A Comprehensive Overview of Global Biodiversity Finance: Initial results

Interim report made available for the Thematic Workshop on Resource Mobilisation for the Post-2020 Global Biodiversity Framework, January 14-16, 2020

Prepared by the OECD

Foreword

The 15th Conference of the Parties to the Convention on Biological Diversity (CBD COP15), taking place in October 2020 in Kunming China, marks a critical juncture for addressing biodiversity loss. CBD COP15 is when the 2011-2020 Strategic Plan for Biodiversity and the Aichi Biodiversity Targets will expire, and the post-2020 global biodiversity framework is due to be adopted. The post-2020 framework is expected to define national and international action on biodiversity for the next decade.

To build political momentum towards CBD COP15, the French G7 Presidency placed biodiversity on the agenda of the G7 Environment Ministers' Meeting, held in Metz on May 5-6, 2019. To help inform these discussions, France invited the OECD to prepare a report on "Biodiversity: Finance and the Economic and Business Case for Action". The report presented the socio-economic and business case for scaling up biodiversity action, an analysis of data and indicator gaps on biodiversity pressures and responses, and a preliminary estimate of global biodiversity finance. It also identified 10 priority areas for governments to scale up biodiversity action.

The G7 Environment Ministers subsequently invited the OECD to conduct follow-up work, to further inform decision-making processes in the lead up to CBD COP15. The follow-up work requested is "to complete a comprehensive overview of global biodiversity finance, measures for mainstreaming biodiversity concerns into economic sectors, and indicators that could be relevant for the development of the post-2020 framework" (G7 Environment Ministers' Communiqué, paragraph 50).

This document presents the first draft of a comprehensive overview of global biodiversity finance, i.e. the first component of work requested by G7 Environment Ministers. While this is ongoing work, the document has been declassified to help inform discussions of the CBD Thematic Workshop on Resource Mobilization for the Post-2020 Global Biodiversity Framework, taking place on 14-16 January, 2020 in Berlin, Germany. A final version of this document will be released in Q2, 2020.

1 Introduction: Biodiversity finance and the international context

The 15th Conference of the Parties to the Convention on Biological Diversity (CBD COP15), taking place in October 2020 in Kunming China, marks a critical juncture for addressing biodiversity loss. An ambitious, specific and measurable post-2020 global biodiversity framework is crucial for driving the transformative changes needed to halt and reverse the loss of biodiversity and ecosystem services.

Implementing an effective post-2020 framework will require more ambitious and widespread use of biodiversity policy instruments and other measures to promote sustainable patterns of production and consumption. It will also require governments and the private sector to scale up and align finance for biodiversity. While it is clear that biodiversity finance must be increased, for example, to restore degraded ecosystems, improve the coverage and effectiveness of protected area networks and mainstream biodiversity into production systems, little is known about current biodiversity expenditures. A widely cited estimate of global biodiversity finance is USD 52 billion in 2010 (Parker et al., 2012[1]). However, this estimate is nearly a decade old and is therefore out-dated.

More recently, the OECD provided a preliminary update on global biodiversity finance in its report on "Biodiversity: Finance and the Economic and Business Case for Action" (OECD, 2019[2]), which was prepared at the request of France to inform the G7 Environment Ministers' Meeting, on May 5-6, 2019. The report estimated domestic (and predominantly public) expenditures on biodiversity to be USD 49 billion in 2015 (based on data reported by countries to the CBD Clearing House Mechanism), and other sources of biodiversity finance (e.g. Official Development Assistance, private sector finance from biodiversity offsets, philanthropy and a number of other sources) to be approximately USD 39 billion. These two estimates were not added due to some degree of overlap and the associated risk of double counting.

Building on (OECD, 2019[2]), this analysis aims to provide a more comprehensive overview of biodiversity finance by drawing on additional sources of data and deconstructing datasets to extract further information. The analysis aggregates information across multiple datasets to provide an overall estimate of global expenditures on biodiversity, while minimising the risk of double counting. Up-to-date estimates of biodiversity finance flows are useful for identifying and assessing any shortfalls in biodiversity finance[1], establishing a baseline from which governments and other stakeholders can track progress on biodiversity finance and identifying opportunities for scaling up biodiversity finance.

Section 2 presents key findings of the ongoing analysis on global biodiversity expenditures, and section 3 provides an overview of the data and underlying methodology. It is important to note that this is ongoing work, which has been made available to support discussions at the CBD Thematic Workshop on Resource Mobilisation for the Post-2020 Global Biodiversity Framework, taking place on 14-16 January 2020 in Berlin, Germany. A final version of this document will be made available later in Q2, 2020.

[1] Quantifying the finance gap requires not only an estimate of current biodiversity finance, but also an assessment of biodiversity finance needs. In CBD Decision 14/22, Parties requested the Executive Secretary to establish an expert panel to "estimate the resources from all sources needed for different scenarios of the implementation of the post-2020 framework", among other things (CBD COP14, 2018[39]).

2 Initial key findings on global biodiversity finance

A global estimate of biodiversity finance

Based on available data, OECD's analysis estimates biodiversity finance to be USD 77-87 billion per year. This estimate comprises average annual public expenditure between 2015 and 2017 and the most recent data available on private expenditures from the same period. While this is notably higher than the Parker et al. (2012[1]) estimate of biodiversity finance in 2010, the two numbers cannot be directly compared due to differences in methodology and the increasing (albeit still incomplete) availability of biodiversity expenditure data.

Public finance on biodiversity

Domestic public expenditures account for the lion's share of spending on biodiversity. Between 2015 and 2017, 80 countries collectively spent an average of USD 67 billion per year domestically on the conservation and sustainable use of biodiversity. This estimate is based predominantly on data from country reports to the CBD, Classifications of the Functions of Government (COFOG)[2] and UNDP BIOFIN national biodiversity expenditure reviews (see section 3 for further details). It covers direct and indirect flows[3] for 25 countries and direct flows only for the remaining 55 countries. Sub-national government expenditures are only partially covered in this estimate.

International public expenditures on biodiversity, in particular Official Development Assistance (ODA), also form an important part of global biodiversity finance.[4] Table 2.1 provides estimates of biodiversity-related bilateral flows of ODA and other official flows (OOF) based on the Rio Marker methodology. Table 2.2 provides estimates of biodiversity-related ODA and non-concessional multilateral flows. The lower limit estimate is equivalent to "principal" flows, and the upper limit is the sum of "principal" and "significant" flows[5]. The mid-range estimate applies a coefficient of 40% to the flows marked as significant, which is consistent with the approach taken by many donor countries in their CBD financial reports.[6] A coefficient is applied because the Rio marker data reflects the full amount reported against the activity by the provider, not the biodiversity-specific component of the activity.

[2] COFOG was developed in 1999 by the OECD and published by the UN Statistical Division as a standard for classifying the purposes (functions) of government activities.

[3] Direct expenditures have biodiversity as their principal objective. Indirect expenditures have biodiversity as a secondary purpose.

[4] There is potential overlap between reported domestic biodiversity expenditures by developing countries and reported ODA from official providers. This accounted for in the overall estimate of global biodiversity finance. See Section 3 for details.

[5] Activities scored "principal" are funded specifically for that policy objective; activities scored "significant" have other primary objectives, but have been formulated or adjusted to help meet biodiversity objectives.

[6] Of the 20 countries that have reported biodiversity-related ODA to the CBD using the Rio Marker methodology, nine applied a coefficient of 40% to "significant" flows. Four countries reported the sum total of "principal" and "significant" flows, three reported only "principal" flows, two applied a coefficient of 50%, one applied a range of coefficients from 10-50% for "significant" and 50-100% for "principal", and two did not specify.

Table 2.1. International public biodiversity finance: annual bilateral flows (2015-2017 average)

Commitments, current prices. Figures combine data reported to the Creditor Reporting System and the OECD Secretariat's additional analysis.

	Lower limit	Mid-range	Upper limit
ODA	USD 3 255 million	USD 4 941 million	USD 7 470 million
Other official flows	USD 6 million	USD 13 million	USD 24 million
Total	USD 3 261 million	USD 4 954 million	USD 7 494 million

Note: See section 3 for an overview of the methodology.
Source: Based on data reported to OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.

