



Mainstreaming Biodiversity for Sustainable Development

POLICY HIGHLIGHTS

Mainstreaming Biodiversity for Sustainable Development

Biodiversity underpins all life and provides vital benefits to our societies and economies. Yet despite this, pressures from land use change, over-exploitation of natural resources, pollution and climate change are contributing to an alarming loss of living diversity. We have to reverse these trends. Biodiversity and ecosystem services provide invaluable – but often invisible – benefits at global, regional and local scales. These include services such as nutrient cycling, habitat provisioning, pollination, erosion control and climate regulation. The need to mainstream biodiversity and ecosystem services more effectively into national and sectoral policies has recently gained renewed impetus on the global policy agenda. In line with the Convention on Biological Diversity and the 2011-2020 Aichi Biodiversity Targets, the 2030 Agenda for Sustainable Development places strong emphasis on biodiversity for achieving these global goals.

The purpose of OECD (2018) *Mainstreaming Biodiversity for Sustainable Development* is to highlight examples of good practice, and remaining challenges, in four key areas. These areas are: mainstreaming biodiversity at the national level; mainstreaming biodiversity in the agriculture, forestry and fisheries sectors; development co-operation and biodiversity mainstreaming; and monitoring and evaluating biodiversity mainstreaming.

Insights are drawn from 16 predominantly megadiverse countries (or those with biodiversity hotspots) as these countries host some of the richest and often most threatened biodiversity in the world. The countries examined also span the full range of income groups, from high-income economies such as Australia and France to lower-income economies such as Ethiopia and Madagascar.

The report is intended for biodiversity policymakers and practitioners in developed and developing countries, as well as for development co-operation agencies and other national ministries. We hope this study will be of use as together we strive to develop better, more mainstreamed, biodiversity policies for better lives.



ANGEL GURRIA, *OECD Secretary General*



1 Mainstreaming Biodiversity – the international context

Achieving sustainable development for “our people, our planet, our prosperity” is one of the top policy priorities of our time. Mainstreaming biodiversity and the value of our natural ecosystems into economic growth and development objectives is a crucial element of this, as reflected by Sustainable Development Goals (SDGs) 14 and 15 on Life under Water and Life on Land, among others. This has also long been recognised under the Convention on Biological Diversity (CBD) and the 2011-2020 Aichi Biodiversity Targets.

Terrestrial and marine biodiversity provide a wide range of ecosystem services such as food provisioning, water purification, habitat provisioning, erosion control, nutrient cycling and climate regulation, all of which humans depend on to support life. Despite the fundamental importance of biodiversity to the economy, society, health and cultural systems, biodiversity loss continues worldwide as the pursuit of economic growth and development leads to the conversion, and in many cases over-exploitation, of natural resources for inputs to production and consumption.

Given the multiple pressures on biodiversity, there is increasing recognition that greater efforts are needed to reflect the inherent – and often invisible – values of biodiversity and ecosystem services into all aspects of decision making. Biodiversity underpins many of the 17 SDGs, and effective mainstreaming will be an essential step for countries – developed and developing alike – to deliver on Agenda 2030. Achieving this will require strategic, coherent and well-coordinated policies and actions.





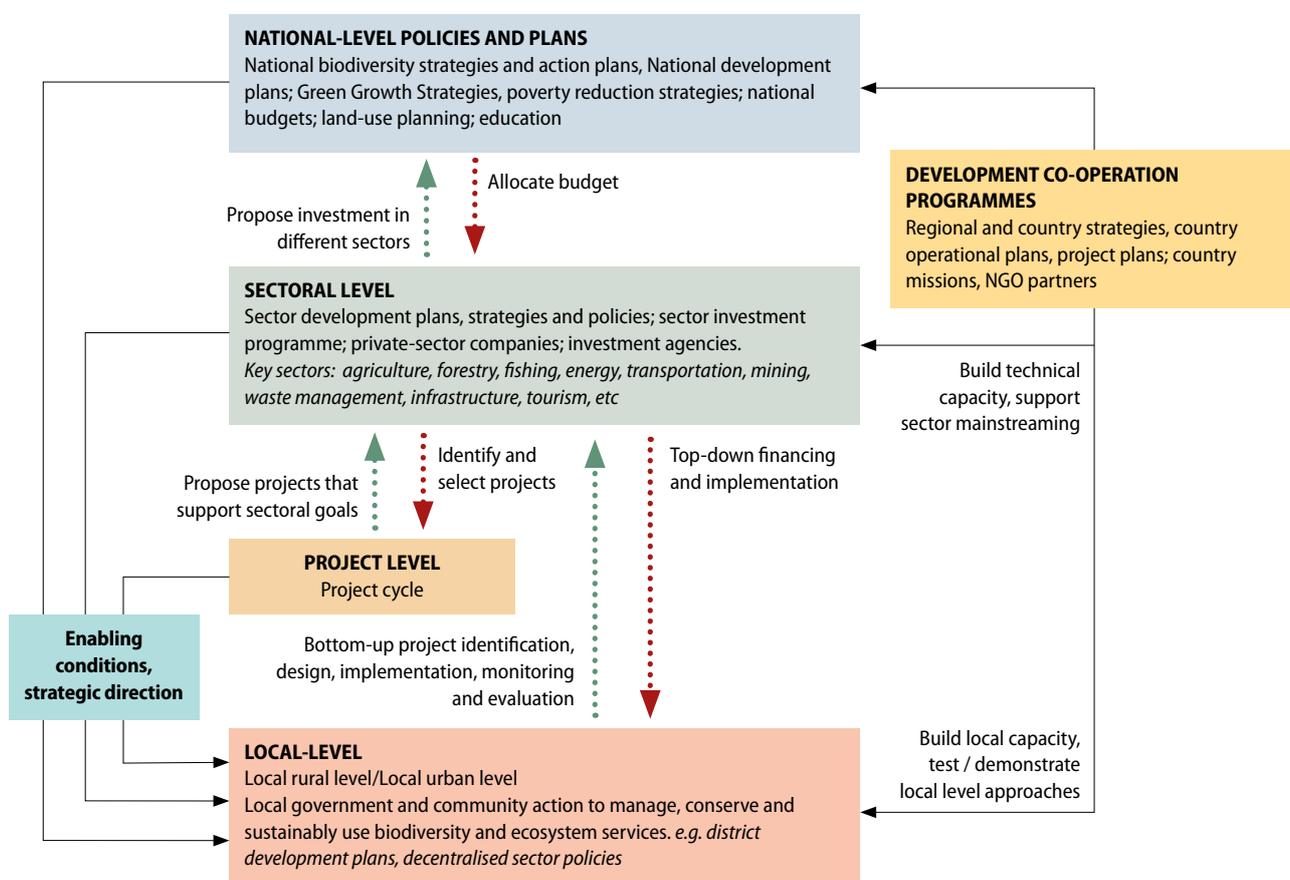
Did you know?

