permanent grassland ratio	Greening: Minimum ratio to agricultural land, with exemptions including organic	Minimum ratio (although % is not specified), and no exemptions	Broadly similar: inclusion of a significant range of exemptions and other elements of the 2014-2020
Protection for peatlands and wetlands	Greening: Possible to ban ploughing by designation as environmentally sensitive permanent grassland, although not widely applied outside Natura areas	Protection compulsory	Better. This is a new protection; having a separate category should make it more difficult for MS not to protect such land. The main change in the final text is the deletion of the word "appropriate", which potentially creates a more absolute requirement on MS (although this does not appear to have been the motivation behind the amendment).
Stubble burning ban	Cross-compliance: Compulsory	Compulsory	Same
Tillage management/cover crops	Cross-compliance: Compulsory	Compulsory	Same
Crop rotation	Greening: requires crop diversification but not rotation.	Compulsory	A possible improvement: but impact will depend on which crops are included in the rotation, and on the extent to which MS make use of the potential exemptions now included.
Minimum share of arable farms to be non-productive areas	EFAs required under greening but with productive options allowed.	Commission proposal limited to genuinely non-productive options; final text adds exemptions, and productive options.	Exemptions included make it unlikely that a sufficient proportion of arable land ³ will be included under appropriate measures options; and the productive options also dilute the impact.

In considering the two options we outline at the beginning of this Annex, the conditionality requirements are more consequential for Option B; if the Commission chooses to favour continuity of approach over a more robust and conservative approach, an argument could be made for tracking Basic Income Support for Sustainability with a marker of 40% applied to 10% of the total expenditure; based on

³ Evidence suggests 10% of non productive EFAs are required to achieve biodiversity benefits. See: Dicks, L V et al (2015) *How much flower-rich habitat is enough for wild pollinators? Answering a key policy question with incomplete knowledge*; Ecological Entomology No 40 (S1), 22-35; and Martin, E A et al (2019) *The interplay of landscape composition and configuration: new pathways to manage functional biodiversity and agroecosystem services across Europe*; Ecology Letters No 22 (7), 1083-1094.

the assumption that 50% of the conditionality requirement applies to GAEC requirements rather than the Statutory Management Requirements; and that 2 of the 10 GAEC standards are relevant for biodiversity. However, this would not address the criticisms formulated by the ECA and environmental stakeholders; and is likely to weaken the credibility of the biodiversity tracking methodology in the eyes of those stakeholders. The weakening of the GAEC requirements in the final legislative package, in comparison to the Commission's original proposals, also argues against this approach.

In the current period **payments for Areas facing Natural Constraints (ANC)** count towards the required minimum level of EAFRD environmental spend; the Commission's proposal that they should be removed from the list of qualifying interventions was rejected by Council and Parliament and, as noted above, the final legislation counts 50% of ANC expenditure towards the minimum environmental expenditure total, and 100% of expenditure on compensatory payments in a new category of areas facing disadvantages as the result of mandatory requirements under the Habitats, Birds, and Water Framework Directives. This significantly weakens the potential for environmental benefits from the 2023-2027 EAFRD expenditure, depending on the extent to which Member States allocate expenditure between ANC and other constraints payments on the one hand, and environmental schemes on the other. .

This outcome was criticised by environmental stakeholders⁴⁵ as undermining the European Green Deal objectives and targets and the intention (written into the CAP proposals) that the next CAP would demonstrate greater environmental and climate ambition than currently. The scale of the challenge was brought into stark relief with the publication of Commission's latest assessment of the state of nature in the European Union⁶ in October 2020. This showed that, despite some improvements in the state of habitats and species protected by the Birds and Habitats directives between 2013-2018, biodiversity in the EU continued to decline, with cumulative pressures from unsustainable agriculture and forestry, land use change, climate change, extraction of natural resources and invasive alien species. Peatlands, grasslands, dune habitats, and species associated with agriculture were identified as being of most concern and it is the CAP that is the most significant source of funding to help address these pressures.

⁴ https://www.arc2020.eu/wp-content/uploads/2020/11/open_letter_to_president_von_der_leyen_withdraw_the_cap.pdf

⁵ <http://extranet.greens-efa-service.eu/public/media/file/1/6649>

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:635:FIN>

1.1.4 Implications for biodiversity tracking for the EAGF and EAFRD post 2023

Although the CSP regulation defines⁷ how climate expenditure will be tracked for the EAGF and EAFRD in the next CAP period, there are no equivalent provisions for tracking biodiversity expenditure. This section sets out some ideas on how the current methodology might be amended to take account of the changes in the structure and content of the EAGF and EAFRD from 2023 onwards. These options are proposed assuming a similar consistent approach between the climate and biodiversity tracking is taken in the future – namely an ex ante assessment of how the EAGF and EAFRD contribute to biodiversity objectives.

The biodiversity tracking methodology applied to the EAGF and EAFRD in the 2014-2020 period (and which will continue to apply for 2021 and 2022) is set out in the table below. This shows that approximately 14.8%⁸ of EAGF expenditure is considered to contribute to biodiversity objectives. For the EAFRD, the proportion changes year on year depending on any changes to how the EAFRD funds are allocated between priorities and focus areas, and by rates of implementation and rates of uptake by farmers and other beneficiaries. For the 2014-2020 period approximately 33% of the total EAFRD expenditure is tracked as relevant for biodiversity. The total CAP (EAGF and EAFRD) contribution accounts for 77% of biodiversity finance in the 2014-2020 EU Budget.

Table A1.13: Application of the biodiversity tracking methodology to the EAGF and EAFRD in 2014-2020

CAP Intervention/Measure/Priority	Application of the Biodiversity tracking markers
EAGF	
Greening measures (payment for agricultural practices beneficial for the climate and the environment)	<p>A marker of 40% is applied</p> <ul style="list-style-type: none"> since 30% of the EAGF must be spent on these measures, this equates to 12% of the EAGF;
Direct Payments (cross-compliance applicable to non-greening measures)	<p>A marker of 40% is applied to 10% of the majority of the remaining 70% of direct payments (minus the allocation to the Small Farmers Scheme) to take account of the assumed benefits to biodiversity of cross-compliance (standards of Good Agricultural and Environment Condition and Statutory</p>

⁷ Regulation 2021/2115, Article 100

⁸ Greening payments accounts for 12% + cross compliance applicable to 10 % of non-greening component which approximatively equates to 2.8%.

	<p>Management Requirements) to which farmers must adhere to receive their direct payments.</p> <ul style="list-style-type: none"> • This equates to approximately 2.8% of the EAGF.
EAFRD	
Commitments allocated under Priority 4 under all measures with the exception of payments to Areas Facing Natural Constraints (ANC)	A marker of 100% is applied
Commitments allocated under Focus Area 5e	A marker of 40% is applied

One of the main criticisms of biodiversity tracking to date has centred on the decision to track a proportion of EAGF direct payments as biodiversity expenditure, on the basis that farmers in receipt of the basic payment are obliged to comply with conditionality requirements as a condition for receipt of payment. The principle of cross-compliance (or conditionality in the post 2023 CAP) is an important one, as it requires farmers to adhere to a set of legal requirements and standards as a condition of receiving area-based payments under the CAP. These provide the foundation for all other area payments and aim to ensure a minimum level of environmental protection (alongside food safety and animal welfare). However, no evidence has been found on the effects of cross-compliance to date on biodiversity.

The biodiversity tracking approach for the EAFRD has also been criticised for overestimating the proportion of expenditure considered relevant for biodiversity since the 100% marker is applied to all expenditure under Priority 4, which covers not just biodiversity, but also soils and water.

For the 2021-2027 CAP period, we suggest that there are two main options available, one of which (Option 1) aims for improved coherence in approach for the two funds and improved accuracy based on the new CAP programming structure, and the other (Option 2) provides continuity with the current methodology. We recommend Option 1.

Option 1: The first option, which we recommend, would be to aim for a more coherent and accurate tracking approach for both the EAGF and the EAFRD, taking account of the way in which the expenditure for interventions is programmed under the nine specific CAP objectives. This will enable a more accurate assessment of the extent to which interventions are expected to deliver against the biodiversity objective and should overcome the criticisms of the current system outlined above, as long as sufficient evidence is provided by Member States on the biodiversity benefits of the

expenditure allocated to the biodiversity objective. We assume in this proposal that either the CAP Strategic Plans themselves, or Member States reporting of EAFRD expenditure under them, will separately identify which expenditure addresses which of the objectives.

For the EAFRD, this is a similar approach to that taken in the current period, with the advantage that in the future biodiversity is covered by an objective of its own.

For the EAGF this constitutes a change in approach from tracking by intervention to tracking by objective. However, since from 2023 all interventions under the EAGF will be programmed against the nine CAP objectives in the same way as the EAFRD, moving to a single approach for both funds represents a simpler and more coherent approach to biodiversity tracking under the CAP. In principle, this would not remove the ability to account for the biodiversity benefits of enhanced conditionality, since Member States could programme a proportion of their EAGF funding under the biodiversity objective, if there were clear evidence to demonstrate that the conditionality requirements underpinning that funding were delivering biodiversity impact. Since Member States have to set out the intervention logic for each intervention and the justification for how it has been programmed in their CSPS, this information would be assessed as part of the CSP approval process.

Table A1.14: Option 1 for tracking biodiversity expenditure for the EAGF and EAFRD from 2023

CAP Objective	Potential application of biodiversity tracking markers	Rationale
Commitments allocated to CAP specific objective 1: 'support viable farm income and resilience across the Union to enhance food security'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 2: 'enhance market orientation and increase competitiveness'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 3: 'improve farmers' position in the value chain'	0%	No direct impact on biodiversity
Commitments allocated to CAP specific objective 4: 'contribute	40%	No automatic direct impact on biodiversity, but potential

to climate change mitigation and adaptation'		for significant benefits if measures are appropriately designed.
Commitments allocated to CAP Specific Objective 5: 'Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e))	40%	A proportion of the commitments programmed under this objective could benefit biodiversity.
Commitments allocated to CAP Specific Objective 6: 'Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f))	100%	All commitments allocated under this objective should have biodiversity at their core, and the Commission should ensure that this is the case through the approvals process. All interventions with funding allocated under this objective would be included as long as the anticipated biodiversity benefits duly justified. This <u>would include</u> any expenditure allocated to this objective for the BISS and ANC interventions.
Commitments allocated to CAP Specific Objective 7: 'attract young farmers and facilitate business development in rural areas	0 %	No direct impact on biodiversity
Commitments allocated to CAP Specific Objective 8 'Promote employment growth, social inclusion and local development in rural areas'	0 %	No direct impact on biodiversity
Commitments allocated to CAP Specific Objective 9 'improve the response of EU agriculture to societal demands on food and health'	0 %	No direct impact on biodiversity

Option 2: This would apply a similar approach to the one currently applied, but adapted slightly to follow a similar approach to that proposed for tracking climate expenditure under the CSP regulation. This would involve applying markers to specific interventions under the EAGF, but for the EAFRD the markers would be applied according to the new CAP specific objectives under which the interventions were programmed. The reason for this is that most of the EAFRD interventions are capable of addressing multiple objectives; it would not make sense to apply a single marker to individual interventions without taking account of the objective under which it is programmed.

Under this approach, the estimate of expenditure that is biodiversity related should be more accurate for the EAFRD. This improvement in EAFRD accuracy is due to the fact that in biodiversity will have its own specific objective for the 2023-2027 period, whereas in the 2014-2020 period, expenditure under Priority 4 could not be broken down into its three constituent focus areas, only one of which was biodiversity focused.

A key consideration is how to address conditionality for EAGF expenditure, given the criticisms that have been made of the current approach. The important role played by conditionality in providing an environmental baseline for all area-based CAP payments is not in question. However, whether this means that EAGF direct payments (other than the eco-scheme) should be tracked as biodiversity expenditure on the basis that farmers in receipt of the basic payment are obliged to comply with conditionality requirements as a condition for receipt of payment is not so clear cut.

This is particularly the case for the Statutory Management Requirements (SMRs) which require adherence with existing legislation - in this sense they do not introduce significant biodiversity obligations exceeding those which apply to farmers who receive no direct payments, although the fact that they are included within conditionality may mean that there is greater adherence than might otherwise be the case. However, based on the assumption that some GAEC standards lead to biodiversity benefits beyond those required through legislation (generally seeking to apply the principle of 'do no harm' rather than positive action), these potential biodiversity impacts could be recognised through applying the Rio markers to direct payment interventions that do not themselves have biodiversity objectives (e.g. primarily the BISS).

The relationship between GAEC standards and biodiversity outcomes creates challenges for assigning Rio markers to a specified percentage of the basic payment. The relationship is clearly not close enough to assign the 40% marker to the full value of the interventions; so one solution is to apply the 40% marker to a limited proportion of these payments. However, the question then arises about what data one uses to make a judgement on what proportion might be appropriate. Currently the 40% marker is applied to 10% of direct payments excluding the greening measures – there

is no detailed rationale for the 10% available in the public domain that we have been able to find.

Our proposal under Option 2 is to apply the 40% marker to EAGF expenditure according to the proportion of GAEC standards that have biodiversity as an objective (2 out of 10)⁹. SMRs are not taken into account for biodiversity tracking since their purpose is to encourage adherence to existing legislation, which all farmers must do, irrespective of whether or not they are in receipt of CAP funding. It is proposed, therefore that the 40% marker is applied to 10% of BISS expenditure based on the simplifying assumption that 50% of the conditionality requirement applies to GAEC, and that 2 out of 10 (20%) of GAEC standards have biodiversity objectives (50% * 20% = 10%).

For the eco-scheme, a 40% marker is proposed, since biodiversity is only one of the potential objectives for this scheme. This does mean that in some Member States, particularly if some choose to focus eco-schemes on biodiversity benefits, this may underestimate the biodiversity-relevant expenditure; in others it may represent an overestimation, depending on the focus of the eco-schemes that are put in place. However, for administrative simplicity this seems the most appropriate marker to apply, based on the range of objectives of the intervention.

⁹ Currently GAEC 9 (Minimum share of agricultural area subject to non-productive features / maintenance of landscape features), GAEC 10 (Ban on converting or ploughing permanent grassland in Natura 2000 sites). This may need to be revisited depending on the final outcome of the negotiations, both in terms of the total number of GAEC standards and the extent to which those that are currently identified as being biodiversity-focused retain this focus in the final legislation.

Table A1.15: Option 2 for tracking biodiversity expenditure for the EAGF and EAFRD from 2023

CAP Intervention / Objective	Potential application of biodiversity tracking markers	Rationale
EAGF 2021-27		
Schemes for climate and the environment (eco-schemes)	40% marker	This takes account of the fact that eco-schemes have multiple objectives, of which biodiversity is only one
Basic Income Support Scheme for Sustainability & Complementary Income Support (BISS)	40% marker applied to 10% of the BISS	To take account of the potential biodiversity benefits of conditionality. This figure is based on the proportion of mandatory GAEC standards that have objectives directly related to biodiversity. In the Commission's proposals there are 2 of these out of 10 (20%), however, should either of these be removed or changed in any significant way then the percentage would need to be adjusted downwards. If GAEC requirements are assumed to form half (50%) of the total conditionality impact, then the 40% marker could be applied to 20% of that 50% = 10%.
EAFRD 2021-27		
Commitments allocated to CAP Specific Objective 6: 'Contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes (Article 6(f)) - excluding ANC	100% marker	All commitments allocated under this objective should have biodiversity at their core, and the Commission should ensure that this is the case through the approvals process. All interventions with funding allocated under this objective would be included as long as the anticipated biodiversity benefits duly justified. This <u>would include</u> any expenditure

		allocated to this objective for the ANC intervention
Commitments allocated to CAP specific objective 4: 'contribute to climate change mitigation and adaptation'	40%	No automatic direct impact on biodiversity, but potential for significant benefits if measures are appropriately designed.
Commitments allocated to CAP Specific Objective 5: 'Foster sustainable development and efficient management of natural resources such as water, soil and air (Article 6(e))	40%	A proportion of the commitments programmed under this objective could benefit biodiversity.
Commitments allocated under all other CAP specific objectives	0 % marker	The other CAP objectives are not directly focused on biodiversity.

Neither of these options should lead to an increase in administrative efforts or costs on either the European Commission or the Member States. It would require the online portal into which the CSP information is uploaded to be designed in a way that makes it straightforward for the expenditure data to be downloaded by both intervention and CAP specific objective. In this way Member States would simply upload their CSPs and their proposed expenditure by intervention and by objective into the online form/database as they would have to do anyway. These data can then be extracted in an automated way and the tracking markers applied.

ANNEX 3: BIODIVERSITY TRACKING: MEMBER STATE EXAMPLES

1. France

France has introduced a system for analysing and reporting the environmental impacts of the state budget, including the impacts of the tax system. A first annual assessment was published¹ in September 2020, in line with the December 2019 finance law. The system has been developed on the basis of recommendations in the report of a working party of the *Inspection Générale des Finances and the Conseil général de l'Environnement et du Développement durable* in September 2019², although the 2020 report notes that the methodology continues to be developed.

The approach adopted is applied to the total state budget ("*objectif total de dépenses de l'État*", or ODETE), a broad approach which includes transfers to local and regional governments, but excludes some financial operations, notably loans.

Six environmental dimensions are identified, mapping to the dimensions included in the EU Taxonomy Regulation³:

- **Climate mitigation**
- **Climate adaptation** and prevention of natural risks
- **Water** resource management
- Circular economy, **waste**, and technological risks
- **Pollution**
- **Biodiversity** and protection of natural, agricultural, and woodland areas.

Expenditure is then analysed at the level of "*actions*" (essentially, programmes of expenditure), and each programme is assessed against each of the environmental dimensions as being either:

- **Favourable**: which includes
 - o Expenditure with an environmental objective, or which makes a direct contribution to environmental goods or services;

¹ See "Rapport sur l'impact environnemental du budget de l'État", September 2020

² See "Green Budgeting : Proposition de méthode pour une budgétisation verte ", September 2020

³ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088

- Expenditure without an environmental objective, but which make a proven positive contribution;
 - Expenditure with a favourable impact on the environment, but with some controversy over that impact, notably in the case of investments which may lead to technology lock-in in the longer term.
- **Neutral:** expenditure without a significant environmental impact, or where there is insufficient information.
 - **Unfavourable:** expenditure with either a direct negative impact on the environment, or inciting behaviours with negative impact.

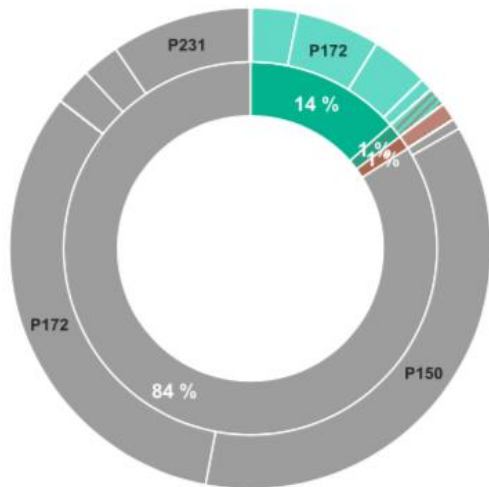
The report notes that environmentally unfavourable expenditure may nevertheless be justified in cases where it delivers other societal goods; flagging such expenditure as negative allows a better understanding of the trade-offs involved, and a focus on whether the negative impact can be reduced. It also notes that expenditure may have a positive impact on one or more environmental dimension and an unfavourable impact on others (for example, short term negative impacts of infrastructure investments which are expected to have a positive impact in the longer term). From the point of view of biodiversity tracking, this means that simplistic assumptions that, for example, expenditure which is favourable from a climate mitigation point of view necessarily contributes positively to biodiversity (see the transport expenditure example in Figure below).

Salary expenditure is generally treated as neutral, as are transfer payments (for example, social security payments to households), except in the case of tax measures aimed at changing behaviour (such as reduced VAT rates on energy efficiency investments). Fiscal transfers, for example to the EU or to local authorities, are treated as neutral at present, but with a possibility of being linked in future to the EU's tracking of climate and biodiversity expenditure in its budget.

Information is reported at programme ("*action*") level for each Ministry, with a simple graphic included at the beginning of each Ministry's section of the annual report.

Figure 1: Example graphic presentation of expenditure: Research and Higher Education

Synthèse des classifications environnementales



Crédits budgétaires et taxes affectées :

Favorables : 4,81 Md€
Mixtes : 0,45 Md€
Défavorables : 0,43 Md€
Sans impact : 22,78 Md€

Dépenses fiscales :

Favorables : –
Mixtes : –
Défavorables : –
Sans impact : 7,10 Md€




The line-by-line analysis of the budget then simply indicates the total level of expenditure, and a traffic-light presentation of whether “favourable” (green) “unfavourable” (red), or “neutral” impacts have been identified for each of climate mitigation, climate adaptation, water, waste, pollution, and biodiversity respectively. Thus, in the example below from the Ecological Transition Ministry, a favourable impact is shown for climate mitigation from rail transport investments, but an unfavourable impact is shown for biodiversity.

Figure 2: Example graphic presentation of expenditure: Ministère de la Transition Ecologique, excerpt of budget line analysis

P181	Fonds de prévention des risques naturels majeurs	205,0 M€	● ● ● ● ● ●	Favorable
P203	Ferroviaire	2 466,0 M€	● ● ● ● ● ●	Mixte
P203	Transport aérien	41,4 M€	● ● ● ● ● ●	Défavorable
P345	Soutien aux énergies renouvelables électriques en métropole continentale	5 684,5 M€	● ● ● ● ● ●	Favorable
P345	Soutien à l'injection de biométhane	543,8 M€	● ● ● ● ● ●	Favorable
P345	Soutien à la transition énergétique dans les zones non interconnectées (ZNI)	678,6 M€	● ● ● ● ● ●	Favorable

An overall presentation of the data by environmental dimension is included at the beginning of the report; however, this provides no information on the nature of the expenditure analysed as favourable or unfavourable for each dimension. It is to be hoped that the quality of synthetic presentation could be improved for future annual reports.

Figure 3: Presentation of results by environmental dimension

<i>En M€</i>	Atténuation climat	Adaptation climat	Eau	Déchets	Pollution	Biodiversité
Dépenses favorables 	37 030	28 317	17 936	15 537	30 154	11 030
Dépenses neutres 	527 534	543 615	552 837	553 478	536 565	558 214
Dépenses défavorables 	9 644	2 276	3 436	5 193	7 488	4 965

2. Ireland

Ireland carried out a National Biodiversity Expenditure Review (NBER) following the UNDP UN Biodiversity Finance Initiative (BIOFIN) model in 2017 to 2018⁴. The study was carried out by researchers in University College Dublin, funded by the Irish Research Council and the National Parks and Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage.

The NBER developed a method to record expenditure on biodiversity conservation in Ireland for the period 2010-2015, based on the UNDP BIOFIN methodology and spreadsheet-based model⁵. The scope covered all relevant domestic expenditure by government departments, government agencies, local authorities, environmental NGOs, and the private sector. However, a full examination of the private sector was beyond the time and resources available for the study.

The NBER tracking approach

The NBER **defined biodiversity expenditure** as: *'expenditure related directly to the objectives of the CBD and the Irish National Biodiversity Action Plan (NBSAP), or that which can reasonably be expected to, directly or indirectly, have a positive effect on the conservation of biodiversity. Including, but not limited to, actions to: mainstream biodiversity and encourage sustainable use; improve knowledge of biodiversity; improve public and professional awareness; conserve and restore ecosystems, habitats or species (terrestrial and marine); protect and maintain habitats and species; or enhance biodiversity through policy development, implementation and enforcement.'*

The definition was deliberately flexible and broad, taking account of both intentional biodiversity expenditure (its primary purpose) and spending which has a significant biodiversity purpose and/or a significant indirect benefit to biodiversity. The intention of spending was defined by referring to the objectives or targets set by Ireland's National Biodiversity Action Plan and the CBD Aichi targets set in 2011.

The approach included the following steps:

- 1) **Data organisation:** The expenditure data were identified and collected into a database from national budget documents (appropriation accounts), departmental and agency annual reports, meetings with departmental staff and

⁴ https://biodiversityfinance.ucd.ie/?page_id=149

⁵ Morrison, R. and Bullock, C. (2018) *A National Biodiversity Expenditure Review for Ireland*, Ireland: University College Dublin. Available at: <http://research.ie/assets/uploads/2018/05/NBER-FINAL-COPY.pdf>.

agencies, NGO annual reports, the national charities regulator and the companies registration office. Wherever possible, expenditure data was collected at the programmatic, project and scheme level. For each piece of expenditure data collected, the source, recipient, and domain of biodiversity were also recorded.

- 2) **Attribute tags:** Each expenditure line was assessed for relevance based on discussions with scheme or project experts, key stakeholders, policy reviews, consultations and focus group discussions, and assigned to a category of action for conservation. Each expenditure line was tagged against the objectives or targets set by Ireland’s National Biodiversity Action Plan and the CBD Aichi targets set in 2011. Each expenditure line was also tagged against the System of Economic and Environmental Accounting (SEEA) to ensure compatibility with the Irish Central Statistics Office.
- 3) **Attribute coefficients:** Each expenditure line was assigned a coefficient based on a close assessment of the programme objectives and remit, combined with discussions with experts in that sector or field.
- 4) **Expenditure and effectiveness review:** The data tool was used to analyse the data and provide an in-depth portrait of biodiversity expenditure across Ireland.

Tracking was carried out only on spending. The review could not track allocations as it was too difficult to capture information about allocation at the programmatic level.

Biodiversity related expenditure was matched against six **categories of action for conservation:**

- 1) Awareness, education, or engagement
- 2) Habitat and/or species protection or management
- 3) Habitat and/or species restoration, reintroduction, or recovery
- 4) Sustainable use or environmentally friendly production
- 5) Research and survey
- 6) Policy actions, plans and enforcement.

These six categories were further subdivided into 42 individual conservation actions, ranging from site management to the creation of biodiversity publications or funding of appeals.

The Irish NBER used six **coefficients** defined as follows:

100%	The sole purpose of the activity is the conservation, protection and/or restoration of biodiversity (or one of the other objectives of the CBD/NBSAP)
75%	The main emphasis or intent of the activity is the conservation, protection and/or restoration of biodiversity (or at least one of the CBD objectives coupled to a lesser degree with other related objectives)

50%	The conservation of biodiversity is operating in parallel with another non biodiversity related activity. An activity with a dual purpose contributing equally to biodiversity and another objective.
25%	Activities which have primarily been conducted for other purposes but have a clear element of relevance, relationship to the conservation of biodiversity stated or expected positive biodiversity impacts.
5%	Activities that only indirectly or theoretically link to the conservation of biodiversity or where small positive biodiversity impacts could be expected from much larger non-BD programmes with at least safeguards in place.
0%	No relevance to biodiversity conservation or immeasurable intent or positive impact on biodiversity. Where there is no evidence of any intent to benefit biodiversity.

Challenges and limitations of the approach used

Categories of action for conservation and coefficients applied to agriculture expenditure:

The Irish agri-environment programme REPS (spending up to 2015) was categorised as action for sustainable use, whereas the AEOS programme (spending 2010-2015) and the GLAS programme (2015-2021) were categorised as habitat and/or species protection or management. The rationale for this distinction was based on the whole-farm approach taken by REPS in comparison to the much more targeted payments for specific site management actions for biodiversity and habitat in AEOS and GLAS. However, the 75% coefficient was assigned to all three programmes, and to the Burren Farming for Conservation agri-environment scheme. The method did not distinguish between different options within the schemes.

The organic farming scheme was categorised as sustainable use, but in contrast to REPS it was assigned a coefficient of 50% because it involves the application of environmentally friendly principles to the benefit of biodiversity alongside food produce standards and quality.

The payment for Less Favoured Areas / Areas of Natural Constraint was assigned a coefficient of 0% in line with the EU approach. The basic payment and the greening payment were assigned a coefficient of 0%, on the basis that biodiversity is not one of the main objectives of the basic payment, and the greening obligations only required changes in farming practices from a small number of arable farmers in Ireland. The review recognised that the GAEC protection of landscape features could provide an argument for allocating it a small contribution to biodiversity but considered that the benefits are difficult to quantify and confirm.

Agricultural expenditure	Categorisation	Coefficient applied
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REPS (agri-environment) (spending 2007 to 2015)	Sustainable use	75%
AEOS (agri-environment) (spending 2010 to 2015)	Species/habitat protection / management	75%
GLAS (agri-environment) (spending 2015 to 2021)	Species/habitat protection / management	75%
Burren Farming for Conservation programme and Burren Programme (agri-environment) (spending 2010 onwards)	Species/habitat protection / management	75%
Organic Farming Scheme (spending 2007 onwards)	Sustainable use / pollution	50%
Payment for Less Favoured Areas / Areas of Natural Constraint	-	0%
National Genetic Conservation Strategy grant aid scheme (spending 2013 onwards)	Genetic conservation	75%
Greening payment (spending 2014-2020)	-	0%
Basic farm payment scheme	-	0%

Disagreements about allocation of coefficients: The three areas where there was most disagreement about how to classify expenditure were 1) CAP direct payments (including greening) with potential benefits to biodiversity linked to GAEC standards; 2) spending on mitigation or compensation efforts to account for direct damage to biodiversity, e.g. Transport for Ireland spending on landscaping areas after road construction or compensation spending for damage to designated sites; and 3) spending on general environmental protection activities (such as wastewater treatment or waste management). The NBER allocated all three areas a coefficient of 0% (with the exception of the Waterford case⁶) but noted that they may need to be given further consideration.

Time and effort required to generate data: The collection of expenditure data was challenging as expenditure occurs across a diversity of sectors and government departments and is often not listed as “biodiversity” or may be double-counted elsewhere. Agencies showed different degrees of willingness to cooperate. The review team contacted government sectors that had been judged as of only a marginal potential relevance to check for possible relevant schemes that might have been missed in the policy review. The team used surveys to gather expenditure estimations and data where annual report data did not have sufficient resolution. Data could only be collected at the organisation level for the Sea-fisheries Protection Agency and for some of the NGOs. The review in some cases made a considerable demand on the resources of departmental and NGO staff and took a lot of time to generate the data.

⁶ The results of the NBER review of local authority expenditure were significantly influenced by a one-off compensation payment of €7.5 million to Waterford City and County Council for an illegal landfill in a Natura 2000 site. The compensation paid for the excavation of the waste material and rehabilitation of the site, alongside the creation of compensatory wetlands.