Table 2.2. International public biodiversity finance: annual multilateral flows (2015-2017 average)

Commitments, current prices. Figures combine data reported to the Creditor Reporting System and the OECD Secretariat's additional analysis.

	Lower limit	Mid-range	Upper limit
ODA	USD 646 million	USD 1 093 million	USD 1 765 million
Non-concessional outflows	USD 6 million	USD 143 million	USD 348 million
Total	USD 652 million	USD 1 236 million	USD 2 113 million

Note: See section 3 for an overview of the methodology.
Source: Based on data reported to OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.

Private finance for biodiversity

It is estimated that the private sector spends at least USD 6.9-10.5 billion per year for biodiversity. This estimate is derived from different sources of data for the period 2015-2017 on biodiversity offsets, sustainable commodities, forest carbon finance, payments for ecosystem services, diverse philanthropic spending and data on private expenditures for biodiversity mobilised through blended finance structures (Table 2.3). It is partial (e.g. in terms of commodities covered) and therefore conservative.

Table 2.3. Estimates of private sector finance

	Amount	Year	Comments	Source
Biodiversity offsets	USD 3 024 – 4 800 million	2016	The private sector accounted for 63% of biodiversity offsets in 2016, equivalent to ~ USD 3.02 billion. This is presented here as the lower limit. The upper limit of USD 4.8 billion is the total market size of biodiversity offsets (private and public). However, the data source does not clearly define public and private, which leaves the position of e.g. NGOs unclear. This requires further investigation.	(Bennett, Gallant and Ten Kate, 2017[4])
Sustainable commodities	USD 2 300 – 2 830 million	2016	Covers sustainable certified forests (FSC and PEFC) and palm oil (RSPO) only	Authors' estimate based on (Breukink et al., 2015[5]); (FAO, 2018[6]); (Levin, 2012[7]); (RSPO, 2018[8])
Forest carbon finance	USD 116 million	2016	Based on carbon market transactions	(Hamrick and Gallant, 2017[9])
Payments for ecosystem services	USD 15 million	2016	Specifically private sector payments for watershed services. Total payments for watershed services were estimated at USD 25 billion.	(Bennett and Ruef, 2016[10])
Philanthropic foundations	USD 222 – 380 million	2017	Expenditures from 14 out of 26 philanthropic foundations that reported to the OECD. Activities reported by the other foundations did not include a biodiversity component.	Authors' estimate based on (OECD, 2019[3]), Creditor Reporting System
Other data derived from database on blended finance projects	USD 63 – 71 million	Average 2015-2017	Lower limit includes ocean, land restoration and sustainable agriculture investments with near zero risk of double counting with above estimates. Higher limit includes sustainable forest and forest carbon projects and therefore potentially overlaps with above estimates.	Authors' estimate based on (Convergence, 2019[11]) and (Convergence, 2018[12])
Conservation NGOs	USD 1 200 – 2 300 million	2017	This estimate covers five large conservation NGOs: Conservation International, Royal Society for the Protection of Birds, The Nature Conservancy, the Wildlife Conservation Society, and the World Wide Fund for Nature. Revenues from the public sector and philanthropic foundations are excluded from the lower limit estimate to avoid double counting.	Authors' estimate based on (Conservation International and Affiliates, 2017[30]); (RSPB, 2017[31]); (The Nature Conservancy, 2017[32]); (WCS, 2017[33]); and (WWF International, 2017[34])

Additional data exist on other instruments, investment approaches and investment structures, and the volume of finance they mobilise for biodiversity. While not all of these data have been included in the estimates of biodiversity expenditures, owing to a higher risk of double counting, they may be informative when considering approaches for scaling up and delivering biodiversity finance. Box 2.1 highlights selected examples.

Box 2.1. Mobilising finance for biodiversity: Economic and other finance instruments, investment approaches and investment structures

Economic instruments

Economic instruments (the "positive incentives" under Aichi target 3) provide price signals to producers and consumers to behave in a more environmentally sustainable way. They deliver continuous incentives to achieve objectives more cost-effectively, and most can also mobilise finance and/or generate revenue. Currently 109 countries report qualitative and quantitative information on their use of policy instruments to the OECD Policy Instruments for the Environment (PINE) database. Data reported to PINE indicates that biodiversity-relevant taxes generate USD 7.1 billion per year in revenue per year (2016-2018 average), while biodiversity-relevant fees and charges generate USD 1.2 billion fees per year (2015-2017 average).

Green bonds and loans

Green bonds are bonds issued by governments, banks, municipalities, or corporations to raise finance for environment solutions. The market for labelled green bonds[1] has grown rapidly in recent years: in 2019, over USD 200 billion green bonds and loans were issued compared to just USD 42 billion in 2015 (Climate Bonds Initiative, 2019[13]) (Climate Bond Initiative, 2017[14]). At least USD 4-5 billion of labelled green bonds have been issued to finance projects related to sustainable land use (Climate Bonds Initiative, 2018[15]). Bonds designed to finance sustainable marine and fisheries projects ("blue bonds") are gaining increasing attention, with the first sovereign blue bond issued in 2018 by the Republic of Seychelles (Climate Bonds Initiative, 2019[13]).

Impact investing

Impact investments are "investments that seek to create positive, measurable social and environmental impact alongside a financial return" (Mudaliar et al., 2019[16]).The global impact investing market is estimated at USD 502 billion (Mudaliar and Dithrich, 2019[17]). According to GIIN's Annual Impact Investor Survey 2018, 4% (USD 9.5 billion) of the USD 239 billion managed by 266 leading impact investors in 2018 was allocated to "forestry". Overall impact investment from these 226 investors was USD 33 million in 2018 (Mudaliar et al., 2019[16]), however it is unknown how much of this was for forestry.

Blended finance

Blended finance is "the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries" (OECD, 2019[18]). Convergence (2019[11]) estimates that blended finance structures channelled a total of USD 3.1 billion to biodiversity from 2000-2018.[2] Applying the leverage ratios presented in Convergence (2018[12]), OECD estimates that concessional finance mobilised USD 2.2 billion of commercially-priced capital for biodiversity, of which USD 1 billion was private capital.[3]

Note: 1. The green bond label can be applied to any debt format, including private placement, securitisation, covered bond, and sukuk, as well as labelled green loans which comply with the Green Bond Principles (GBP) or the Green Loan Principles (GLP) (Climate Bonds Initiative, 2019[19]). 2. Convergence defines blended finance as "the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development." 3. This is based on the average leverage ratio for the agriculture sector, because it has the lowest leverage ratio and is most relevant to biodiversity. The ratio of concessional to commercially priced capital in the agriculture sector is 1:2.5, and for concessional to private capital 1:0.5.

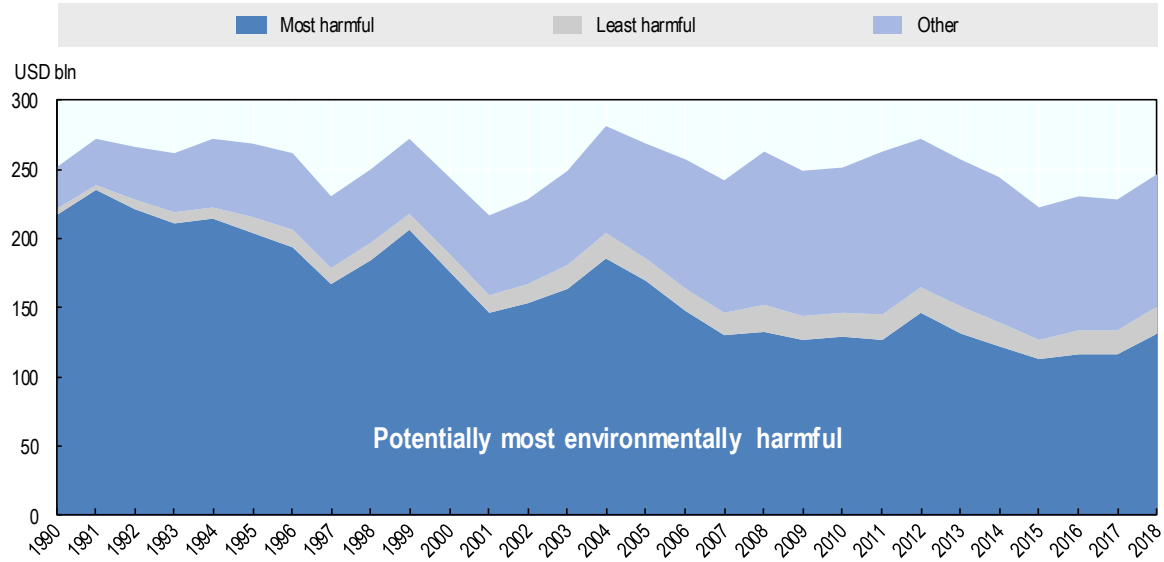
Finance flows harmful to biodiversity

Scaling back finance that is harmful to biodiversity is equally important to scaling up biodiversity finance for positive impact. Governments spend approximately USD 500 billion per year in support that is potentially harmful to biodiversity, i.e. five to six times more than total spending on biodiversity. In 2017, 76 predominantly OECD and G20 economies spent USD 340 billion in fossil fuel support (OECD/IEA, 2019[20]). The same year, OECD countries alone provided USD 228 billion in support to farmers, of which USD 116 billion (i.e. 51%) is potentially most harmful to biodiversity compared to other types of support (OECD, 2019[21]). While the percentage of overall support to farmers that is potentially most environmentally harmful has declined considerably since 1990, it has remained relatively constant over the past decade (Figure 2.1).