Strategic Goal A of the CBD Aichi Biodiversity Targets is “Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society”. Under this goal, Target 2 for example is: “By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.”

For biodiversity mainstreaming to be effective, it should occur across all levels of government and include all relevant stakeholders. Entry points interact and are located at different levels of governance (Figure 1). For example, including attention to biodiversity and ecosystem services within a national or sector development plan is a key step

in the mainstreaming process but will not result in changed outcomes on the ground if there is no budget allocated to implement the plan. Similarly, doing so will be insufficient if subnational and sector level activities are not co-ordinated and aligned with the national vision and strategy.

Figure 1. **Entry points for mainstreaming biodiversity**



Note: NGO = non-governmental organisations.

Source: Adapted from OECD (2009), *Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance*, <http://dx.doi.org/10.1787/9789264054950-en>.

2 Mainstreaming biodiversity at the national level



The national level entry point for biodiversity mainstreaming is an important one as it is most often at this level that long-term strategies are developed, that financing decisions are made, and where opportunities for scalability can be harnessed. It is also at this level that political will must be captured. Important elements to help foster mainstreaming and enable its implementation in practice include: mainstreaming biodiversity across relevant national plans and strategies; ensuring co-ordination and coherence across institutions and clearly defining respective roles and responsibilities; generating the evidence-base needed for informed decision-making (e.g. with respect to legislative and policy frameworks); and mainstreaming biodiversity in national budgets.

These issues should be considered in the broader context of assessment frameworks for the conservation and sustainable use of biodiversity, which include the need for mainstreaming (Figure 2).

Reciprocal mainstreaming through consistent and aligned objectives across various national strategies is a first step towards mainstreaming

A review of National Biodiversity Strategies and Action Plans (NBSAPs) of the 16 focus countries¹ suggests that most countries have recognised the need to mainstream biodiversity in their most recent NBSAPs, building on the Aichi Targets. A number of NBSAPs also define specific mainstreaming targets, as well as indicators to monitor progress. For example, the vision of South Africa's

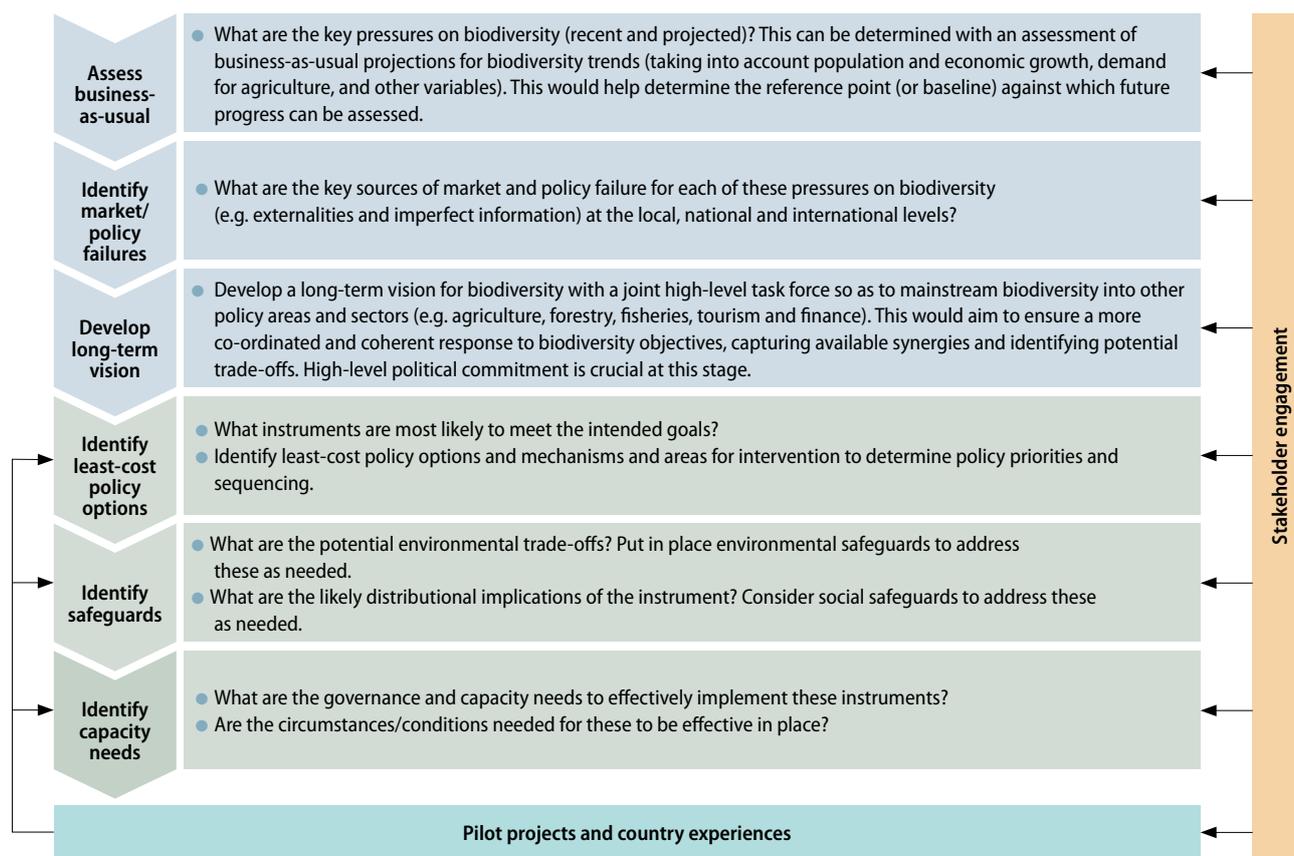
NBSAP links biodiversity conservation and sustainable use to the well-being of people in South Africa, includes a specific strategic objective to mainstream biodiversity into policies across sectors, and elaborates further actions and indicators on mainstreaming. Outcomes of promoting mainstreaming in the NBSAPs are demonstrated, to some extent, through evidence of reciprocal mainstreaming, i.e. whereby the importance of biodiversity and/or ecosystems is being recognised in National Development Plans (NDPs).