Accuracy and completeness of data: Programmatic expenditure data were missing or unavailable for some years, so the expenditure had to be estimated based on average expenditure levels under that programme. The collection of agricultural data proved to be particularly problematic. A key problem was the contradictory annual data reported by different sources, largely due to reporting of the claims made to the EU rather than actual payments made to farmers. To disaggregate the REPS and AEOS schemes, and to differentiate between wider countryside expenditure and protected sites, required the use of expenditure based on claims to the EU as recorded by DAFM rather than CSO data. However, as no claim was made to the EU for AEOS in 2014, and this made the scheme look artificially reduced, the spend for 2014 and 2015 was aggregated and then split evenly between years.

There were also issues with disentangling complex combinations of public and private investment. There were issues with consistency and double-counting particularly for NGOs and smaller agencies that received funding from other parts of the government. Accounting for staff time spent on biodiversity was particularly difficult, consequently only core staff working on biodiversity conservation (NPWS staff, local authority biodiversity officers, NGO staff costs and Inland Fisheries Ireland staff costs) were included in the review.

Spending with negative biodiversity impacts and conflicts between expenditure lines

The NBER did not tag spending with negative biodiversity impacts, although the expert consultations revealed evidence for this, as well as cases of conflicts between expenditure lines. Farmers could earn a much higher income from afforestation than from agri-environment schemes, which resulted in several GLAS schemes being undermined through the granting of afforestation applications on the same area. Afforestation grants were assigned a coefficient of 25% because plantings larger than 10 ha must include a mix of at least 10% broadleaf species and 15% of the area must qualify as area of biodiversity enhancement. However, these rules did not apply to plantings below 10 ha in size, which made up most grants on farmland.

Results of analysis of biodiversity expenditure in Ireland

The NBER found that biodiversity expenditure over the 6-year period 2010-2015 amounted to €1.49 bn, or an average of €200m per year. Of the total expenditure during the period, only €184 million (12%) could be confidently linked to protected sites and species. Almost all expenditure (i.e. 97%) can be traced back to State funding, and 42% of this government spending is in association with EU funding through EAFRD⁷, EMFF, Interreg and LIFE. Expenditure associated with agri-environmental schemes amounted to 75% of the total biodiversity expenditure. Expenditure by the

⁷ European Agriculture Fund for Rural Development providing the EU co-funding for Rural Development Programmes in 2007-2013 and 2014-2020.

National Parks and Wildlife Service (NPWS), the statutory agency responsible for biodiversity conservation in Ireland, made up only 9.1%. Government expenditure on fisheries made up 7.6% and forestry 3.1%. All other sectors contributed less than 3%, including marine spending. Only 0.3% of the biodiversity relevant expenditure (€4.5 million between 2010 and 2015) was spent on the national biodiversity objective 'conservation and restoration of biodiversity in the marine environment'. 80% of biodiversity-related expenditure was classified as subsidies, 10% as operational costs, 6% as salaries, and 4% as grants and capital expenses. This indicated the lack of spending on restoration.

Agri-environment payments made up 75% of the total biodiversity related expenditure. REPS delivered almost twice the amount of finance as its successor AEOS, with high levels of farmer participation and budget. REPS expenditure made up 65% of the total biodiversity related expenditure over the period, because although it closed in 2009, contracts continued to be paid until 2015. The Organic Farming Scheme made up only 1.2% of total spend.

The biodiversity related expenditure represents only 0.31% of government spending and just 0.13% of Irish GDP over the period. It made up 7% of the total agricultural supports of over €15 billion between 2010 and 2015. Overall, Irish government spending declined by 31% between 2010 and 2015, with significant reductions because of the economic recession of 2008-2011, with particularly sharp cuts (decline of 34%) to the NPWS budget.

The review notes that the coefficients of biodiversity expenditure do not necessarily equate to effectiveness of this expenditure. Reviews of REPS, which made up the bulk of the spending, did not indicate any evidence for a strong or clear relationship between REPS payments and increased biodiversity levels⁸, though they did show a link with improvements in soil and water quality and improved knowledge and awareness amongst farmers of the environmental impact of farming systems and processes⁹.

Comparison of approach with EU biodiversity tracking

- **CAP EAGF:** The NBER tracking approach assigned a coefficient of 0% to the CAP basic payments scheme and the greening payment. Inclusion of 5% of the

⁸ Elliott, J and Image, M (2018) Design of Agri-Environmental Schemes – evidence from the monitoring and evaluation GLAS in Ireland, in Paper prepared for presentation for the 166th EAAE Seminar Sustainability in the Agri-Food Sector. EAAE, August 30-31, 2018 National University of Ireland, Galway, Galway, Ireland. <https://ageconsearch.umn.edu/record/276181/>

⁹ Finn, J A and Ó hUallacháin, D (2012) A review of evidence on the environmental impact of Ireland's Rural Environment Protection Scheme (REPS). *Biology and Environment: Proceedings of the Royal Irish Academy* No 112B (1), 11-34.

basic payments (c. 850 million EUR/yr) in line with the EU biodiversity tracking approach would have tripled the annual expenditure result.

- **LEADER:** The NBER analysed funding data from the 2007 to 2013 LEADER programme¹⁰ (55% co-funded by EAFRD) on a grant-by-grant basis to select only projects relevant for biodiversity, including the following activities: the purchase of equipment for biodiversity research, funding for ecological studies, the creation of wildlife areas or gardens, recovery of species such as Red Kite, habitat conservation projects such as river or bog restoration, genetic conservation works, creation of habitat or biodiversity action plans, training and awareness events and publications, nature trails. Projects were assigned a co-efficient between 100% and 5% depending on their focus. The EU biodiversity tracking approach did not include any LEADER tracking.
- **Interreg:** The NBER assessed Interreg Ireland-UK funded projects in the relevant years of the 2007-2013 and 2014-2020 period on an individual basis and only those linked to conservation were included (such as the freshwater pearl mussel pilots, targeted ecological modelling tools for lake management). Projects were assigned a co-efficient between 100% and 5% depending on their focus. This contrasts to the EU approach which applied markers according to the predominant intervention field reported by Member States.
- **EMFF:** The NBER applied coefficients to EMFF spending at the scheme level, including 15 different programmes and coefficients between 75% and 5%. As the eligibility period for payments from the 2007-2013 programme continued until 31 December 2015, and the EMFF OP for 2014 to 2020 was slow to initiate expenditure, a large part of the identified biodiversity relevant expenditure is under schemes from the 2007-2013 programme. The NBER approach contrasts with the EU tracking approach for the 2014 to 2020 period, which applied a marker of 40% to all funding allocated to thematic objective 6: 'Preserving and protecting the environment and promoting resource efficiency' without differentiating between schemes or measures.
- **Environmental protection and services expenditure:** The NBER did not account for general environmental protection or environmental services expenditure, such as the monitoring and protection of water quality, as this serves other social needs such as public health. Expenditure in this area amounted to slightly more than the total biodiversity tracked expenditure in 2010 to 2015, on average €251 million per year, 83% of which was for wastewater treatment. Including 5% of the spending on wastewater treatment would have equalled the average annual budget of the NPWS (€12 million). The EU biodiversity tracking approach to cohesion policy spending attached a coefficient of 40% to wastewater treatment spending, and this would have significantly altered the results in Ireland. Expenditure in this area is already tracked by the Irish Central Statistics Office, and the NBER presented it

¹⁰ No LEADER funding was available in Ireland between 2013 and 2016.

separately to illustrate the funding going to relevant activities which are likely to contribute indirectly to the protection of biodiversity in Ireland.

Next steps for biodiversity tracking in Ireland

The NBER proposed three approaches that could be taken to incorporate biodiversity tagging procedures into government departmental or agencies' expenditure:

- **Survey based approach** using public servants (as in the NBER): disadvantages are the time pressures on individuals and turnover in staff resulting in loss of connections and experience.
- **Annual report-based approach** where all government departments undertake biodiversity tagging as part of the annual report and accounting process.
- **Central Statistics Office based approach** using the data collected under Eurostat modules. This would not allow the detailed breakdown of expenditure carried out in the NBER and would not be as good at capturing the expenditure of smaller agencies.

In autumn of 2018, the Irish Government announced its intention to identify climate-related expenditures in the state budget and that Ireland was joining the OECD's Paris Collaborative on Green Budgeting. The government budget statements have included climate expenditure since 2019. The government paper on green budgeting does not mention biodiversity tracking¹¹; although the intention is that the methodology will be progressively developed, and the Government's objective of using it as the evidence to back the issuance of green bonds suggests that other environmental issues, particularly biodiversity, will need to be addressed.

¹¹ Cremins, A., & Kevany, L. (2018) Staff Paper 2018: An Introduction to the Implementation of Green Budgeting in Ireland. Department of Public Expenditure and Reform. Available at: <https://igees.gov.ie/wp-content/uploads/2019/01/The-Implementation-of-Green-Budgeting-in-Ireland.pdf>

ANNEX 4: BIODIVERSITY FINANCING – DETAILED COSTING OF OBJECTIVES

This Annex presents the detailed cost assessment of all 41 objectives identified in the Biodiversity Strategy to 2030. The analysis of each objective starts with a definition of what it aims to achieve overall. The analysis also considers the links connecting each objective with other objectives of the Strategy, to ensure that double counting of costs is minimised. The analysis then presents the individual actions that need to be undertaken by various actors for the objective to be achieved, describes the anticipated financing needs, and the approach taken to estimate their costs. Finally, the financing needs of each action and the total cost of the objective are presented.

Page numbers of Objective costings

Objective 1 - Legally protect at least 30% of the EU's land area and 30% of the EU's seas.....	3
Objective 2 – Strictly protect at least a third of the EU's protected land and sea areas, including all remaining EU primary and old-growth forests.....	8
Objective 3 – Create and integrate ecological corridors as part of a Trans European Nature Network.....	10
Objective 4 – Effectively manage all protected areas (set clear conservation objectives, measures, and monitoring).....	13
Objective 5 – Encourage EU Member States relevant to Overseas Countries and Territories to consider promoting equal or equivalent rules in these countries and territories and protect and restore the tropical and subtropical marine and terrestrial ecosystems in the EU's Outermost Regions.....	17
Objective 6 – Propose legally binding EU nature restoration targets by 2021, and restore significant areas of degraded and carbon rich ecosystems by 2030	18
Objective 7 – Protected habitats and species show no deterioration and at least 30% reach favourable conservation status or at least show a positive trend	29
Objective 8 – Reverse the decline of pollinators.....	33
Objective 9 - Reduce the use of chemical pesticides by 50% and reduce the use of more hazardous pesticides by 50%.....	34
Objective 10 – At least 10% of agricultural area is under high-biodiversity landscape features ...	37
Objective 11 – At least 25% of agricultural land under organic farming management.....	39
Objective 12 – Significantly increase the uptake of agro-ecological practices	41
Objective 13 – Reduce the loss of nutrients from fertilisers by 50%, resulting in the reduction of fertilizer use by at least 20%.....	42
Objective 14 – Plant three billion new trees in the EU (Increase the quality of forests and improve their health and resilience).....	47
Objective 15 – Make significant progress in remediating contaminated soil sites	50
Objective 16 – Restore at least 25,000 km of free-flowing rivers.....	52
Objective 17 – Substantially reduce the negative impacts of fishing, extraction and other human activities, including on sensitive marine habitats and species, and eliminate or reduce the by-catch of species to a level that allows their recovery and conservation.	55
Objective 18 – Adopt ambitious Urban Greening Plans for cities with at least 20,000 inhabitants	63

Objective 19 – Minimise or eliminate the use of pesticides in sensitive areas such as urban green areas	66
Objective 20 – Halve the number of Red List species threatened by the introduction or presence of invasive alien species (IAS).....	67
Objective 21 – Create win-wins for energy generation	70
Objective 22 – Establish a strengthened European biodiversity governance framework.....	73
Objective 23 – Step up implementation and enforcement of EU environmental legislation	74
Objective 24 – Launch a new initiative for sustainable corporate governance and support a European Business for Biodiversity movement	78
Objective 25 – Strengthen the Commission’s biodiversity proofing framework to ensure that EU funding contributes to, and does not harm, biodiversity	80
Objective 26 – Unlock at least EUR 20 billion a year for nature and ensure that a significant proportion of the 30% of the EU budget dedicated to climate action is invested in biodiversity and nature-based solutions	83
Objective 27 – Establish a common classification of economic activities that contribute to biodiversity, supported by the Renewed Sustainable Finance Strategy	85
Objective 28 – Encourage changes in national fiscal systems to shift tax burden from labour to pollution, resource use and other environmental externalities	86
Objective 29 – Introduce a new long-term strategic research agenda for biodiversity in the future Horizon Europe programme, set up a dedicated Biodiversity Partnership and a Knowledge Centre for Biodiversity	87
Objective 30 – Propose a Council Recommendation on education for environmental sustainability.....	90
Objective 31 – Use the new Skills Agenda to help biodiversity restoration and sustainable management, as well as a fair and inclusive transition to a green economy	91
Objective 32 – Broker an agreement for an ambitious new global framework for post-2020 at the 15th Conference of the Parties to the Convention on Biological Diversity	92
Objective 33 – Broker an agreement on marine biological diversity of areas beyond national jurisdiction and on the designation of Marine Protected Areas in the Southern Ocean.....	93
Objective 34 – Work with partner countries and regional organisations to sustainably use marine resources and protect sensitive maritime ecosystems and species, with a focus on marine biodiversity hotspots	94
Objective 35 – Apply zero tolerance towards illegal, unreported and unregulated fishing, and combat overfishing.....	96
Objective 36 – In international negotiations, advocate that marine minerals in the international seabed area cannot be exploited before research into the effects of deep-sea mining technologies demonstrates no serious harm to the environment.....	97
Objective 37 – Ensure full implementation and enforcement of the biodiversity provisions in all trade agreements, and better assess the impact of trade agreements on biodiversity.....	99
Objective 38 – Introduce measures to avoid placing products associated with deforestation on the EU Market and promote forest-friendly imports and value chains	101
Objective 39 – Revise the EU Action Plan against Wildlife Trafficking in 2021	102
Objective 40 – Propose a further tightening of the rules on EU ivory trade	103
Objective 41 – Cooperate with partners to mainstream biodiversity into all development and partnership policies, increase financial support and phase out subsidies harmful to biodiversity	104

Objective 1 - Legally protect at least 30% of the EU's land area and 30% of the EU's seas

Definition

In 2020, about 25,7% of EU27 land area was designated as a protected area either under the Natura 2000 network or through a national scheme or a combination of the two.¹ In terms of the marine areas, the share of EU's seas covered by a protection regime is significantly lower at about 11% of EU27 seas.² The overall aim of this objective is to raise the share of protected land and protected seas to 30% of total EU27 land and marine areas, respectively. To deliver this objective, the Commission consulted with MS experts and worked together with the EEA to publish a proposal on criteria and guidance for identifying and designating protected areas and on their adequate management³.

Moreover, all Member States will have to complete their Natura 2000 network, with particular attention applied to marine areas (as the terrestrial Natura 2000 network is almost complete). Once the Natura 2000 network is complete, MS will legally protect (not necessarily within the network) additional terrestrial and marine areas until the 30% of EU land and sea is protected. Since this requires MS action, to simplify the costing exercise we assume that all MS will have on average to legally protect 30% of their land territories and 30% of their seas, so that in total 30% of EU's land and 30% of seas are protected. The Commission will also assess progress made in meeting Objectives 1 to 4 in year 2024, and we have accounted for the costs of that assessment under this objective.

Links to other objectives

Objective 1 is linked to Objectives 2, 3, 4, and 7. This objective focuses only on the identification and designation of protected areas across the EU, without accounting for the costs for designating one third of these areas as requiring strict protection (Objective 2), the costs of their management (Objective 4), and the costs of conservation measures to restore protected habitats and species (Objective 7). It does, however, cover part of the costs for the creation and integration of ecological corridors as part of a Trans European Nature Network (Objective 3).

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

¹ BISE (2020). Protected areas. Coverage & representativity. Available at :

<https://biodiversity.europa.eu/protected-areas/coverage-representativity> (Accessed 06/09/2021)

² ibid

³ The criteria and guidance have been published by the Commission and can be found here: https://ec.europa.eu/environment/publications/criteria-and-guidance-protected-areas-designations-staff-working-document_en

1. Development of criteria and guidance for identifying and designating additional protected areas and ecological corridors, on appropriate management planning, and on how other effective area-based conservation measures and urban greening can contribute to the EU 2030 nature protection targets;
2. Completion of Natura 2000 in the 27 EU MS, including the necessary designations of marine sites;
3. Assessment in 2024 of the EU's progress in meeting its 2030 targets on protected areas, and on whether additional action, legislative or other, is needed;
4. Identification and designation of additional protected areas in the 27 EU MS.

Action 1.1: Criteria and guidance for identifying and designating additional protected areas and ecological corridors, on appropriate management planning, and on how other effective area-based conservation measures and urban greening can contribute to the EU 2030 nature protection targets

The activities required for the execution of this action refer to administrative processes within the Commission and the EEA to develop a proposal for the guidance document and consult with Member States, and administrative processes within the competent authorities of each Member State to review and provide feedback to the document. It is assumed that delivering on these activities required a high level of administrative services (i.e. 100% of 5 employees over 12 months) within the Commission for a year and low administrative services in each Member State competent authority for a year.

Using the average annual salary cost for one Commission employee and the average annual cost for one public administration employee across the EU27 (see Section 2.2), the cost of this action is estimated at EUR 570,660 for the Commission and EUR 242,449.2 for Member State authorities in total. As the guidance document⁴ was published in the beginning of 2022, both costs are assumed to take place in 2021.

Total action cost: **EUR 0.8 million (EUR 813,109) in 2021**

Action 1.2: Completion of Natura 2000 in the 27 EU MS, including the necessary designations of marine sites

The delivery of this action involves administrative processes within the Commission for enforcement and compliance promotion activities, technical work in each Member State to identify suitable areas for introduction to the Natura 2000 network, and finally, administrative processes within the Member State competent authorities to legally introduce protected areas in the network.

Funding needs for the implementation of the activity by the Commission refer to the Commission's enforcement and compliance promotion actions, mainly through the

⁴ EC (2022). Criteria and guidance for protected areas designations. SWD(2022) 23 final

"Nature Dialogues" platform. It is assumed that this requires only low administrative services (i.e. 10% of 2 employees over 12 months) within the Commission for a year, totalling EUR 22,826.40 in salaries in 2022. In terms of the Member States, this action is assumed to give rise to medium administrative services (i.e. 50% of 2 employees over 12 months) in each of the 27 Member States for a year, amounting to EUR 1,212,246 in salaries in 2022.

Although the processes for the identification of suitable areas for introduction to the network are included under this action, the spending for their implementation is estimated together with the cost estimation of action 1.4 below.

Total action cost: **EUR 1.2 million in 2022**

Action 1.3: Assessment in 2024 of the EU's progress in meeting its 2030 targets on protected areas and whether additional action, legislative or other, is needed

Activities under this action include support from external specialised consultants to support with data and additional information the assessment of the Strategy in 2024 and administrative processes within the Commission to deliver the assessment. For this, two external studies are assumed, totalling EUR 500,000 in 2024 (see Section 2.1) and medium level of administration services from the Commission for a year (i.e. 50% of 2 employees over 12 months), totalling EUR 114,132 in 2024.

Total action cost: **EUR 0.6 million (EUR 614,132) in 2024**

Action 1.4: Identification and designation of additional protected areas in the 27 EU MS

For the delivery of this action, Member States will have to undertake technical work to identify additional areas to be designated as protected, in accordance with the Commission's guidance. Therefore, the action's funding needs refer to Member State costs for designating additional areas. To reach the 30% land protection target, MS will have to finalise the designation of their N2000 (those that have not) and additionally protect the remaining share outside of the network.

According to BISE (2020), about 25,7% of the terrestrial surface of EU27 in 2020 was protected under the Natura 2000 network or national designations or some combination of the two. Therefore, we assume that meeting this objective would require the increase of protected areas by 4% of the total land area of the EU27. Since the total EU27 land area is 4,132,405 km², 4% is estimated at about 165,296 km² or 16,529,620 hectares. The cost of designation of protected areas, including Natura 2000 sites and nationally protected areas (which are assumed to involve lower investigation and staff costs), is estimated by the N2K Group (2021, unpublished) study between

EUR 60 - EUR 200 per hectare or EUR 130 on average.⁵ The costs include investigations and evidence gathering activities, development of management plans, and staff cost. Using the average of this cost estimation, the cost of designating protected land areas is estimated at EUR 2,148,850,600 between 2022 and 2030. The designation of protected areas usually involves some degree of engagement with the local communities. To estimate the cost for building these participatory processes for the designation of the newly protected areas and the development of their management plans, we assume an extra 10% mark up on top of the estimated cost. Therefore, the total cost for the designation of newly protected land areas is estimated at EUR 2,363,735,660.

To reach the 30% marine protection target, MS will have to finalise the designation of their N2000 (those that have not) and additionally protect the remaining share outside of the network. About 11% of the surface of Europe's seas has been designated as a protected area.⁶ An additional 19% of EU's sea surface area should be designated as MPAs. Since the total EU27 sea surface area⁷ is about 5,726,331 km², the additional protected areas will cover 1,088,000 km² of EU27 seas.

According to McCrea-Strub et al. (2011)⁸, who conducted one of the few available studies, the cost of the establishment of MPAs is estimated between EUR 89 and EUR 67,338 per km² in 2020 prices, depending on the size of the MPA. The costs of establishment include research and planning, and costs incurred for outreach activities with the local community or other stakeholders. The establishment costs as estimated by this study are shown in the table below in Euro 2020 prices.

Table 1: Estimated total establishment cost for MPAs of various sizes (source: McCrea-Strub et al., 2011)

MPA size (km ²)	2020 EUR * km ⁻²
0.5	67,338
5	22,297
50	7,383
500	2,445
5,000	810
50,000	268

⁵ N2K Group (2021, unpublished). Strengthening investments in Natura 2000 and improving synergies with EU funding instruments. Aggregation and Assessment of Data Provided in the Prioritised Action Frameworks. Report to the European Commission under Contract Number: 07.0202/2018/775371/SER/ENV.D.3. Matt Rayment, IEEP Associate, 01 March 2022

⁶ BISE (2020). Protected areas. Coverage & representativity. Available online at : <https://biodiversity.europa.eu/protected-areas/coverage-representativity> (Accessed 06/09/2021)

⁷ EEA (2020a). Natura 2000 coverage in Europe's seas. Available online at : <https://www.eea.europa.eu/themes/biodiversity/natura-2000/natura-2000-coverage-in-european-seas-2> (Accessed 06/09/2021)

⁸ McCrea-Strub, A., Zeller, D., Sumaila, U. R., Nelson, J., Balmford, A., & Pauly, D. (2011). Understanding the cost of establishing marine protected areas. *Marine Policy*, 35(1), 1-9.

The current programming of the European Maritime, Fisheries and Aquaculture Fund (EMFAF) 2021-2027 can grant compensatory payments for fishing and other restrictions of economic activities in newly designated MPAs. This would take the form of either of financial compensation for the temporary cessation of fishing activities stemming from the implementation of a conservation measures, or of financial compensation for a loss of income or additional costs stemming from a direct contribution to the management of the MPA. Although these costs should be included in the estimation of the total cost of this action, the reviewed literature and data sources did not provide enough evidence for their calculation. The follow up interviews with experts in this field were also ineffective in identifying evidence that could be used for the estimation of these financial compensations. However, it is expected that such compensatory payments will lead to a diversion of funds within the existing financial envelope for EMFAF, rather than requiring new funds.

According to EEA (2018)⁹ larger sites are needed to supplement European MPA networks, as approximately 50% of EU MPAs measure less than 30 km², which may be too small to sustain ecosystem resilience. Therefore, the majority of the newly designated MPA sites is projected to be of a larger area. Table 2: below shows the assumptions regarding the sizes of the MPAs that will be designated to cover the additional 1,088,000 km². The table shows that from the total area to be covered by MPAs, 1% of this area will be covered by MPAs with a size around 0.5 km², 5% will be covered by MPAs with a size around 5 km², 34% around 50 km² and so on. Based on the MPA establishment costs per MPA size shown in the table above and the km² area that will be covered by different MPA sizes, we can estimated the establishment costs of MPAs across the whole 1,088,000 km² area.

Table 2: Estimated total costs for establishing MPAs across the EU based on their average size

MPA size (km ²)	2020 EUR * km ⁻²	Share of MPA sizes	Area per MPA size (km ²)	Cost per MPA size (EUR)
0.5	67,338	1%	10,880	732,637,440
5	22,297	5%	54,500	1,215,186,500
50	7,383	34%	369,920	2,731,119,360
500	2,445	30%	326,700	798,781,500
5,000	810	20%	217,200	175,932,000
50,000	268	10%	108,800	29,158,400
Total		100%	1,088,000	5,682,815,200

⁹ EEA (2018). Marine protected areas. Available online at:

<https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-protected-areas> (Accessed 06/09/2021)

Therefore, the total cost of protecting 30% of EU's seas is estimated at about EUR 5.7 billion until 2030.

Total action cost: **EUR 8.05 billion by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 3: Per year cost estimates for delivering Objective 1 (in millions EUR)

2021	2022	2023	2024	2025	
-	896	894	894	894	
2026	2027	2028	2029	2030	Total
894	894	894	894	894	8,049

Objective 2 – Strictly protect at least a third of the EU's protected land and sea areas, including all remaining EU primary and old-growth forests

Definition

For the delivery of this objective, a third of the total protected areas (after their expansion to 30% of EU land and sea) will need to be designated as 'strictly protected' areas. The criteria and guidance by the Commission (Objective 1) and the completion of the Natura 2000 network (Objective 1) will contribute to this objective. In addition, Member States that own primary and old-growth forests will have to strictly protect these land areas as a priority.

Links to other objectives

Objective 2 is linked to Objectives 1 and 4. It focuses only on the identification and designation of strictly protected areas across the EU, without accounting for their management (Objective 4) and does not include staff for the legal designation of protected areas as this is covered in Objective 1.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Commission's guidance for defining, mapping, monitoring and strictly protecting all EU's remaining primary and old-growth forests;
2. Member State work on identifying and designating strictly protected areas.

Action 2.1: Commission's guidance for defining, mapping, monitoring and strictly protecting all EU's remaining primary and old-growth forests

The activity that will be implemented under this action refers to administrative processes within the Commission for the Forest and Nature Working Group to conduct an analysis on existing definitions, a complete mapping of these areas, monitoring measures and needs, evidence on protection regimes, and impact of economic activities on these ecosystems, and costs for meetings of the Forest and Nature Working Group. It is assumed that these activities require a medium level of administrative services within the Commission (i.e. 50% of 2 employees over 12 months) for a year to be delivered. Using the average annual salary cost for one Commission employee, the cost of this action is estimated at EUR 228,264 in 2021 and 2022.

Total action cost: **EUR 0.2 million (EUR 228,264)** (EUR 114,132 in 2021 and EUR 114,132 in 2022)

Action 2.2: Member State work on identifying and designating strictly protected areas

Following Commission's guidance, Member States will have to undertake work for mapping potential areas and identifying the most suitable to be designated as strictly protected. Funding needs in this case include only the technical work required in each MS to identify and designate strictly protected areas (this does not include the development of management plans as this is covered in Objective 4 and does not include staff for the legal designation of protected areas nor any additional stakeholder consultation/engagement activities as these are covered in Objective 1). More specifically, the designation of strictly protected areas involves the support of external specialised consultants for investigations and evidence gathering in each MS and administrative staff in each MS for managing the collected information and taking decisions for designation. A high level administrative services in each Member State (i.e. 100% of 5 employees over 12 months) is assumed, totalling for all 27 EU Member States EUR 6.06 million in 2023, in addition to one external study in each MS, totalling EUR 6.75 million also in 2023

Total action cost: **EUR 12.8 million in 2023**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 4: Per year cost estimates for delivering Objective 2 (in millions EUR)

2021	2022	2023	2024	2025	
0.1	0.1	12.8	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	13

Objective 3 – Create and integrate ecological corridors as part of a Trans European Nature Network

Definition

With the Strategy, the Commission intends to build a Trans-European Nature Network. The existing Natura 2000 network will be analysed for its potential connectivity between Natura 2000 sites using green infrastructure (GI) landscape elements important for delivering ecosystem services and outside of the network. Part of the corridor network will be developed on the Natura 2000 network, part on the (newly) designated protected areas outside of the network, and another part outside of protected areas through appropriate infrastructure (e.g. highway bridges for animal crossing).

Links to other objectives

This objective partially overlaps with Objective 1 (Action 1.2), as some of the corridors will be developed on protected land and Objective 6, since it is assumed that some ecosystem restoration work will contribute to protected area connectivity. The costing of Action 3.3 takes this overlap into consideration.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Promotion and support to investments in green and blue infrastructure and cooperation across borders among MS to set up ecological corridors;
2. Identification of protected areas to be connected at MS level;
3. Development and management of ecological corridors to connect protected areas at MS level.

Action 3.1: Promotion and support to investments in green and blue infrastructure and cooperation across borders among MS to set up ecological corridors

This action aims at stepping up the deployment of GI, building upon the EU Guidance on the deployment of strategic EU level green and blue infrastructure. It will be achieved through mainstreaming of GI across funding instruments and Member State programming documents. Therefore, the related activities refer to administrative processes within the Commission for mainstreaming GI. It is assumed that these activities require a medium level of administrative services within the Commission (i.e. 50% of 2 employees over 12 months) for a year. Using the average annual salary cost for one Commission employee, the cost of this action is estimated at EUR 114,132 in 2022.

Total action cost: **EUR 0.1 million (EUR 114,132) in 2022**

Action 3.2: Identification of protected areas to be connected at MS level

Under this action, Member States will undertake technical work and mapping to identify suitable locations. Funding needs relate to administrative costs for all 27 Member State authorities for the development of a connectivity plan for their protected areas. This involves, in each Member State, surveys, plan preparations, development of action and financing plans and then integration of these with funding instruments. For this action:

- Two studies per Member State is assumed: one for surveying and one for plan preparation and action development. This amounts to EUR 0.5 million per Member State, totalling EUR 13.5 million for all 27 Member States;
- High level administrative services (i.e. 100% of 5 employees over 12 months) in each Member State for two years for following up on the results of the studies and developing the plans and connectivity actions. The administrative processes in each Member State is assumed to cost EUR 224,490 for staff salaries per year, totalling EUR 12,122,460 for all 27 Member State for two years (2022 and 2023);
- Medium level administrative services (i.e. 50% of 2 employees over 12 months) is assumed in each Member State for developing financing plans and integrate them in funding instruments, totalling EUR 1.2 million in 2022 for all Member States together.