Subsidies in other sectors, such as mining and fishing, may also be harmful to biodiversity. Total fisheries support in OECD countries is estimated at USD 6-7 billion per year (Martini and Innes, 2018[22]), while global subsidies to fisheries have been estimated at USD 35 billion per year, USD 20 billion of which is fuel support (Sumaila et al., 2016[23]). Support that reduces the cost of fuel and other inputs purchased by fishers tends to result in the greatest increase in fishing effort, with associated risks of overfishing. Work by Martini and Ines (2018[22]) indicates that converting fuel support into payments to improve fishing operations would reduce effort and improve fish stocks, while increasing income to fishers.

Reforming subsidies harmful to biodiversity would also serve to reduce biodiversity finance needs by reducing the pressures on biodiversity. Biodiversity mainstreaming and resource mobilisation are therefore two interconnected and complementary agendas under the CBD.

Figure 2.1. Agricultural producers support in OECD countries, 1990-2018



Note: Support to agricultural producers considered potentially most environmentally harmful consists of market price support; payments based on commodity output, without imposing environmental constraints on farming practices; and payments based on variable input use, without imposing environmental constraints on farming practices. Support considered potentially less harmful consists of payments based on area/animal numbers/receipts/income with environmental constraints, payments based on input use with environmental constraints, and payments based on non-commodity criteria. "Other" refers to remaining support that does not fit in either of these categories (i.e. miscellaneous).
Source: (OECD, 2019[21])

Reporting and tracking biodiversity finance

While substantial progress has been made over the last few years on reporting and tracking biodiversity expenditures, there remain considerable gaps and inconsistencies in biodiversity finance data. The financial reporting framework of the CBD has facilitated greater transparency on biodiversity expenditure, however today still less than 40% (74) of Parties have reported domestic expenditures to the CBD. Only 25% of these countries have provided data on domestic expenditures for 2015 or more recent years. There is therefore scope to increase the number of countries reporting and the frequency with which they report.

Furthermore, although most countries have indicated what their reported expenditures to the CBD include (e.g. direct and indirect flows, source of expenditures), only a few countries have provided a quantitative breakdown. For most countries, it is not possible to distinguish between, for example, government and private finance flows. Assessing and tracking biodiversity finance would be easier if all governments were to provide a breakdown of their expenditures by category (e.g. national government, local government, private) and supplementary information on the methodology they used for estimating their biodiversity expenditures.

Strengthening countries' assessments and tracking of biodiversity expenditure is fundamental to improving the quality of the reported data. Existing frameworks such as the Classification of the Functions of the Government, which includes a category on biodiversity and landscape protection (see section 3.1), and Environmental Protection and Expenditure Accounts, provide a useful starting point for systematically and regularly assessing biodiversity expenditures. Going beyond these frameworks, Ireland and the majority of the thirty-five (mainly developing) countries supported by the UNDP BIOFIN initiative have conducted specific and comprehensive reviews of their domestic biodiversity expenditures using the methodology outlined in UNDP BIOFIN (2018). The European Commission has also developed a methodology to track biodiversity expenditure in the EU budget, and applied this to its 2014-2020 budget (Medarova-Bergstrom, et al., 2014[24]) (EC, 2017[25]). Under the Paris Collaborative on Green Budgeting, the OECD is working with governments to design tools to assess and drive improvements in the alignment of national expenditure and revenue processes with biodiversity, climate and other environmental goals.

Data and tracking of policy instruments relevant for biodiversity finance has improved in recent years, and continues to develop. The OECD database on Policy Instruments for the Environment (PINE) tracks progress on the implementation of biodiversity-relevant taxes, fees and charges, environmentally-motivated subsidies and tradable permit systems (i.e. the positive incentives in Aichi Target 3) and the revenue they generate (see Box 2.1). The OECD is currently expanding this work to include data on biodiversity offsets and payments for ecosystem services. Currently 109 countries report to the PINE database, although it is likely that reporting on biodiversity-relevant instruments is not yet fully comprehensive.

Further work on tracking private biodiversity finance is crucial, given the current data gaps and the important role of private finance in closing the biodiversity finance gap. Private biodiversity finance is even more difficult to track than public finance, owing to the lack of common definitions and reporting frameworks, and the challenges associated with identifying the biodiversity component of private transactions. Future work could focus on establishing a framework for systematically assessing and tracking private investment and finance for biodiversity. The design of such a framework could draw lessons from OECD's Research Collaborative on Tracking Private Climate Finance.

Finally, in addition to tracking volumes of biodiversity-relevant finance flows, it is also important to evaluate the effectiveness of existing finance flows – and the related policy and finance instruments – in achieving biodiversity impacts (Karousakis, 2018[26]). Such information can help governments and other actors to improve the design of their instruments, projects and investment strategies, and better deliver biodiversity finance (see (OECD, 2019[2]) for more information).

3 Data and methodology

The objective of this work is to provide the most comprehensive estimate possible of public and private expenditures on the conservation and sustainable use of biodiversity, based on currently available data. For an estimate of biodiversity finance to be comprehensive, it should cover:

- Flows from all actors, public (e.g. local and national government, public financial institutions) and private (e.g. philanthropic foundations, corporations, institutional investors);
- Domestic (e.g. domestic budget allocation) and international flows (e.g. official development assistance [ODA]);
- Flows from all relevant economic sectors and policy areas (e.g. agriculture, fisheries, tourism, forestry);
- Flows for which the conservation and sustainable use of biodiversity is the primary or secondary objective; and
- Flows within and from all countries.

This section provides an overview of the primary data sources used in this analysis, and the methodology underpinning the initial estimates of public and private biodiversity expenditures presented above in Section 2.

Public finance domestic flows

Public domestic finance refers here to finance provided within a country by national, regional and local governments, public agencies (e.g. Protected Areas agencies) and public financial institutions. Since no currently available dataset covers all countries, this analysis draws on various sources of data to arrive at the most comprehensive estimate possible. The primary datasets analysed were: i) the CBD financial resource mobilisation reports: ii) the Biodiversity Finance Initiative (BIOFIN) biodiversity expenditure reports (BERs); and iii) the Classification of Functions of Government (COFOG). Where available, additional data sources were analysed for countries not covered by at least one of these datasets. The datasets are described below.

Datasets

CBD financial reporting framework

Decision XII/3 of the Convention on Biological Diversity "[u]rges Parties and other Governments to report on their contribution to the collective efforts to reach the global targets for resource mobilization" and adopts a financial reporting framework. Seventy-four countries (40% of Parties) have reported domestic expenditures to the CBD. Forty-nine of these countries have provided data on domestic expenditures for 2015 or more recent years.

The reporting framework provides a template for countries to indicate whether the reported expenditures are directly or indirectly related to biodiversity[7], and what type of flows they include (e.g. government and private) (Table 3.1). In general, little guidance is provided on how to estimate and report domestic expenditures. Initial suggestions on how this could be improved were highlighted in section 2.