Mainstreaming in other national-level plans and strategies is also occurring; however, there is large scope for greater coherence across different national policy areas. For example, the importance of biodiversity or ecosystems is recognised in several of the NDPs reviewed, though in some cases this is restricted to general strategic directions. A fewer number of NDPs incorporate specific biodiversity-

1. Australia, Brazil, China, Colombia, Ethiopia, France, India, Madagascar, Mexico, Myanmar, Nepal, Peru, the Philippines, South Africa, Uganda and Viet Nam.



Figure 2. **Assessment framework for biodiversity management and mainstreaming**



Source: Adapted from OECD (2013), *Scaling-up Finance Mechanisms for Biodiversity*, <http://dx.doi.org/10.1787/9789264193833-en>.

relevant targets with associated indicators to monitor progress. Examples of biodiversity-relevant targets and indicators that are incorporated in NDPs include rates of deforestation, land use change and degradation (Colombia); increase in forest cover (Nepal, Uganda); species in danger of extinction; and the number and size of protected areas. In addition, the extent to which the importance of biodiversity (and/or ecosystems) is being recognised in other national strategies varies, and green growth strategies in particular tend to place a stronger emphasis on climate change issues than on biodiversity. Some positive examples of national strategies that integrate biodiversity alongside other policy objectives include the green growth strategy of Indonesia, the poverty reduction strategies of Brazil and Ethiopia, and the climate change strategies of France and Mexico.

Mainstreaming biodiversity in national strategies and policies can be facilitated by the NBSAP preparation process, especially when underpinned by strong stakeholder engagement. In preparing or updating the NBSAP, governments can facilitate engagement and discussion of the linkages and trade-offs between biodiversity and other national priorities

(e.g. economic development, poverty reduction, food security, health), which in turn bolsters reciprocal mainstreaming. For example, Uganda set up a working group on “biodiversity for development, wealth creation and socio-economic transformation” to mainstream development issues in its NBSAP. Once this work was completed, the group’s mandate was renewed to ensure that biodiversity was mainstreamed into the NDP.

Mainstreaming requires clear institutional mandates, and strong vertical and horizontal co-ordination mechanisms

Clearly identifying the roles and responsibilities of different institutions in the process towards biodiversity mainstreaming is important, as it helps to enhance transparency and accountability. A few NBSAPs reviewed, such as those of India and Ethiopia, clearly specify which institutions are involved for each of the biodiversity targets and actions. In some cases, more comprehensive institutional change has been undertaken to ensure effective implementation. Bringing together four existing institutions to establish the French Biodiversity Agency, for example, was

aimed at rationalising biodiversity governance and creating a one-stop shop for action on biodiversity, which can also help promote synergies between action on biodiversity and other environmental agendas such as climate change and green growth.

Irrespective of whether the governance system in a country is centralised or decentralised, governments should aim for strong horizontal and vertical co-ordination and should institute mechanisms to help ensure policy coherence. Co-ordination mechanisms, through the establishment of inter-ministerial committees or working groups for instance, can facilitate a dialogue and working relationships that are necessary to formulate and implement wide-ranging policy reforms associated with reciprocal mainstreaming of biodiversity and development-related issues. At least nine of the countries reviewed have some form of biodiversity-relevant inter-ministerial committee already in place (including China and Nepal). However, challenges have arisen in many of these; for example, the institutions lack the authority or the resources to perform their functions, decisions taken are not binding, or they simply do not meet as frequently as they are supposed to. Such institutions will not be able to deliver on their intended objectives unless they are empowered to do so. It is perhaps timely for governments to review the existing mandates of such committees and to evaluate whether and how they can be improved so as to foster biodiversity mainstreaming.

Adequate human resources are needed among different sector ministries to ensure they are able to prioritise and implement mainstreaming, and governments can build on capacity already in place to tackle other environmental issues. For example, in Ethiopia, environmental units are embedded within various sector ministries with the intent to mainstream environmental issues across sectors. Targeted capacity building can address gaps and should be focused at both national and subnational levels. The Mainstreaming Biodiversity and Development Initiative, for example, is a joint effort between the International Institute for Environment and Development (IIED) and the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), funded by governments of the United Kingdom and Germany; it supports technical capacity building in eight African countries to promote mainstreaming. This includes developing tools and guidance to support mainstreaming at national and subnational levels, providing technical support to ministries in target countries, and promoting learning among different countries.

Robust, policy-relevant and readily available data and information are a prerequisite for mainstreaming efforts

The persistent lack of sufficient and/or publicly available data is an ongoing challenge for mainstreaming efforts. Biodiversity-related data are often unavailable, or are unreliable and/or of insufficient quality. Where data are available, usability and accessibility can be an issue with environment-related data fragmented across different institutions and not packaged in forms that can be utilised by various stakeholders. Australia's NBSAP, for example, identifies the need to better align research priorities and improve knowledge exchange among researchers, practitioners and policy makers so that biodiversity-related information is usable beyond the scientific community.

Data and information on biodiversity-related issues are critical for establishing baselines, quantifying benefits, targeting biodiversity expenditures to where they are most needed, and monitoring and evaluating change over time in order to track mainstreaming outcomes as well as impacts. Data are useful not only to inform policy making but can also be instrumental for effective implementation, including enforcement of laws and regulations. In Brazil, for example, a state-of-the-art satellite-based deforestation monitoring system in the Amazon biome, run by the National Institute for Space Research, has enabled the government to monitor and enforce actions against deforestation. In Mexico a national automated mapping system was recently launched that allows the evaluation of national subsidies/incentives through spatial analysis tools.²

National Ecosystem (or Biodiversity) Assessments can provide the comprehensive information base to facilitate mainstreaming efforts. They are useful in terms of establishing baselines and providing a comprehensive overview of the current state of and pressures on biodiversity. A notable assessment is that of South Africa, which also provides spatially explicit data on the basis of which priority areas and corresponding priority actions are identified. This has also been used to develop biodiversity sector plans at the local and district levels, and overall, the quantity and quality of data available in South Africa has been instrumental in mainstreaming biodiversity in a number of sectors including mining, water infrastructure and agriculture (Manuel et al., 2016).