Total action cost: **EUR 20.8 million in 2022 and EUR 6.1 million in 2023**

Action 3.3: Development of the ecological corridors to connect protected areas at Member State level

This action refers to the development of a GI network of protected Natura 2000 sites. The activities required for the delivery of this action include construction work to create landscape elements to connect existing and newly established protected areas in each Member State and monitoring and maintenance activities of ecological corridors in each Member State. In addition, medium level of administrative services within the Commission (i.e. 50% of 2 employees over 12 months) every year is assumed for the management and coordination of the Trans European Nature Network. Using the average annual salary cost for one Commission employee, this cost is estimated at EUR 114,132 per year, totalling 1,027,188 until in 2030.

The connectivity costs of the existing protected areas within the Natura 2000 network have been estimated by Member States in the submitted Prioritised Action Frameworks (PAFs) for 2021-2027. Based on these data, N2K Group (2021,

unpublished)¹⁰ has estimated the total annual cost for additional "Green Infrastructure" measures beyond Natura 2000 to further improve the coherence of the Natura 2000 network (i.e. including in a cross-border context) across the EU27 at around EUR 2.75 billion.

In addition, it is assumed that the newly designated protected areas (Objective 1) and the binding ecosystem restoration targets (Objective 6) will cover all of the remaining needs of the Trans-European Nature Network. As identified by EEA (2020)¹¹, there are four potential ways forward to develop this network:

- (i) Designate the GI element as a protected area to meet the 30% target of the biodiversity strategy to 2030 (covered in Objective 1);
- (ii) Restore the area to improve the habitat condition and delivery of ecosystem services (covered in Objective 6);
- (iii) Create new connecting landscape elements to physically or functionally connect existing GI elements (covered in PAFs);
- (iv) Maintain and manage the area in a sustainable way by defining and implementing targeted conservation measures, which may allow various types of low-impact land uses (covered in PAFs).

The Biodiversity Strategy to 2030 also mentions that ecological corridors can be established through the designation of additional protected areas and the restoration of high diversity landscape features outside protected areas, such as buffer strips, fallow land, coppices, ponds or hedgerows, the creation of buffer zones, or the use of other measures to improve the permeability of the landscape. Therefore, it is assumed that the costs for the development of the Trans-European Nature Network involves only the costs for the connectivity needs of the current Natura 2000 network.

Total action cost: **EUR 2.75 billion per year or 27.5 billion between 2021 and 2030**

¹⁰ N2K Group (2021, unpublished). Strengthening investments in Natura 2000 and improving synergies with EU funding instruments. Aggregation and Assessment of Data Provided in the Prioritised Action Frameworks. Report to the European Commission under Contract Number: 07.0202/2018/775371/SER/ENV.D.3. Matt Rayment, IEEP Associate, 01 March 2022

¹¹ EEA (2020). Building a coherent Trans-European Nature Network. Briefing No 5/2020

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 5: Per year cost estimates for delivering Objective 3 (in millions EUR)

2021	2022	2023	2024	2025	
2,750	2,771	2,750	2,750	2,750	
2026	2027	2028	2029	2030	Total
2,750	2,750	2,750	2,750	2,750	27,500

Objective 4 – Effectively manage all protected areas (set clear conservation objectives, measures, and monitoring)

Definition

The protected areas designated under Objective 1 and 2 will have to be also effectively managed. To that end, the Commission in collaboration with the EEA and MS will assess the protected areas against the criteria developed under Action 1.1 above and develop guidance for monitoring of the designated areas. Member States will also have to develop management plans for each protected area in their territory, including monitoring actions. Once plans are in place for all newly designated areas and for the protected areas that do not yet have one, Member States will have to implement the plans and manage these areas accordingly.

Links to other objectives

Objective 4 overlaps with Objective 7, which includes measures for the effective management of the Natura 2000 network. Since the network will be expanded and complemented by newly designated areas, to avoid double counting the management costs of the current network, the costing of this Objective focuses only on the newly designated protected areas. In addition, Objective 4 links to, but does not overlap with, Objectives 1 and 2. While Objective 1 and 2 focus on the designation of the protected areas, this objective focuses on the development of management plans for these areas and on the monitoring of the protected areas and on the actual management of these areas. Implementation costs for this objective also account for the management and monitoring of marine protected areas, which aim to reduce the negative impacts of fisheries and extraction activities on sensitive marine habitats and species under Objective 17

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Coordination between the Commission and Member States (including bio-geographic regions and regional sea conventions) for actions to ensure that the EU meets the 2030 nature protection targets on land and sea;
2. Commission's guidance for monitoring and reporting of non-Natura 2000 protected areas;
3. Development of management plans and monitoring frameworks for the land and marine protected and strictly protected areas in each EU Member State that do not currently have one and/or the other.

Action 4.1: Coordination with Member States (including bio-geographic regions and regional sea conventions) for actions to ensure that the EU meets the 2030 nature protection targets on land and sea

Activities under this action include administrative processes within the Commission and EEA for assessing the protected areas against the criteria developed under Action 1.1 above and support from external specialised consultants to assist the Commission with additional information gathering. According to information from the Commission, there were two contracts for external support to assist the Commission with defining effective MPAs and developing the methodologies/tools and to propose MPA locations. Therefore, two external studies for this action is assumed, totalling EUR 500,000 in 2022. In addition, high level of administration services (i.e. 100% of 5 employees over 12 months) from the Commission is assumed for a year to deliver this action, totalling EUR 570,660 both in 2022.

Total action cost: **EUR 1.1 million in 2022**

Action 4.2: Commission's guidance for monitoring and reporting of non-Natura 2000 protected areas

For the delivery of this objective, the Commission with the EEA will set up a reporting system for protected areas beyond Natura 2000, as part of the Common Database of Designated Areas (CDDA) reporting system, in order to allow for an assessment of the progress towards the 2030 nature protection targets. A high level of administration services (i.e. 100% of 5 employees over 12 months) is assumed for the development of the reporting system, estimated at EUR 570,660 in 2022, in addition to ongoing annual reporting, which is assumed to require low administrative services (i.e. 10% of 2 employees over 12 months) annually between 2023 and 2030, estimated at around EUR 23,000 per year or EUR 183,000 until 2030.

Total action cost: **EUR 0.1 million (EUR 753,271) by 2030**

Action 4.3: Development of management plans and monitoring frameworks for the land and marine protected and strictly protected areas in each EU Member State that do not currently have one

This action requires technical work in each Member State to develop management plans for all (existing without plans and newly designated) protected areas and monitoring and reporting for all the Natura 2000 sites and lower level of monitoring and reporting for the protected areas outside the network. Member States will also actively manage these areas, including site administration and communication with stakeholders, covering knowledge gaps and research needs, and implement related communication and awareness raising, education, and visitor access measures.

The funding needs for the development of management plans, including setting clear conservation objectives, were estimated and included in the cost of Objective 1 (Action 1.4) due to the data used for the estimation of the designation of protected areas, which included already the cost of developing management plans. In addition, the cost of monitoring and reporting for the current Natura 2000 network as well as the costs for its site administration, research activities, and dissemination and awareness raising measures are estimated under Objective 7. Therefore, the cost assessment of this action focuses only on:

- the cost of monitoring and reporting for the newly designated Natura 2000 sites and the Natura 2000 sites for which monitoring was absent and/or incomplete and the cost for Member State authorities to monitor and report in the CDDA reporting system for the protected areas outside of the network
- activities related to the administration of these areas and communication with stakeholders;
- research activities for covering remaining knowledge gaps in these newly designated areas;
- measures on dissemination and awareness raising, education, and visitor access in these areas.

According to EEA (2020d)¹², for the habitats and species of the Habitats Directive, around 40% of the reported information derives from partial surveys and 20% only on expert opinion while, for bird data, more than 30% of the information comes from partial surveys and more than 15% is based on expert judgement. This indicates that monitoring schemes for the Natura 2000 network are absent or incomplete in some Member States. Therefore, we assume a 20% increase in the monitoring and reporting effort of MS to completely cover monitoring needs of the Directives. N2K Group (2021, unpublished)¹³ estimated the annual financing needs for monitoring and reporting for marine and terrestrial Natura 2000 sites in EU27 at EUR 247.7 million or EUR 209.5 per km². To monitor 20% of the Natura 2000 network or 243,000 km², it would require EUR

¹² EEA (2020d). State of Nature. EEA No 10/2020

¹³ N2K Group (2021, unpublished). Strengthening investments in Natura 2000 and improving synergies with EU funding instruments. Aggregation and Assessment of Data Provided in the Prioritised Action Frameworks. Report to the European Commission under Contract Number: 07.0202/2018/775371/SER/ENV.D.3. Matt Rayment, IEEP Associate, 01 March 2022

50.9 million annual cost to complete Natura 2000 monitoring and reporting or EUR 407.3 million in total from 2023 to 2030.

As mentioned in the costing of Objective 1, around 165,296 km² of land and 1,088,000 km² of marine areas will have to be designated as protected areas outside of the Natura 2000 network, to reach the 30% protection target. As indicated above, the annual financing needs for monitoring and reporting of the Natura 2000 network is estimated at EUR 209,5 per km². However, protected areas outside the network would require a lower level of monitoring and reporting, as the Nature Directives require monitoring systems that can provide data for an all-encompassing assessment.

Therefore, we assume that monitoring and reporting of protected areas outside the network would cost half the amount it would cost within the network, meaning an estimated EUR 105 per km². As a result, the annual monitoring and reporting costs for all the newly designated protected areas are estimated at around EUR 131.6 million. Moreover, it is expected that the new protected areas will not be designated all at once, but rather a share of them per year. We assume that 12,5% of protected areas will be designated per year for 8 years until 2030 when all protected areas will be established. This means that, in total, monitoring and reporting costs for the newly designated areas between 2023 and 2030 will be around EUR 592.2 million. Therefore, the cost for Member States to monitor all protected areas would require EUR 999.45 million by 2030.

N2K Group (2021, unpublished)¹⁴ estimated that the financing needs of marine and terrestrial Natura 2000 sites in EU27 for administration of the sites (including communication with stakeholders), related research activities, and communication and awareness raising actions is about EUR 1.363 billion per year or EUR 1,152 per km² per year. It is assumed that the nationally designated protected areas require a lower level of management than those within the Natural 2000 network. Therefore, the financing needs for the administration of these sites, research activities, and awareness raising actions, is assumed to require about half of the equivalent costs for Natura 2000 sites. Since the majority of the 165,296 km² of land area and 1,088,000 km² of EU seas will be protected outside the Natura 2000 network, we assume that the management cost of these areas would be about 2/3 of the management cost of the Natura 2000 sites, estimated at about EUR 768 per km² per year. Therefore, the total annual cost for the management of the additional 1,253,296 km² of protected land and sea would cost to Member States EUR 962.5 million per year or EUR 7.7 billion between 2023 and 2030.

Total action cost: **EUR 8.7 billion by 2030**

¹⁴ N2K Group (2021, unpublished). Strengthening investments in Natura 2000 and improving synergies with EU funding instruments. Aggregation and Assessment of Data Provided in the Prioritised Action Frameworks. Report to the European Commission under Contract Number: 07.0202/2018/775371/SER/ENV.D.3. Matt Rayment, IEEP Associate, 01 March 2022

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 6: Per year cost estimates for delivering Objective 4 (in million EUR)

2021	2022	2023	2024	2025	
-	1.8	1,029	1,046	1,063	
2026	2027	2028	2029	2030	Total
1,079	1,096	1,112	1,129	1,145	8,702

Objective 5 – Encourage EU Member States relevant to Overseas Countries and Territories to consider promoting equal or equivalent rules in these countries and territories and protect and restore the tropical and subtropical marine and terrestrial ecosystems in the EU's Outermost Regions

Definition

This objective involves two distinct types of actions:

1. Commission encouragement of EU Member States relevant to Overseas Countries and Territories (OCTs) to consider the adoption of equivalent nature protection rules in these areas and
2. Measures for the protection and restoration of tropical and sub-tropical ecosystems in the Outermost Regions covered by the Nature Directives (in ES and PT). For the other Outermost Regions (in FR), the Commission will strongly encourage setting up the same goals. This will be achieved mainly through grants from the LIFE Programme specifically dedicated to biodiversity-related projects in Outermost Regions.

Links to other objectives

None

Costable actions

The specific action that needs to be undertaken for the delivery of this objective is:

1. Actions by the Commission to encourage the adoption of nature protection rules in OCTs; and
2. Set up a small grant scheme to allow continuation of LIFE4BEST and BEST 20, grant schemes to unlock local potential on the ground, and enable capacity building and knowledge creation.

Action 5.1: Set up a small grant scheme to allow continuation of LIFE4BEST and BEST 20, grant schemes to unlock local potential on the ground, and enable capacity building and knowledge creation

This action aims at funding several biodiversity-related projects in Outermost Regions through the LIFE4BEST and BEST 2.0+ schemes operating within LIFE. Therefore, funding needs relate to small grant schemes to allow continuation of LIFE4BEST and BEST 2.0, grant schemes to unlock local potential on the ground, and enable capacity building and knowledge creation. There were multiple calls for proposals under the two schemes most of them ranging between EUR 1 million and EUR 1.5 million. Based on this, we assume an average of EUR 1.25 million per call per scheme. Since it is not specified how many calls will be announced until 2030, we assume 2 calls per scheme. Therefore, the total funding for the two schemes is estimated at around EUR 5 million by 2030.

Total action cost: **EUR 5 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 7: Per year cost estimates for delivering Objective 5 (in millions EUR)

2021	2022	2023	2024	2025	
-	-	1.25	-	1.25	
2026	2027	2028	2029	2030	Total
-	1.25	-	1.25	-	5

Objective 6 – Propose legally binding EU nature restoration targets by 2021, and restore significant areas of degraded and carbon rich ecosystems by 2030

Definition

The Commission will propose binding targets for MS to restore degraded and carbon rich ecosystems. The delivery of this Objective requires the Commission to develop the nature restoration targets and publish a guidance for mapping and monitoring of restoration and MS to undertake restoration action so that they meet EU targets. It is assumed that restoration taking place within protected areas will contribute to achieving these legally binding nature restoration targets; however, to achieve these targets, restoration activities will have to go far beyond the Natura 2000 network..

Links to other objectives

This is the single largest costed objective of the BDS to 2030, and is fully costed in this assessment.¹⁵ Its on the ground implementation costs account for a number of other objectives, notably:

- 3, covering on the ground implementation of a share of restoration required for ecological corridors.
- 7, (ensuring protected habitats and species show no deterioration and at least 30% reach favourable conservation status or at least show a positive trend) restoration activities for achieving Objective 7 are costed under this objective
- 8, (reverse the decline of pollinators) as significant restoration across ecological communities will also assist pollinators.
- 10 (at least 10% of agricultural land is under high-biodiversity landscape features), as restoration of agricultural ecosystems are covered within this objective.
- 12 (significantly increase the uptake of agro-ecological practices), again as restoration of agricultural ecosystems are covered within this objective
- 14 (plant 3 billion trees in the EU), as the restoration activities contained in this objective will significantly increase tree planting across ecosystems.
- 16 (restore at least 25,000km of free-flowing rivers), the on the ground implementation costs are assumed to be fully covered by this objective.
- 18 (adopt ambitious urban greening plans for cities of over 20,000 inhabitants) involves implementation costs that we assume cover the costs of implementing the urban ecosystem restoration costs of this objective.
- 20 (halve the number of Red List species threatened by IAS) includes restoration actions that will be undertaken as part of restoration under Objective 6.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Surveys of ecosystems to establish extent and condition, where this is known;
2. Development of national restoration plans;
3. Establish EU wide methodology, indicators and baselines for ecosystems;
4. Administration of restoration measures;
5. Reporting progress against restoration targets;
6. Restoration work in each MS to meet restoration targets.

¹⁵ With the exception that the urban ecosystem restoration is costed in objective 18 (ambitious urban greening plans)

Action 6.1: Surveys of ecosystems to establish extent and condition, where this is known

Establishing the extent of restoration activity required depends on data on the extent and condition of the relevant ecosystems. There are currently significant data gaps, particularly regarding the extent of degraded ecosystems requiring restoration. The EEA Dashboard¹⁶ indicates that the condition of approximately 732 516 km² of Annex 1 habitats across the EU is unknown, and would need to be surveyed to determine restoration priorities. It is assumed that a survey to understand ecosystem condition costs EUR 15/ha¹⁷, leading to a total one-off survey cost of EUR 1 099 million across the EU.

In addition to these surveys, the Commission had to develop the legal instrument with which the binding EU nature restoration targets are introduced. For this work, we assume high administrative costs for the Commission (100% of 5x staff time over 12 months) to work with co-legislators to agree on the legal instrument and to manage the work required for the development of the binding targets. This is estimated at EUR 570,660 for 2021. The development of the restoration targets also involves a support study by external consultants, which is estimated at EUR 250,000.

Total action cost: **EUR 1.09 billion by 2024**

Action 6.2: Development of national restoration plans

Prior to implementing restoration actions, MS will be required to establish restoration plans- outlining ecosystem extent, condition, pressures, specific restoration targets, measures required to reach targets, stakeholders involved, finance/funding needs, and monitoring and reporting frameworks.

It is estimated that each MS restoration plan would require 1500 days on average¹⁸, at a cost of EUR 317 per day¹⁹. This amounts to an average cost EUR 475 500 per MS plan, and a total one-off cost for EU-27 MSs of **EUR 12.8 million**.

Total action cost: **EUR 12.8 million by 2025**

Action 6.3 Establish EU wide methodology, indicators and baselines for ecosystems

¹⁶<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/condition-of-habitat>.

¹⁷ Costings for EMBAL assume 3 x 25 hectare plots are covered per day, with an average daily cost of EUR 557 for skilled surveyors. If it is assumed that 50 % of surveyor time is spent in the field, this gives an average cost of EUR 15 per hectare.

¹⁸ For this we estimate: 600 days to compile and present data on ecosystem extent, condition, pressures; 300 days to define ecosystem restoration targets and actions; 180 days to define resources and funding arrangements; 180 days to define monitoring and reporting arrangements; 240 days to consult/engage public; 100 days to compile the national plan.

¹⁹ Price adjusted to inflation from: ICF et al., (2017) Support to the Fitness Check of monitoring and reporting obligations arising from EU environmental legislation

The support study IA of the legally binding restoration targets considers two approaches to costing this action- using primary data from the MSFD to estimate costs, and using the costs involved in the MAES project on the mapping of ecosystems and assessment of ecosystem services. From these estimates, an average cost (EUR 5.35 million for MSFD and EUR 7.8 million for MAES) leads to the one-off cost estimate of **EUR 6.56 million** to establish an EU wide methodology, indicators and baselines for the ecosystems outlined under action 6.7.

Total action cost: **EUR 6.56 million by 2025.**

Action 6.4: Administration of restoration measures

Based on data from Prioritised Action Frameworks (PAFs), it is estimated that the costs of administration and communications (excluding surveys, planning, and monitoring, which are estimated here separately) account for an average of 10 % of the costs of nature conservation measures. Below outlines the cost estimates per ecosystem, based on the values presented under action 6.7.

Table 8: Summary of administration costs for restoration measures (EUR million)

Ecosystem	Estimated Annual Average Costs, 15 % restoration target (2022-2030) EUR millions	Estimated annual administrative costs at 10% (EUR millions)
Inland wetlands	366.64	36.66
Coastal wetlands	195.32	19.53
Forests	2 097.21	209.72
Agro-ecosystems	1,220.71	122.07
Steppe, heath and scrubland	421.26	42.13
Freshwater	1,298.94	129.89
Marine	761.08	76.11
Total	6,361.15	636.12

Total action cost: **EUR 5.7 billion by 2030**

Action 6.5: Reporting of progress

It is assumed that reporting will be based on existing data collected under the actions identified above, and require inputs averaging 50 -100 days per Member State every 6 years (similar to requirements under the Habitats Directive). On this basis, and

applying a cost of EUR 317 per person day of work required,²⁰ costs of regulatory reporting would amount to approximately EUR 107 000 per year across the EU27.

Total action cost: **EUR 1 million (EUR 963,000) by 2030.**

Action 6.6 Restoration work in each MS to meet restoration targets.

The expenditure required for the actual restoration work to be undertaken by each EU Member State draws on work undertaken for the Impact Assessment work of the restoration targets (unpublished). According to these estimates, restoration of inland and coastal wetlands, forests, agro-ecosystems, freshwater ecosystems, steppe, heath, and scrubland ecosystems across the EU to reach the 15% restoration target would require about EUR 53.4 billion by 2030. This estimate does not include restoration of urban ecosystems (urban ecosystems are assumed to be costed in objective 19 – implementation of ambitious urban greening initiatives), soil or pollinator restoration (uncertainties in data). Estimates of the marine restoration costs were not included within the Impact Assessment study due to lack of data on costed marine restoration actions, however, we have made a high-level estimate within this section of the report.

A summary of the approaches and calculations of restoration actions for each ecosystem is shown below. For each of these ecosystems, the total costs represent the maintenance, restoration and re-creation (where applicable) costs to restore 15% of degraded (i.e. habitats which are not currently in good condition) Habitats Directive Annex I habitats to good condition by 2030.

For those ecosystems costed, the following approach to estimating costs was implemented:

1. Estimation of **ecosystem area** in the EU (excluding data from Romania due to inaccuracies in reporting), mainly drawing on Member State Habitats Directive Article 17 reporting data and MAES assessment data.
2. Estimation of overall ecosystem **degradation levels**, with respect to:
 - Current levels (mainly based on reporting data from 2013-2018);
 - Expected levels in 2030 according to the baseline scenario, which takes into account existing policies and measures, and actions included in the EU Biodiversity Strategy to 2030 other than the restoration target, as well as anticipated changes in drivers of land use change.

²⁰ Price adjusted to inflation from: ICF et al., (2017) Support to the Fitness Check of monitoring and reporting obligations arising from EU environmental legislation

3. Identification of **key measures** (i.e. the most effective and efficient measures that are typically used to address one or more of the key pressures) and their costs.
4. The calculation of the costs of restoring and re-creating (where applicable) the ecosystem according to target objectives (restore 15% of degraded Annex I habitats by 2030).

Inland Wetlands

1. Inland wetland calculations were split into two main habitat types, peatlands and marshlands, due to the contrasting restoration actions and associated costs in each of these habitats. Peatlands cover approximately 136 572 km² in the EU, whereas marshlands cover approximately 10 641 km².
2. For peatlands, 27% (36 874 km²) of the total EU habitat area is in poor condition, whereas for marshland, it is estimated (due to lack of data) that 50% (5 320km²) are currently degraded.
3. The main restoration measures which were found in literature and costed relate to the management of hydrology, and the removal of trees in afforested areas. Through a literature review of LIFE projects, a median cost of EUR EUR1 471/ha was assumed for peatlands, and EUR EUR1 535/ha for marshlands.
4. The costs of restoring 15% of degraded Annex I habitats by 2030 are shown below, amounting to EUR 3.3 billion up to 2030.

Table 9: Restoration costs for inland wetlands (EUR millions)

Period	% Restoration	Maintenance costs (average annual, millions EUR)	Restoration costs (average annual, millions EUR)	Re-creation costs (average annual, millions EUR)	Combined costs (millions EUR)	Total over period (millions EUR)
Peatland						
2022-2030	15%	129.04	58.64	13.83	201.50	1,813.54
Marshland						
2022-2030	15%	156.95	7.81	0.37	165.13	1,486.21
Total for Inland Wetlands						
2022-2030	15%	285.99	66.45	14.19	366.64	3,299.75

Coastal wetlands

1. Coastal wetlands include 11 Habitats Directive Annex I habitat types, covering around 37 780 km².
2. Of this area, Habitats Directive data indicates that a total area to be restored (i.e. area degraded) would amount to 16 727km².

3. The costs of restoration were drawn from Tucker *et al.*²¹ including the capital costs of restoration actions such as revegetation and rewetting works, removal of alien species, and creation of wetlands to treat agricultural water pollution, as well as restrictions on fishing. The costs of re-creation include managed realignment, works to reclaim land through sedimentation, and introduction of appropriate grazing. Annual maintenance costs include appropriate grazing management, regulation of water levels and re-sedimentation. This resulted in average costs per year for restoration, re-creation and maintenance to achieve the 15% target by 2030 at EUR EUR195.3 million. The average costs of works were calculated as EUR EUR22.8/ha for maintenance, EUR6270/ha for restoration, and EUR5306/ha for re-creation.
4. The costs of restoring 15% of degraded Annex I habitats by 2030 are shown below, amounting to EUR 1.8 billion up to 2030.

Table 10: Restoration costs for coastal wetlands (EUR millions)

Period	% restoration	Full	Maintenance costs (average annual, millions EUR)	Restoration costs (average annual, millions EUR)	Re-creation costs (average annual, millions EUR)	Combined costs (millions EUR)	Total over period (millions EUR)
2022-2030	15 %		38.19	154.11	3.02	195.32	1,757.91

Forests

1. Forests are the largest terrestrial ecosystem type in the EU-27 and in 2018 covered 1 770 997 km² or 39% of the EU27 land area²².
2. Reporting under the Habitats Directive reveals that the vast majority (84 %) of the assessments of 69 forest habitats included in the scope of this assessment have an unfavourable conservation status (of which 58 % poor and 26 % bad).
3. The costs of restoration of forests were estimated by calculating the area of degraded ecosystems to be restored and re-created annually to meet each target and applying average per hectare capital costs for restoration and re-creation, and annual costs for maintenance taken from Tucker *et al.*²³ The costs

²¹ Tucker *et al.*, (2013) Estimation of the financing needs to implement Target 2 of the EU Biodiversity Strategy. Report to the European Commission. Institute for European Environmental Policy, London. Available at:

<https://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/Fin%20Target%202.pdf>

²² EEA (2020) Mapping Europe's ecosystems. Available at:

<https://www.eea.europa.eu/themes/biodiversity/mapping-europes-ecosystems/mapping-europes-ecosystems>

²³ Tucker *et al.*, (2013) Estimation of the financing needs to implement Target 2 of the EU Biodiversity Strategy. Report to the European Commission. Institute for European Environmental Policy, London. Available at:

<https://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/Fin%20Target%202.pdf>

of restoration include the capital costs of restoration actions such as removal of invasive species, restructuring plantations, planting or regeneration of trees, controlled burning, pest and disease control, hydrological works and sustainable forest management planning/ certification. The costs of re-creation include site preparation works, planting trees and/or creating appropriate conditions for natural regeneration, and initial management of newly created forests. Annual maintenance costs include sustainable forest management, fire prevention & control, control of grazing / deer management, and costs of avoiding or sustainably maintaining timber harvesting. The required management will be undertaken largely by private landowners and land managers, in return for incentive payments which include compensation for opportunity costs relating to land management. Maintenance costs were applied to the entire ecosystem area, since meeting the targets requires further degradation of ecosystems to be avoided. From the aforementioned Tucker et al., study, restoration and re-creation costs were estimated at EUR 4 100/ha whereas maintenance was estimated at EUR 116/ha,

4. The costs of restoring 15% of degraded Annex I habitats by 2030 are shown below, amounting to EUR 18.9 billion up to 2030.

Table 11: Restoration costs for forests (EUR millions)

Period	% Full restoration	Maintenance costs (average annual, EUR millions)	Restoration costs (average annual, EUR millions)	Re-creation costs (average annual, EUR millions)	Combined costs (EUR millions)	Total over period (EUR millions)
2022-2030	15 %	1,282.11	790.02	25.08	2,097.21	18,874.87

Agro-ecosystems

1. Natural and semi-natural agro-ecosystems include 34 Habitats Directive Annex I habitat types, covering close to 177 442 km² (4.5 % of the EU terrestrial area²⁴). The area of natural and semi-natural agricultural habitats not covered by HD Annex I habitats is not known, as they have not been defined and mapped. According to Corine Land Cover data the total area of agro-ecosystems in the EU was 2 096 616 km² in 2018 (48 % of the EU terrestrial area).
2. According to the Member States that reported on the condition (i.e. structure and function parameter) of their HD Annex I agricultural habitats, 27 % of the habitat area was reported as being in not-good condition (i.e. 4 359 701ha). However, the true area in not-good condition is uncertain, as 35 % of the total area of these habitats was reported as in 'unknown' (or not reported) condition.

²⁴ Area of habitats calculated from the area reported by Member States as 'best estimate' or 'average of minimum/maximum'.

3. Cost estimates for restoration were mainly taken from Tucker et al.²⁵ The costs of restoration and re-creation include the capital costs of actions such as restoration grazing/mowing, scrub removal, reseeding, hydrological works, soil fertility reduction and wildfire control. Annual maintenance costs include grazing management; mowing; maintenance of hedges, ditches, and other features; creation and maintenance of field margins, winter stubbles, fallows and cover crops; management of farm inputs; and appropriate cultivation, crop rotation and soil management practices. The required management will be undertaken largely by private landowners and land managers, in return for incentive payments, a large proportion of which include compensation for opportunity costs relating to land management (e.g. income forgone through reduced grazing, lower inputs and introduction of uncropped features on arable land). Maintenance costs were applied to the entire ecosystem area, since meeting the targets requires further degradation of ecosystems to be avoided. This resulted in average costs per year for restoration, re-creation and maintenance to achieve the 15% target by 2030 at EUR 1.2 billion. The average costs per hectare for grassland were calculated as: maintenance EUR232, restoration EUR4 031 and re-creation EUR350.
4. The costs of restoring 15% of degraded Annex I habitats by 2030 are shown below, amounting to approximately EUR 11 billion up to 2030.