Table 3.1. CBD financial reports: information on sources and categories provided by countries for domestic expenditures

Type of flow (source)	Expenditures directly related to biodiversity (n=number of countries)	Expenditures indirectly related to biodiversity (n=number of countries)
Governments budget – central	73	41
Governments budget – state/provincial	26	18
Governments budget – local/municipal	23	14
Extra-budgetary	26	15
Private/market	17	10
Other (NGO, foundations, academia)	31	18
Collective action of indigenous and local communities	6	3

Source: (SCBD, 2019[28]), website accessed 5 August 2019

The first four categories in Table 3.1 (government budget at central, state and local levels and extra-budgetary) are relevant for the estimate of public domestic expenditures.[8] Although some countries that included spending from non-governmental bodies have provided a quantitative breakdown of their reported expenditures, many have not. Each of the reports was therefore examined to identify whether it was possible to extract public expenditures from the total reported. Countries whose public domestic spending could not be isolated from total spending were excluded from the analysis (19 out of 49 countries for the period 2015-2017).

UNDP Biodiversity Finance Initiative (BIOFIN) – Biodiversity Expenditure Reports

BIOFIN supports 35 (mainly developing) countries, across five continents, to measure public and private biodiversity expenditures, defined as "any expenditure whose purpose is to have a positive impact or to reduce or eliminate pressures on biodiversity" (UNDP, 2018[29]). It intends to provide an adaptable approach to measuring expenditures. As with the CBD financial reporting framework, the BIOFIN methodology counts direct expenditures that have biodiversity as their primary purpose and indirect expenditures that have biodiversity as their secondary (or joint) objective. Guidance is provided on how to measure primary and secondary flows, with primary expenditures generally counted at 100%, and secondary expenditures weighted according to an estimate of the percentage of money spent that was targeted to specific biodiversity categories (e.g. 75%, 50%, 25%, 5%, 1% or 0%). Completed biodiversity expenditure reviews (BERs) for 18 of the 35 BIOFIN countries were available for analysis. The 18 BERs were reviewed and the relevant domestic public expenditure data extracted for this analysis.

[7] The distinction between direct and indirect biodiversity finance is comparable to the distinction between "principal" and "significant" objectives in the Rio marker methodology used by the OECD Development Assistance Committee. The CBD reporting guidance states: "Funding for biodiversity includes not only funding for direct actions to protect biodiversity but also funding related to actions across different sectors (e.g. agriculture, forestry, tourism) to promote biodiversity friendly initiatives that have other primary purposes (e.g. ecosystem-based approaches to climate-change mitigation and adaptation)."

[8] Adding national and sub-national government expenditures entails a risk of double counting, owing to transfers between government bodies. If countries did not account for this risk in their reported biodiversity expenditures, then some double counting will exist in the estimate of public domestic expenditures presented in this document.

Classification of Functions of the Government (COFOG) data on biodiversity expenditure

COFOG was developed in 1999 by the OECD and published by the UN Statistical Division as a standard for classifying the purposes (functions) of government activities. Under COFOG, countries code each purchase, wage payment, transfer, loan disbursement or other outlay under one of ten divisions[9], according to the primary function or purpose that the transaction serves. Each of these divisions is then broken down into groups, which, in turn, are subdivided into classes. Expenditures for which environmental protection is the primary purpose (irrespective of the sector) are coded under division 5, Environment Protection. Activities relating to the protection of fauna and flora species, the protection of habitats and the protection of landscapes for their aesthetic values are coded under group 5.4, Protection of Biodiversity and Landscape.

The analysis here compiles COFOG data collected by the OECD, and complements this with COFOG data from EUROSTAT and International Monetary Fund (IMF) to increase country coverage. Reported values for group 5.4 Protection of Biodiversity and Landscape for the general government sector (central, state and local governments, and social security funds) were taken as a measure of domestic public expenditure on biodiversity.

Other datasets

The OECD is also exploring other sources of data to complement the three primary sources outlined above. For this analysis, estimates are also included for federal spending on biodiversity in Australia and the United States. Australia's estimate was taken from Creswell and Murphy (2017[30]). U.S. spending on biodiversity was estimated from an analysis of budget justifications of several federal agencies and programmes[10], and data on 12 large payment for ecosystem services schemes.[11] It is a conservative and preliminary estimate.

Comparison of datasets

Overall, the CBD financial reporting framework covers the most countries, followed by COFOG and then BIOFIN. However, the COFOG data has a larger country coverage for most recent years (i.e. in 2016 and 2017) (Table 3.2). In terms of the scope of the datasets, the CBD financial reporting framework and the BIOFIN methodology are broader than COFOG: COFOG Group 5.4 only captures expenditures where biodiversity protection is the primary objective, whereas BIOFIN BERs and some CBD reports also cover flows where biodiversity is a secondary objective (i.e. indirect flows). However, COFOG is a more established system of reporting than the CBD reporting framework, and is accompanied by more detailed reporting guidance, which promote consistent reporting among countries and over years.

[9] General public services; defence; public order and safety; economic affairs; environmental protection; housing and community amenities; health; recreation, culture and religion; education; and social protection.

[10] US Geological Survey, US Fish and Wildlife Service, Bureau of Land Management, Wild Fire Management, Natural Resource Damage Assessment and Restoration Program, Environmental Protection Agency.

[11] Conservation Reserve Program, Environmental Quality Incentives Program, Wetland Reserve Program, Wildlife Habitat Incentives Program, Voluntary Public Access and Habitat Incentive Program, Conservation Security Program, Conservation Stewardship Program, Agricultural Conservation Easement Program, Regional Conservation Partnership Program, Grassland Reserve Program, Chesapeake Bay Watershed Initiative and the Agricultural Water Enhancement Program.

Table 3.2. Domestic public finance on biodiversity: Country coverage of CBD, BIOFIN and COFOG datasets by year

	2010	2011	2012	2013	2014	2015	2016	2017
Country coverage of domestic spending reported to CBD (public spending can be isolated from total)	57 (35)	56 (34)	58 (36)	56 (34)	59 (35)	49 (30)	3 (3)	2 (2)
Country coverage of publicly available BIOFIN data	8	12	15	17	16	14	7	4
Country coverage of COFOG data	30	31	33	35	39	44	45	46
Countries covered by one or more of the datasets (public spending can be isolated from total)	72 (61)	76 (67)	80 (71)	82 (72)	87 (75)	83 (75)	52 (52)	49 (49)

Methodology

To increase the country coverage of data on public domestic expenditures, the analysis combines data from across the three datasets described above. When expenditure data for a country are available from more than one dataset and differ (e.g. due to differences in scope and methodology), the analysis applies the following order of priority to the datasets: 1) CBD reports, 2) BIOFIN BER reports, 3) COFOG data[12]. The CBD dataset is prioritised for two reasons. Firstly, it is the reporting framework that was internationally agreed upon for the specific purpose of reporting on biodiversity expenditures to the CBD. Secondly, the reporting framework allows countries to be comprehensive, drawing on BIOFIN, COFOG and other national data on domestic public expenditures on biodiversity[13]. BIOFIN data were prioritised over COFOG data because the initiative's expenditure reviews are more comprehensive, covering indirect as well as direct flows and drawing on multiple data sources.

The estimate of annual spending is based on an average of available data for the period 2015-2017, rather than data from a single year. Taking an average across years helps to account for fluctuations in spending from one year to the next, at least for those countries with expenditure data for multiple years during the period 2015-2017. The year 2015 was taken as a cut-off as it was considered to provide a balance between, on the one hand, ensuring the data reflects recent expenditure and, on the other hand, maximising the number of countries covered in the analysis. Basing an estimate on 2016-2017 would limit the scope to 52 countries and lead to a significant underestimation of biodiversity finance flows.

Limitations and further issues to address

The estimates presented here are only as robust as the underlying datasets, which may be affected by methodological or practical limitations and possible reporting errors. For example, as indicated in section 2.1.1., while countries have a template for reporting their finance flows to the CBD, they are not required to follow a strict methodology for quantifying their expenditures. This gives rise to differences in how and what countries report. In the absence of supplementary information from reporting countries, methodologies cannot be compared between countries or across datasets. While COFOG has clear guidance for reporting, it too has limitations. In theory, any transaction with the primary purpose of biodiversity and landscape protection should be categorised as group 5.4, irrespective of the agency or ministry responsible for the transaction. In practice, however, it can be difficult to divide a transaction with multiple purposes across the relevant divisions and groups. Furthermore, for practical reasons an agency or ministry may record their entire expenditure under a single COFOG division.