2. <http://ssig.conabio.gob.mx/appweb>.

In addition to data systems, assessments that demonstrate the economic contribution of biodiversity to society and the costs of ecosystem loss and degradation in monetary terms can help make the case for mainstreaming. Such valuation exercises have been undertaken in several countries, with support from multilateral international initiatives such as The Economics of Ecosystems and Biodiversity (TEEB) and the World Bank's Wealth Accounting and the Valuation of Ecosystems (WAVES). Other types of national assessments can also be instrumental in informing and prioritising mainstreaming efforts. In France, a national study was undertaken to evaluate the public subsidies that are harmful to biodiversity (Sainteny et al., 2011). Such a study is unique among the 16 countries reviewed.³ Given the volume of finance being allocated to potentially environmentally harmful activities worldwide (including in agriculture, forestry and fisheries), this represents an area for further work. The OECD database on Policy Instruments for the Environment (PINE) also provides information on countries with biodiversity-relevant taxes, charges and fees, tradable permits, and other instruments, all of which are positive incentives for conservation and sustainable use.⁴

3. Similar efforts are being undertaken in other countries including Germany, Italy and the Kyrgyz Republic.

4. The OECD PINE database includes information on when the instrument was introduced, what it applies to, the geographical coverage, the environmental domains it aims to address (e.g. biodiversity, climate), the industries concerned, revenues, costs or rates, earmarking, and exemptions.

Lack of information on biodiversity-related expenditures is a barrier to mobilising support for biodiversity in national budgets

Effective mainstreaming cannot realistically be achieved without sufficient allocation towards addressing biodiversity in national budgets. Assessing the “appropriate” amount of the national budget to be allocated is based on comparing what is required to achieve the objectives specified in the NBSAP and what can reasonably be mobilised from alternative sources (e.g. from the private sector, official development assistance). Very few countries have been able to make such comparisons, however, due to a lack of robust, comprehensive and comparable time series data on public biodiversity expenditure across national and subnational budgets. Of the countries examined, only a few – such as India, Mexico and South Africa – have information on public biodiversity expenditure. Initiatives such as the United Nations Development Programme's Biodiversity Finance (UNDP BIOFIN) initiative are working with 31 predominantly developing countries to collect this information. In the Philippines, BIOFIN and the Department of Budget and Management are working together to “tag” biodiversity-related expenditures. Combined with NBSAP costing, this work has enabled an assessment of the funding gap, which is around 10 billion Philippine pesos (PHP) a year. The recently established Paris Collaborative on Green Budgeting, convened by the OECD in collaboration with France and Mexico, is a further step in this regard.





3 Mainstreaming biodiversity in the agriculture, forestry and fisheries sectors

The agriculture, forestry and fisheries sectors are central to economic growth and development worldwide, and especially so in developing countries. These sectors supply essential commodities such as food, fibre, fuel and fodder which constitute basic needs of society as well as inputs for other economic sectors. While these sectors depend on healthy ecosystems for their productive capacity, the sectors also exert significant pressure on biodiversity and are essential to conservation and sustainable use efforts.

Clarifying land tenure and reforming environmentally harmful subsidies are prerequisites for effective mainstreaming in the agriculture sector

Pressures on biodiversity related to agriculture stem from land-use change, and unsustainable input use and agricultural practices. The need for sustainable agricultural to ensure the long-term provision of ecosystem services that underlie production are increasingly being recognised. Agriculture sector strategies, plans and policies in countries such as Uganda, Ethiopia and India include consideration of sustainable use and management of natural resources. Key prerequisites for mainstreaming in the sector include clear and secure tenure rights to encourage investment in sustainable agricultural practices and integration of biodiversity criteria in land-use planning. Economic instruments for mainstreaming biodiversity in agriculture are generally underutilised, though mechanisms such as payments for ecosystem services are being increasingly implemented in many countries.

Additionally, significantly enhanced efforts to identify and reform environmentally harmful government support to agriculture would contribute to mainstreaming efforts. An increasing number of countries are reporting to the OECD Producer Support Estimate database on agricultural support, which is a step in this direction.⁵ Large-scale community engagement in natural resource management in the agricultural sector has been undertaken in certain countries such as Ethiopia and Australia, which contributes to raising awareness and enables adoption of improved technologies and practices. In order to better track mainstreaming outcomes, it would be

useful to have agri-environmental indicators that are common across countries including indicators that explicitly account for biodiversity.

Approaches to mainstream biodiversity in commercial forestry objectives are taking root, but further efforts to improve land-use planning and engage local communities are needed

While there is clear recognition of the importance of inclusive and sustainable forest management, in a co-ordinated manner with other economic and social policy priorities, as reflected in many National Development Plans (NDPs), practical efforts and implementation in this regard vary greatly among countries. For example, the percentage of forest area under forest management plans varies considerably across the countries examined, ranging from about 10% in Brazil, to 40% in France and Peru, to 100% in India and Myanmar (FAO, 2015). Policy instruments that mainstream and internalise the external costs of biodiversity loss in forestry, so as to reconcile the objectives of forest biodiversity, and the development of forestry as a commercial productive sector are increasingly being adopted. These include community-based forestry, payments for ecosystem services and sustainable timber certification schemes. Available comparable data on forest area under sustainable certification schemes at the national level also show large variations across these countries, with most below 2%. Notable exceptions are France (47%), South Africa (16%) and Australia (9%). Common mainstreaming challenges at the practical implementation level include the need for better co-ordinated land-use planning with a number of sectors including agriculture, and stronger engagement with stakeholders, including indigenous communities.