Table 12: Restoration costs for agro-ecosystems (EUR millions)

Period	% Full restoration	Maintenance costs (average annual, EUR)	Restoration costs (average annual, EUR)	Re-creation costs (average annual, EUR)	Combined costs (EUR)	Total over period (EUR)
2022-2030	15 %	944.20	145.23	131.28	1,220.71	10,986.38

Steppe, heath and scrubland habitats

1. 21 types of steppe, heath and scrub habitats are listed in Annex I of the Habitats Directive (HD), covering 78,582 km².
2. Member States' reports under Article 17 HD on the condition of habitat types indicate that at least 8.4 % of the 21 HD Annex I steppe, heath and scrub habitats area (excluding Romania) is in a not-good condition. 36.4 % of the area is reported as in 'unknown' (or not reported) condition, it is not assumed that all of this 'unknown' area is in poor condition, rather, the true proportion of the area in a poor condition is probably closer to the proportion of the area for

²⁵ Tucker et al., (2013) Estimation of the financing needs to implement Target 2 of the EU Biodiversity Strategy. Report to the European Commission. Institute for European Environmental Policy, London. Available at: <https://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/Fin%20Target%202.pdf>

which Member States reported on the condition of the habitat that had a not-good condition, which is 13.2 % (6 586 km²).

3. Cost estimates applied the average per hectare capital costs for restoration and re-creation, and annual costs for maintenance taken from Tucker et al.²⁶ The costs of restoration and re-creation include the capital costs of actions such as tree and scrub removal, invasive species control and vegetation re-establishment. Maintenance costs include low intensity grazing management. The required management will be undertaken largely by private landowners and land managers, in return for incentive payments, a large proportion of which include compensation for opportunity costs relating to land management (e.g. income forgone through reduced grazing, or habitat creation on cropland). Maintenance costs were applied to the entire ecosystem area, since meeting the targets requires further degradation of ecosystems to be avoided. Costs were estimated at EUR 215/ha for management, and EUR 443/ha for restoration/ recreation.
4. The costs of restoring 15% of degraded Annex I habitats by 2030 are shown below, amounting to EUR 3.8 billion up to 2030.

Table 13: Restoration costs for steppe, heath and scrubland habitats (EUR millions)

Period	% Full restoration	Maintenance costs (average annual, EUR)	Restoration costs (average annual, EUR)	Re-creation costs (average annual, EUR)	Combined costs (EUR)	Total over period (EUR)
2022-2030	15 %	398.48	19.51	3.27	421.26	3,791.34

Freshwater: Rivers, lakes and alluvial habitats

1. The assessment considers 32 Annex I habitat types as 'freshwater', covering 20 river and lakes habitats, 4 alluvial meadow habitats, and 8 alluvial/ riparian forests. These habitats cover over 96 480 km² or 2,5% of the EU terrestrial area.
2. Approximately 21 556km² of these habitats are considered in 'not good' condition, with an additional 21 952km² in an unknown condition. As such to achieve the 15% restoration target, an average area of freshwater habitats between the 'not good' and 'unknown' value was also incorporated into calculations.
3. Cost estimates relating to rivers and lakes were derived from a detailed report investigating costs and benefits of 766 river restoration projects across the EU, where measures of river restoration costs were analysed across these

²⁶ Tucker et al., (2013) Estimation of the financing needs to implement Target 2 of the EU Biodiversity Strategy. Report to the European Commission. Institute for European Environmental Policy, London. Available at: <https://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/Fin%20Target%202.pdf>

restoration projects²⁷. This led to cost estimates for actions relating to channel re-shaping and re-meandering, deconstruction of technical river banks, reconnection of floodplain habitats, sediment control through reforestation and floodplain restoration. The average weighted costs of these actions was calculated at EUR 3.2 million per km². For alluvial forests and meadow habitats, capital costs were estimates as EUR 215 000 (forests) EUR 403 100 (meadows) and maintenance costs at EUR 11 600 (forests) EUR 23 200 (meadows) per km², from the Tucker et al report.²⁸

4. The costs of restoring 15% of degraded EU freshwater area by 2030 are shown below, amounting to EUR 11.7 billion up to 2030.

Table 14: Restoration costs for freshwater (EUR millions)

Period	% Full restoration	Maintenance costs (average annual, EUR millions)	Restoration costs (average annual, EUR millions)	Re-creation costs (average annual, EUR millions)	Combined costs (EUR millions)	Total period (EUR millions)	over (EUR millions)
2022-2030	15 %	188.33	1,107.69	2.92	1,298.94	11,690.42	

Marine

1. Marine Annex I priority habitats consist of sandbanks (slightly covered all the time), Posidonia beds, large shallow inlets and bays, reefs, submarine structures (made by leaking gases), and submerged or partially submerged sea caves. These cover a total area of 240 031km², approximately 44% of total EU marine area.
2. Approximately 15% of the Annex I marine habitats are considered in 'not good' condition (34 828 km²), yet 70% are in an unknown condition (168 390km²) due to a lack of data. Given these data deficiencies and the gap in coverage of Annex I marine habitat vs. total EU marine area, the marine target for 15% restoration of degraded ecosystems would apply to the waters within the EU Exclusive Economic Zone. This equates to restoring 15% of Annex 1 habitats (to 2030) currently reported as being in not good condition and evaluate the condition of, and restore an additional 715,000km² of degraded habitats (Annex 1 and/or soft shelf sediments under MSFD) currently in reported as being in unknown condition.

²⁷ Ayres et al. (2014). Inventory of river restoration measures: effects, costs and benefits. REFORM - Restoring rivers for effective catchment management. Deliverable D1.4 - Inventory of restoration costs and benefits

²⁸ Tucker et al., (2013) Estimation of the financing needs to implement Target 2 of the EU Biodiversity Strategy. Report to the European Commission. Institute for European Environmental Policy, London. Available at:

<https://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/Fin%20Target%202.pdf>

3. Robust costs estimates across all marine habitats considered in this assessment could not be located, with the exception of reefs and Posidonia bed restoration. These were estimated at EUR 42 947 and EUR 3 170 per km² respectively.²⁹ For the remaining habitats an average estimate of passive restoration measures (namely, the maintenance of MPAs- avoiding overlap with Objective 1 which calculates the cost of establishing MPAs) was estimated through literature, at a value of EUR 486 per km².³⁰ These cost estimates were applied to the known Annex I habitats in 'not good' condition, in addition to the estimated additional area of 715,000 km² of EU marine area under the MSFD.
4. The costs of restoring 15% of degraded EU marine area by 2030 are shown below, amounting to EUR 6.8 billion up to 2030.

Table 15: Restoration costs for marine (EUR millions)

Period	% Full restoration	Restoration and maintenance costs (EUR average annual)	Total over period
2022-2030	15 %	761.08	6,849.69

Total objective cost

The table below presents the per year and total costs of this objective without discounting the estimates to present value, total EUR 64 billion by 2030.

Table 16: Per year cost estimates for delivering Objective 6 (in millions EUR)

2021	2022	2023	2024	2025	
-	7,368	7,368	7,369	7,002	
2026	2027	2028	2029	2030	Total
6,997	6,997	6,997	6,997	6,997	64,094

Objective 7 – Protected habitats and species show no deterioration and at least 30% reach favourable conservation status or at least show a positive trend

Definition

This objective aims for all the protected habitats and species in the EU to show no deterioration in conservation trends and status and at least 30% of these to reach favourable conservation status or, if not possible, show a strong positive trend. It essentially captures all the necessary measures that need to be taken by EU Member

²⁹ Bayraktarov et al (2016) The cost and feasibility of marine coastal restoration.

³⁰ NEF Consulting (2021) Valuing the impact of a potential ban on bottom-contact fishing in EU Marine Protected Areas, New Economics Foundation Consulting

States to deliver on the objectives of the Nature Directives. This mainly refers to the ongoing management of all the land and marine sites of the Natura 2000 network, including designation, development of management plans, restoration, monitoring, and additional green infrastructure measures beyond the network to improve its coherence. In addition to Member State implementation, under this objective, the Commission will develop a guidance on the selection of species and habitats for priority actions.

Links to other objectives

This objective is related to the Natura 2000 network, so it naturally links to Objectives 1 to 4. Part of the costs estimated under Objective 1 include the completion of the Natura 2000 network, and thus these costs are not included in Objective 7. Objective 3 costs refer to the investment for creating ecological corridors to increase the coherence of the network, so these costs are also not accounted for under Objective 7. The estimated costs for delivering Objective 4 include only costs for newly designated protected areas and thus the ongoing management costs of the current Natura 2000 network are estimated here. Since ecosystem restoration under Objective 6 includes restoration of species and habitats within the Natura 2000 network, the restoration actions necessary to reach favourable conservation status of these species and habitats are not costed here, but only under Objective 6. However, the cost of maintenance of restored ecosystems within the network are included under Objective 7. Furthermore, Objectives 8-13 can be expected to deliver benefits to agro-ecosystems, which could ultimately assist in reaching favourable conservation status and trends within those ecosystems. Multiple other Objectives, including 13-21, can be expected to contribute to Objective 7. To avoid double counting, costs for measures related to the actions under Objectives 8-21 are not estimated here.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Guidance on the selection of species and habitats to ensure that at least 30% of protected species and habitats not currently in favourable status are in that category by 2030, or show a strong positive trend (Developed by EEA);
2. Member State full implementation of the Nature Directives

Action 7.1: Guidance on the selection of species and habitats

This action relates to administrative processes within the Commission and EEA for developing the guidance document, consulting Member States, and for support from external specialised consultants to assist with additional information gathering and expert knowledge. According to information provided by the Commission, this guidance will be developed as part of the guidance for identifying and designating additional protected areas and ecological corridors (Action 1.1). Therefore the

associated costs of delivering Action 7.1 have been estimated with the cost of Action 1.1.

Total action cost: **EUR 0**

Action 7.2: Member State full implementation of the Nature Directives

The full implementation of the Nature Directives mainly refers to Member State action on the completion of the Natura 2000 network as well as on the necessary measures for the networks management, including development of management plans, restoration activities, monitoring and reporting, and additional green infrastructure to improve the coherence of the network. Gantioler et al. (2010)³¹ provided the first comprehensive assessment of the financing needs for the Natura 2000 network, estimating annual costs at around EUR 5.8 billion per year for the EU27 (excluding Croatia). A more recent attempt to quantify the current financing needs for the network based on data from the PAFs is provided by the N2K Group (2021, unpublished)³². The PAFs were completed by national governments and regional authorities in each Member State and present the estimated financing needs for all the terrestrial and marine Natura 2000 sites in each Member State. Based on this data, the study estimated the annual financing needs of the Natura 2000 network for the EU27 at EUR 10.57 billion per year. This estimate comprises financing needs for:

- Horizontal measures and administrative costs related to the network, including:
 - Site designation and management planning
 - Site administration and communication with stakeholders
 - Monitoring and reporting
 - Remaining knowledge gaps and research needs
 - Natura 2000 related communication and awareness raising measures, education and visitor access;
- Natura 2000 site-related maintenance and restoration measures for species and habitats;
- Additional "Green Infrastructure" measures beyond Natura 2000 (further improving coherence of the Natura 2000 network, including in a cross-border context);

³¹ Gantioler S., Rayment M., Bassi S., Kettunen M., McConville A., Landgrebe R., Gerdes H., ten Brink P. (2010). Costs and Socio-Economic Benefits associated with the Natura 2000 Network. Final report to the European Commission, DG Environment on Contract ENV.B.2/SER/2008/0038. Institute for European Environmental Policy / GHK / Ecologic, Brussels 2010.

https://ec.europa.eu/environment/nature/natura2000/financing/docs/natura2000_costs_benefits.pdf

³² N2K Group (2021, unpublished). Strengthening investments in Natura 2000 and improving synergies with EU funding instruments. Aggregation and Assessment of Data Provided in the Prioritised Action Frameworks. Report to the European Commission under Contract Number: 07.0202/2018/775371/SER/ENV.D.3. Matt Rayment, IEEP Associate, 01 March 2022

- Additional species-specific measures not related to specific ecosystems or habitats, including:
 - Species-specific measures and programmes not covered elsewhere;
 - Prevention, mitigation or compensation of damage caused by protected species.

As explained in the definition, it is assumed that achieving Objective 7 requires the full implementation of the Nature Directives, which mainly refers to completing and managing the Natura 2000 network. However, the cost of achieving Objective 7 is not equal to the financing needs of the network, as some of the measures included in the estimation of the network's needs are already costed in this study under other Objectives.

More specifically, the estimation of costs for horizontal measures and administrative costs related to Natura 2000 includes financing needs for site designation and management planning. However, these measures are costed under Objective 1, and thus are excluded from the cost estimation of Objective 7. Hence, EUR 0.9 billion (the per year cost for delivering Objective 1) have to be subtracted from the total annual financing needs of the network. Moreover, the additional GI measures beyond Natura 2000 to improve coherence of the network are captured in full by the cost estimations of Objective 3, and thus the EUR 2.75 billion per year have to be subtracted from the cost of delivering on Objective 7. Therefore, the remaining financing needs for the Natura 2000 network is around EUR 7 billion per year.

However, since a part of these financing needs of the network are already being met by EU and Member State funding, this expenditure is accounted for in the estimation of the baseline expenditure for biodiversity (see Section 2.1.1). According to the N2K Group (2021, unpublished) study, EU and national spending on the network is estimated at around EUR 6 billion per year. Thus, to avoid double counting, it also has to be subtracted from the cost estimations for Objective 7. Therefore, the costs of the network attributed solely to Objective 7 is estimated at 0.9 billion per year.

Total action cost: **EUR 0.9 billion per year or EUR 9 billion between 2021 and 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 17: Per year cost estimates for delivering Objective 7 (in millions EUR)

2021	2022	2023	2024	2025	
900	900	900	900	900	
2026	2027	2028	2029	2030	Total
900	900	900	900	900	9,000

Objective 8 – Reverse the decline of pollinators

Definition

To deliver this Objective the Commission will seek to fully implement the EU Pollinators Initiative and its prescribed actions, whilst also ensuring the implementation of the initiative is monitored so that learnings can be applied to a revised Pollinators Initiative (2022). There is a risk that the actions in the Pollinators Initiative will themselves be insufficient to reverse decline; the estimates should therefore be seen as a lower bound on potential costs.

Links to other objectives

It is estimated that Objectives 1, 2, 4, 6 and 7 will account for on-the-ground actions required to reverse the decline of pollinators. Furthermore, Objectives (and their respective actions) 9, 10, 11 and 12 can also be considered to significantly contribute to this objective.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Full implementation of the EU Pollinators Initiative
2. Review and possible revision of the EU Pollinators initiative

Action 8.1: Full implementation of the EU Pollinators Initiative

This action refers to the monitoring and evaluating requirements by the Commission to ensure that actions under the Pollinators Initiative are on track to meet objectives. This monitoring and evaluating procedure can be expected to take place between 2022-2030, and require high administrative service costs (100% of 5x staff time over 12 months, average FTE cost for Commission staff- EUR 570 660 annually, assumed to be required over the period of 2022-2030). Furthermore, administrative costs for MS to establish and run and monitoring programme are expected to vary significantly amongst MS- between EUR 50 000 to 1 800 000 per year. On average, it is expected to cost across the whole of the EU EUR 13 300 000 per year.³³ To complement this, a support study by specialised consultants is assumed (at an one-off costs of EUR 250 000).

Total action cost: **EUR 125 million by 2030**

³³ Potts et al., 2021 Proposal for an EU Pollinator Monitoring Scheme.

Action 8.2: Review and possible revision of the EU Pollinators initiative

The action here refers to feeding the monitoring and evaluation outputs from 8.1. into a revised pollinators initiative. Medium, one-off admin costs for the Commission are assumed (50% of 2 employees over 12 months. Average FTE cost for EC staff- EUR 114132 in 2022). Furthermore, consultations between the Commission, MS and external stakeholders are assumed to be required. This is assumed to require medium administrative services (i.e. 50% of 2 employees annually) from the Commission up to 2022.

Total action cost: **EUR 0.3 million (EUR 342,396) by 2022.**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 18: Per year cost estimates for delivering Objective 8 (in millions EUR)

2021	2022	2023	2024	2025	
0.1	14.35	13.87	13.87	13.87	
2026	2027	2028	2029	2030	Total
13.87	13.87	13.87	13.87	13.87	125.42

Objective 9 - Reduce the use of chemical pesticides by 50% and reduce the use of more hazardous pesticides by 50%

Definition

Both the use of chemical pesticides and the use of more hazardous pesticides have to be reduced by 50% each across the EU. For the delivery of this objective we assume that each MS will have to reduce their pesticide use (chemical and more hazardous) by 50%, for the target to be reached on average in the EU.

Links to other objectives

It can be expected that measures implemented under Objectives 6, 8, 10, 11 and 12 will all require lower pesticide use by land managers to a certain degree, therefore these actions will be synergistic with Objective 9.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Proposal for a revision of the Sustainable Use of Pesticides Directive to significantly reduce use and risk and dependency on pesticides and enhance Integrated Pest Management.
2. Actions at EU level to contribute to the implementation of the provisions of the Farm to Fork Strategy.
3. Action at MS level to reduce the overall use of chemical pesticides by 50% and the use of more hazardous pesticides by 50%.

Action 9.1: Proposal for a revision of the Sustainable Use of Pesticides Directive to significantly reduce use and risk and dependency on pesticides and enhance Integrated Pest Management

This action will involve two sub-actions: 1) support from specialised consultants to conduct at least one study to implement an evaluation and impact assessment on the revision of the Sustainable Use of Pesticides Directive (SUD); 2) Administrative processes within the Commission in relation to the evaluation and impact assessment of the SUD. For the first sub-action, one external study is assumed, estimated at EUR 250,000. For sub-action 2, high administrative services are assumed to be required from the Commission (100% of 5x staff full time over 12 months. Average FTE cost for Commission staff applied), equating to 570 660 EUR. Both expected to be completed in 2021.

Total action cost: **EUR 0.8 million (EUR 820 660) in 2021.**

Action 9.2: Actions at EU level to contribute to the implementation of the provisions of the Farm to Fork Strategy

Action 9.2 is assumed to be composed of one sub-action in which the Commission will require MS to develop monitoring schemes to enforce and track progress of the pesticide reduction through annual monitoring. High administrative services (100% of 5 employees over 12 months- average FTE cost for Commission and MS staff applied), over a period of 9 years (i.e. up to the BDS 2030 Strategy target) are assumed, whereby Commission staff and MSs work to develop and review monitoring systems.

Total action cost: **EUR 11.9 million by 2030**

Action 9.3: Actions at MS level to contribute to the implementation of the provisions of the Farm to Fork Strategy

Two sub-actions are foreseen under Action 9.3: 1) Administrative processes within the MS to implement the Farm to Fork Strategy; 2) Practical work at farm level to reduce use of chemical pesticides. Regarding sub-action 1, this refers to the costs required by MS to implement pesticide monitoring plans to track pesticide application. These are expected to be high administrative costs to responsible ministries within each MS (100% of 5x staff full time, annually to 2030), given the lack of pesticide monitoring

currently in place. This would take place between now and 2030, equating to costs of EUR 54.5 million.

Sub-action 2 relates to practical work at farm level to reduce use of chemical pesticides. This would involve the costs of implementing Integrated Pest Management (IPM) at farm level, however no robust estimates of the costs from converting from conventional farming to IPM could be located, nor the scale of current IPM implementation. As such, we use organic farming estimates as a proxy (as such practices can incorporate IPM measures). As noted under Objective 11, approximately 12.1 million hectares of UAA is covered in organic farming (which we assume also includes aspects of IPM and reduced pesticide application), of the total 161.8m ha in the EU 27. We therefore assume half of this remaining UAA does not implement any IPM which would reduce pesticide application (i.e. $149,700,000 \text{ ha} / 2 = 74,850,000 \text{ ha}$).

Tucker et al., 2013 estimated that the annual costs/ha for converting to integrated management approaches (including, pest management practice) at an average of EUR 390 per hectare. However, given this is largely estimated from conversion to organic farming practices and not strictly IPM measures, we assume a lower-bound estimate of EUR 100/ha. Applying this to the area of UAA requiring IPM implementation, is estimated at a cost of EUR 7,484,000,000 for the EU 27 to 2030 would be required to reduce pesticide use through the application of IPM. However, significant reductions in the application of pesticides can also be expected from the implementation in particular of objectives 10, 11 and 12. As such, we assume a further 50% reduction in this cost, to a total of EU 415,833,333 annually. It should be noted that this is only the estimated conversion cost, and significant cost savings through the reduced application of pesticides and potential increase in marketable goods can be expected.

Total action cost: **EUR 3.8 billion by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 19: Per year cost estimates for delivering Objective 9 (in millions EUR)

2021	2022	2023	2024	2025	
-	424	423	423	423	
2026					
423	423	423	423	423	3,809

Objective 10 – At least 10% of agricultural area is under high-biodiversity landscape features

Definition

The Commission will ensure that the programming and implementation of CAP measures will support the restoration of high diversity landscape features of 10% of the agricultural area of the EU27. This will be achieved through the monitoring of MS application of relevant CAP measures, to ensure this target is achieved by 2030.

Links to other objectives

It can be expected that this objective overlaps with the implementation of objective 6 (particularly restoration actions in agro-ecosystems), 8 and 12. In particular, objective 6 can be expected to cover the costs of the on-the-ground implementation actions to ensure high-biodiversity features.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Implement high-diversity measures in agricultural land at MS level
2. Constant progress review by the Commission

Action 10.1: Implement high-diversity measures in agricultural land at MS level

This action is composed of 3 sub-actions: 1) The Commission ensure that programming and implementation of the CAP supports measures to restore high diversity features on 10% of agricultural land; 2) MS develop measures to increase the adoption of high-biodiversity landscape features by farmers; and 3) practical work in agricultural land in each MS for the adoption of these features.

For sub-action 1 we estimate high administrative costs for the Commission due to the development of necessary baselines, relevant CAP indicators, Strategic Plan development (i.e. templates for MS to use), the monitoring and evaluating CAP instruments, and conducting in-house meetings/workshops. These costs are estimated as an annual EUR 570,660 from 2022 to 2030 (100% of 5x staff full time).

Sub-action 2 mainly refers to administrative costs for national authorities to develop incentives for farmers to uptake high-biodiversity landscape features, including the development of CAP Strategic Plans. This includes administrative actions, and does not include on-the-ground actions. The costs are annually estimated as EUR 44,898 (50% of 2 employees Average FTE cost for MS staff) per MS, and EUR 1,212,246 for EU 27 annually, from 2022 to 2030.

Sub-action 3 refers to the 'on-the ground implementation' actions. Ecological Focus Areas (EFAs) are assumed to be the actions which deliver the greatest potential 'high biodiversity landscape features'. Other greening measures included under the CAP such as crop diversification and the maintenance of permanent grasslands are excluded from calculations due to challenges in assessing their biodiversity effectiveness and/or limited data on the scale of such measures.³⁴ As such, here we have focused specifically on the coverage of EFAs- which are estimated to cover 8 million hectares of farms in the EU.³⁵ However, approximately 25% of EFAs at EU level are estimated as allocating measures which have the potential to bring about positive biodiversity changes.³⁶ As such, we assume that currently 2 million hectares (25% of 8 million) are covered by high diversity landscape features. The EU-27 utilised agricultural area is estimated at 161,800,000 hectares, meaning that EFAs which are estimated at providing biodiversity benefits cover approximately 1% of agricultural area (2m ha / 161.8m ha). To achieve the 10% target (16,180,000 hectares), an additional 14.18 million hectares of land would be required to be transformed to high biodiversity landscape features. EFAs are estimated at costing 789 EUR/ha,³⁷ yet we assume 25% of this sum is related to effective biodiversity measures- 197 EUR/ha. If we then apply this to the total area required to be transformed to high biodiversity landscape features, the total sum is EUR 2 793 460 000.

Total action cost: **EUR 2.8 billion by 2030**

Action 10.2: Constant progress review by the Commission

In order to continually assess and monitor the environmental-related objectives and measures of CAP strategic plans presented by MS, administrative costs within the Commission can be expected. For this, we assume high administrative costs of EUR 570 660 (100% of 5x staff full time) annually, between 2022-2030. The monitoring and evaluation would be complemented by a consultancy study, for which a fixed sum of EUR 250 000 is assumed.

Total action cost: **EUR 5.4 million by 2030**

³⁴ ECA (2020) Biodiversity on farmland: CAP contribution has not halted the decline. Available at: https://www.eca.europa.eu/Lists/ECADocuments/SR20_13/SR_Biodiversity_on_farmland_EN.pdf

³⁵ Peer et al., (2017) Is the CAP Fit for purpose? Available at: https://www.idiv.de/fileadmin/content/iDiv_Files/Documents/peer_et_al_2017_cap_fitness_check_final_20-11.pdf

³⁶ Peer et al., (2017) Is the CAP Fit for purpose? Available at: https://www.idiv.de/fileadmin/content/iDiv_Files/Documents/peer_et_al_2017_cap_fitness_check_final_20-11.pdf

³⁷ Peer et al., (2017) Is the CAP Fit for purpose? Available at: https://www.idiv.de/fileadmin/content/iDiv_Files/Documents/peer_et_al_2017_cap_fitness_check_final_20-11.pdf

Total cost of objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 20: Per year cost estimates for delivering Objective 10 (in millions EUR)

2021	2022	2023	2024	2025	
-	313	313	313	313	
2026	2027	2028	2029	2030	Total
313	313	313	313	313	2,815

Objective 11 – At least 25% of agricultural land under organic farming management

Definition

MS will establish organic farm management targets within their CAP Strategic Plans, which will establish explicit national objectives to achieve the 25% target at a national level.

Links to other objectives

Additional to actions undertaken in objective 10

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. The development of an Action Plan for Organic Farming for 2021–2026
2. Convert conventional agricultural land in each MS to organic farming to achieve the EU-wide 25% target.

Action 11.1: The development of an Action Plan for Organic Farming for 2021–2026

Action 11.1 encompasses two sub-actions: 1) support from specialised consultants and 2) administrative processes within the Commission. Sub-action 1 refers to the costs (a fixed sum of EUR 250 000 is assumed) of a consultancy study which will be required to assist the Commission in reviewing MS CAP Strategic Plans to ensure that relevant measures are included in such plans, and that sufficient monitoring processes will be implemented in each MS to track progress. Sub-action 2 includes estimated low administrative services required from the Commission (EUR 22,826, 10% of 2 staff full time over 12 months) to develop the Action Plan and consult with MS and external stakeholders. Low administrative services within competent authorities of each

Member State to consult with the Commission is also assumed, totalling EUR 242 thousand for all 27 MS in 2022.

Total action cost: **EUR 1.1 million in 2022**

Action 11.2: Convert conventional agricultural land in each MS to organic farming to achieve the EU-wide 25% target

Following the development of the Commission's Action Plan, MS will develop measures to increase their organic farming share of their agriculture sector. Practical land conversion work to convert land suitable for organic farming can be expected. It is currently estimated that approximately 12,115,000 ha of agricultural land in EU-27 is covered by organic farming practices. To reach the 25% target (40,450,000 ha area of total UAA), a further of 28,335,000 ha of land would be required to be converted to organic farming. The costs of conversion from conventional farming to organic are estimated at EUR 171/ha³⁸. Therefore, it is calculated that the costs of conversion for the EU-27 is 4,845,285,000 up to 2030.

Total action cost: **EUR 4.8 billion by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 21: Per year cost estimates for delivering Objective 11 (in millions EUR)

2021	2022	2023	2024	2025	
-	539	538	538	538	
2026	2027	2028	2029	2030	Total
538	538	538	538	538	4,846

³⁸ Acs et al (2009). Effect of yield and price risk on conversion from conventional to organic farming. *Australian Journal of Agricultural and Resource Economics*, 53(3), 393-411.

Objective 12 – Significantly increase the uptake of agro-ecological practices

Definition

All the actions under this objective refer to the administration of the CAP strategic Plans. This objective denotes the administrative supportive measures to be undertaken by the Commission for the implementation of Objectives 9, 10, 11, 13. Therefore costing will only include the administrative processes and not the actual costs from fieldwork as this is included in the estimations of the other objectives.

Links to other objectives

As stated above, this links to Objectives 9, 10, 11 and 13- with the additional administrative costs estimated in the forthcoming sections.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are the administrative processes of the Commission and MS to ensure that CAP Strategic Plans set explicit national values for relevant targets of the Biodiversity and Farm to Fork Strategies, supported, inter alia, by CAP instruments and implementation of the Habitats Directive. Furthermore, it is expected that the Commission will develop country-specific recommendations to MS on their strategic plans. For this, high administrative services can be expected (EUR 570,660- 100% of 5x staff full time annually). Due to the ongoing negotiations of the CAP, costs can be expected in 2022. Beyond 2022, it can be expected that the Commission will be required to facilitate implementation of agro-ecological practices, and provide centralised monitoring. For this, medium administrative services are estimated from 2022-2030 (50% of 2 employees), calculated at EUR 114,132 per year.

For MS, it is assumed that high administrative costs will be required to draft strategic plans, establish relevant targets, and monitor outputs. This is calculated at EUR 224 490 (100% of 5x staff full time) annually.

Total action cost: **EUR 3.6 million in 2030.**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 22: Per year cost estimates for delivering Objective 12 (in millions EUR)

2021	2022	2023	2024	2025	
-	0.6	0.3	0.3	0.3	
2026	2027	2028	2029	2030	Total
0.3	0.3	0.3	0.3	0.3	3.62

Objective 13 – Reduce the loss of nutrients from fertilisers by 50%, resulting in the reduction of fertilizer use by at least 20%

Definition

To reduce the loss of nutrients from fertilisers, the Commission will introduce a number of instruments, namely the Integrated Nutrient Management Action Plan, Zero Pollution Action Plan, and a new EU Chemicals Strategy for Sustainability. Member States will have to increase the implementation and enforcement of the relevant legislation. The delivery of this Objective rests upon farmers' action in each MS, as they are required to use less fertilisers and implement measures that reduce the loss of nutrients.

Links to other objectives

This objective links to Objective 10 on adopting high biodiversity landscape features, Objective 11 on organic agriculture, Objective 12 on the uptake of agro-ecological practices, and Objective 6 on the restoration of agro-ecosystems. However, the cost estimates provided below, focus only on the additional action required to achieve this objective, carefully excluding any costs related to the abovementioned objectives.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Adoption of the Integrated Nutrient Management Action Plan;
2. Actions to contribute to the goal of zero pollution by reducing nutrient losses from nitrogen and phosphorus fertilisers to amounts within safe planetary boundaries;
3. Adoption of the Zero Pollution Action Plan for Air, Water and Soil, including a set of indicators for the progressive reduction of pollution and establishment of baselines;
4. Adoption of a New EU Chemicals Strategy for Sustainability;
5. Actions by farmers to reduce nutrient losses by fertiliser use.