[12] The objective of this analysis is to provide a comprehensive estimate of public domestic expenditure based on the best data that is currently available. To describe trends over time or to compare country expenditures would potentially require different data choices to emphasise consistency and comparability over comprehensiveness.

[13] Although the CBD reporting template facilitates comprehensiveness, the comprehensiveness of countries' finance reports to the CBD vary considerably and in most cases is difficult or impossible to determine owing to a lack of supplementary information provided by countries on their methodology.

While the methodology applied extends the country coverage beyond the OECD (2019[2]) estimate of public domestic biodiversity finance to 80 countries, several large economies are still absent from this estimate (Table 3.3). For example, the estimate includes only 14 countries of the Group of Twenty (G20). Furthermore, some of the missing countries are among the most biodiverse (e.g. Argentina, Chile and Indonesia). BIOFIN-supported biodiversity expenditure reviews for Chile and Indonesia may be available for the next iteration of this report. For a full list of countries covered in this analysis, see Annex A.

Table 3.3. Public domestic expenditures: data coverage of country groupings

Number (and percentage) of countries with biodiversity public domestic expenditure data for 2015-2017, per country grouping

	G20	OECD	CBD signatories
CBD financial reports	5 (25%)	10 (28%)	30 (16%)
BIOFIN BER	4 (20%)	2 (6%)	13 (7%)
COFOG biodiversity and landscape protection	8 (40%)	29 (81%)	48 (25%)
Other data sources	2 (10%)	2 (6%)	1 (1%)
Domestic public spending data available from one or more of the above sources	15 (75%)	34 (93%)	78 (40%)

Note: These are not mutually exclusive groupings: eleven G20 countries are also members of the OECD.

In addition, due to limitations of the datasets, the estimate of public domestic expenditures provided in this analysis only partially covers expenditures by sub-national governments. This is because the majority of countries reporting to the CBD have either not included data on sub-national governments or included only partial data. Furthermore, owing to variations in how countries report to the CBD and differences across the three underlying datasets, the estimates presented here include indirect flows for only 25 countries. Some countries have applied a coefficient to calculate the biodiversity relevant component of these indirect flows, while other countries may have included the entire amount.

Public finance: international flows

Public international biodiversity finance in this analysis refers to financial transfers from a government, public agency or public financial institution to support the pursuit of biodiversity objectives in another country. It includes ODA and other official flows (OOF), and both bilateral and multilateral flows (Box 3.1).

While 28 donor countries have reported their biodiversity-related ODA and OOF through the CBD Financial Reporting Framework under section one “international financial resource flows”, the majority of entries date to 2015. Only 11 countries have provided information on international flows from 2016-2017. Furthermore, countries have reported their international flows differently. For example, some countries have reported “commitments”, whereas others have reported “disbursements”; some countries include only direct flows, while others include indirect flows[14]; and some countries combine multilateral and bilateral ODA in their reports. For these reasons, this analysis bases the estimate of international public flows for biodiversity on the OECD Creditor Reporting System, which has recent, consistent and comparable data from official providers, including bilateral donors and multilateral organisations. This section describes the OECD

[14] The distinction between direct and indirect biodiversity finance is comparable to the distinction between “principal” and “significant” objectives in the Rio marker methodology used by the OECD Development Assistance Committee to assess development finance. The CBD reporting guidance states: “Funding for biodiversity includes not only funding for direct actions to protect biodiversity but also funding related to actions across different sectors (e.g. agriculture, forestry, tourism) to promote biodiversity friendly initiatives that have other primary purposes (e.g. ecosystem-based approaches to climate-change mitigation and adaptation).”

Creditor Reporting System and the methodology used to estimate of public international flows for biodiversity.

Box 3.1. Key terms for biodiversity-related development finance

Official Development Assistance (ODA): Resource flows to countries and territories on the DAC List of ODA Recipients (developing countries) and to multilateral agencies which are: (a) undertaken by the official sector; (b) with promotion of economic development and welfare as the main objective; (c) at concessional financial terms. In addition to financial flows, technical co-operation is included in aid.

Other Official Flows (OOF): Transactions by the official sector with countries on the DAC List of ODA Recipients which do not meet the conditions for eligibility as Official Development Assistance, either because they are not primarily aimed at development, or because they have a grant element of less than 25 per cent.

Official Development Finance (ODF): Official development finance is measured only in relation to the receipts of developing countries, not for individual donor countries. It is a broad measure of developing countries' official receipts for developmental purposes, and is defined as the sum of bilateral ODA flows, bilateral OOF except OOF grants and loans for commercial purposes, and all grants and loans by multilateral development institutions, irrespective of the grant element of the loans.

Bilateral: Flows provided directly by a donor country to an aid recipient country.

Multilateral: Flows are channelled via an international organisation active in development (e.g. World Bank, UNDP). A contribution by a DAC member to such an agency is deemed to be multilateral if it is pooled with other contributions and disbursed at the discretion of the agency.

Source: (OECD, 2019[31])

OECD Creditor Reporting System (CRS) and biodiversity

The OECD Development Assistance Committee (DAC) collects data on official development finance (ODF), i.e. bilateral ODA and multilateral outflows. This data includes information on the source and beneficiary of the finance flows, the financing instrument, the sectoral focus and purpose (including biodiversity). The DAC also monitors development finance targeting the objectives of the Rio Conventions on biodiversity, climate change and desertification. For each activity reported to the CRS, providers apply the Rio DAC marker methodology to indicate whether the activity targets the objectives of the CBD as a "principal" or "significant" objective, or not at all. Activities scored "principal" are funded specifically for that policy objective; activities scored "significant" have other primary objectives, but have been formulated or adjusted to help meet biodiversity objectives. The Rio marker approach includes biodiversity-related finance from all sectors, not just the environmental sector.

Methodology

The biodiversity Rio marker has not been applied to all ODF commitments entered in the CRS. For example, all DAC members (29 in 2017), but only 3 out of 9 reporting non-DAC countries and 3 out of 34 reporting multilateral agencies reported biodiversity-related concessional outflow commitments in 2017. Moreover, DAC and non-DAC members that reported biodiversity-related ODF did not necessarily screen all of their commitments. The analysis here identified a total of USD 5.7 billion of bilateral ODA commitments (DAC members and non-DAC countries) and USD 39.3 billion of multilateral concessional outflow commitments in 2017 that were not screened for biodiversity.

Although not all providers have comprehensively assessed their ODF commitments using the biodiversity Rio marker, most have entered descriptive information in the CRS. It is therefore possible to assess the entries that have not yet been screened for biodiversity relevance. Each bilateral ODA and multilateral outflows[15] entry without a Rio marker score for biodiversity was screened for the following terms: "conservation", "bio-div", "biodiv", "biological div", "ecosys", "ecolog", "nature", "wildlife", "flora", "fauna", "diversité biologique", "faune" et "flore". Each of the unscreened entries containing one or more of these terms was assessed and assigned a Rio marker to indicate whether the committed funds target the objectives of the CBD as a principal or significant objective, or not at all.

The analysis presents a lower limit of biodiversity-related ODF (equivalent to "principal" flows), an upper limit (the sum of "principal" and "significant" flows) and a mid-range estimate. The mid-range estimate applies a coefficient of 40% to the flows marked as significant, which is consistent with the approach taken by many donor countries in their CBD financial reports.[16] This is because the Rio marker data reflects the full amount reported against the activity by the provider, rather than the biodiversity-specific share or component of the activity.

ODF tends to fluctuate from one year to the next. To account for this fluctuation, the estimates presented here are based on an average across three years: 2015-2017. This is consistent with the approach taken for public domestic finance. See Annex B for further information and an overview of the data.

Adding *domestic* public expenditures to *international* public expenditures could result in double counting, as the domestic expenditures reported by ODA recipient countries may come from ODA reported separately by ODA providers. To identify the potential overlap, the average annual disbursement of biodiversity-related ODA (2015-2017) to recipient countries included in the domestic expenditure estimate was calculated based on data in the CRS and then subtracted from the low-range estimate of global biodiversity finance.