5. These include Australia, Brazil, China, Colombia, France, Mexico and South Africa.



Efforts to mainstream biodiversity in the fisheries sector need to be strengthened

Many challenges remain in the fisheries sector, as reflected by the continuing increasing trends in the overexploitation of marine fish stocks. The projected rise in aquaculture is also expected to exert increasing pressure on biodiversity. Evaluating compliance with the voluntary Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries is perhaps one of the most comprehensive international approaches for assessing progress towards mainstreaming biodiversity in the fisheries sector. A fundamental prerequisite for effective fisheries management is reliable comprehensive data

on fish stocks, which are lacking in many countries. Australia is a notable exception, and together with fisheries management plans, has achieved near 100% sustainable stocks at national level. A number of the countries reviewed are also currently reporting to the OECD Fisheries Support Estimate database (e.g. Australia, Chinese Taipei, Colombia, France and Indonesia), enabling the tracking of government support to this sector over time. Marine spatial plans, which aim to take a systematic and comprehensive approach across sectors in the oceans space, are also beginning to proliferate and have been implemented in Australia, China, Colombia and Mexico; are under development in South Africa; and are being discussed in Brazil, Chile, Madagascar, Thailand and Viet Nam.

Table 1. **Examples of policy instruments to mainstream biodiversity in the agriculture, forestry and fisheries sectors**

Regulatory (command-and-control) instruments	Economic instruments	Information and voluntary instruments
Restrictions or prohibitions on access and/or use <ul style="list-style-type: none"> ● Terrestrial and marine protected areas ● Bans on fishing of particular species (e.g. CITES); ● Restrictions on gear types (e.g. fish net size, bottom trawling) ● Temporal restrictions 	Pricebased instruments <ul style="list-style-type: none"> ● Taxes e.g. on groundwater extraction, pesticide and fertiliser use (for agriculture) ● Charges/fees e.g., entrance fees to national parks ● Subsidies to promote biodiversity e.g., target public investments in green technology, and subsidies for reforestation 	Ecolabelling and certification e.g. organic agriculture labelling schemes; sustainable forest/timber certification; sustainable fisheries certification
Land-use and marine spatial planning (e.g. ecological corridors)	Reform of environmentally harmful subsidies e.g., decouple farm support from commodity production levels and prices (for agriculture)	Green public procurement
Planning tools and requirements e.g. environmental impact assessments (EIAs) and strategic environmental assessments (SEAs)	Payment for ecosystem services	Voluntary approaches e.g., negotiated agreements between businesses and government for nature protection or voluntary biodiversity offset schemes
Controls and standards e.g., on excessive use of agrochemicals and fertilisers	Biodiversity offsets/biobanking	
Permits and quotas e.g., concessions for sustainable forest management and timber logging	Tradable permits e.g. water rights, carbon emissions, development rights	
Forest management plans; fisheries management plans	<ul style="list-style-type: none"> ● Liability instruments ● Noncompliance fines 	

Source: Adapted from OECD (2013), *Scaling Up Finance Mechanisms for Biodiversity* <http://dx.doi.org/10.1787/9789264193833-en>, and OECD (2011), *Food and Agriculture, Green Growth Studies* [need link].



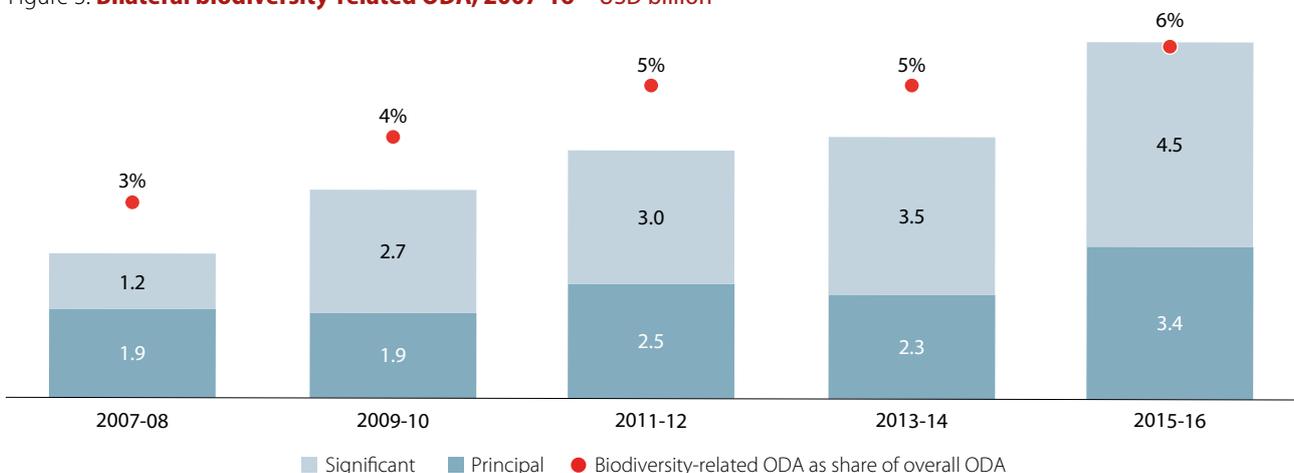
4 Development co-operation and biodiversity mainstreaming

Development partners are an important source of finance and technical capacity in support of biodiversity conservation and sustainable use in developing countries. Many developing countries, such as Madagascar and Ethiopia, have identified the availability of external funding as an important factor in successful implementation of their NBSAPs. Concurrently, a steady increase has been recorded in bilateral biodiversity-related official development assistance (ODA) from members of the OECD Development Assistance Committee (DAC) over the past decade, reaching USD 7.9 billion per year in 2015-16. Despite this, biodiversity-related ODA still makes up only a small share of overall portfolios, around 6% in 2015-16 (Figure 3).

Besides financing biodiversity efforts, development co-operation supports biodiversity mainstreaming by strengthening frameworks for mainstreaming at the national level as well as directly supporting the mainstreaming of biodiversity into specific sector policies, plans and projects. Both these include efforts to a) improve policies and institutions, b) improve data and information systems, and c) to mobilise financing for biodiversity conservation and sustainable use. In Peru, development co-operation has been a key partner in creating the Ministry of Environment and developing a policy framework to promote public investment in biodiversity. A number of initiatives that have become important enablers of mainstreaming, such as the World Bank WAVES programme, the UNDP BIOFIN and financing from the Global Environment Facility (GEF), have been implemented through continued development co-operation support.

