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The Biodiversity Finance Initiative

WORKBOOK

2018

Finance for Nature

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Foreword

Situated at the heart of the double continent of North and South America, Costa Rica lies at an important crossroads for biodiversity in the Americas. It is the repository of over half a million already identified species, and that number could reach 1.5 million with the new taxonomic technologies developed in Costa Rica. We have a wide range of fauna; in addition, jaguars, toucans, sloths, leatherback turtles, manatees and the endemic mangrove hummingbird call it their home.

For decades, our government has strongly embraced conservation as a pillar of sustainable development. The area covered by forest had fallen to just 26 percent back in the 1980s but has since rebounded to over 50 percent. This success is due to a combination of strong conservation policies and incentives, and effective and sustainable policies for agriculture, tourism and energy. In 2017, all energy produced originated from renewable sources for over 300 days, with over 99 percent of the nation's energy emerging from renewable energy sources (combining hydroelectricity, geothermal energy, biomass, solar power, and wind power). This year our country became the first in the world to ban open pit mining and we have made a firm commitment to move towards the decarbonization of our economy.

Costa Rica is also a pioneer in biodiversity finance, launching several finance solutions of scale and innovation. The government imposed a 5 percent tax on carbon emissions resulting from the use of fossil fuels to generate revenue to pay landowners to refrain from clear-cutting on their land and instead to create tree plantations. Our national Payments for Ecosystem Services Programme has been in place since the mid-1990s, impacting over one million hectares of forests to date.

Yet Costa Rica's biodiversity still faces significant challenges, and thus the country embarked on the BIOFIN adventure as one of the first members back in 2013. This process has allowed us to identify needs to strengthen our institutional framework, in order to transcend towards an ecosystem services approach that allows expanding the scope of protection towards goals aimed at the conservation, restoration, rehabilitation and recovery, use and sustainable management of the different sources of ecosystem services.

It has also allowed us to move towards greater awareness of the investments made by the country in favor of biodiversity, that had traditionally been valued only in terms of the resources allocated to those entities whose main function originated in the protection of biodiversity, such as the Ministry of Environment and Energy, the National Commission for the Management of Biodiversity (CONAGEBIO) and the National System of Conservation Areas (SINAC).

As part of the contribution of the BIOFIN initiative, it was possible to evolve towards the identification of a "hardcore institutionality" of biodiversity, which encompasses a wider universe of institutions relating to the management and use of biodiversity directly, according to the Rio Markers. Based on this new methodology, it is possible to determine that the investments of Costa Rica in biodiversity amounts to approximately US$300 million annually, equivalent to 0.5 percent of GDP.

Thanks to another contribution of the BIOFIN programme, it was possible to update the National Biodiversity Strategy, which establishes a roadmap for the actions needed to attain the national biodiversity objectives, with a special emphasis on the challenges that Costa Rica is facing in this area.

Although part of the financing needed for the implementation of this strategy is available, there are goals that still require economic resources; and 18 profiles of new programs and projects have been identified that still require the allocation of additional resources (the financing gap). The financial needs are estimated to be between US$25 and US$50 million per year, over a nine-year period.

As another result of the implementation of BIOFIN methodology, a Biodiversity Finance Plan was prepared in order to identify a portfolio of initiatives, that is, a menu of finance alternatives, with the purpose of evaluating their implementation viability and feasibility, as well as their potential for the generation of finance resources aimed at filling the financing gap for the implementation of the National Biodiversity Strategy.

Based on the evaluation of the menu of available finance alternatives, several finance solutions have been prioritized, whose implementation will be supported during Phase II of the BIOFIN initiative. These finance solutions include working on green bonds for protected areas, promoting green production practices, enhancing the biodiversity role in green lending and promoting investments in ecotourism.

Costa Rica encourages other countries to adopt the BIOFIN Methodology, as it has demonstrated to lead to new insights and ideas on biodiversity finance, provides a valuable global platform for cooperation and experience sharing between countries, and is by design adaptable to the national context. Most importantly, it helps to start a new dialogue in the country with a more prominent role for Finance Ministries, Chambers of Commerce, banks and enterprises as frontrunners in biodiversity finance. Such new partnerships are required to stand a chance of meeting our global conservation goals and save the planet's beautiful and valuable natural resources for future generations. I wish countries undertaking the BIOFIN journey the best of luck and hope they can take inspiration from our initial work together with 30 other countries.

To the BIOFIN Team, my sincere gratitude and desire to succeed in all the challenges to overcome.

Carlos Alvarado Quesada
President of the Republic of Costa Rica

Executive Summary

Key messages

Awareness that **biodiversity underpins sustainable development** has increased among finance decision makers and practitioners. Biodiversity finance is growing in value and sophistication. However, all of this has not yet resulted in a major shift or boom in finance flows towards biodiversity.