Limitations and further issues to address

The estimates of international public finance flows for biodiversity are based on data reported to the OECD's Creditor Reporting System (CRS). However, a handful of official providers do not report to the CRS, including Brazil, the People's Republic of China, Colombia, Costa Rica, India, Indonesia, Qatar and South Africa. Although estimates of the overall volume of development co-operation provided by these countries exist, further work is needed to examine whether some portion of these flows could be attributed to biodiversity. In addition, not all DAC and non-DAC members that report to the CRS include non-concessional flows. However, as stipulated earlier, development finance for biodiversity tends to be concessional so the gap in OOF data is unlikely to have significant implications for the total estimate of international public flows.

[15] Bilateral OOF data was not screened in this additional analysis due to data restrictions. The estimate presented in this report therefore represents only what countries themselves have marked as biodiversity-related.

[16] Of the 20 countries that have reported biodiversity-related ODA to the CBD using the Rio Marker methodology, nine applied a coefficient of 40% to "significant" flows. Four countries reported the sum total of "principal" and "significant" flows, three reported only "principal" flows, two applied a coefficient of 50%, one applied a range of coefficients from 10-50% for "significant" and 50-100% for "principal", and two did not specify.

Private biodiversity finance

Private finance for biodiversity comes from a number of sources and intermediaries, including individuals/households, corporations, commercial financial institutions, private equity firms and institutional investors. It can be mobilised and delivered through various financing instruments, including grants (e.g. from philanthropic foundations), debt, equity and balance sheet financing. Estimating private spending is particularly challenging, because individuals/households and companies do not typically monitor and report on their biodiversity expenditures. However, data are available for some sources (or intermediaries) of private biodiversity finance and some financing instruments. This analysis pieces together the available data, accounting for potential duplication (i.e. double counting). For consistency with the data presented on public expenditures, the analysis focusses on the period 2015-2017, and provides data for the most recent year available during this period. The data sources and methodology underpinning the estimate of private sector finance in section 2 are described below.

Data sources

Philanthropic funding – OECD Creditor Reporting System

The OECD Creditor Reporting System (CRS) currently includes data on finance flows reported by over twenty philanthropic foundations. These data are screened annually by the OECD Secretariat using the Rio Marker methodology. Twenty-six philanthropic foundations reported to the CRS in 2017. Of these, 14 foundations were found to have biodiversity-related activities.[17] Consistent with the approach taken for international public flows, Table 3.4. presents a lower and upper limit, as well as a mid-range estimate (applying a coefficient of 40% to activities marked as significant). It is important to note that figures on philanthropic funding may change significantly from one year to the next. However, as far fewer foundations reported data to the CRS in previous years, taking the average across years would therefore lead to an underestimation of philanthropic funding. Therefore, this analysis presents data for 2017 only.

Table 3.4. Biodiversity-related funding from philanthropic foundations in 2017

Lower limit	Mid-range estimate	Upper limit
USD 222 million	USD 286 million	USD 380 million

Note: Lower limit = commitments tagged as "principal". Mid-range estimate = the sum of 100% of "principal" and 40% of "significant". Upper limit = the sum of "principal" and "significant".

Biodiversity offsets

According to Bennett, Gallant and Ten Kate (2017[4]), USD 4.8 billion in mitigation bank credits and financial compensation were transacted in 2016. This estimate covers 99 regulatory biodiversity offsetting programmes in over 30 countries. About 63% of spending on offsets in 2016 (USD 3.02 billion) is reported to have come from the private sector, with the greatest demand coming from the energy, transportation, and mining/minerals sectors. The lower limit estimate of global biodiversity finance presented in this report includes the USD 3.02 billion spent on biodiversity offsets. The upper limit includes all expenditures on biodiversity offsets (i.e. USD 4.8 billion), with some risk of double counting with the public expenditure data reported by governments.[18]

[17] Arcus Foundation, C&A Foundation, Children's Investment Fund Foundation, David & Lucile Packard Foundation, Dutch Postcode Lottery, Ford Foundation, Gatsby Charitable Foundation, Gordon and Betty Moore Foundation, John D. & Catherine T. MacArthur Foundation, MAVA Foundation, Oak Foundation, People's Postcode Lottery, Swedish Postcode Lottery, William & Flora Hewlett Foundation.

[18] The report does not clearly define public and private sectors, which leaves the position of e.g. NGOs and state-owned enterprises unclear. Further investigation will be conducted for the next iteration of this report.

While the analysis presented here draws on Bennett, Gallant and Ten Kate (2017[4]), the OECD is currently undertaking a survey on biodiversity offset programmes, which also solicit information on whether the payments are made by the public or private sector. The final iteration of this report will therefore also draw on OECD's survey.

Sustainable commodities

To estimate private expenditures on sustainable commodity production (e.g. sustainable agriculture, fisheries, forestry), the analysis examines expenditures by companies to obtain biodiversity-relevant sustainability certification (e.g. spending on audits, environmental impact monitoring and mitigation and other changes in environmental management).

Cost data for agriculture certification were found only for the Roundtable on Sustainable Palm Oil (RSPO), which is the third largest sustainable agriculture certification scheme by area (after organic and Global G.A.P.) (Lernourd et al., 2018[28]). Post-certification costs are reported to range from USD 2.43-10.03 per hectare (Levin, 2012[7]). In 2017, 2.5 million hectares were under certification (RSPO, 2018[8]). Investment in sustainability of palm oil production is therefore, estimated at USD 6-33 million per year. Data on the costs of fisheries and aquaculture certification (e.g. by Marine Stewardship Council) was not found, and therefore not included in this analysis.

For forestry, the analysis examined the two largest forest certifications schemes, Programme for the Endorsement of Forest Certification (PEFC) and Forest Stewardship Council (FSC). Together these schemes covered 428 million hectares of forest in 2016, representing almost 11% of global forest area (PEFC, 2018[29]) and the majority of agriculture and forestry land under sustainable certification. The Breukink et al. (2015[5]) survey of FSC-certified operators puts annual post-certification costs for FSC at USD 3.33 - 4.07 per cubic metre of roundwood. Specific data on the costs of PEFC certification were not found; however, it is assumed that these are sufficiently similar to FSC for the purpose of this analysis. The volume of FSC and PEFC certified wood in 2016 was 689 million cubic metres (FAO, 2018[6]). Investments in sustainable forestry are therefore, estimated to be USD 2 294 – 2 804 million per year.

Adding the estimates of sustainable forestry and sustainable palm oil gives a conservative estimate of investment in sustainable commodities of USD 2 300 – 2 830 million per year.

Payments for ecosystem services (watershed services)

According to Bennet and Ruef (2016[10]), the private sector invested an estimated USD 15.4 million in watershed services in 2015, while the public sector spent more than USD 23 billion. The authors define watershed investments as "any transaction between a buyer and a seller where financial value is exchanged for activities or outcomes associated with the maintenance, restoration or enhancement of watershed services or natural areas considered important for watershed services."

While the analysis presented here draws on Bennet and Ruef (2016[10]), the OECD is currently undertaking a survey on PES programmes, which also solicit information on whether the payments are made by the public or private sector. The final iteration of this report will therefore also draw on OECD's survey.

Forest carbon finance

Hamrick et Gallant (2017[9]) estimate the market value of voluntary forest carbon offset transactions in 2016 at USD 74.2 million, the majority of offsets (92% by volume) were purchased by the private sector. The value of the compliance forest carbon offset market the same year (excluding Australia's Emission Reduction Fund for which the government was the only buyer), was USD 41.9 million. The total value of forest carbon offset transactions in 2016 was therefore USD 116.1 million.

Other data on private finance mobilised through blended finance structures

Based on data collated from various sources on blended finance[19], Convergence (2019[11]) estimates that USD 3.1 billion of blended finance was channelled to biodiversity from 2000 to 2018. From the underlying data OECD identified USD 635 million flowing to biodiversity for the period 2015-2017, of which USD 135 million included ocean-related activities (e.g. sustainable aquaculture). These estimates of blended finance include concessional financing from philanthropic or public actors, and commercially-priced capital from private and public institutions. To avoid double counting with OECD's data on philanthropy and biodiversity-related development finance presented above, this analysis estimated only the private component of the commercially-priced capital.

To estimate the private commercially-priced finance component, the average leverage ratio[20] for the "agriculture" sector presented in Convergence (2018[12]) were applied to the USD 635 million. The average ratio for the agriculture sector was used because it is the sector most relevant to biodiversity and has the lowest leverage ratios. According to Convergence (2019[11]), USD 1 of concessional finance leverages USD 2.5 of commercially-priced capital for agriculture-related projects on average, but only USD 0.5 of this is private capital.