Action 13.1: Adoption of the Integrated Nutrient Management Action Plan

The delivery of this action refers to administrative processes within the Commission for developing the action plan and to consult with Member State authorities on the nutrient load reductions needed to achieve these goals, administrative processes within each Member State to consult with the Commission and to develop their own

nutrient reduction goals, as well as support from external specialised consultants to assist with expert knowledge the development of the Action Plan. In terms of the administrative processes within the Commission for the development of the Plan, it is assumed a high level of administrative services (i.e. 100% of 5 employees over 12 months) for a year from Commission staff to deliver the action plan in addition to high level administrative services for a year to consult with the relevant Member State authorities, totalling EUR 1,141,320 in 2022. With regard to the administrative services within each Member State for the development of their nutrient reduction goals and for discussions with the Commission, high administrative services from their relevant authorities is assumed, totalling EUR 6,061,230 for all 27 Member States together. In addition, for this Action Plan, one external study is assumed, estimated at EUR 250,000. We assume that the costs of implementing a plan are covered under Action 13.5.

Total action cost: **EUR 6.9 million in 2022**

Action 13.2: Actions to contribute to the goal of zero pollution by reducing nutrient losses from nitrogen and phosphorus fertilisers to amounts within safe planetary boundaries

This action is undertaken under the Fit for 55 framework and refers to the increase of implementation and enforcement efforts on current environmental legislation, in particular related to nitrogen and phosphorus pollution by fertilisers. For this action, one external study, estimated at EUR 250,000, is assumed in addition to administrative processes within the Commission for the development of the set of actions, which are assumed to be of medium level (50% of 2 employees over 12 months). This amounts to EUR 114,132 in 2022. The actual implementation of these enforcement actions on the ground in each Member State are costed under Action 13.5 below.

Total action cost: **EUR 0.3 million (EUR 364,132) in 2022**

Action 13.3: Zero Pollution Action Plan for Air, Water and Soil, including a set of indicators for the progressive reduction of pollution and establishment of baselines

This action is mentioned in Commission's tracking table for the implementation of the Biodiversity Strategy to 2030 (to be soon made publicly available as an online action management tool). However, the Zero Pollution Action Plan for Air, Water and Soil is an initiative that does not originate from the Biodiversity Strategy to 2030, but, as mentioned in the Strategy itself, the Zero Pollution Action Plan for Air, Water and Soil along with the new EU Chemicals Strategy for Sustainability as part of the Commission's Zero Pollution Ambition for a toxic-free environment. Therefore, the investment needs for the delivery of this Action Plan cannot be attributed to the Biodiversity Strategy to 2030, and thus, these costs are not included here.

Action 13.4: New EU Chemicals Strategy for Sustainability

Following the same logic as for Action 13.3 above, the funding that relates to the delivery of this action is not included in the estimation of the financing needs of the Biodiversity Strategy to 2030.

Action 13.5: Actions by farmers to reduce nutrient losses by fertiliser use

This action involves practical work taken by farmers to reduce nutrient losses by fertilisers they use in their fields as well as strengthened enforcement actions by each Member State's competent authorities to ensure that farmers comply with the new requirements. There are various types of measures that can reduce nutrient losses at farm level including new technologies, farm practices, construction of landscape elements, and financial incentives. Such measures include precision farming (Nutrients management plan, use of innovative approaches to minimise nutrient release, optimal pH for nutrient uptake, circular agriculture), winter soil cover and catch crops, cultivation of perennial energy crops, establishment of sediment ponds to retain nutrients, ban of specific types of soil cultivation during autumn and winter, etc. The costs for the implementation of these measures at farm level across the EU27 and the funding needs for the establishment and operation of the control mechanisms represent the funding needs for delivering this action.

Measures to be implemented at farm level

There are three main categories of measures to be costed. The first is 'Improving fertilisation management plans' for all agricultural sites, which includes soil analysis and additional technical support to the farmer. The second is 'crop solutions' including planting of catch crops and winter soil cover. The third is 'run-off solutions' including wetland and sediment ponds construction.

- The first category of measures (improving fertilisation management plans) is assumed to be taken by all agricultural sites in the EU27.
- Crop solutions (N-fixing and catch crops) are already a popular option among EU farmers, implemented in about 50% of total EU arable land in 2016 (for agricultural holdings above 15 ha).³⁹ The implementation of this solution requires that at least 5% of total land of an agricultural site is planted with such plants. Since there are already many agricultural holdings implementing this solution, we assume that the 'crop solutions' category would be implemented in additional 10% of total EU27 arable land (thus implemented in 60% of total agricultural land).
- In terms of "run-off solutions", it is assumed that 0.1% of all agricultural sites will implement such measures, as not all sites are compatible with this solution and one larger pond/wetland can serve more than one agricultural site.

³⁹ Alliance Environment (2017). Evaluation study of the payment for agricultural practices beneficial for the climate and the environment. Final report

For estimating the cost of the first category of measures we assume an average cost per farmer at around EUR 100 per agricultural holding for testing the soil and paying for technical assistance⁴⁰. Since many farmers are either obliged to perform these tasks or already do so voluntarily, we assume that this solution applies to 50% of all farms in the EU27. According to Eurostat's data⁴¹, there were 10.28 million agricultural holdings in 2016. Therefore, this solution would cost about EUR 514 million.

In terms of the costs of 'crop solutions', the implementation costs refer to seed purchasing and planting and ploughing effort. These costs have been estimated between EUR 10 and EUR 70 per hectare in France (Brittany) and between EUR 84 and EUR 180 in Italy (Lombardy).⁴² Therefore, for the implementation of this category of measures, we assume EUR 80 per ha cost on average. As this solution already covers about 50% of EU's agricultural land, we assume an increase of the implementation of this solution by 10% (thus reaching 60% of EU's agricultural land in total). According to Eurostat⁴³, farms used 154 million ha of land for agricultural production in 2016 (excluding the UK). Therefore, this solution will be implemented in an additional 15,400,000 ha of land (10% of total agricultural land). The implementation of this solution requires that at least 5% of total agricultural area of an agricultural holding is devoted to planting N-fixing or catch crops. Therefore, the total land to be planted with these crops is 770,000 ha. With an average cost per ha at EUR 80, the total cost for implementing 'crop solutions' for the reduction of nutrient losses across the EU 27 would be about EUR 61,600,000.

For the construction of run-off solutions, we assume an average cost of EUR 1,000 per pond/wetland based on estimations by Ockenden et al. (2012)⁴⁴. The cost for 0.1% of agricultural holdings to implement this solution would total EUR 10,282,720. Investment for implementing these activities is assumed to take place in 2023.

It should be mentioned that these measures are all cost-saving or profitable activities, so farmers will benefit financially by their implementation. Fertilisation management plans will reduce the fertilising costs as less fertiliser will have to be purchased by the farmers. Similarly, less fertiliser will be needed as sediment from the ponds/wetlands can be used as fertiliser by the farmers. In terms of N-fixing and catch crops, they have market value and, therefore, farmers can profit by them.

Compliance and enforcement action

⁴⁰ EUR 50 for soil testing and EUR 50 for seeking professional advice by an agriculturalist

⁴¹ Eurostat (ef_m_farmleg)

https://ec.europa.eu/eurostat/databrowser/view/ef_m_farmleg/default/table?lang=en

⁴² EC (2016). Resource Efficiency in Practice – Closing Mineral Cycles. Final report

⁴³ Eurostat (ef_lus_main)

https://ec.europa.eu/eurostat/databrowser/view/ef_lus_main/default/table?lang=en

⁴⁴ Ockenden et al. (2012). Evaluation of field wetlands for mitigation of diffuse pollution from agriculture: Sediment retention, cost and effectiveness. *Environmental Science & Policy* 24:110–119

As mentioned, to ensure that farmers do pick up the aforementioned measures and reduce nutrient loss from nitrogen and phosphorus fertilisers used in their fields, Member State authorities will have to undertake compliance and enforcement action. Public administration activities include:⁴⁵

1. Planning activities: development of enforcement strategies and annual inspection plans;
2. Control actions: inspection preparation, control action, and reporting;
3. Enforcement actions: actions taken in response to detection of non-compliance or illegal activity;
4. Compliance promotion activities.

For *planning activities*, each Member State will develop a strategy that lays out an enforcement approach and inspection requirements so that the relevant competent authorities have a “blueprint” for how to perform their duties particularly in relation to actions for nutrient loss reduction. We assume that for the development of this planning, high administrative services (i.e. 100% of 5 employees over 12 months) for a year will be required within the relevant ministry of each Member State, estimated at EUR 6,061,230 for all 27 Member States together in 2022.

For *control actions* and *enforcement activities*, it is assumed that a share of the total agricultural holdings will be selected in each Member State to be inspected per year with regard to their nutrient loss-related actions. These agricultural holdings will be either randomly selected by public authorities or in the event of detection of nutrient leaching (e.g. due to eutrophication of water bodies). Since inspections of farmland already take place in most Member States, we assume that the necessary administrative structures are already in place and that around 1% of total agricultural holdings across the EU27 would be additionally inspected per year. This translates to about 100 thousand additional agricultural holdings inspected per year. Based on the annual salary of a public administration employee (see section 2.2), it is estimated that the daily labour cost for an inspector is about EUR 170 on average across the EU27. For an inspection, it is assumed that two working days of an inspector are required, for the preparation of the inspection (i.e. agree on a date with the farmer in advance, prepare documentation and any related tools, etc.), for carrying out the inspection (i.e. go to and return from the place of inspection, control the agricultural field, collect samples, etc.), and reporting on the processes followed and the results of the inspection. In addition to inspector’s time, the costs for machinery and analysis of the samples collected is assumed to cost about EUR 50 per analysis. Therefore, the total cost per inspection is estimated at EUR 390. For 100,000 additional inspections per

⁴⁵ IEEP, Bio Intelligence Service and Ecologic Institute (2013). *Information collection and impact assessment of possible requirements for environmental inspections in the area of EU legislation on water, nature protection and trade in certain environmentally sensitive goods*. Final report for the European Commission, DG Environment. Institute for European Environmental Policy, Brussels and London,

year, the cost of individual control actions is estimated at around EUR 39 million per year across the EU27 or 351 million between 2022 and 2030.

With regard to *compliance promotion activities*, relevant actions include information provision through the development of flyers that can be distributed to national/regional farmer associations and agricultural cooperatives, advertisements in agricultural news media, and consultative support through dedicated websites. Since these measures are more or less independent of the size of the agricultural sector of a country, we assume that on average a EUR 1 million budget per Member State will be required to implement such measures, totalling EUR 27 million for all Member States together.

Total action cost: **EUR 914 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 23: Per year cost estimates for delivering Objective 13 (in millions EUR)

2021	2022	2023	2024	2025	
	609.89	39	39	39	
2026	2027	2028	2029	2030	Total
39	39	39	39	39	92.89

Objective 14 – Plant three billion new trees in the EU (Increase the quality of forests and improve their health and resilience)

Definition

To deliver this objective, the Commission will develop guidelines on biodiversity friendly afforestation and reforestation in parallel with the new EU Forest Strategy. In addition, the Commission will publish a Roadmap for planting at least 3 billion additional trees in the EU by 2030. Special focus will be placed on urban areas and agro-forestry. After these actions by the Commission, Member States will plant three billion trees in various areas (e.g. forest, agro-forestry, urban, etc.).

Links to other objectives

Costs for restoration of forest and urban ecosystems are estimated under Objective 6. It is expected that restoration activities in these ecosystems will involve planting of additional trees; however, Objective 14 specifically focuses on expanding the tree-covered areas in the EU. Therefore, it is assumed that restoration actions under

Objective 6 is assumed to cover about 20% of the costs involved in the delivery of Objective 14.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. New EU Forest Strategy including a Roadmap for planting at least 3 billion additional trees in the EU by 2030;
2. Guidelines on biodiversity-friendly afforestation and reforestation and closer-to-nature-forestry practices;
3. Further develop the Forest Information System for Europe;
4. Plant of three billion trees across the EU.

Action 14.1: New EU Forest Strategy including a Roadmap for planting at least 3 billion additional trees

The delivery of this action requires administrative processes within the Commission for developing the new EU Forest Strategy and support from external specialised consultants to assist with additional information gathering. For these activities, one external study is assumed, estimated at EUR 250,000 and high level of administration services (i.e. 100% of 5 employees over 12 months) from the Commission to develop and deliver the Strategy, totalling EUR 570,660 both taking place in 2021. In addition to Commission's efforts, it is assumed that Member States also participated in the development of the Strategy and the Roadmap. For this, we assume medium level of administrative services within each Member State (50% of 2 employees over 12 months) for a year, totalling EUR 1,212,246 in 2021 for all 27 Member States together.

Total action cost: **EUR 2 million in 2021**

Action 14.2: Guidelines on biodiversity-friendly afforestation and reforestation and closer-to-nature-forestry practices

Similarly to the action above, the development of these guidelines would require administrative processes within the Commission and potential assistance from external specialised consultants. The level of administrative services is assumed to be medium (50% of 2 employees over 12 months) for three years to publish guidance and oversee Member State action, totalling 342,396 in 2021, and one supporting study is assumed to take place in the same year, estimated at EUR 250,000. As in Action 14.1, it is assumed that Member States also participated in the development of the guidelines through consultations with the Commission. For this we assume additional medium level of administrative services within each Member State (50% of 2 employees over 12 months) for a year, totalling EUR 1,212,246 in 2021 for all 27 Member States together.

Total action cost: **EUR 1.8 million in 2021**

Action 14.3: Further develop the Forest Information System for Europe

Since the database is already in place and only an expansion is required, only administrative processes within the Commission and the EEA are foreseen for delivering on this action. It is assumed that a medium level (50% of 2 employees over 12 months) of administrative processes will be required for a year. This amounts to EUR 114,132 in 2022.

Total action cost: **EUR 0.1 million (EUR 114,132) in 2022**

Action 14.4: Plant of three billion trees across the EU

This requires Member State action. Having the Roadmap as a starting point, Member States will develop plans for planting their share of trees in their own countries. The funding needs of this action refer to public administration services in each Member State to identify suitable areas and develop a plan for their afforestation. For this, high level of administrative services (100% of 5 employees over 12 months) is assumed for each Member State, totalling EUR 6,061,230 in 2022.

To oversee progress towards this target, we assume that extra administrative efforts by each Member State until 2030 will be required. For this, a low level of administration is assumed (10% of 2 employees over 12 months) each year between 2023 and 2030, totalling EUR 1,939,593 for all 27 Member States together. The planting of the trees itself has already been costed by the Commission at EUR 8 billion until 2030 and is included in the annex of the Roadmap⁴⁶. The cost estimate includes costs for soil preparation, planting and thinning and models the potential land conversion area for each Member State.

Since restoration actions under Objective 6 is assumed to cover about 20% of the costs involved in the delivery of this objective, meaning that EUR 6.4 million will be required by 2030. As this massive afforestation project cannot take place in just one year, costs are spread evenly between 2023 and 2030 (EUR 800 million per year).

Total action cost: **EUR 6.4 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 24: Per year cost estimates for delivering Objective 14 (in millions EUR)

2021	2022	2023	2024	2025
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⁴⁶ SWD(2021) 651 final

3.84	6.18	800.24	800.24	800.24	
2026	2027	2028	2029	2030	Total
800.24	800.24	800.24	800.24	800.24	6,412

Objective 15 – Make significant progress in remediating contaminated soil sites

Definition

In its proposed framework directive, the 2006 Soil Thematic Strategy proposed MS should identify potentially CS, assess their risk to human health and the environment, and remediate those which pose a significant risk. To support the identification of sites they suggested defining contaminated sites and a list of potentially polluting activities. Building on this, MS should set up inventories of contaminated sites, a mechanism for funding the remediation of orphan sites, a soil status report, and a national strategy for remediation of identified contaminated sites. Despite its withdrawal, these proposed actions remain relevant to achieving decontamination. In fact, the ZPAP published in May 2021, confirms that the new EU soil strategy will support the development of measures to identify, investigate, assess and remediate contaminated sites.

Links to other objectives

N/A

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Actions at MS level to identify contaminated soil sites and restore degraded soils, defining the conditions for their good ecological status, introducing restoration objectives, and improving the monitoring of soil quality
2. Addressing soil sealing and rehabilitation of contaminated brownfields in the Strategy for a Sustainable Built Environment
3. Solutions for restoring soil health and functions under Horizon Europe mission in the area of soil health and food

Action 15.1 Adoption of sustainable soil management practices, including as part of the CAP & Revision of the Thematic Strategy for Soil Protection

This action will include high administrative costs for the Commission in order to assist the adoption of sustainable soil management practices, enhancing farmer advisory services, identifying priority actions to address knowledge gaps, and implementing the international protocol for assessing sustainable soil management

up to 2022, amounting to EUR 570,660. In addition, one support study with consultants who specialise in soil policy will be required (EUR 250,000). Finally, low administrative costs for the Commission to follow-up on Member State action (EUR 205,438) from 2022-2030.

Total action cost: **1 million by 2030**

Action 15.2: Actions at MS level to identify contaminated soil sites and restore degraded soils, defining the conditions for their good ecological status, introducing restoration objectives, and improving the monitoring of soil quality

This action consists of two sub-actions: 1) Spatial planning of remediation activities in each MS; 2) Practical restoration work of contaminated soils in each MS. The estimated costs of these actions would depend on the scale of remediation works to be undertaken. An Ernst and Young (2013)⁴⁷ study found that the implementation of a Soil Framework Directive which would theoretically require MS to remediate 20% of identified contaminated sites would cost an additional EUR 1.85 billion (1.96 bn in 2021) / yr across all MS. Given that this included the UK, we have assumed an equal cost to all MS to estimate a cost across the EU27 at 1.26 billion (1.96bn / 28 = EUR 70million per MS /yr, therefore 1,96bn-70m = 1.26bn). This estimate includes the costs associated with the identification of potentially contaminated sites, the registration of potentially contaminated sites, remediation activities and administrative costs.

Total action cost: **EUR 11.3 billion by 2030.**

Action 15.3: Addressing soil sealing and rehabilitation of contaminated brownfields in the Strategy for a Sustainable Built Environment

To address soil sealing and brownfield rehabilitation, the Commission will propose measures to be integrated in new Soil Strategy. To do so is expected to require high administrative services from the Commission (100% of 5x staff full time, average FTE cost for Commission staff- EUR 570 660), up to the adoption of the Soil Strategy expected in 2021. Similarly, high administrative services of MS can be expected here, including consultations required with the Commission and through finding common ground on the suite of measures to be proposed (100% of 5x staff full time, EUR 224 490).

Total action cost: **EUR 6.6 million by 2022.**

Action 15.4: Solutions for restoring soil health and functions under Horizon Europe mission in the area of soil health and food

As a final action under Objective 15, the Commission will prepare contributions to the Horizon Europe mission in the area of soil health and food. These contributions will be

⁴⁷ https://ec.europa.eu/environment/soil/pdf/Soil_contamination_expenditure_jobs.pdf

in line with the objectives and targets of the EU Green Deal, Biodiversity Strategy to 2030, and the Farm to Fork Strategy. This action is assumed to require high level administrative processes (100% of 5 employees for 12 months) within the Commission to develop the agenda and its evaluation framework, estimated at EUR 570,660 in total in 2022. Overseeing the implementation biodiversity research agenda is assumed to give rise to annual low level administrative services within the Commission, estimated at EUR 22,826 per year or EUR 205,437 between 2022 and 2030.

Total action cost: **EUR 0.8 million (EUR 776,098) by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 25: Per year cost estimates for delivering Objective 15 (in millions EUR)

2021	2022	2023	2024	2025	
7.09	1,260	1,260	1,260	1,260	
2026	2027	2028	2029	2030	Total
1,260	1,260	1,260	1,260	1,260	11,348

Objective 16 – Restore at least 25,000 km of free-flowing rivers

Definition

To deliver this Objective, Member States will have to restore free-flowing rivers by mainly removing or adjusting barriers that prevent the passage of migrating fish and improving the flow of water and sediments. To that end, the Commission will publish a technical guidance to Member States on how to identify river obstacles whose removal would achieve the highest environmental benefits and will provide technical support to Member States on their measures to review water abstraction and impoundment permits and to restore ecological flows in the revised River Basin Management Plans.

Links to other objectives

As this Objective refers to restoration of riverine ecosystems it partially overlaps with Objective 6. To deal with this overlap, we assume that the nature restoration targets of Objective 16 are covered by the restoration costs estimated under Objective 6 and only the accompanying actions involved in delivering Objective 16 are costed here. This Objective is also linked to Objective 24 in ensuring cross-border cooperation in environmental protection initiatives.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Technical guidance and support to Member States to identify sites and help mobilize funding for the restoration of 25,000 km of free-flowing rivers;
2. Technical support to Member States on their measures to review water abstraction and impoundment permits and to restore ecological flows in the revised River Basin Management Plans;
3. Review of water abstraction and impoundment permits to implement ecological flows in order to achieve good status or potential of all surface waters, as part of the revised RBMP;
4. River restoration work in each MS (including removal or adjustment of barriers and restoration of floodplains) to reach the 25,000 km target.

Action 16.1: Technical guidance and support to Member States to identify sites and help mobilize funding for the restoration of 25,000 km of free-flowing rivers

The target to achieve at least 25,000 km of free-flowing rivers aims at supporting the restoration of freshwater ecosystems and the natural functions of rivers in order to achieve the objectives of the Water Framework Directive. This can be done by removing or adjusting barriers that prevent the passage of migrating fish and improving the flow of water and sediments. The technical guidance aims at supporting Member States in selecting the obstacles whose removal would achieve the highest environmental benefits, in the most efficient way, and in identifying possible funding sources.

For developing the guidance, it is assumed that it would require assistance from external specialised consultants and administrative processes within the commission for drafting the document and facilitate quarterly Strategic Coordination Group meetings. For these activities, one external study is assumed, estimated at EUR 250,000, and high level of administration services (i.e. 100% of 5 employees over 12 months) from the Commission for a year, which amounts to EUR 570,660 in 2021 as well as low administrative support by the Commission (i.e. 10% of 2 employees over 12 months) on an annual basis for following Member State action, totalling EUR 22,826 per year or EUR 228,264 by 2030. In addition to Commission's efforts, it is assumed that Member States will also have to participate in the development of the guidance, providing inputs where knowledge of the national context is necessary. For this, we assume medium level of administrative services within each Member State (50% of 2 employees over 12 months) for a year, totalling EUR 1,212,246 in 2021 for all 27 Member States together.

Total action cost: **EUR 2.3 million by 2030**

Action 16.2: Technical support to Member States on their measures to review water abstraction and impoundment permits and to restore ecological flows in the revised River Basin Management Plans

To assist Member States in carrying out a review of permits and to restore ecological flows, technical support will be provided on how to define ecological flows by providing an inventory of methods used by MS to set ecological flows; and by fostering exchange of best practices. For these activities, again, one external study is assumed, estimated at EUR 250,000, and medium level of administration services (i.e. 50% of 2 employees over 12 months) from the Commission for a year, which amounts to EUR 114,132 in 2021. The Commission may also choose to provide funding for administrative action by Member States; but this would be based on costs covered in Action 16.3 below.

Total action cost: **EUR 0.3 million (EUR 364,132) in 2021**

Action 16.3: Review of water abstraction and impoundment permits to implement ecological flows in order to achieve good status or potential of all surface waters, as part of the revised RBMP

The review of water abstraction and impoundment permits will be performed by Member States to ensure appropriate ecological flows to achieve good status or good potential of all surface waters and good status of all groundwater by 2027, as required by the Water Framework Directive, and taking into account climate impacts. For this, a high level of administrative activities (i.e. 100% of 5 employees over 12 months) within each Member State competent authority is assumed. This amounts to EUR 6,061,230 in 2023.

Total action cost: **EUR 6.1 million in 2023**

Action 16.4: River restoration work in each MS (including removal or adjustment of barriers and restoration of floodplains)

Member States will implement this action. As this target is closely related to the good status objective of the Water Framework Directive, the assessment of the 3rd River Basin Management Plans (RBMPs) planned for the 3rd quarter of 2023 will provide an overview of the state of rivers in the EU, and on progress made in 6 years since the previous assessment. This action involves various activities at Member State level.

More specifically, it requires spatial planning of riverine restoration in each Member State and practical restoration of degraded ecosystems. For the spatial planning, it is assumed that each of the 27 Member States will undertake at least one mapping and spatial planning study or equivalent work in-house, which would result in EUR 6,750,000 (EUR 250,000 per study) in 2022. Using these studies, Member State authorities will proceed to complete a detailed inventory, feasibility and techno-

economic study of barrier removal, development of action and financing plans. For this, high administrative services are assumed in each Member State for a year, totalling EUR 6,061,230 for all Member States together in 2022. The expenditure required for the actual restoration work is covered by the cost estimation of Objective 6 and, therefore, it is not included in the cost of this objective.

Total action cost: **EUR 12.8 million in 2022**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 26: Per year cost estimates for delivering Objective 16 (in millions EUR)

2021	2022	2023	2024	2025	
0.71	14.55	6.08	0.02	0.02	
2026	2027	2028	2029	2030	Total
0.02	0.02	0.02	0.02	0.02	21.49

Objective 17 – Substantially reduce the negative impacts of fishing, extraction and other human activities, including on sensitive marine habitats and species, and eliminate or reduce the by-catch of species to a level that allows their recovery and conservation.

Definition

Since fisheries policy, in particular the conservation of marine biological resources and management of fisheries exploiting them, is an exclusive competence of the European Union, it is up to the EU to define any fisheries-related measures, with implementation then taking place largely at Member State level. The CFP provides also for a possibility for Member States to come forward with fisheries-related measures through regionalisation for adoption by the Commission. The delivery of this objective by the Commission entails the development of an action plan to conserve fisheries resources and protect marine ecosystems, taking decisions to reduce fishing efforts in different EU seas and to ensure that fishing techniques and fishing gears are more sustainable/environmentally friendly, and reviews of national maritime spatial plans submitted by MS in order to address other extractive activities. In terms of MS action, the delivery of this Objective requires the development of national maritime spatial plans following the ecosystem-based approach, the reduction of fishing pressure at levels compatible with a fishing mortality at or under MSY and the establishment (within the CFP mandate) implementation, and ultimately enforcement of fisheries conservation and necessary management measures . No literature could be identified

which estimates the relative damages of extractive industries on biodiversity in EU waters, nor actions (and their costs) to tackle such activities. Thus, we have predominantly focused on fishing activities throughout (although dredging value are also included). Therefore, the costs estimated under this action may be partially underestimated.

The delivery of this Objective also refers to the elimination or substantial reduction of by-catch of certain species by fishermen. To that end, the Commission will have to financially support fishermen to transition to more selective and less damaging fishing methods, establish threshold values for seabed integrity, and ensure that all MS monitor by-catch and collect data. MS action refers to the establishment of such monitoring schemes and fishermen action refers to additional effort for by-catch reporting.

Links to other objectives

Measures related to marine protected areas are included under Objective 1 and will have to be effectively managed under Objective 4. The bycatch of species has significant impacts on ecosystems structure, species diversity and general biodiversity of habitats. It also poses a significant pressure on sensitive or threatened marine species that are often already under protection. In addition, the impacts of by-catch are difficult to assess and therefore present a significant gap in species and fish stock assessments. As such, the elimination and/or reduction of by-catch is important to the successful implementation of Objective 17. In addition, strong linkages to Objective 7 are present- as measures to reduce, for example, damages to marine habitats and species are likely to benefit species included within the Nature Directives. Finally, this commitment is also linked to Objective 35 concerning IUU fishing practices.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. New action plan to conserve fisheries resources and protect marine ecosystems;
2. Maintain or reduce fishing mortality at or under MSY;
3. Ensure consistency of the national maritime spatial plans that will be submitted by Member States with the objectives of the strategy, and that they apply an ecosystem-based management approach;
4. Establish and ensure enforcement of fisheries conservation and management measures in all Marine Protected Areas according to clearly defined conservation objectives and on the basis of the best available scientific advice.
5. Commission incentivized, and Member State implemented, transition to more selective, low-impact and less damaging fishing activities and techniques in the long term through the EMFAF
6. Establish seabed integrity threshold values
7. Improve Monitoring of by-catch for all sensitive species

Action 17.1: New action plan to conserve fisheries resources and protect marine ecosystems

The overall objective of this initiative is to concretely exploit the synergies between the fisheries and environmental policies. More specifically, the initiative will contain recommendations and actions that in practice link the implementation of the common fisheries policy with environmental legislation and policy, notably the Birds, Habitats, and the Marine Strategy Framework Directives. The action plan will highlight areas where more can be done to protect sensitive species and habitats and will look into how the potentially negative effects of some fishing gear on the marine environment and seabed can be addressed. Based on the Roadmap for the Action Plan⁴⁸ the following actions are expected (acknowledging that this is an estimation- as the Action Plan is currently under development):

- 1) Identify actions needed to increase selectivity and reduce and where possible eliminate bycatch of sensitive species;
- 2) Explore ways and identify actions to significantly improve the implementation of fisheries management measures necessary to achieve the objectives of the environmental legislation by making full use of the possibilities under the CFP;
- 3) Identify measures that will be introduced to limit the use of fishing gear most harmful to biodiversity;
- 4) Build on the legal requirement for Member States to determine and achieve good environmental status for seabed integrity under the Marine Strategy Framework Directive;
- 5) Explore ways to secure a more effective inter-play between the possibilities provided for under the common fisheries policy to effectively contribute to the environmental objectives and Article 6 of the Birds and Habitats Directives and Article 15 of the Marine Strategy Framework Directive;
- 6) Strengthen the implementation of the relevant acquis;
- 7) Improve the availability and quality of marine knowledge and information;
- 8) Explore the possibilities under the EU funding instruments to support the objectives of the action plan.

Each of these actions are discussed below.

- 1) To eliminate the bycatch of sensitive species, it is assumed that vessels which have fishing gear which is not deemed selective⁴⁹, predominantly trawlers and dredgers, would be targeted to upgrade their fishing gear. Of the 74,903

⁴⁸ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12953-Action-plan-to-conserve-fisheries-resources-and-protect-marine-ecosystems_en

⁴⁹ <https://www.fao.org/3/y3427e/y3427e04.htm>

vessels⁵⁰ currently present in EU-27, 76% are considered active.⁵¹ Applying an average, one-off cost of upgrades of EUR 3000 per vessel⁵² to 76% of the total number of dredging and trawler vessels would require a one-off payment of EUR 20,271,000. This would likely require incentivisation schemes to ensure fisher uptake, or full cost coverage by MS authorities. Administrative related costs of this action are provided in action 17.5 below.