At the same time, there is an indication that biodiversity is becoming an increasingly important theme in development co-operation programming, with some development partners, such as Sweden, prioritising biodiversity and ecosystem services within their overall development co-operation strategies. There are also examples of rigorous screening systems being implemented to realise biodiversity co-benefits, or at a minimum to identify and mitigate potential risks to biodiversity in development projects and programmes. These include the environmental safeguards systems of all the major Multilateral Development Banks, which include specific biodiversity related considerations. Despite the progress achieved, considerable potential remains for further support to mainstreaming efforts of partner countries, and better biodiversity mainstreaming within development co-operation operations and portfolios.

Figure 3. **Bilateral biodiversity-related ODA, 2007-16 – USD billion**



Note: Authors, based on the data retrieved from OECD DAC Creditor Reporting System, stats.oecd.org (accessed 12 February 2018).

Source: The figures in this graph represent commitments.



5

Monitoring and evaluating biodiversity mainstreaming

The need to monitor and evaluate mainstreaming efforts cannot be underestimated. It is not possible to identify how to allocate human, financial and technical resources more effectively, in order to achieve desired objectives, without assessing the impact of interventions over time. The use of indicators is a key component of this. Though indicators are emerging, monitoring and evaluation of biodiversity mainstreaming is still in its infancy. The Aichi Biodiversity Targets and the proposed global indicators thereunder, as well as the indicator framework under the SDGs, offer a starting point from which further indicators could be considered.

Several of the National Biodiversity Strategies and Action Plans (NBSAPs) reviewed in OECD (2018) *Mainstreaming Biodiversity for Sustainable Development* also include indicators that are relevant to mainstreaming initiatives (Box 1), and some have also been transposed into NDPs (and other national strategies).

International organisations that serve as platforms to collect comparable national data (e.g. OECD, FAO, World Bank) also have an important role to play in this context. Building on the indicator frameworks of the Aichi Biodiversity Targets, the SDGs and other

multi-country data sources, OECD (2018) presents a preliminary set of indicators that could be considered for further use to help monitor and evaluate biodiversity mainstreaming efforts in a more consistent manner. This covers indicators across the range of policy response indicators, namely inputs (e.g. finance), processes (e.g. establishment of inter-ministerial committees), outputs (e.g. national assessments and other studies), outcomes (e.g. new or more ambitious policies) and impacts (changes in the state of biodiversity and ecosystem services) (Table 2).





Box 1. EXAMPLES OF INDICATORS PROPOSED IN NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS TO MONITOR BIODIVERSITY MAINSTREAMING

ETHIOPIA

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.

Target 2: By 2020, the existing biodiversity-related laws, regulations and strategies, including those associated with incentives, are reviewed and gaps are addressed.

Indicator: Number of identified incentives that reward positive contributions and addressed perverse incentives.

Target 3: By 2020, biodiversity values and ecosystem services are communicated and integrated into national and local development and poverty reduction strategies and plans.

Indicator: Strategies integrating values of biodiversity and ecosystem services.

Target 4: By 2020, habitat conversion due to expansion of agricultural land is halved from the existing rate of about 10% per year.

Indicator: Rate of annual conversion of habitats into agricultural land.

INDIA

Target 2: By 2020, values of biodiversity are integrated into national and state planning processes, development programmes and poverty alleviation strategies.

Indicators: Trends in number of studies on biodiversity-inclusive environmental impact assessments (EIAs), cumulative EIAs and strategic environmental assessments (to be conducted by the Ministry of Economic Affairs and Planning Commission); and trends in identification, assessment, establishment and strengthening of incentives that reward positive contribution to biodiversity and ecosystems.

MADAGASCAR

Strategic Objective 2: In 2025, at the latest, biodiversity values, opportunities and benefits of conservation and sustainable use will be recognised and integrated into the country's socio-economic development activities.

Action: 2.1. Consider the values of biodiversity into sectoral strategies and programmes.

Indicator: 2.1.1. Number of sectoral plans and strategies incorporating and implementing the values of biodiversity implementation strategies.

SOUTH AFRICA

Objective 3: Biodiversity considerations are mainstreamed into policies, strategies and practices of a range of sectors.

Target 3.1: Effective science-based biodiversity tools inform planning and decision making.

Indicator: Number of tools developed to support mainstreaming of biodiversity assets and ecological infrastructure in production sectors and resource management. By 2020, 10 new tools produced and 15 knowledge resources demonstrating the value of biodiversity developed and disseminated.

VIET NAM

Strategic Goal 3: Strengthened sustainable use and equitable sharing of ecosystems, species and genetic resources.

Indicator: Percentage of important degraded ecosystems effectively recovered.

Strategic Goal 4: Reduce direct pressures on biodiversity.

Indicator: Rate of loss of natural forests and water surface area due to land-use conversion.

Table 2. **Examples of possible indicators to monitor progress towards biodiversity mainstreaming**

POSSIBLE INDICATORS	INDICATOR TYPE					DATA SOURCES AND AVAILABILITY
	Input	Process	Output	Outcome	Impact	
NATIONAL						
Finance mobilised for biodiversity	●					Work underway. Biodiversity-relevant environmental protection expenditures (OECD, European Environment Agency), CBD national financial reporting, UNDP Biodiversity Finance (BIOFIN) initiative
Trends in incorporation of physical measures of stock and flow of natural capital in natural accounting		●				World Bank Wealth Accounting and Valuation of Ecosystem Services (WAVES)
Implementation of natural resource accounts within the SEEA		●				
Integration of development into National Biodiversity Strategies and Action Plan (NBSAP)		●				Not systematically collected. Roe (2010); OECD (2018)
Integration of biodiversity into National Development Plan and other relevant national strategies*		●				Not systematically collected. Prip (2012); OECD (2018)
National ecosystem assessment (or other similar national assessments)			●			Not systematically collected. See http://catalog.ipbes.net
National assessment of harmful subsidies (e.g. in agriculture, fisheries, forests, mining, tourism)			●			Not available
Inter-ministerial committee for biodiversity (mainstreaming)		●				Not available
SECTORAL						
Generic / Cross-cutting						
– Biodiversity integrated into key sectors' policies and plans (e.g. agriculture, forestry, fisheries, mining, tourism) – Trends in incorporation of natural resource, biodiversity and ecosystem service values into sectoral plans (e.g. agriculture, forestry, fishing, mining, tourism)		●				Not systematically examined
Number of biodiversity-relevant taxes, charges and fees, tradable permit schemes				●		OECD Policy Instruments for the Environment (PINE) database, about 80 countries
Number of other policy instruments (e.g. PES, biodiversity offsets)				●		Not systematically examined. Ecosystem Marketplace. Work planned for OECD PINE database
Agriculture						
Trends in percentage of agricultural support that is potentially environmentally harmful, neutral and beneficial				●		OECD Producer Support Estimate (PSE) database, about 45 countries
Changes in land use and cover				●		OECD Environmental Statistics; FAO; national sources, e.g. CORINE land cover database
Percentage of agricultural area under sustainable certification				●		
Number of plant and animal genetic resources for food and agriculture secured in medium- or long-term conservation facilities				●		FAO
Amount of pesticide use per hectare				●		FAO and OECD Agri-Environment Indicators (AEI)