Some of the blended finance projects fund sustainable forest management, including forest carbon projects. There is therefore potential overlap with the estimates presented above for sustainable commodities and forest carbon finance. OECD's lower estimate of private finance therefore includes only those blended finance projects for which there is a near-zero risk of double counting with the other datasets. The upper limit estimate includes all projects, acknowledging the risk of some double counting.

Conservation non-governmental organisations

Conservation non-governmental organisations (NGOs) expenditures on biodiversity can be significant. For example, based on data provided in their annual financial reports, it is estimated that five large conservation NGOs[21] spent USD 2.3 billion in the financial year ending March/June 2017 (Conservation International and Affiliates, 2017[30]) (RSPB, 2017[31]) (The Nature Conservancy, 2017[32]) (WCS, 2017[33]) (WWF International, 2017[34]).[22] However, NGOs receive a substantial share of their revenue from governments and philanthropic foundations. Incorporating the entirety of NGO expenditures in the global estimate of biodiversity finance would therefore lead to double counting. To address this, the revenues for 2017 of the five NGOs were analysed and revenues from the public sector and philanthropic foundations deducted from the total. The resulting estimate of USD 1.2 billion covers, among other things, individual membership fees and donations, corporate grants and investment income. The USD 1.2 billion figure is included in the lower limit estimate of private expenditures (and global biodiversity expenditures), while the USD 2.3 billion is included in the upper limit estimate, and entails some risk of double counting.

Limitations and further issues to address

Comprehensive data on private sector finance on biodiversity is not readily available. The analysis here gives an indication of the order of magnitude of private expenditures on biodiversity, but it is not comprehensive. For example, the investment in sustainable commodity certification includes a large share of land under sustainable certification, but not all commodities. Further analysis will explore opportunities

[19] Convergence defines blended finance as "the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development."

[20] Leverage ratio is defined by Convergence as the amount the amount of commercial capital mobilised by concessional capital, where commercial capital includes capital deployed by private investors at market rates and by public and philanthropic investors at market rates (mostly development finance institutions and multilateral development banks).

[21] Conservation International (CI), Royal Society for the Protection of Birds (RSPB), The Nature Conservancy (TNC), the Wildlife Conservation Society (WCS), and World Wide Fund for Nature (WWF-International).

[22] Official exchange rates from the World Bank Group was applied.

to improve the comprehensiveness of the estimate (for example, from PES and biodiversity offsets, as mentioned above) and will aim to better identify the share of finance targeting ocean/marine versus terrestrial biodiversity.

References

Bennett, G., M. Gallant and K. Ten Kate (2017), *State of Biodiversity Mitigation 2017: Markets and Compensation for Global Infrastructure Development*, http://www.forest-trends.org/wp-content/uploads/2018/01/doc_5707.pdf. [4]

Bennett, G. and F. Ruef (2016), *Alliances for Green Infrastructure: State of Watershed Investment 2016*, Forest Trends' Ecosystem Marketplace, https://www.forest-trends.org/wp-content/uploads/2017/03/doc_5463.pdf. [10]

Breukink, G. et al. (2015), *Profitability and Sustainability in Responsible Forestry: Economic impacts of FSC certification on forest operators*. [5]

CBD COP14 (2018), *Decision 14/22, Resource Mobilization*, http://www.cbd.int/doc/decisions/cop-14/cop-14-dec-22-en.pdf. [39]

Climate Bond Initiative (2017), *Green Bond Highlights 2016*. [14]

Climate Bonds Initiative (2019), *Green bond issuance tops $200bn milestone*, https://www.climatebonds.net/2019/10/green-bond-issuance-tops-200bn-milestone-new-global-record-green-finance-latest-climate (accessed on 5 December 2019). [13]

Climate Bonds Initiative (2019), *Green Bonds the State of the Market 2018*, http://www.climatebonds.net/files/reports/cbi_gbm_final_032019_web.pdf. [19]

Climate Bonds Initiative (2018), *Bonds and Climate Change: The State of the Market*, http://www.climatebonds.net/files/reports/cbi_sotm_2018_final_01k-web.pdf. [15]

Conservation International and Affiliates (2017), *Consolidated Financial Report*, https://d2ouvy59p0dg6k.cloudfront.net/downloads/wwfintl_annualreview2017.pdf. [30]

Convergence (2019), *Data Brief: Blending in Conservation Finance, October 2019*. [11]

Convergence (2018), *Data Brief: Leverage of Concessional Capital, October 2018*. [12]

Creswell, I. and H. Murphy (2017), *Australia State of the Environment 2016: Biodiversity, Independent report to the Minister for the Environment and Energy, Department of the Environment*, https://soe.environment.gov.au/sites/g/files/net806/f/soe2016-biodiversitylaunch-. [37]

EC (2017), *Study on biodiversity financing and tracking biodiversity-related expenditures in the EU budget*. [25]

FAO (2018), *The State of the World's Forest 2018- Forest pathways to sustainable development*, FAO. [6]

Hamrick, K. and M. Gallant (2017), *Fertile Ground: State of Forest Carbon Finance 2017*, Forest Trends' Ecosystem Marketplace, https://www.forest-trends.org/wp-content/uploads/2018/01/doc_5715.pdf. [9]

Karousakis, K. (2018), "Evaluating the effectiveness of policy instruments for biodiversity: Impact evaluation, cost-effectiveness analysis and other approaches", *OECD Environment Working Papers*, No. 141, OECD Publishing, Paris, https://dx.doi.org/10.1787/ff87fd8d-en. [26]

Lernourd, J. et al. (2018), *The State of Sustainable Markets – Statistics and Emerging Trends*. [28]

Levin, J. (2012), *Profitability and Sustainability in Palm Oil Production: Analysis of incremental financial costs and benefits of RSPO compliance*, WWF, FMO, CDC. [7]

Martini, R. and J. Innes (2018), "Relative Effects of Fisheries Support Policies", *OECD Food, Agriculture and Fisheries Papers*, No. 115, OECD Publishing, Paris, https://dx.doi.org/10.1787/bd9b0dc3-en. [22]

Medarova-Bergstrom,, K. et al. (2014), *Tracking Biodiversity Expenditure in the EU Budget, Part I – Guidance on definition and criteria for biodiversity expenditure in the EU budget*. [24]

Mudaliar, A. et al. (2019), *2019 Annual Impact Investor Survey*. [16]

Mudaliar, A. and H. Dithrich (2019), *Sizing the Impact Investing Market*, Global Impact Investing Network. [17]

OECD (2019), *Biodiversity: Finance and the Economic and Business Case for Action*. [2]

OECD (2019), *DAC Glossary of Key Terms and Concepts*, http://www.oecd.org/dac/stats/dac-glossary.htm#ODA. [38]

OECD (2019), *OECD DAC Blended Finance Principles for Unlocking Commerical Finance for the Sustainable Development Goals*, OECD Publishing. [18]

OECD (2019), *OECD International Development Statistics: Creditor Reporting System*, https://doi.org/10.1787/dev-data-en. [3]

OECD (2019), *Producer and Consumer Support Estimates*, OECD Agriculture statistics (databsae), http://dx.doi.org/10.1787/agr-pcse-data-en. [21]

OECD (2013), *Policy Instruments to Support Green Growth in Agriculture*, OECD Green Growth Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264203525-en. [35]

OECD/IEA (2019), *Update on recent progress in reform of inefficient fossil-fuel subsidies that encourage wasteful consumption*, https://oecd.org/fossil-fuels/publication/OECD-IEA-G20-Fossil-Fuel-Subsidies-Reform-Update-2019.pdf. [20]

Parker, C. et al. (2012), *The Little Biodiversity Finance Book*, The Global Canopy Programme. [1]

PEFC (2018), *Double certification continues to grow, joint PEFC/FSC data shows - PEFC - Programme for the Endorsement of Forest Certification*, https://www.pefc.org/news/double-certification-continues-to-grow-joint-pefc-fsc-data-shows (accessed on 27 November 2019). [29]

RSPB (2017), *Trustees' report and accounts for the year ended 31 March 2017*, https://www.rspb.org.uk/globalassets/downloads/about-us/rspb-annual-accounts-2017.pdf. [31]