- 2) The costs of establishing fisheries management measures in MPAs are included within the analysis of Objective 2. Non-MPA area costs are assumed to take place under the CFP.
- 3) Costs are assumed to overlap with action 1, yet further costs are likely to be required to address damage to habitats, namely the seabed. These costs are assumed to be covered in action 4 below.
- 4) Determining good environmental status for seabed integrity will, as a first step, require enhanced knowledge – where costs are estimated under action 7. Following this, high administrative costs are assumed to be required between the Commission and MSs (assuming this is only applicable to the 20 MS with access to the sea). Here, high administrative costs for each MS will be required to establish seabed threshold values, confirm these with the Commission, fisheries regional groups and concerned Advisory Councils, and establish monitoring and reporting procedures. This amounts to EUR 20,392,800.
- 5) In order to ensure more effective interplay between the CFP, Nature Directives and MSFD, it is assumed that high administrative costs will be required from the European Commission. These costs are related to exploring the conflicts and synergies between these legislations, and then assessing how these issues can be alleviated/ further amplified through further actions. Such administrative costs are assumed to occur annually until 2030, estimated at a total of EUR 5,135,940. A consultancy study is expected to be required to complement this analysis- at EUR 250,000. This amounts to EUR 5,385,940.
- 6) Strengthening the relevant acquis is assumed to require MS to enhance their monitoring and reporting procedures to better inform environmental decision making at the EU-level. For this, it is assumed that MS will be expand upon current information reported, estimate at EUR 65,000⁵³ per MS, per annum until 2030 (total cost of 15,795,000 for EU-27). Annual high administrative costs will also be required of the Commission to ensure reporting standards are met, in

⁵⁰ EUROSTAT (2021) Fishing fleet by type of gear and engine power. Available at:

https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=fish_fleet_gp&lang=en

⁵¹ JRC, STECF (2021) The 2021 annual economic report on the EU fishing fleet (STECF 21-08)

⁵² Cost taken from: EC (2016) SWD 57 final, on the conservation of fishery resources and the protection of marine ecosystems through technical measures. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0057&from=EN>

⁵³ Average costs of reporting by MS of detailed information that should already be available- Taken from ICF et al., (2017) Support to the Fitness Check of monitoring and reporting obligations arising from EU environmental legislation

addition to integrating new information into strengthening EU environmental acquis. This amounts to EUR 20,930,940.

- 7) Improving the knowledge and availability of marine knowledge and information is expected to require additional detailed and extensive information which will require significant time to compile by MS- given the significant data gaps at EU level on, for example, marine habitat condition. This action would require further reporting obligations by MS to fill these gaps, estimated at an average cost of EUR 500,000 per MS, per annum to 2030. Each MS is expected to enrol the support of specialised consultants to assist in the gathering and dissemination of information/knowledge in each MS (at a cost of EUR 250,000 per MS). The European Commission is expected to incur high annual administrative costs in ensuring data compatibility, and dissemination of marine knowledge and information. The total amount required for this sub-action will be 133,385,940.
- 8) Finally, exploring the possibilities for EU funding instruments to support the objectives of the action plan is projected to require one-off medium administrative costs to the Commission, in addition to support from external specialised consultants, at a total one-off cost of EUR 364,132.

Total action cost: **EUR 200.7 million between 2021 and 2030**

Action 17.2: Maintain or reduce fishing mortality at or under MSY

Actions to maintain fishing mortality at MSY are assumed to take place under the CFP (Article 2 (2)). For the reduction of fishing mortality, further administrative processes within the Commission are foreseen to coordinate Member State action until 2030 and additional administrative processes within competent authorities, regional fisheries groups and Advisory Councils under the CFP. Commission processes are assumed to require high administrative services- costing EUR 5,135,940 to 2030. For the consultations between the regional sea competent authorities and local stakeholders, a high level of administrative services within MSs (with access to the sea) is assumed, estimated at EUR 40,408,200 to 2030 (to consult with relevant stakeholders, agree upon actions and targets, establish monitoring parameters and evaluate) complemented with a support study conducted by specialised consultants in each MS with access to the sea, at EUR 5,000,000 in 2022.

Total action cost: **EUR 50.5 million by 2030**

Action 17.3: Ensure consistency of the national maritime spatial plans that will be submitted by Member States with the objectives of the strategy, and that they apply an ecosystem-based management approach

The deliverable of this action will be a Commission report on the implementation of the Maritime Spatial Plans, including the application of the ecosystem-based management. For this report, it is assumed that support from external specialised

consultants will be needed with at least one study, estimated at EUR 250,000 in 2022. In addition, administrative process within the Commission will be required to develop the report. This is assumed to give rise to medium level administrative services (50% of 2 employees over 12 months) for year, in addition to annual medium level of administrative services (50% of 2 employees over 12 months) to ensure consistency and ongoing revision of national plans and engagement with MS, totalling EUR 1,027,188.

Total action cost: **EUR 1.3 million by 2030**

Action 17.4: Establish fisheries management measures in all Marine Protected Areas according to clearly defined conservation objectives and on the basis of the best available scientific advice

According to Objective 4, all existing Marine Protected Areas as well as all the new ones designated under the Biodiversity Strategy to 2030 will have to have clear conservation objectives and be effectively managed. Therefore, the cost of management and monitoring of the marine protected areas is already covered in the cost estimation of Objective 4.

Total action cost: **N/A**

Action 17.5: Commission incentivized, and Member State implemented, transition to more selective, low-impact and less damaging fishing activities and techniques in the long term through the EMFAF

This action mainly relates to financial support for fishing gear technology development and replacement, and transitioning to less damaging fishing techniques supported by EMFAF programmes to fulfil CFP implementation, achieve GES under the MSFD, and achieving WFD objectives.

EMFAF will support a series of actions, including the promotion of sustainable, low-impact and low-carbon fishing activities. To that end, the Commission will be required to monitor each Member State's programme to measure the overall contribution of the operations supported by the EMFAF to climate and environmental objectives. For this, high annual administrative costs are assumed to be required by the COM and MSs, for the development and monitoring/reporting of pre-defined climate and environmental markers attached to types of interventions (0%, 40% or 100%), and measuring the overall contribution of the operations supported by the EMFAF to climate and environmental objectives and targets set at EU level.

The total EMFAF 2021-2027 budget is EUR 6.1 billion, from which about EUR 5.3 billion is dedicated to co-financing national programmes. As Member States' programmes are under preparation but have not yet been formally submitted, the exact amount dedicated to the transition to less damaging fishing gear and techniques is not yet

known. The EMFF in the last MFF cycle (2014 -2020) contributed to this specific objective of the CFP, namely gradually reducing unwanted discard by reducing unwanted catches (Article 2(5) of the CFP Regulation). In 2020 Member States had committed 3 301 operations with a total EMFF funding of EUR 86 584 305 million⁵⁴. This investment partially also assists fishermen to finance innovation and investments that make fishing techniques and gear more selective and minimize unwanted catches, thus helping fishers catch only the fish they target. In 2015 the EU Landing obligation was also launched, which further triggered changes in operations and gear as well as investment in specific on-board equipment. The EMFF support also helped mitigate the consequences of the landing obligation unwanted catches that cannot be avoided, by improving infrastructure of fishing ports to facilitate their landing and storage as well as finding outlets for those catches without creating a structured market. For this purpose, in 2020 Member States had selected 4 111 operations with a total EMFF funding of EUR 147 658 071.⁵⁵ However, projecting how much funding will be required moving forward to transition to more selective, low-impact and less damaging fishing activities is not possible given the uncertainties of how successful previous efforts have been in achieving this, how much additional effort is required, and the lack of information available on MS investment (beyond EMFF funding) to tackle these issues. As such, the cost estimates under action 17.1 (1) are the best cost estimates available. Broader reduction in damaging fishing activities can be expected to stem from the implementation of the Marine Spatial Planning Directive (such as Article 4).

Total action cost: **EUR 45.5 million by 2030**

Action 17.6: Establish seabed integrity threshold values

This action will involve work on developing seabed integrity threshold values. Threshold values for seabed habitats, which define the quality to be achieved and the maximum extent of habitat loss and adverse effect, are to be defined at EU level in accordance with Commission Decision (EU) 2017/848. These thresholds are currently being developed by the Commission Expert Group on Strategic Coordination for the Marine Strategy Framework Directive in collaboration with the International Council for the Exploration of the Sea (ICES), who are developing scenarios for trade-offs between catch value/landings and seafloor protection and possible options for managing bottom fishing to achieve MSFD Good Environmental Status goals. High administrative processes within the Commission and by MS are foreseen here. This amounts to EUR 45,544,140 in 2022.

Total action cost: **EUR 45.5 million in 2022**

⁵⁴ EC (2021) FAME SU, EMFF implementation report 2020. Available at : https://ec.europa.eu/oceans-and-fisheries/system/files/2021-09/emff-implementation-report-2020_en.pdf

⁵⁵ EC (2021) FAME SU, EMFF implementation report 2020. Available at : https://ec.europa.eu/oceans-and-fisheries/system/files/2021-09/emff-implementation-report-2020_en.pdf

Action 17.7: Improve Monitoring of by-catch for all sensitive species

Monitoring of by-catch / incidental catches of sensitive species in fisheries is important for evaluating impacts of fishing vessels on those species, as well as for assessing progress and effectiveness of measures placed to protect and maintain sensitive species in healthy conditions. Monitoring procedures are currently in place under the DCF and Technical Measures, but to further improve monitoring schemes it is assumed that additional actions would be required. These are estimated in the following sections.

The Commission's proposal for a revised Fisheries Control regulation⁵⁶ requires for a minimum percentage of fishing vessels in all relevant Member States to be equipped with continuously recording Closed-Circuit Television (CCTV) systems incorporated into Remote Electronic Monitoring (REM) systems. In the accompanying Impact Assessment⁵⁷, it is estimated that the investment in ICT would amount to EUR 134.6 million over 5 years. However, such monitoring would have other primary functions than monitoring by-catch – such as monitoring fishing vessels position to help protect MPAs and fish stocks.

More accurate estimations have been made in a study on monitoring cetacean bycatch.⁵⁸ Here, the costs of installing and maintaining surveillance software was estimated at EUR 5,128 per vessel, whilst the reviewing of footage, management overhead (which includes reporting) was estimated at EUR 2,466 per vessel. If we assume that only vessels that only vessels with fishing gear which is not selective (i.e. the calculations used in Action 17.1: 5,342 trawlers, 1,415 dredgers) are targeted for surveillance, and of these only vessels which are above the average the average engine power of the EU fleet (75kW⁵⁹), this equates to a total cost of EUR 43,308,582 (1268 dredgers are equal to or greater than 75kW- of which 963 are calculated as being active; 6238 trawlers are equal to or greater than 75kW- of which 4740 are calculated as being active⁶⁰). In addition to these costs, it is expected that the management of the collected data will be required by the Commission, MSs and various end users across multiple legislation (such as the Nature Directives, MSFD, CFP, Technical Control Measures Regulation). Here, we assume medium administrative costs- calculated at EUR 9,108,828 to 2030.

⁵⁶ COM(2018) 368 final

⁵⁷ SWD(2018) 280 final

⁵⁸ Course (2021) Monitoring Cetacean Bycatch: An Analysis of Different Methods Aboard Commercial Fishing Vessels. ASCOBANS Secretariat, Bonn, Germany. 74 pages. ASCOBANS Technical Series No.1. Available at: https://www.ascobans.org/sites/default/files/publication/ascobans_ts1_bycatch-monitoring-methods.pdf

⁵⁹ EUROSTAT (2020) The EU fishing fleet is getting smaller. Available at:

<https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20200130-2>

⁶⁰ Here, the calculations in Action 17.1 are used in estimation of the number of vessels considered 'active'- 76%

Total action cost: **EUR 52.4 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 27: Per year cost estimates for delivering Objective 18 (in millions EUR)

2021	2022	2023	2024	2025	
55.29	42.6	42.6	42.6	42.6	
2026	2027	2028	2029	2030	Total
42.6	42.6	42.6	42.6	42.6	396.06

Objective 18 – Adopt ambitious Urban Greening Plans for cities with at least 20,000 inhabitants

Definition

The delivery of this Objective requires from the Commission to set up the EU Urban Greening Platform and to develop a guidance for cities on how to integrate healthy ecosystems, GI and NBS into urban planning, and access available funding streams. Once this is finalised each city in the EU with more than 20,000 inhabitants will develop and implement their own greening plans. The action essentially aims at ensuring that urban planning processes in all cities in the EU systematically incorporate Green Infrastructure thinking and Nature Based Solutions.

Links to other objectives

The implementation costs of this objective we assume cover the urban ecosystem restoration costs of Objective 6.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Set up the EU Urban Greening Platform under a new 'Green City Accord' with cities and mayors;
2. Technical guidance on urban greening and assistance to mobilise funding and capacity building for Member States, local and regional authorities, including for the development of Urban Greening Plans;

3. Adoption of Urban Greening Plans by all cities, including on-the-ground implementation of green infrastructure/NBS by all EU cities with populations above 20,000

Action 18.1: Set up the EU Urban Greening Platform under a new 'Green City Accord' with cities and mayors

The Urban Greening Platform aims to provide a coherent entity for cities to access information and support in setting up their Urban greening Plans, as well as a registration and publication space. Although its exact nature is not yet finalised, it will give access to different support mechanisms and information sharing tools. To develop this platform and operate every year until 2030, high administrative services within the Commission (100% of 5 employees over 12 months) is assumed per year. This amounts to EUR 570,660 per year or EUR 5,706,600 by 2030.

Total action cost: **EUR 5.7 million by 2030**

Action 18.2: Technical guidance on urban greening and assistance to mobilise funding and capacity building for Member States, local and regional authorities, including for the development of Urban Greening Plans

To ensure that all cities and municipalities have the information and guidance they need to integrate healthy ecosystems, GI and NBS into urban planning, the Commission will publish a guidance on urban greening. The guidance will also provide information on access to available funding streams for the development and implementation of the plans. For this action, one study from external specialised consultants is assumed, estimated at EUR 250,000 in 2021, and medium level of administrative services within the Commission, totalling EUR 114,132 in 2021.

Total action cost: **EUR 0.4 million (EUR 364,132) in 2021**

Action 18.3: Adoption of Urban Greening Plans by all cities >20,000 inhabitants

This action involves administrative processes within each city administration to develop the plans. For the development of each Urban Greening Plan, we assume a medium level of administrative services (50% of 2 public administration employees full time for 12 months) provided by each city's administration employees for five years for the development and implementation of a detailed greening plan, including research and data collection as well as citizen consultation. Based on own estimates, there are about 3,120 cities in the EU with population higher than 20,000 inhabitants. Using the average annual cost of a public administration employee across the EU27, the total cost for this action is estimated at EUR 44,898 per city per year or EUR 700,408,800 for all 3,120 cities together for five years between 2022 and 2026.

To cost the anticipated on-the-ground actions under ambitious urban greening plans, the following series of steps were undertaken. To estimate the appropriate area of interest, the total land cover of the EU-27 was estimated at 4,125,107 km²,⁶¹ of which approximately 489,212km² constitutes the total urban land area.⁶² It is further estimated that 3.9% of the EU total land area consists of city areas (165,004km²).⁶³ However, this includes all cities, not only those with populations above 20,000. Therefore, it is assumed that 75% of this area belongs to cities above 20,000 population. This equates to a total urban area of 123,753 km².

To estimate the cost of green infrastructure/NBS implementation per city, an estimate of a broadly representative cost per square kilometre of urban environment was developed, drawing on three typical actions that are often implemented as part of urban greening strategies:

1. Public open space park restoration for climate adaptation (EUR 1.4 million per park, drawing on data sourced from a Horizon 2020 NBS project)⁶⁴
2. Establishment of constructed wetlands in public open space, for urban run-off interception and passive treatment (EUR 139 per 0.5 hectare wetland construction (adjusted to EU 2021 prices, taken from Gunes et al., 2011)⁶⁵).
3. Installation of green roofs on urban buildings during new construction or renovations (EUR 222.51 per m² of green roof, each green roof assumed to cover 100m², cost estimate from GrowGreen project⁶⁶- adjusted to EU 2021 prices)

Costs for these actions were modelled on a city of 500,000 residents (Manchester) in which five park restoration projects are assumed over 10 years, 234 green roofs (an increase of 0.01% of total properties) and five constructed wetlands over this time

⁶¹ EUROSTAT (2021) Land cover overview by NUTS 2 regions. Available at: https://ec.europa.eu/eurostat/databrowser/view/LAN_LCV_OVW_custom_1335926/default/table?lang=en

⁶² World Bank (n.d.) Urban Land Area- European Union. Available at: <https://data.worldbank.org/indicator/AG.LND.TOTL.UR.K2?locations=EU>

⁶³ Data from the following reference estimates that 3.9% of EU total land area consists of city areas. From this we assume that 75% of this area consists of cities above 20,000 population (123,753km²). EUROSTAT (2016) Urban Europe- Statistics on cities, towns and suburbs. Page 3. Available at: <https://ec.europa.eu/eurostat/documents/3217494/7596823/KS-01-16-691-EN-N.pdf>

⁶⁴ <http://growgreenproject.eu/>

⁶⁵ Gunes et al., (2011). Construction and maintenance cost analyzing of constructed wetland systems. Water Practice and Technology, 6(3).

⁶⁶ Trinomics (2020) Grow Green, Compendium of Nature-based and 'grey' solutions to address climate- and water-related problems in European cities. Available at: <http://growgreenproject.eu/wp-content/uploads/2020/04/Compendium-of-NBS-and-grey-solutions.pdf>

period. These estimates were developed by the project authors to broadly reflect the outcomes of a 10 year urban greening strategy⁶⁷:

1. Park restoration- EUR 7 million
2. Wetlands- EUR 3.5 million.
3. Green roofs- EUR 5.2 million (using data on number of residential properties in Manchester⁶⁸, we assume that 0.01% of this equates to 234 green roofs installed per city)

Applying the sum of these costs (EUR 15,688,187) to the size of the city (115km²), to produce an average unit cost of urban greening plans estimated at EUR 135,711 per km², this produces a total cost of implementation of urban greening plans of EUR 16,787,730,343 across the EU-27 city area for populations above 20,000. This is spread equally over years 2023-2030.

Total action cost: **EUR 17.5 billion in 2030.**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 28: Per year cost estimates for delivering Objective 18 (in millions EUR)

2021	2022	2023	2024	2025	
0.93	140.65	2,239	2,239	2,239	
2026	2027	2028	2029	2030	Total
2,239	2,099	2,099	2,099	2,099	17,494

Objective 19 – Minimise or eliminate the use of pesticides in sensitive areas such as urban green areas

Definition

This objective will be considered as part of Objective 9 on the review and revision of the Sustainable Use of Pesticides Directive.

⁶⁷ In practice, different actions will be implemented in different cities. The purpose of this exercise was to establish a broadly representative cost structure.

⁶⁸ https://secure.manchester.gov.uk/info/200088/statistics_and_intelligence/2024/housing

Links to other objectives

Cost of Objective 9 completely covers costs of implementing this objective.

Costable actions

N/A

Total cost of the objective

N/A

Objective 20 – Halve the number of Red List species threatened by the introduction or presence of invasive alien species (IAS)

Definition

The delivery of this Objective requires the Commission and MS to step up the implementation of the EU IAS regulation and other relevant legislation and international instruments so that at least half of the Red List Species are not threatened by the accidental or deliberate introduction or presence of IAS. It involves the minimisation and where possible elimination of the introduction and establishment of alien species in the EU.

It is beyond the scope of this project to assess the range of Red List Species across the EU,⁶⁹ establish the link to IAS and then cost actions to reduce by half the number threatened by IAS. We note the proposed expansion of the list of IAS of EU concern to around 100 species by the end of 2022.⁷⁰

For the purposes of this study, we focus on the successful implementation of the IAS regulation, which is a holistic approach to IAS management that the project team assumes if implemented successfully will deliver the outcome sought by this Objective. The IAS Regulation entered into force in 2015, with restrictions and obligations for eradication or management of IAS of Union concern being implemented by 2019. Other structural aspects of the Regulation (such as the European Alien Species Information Network (EASIN) platform) have already been established.

As such, costings associated with this Objective relate to the continued implementation of the IAS Regulation and the cost of on-the-ground initiatives to manage and eradicate IAS within the EU.

⁶⁹ https://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm

⁷⁰ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12676-Updating-the-list-of-invasive-alien-species-threatening-biodiversity-and-ecosystems-across-the-EU_en

Links to other objectives

The on-the-ground implementation of measures to protect at least half of the Red List Species from the accidental or deliberate introduction or presence of IAS are assumed to overlap with Objectives 1 to 4 and Objective 6. Therefore, costs in this Objective are adjusted for IAS actions in Objectives 1 to 4 and 6.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Ongoing implementation of the EU Invasive Alien Species Regulation
2. On-the-ground action to prevent, eradicate and manage IAS

Action 20.1 Ongoing implementation of the EU Invasive Alien Species Regulation

The Commission with support from the JRC and EEA are responsible for the implementation of the EU IAS Regulation (e.g. update of the list of IAS of Union concern) as well as of international IAS aspects in CBD and Bern Convention. Relevant legislation and international agreements relate mainly to the minimisation of introduction of alien species into the EU environment by regulating pathways of introduction of IAS.

For implementation of the IAS regulation, administrative processes are assumed for launching infringement procedures, review of its application, update the list of IAS of Union concern and afterwards about every two years. For these, high administrative services are assumed for 2021 (100% of 5 employees over 12 months across the Commission, JRC and EEA), totalling EUR 570,660, and medium administrative services every two years (50% of 2 employees over 12 months), totalling EUR 114,132 every two years or EUR 570,660 until 2030.

Additionally, it is expected that one external support study will be required by specialist consultants (EUR 250,000). Lastly, high administrative processes within each Member State will also be required annually (100% of 5 full time employees) to administer activities in relation to IAS management, costing EUR 60,612,300 over 10 years across the 27 Member States.

Total action cost: **EUR 62 million by 2030**

Action 20.2 On-the-ground action to prevent, eradicate and manage IAS

For the purposes of this study, the on-the-ground costs of managing IAS within the EU is of interest. Estimating future IAS management costs is a notoriously challenging activity, and it is beyond the scope of this analysis to create a 'bottom-up' estimate based on expectations of future IAS incursions.

However, recent analysis has been undertaken on the total costs of IAS management within Europe through the Inva-Cost Project.⁷¹ This analysis distinguishes between management costs (defined as control-related expenditure, such as monitoring, prevention, management, eradication, research, communication, as well as expenditure on education and maintenance costs), and 'damage-loss' estimates including resource loss. The latter are considered out of scope of this analysis.

Based on historical data and noting the trend for rising annual costs for IAS management, the analysis projects forward costs to 2020. Adjusting for EU data (excluding other European countries) and taking the proportion of management costs to damage-loss costs and applying these to 'unspecified' costs (which combine damage-loss and management costs), produces an annual management cost for the EU of 7.52 billion annually. Consultation with IAS experts for this project suggest this scale of investment would need to be at least doubled to meet the needs of the Strategy.

We further note that IAS management costs are also needed for human health and other causes (e.g. agriculture and forestry), meaning only a proportion of total management costs should be included in this Objective. We take the conservative estimation that 50% or EUR 3.76 billion be included annually from 2021 to 2030.

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 29: Per year cost estimates for delivering Objective 20 (in **million EUR**)

2021	2022	2023	2024	2025	
3,767	3,767	3,767	3,767	3,767	
2026	2027	2028	2029	2030	Total
3,767	3,767	3,767	3,767	3,767	37,667

⁷¹ <https://neobiota.pensoft.net/article/58196/element/2/13//>

Objective 21 – Create win-wins for energy generation

Definition

This objective aims at delivering a more sustainable and biodiversity-proof policy framework for bioenergy. The main result of this objective will be the review and revision, where necessary, of the level of ambition of RED, ETS, and LULUCF. To that end, a number of actions will have to be undertaken by the Commission, including the assessment of the EU and global biomass supply and demand and related sustainability issues, review of the data on biofuels with high indirect land-use change risk, and a study on the sustainability of the use of forest biomass for energy production. In addition the Commission will develop an operational guidance on the new sustainability criteria on forest biomass for energy and has already published a guidance document on wind energy developments and EU nature legislation (C(2020) 7730 final).

Costing for this objective is incomplete at this stage, and will require additional work to establish appropriate implementation costs.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Assessment of the EU and global biomass supply and demand and related sustainability;
2. Operational guidance on the new sustainability criteria on forest biomass for energy;
3. Review of the data on biofuels with high indirect land-use change risk and setting up of a trajectory for their gradual phase out by 2030;
4. Minimised use of whole trees and food and feed crops for energy production;
5. Prioritised renewable energy solutions favourable to biodiversity;
6. Review and revision, where necessary, of the level of ambition of RED, ETS, and LULUCF;
7. Study on the sustainability of the use of forest biomass for energy production.

Action 21.1: Assessment of the EU and global biomass supply and demand and related sustainability

The Commission will have to deliver an assessment study on the current and future sources and uses of biomass from all primary production sectors. For this work undertaken by the JRC to deliver the assessment is undertaken. We assume high

administrative services (100% of 5 employees over 12 months across the JRC and EC DGs) in 2021 to deliver the assessment, estimated at EUR 570,660 in 2021.

Total action cost: **EUR 0.6 million (EUR 570,660) in 2021**

Action 21.2: Operational guidance on the new sustainability criteria on forest biomass for energy

The Commission will have to deliver an assessment study on the global biomass supply and demand its sustainability. For this action one support study by specialised consultants is assumed, totalling EUR 250,000 in 2021. In addition, work undertaken by the Commission to deliver the guidance is assumed to have caused low administrative services (10% of 2 employees over 12 months) in 2021, estimated at EUR 22,826.

Total action cost: **EUR 0.3 million (EUR 272,826) in 2021**

Action 21.3: Review of the data on biofuels with high indirect land-use change risk and setting up of a trajectory for their gradual phase out by 2030

Under this action, the data on certain biofuels will be reviewed. For this action, one support study is assumed, totalling EUR 250,000 in 2021, low administrative services within the Commission (10% of 2 employees over 12 months) in 2021, estimated at EUR 22,826.

Total action cost: **EUR 0.3 million (EUR 272,826) in 2021**

Action 21.4: Minimised use of whole trees and food and feed crops for energy production

This action refers to the development of the framework so that the use of whole trees and specific crops to not be used for energy production. Therefore, it does not entail any costs as these are targets to be solely delivered by Actions 22.2 and 22.6.

Total action cost: **EUR 0**

Action 21.5: Prioritised renewable energy solutions favourable to biodiversity

The Commission together with the Offshore Renewable Energy Strategy will publish a guidance document on wind energy developments and EU nature legislation. This objective also relates to Objective 17, specifically in terms of maintaining seabed integrity and respecting migratory routes of sensitive species. The anticipated costs refer to staff salaries for at the Commission for the development of the guidance. This is assumed to require medium administrative services (50% of 2 employees over 12 months) in 2021, estimated at EUR 114,132.

Total action cost: **EUR 0.1 million (EUR 114,132) in 2021**

Action 21.6: Review and revision, where necessary, of the level of ambition of RED, ETS, and LULUCF

The Commission will review and, if necessary, revise the level of ambition of the Renewable Energy Directive, the Emissions Trading Scheme, and the Regulation on land use, land use change and forestry (LULUCF). At least one study to support the review of each of these three interventions is assumed, including consultations with relevant stakeholders and Member State authorities, totalling EUR 750,000 in 2023. Additional costs are expected by the high level of administrative services (100% of 5 employees over 12 months) within the Commission to manage and deliver the three reviews in 2023, estimated at EUR 570,660. In addition, a low level of administrative services by each MS (10% of 2 employees over 12 months) is assumed for revision and feedback on ambitions, estimated at EUR 8,980 per Member State or EUR 242,449 for all 27 MS together.

Total action cost: **EUR 1.6 million in 2023**

Action 21.7: Study on the sustainability of the use of forest biomass for energy production

The study was undertaken by the JRC and published in January 2021. It is assumed that it gave rise to medium level administrative processes (50% of 2 employees over 12 months), estimated at EUR 114,132 in 2021.

Total action cost: **EUR 0.1 million (EUR 114,132) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 30: Per year cost estimates for delivering Objective 21 (in millions EUR)

2021	2022	2023	2024	2025	
1.34	-	1.56	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	2.9

Objective 22 – Establish a strengthened European biodiversity governance framework

Definition

The Commission will establish a new non-binding biodiversity governance framework with the aim to: (i) map biodiversity obligations and objectives and set out a roadmap for implementation; (ii) enable monitoring, accountability and progress review based on a clear set of agreed indicators; (iii) provide a mechanism for corrective action / scaling up action if necessary; (v) ensure co-responsibility by relevant actors in meeting the objectives, (vi) better link with relevant processes in other policy areas and governance levels, and (vii) support the strengthening of administrative capacity, transparency, stakeholder dialogue and participatory governance. The Commission will assess the effectiveness of the governance framework in 2023 and may launch an initiative to consider a binding framework.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Establishment of a new cooperation-based European biodiversity governance framework, including a monitoring and review mechanism;
2. Assessment, in 2023, of the effectiveness of the new cooperation-based biodiversity governance framework, and of need for an enhanced, legally binding or other, approach to biodiversity governance.

Action 22.1: Establishment of a new cooperation-based European biodiversity governance framework

The Commission is developing a new governance framework for biodiversity action, including a monitoring and review mechanisms with a full set of indicators. This involves discussions with the Commission and the EEA as well as Member States and other stakeholders on the needs and scope of the governance framework. Therefore, the development of this framework is assumed to entail significant administrative processes within the Commission and costs for attending and organising meetings, as well as from Member States and stakeholders. A high level of administrative services (100% of 5 employees over 12 months) within the Commission is assumed for the initial development of the governance framework, estimated at EUR 570,660 in 2021, as well as a fixed amount, at EUR 20,000 for organising and attending meetings between different Commission's services as an one-off. Since this new framework will involve a lot more input from both the Commission and Member State authorities,

additional ongoing administrative processes from Member States and the Commission will be required. It is assumed that medium level additional annual administrative services in each Member State will be required, estimated at EUR 448,980 per Member State for ten years or EUR 12,122,460 for all 27 Member States together between 2021 and 2030. In addition, a medium level annual increase of administrative services within the Commission is assumed, estimated at EUR 1,141,320 in total between 2021 and 2030.