POSSIBLE INDICATORS	INDICATOR TYPE					DATA SOURCES AND AVAILABILITY
	Input	Process	Output	Outcome	Impact	
Amount of fertiliser use per hectare				●		FAO and OECD AEI
Agriculture ammonia emissions				●		OECD AEI
Agricultural freshwater withdrawal				●		OECD AEI
Status of water quality				●		OECD AEI
Nitrogen balance				●		OECD AEI
Phosphorous balance				●		OECD AEI
Index of farmland birds				●		OECD AEI
Land degradation (topsoil loss of agricultural land)				●		FAO GLASOD 1991 about 145 countries
Areas/population exposed to water scarcity				●		World Resources Institute Aquaduct 2014. Global
Water resources exposed to harmful pollution levels				●		
Fisheries						
Number of fisheries with management plans			●			
Number of fisheries with Total Allowable Catch or other quota/licensing			●			Not available
Number of countries with Individually Transferable Quotas for fisheries			●			OECD PINE database
Bottom-trawling regulation in environmentally sensitive areas			●			
Percentage of fish from sustainable sources (eco-certification)				●		
Percentage of fish species overexploited or collapsed					●	FAO - Global (cannot be disaggregated at national level)
Forestry						
Changes in land use and cover				●		OECD Environmental Statistics, FAO, national sources e.g. CORINE
Land with different forest types and change over time				●		FAO Forest Resource Assessment (FRA), most countries
Value of forest resource depletion				●		World Bank World Development Indicators (WDI), about 130 countries
Percentage of forests with sustainable forest management (SFM) plans				●		
Percentage of harvested timber under sustainable certification				●		
DEVELOPMENT CO-OPERATION						
National strategy to mainstream biodiversity in development co-operation		●				Not available
Percentage of biodiversity-related bilateral ODA in total ODA	●					OECD Creditor Reporting System (CRS)
Trends in flows and activities marked by development providers as "principal" and "significant" for biodiversity	●					OECD CRS

* Other relevant national strategies include, but are not limited to, national sustainable development strategies, green growth strategies and poverty reduction strategies.

Sources: Based on CBD (2015), "Global indicators and sub-global approaches to monitor progress in the implementation of the Strategic Plan for Biodiversity 2011-2020", www.cbd.int/doc/meetings/ind/id-ahteg-2015-01/official/id-ahteg-2015-01-02-rev1-en.pdf; OECD (2018), *Mainstreaming Biodiversity for Sustainable Development*; OECD (2013), Policy Instruments to Support Green Growth in Agriculture, <http://dx.doi.org/10.1787/9789264203525-en>; Narlof, Kozluk and Lloyd (2016), *Measuring Inclusive Green Growth at Country Level*.

6

The way forward to improve biodiversity mainstreaming



At the national level, most National Biodiversity Strategies and Action Plans (NBSAPs) recognise the linkages between biodiversity and development and include targets for mainstreaming. Similarly, National Development Plans (NDPs), National Sustainable Development Plans, and green growth strategies of some countries include consideration for biodiversity, though the extent varies greatly. Continuing challenges in the design and implementation of biodiversity mainstreaming measures include effective horizontal and vertical institutional co-ordination; adequate human resources and capacity, particularly within sector line ministries; collection and dissemination of policy-relevant data for mainstreaming; and tracking and mobilising financial resources for biodiversity in the context of national budgets and beyond.

Looking across the agriculture, forestry and fisheries sectors, there is increasing realisation of the pressures they exert on biodiversity and the important contributions of ecosystem services in the continued development of these sectors. This is due in part to National Ecosystem Assessments (NEAs) or similar studies being undertaken in some countries, including economic valuation studies. In many countries, however, the full suite of policy instruments available to conserve and sustainably use biodiversity are not being implemented at the scale that is needed. There is a need, for example, for better co-ordinated and enforced instruments for land-use and marine spatial planning; and for further consideration of the use of economic instruments that are also able to provide continuous incentives for more sustainable production and consumption patterns, and to mobilise revenue, so as to enhance mainstreaming outcomes. In several countries,

a high degree of informality and illegal activities in these sectors continues to drive biodiversity loss.

Development co-operation, which plays an important role in supporting biodiversity mainstreaming in partner developing countries, acts as a source of finance and technical assistance, and biodiversity is considered among the ongoing priorities in the environmental programming of development partners. Challenges that remain include the need for further and more explicit prioritisation of biodiversity within development finance portfolios and programming, by better capturing the synergies with climate and other environmental and development objectives. The persistent limitations in individual expertise, human resources and organisational capacity and a lack of funding for biodiversity in partner countries also hinder the continuity of positive change initiated by development co-operation activities beyond project lifetimes.



While progress towards mainstreaming biodiversity is being made, a formidable challenge that remains is to better monitor and evaluate the outcomes and impacts of these efforts at the national level. Doing so in a more consistent manner would also facilitate comparison of experiences across countries and their effectiveness, and an exchange of lessons learned. This challenge is due in part to the lack of consistent data and indicators to develop baselines and to monitor and report on progress towards achieving mainstreaming goals and targets. In terms of responses, further consideration on how to monitor and evaluate mainstreaming efforts across the full range of responses, namely inputs, process, outputs, outcomes and impacts, would be useful.