RSPO (2018), *Impact | RSPO - Roundtable on Sustainable Palm Oil*, https://rspo.org/impact (accessed on 27 November 2019). [8]

SCBD (2019), *The Clearing-House Mechanism of the Convention on Biological Diversity: Information Submission Service*, https://chm.cbd.int/search/financial-analyzer (accessed on 5 August 2019). [27]

Sumaila, U. et al. (2016), "Global fisheries subsidies: An updated estimate", *Marine Policy*, Vol. 69, pp. 143-146. [23]

The Nature Conservancy (2017), *Consolidated Financial Statements for the year ended June 30, 2017 and report hereon*, https://www.nature.org/content/dam/tnc/nature/en/documents/tnc-2017-financial-statement.pdf. [32]

UNDP (2018), *BIOFIN: The Biodiversity Finance Initiative Workbook*, http://www.biodiversityfinance.org (accessed on 20 August 2019). [36]

WCS (2017), *Conservation Impact Report*, https://c532f75abb9c1c021b8c-e46e473f8aadb72cf2a8ea564b4e6a76.ssl.cf5.rackcdn.com/2018/04/26/m9bt0vy8t_2017_WCS_Conservation_Impact_Report_Digital_Version.pdf. [33]

WWF International (2017), *Annual Review 2017*, https://d2ouvy59p0dg6k.cloudfront.net/downloads/wwfintl_annualreview2017.pdf. [34]

Annex A. Domestic public expenditure data

Table A A.1. Domestic public expenditure data: country coverage 2015-2017

	Country data included in total estimate	Data also covers indirect flows	CBD (public data only)	BIOFIN		COFOG
				BIOFIN Member	Data 2015-2017 available	
Albania	✓					✓
Argentina						
Armenia	✓					✓
Australia	✓					
Austria	✓		✓			✓
Azerbaijan	✓					✓
Barbados	✓		✓			
Belarus	✓					✓
Belgium	✓					✓
Belize	✓	✓	✓	✓		
Bhutan				✓		
Bolivia	✓	✓	✓			
Bosnia and Herzegovina	✓		✓			
Botswana	✓	✓		✓	✓	
Brazil			✓	✓		
Bulgaria	✓					✓
Burkina Faso						
Burundi	✓		✓			
Cambodia				✓		
Canada	✓		✓			
Chile				✓		
China	✓		✓			✓
Colombia	✓	✓		✓	✓	✓
Costa Rica	✓	✓	✓	✓		✓
Cote d'Ivoire						
Croatia	✓					✓
Cuba	✓	✓		✓	✓	
Cyprus	✓					✓
Czech Republic	✓					✓
DRC	✓	✓	✓			
Denmark	✓					✓
Ecuador	✓	✓	✓	✓		
Egypt	✓		✓			
Eritrea		✓				
Estonia	✓					✓
Fiji				✓		
Finland	✓					✓
France	✓					✓
Georgia	✓	✓		✓	✓	✓

Germany	✓					✓
Greece	✓					✓
Guatemala				✓		
Guinea						
Honduras						
Hungary	✓		✓			✓
Iceland	✓					✓
India	✓	✓		✓	✓	
Indonesia				✓		
Iran	✓		✓			
Ireland	✓					✓
Israel	✓					✓
Italy	✓		✓			✓
Japan	✓		✓			✓
Kazakhstan	✓	✓		✓		✓
Kuwait	✓		✓			
Kyrgyz Republic	✓			✓		✓
Latvia	✓					✓
Lebanon						
Lithuania	✓					✓
Luxembourg	✓					✓
Madagascar				✓		
Malawi				✓		
Malaysia				✓		
Maldives	✓		✓			
Malta	✓		✓			✓
Mauritania	✓	✓	✓			
Mexico	✓	✓	✓	✓	✓	
Micronesia	✓	✓	✓			
Moldova	✓		✓			✓
Mongolia	✓	✓		✓	✓	
Morocco						
Mozambique				✓		
Myanmar						
Nepal				✓		
Netherlands	✓					✓
New Zealand	✓		✓			
Niue						
Norway	✓					✓
Panama						
Peru				✓		
Philippines	✓	✓	✓	✓		
Poland	✓					✓
Portugal	✓					✓
Republic of Korea		✓				
Romania	✓					✓
Russian Federation	✓					✓
Rwanda	✓	✓		✓	✓	
Saudi Arabia						
Serbia	✓		✓			
Seychelles	✓	✓		✓	✓	
Singapore	✓					✓
Slovak	✓		✓			✓

Republic						
Slovenia	✓					✓
South Africa	✓	✓		✓	✓	
South Sudan						
Spain	✓					✓
Sri Lanka	✓	✓		✓	✓	
Sudan						
Sweden	✓		✓			✓
Switzerland	✓	✓	✓			✓
Tanzania				✓		
Thailand	✓	✓		✓	✓	
Turkey	✓					✓
Uganda				✓		
Ukraine	✓					✓
United Kingdom	✓					✓
United States of America	✓					
Uganda				✓		
Uruguay						
Venezuela	✓		✓			
Viet Nam	✓	✓		✓	✓	
Zambia				✓		
TOTAL	**80**	**25**	**30**	**35**	**14**	**48**

Note: This is not an exhaustive list of countries. It includes all OECD, G20 and BIOFIN countries plus all countries that have submitted CBD finance reports or data on biodiversity and landscape protection expenditures under COFOG.

Annex B. Biodiversity-related development finance data for recent years

Table A B.1. Bilateral biodiversity-related ODA 2014-2017

Commitments, current prices. Figures combine data reported to the Creditor Reporting System and the OECD Secretariat's additional analysis.

	2014	2015	2016	2017
Principal (i.e. lower limit estimate)	USD 3 253 million	USD 3 962 million	USD 2 742 million	USD 3 062 million
Significant	USD 3 700 million	USD 4 237 million	USD 4 093 million	USD 4 315 million
Principal + 40% of Significant (i.e. mid-range estimate)	USD 4 732 million	USD 5 657 million	USD 4 379 million	USD 4 788 million
Principal + Significant (i.e. upper limit estimate)	USD 6 952 million	USD 8 199 million	USD 6 835 million	USD 7 377 million

Source: Based on data reported to OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.

Table A B.2. Bilateral biodiversity-related OOF 2014-2017

Commitments, current prices.

	2014	2015	2016	2017
Principal (i.e. lower limit estimate)	0	USD 0.4 million	0	USD 19 million
Significant	USD 0.05 million	USD 11 million	USD 40 million	USD 0.09 million
Principal + 40% of Significant (i.e. mid-range estimate)	USD 0.002 million	USD 5 million	USD 16 million	USD 19 million
Principal + Significant (i.e. upper limit estimate)	USD 0.005 million	USD 11 million	USD 40 million	USD 19 million

Source: OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.

Table A B.3. Multilateral biodiversity-related ODA

Commitments, current prices. Figures combine data reported to the Creditor Reporting System and the OECD Secretariat's additional analysis.

	2014	2015	2016	2017
Principal (i.e. lower limit estimate)	USD 378 million	USD 276 million	USD 581 million	USD 1 080 million
Significant	USD 288 million	USD 502 million	USD 1 272 million	USD 1 584 million
Principal + 40% of Significant (i.e. mid-range estimate)	USD 493 million	USD 477 million	USD 1 090 million	USD 1 713 million
Principal + Significant (i.e. upper limit estimate)	USD 666 million	USD 778 million	USD 1 853 million	USD 2 664 million

Source: Based on data reported to OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.

Table A B.4. Multilateral biodiversity-related concessional flows

Commitments, current prices. Figures combine data reported to the Creditor Reporting System and the OECD Secretariat's additional analysis.

	2014	2015	2016	2017
Principal (i.e. lower limit estimate)	USD 41 million	USD 12 million	0	USD 6 million
Significant	USD 518 million	USD 41 million	USD 650 million	USD 336 million
Principal + 40% of Significant (i.e. mid-range estimate)	USD 248 million	USD 28 million	USD 260 million	USD 140 million
Principal + Significant (i.e. upper limit estimate)	USD 559 million	USD 53 million	USD 650 million	USD 342 million

Source: Based on data reported to OECD (2019[3]), Creditor Reporting System, accessed 19 August 2019.