Total action cost: **EUR 0.6 million (EUR 590,660) in 2021 and EUR 13.9 million in total by 2030**

Action 22.2: Assessment, in 2023, of the effectiveness of the new cooperation-based biodiversity governance framework

The Commission will review and assess the effectiveness of the governance framework in 2023. For this, one study from external specialised consultants is assumed in addition to Commission’s administrative processes. A fixed amount is assumed for each support study at EUR 250,000 and a medium level of administrative services is foreseen in this case, estimated at EUR 114,132. Both expenses will be realised in 2023.

Total action cost: **EUR 0.3 million (EUR 364,132) in 2023**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 31: Per year cost estimates for delivering Objective 22 (in millions EUR)

2021	2022	2023	2024	2025	
1.92	1.33	1.69	1.33	1.33	
2026	2027	2028	2029	2030	Total
1.33	1.33	1.33	1.33	1.33	14.22

Objective 23 – Step up implementation and enforcement of EU environmental legislation

Definition

While the objective is broad in scope, and covers implementation of the full environmental acquis, we have assumed that the aspects which are most relevant to costing the delivery of the biodiversity strategy are those related to biodiversity legislation. In principle, other legislation should already be fully implemented by Member States, so the costs of further action cannot be regarded as additional.

All Member States will fully implement the Nature Directives and ensure the full implementation and enforcement of EU environmental legislation, specifically: (i) through the implementation of the MFSD's latest enforcement strategy to address non-reporting and lack of regional cooperation, (ii) reinforcing EU-wide networks to combat wildlife crime, (iii) revising the current Environmental Crime Directive to improve cross-border cooperation and law enforcement, and (iv) revising the Aarhus Regulation to better integrate NGOs in the scrutiny of EU actions impacting the environment.

Links to other objectives

The full implementation of the Nature Directives is costed under Objective 7, so none of those costs are included here.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Prioritising political support and financial and human resources to ensure that environmental-related legislation with an impact on biodiversity is better implemented, enforced and - if necessary - reviewed and revised
2. Improved environmental compliance assurance;
3. Review and possible revision of the Environmental Crime Directive (ECD);
4. Broaden the standing of NGOs by proposing a revision of the Aarhus Regulation.

Action 23.1: Prioritising political support and financial and human resources to ensure that environmental-related legislation with an impact on biodiversity is better implemented, enforced and - if necessary - reviewed and revised

This action is concerned with the full implementation of legislation relevant to biodiversity. This relates to the ongoing work on enforcement of the nature directives and full implementation of the Marine Strategy Framework Directive. It is still unclear the level of support that the Commission plans to provide. We assume that four predominant administrative actions will be required to achieve the objectives of this action: 1) review current enforcement procedures; 2) Review relevant legislation; and 3) issue enforcement proceedings to each Member State to address non-compliance. To complement these actions, 4) consultations with Member State will be required also. For administrative actions which require the Commission to implement reviews, we assume these will take place until 2025 in order to allow sufficient time to political support etc. is achieved by 2030. For the third administrative action listed above, we assume that this can only take place following the review, and will be implemented from 2025 onwards. Each of these administrative actions are calculated below.

- 1) The review of current enforcement procedures taking place in each Member State is expected to require additional Commission staff. A high level of administrative services (100% of 5 employees for 12 months), assumed to take place for five consecutive years is expected here, totalling EUR 2,853,300 between 2021 and 2025.
- 2) Reviewing Member State relevant legislation is likely to require high administrative services from the Commission, due to the scope and scale of legislation that is assumed to be reviewed. This is expected to require 100% of 5 employees, from 2021-2025.
- 3) Implementing enforcement procedures for each Member State based upon the reviews above is expected to require high administrative services from both the Commission and Member States from 2025-2030.
- 4) To complement the above actions, a low level of administrative services from both the Commission and the Member States is assumed for consultations and progress meetings. This amounts to EUR 22,826 per year or EUR 205,437 by 2030 for the Commission and to EUR 242,449 per year for all 27 Member States together or EUR 2,182,042 by 2030.

Total action cost: **EUR 47.9 million by 2030**

Action 23.2: Improved environmental compliance assurance

The Action Plan of 2018 on environmental compliance assurance and the Environmental Compliance and Governance Forum aim to support and promote legal compliance and combat environmental crime. In April 2020, a good practice document on combatting environmental crime was published, in addition to several other actions aimed at reinforcing the capacities of national environmental inspectors, police, prosecutors and judges working on nature-related infringements and crimes.

This includes work on training, national complaint-handling mechanisms, and geospatial intelligence. This action would involve medium administrative services (50% of 2 employees over 12 months) by the Commission, estimated at EUR 114,132, in addition to a EUR 20,000 fixed annual cost for organising and chairing conferences and forums between enforcement authorities in different Member States. Therefore, the cost for the Commission for this action amounts to EUR 134,132 per year or EUR 1,341,320 by 2030.

The most significant costs for the delivery of this action refer to implementation costs by Member State competent authorities, as they will have to improve their capacity in enforcing environmental compliance. According to the Fitness Check of Reporting and Monitoring of EU Environmental Policy⁷², the amount spent at the time of the Fitness

⁷² EC (2017). Fitness Check of Reporting and Monitoring of EU Environment Policy, Accompanying the document Actions to Streamline Environmental Reporting. SWD(2017) 230 final

Check on environmentally related compliance assurance, including monitoring, inspections, enforcement and permitting costs, could be between EUR 0.5 and EUR 1 billion per year across the EU28. Assuming a 10% increase in the capacities of public administrations for compliance assurance would result to an additional EUR 75 million per year on average across the EU or EUR 675 million in total between 2022 and 2030, or EUR 675,000,000 by 2030.

Total action cost: **EUR 0.7 billion (EUR 676.3 million) by 2030**

Action 23.3: Review and possible revision of the Environmental Crime Directive (ECD)

The ECD is the main horizontal instrument to protect the environment through criminal law. It requires Member States to define environmental crimes including wildlife trafficking and illegal killing or taking specimens of protected wild fauna or flora and to introduce criminal sanctions. Its evaluation, which has already taken place, found that although the ECD succeeded in creating an EU-wide catalogue of environmental crimes, practical law enforcement is poor in all Member States, while cross-border cooperation is rare. For this action, an evaluation has already been published while its review is planned to be published in the end of 2021. In addition, an Inception Impact Assessment is published in December 2020 and the public consultation was finalised in May 2021. For this action, we assume a medium level of administration services (50% of 2 employees over 12 months) by the Commission for a year as well as two studies by external specialised consultants to support the Commission in the review and Impact Assessment of the ECD. Based on this, the cost of this action is estimated at EUR 614,132 in 2022. A revision to the Directive would involve significantly greater resource, which we have not costed here, including negotiation and adoption by the co-legislators, and detailed implementation at Member State level.

Total action cost: **EUR 0.6 million (EUR 614,132) in 2022**

Action 23.4: Broaden the standing of NGOs by proposing a revision of the Aarhus Regulation

On 6 October 2021, the European Union adopted an amendment to the Aarhus Regulation No. 1367/2006 to allow for better public scrutiny of EU acts affecting the environment. The proposed amendments improve the possibilities to request that the EU institutions review such acts to better ensure environmental protection. For this action, we assume a medium level of administration services (100% of 5 employees over 12 months) by the Commission for a year, totalling EUR 114,132 each year from 2021-2030; this represents the staff required from both the Secretariat General and the various Directorates General in the estimation of the increase of applications as a result of the widening of the Aarhus Regulation's scope.

Total action cost: **EUR 1.1 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 32: Per year cost estimates for delivering Objective 23 (in millions EUR)

2021	2022	2023	2024	2025	
1.39	77.27	76.65	76.65	83.29	
2026	2027	2028	2029	2030	Total
82.15	82.15	82.15	82.15	82.15	725.98

Objective 24 – Launch a new initiative for sustainable corporate governance and support a European Business for Biodiversity movement

Definition

The aim of this action is to enact legislation that addresses human rights, environmental due diligence and care across value chains, support and cooperate business networks by improving biodiversity and nature capital integration in investment decisions, and revise the Non-Financial Reporting Directive so that a broader swathe of business actors is included in obligations, such as through new, mandatory reporting indicators (risk, impacts).

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Help to build an EU Business for Biodiversity movement;
2. New sustainable corporate governance initiative addressing human rights, and environmental duty of care and mandatory due diligence across economic value chains;
3. Review of the reporting obligations of businesses under the Non-Financial Reporting Directive in order to improve the quality and scope of non-financial disclosures, including on environmental aspects such as biodiversity.

Action 24.1: Help to build an EU Business for Biodiversity movement

This action refers to Commission support of and cooperation with networks of businesses (corporates and investors) for better integrating biodiversity and natural capital into their decision making through sharing and mainstreaming best practice by

businesses and facilitate business driven initiatives and frameworks for measuring and accounting for natural capital impacts and dependencies.

The aim is to promote and mainstream integrating biodiversity and natural capital into corporate decision making as a new normal and to develop generally accepted accounting principles and methodologies for natural capital and biodiversity for businesses. This involves the reinforcement of the EU Business@Biodiversity Platform as network of business networks and intensify the platforms cooperation with the growing number of pertinent networks such as Business for Nature, value balance alliance, WeValueNature, The_Shift, Capitals Coalition, UNEP WCMC, the Global Partnership Business and Biodiversity (GPBB under the CBD) or WBCSD with work streams concentrating on Natural Capital and Biodiversity measurement, connecting pioneering companies and Mainstreaming.

This action also seeks to connect and support the existing national B&B networks in the EU member states. This will be achieved through engaging in dedicated projects with businesses on their practice on natural capital accounting and biodiversity measurements to foster a network of corporates cooperating on natural capital. Ultimately, this aims to align management accounting principles for natural capital and biodiversity.

This is assumed to give rise to high level of administrative services (100% of 5 employees over 12 months) from the Commission in 2021 in addition to a cost for low-level annual administrative services (up to 2030) from the Commission to follow up on all these platforms. This amounts to EUR 593,486 in 2021 and EUR 798,924 by 2030.

Total action cost: **EUR 0.7 million (EUR 798,924) by 2030**

Action 24.2: New sustainable corporate governance initiative addressing human rights, and environmental duty of care and mandatory due diligence across economic value chains

The deliverable of this action will be a legislative proposal to address human rights and environmental duty of care and mandatory due diligence across economic value chains on land and sea. For this a public consultation has already been launched. For this action medium administrative services (50% of 2 employees over 12 months) by the Commission is assumed in addition to one support study by external specialised consultants. This amounts to EUR 364,132 in 2022.

Total action cost: **EUR 0.4 million (EUR 364,132) in 2022**

Action 24.3: Review of the reporting obligations of businesses under the Non-Financial Reporting Directive in order to improve the quality and scope of non-financial disclosures, including on environmental aspects such as biodiversity

The aim of this action is to broaden the scope of application (e.g. all large limited liability companies and all listed companies including listed SMEs, with the exception of listed microenterprises), likely to set mandatory reporting indicators (risk, impacts) and to require assurance. For this an Impact Assessment is expected to be undertaken. For this action, we assume a high level of administration services (50% of 2 employees over 12 months) by the Commission for a year as well as one study by external specialised consultants to support the Commission in the Impact Assessment. Based on this, the cost of this action is estimated at EUR 820,660 in 2021.

Total action cost: **EUR 0.8 million (EUR 820,660) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 33: Per year cost estimates for delivering Objective 24 (in millions EUR)

2021	2022	2023	2024	2025	
1.41	0.39	0.02	0.02	0.02	
2026	2027	2028	2029	2030	Total
0.02	0.02	0.02	0.02	0.02	1.98

Objective 25 – Strengthen the Commission’s biodiversity proofing framework to ensure that EU funding contributes to, and does not harm, biodiversity

Definition

The Commission's funding instruments support a variety of biodiversity-related investments; these funding instruments will be strengthened by: (i) supporting the use of criteria and methods (natural capital accounting and footprinting for example) in public and business sectors, (ii) improving the alignment of biodiversity measurement approaches in EU businesses through the ALIGN project.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Methods, criteria and standards to better integrate biodiversity considerations into public and business decision-making at all levels, and to measure the environmental footprint of products and organisations;
2. Promote an international natural capital accounting initiative;
3. Criteria and monitoring to boost NBS via legislation and guidance on Green Public Procurement;
4. Strengthened biodiversity proofing framework in order to ensure that EU funding supports biodiversity-friendly investments.

Action 25.1: Methods, criteria and standards to better integrate biodiversity considerations into public and business decision-making at all levels, and to measure the environmental footprint of products and organisations

This action refers to Commission support of the use of criteria and methods to support decision-making in the public and business sectors (including natural capital accounting, footprinting and others). This will include working with businesses to drive bottom up methods towards consensus and generally accepted principles and methods, as well as the Commission steering development and setting standards and regulation. Delivering this action would require only administrative processes within the Commission. The level of services needed is assumed to be medium (50% of 2 employees over 12 months) and that it takes place in 2021 (amounting to EUR 114,132), in addition to a support study by specialised consultants (EUR 250,000 in 2021). To further complement this, it is expected that a multi-year programme between the Commission and stakeholders would be required to develop necessary tools and guidance. This is projected to require low administrative costs up to 2030, in addition to a minimum of two workshops taking place per year up to 2030.

Total action cost: **EUR 0.9 million (EUR 929,569) in 2030**

Action 25.2: Promote an international natural capital accounting initiative

The Commission is fostering networks of corporates cooperating on natural capital in order to align internationally management accounting principles for natural capital and biodiversity. Through the Transparent Life Project, the Value Balancing Alliance and the Capitals Coalition a set of generally accepted environmental accounting principles is developed. The project ALIGN "Aligning biodiversity metrics for business and support for developing generally accepted accounting principles for natural capital" has been launched in March 2021, contributing to this action. The costs of this action comprise administrative processes within the Commission and the budget dedicated to the ALIGN project. A medium level of administrative services within the Commission is assumed, estimated at EUR 114,132 in 2021, and the budget for the 3-year long project ALIGN is assumed to be EUR 750,000 up to 2024.

Total action cost: **EUR 0.9 million (EUR 864,132) in 2024**

Action 25.3: Criteria and monitoring to boost NBS via legislation and guidance on Green Public Procurement (GPP)

Under this action the Commission will revise the current EU GPP criteria for office buildings, align the criteria with the recently published EU framework for sustainable buildings – Level(s) - and assess the possibility to expand the scope beyond office buildings only. This will be done by the Commission in collaboration with JRC. The process entails extensive consultations with stakeholders and it is planned to be finalised by end 2022. For this action, we assume a medium level of administration services (50% of 2 employees over 12 months) by the Commission and the JRC for the revision of the current EU GPP criteria for office buildings. In addition a support study is assumed to assist the Commission with the consultation activities. Based on this, the cost of this action is estimated at EUR 364,132 in 2022. Beyond this date, follow-up actions can be assumed to be required up to 2030, such as reviewing and updating guidance/tools developed, gather further stakeholder input etc. For this, we assume medium annual administrative services from the Commission.

Total action cost: **EUR 1.4 million in 2030**

Action 25.4: Strengthened biodiversity proofing framework in order to ensure that EU funding supports biodiversity-friendly investments

The implementation of this action requires operationalizing the 'do no harm' principle under the MFF and NextGenerationEU. It will also require ensuring that the 'sustainability proofing guidelines' under development in the context of InvestEU contain meaningful biodiversity provisions. Moreover, sustainability proofing guidelines are being adopted. Delivering this action will also require defining how to apply sustainability proofing to cohesion funds and in the CAP. A study is also expected to be launched to provide stakeholders with a toolbox for identifying environmentally (including biodiversity) harmful subsidies and identifying the social, economic and environmental impacts of their phasing out. For this action, we assume a medium level of administration services (50% of 2 employees over 12 months) by the Commission and a support study on environmentally harmful subsidies. The total cost for this is estimated at EUR 364,132 in 2022. Beyond this date, follow-up actions can be assumed to be required up to 2030. For this, we assume medium annual administrative services from the Commission.

Total action cost: **EUR 1.4 million in 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 34: Per year cost estimates for delivering Objective 25 (in millions EUR)

2021	2022	2023	2024	2025	
.48	1.27	0.54	0.54	0.22	
2026	2027	2028	2029	2030	Total
0.22	0.29	0.29	0.29	0.29	4.58

Objective 26 – Unlock at least EUR 20 billion a year for nature and ensure that a significant proportion of the 30% of the EU budget dedicated to climate action is invested in biodiversity and nature-based solutions

Definition

This action requires that both private and public funding instruments are mobilised to reach yearly target; specifically, this will require (i) mainstreaming and tacking of biodiversity in relevant EU Funds in line with the Commission Communication 'Europe's moment: Repair and Prepare for the Next Generation', (ii) implementing an EU-level framework of measures to assist in the favourable conservation status of habitats and species (as required by Art.8 of Habitats Directive), and (iii) implementation of a set of financial and advisory instruments for natural capital under InvestEU.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Development of an EU-level Prioritised Action Framework;
2. Dedicated natural capital and circular economy initiative in the range of €EUR10 billion over the next ten years;
3. Mobilisation of both private and public funding at national and EU level at least EUR 20 billion per year.

Action 26.1: Development of an EU-level Prioritised Action Framework

This action relates to the adoption of an implementing act that will set an EU level framework essential for the maintenance or re-establishment of habitats and species at a favourable conservation status and meet the related EU co-financing needs, as required by Art. 8 of the Habitats Directive. The funding needs of this action refer to administrative processes within the Commission in addition to an external support study estimated at EUR 250,000 in 2021. This is assumed to require a high level of

administrative services (100% of 5 employees over 12 months), estimated at EUR 570,660 in 2021 and 2022.

Total action cost: **EUR 0.8 million (EUR 820,660) by 2022**

Action 26.2: Dedicated natural capital and circular economy initiative in the range of EUR 10 billion over the next ten years

This action mostly intends to fund the other actions, specifically those related to natural capital and circular economy activities. It will be implemented through the development of financial and advisory products for natural capital under InvestEU, building upon the lessons learned from the EU Natural Capital Financing Facility implemented by EIB since 2014. An additional technical assistance/advisory component of EUR 50 million will be provided by LIFE to support this action, as well as an active dialogue with EIB. The funding needs of this action, therefore, refer to LIFE's EUR 50 million for the 2021-2027 programming period⁷³ and ongoing administrative processes within the Commission for seven years to manage the initiative. This is assumed to be of high level (100% of 5 employees over 12 months), estimated at EUR 570,660 per year or EUR 3,994,620 between 2021 and 2027.

Total action cost: **EUR 54 million by 2027**

Action 26.3: Mobilisation of both private and public funding at national and EU level

This action will require significant work to ensure effective mainstreaming and tracking of biodiversity in relevant EU funds (in particular under the CAP, CF and ERDF, EMFAF, Horizon Europe, NDICI, InvestEU etc.), both under the 2021-2027 MFF and NextGenerationEU in line with the 'Europe's moment: Repair and Prepare for the Next Generation'. The present study on the biodiversity tracking methodology in the MFF will also support this action. The total budget of this study is about EUR 500,000 in 2021. It is assumed that this action will also require medium level of ongoing administrative services (50% of 2 employees over 12 months) by Commission services, estimated at EUR 114,132 per year or EUR 1,141,320 between 2021 and 2030.

Total action cost: **EUR 1.6 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

⁷³ It is assumed that the EUR 50 million are equally divided between 2021 to 2027

Table 35: Per year cost estimates for delivering Objective 26 (in millions EUR)

2021	2022	2023	2024	2025	
5.72	0.97	0.68	0.68	0.68	
2026	2027	2028	2029	2030	Total
0.68	0.68	0.11	0.11	0.11	56.46

Objective 27 – Establish a common classification of economic activities that contribute to biodiversity, supported by the Renewed Sustainable Finance Strategy

Definition

Under this action, the Commission will publish guidelines in which all terminology in the realm of biodiversity-related initiatives is harmonised and agreed upon by MS; specifically, (i) a common classification of economic activities that substantially contribute to protection and restoration of biodiversity and ecosystems, and (ii) provide enabling frameworks for the European Green Deal Investment Plan and for the financial system to support a sustainable recovery from COVID-19.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Renewed Sustainable Finance Strategy;
2. Delegated act under the Taxonomy Regulation to establish a common classification of economic activities that substantially contribute to the protection and restoration of biodiversity and ecosystems.

Action 27.1: Renewed Sustainable Finance Strategy

This action will aim to ensure that the Renewed Sustainable Finance Strategy will aim to also facilitate mainstreaming of biodiversity considerations at every step of the financial system. The renewal of the Strategy is assumed to require medium level of administrative services within the Commission (50% of 2 employees over 12 months), estimated at EUR 114,132 in 2021 and one support study by external specialised consultants estimated at EUR 250,000 in 2021. To ensure that the strategy is followed up, it is assumed that ongoing administrative processes within the Commission will be required. These administrative services are assumed to be of medium level (50% of 2

employees for 12 months), estimated at EUR 114,132 per year or EUR 1,141,320 between 2022 and 2030,

Total action cost: **EUR 1.4 million by 2030**

Action 27.2: Delegated act under the Taxonomy Regulation to establish a common classification of economic activities that substantially contribute to the protection and restoration of biodiversity and ecosystems

The aim of this action is to establish a common classification of economic activities that substantially contribute to the protection and restoration of biodiversity and ecosystems. The Commission with the JRC are currently carrying out preparatory work for developing approaches for setting taxonomy criteria for economic activities making a 'substantial contribution' to biodiversity. For the delivery of this action high level administrative serves by the Commission and JRC is assumed (100% of 5 employees over 12 months), estimated at EUR 570,660 in 2021.

Total action cost: **EUR 0.6 million (EUR 570,660) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 36: Per year cost estimates for delivering Objective 27 (in millions EUR)

2021	2022	2023	2024	2025	
0.93	0.11	0.11	0.11	0.11	
2026	2027	2028	2029	2030	Total
0.11	0.11	0.11	0.11	0.11	1.96

Objective 28 – Encourage changes in national fiscal systems to shift tax burden from labour to pollution, resource use and other environmental externalities

Definition

Under this action, the Commission will encourage Member States to review their fiscal systems in a way that implements the polluter-pays principle, specifically in a way that has markets reflect biodiversity externalities and incentives to avoid biodiversity damage.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Advocate to Member States to revise their fiscal policies so that tax burden falls on polluters, not workers.

Action 28.1: Advocate to Member States to revise their fiscal policies so that tax burden falls on polluters, not workers

This action focuses on ensuring the full implementation of the Polluter Pays Principle, with markets reflecting biodiversity externalities and providing a full incentive to avoid biodiversity damage. The action is supported by a study from external specialised experts to support stakeholders in Member State actions and through the European Semester process. A fixed cost for such studies is assumed at EUR 250,000. The action is also assumed to give rise to low level ongoing administrative services within the Commission, estimated at EUR 22,826 per year or EUR 228,264 between 2021 and 2030.

Total action cost: **EUR 0.5 million (EUR 478,264) by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 37: Per year cost estimates for delivering Objective 28 (in millions EUR)

2021	2022	2023	2024	2025	
0.27	0.02	0.02	0.02	0.02	
2026	2027	2028	2029	2030	Total
0.02	0.02	0.02	0.02	0.02	0.49

Objective 29 – Introduce a new long-term strategic research agenda for biodiversity in the future Horizon Europe programme, set up a dedicated Biodiversity Partnership and a Knowledge Centre for Biodiversity

Definition

Under this action, Horizon Europe will introduce a new research agenda for biodiversity, the Biodiversity Partnership will subsequently develop a R&I initiative with the goal of putting European Biodiversity on the track to recovery by 2030, and a Knowledge Centre for Biodiversity is launched. This objective is linked to Horizon

Europe Missions, such as 'Restore our Ocean and Waters by 2030' and 'A Soil Deal for Europe.'

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Develop and introduce a new research agenda on biodiversity in Horizon Europe;
2. Establishment of a Biodiversity Partnership;
3. Establish a new Knowledge Centre for Biodiversity.

Action 29.1: Develop and introduce a new research agenda on biodiversity in Horizon Europe

Under this action, Horizon Europe's Cluster 6 'Food, Bioeconomy, Natural Resources, Agriculture and Environment' will include a long-term strategic research agenda for biodiversity. The funding needs of this action, therefore, will be the budget allocated to this agenda in addition to expenditure for the development of this strategic research agenda. The total budget for 'Food, Bioeconomy, Natural Resources, Agriculture and Environment' between 2021 and 2027 is almost EUR 9 billion.⁷⁴ We assume that the biodiversity agenda will receive at least EUR 1 billion until 2027. The development of the additional agenda within Horizon Europe it is assumed to require evidence gathering, development of a strategy to which the new agenda will contribute, and a monitoring and evaluation framework to track progress and impact. For this, an external support study is assumed, estimated at EUR 250,000 in 2021, and high level administrative processes (100% of 5 employees for 12 months) within the Commission divided into two years to develop the agenda and its evaluation framework, estimated at EUR 570,660 in total between 2021 and 2022. Overseeing the implementation biodiversity research agenda is assumed to give rise to annual low level administrative services within the Commission, estimated at EUR 22,826 per year or EUR 205,437 between 2022 and 2030.

Total action cost: **EUR 1 billion until 2030**

Action 29.2: Establishment of a Biodiversity Partnership

⁷⁴ EC (2021). Horizon Europe, budget. Horizon Europe - the most ambitious EU research & innovation programme ever. Available at: <https://op.europa.eu/en/publication-detail/-/publication/1f107d76-acbe-11eb-9767-01aa75ed71a1>

This Partnership will provide an overarching platform connecting national/local and European Research & Innovation programs and combining in-cash and in-kind resources to ensure that by 2030 biodiversity in Europe is back on a path of recovery. According to the draft proposal for a European Partnership under Horizon Europe⁷⁵, the total budget of the Partnership is currently estimated to be EUR 390 million, with EUR 259 million (total costs) for research funding, EUR 104 million for biodiversity monitoring activities, and EUR 27 million for other activities. It is assumed that this amount is evenly distributed each year between 2021 and 2027.

Total action cost: **EUR 390 million by 2027**

Action 29.3: Establish a new Knowledge Centre for Biodiversity

The Knowledge Centre for Biodiversity was launched in October 2020. It is hosted by the JRC and co-led by the Commission, while it was developed in close cooperation with the EEA. It is a one-stop shop for key information about biodiversity and the impact of related policies; a platform where progress under the EU Biodiversity Strategy for 2030 can be monitored; and an interface for scientists to network, share research results and channel them more effectively to support EU policies. The delivery of the action involves administrative processes within the Commission, the JRC and the EEA for the development and operation of the Centre. It is assumed that the action required high level administrative services (100% of 5 employees over 12 months), estimated at EUR 570,660 in 2021 for the development of the Centre and additional high level annual administration within the Commission and the JRC, estimated at EUR 570,660 per year, for the operation of the Centre.

Total action cost: **EUR 6.3 million by 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 38: Per year cost estimates for delivering Objective 29 (in millions EUR)

2021	2022	2023	2024	2025	
157.68	156.31	156.31	156.31	156.31	
2026	2027	2028	2029	2030	Total
156.31	100.59	100.59	100.59	100.59	1,397

⁷⁵ EC (2020). Draft proposal for a European Partnership under Horizon Europe Rescuing Biodiversity to Safeguard Life on Earth. Available at: https://ec.europa.eu/info/files/european-partnership-rescuing-biodiversity-safeguard-life-earth_en

Objective 30 – Propose a Council Recommendation on education for environmental sustainability

Definition

The Commission will create a body that will oversee the exchange of information on biodiversity education, teaching, and provide the resources and structure for teacher-training programmes.

Links to other objectives

None.

Costable actions

The specific action that needs to be undertaken for the delivery of this objective is:

1. Proposal for a Council Recommendation on encouraging cooperation in education for environmental sustainability, including biodiversity education.

Action 30.1: Proposal for a Council Recommendation on encouraging cooperation in education for environmental sustainability, including biodiversity education

This action consists in getting support from external consultants and the administrative processes linked to this within the Commission. The external support study has already been completed, investigating the national policies and approaches to Environmental Sustainability Education. For this study, we assume a cost of EUR 250,000 in 2021. For the development of the guidance administrative processes within the Commission will be required. It is assumed that these will be of high level (100% of 5 employees for 12 months), estimated at EUR 570,660, in 2021, in addition to budget for organising and chairing workshops, estimated at EUR 20,000 for meetings with Member State authorities and EUR 20,000 for meetings with educational bodies.

Total action cost: **EUR 860,660 between 2021 and 2022**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 39: Per year cost estimates for delivering Objective 30 (in millions EUR)

2021	2022	2023	2024	2025
0.43	0.43	-	-	-

2026	2027	2028	2029	2030	Total
-	-	-	-	-	0.86

Objective 31 – Use the new Skills Agenda to help biodiversity restoration and sustainable management, as well as a fair and inclusive transition to a green economy

Definition

The Skills Agenda will facilitate re-training of people in shifting industries to jobs that will contribute to the protection of biodiversity, in a way that does not negatively impact their socio-economic status.

Links to other objectives

None.

Costable actions

The specific action that needs to be undertaken for the delivery of this objective is:

1. Addition of biodiversity-related measures in the new Skills Agenda.

Action 31.1: Addition of biodiversity-related measures in the new Skills Agenda

The European Skills Agenda is a five-year plan to help individuals and businesses develop more and better skills and to put them to use. The new European Skills Agenda builds upon the ten actions of the Commission's 2016 Skills Agenda. However, the new Agenda does not make a clear reference on how it could be used to biodiversity conservation and ecosystem restoration. This action aims at bridging this gap and ensuring that the Agenda will also enhance biodiversity-related skills to be put in use in the green transition. For this action, a support study is assumed, estimated at EUR 250,000, and administrative processes within the Commission. More specifically, we assume a medium level of administrative services for three years, estimated at EUR 114,132 per year or EUR 342,396 between 2021 and 2023.