7 Biodiversity mainstreaming – a blueprint for action

Given the breadth of biodiversity mainstreaming, the overarching key messages from OECD (2018) *Mainstreaming Biodiversity for Sustainable Development* are the need to: be comprehensive and systematic in assessing mainstreaming needs, prioritise actions and interventions in the face of resource constraints, scale up and make more ambitious the full suite of biodiversity policy instruments that are able to impact on production and consumption patterns, and further develop and use indicators so as to be able to monitor and evaluate progress towards biodiversity mainstreaming over time. Based on this work, as well as previous OECD efforts to assess mainstreaming in the context of green growth, climate change and development co-operation, there are five main areas of action needed by policy makers and decision makers to promote effective mainstreaming of biodiversity and development:

ESTABLISH A STRONG SOCIAL AND BUSINESS CASE FOR BIODIVERSITY

Given the multiple drivers of biodiversity loss and degradation, mainstreaming efforts depend on a clear and well-documented understanding of the value of biodiversity and ecosystem services for the economy and society at large, as well as the key pressures, communicated and accepted across sectors and different stakeholder groups. Governments can prioritise the following action to support the development of a strong business case for biodiversity:

- Conduct a national assessment of biodiversity and ecosystem services outlining the key pressures on biodiversity and incorporating, where possible, the full social benefits that ecosystems and ecosystem services provide, including monetary values where feasible.

- Integrate biodiversity-related considerations into sector-level resource assessments – e.g. agriculture, forestry, fisheries – and identify key pressures in each case.
- Invest in statistical/data systems to establish an evidence base on the drivers, pressures and state of biodiversity, including in improvements to the quality of existing data and efforts to enhance consolidation of and access to different data sources, and to enable evidence-based decision making.
- Develop targeted messages to the relevant stakeholders and work together to identify solutions.



ALIGN POLICIES ON BIODIVERSITY FOR SUSTAINABLE DEVELOPMENT

A strong commitment to biodiversity mainstreaming at national and sector levels is a prerequisite for successful mainstreaming. This commitment should also be reflected in National Biodiversity Strategies and Action Plans (NBSAPs) and national/sector development policies, supported by policy coherence across legislative and policy frameworks. Integrating biodiversity and development policy and planning requires the following priority action:

- Develop a clear long-term vision for biodiversity and development through national biodiversity strategies, ensuring engagement of different stakeholders from economic sectors and development planning.
- Promote strategic leadership for biodiversity within the government, e.g. by embedding responsibility for mainstreaming under a cross-cutting, high-level inter-ministerial committee, working group or panel.
- Actively integrate and embed biodiversity into national development planning and policy making, through overarching entry points for environmental issues more broadly.

- Review and evaluate legal and policy frameworks to identify challenges and weaknesses, and strengthen these as appropriate so as to promote policy coherence between biodiversity and development objectives.
- Define indicators for environmental and socio-economic policy variables, establish baselines, and make the information publicly available.
- Review and evaluate existing policy instruments (including positive and harmful incentives that may be in place), and identify what adjustments are needed, including the need for additional policy instruments and those that are able to generate revenue.

DEVELOP MONITORING AND EVALUATION SYSTEMS FOR MAINSTREAMING

- Build on relevant indicators under the Aichi Biodiversity Targets and the SDGs, and further examine what other indicators would be useful and feasible to monitor and evaluate mainstreaming at the national level and across sectors.
- Such indicators could better cover the full range of responses, including inputs (e.g. finance and staff), processes (e.g. existence of inter-ministerial commissions), outputs (e.g. new data and assessments), outcomes (e.g. new policies such as the introduction of pesticide taxes), and impacts (e.g. improved state of biodiversity).



STRENGTHEN INSTITUTIONS AND CAPACITY

Adequate institutional capacity, including dedicated human resources at national and subnational levels to implement and monitor mainstreaming action, supports iterative decision-making and inter-ministerial co-ordination mechanisms.

- Establish vertical and/or horizontal co-ordination mechanisms.
- Clearly define mandates, roles and responsibilities of relevant institutions.
- Provide training, and enhance capacity to ensure implementation.
- Promote research on biodiversity mainstreaming and research collaborations in developed and developing countries (including South-South collaborations), and provide grants as well as support for mainstreaming environmental and biodiversity programmes in education at all levels (schools and at university).

MOBILISE ADEQUATE FINANCING FOR BIODIVERSITY

Identifying biodiversity financing needs to ensure the conservation and sustainable use at the national level and by sector enables the policy actions identified above to be implemented. Finance for biodiversity can be mobilised through government budgets, through economic instruments (and in some cases voluntary

approaches) that apply to the private sector, and through civil society via philanthropy for example. In developing countries, support for mainstreaming from development co-operation can play an important complementary role to the government and other stakeholders. It is important to also note that the biodiversity financing challenge is not only about mobilising additional resources, but also about a) avoiding future costs; b) spending existing resources more effectively and efficiently; and c) reallocating existing resources as appropriate.

- Develop and embed approaches to track biodiversity-related expenditure within the government system, and identify resource needs to effectively implement mainstreaming activities.
- Examine the potential use of economic instruments (such as taxes, charges and fees, and payments for ecosystem services, among others) that are able to generate revenue, while also providing continuous incentives for biodiversity mainstreaming.
- Promote efforts to further engage the private sector in biodiversity mainstreaming efforts.



The need to mainstream biodiversity into economic growth and development is being increasingly recognised and is now also firmly embedded in the Sustainable Development Goals. Drawing on experiences and insights from 16 predominantly megadiverse countries, the OECD (2018) publication *Mainstreaming Biodiversity for Sustainable Development* examines how biodiversity is being mainstreamed in four key areas:

- 1) at the national level, including national development plans and other strategies, institutional co-ordination and national budgets;
- 2) the agriculture, forestry and fisheries sectors;
- 3) in development co-operation; and
- 4) the monitoring and evaluation of biodiversity mainstreaming and how this could be improved.

For further reading on mainstreaming biodiversity, see the following report on which this Policy Highlights is based:

OECD (2018), *Mainstreaming Biodiversity for Sustainable Development*, OECD Publishing, Paris.
<https://doi.org/10.1787/9789264303201-en>

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