Total action cost: **EUR 0.6 million (EUR 592,396) by 2023**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 40: Per year cost estimates for delivering Objective 31 (in millions EUR)

2021	2022	2023	2024	2025	
0.36	0.11	0.11	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	0.59

Objective 32 – Broker an agreement for an ambitious new global framework for post-2020 at the 15th Conference of the Parties to the Convention on Biological Diversity

Definition

The Commission will advocate for a strengthened framework with international partners, and propose a binding agreement with set targets. The negotiated goals should cover the 3 CBD objectives and the targets should address the direct and indirect drivers of biodiversity loss. To do so, participation in many EU- and international-level meetings is necessary.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Broker an agreement for an ambitious post-2020 biodiversity framework at the 15th Conference of the Parties to the Convention on Biological Diversity (CBD COP15);
2. Establish or join High Ambition Coalition.

Action 32.1: Broker an agreement for an ambitious post-2020 biodiversity framework at the 15th Conference of the Parties to the Convention on Biological Diversity (CBD COP15).

This action aims at brokering an agreement via participation in negotiation processes by 2022. Firstly, the cost of organising workshops under the Partnership Instrument funded-project, "Post 2020 Biodiversity Framework- EU Support" is valued at EUR

4,500,000. There are also medium administrative costs to be borne by the Commission (salaries of staff and other administrative costs) needed for outreach and negotiation activities (including costs to organise and/or attend meetings) to broker the agreement (EUR 114,132).

Total action cost: **EUR 0.6 million (EUR 590,660) by 2022**

Action 32.2: Establish or join High Ambition Coalition

This action will similarly entail administrative costs within the Commission, with the final aim of producing a letter of intent. We use the low administrative services estimate for this specific action.

Total action cost: **0.02 EUR million (EUR 22,820) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 41: Per year cost estimates for delivering Objective 32 (in millions EUR)

2021	2022	2023	2024	2025	
2.33	2.31	-	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	4.64

Objective 33 – Broker an agreement on marine biological diversity of areas beyond national jurisdiction and on the designation of Marine Protected Areas in the Southern Ocean

Definition

The Commission will participate in negotiations with the ultimate aim of reaching an international agreement on the conservation and sustainable use of biodiversity of areas beyond national jurisdiction (BBNJ). In addition, the Commission will propose a binding treaty between its MS, the EU and other parties that have national jurisdiction in the surrounding areas of the Southern Ocean that will implement quantifiable measures to reduce threats on the Southern Ocean's biodiversity, including the establishment of three new large-scale MPAs in the Southern Ocean.

Links to other objectives

None.

Costable actions

The specific action that need to be undertaken for the delivery of this objective is:

1. Broker an ambitious agreement on marine biological diversity of areas beyond national jurisdiction and on three vast Marine Protected Areas in the Southern Ocean.

Action 33.1: Broker an ambitious agreement on marine biological diversity of areas beyond national jurisdiction and on three vast Marine Protected Areas in the Southern Ocean

This action aims to brokering the aforementioned agreement via participation in negotiation processes. This will entail administrative costs to be borne by the Commission, mainly relating to the salaries of staff and other administrative costs needed for outreach and negotiation activities (including costs to organise and/or attend meetings). For this action, we use the medium administrative services assumption between 2021 and 2023.

Total action cost: **EUR 0.4 million (EUR 402,390) by 2023**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 42: Per year cost estimates for delivering Objective 33 (in millions EUR)

2021	2022	2023	2024	2025	
0.13	0.13	0.13	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	0.4

Objective 34 – Work with partner countries and regional organisations to sustainably use marine resources and protect sensitive maritime ecosystems and species, with a focus on marine biodiversity hotspots

Definition

The Commission will work closely with partner countries and regional organisations to significantly reduce activities that damage ecosystems and biodiversity in maritime areas, by providing technical and financial assistance, exchange best practices and enabling SIDS to attend relevant regional and international meetings.

Links to other objectives

Objectives 1, 2, 3 and 4.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. The EU should continue supporting Small Island Developing States and other relevant partner countries to participate and contribute in meetings of regional and global organisations and bodies, and to implement relevant international objectives and regulations;
2. Collaborate with countries and organisations to put marine protection measures in place.

Action 34.1: Support to Small Island Developing States and other relevant partner countries to participate in meetings of regional and global organisations and bodies, and to implement relevant international objectives and regulations

This action aims to financially support Small Island Developing States (SIDS) other relevant partner countries to enable them to participate in relevant meetings of regional and international organisations and to implement relevant international objectives and regulations. To achieve this action, medium administrative services are assumed from 2021-2030. We also assume a cost EUR 1,000,000 each year in technical assistance to SIDS countries. In addition, technical assistance will be needed on-the-ground to implement relevant international objectives and regulations. This encompasses both capital and operating expenses, including external staff, materials, travel, etc. Finally, some administrative processes within the commission will be needed to support these activities. Here, the medium administrative services assumption was used.

Total action cost: **EUR 12.9 million until 2030**

Action 34.2: Collaborate with countries and organisations to put marine protection measures in place

This action will entail administrative costs within the Commission to engage with countries and organisations in order to put marine protection measures in place. This mainly relates to salaries of staff and other administrative costs needed for outreach (including costs to organise and/or attend meetings), assumed to require low administrative services.

Total action cost: **EUR 0.4 million (EUR 428,260) until 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 43: Per year cost estimates for delivering Objective 34 (in millions EUR)

2021	2022	2023	2024	2025	
1.33	1.33	1.33	1.33	1.33	
2026	2027	2028	2029	2030	Total
1.33	1.33	1.33	1.33	1.33	13.31

Objective 35 – Apply zero tolerance towards illegal, unreported and unregulated fishing, and combat overfishing

Definition

The Commission will participate in World Trade Organization (WTO) negotiations in order to reach an agreement that is effective in prohibiting harmful subsidies and to ensure that the non-harmful support it provides can continue to be provided. The EU also works towards effective implementation of national and regional conservation and management measures as well as advocates that all States abide with their international law of the sea objectives as regards fight against illegal, unreported and unregulated fishing.

Links to other objectives

None.

Costable actions

The specific action that needs to be undertaken for the delivery of this objective is:

1. Continue bilateral dialogues with third countries on illegal, unreported and unregulated fishing; advocate for the end of illegal, unreported and unregulated fishing as well as for combatting overfishing in international fora and advocate for a global agreement to ban harmful fisheries subsidies in WTO negotiations.

Action 35.1: Continue bilateral dialogues with third countries on illegal, unreported and unregulated fishing; advocate for the end of illegal, unreported and unregulated fishing as well as for combatting overfishing in international fora and advocate for a global agreement to ban harmful fisheries subsidies in WTO negotiations

The funding needs for this action relate to administrative costs to be borne by the Commission to participate in negotiations, which will mostly include salaries of staff (medium administrative services) and other administrative costs needed for outreach and negotiation activities (including costs to organise and/or attend meetings).

Total action cost: **EUR 1,3 million until 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 44: Per year cost estimates for delivering Objective 35 (in millions EUR)

2021	2022	2023	2024	2025	
0.13	0.13	0.13	0.13	0.13	
2026	2027	2028	2029	2030	Total
0.13	0.13	0.13	0.13	0.13	1.34

Objective 36 – In international negotiations, advocate that marine minerals in the international seabed area cannot be exploited before research into the effects of deep-sea mining technologies demonstrates no serious harm to the environment

Definition

The Commission will advocate for a moratorium in the form of an international, binding treaty that prevents parties from mining for deep-sea minerals unless such activities are able to demonstrate no serious harm to the environment, in line with the precautionary principle. A Proposal for a Council Decision on the EU position has already been drafted, but a coordinated position with Member States is still being coordinated.

Links to other objectives

Objective 17

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Fund research on the impact of deep-sea mining activities and on environmental-friendly technologies for deep-sea mining;
2. Advocate for the deep-sea mining regulations by the International Seabed Authority (ISA).

Action 36.1: Fund research on the impact of deep-sea mining activities and on environmental-friendly technologies for deep-sea mining

This action will involve making funds available to conduct such research as well as costs related to the administrative support needed within the Commission to coordinate and support the implementation of the action. The cost of research included in the calculations corresponds to the budget of a forthcoming project on “Monitoring and supervising system for exploration and future exploitation activities in the deep sea (RIA)”, which amounts to EUR 14 million.⁷⁶ For this action, the assumed costs of administrative services are low.

Total action cost: **EUR 14 million in 2021**

Action 36.2: Advocate for the deep-sea mining regulations by the International Seabed Authority (ISA)

This action will lead to administrative costs to be borne by the Commission to participate in negotiations, mainly relating to salaries of staff and other administrative costs needed for outreach and negotiation activities (including costs to organise and/or attend meetings). The action was assumed to require low administrative services.

Total action cost: **EUR 0.4 million (EUR 428,260) until 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 45: Per year cost estimates for delivering Objective 37 (in millions EUR)

2021	2022	2023	2024	2025	
14,07	0.04	0.04	0.04	0.04	
2026	2027	2028	2029	2030	Total
0.04	0.04	0.04	0.04	0.04	14.45

⁷⁶ European Commission (2021) Monitoring and supervising system for exploration and future exploitation activities in the deep sea (RIA): <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-02;callCode=HORIZON-CL4-2022-RESILIENCE-01;freeTextSearchKeyword=deep%20sea;matchWholeText=true;typeCodes=1;statusCodes=31094501,31094502,31094503;programmePeriod=null;programCcm2Id=null;programDivisionCode=null;focusAreaCode=null;destination=null;mission=null;geographicalZonesCode=null;programmeDivisionProspect=null;startDateLte=null;startDateGte=null;crossCuttingPriorityCode=null;cpvCode=null;performanceOfDelivery=null;sortQuery=sortStatus;orderBy=asc;onlyTenders=false;topicListKey=callTopicSearchTableState>

Objective 37 – Ensure full implementation and enforcement of the biodiversity provisions in all trade agreements, and better assess the impact of trade agreements on biodiversity

Definition

The Commission wishes to ensure the full implementation and enforcement of the Trade and Sustainable Development (STD) Chapters of FTAs with partner countries. To do so, it will engage in dialogue with partner countries, conduct research and provide them with support. In addition, the Commission will engage in discussions with the European Anti-Fraud Office (OLAF) to discuss the potential strengthening of its coordinating and investigative capacities and will work on strengthening the biodiversity provisions of existing and new agreements, if relevant. Ultimately, this Objective aims to ensure that trade agreements do not adversely affect biodiversity.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Ensure full implementation and enforcement of the biodiversity provisions in all trade agreements, including through the EU Chief Trade Enforcement Officer;
2. Consider strengthening the coordinating and investigative capacities of the European Anti-Fraud Office (OLAF) to work with Member States and non-EU countries to prevent illicit trade and the entry of illicit products into the Single Market;
3. Better assess the impact of trade agreements on biodiversity, with follow-up action to strengthen the biodiversity provisions of existing and new agreements if relevant.

Action 37.1: Ensure full implementation and enforcement of the biodiversity provisions in all trade agreements, including through the EU Chief Trade Enforcement Officer

The implementation of this action is expected to rest on support from external specialised consultants to conduct annual studies reporting on the implementation of Free Trade Agreements (EUR 2,500,000 by 2030). In addition, administrative processes within the Commission will be needed to hold discussions with partner countries and stakeholders, and to support negotiation and implementation of FTAs. This mainly relates to salaries of staff (medium administrative services), valued at EUR 1,141,320 and other administrative costs needed for outreach and negotiation activities

(including costs to organise and/or attend meetings), valued at EUR 200,000 and to support external consultants.

Total action cost: **EUR 3.8 million until 2030**

Action 37.2: Consider strengthening the coordinating and investigative capacities of OLAF to work with Member States and non-EU countries to prevent illicit trade and the entry of illicit products into the Single Market

This action will require administrative costs to be borne by the Commission linked to internal decision-making and discussions with OLAF. We assume that low administrative services will be sufficient to implement this action.

Total action cost: **EUR 0.02 million (EUR 22,830) in 2021**

Action 37.3: Better assess the impact of trade agreements on biodiversity, with follow-up action to strengthen the biodiversity provisions of existing and new agreements if relevant

This action is expected to require support from external specialised consultants to conduct research on the impact of trade agreements on biodiversity and to assess the potential of follow-up action. To do so, it is assumed that one study per year will be commissioned until 2030 (EUR 2,500,000). The medium administrative services estimate (EUR 1,141,320) is used to quantify the expected costs of administrative processes within the Commission to support these activities.

Total action cost: **EUR 3.6 million until 2030**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 46: Per year cost estimates for delivering Objective 37 (in millions EUR)

2021	2022	2023	2024	2025	
0.77	0.75	0.75	0.75	0.75	
2026	2027	2028	2029	2030	Total
0.75	0.75	0.75	0.75	0.75	7.51

Objective 38 – Introduce measures to avoid placing products associated with deforestation on the EU Market and promote forest-friendly imports and value chains

Definition

The Commission aims to avoid or minimise the placing of products associated with deforestation or forest degradation on the EU market. To do so, it will put forward a legislative proposal for a regulation on deforestation-free products

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective is:

1. Support from external specialised consultants
2. Administrative processes within the Commission
3. Administrative processes within each Member State to adopt and implement the new measures
4. Ongoing costs to EU businesses of implementing the new due diligence system

Action 38.1: Administrative measures to avoid or minimize the placing of products associated with deforestation or forest degradation on the EU market

This action has required support from external specialised consultants in order to support the fitness check and impact assessment of the EUTR and FLEGT Regulation, for which the exact budget was obtained based on a previous Fitness Check and Impact Assessment studies, amounting to EUR 722,000. This work largely took place in 2021

To develop the new due diligence system which forms the basis of the new Regulation, will require one-off costs to the EC in establishing the benchmarking system (which we assume to take place in 2022) at an estimated cost of EUR 337,000, as well as on-going costs to maintain the benchmarking system estimated at EUR 168,000 which we assume takes place from 2023 onwards (total cost EUR 1,344,000). All costs drawn from the Staff Working Document.⁷⁷

In addition, administrative processes within each national market surveillance authorities will be required to adopt and implement the new measures. Costs will relate to salaries and other administrative costs within each national market surveillance

⁷⁷ Staff Working Document - Impact Assessment "minimising the risk of deforestation and forest degradation associated with products placed on the EU market" Part 1 (p. 105)

authorities, and is estimated at EUR 18 million annually (EUR 144 million over 8 years from 2023). This was again drawn from the aforementioned Staff Working Document.

Total action cost: **EUR 146.4 million until 2030**

Action 38.2: Measures by businesses to implement the new regulation

The implementation of a new due diligence system to avoid or minimise the placing of products associated with deforestation or forest degradation on the EU market will require all relevant EU businesses importing products potentially associated with such outcomes to participate in a due diligence system. The ongoing annual cost of such a system was estimated in the Staff Working Document as ranging from EUR 158 million to EUR 2.354 billion per year. We take the mid-point in this range at EUR 1.256 billion annually, starting from 2023.

Total action cost: **EUR 10.1 billion** until 2030).

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 47: Per year cost estimates for delivering Objective 38 (in millions EUR)

2021	2022	2023	2024	2025	
0.72	0.34	1,274	1,274	1,274	
2026	2027	2028	2029	2030	Total
1,274	1,274	1,274	1,274	1,274	10,194

Objective 39 – Revise the EU Action Plan against Wildlife Trafficking in 2021

Definition

The Commission will publish a Communication on a revised Action Plan against Wildlife Trafficking, on the basis of results from its evaluation, to adapt it to current priorities and make it more effective. The strengthened Action Plan will impose tighter restrictions with reinforced monitoring and reporting mechanisms to ensure compliance.

Links to other objectives

None.

Costable actions

The specific action that need to be undertaken for the delivery of this objective is:

1. Revision of the EU Action Plan against Wildlife Trafficking

Action 39.1: Revision of the EU Action Plan against Wildlife Trafficking

This action will consist in the implementation of a study by external specialised consultants, as well as the administrative processes within the Commission to support this activity and to draft a Communication on a new Action Plan. This will entail work in different Committees and Groups, including the Committee on Trade in Wild Fauna and Flora and the Group of Experts of the competent CITES Management Authorities and Wildlife Trade Enforcement Group. Hence, the high administrative services estimate is used here.

Total action cost: **EUR 0.8 million (EUR 820,660) in 2022**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 48: Per year cost estimates for delivering Objective 39 (in millions EUR)

2021	2022	2023	2024	2025	
-	0.82	-	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	0.82

Objective 40 – Propose a further tightening of the rules on EU ivory trade

Definition

The Commission wishes to ensure that legal ivory trade in the EU does not contribute to poaching of elephants and illegal trade, by suspending trade in most types of ivory items and providing for closer scrutiny of remaining items. To do so, it will propose amendments to Regulation 865/2006, which are included in a broader package of changes to the EU wildlife trade regulations.

Links to other objectives

None.

Costable actions

The specific action that need to be undertaken for the delivery of this objective is:

1. Proposal for further tightening of the rules on EU ivory trade.

Action 40.1: Proposal for further tightening of the rules on EU ivory trade

The implementation of this action will rest on one study to be conducted by external specialised consultants as well as the administrative costs linked to the support of this activity. In addition, administrative costs will be borne by the Committee on Trade in Wild Fauna and Flora (Regulation) and Group of Experts of the competent CITES Management Authorities (Guidance). Therefore, the high administrative services estimate is used for this action.

Total action cost: **EUR 0.8 million (EUR 820,660) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 49: Per year cost estimates for delivering Objective 40 (in millions EUR)

2021	2022	2023	2024	2025	
0.82	-	-	-	-	
2026	2027	2028	2029	2030	Total
-	-	-	-	-	0.82

Objective 41 – Cooperate with partners to mainstream biodiversity into all development and partnership policies, increase financial support and phase out subsidies harmful to biodiversity

Definition

This objective outlines the planned actions to implement all trade and related agreements with international partners that will integrate measures outlined in objective 38, 39, and 41.

Links to other objectives

None.

Costable actions

The specific actions that need to be undertaken for the delivery of this objective are:

1. Incorporate biodiversity-related considerations into all development and partnership policies;
2. Mobilise Aid for Trade to ensure that EU partner countries reap the benefits of biodiversity-friendly trade;
3. Increase support to partner countries in protection, ecosystem restoration and the sustainable management of natural resources including through the integrated landscape approach;
4. Support the Western Balkans and EU Neighbourhood countries in their efforts to protect, sustainably use, restore and mainstream biodiversity;
5. NaturAfrica initiative to protect wildlife and key ecosystems;
6. Increase mutual benefits and decrease trade-offs between biodiversity protection and human rights, gender, health, education, conflict sensitivity, the rights-based approach, land tenure and the role of indigenous peoples and local communities;
7. Enhance support to global efforts to apply the One Health approach and promote it in external action and policy dialogue;
8. Mainstream Biodiversity throughout bilateral and multilateral engagements/Green Deal Diplomacy/Development of Green Alliances.

Action 41.1: Incorporate biodiversity-related considerations into all development and partnership policies

This action will consist in administrative processes to incorporate biodiversity into forthcoming policies; which is expected to be a small fraction of the policy development work. Hence, the low annual administration services assumption is used.

Total action cost: **EUR 0.2 million (EUR 228,260) until 2030**

Action 41.2: Mobilise Aid for Trade to ensure that EU partner countries reap the benefits of biodiversity-friendly trade

This action will entail the distribution of a specific amount of money to EU partner countries, which relate to technical assistance and other financial possibilities to support these countries' efforts towards more sustainable sourcing practices and global value chains. The estimate was derived from past funding for Aid for Trade, and assuming a small fraction going to biodiversity-relevant activities (10%). Low administrative costs will also be borne by the Commission, namely to implement this activity under the new MFF and to use of relevant dialogs and platforms with partner countries to promote biodiversity. Here, the low annual administration services assumption is used.

Total action cost: **EUR 378 million until 2030**

Action 41.3: Increase support to partner countries in protection, ecosystem restoration and the sustainable management of natural resources including through the integrated landscape approach

This action also entails the distribution of a specific amount of money, here to partner countries, with the aim to support EU external action on biodiversity. The quantification of funding needs is based on the budget made available for NDICI under MFF 2021-2027, assuming that a small fraction will be assigned to biodiversity-relevant activities (5%). In addition, related low administrative costs will be borne by the Commission, which we quantified using the low annual administration services assumption.

Total action cost: **EUR 318 million until 2030**

Action 41.4: Support the Western Balkans and EU Neighbourhood countries in their efforts to protect, sustainably use, restore and mainstream biodiversity

For this action, a specific amount of money will be distributed to Western Balkan and EU Neighbourhood countries. The amount needed for this Action was calculated in the same way as Action 41.3, that is by assuming that a small fraction of the planned budget for NDICI under MFF 2021-2027 will be assigned to biodiversity-relevant activities (5%). The low annual administration services assumption was also used to quantify the related administrative costs to be borne by the Commission.

Total action cost: **EUR 318 million until 2030**

Action 41.5: NaturAfrica initiative to protect wildlife and key ecosystems

This action will first and foremost encompass activities to implement the NaturAfrica initiative. As no details are yet available on the budget to be allocated to this initiative, assumed that it would amount to a small fraction (5%) of the budget for the NDICI Sub-Saharan Africa geographic programmes under MFF 2021-2027. Administrative processes within the Commission will be needed to support the implementation of the NaturAfrica initiative; the low administrative services estimate was used to quantify these costs. Activities are under preparation through Team Europe Initiatives. Finally, the low estimate was also used to assess the costs of administrative processes within the Commission to explore harmonising objectives with NaturAfrica and EU Action Plan Against Wildlife Trafficking.

Total action cost: **EUR 1.14 billion until 2030**

Action 41.6: Increase mutual benefits and decrease trade-offs between biodiversity protection and human rights, gender, health, education, conflict sensitivity, the rights-based approach, land tenure and the role of indigenous peoples and local communities

This action will necessitate administrative processes within the Commission, which were costed using the low administrative services estimate.

Total action cost: **EUR 0.02 million (EUR 22,830) in 2021**

Action 41.7: Enhance support to global efforts to apply the One Health approach and promote it in external action and policy dialogue

This action will necessitate administrative processes within the Commission, which were costed using the low administrative services estimate.

Total action cost: **EUR 0.02 million (EUR 22,830) in 2021**

Action 41.8: Mainstream Biodiversity throughout bilateral and multilateral engagements/Green Deal Diplomacy/Development of Green Alliances

This action will necessitate administrative processes within the Commission, which were costed using the low administrative services estimate.

Total action cost: **EUR 0.02 million (EUR 22,830) in 2021**

Total cost of the objective

The table below presents the per year and total costs of this objective without discounting the estimates to present value.

Table 50: Per year cost estimates for delivering Objective 41 (in millions EUR)

2021	2022	2023	2024	2025	
291.	291	291	291	291	
2026	2027	2028	2029	2030	Total
291	291	38	38	38	2,149

ANNEX 5: BIODIVERSITY FINANCING – DOMESTIC FUNDING METHODOLOGIES

Establishing a reliable methodology for domestic expenditure tracking under current frameworks

The CBD Financial Reporting Framework was initially focused on tracking expenditure on biodiversity aid internationally, specifically through expenditure registered as Official Development Assistance (ODA) and Other Official Flows (OOF) in relation to biodiversity. Since 2011 the CBD also has a strategy for resource mobilisation, which allows countries to provide information not only on national targets and ambitions, and how these have been achieved, but also on the total domestic biodiversity expenditure. The reporting of domestic expenditure remains voluntary.

While many Member States reported national targets and achievements in 2016, data regarding domestic expenditure had gaps. Indeed a similar pattern was observed for the most recent data submission 2021, where at the time of writing not all Member States have submitted their data. As such, we used the resource mobilisation report submitted by the European Commission in July 2021¹ to obtain as many data points from Member States as possible. Nonetheless, only six Member States reported domestic expenditure beyond 2015.

As part of discussions on the post-2020 Global Biodiversity Framework of the CBD, an evaluation of the resource mobilisation strategy was conducted². The study concluded that there was no robust and transparent methodology on resource mobilisation reporting to the CBD, and that reported data remained unverified. Furthermore, it concluded that due to the different reporting method information received from countries, the data reported to the CBD on domestic expenditure therefore did not allow for comparisons, or provide meaningful aggregate figures. In addition, the study reported that eleven countries (all EU Member States) referenced internationally agreed classifications (e.g. CEPA and COFOG 'biodiversity and landscape protection' category) when reporting to the CBD.

Thus, our results indicate that there are no domestic funding reporting requirements or standards for countries under the CBD, ultimately making it difficult to understand what components are being counted (and how) in their total domestic expenditure. With no transparency on how values are obtained, the reported values under the CBD are therefore not reliably comparable across Member States.

¹ Clearing House Mechanisms of the Convention on Biological Diversity Information Submission Service - <https://chm.cbd.int/database/record/D50C5384-21E8-BAF4-FC12-DC93A78F0609>

² CBD (2020) Evaluation and review of the strategy for resource mobilization and Aichi Biodiversity Target 20. CBD/SBI/3/INF/2

COFOG data give detailed breakdowns of government expenditures by main socio-economic function by sub-sectors of a general government (including the central government, sector, state, and local government, and social security funds) and are provided by national authorities. There is no international obligation to report to the OECD under the COFOG framework.

However, for European countries the transmission of the COFOG divisions (level 1 since 1995) and groups (level II since 2001) are compulsory. COFOG data from Member States is aggregated by EUROSTAT and communicated to the OECD, so that the data across the two platforms is coherent. Annual government finance statistics (GFS) data are collected by EUROSTAT on the basis of the European System of Accounts transmission programme (ESA 2010)³. Member States are requested to transmit, among others, their expenditure of general government by function of COFOG⁴. Annex A of the legislation sets forth a strict methodology on common standards, definitions, classifications and accounting rules that are used for compiling accounts and tables on a comparable basis.

The COFOG reporting system under EUROSTAT thus has stringent reporting obligations and a concrete framework that is designed to ensure consistency and hence comparability between data of Member States. Based on this, domestic expenditure analysis for Member States in this study is based on COFOG data reported under EUROSTAT. It has to be noted however, that COFOG data may contain some EU funding for some EU Member States that is not filtered out.

To assist with COFOG classification issues as well as with sources and methods, the European Commission has published a manual for the compilation of COFOG data⁵. The structure of COFOG splits into level 1 divisions and level 2 groups, helping delineate national expenditure into different 10 different components such as general public services (01), economic affairs (04), health (07) and environmental protection (05). Under 05 on environmental protection, six groups of expenditures are reported: 05.1 waste management, 05.2 waste water management, 05.3 pollution abatement, 05.4 protection of biodiversity and landscape, 05.5 R&D environmental protection and 05.6 environmental protection not elsewhere classified (n.e.c.). The division 05 environmental protection is based on the Classification of Environmental Protection Activities (CEPA).

Based on the guidance provided, the group of interest for biodiversity tracked expenditure is primarily 05.4 biodiversity and landscape protection. It is defined as 'activities relating to the protection of fauna and flora species (including the reintroduction of extinct species and the recovery of species menaced by extinction),

³ EC (2013) European System of accounts - ESA 2010

⁴ EC (2013) No 549/2013 Regulation on the European system on national and regional accounts in the European union

⁵ EC (2019) Manual on sources and methods for the compilation of COFOG statistics - Classification of the Functions of Government (COFOG), 2019 edition.

the protection of habitats (including the management of natural parks and reserves), and the protection of landscapes for their aesthetic values (including the reshaping of damaged landscapes for the purpose of strengthening their aesthetic value and the rehabilitation of abandoned mines and quarry sites)'.⁶

However, one of the limitations of the COFOG classification system is that it requires expenditure to be tracked only based on the primary purpose of the expenditure. Multipurpose functions (e.g. expenditures that benefit the purpose of various functions) are therefore difficult to account for. Particularly in the case of protecting biodiversity, there may be various other activities under division 05 (such as pollution abatements or waste water management) that still may serve biodiversity protection even if as a secondary purpose. For comparison, the Commission's tracking methodology for EU expenditure allocates a 40% coefficient to ERDF and CF investment fields for investments in waste water treatment.

The stringency of reporting, which helps ensure statistical soundness and comparability, has the downside that there is a certain inflexibility for Member States to report biodiversity expenditure. The COFOG manual⁶ provides case study examples (case 45) which highlight the complexity that can arise in reporting data under the environmental protection group. Indeed, it appears as though while the data is comparable and well documented, the current reporting format prevents transparent biodiversity tracking for multipurpose activities.

In consideration of the limitations of COFOG in tracking biodiversity specific expenditure, we therefore chose to apply a variant of the Rio marker system to the tracked expenditure. A **100% marker** was applied to group 05.4 since it is most clearly targeting only biodiversity specific expenditure. To account for the possible benefits to biodiversity by investing in the other environmental protection sub-groups, there was the possibility to apply a **40% marker** to all other tracked expenditure under COFOG 05 (and others). However, this is likely to lead to some degree of overestimation in expenditure. Thus, across the COFOG data and headings (beyond group 05 on environmental protection) there may be further expenditure items relevant for the environment and biodiversity, but these were not further assessed here. We used the data for the general government expenditure data of COFOG 05.4 to establish an overall domestic expenditure profile per year for 2014 -2020.

⁶ EC (2019) Manual on sources and methods for the compilation of COFOG statistics - Classification of the Functions of Government (COFOG), 2019 edition.

ANNEX 6: BIODIVERSITY FINANCING: LIST OF EXTERNAL STAKEHOLDERS CONSULTED

List of input received for Task 2 through communication with external stakeholders, experts and relevant authorities (in addition to input received through the stakeholder workshop – see Annex 7).

Task	Institution	Interaction
2.1	Seas at risk	Survey
2.1	Our fish	Survey
2.1	Sciaena	Survey
2.1	German Federal Agency for Nature Conservation (BfN)	Survey
2.1	Atecma	Interview
2.1	Birdlife	Survey
2.1	Umweltbundesamt, Austria	Interview
2.2	National Accounts Team, OECD	Interview
2.2	Environmental Performance and Indicators Division, OECD	Interview
2.2	The Biodiversity Finance Initiative (BIOFIN) of the United Nations Development Programme (UNDP)	Interview
2.2	Office of Economic and Social Summaries on the Environment, France	Interview
2.2	Department of Policies, Planning and External Relations, Institute for Nature Conservation and Forests, Portugal	Interview
2.2	Ministry of Ecological Transition, France	Interview
2.2	Environmental Accounts Team, Eurostat	Interview