Effective governance and **partnerships between finance and environmental actors** are essential to guarantee the up-scaling and sustainability of biodiversity financing. These partnerships must tackle incoherence in public policy and market failures, among the major drivers of biodiversity loss, for instance by greening harmful subsidies and making more efficient use of resources already invested in nature.

Financing biodiversity is a **shared responsibility of governments, the private sector and us all**. Market-driven innovations and non-traditional configurations of public, private and civil society actors has spurred a new wave of testing and piloting of investment templates and finance solutions. The private capital market for conservation is young but growing.

Numbers and facts are necessary to scale up biodiversity finance. We must quantify biodiversity finance needs, past expenditures and the value of natural capital to inform sound biodiversity finance solutions. Finance and economics are the foundations of a compelling business case for the implementation of finance solutions.

The Biodiversity Finance Initiative promotes **national platforms and regional and global dialogues** that capacitate countries to accelerate the reduction of their finance needs to the point where biodiversity targets are no longer hampered by the systemic lack of investment. Biodiversity finance is not only about mobilizing new resources. It is concerned with delivering better on what is available, reallocating resources from where they harm to where they help, and acting today to reduce the need for future investments.

Biodiversity—an investment priority

Biodiversity is "nature" – life on Earth. Biodiversity includes living organisms and ecosystems that underpin human well-being and economies by providing the essentials to a healthy and productive human life, like clean air, food security and fresh water. Investments in biodiversity are investments in the Sustainable Development Goals (SDGs), contributing directly to poverty reduction, resilience and long-term economic growth and sustainability.[1] Nearly half of all human beings are directly dependent on natural resources for their livelihood. Many of the most vulnerable people depend directly on biodiversity to fulfil their daily subsistence needs. By preserving biodiversity and ecosystems, we are retaining the ability of the planet to sustain our prosperity.

Biodiversity is in severe decline due to a combination of conflicting private and public interests, incoherent policy and governance, and insufficient financing. Although at least US$52 billion is spent on biodiversity per year globally,[2] this is against an estimated annual financing need of between US$150 billion and US$440 billion.[3] This funding gap is a major challenge, hampering our achievement of both the Convention on Biological Diversity's (CBD) Strategic Plan and the SDGs. However, it can be overcome – it is between just 0.2 percent and 0.6 percent of global GDP.[4]

We need a shift towards a new investment and policy paradigm that better incorporates the economic value and financial benefits of biodiversity. Companies and the financial sector are not investing adequately in biodiversity despite no shortage of liquidity in the world. The Biodiversity Finance Initiative (BIOFIN) and this Workbook will support this changing paradigm and the integration of biodiversity into public finance management, financial planning, and the financial system.

A new framework for biodiversity finance

Biodiversity finance[5] is the practice of raising and managing capital and using financial and economic incentives to support sustainable biodiversity management. It helps leverage and effectively manage economic incentives, policies, and capital to achieve the long-term well-being of nature and our society.

BIOFIN is a UNDP-managed global partnership working with countries on biodiversity finance. Thirty-six countries already have started the process.[6] BIOFIN uses detailed country-level assessments to develop a biodiversity finance plan, drawing on qualitative and quantitative data, innovative methodologies, and expert input. It provides an innovative, stepwise and adaptable approach that enables countries to:

- Assess the policy, institutional, and economic context for biodiversity finance and map existing finance solutions;
- Measure and analyse current biodiversity expenditures, from the public and private sectors, donors and non-governmental organizations (NGOs);
- Make a reliable estimate of the finance needed to achieve a country's biodiversity goals, and compare this to current biodiversity expenditures and other resources available; and
- Develop a biodiversity finance plan that identifies and mobilizes the resources and policies required to implement the most suitable finance solutions.

BIOFIN starts with the deeper understanding of the drivers of biodiversity loss and ultimately leads to the identification, prioritization and implementation of actions—the finance solutions—that result in positive outcomes for biodiversity and our society. Many of the actions prioritized through the BIOFIN Process are framed as "finance solutions". A finance solution is an integrated approach to solve a specific problem or challenge by the context-specific use of finance and economic instruments. It is built on a combination of elements that includes one or more finance instruments, financing sources, lead agent or intermediaries, beneficiaries or principal stakeholders, and the desired finance result. Thorough assessments and screening processes should build an evidence base from which to identify, prioritize and implement finance solutions. Meeting finance needs requires a complementary mix of solutions, adapted for every country, as shown in figure S.1.

The Workbook describes a variety of finance solutions, such as:

- Reforming subsidies harmful to diversity in Sri Lanka, where aligning fertilizer policy to environmental goals could save US$150 million per year.
- Enhanced partnerships between private and public stakeholders in the Seychelles tourism sector for better redirecting Corporate Social Responsibility tax revenues to fund biodiversity programmes.
- The development of partnerships and impact frameworks for issuing and managing green bonds in Costa Rica and green sukuk in Indonesia.

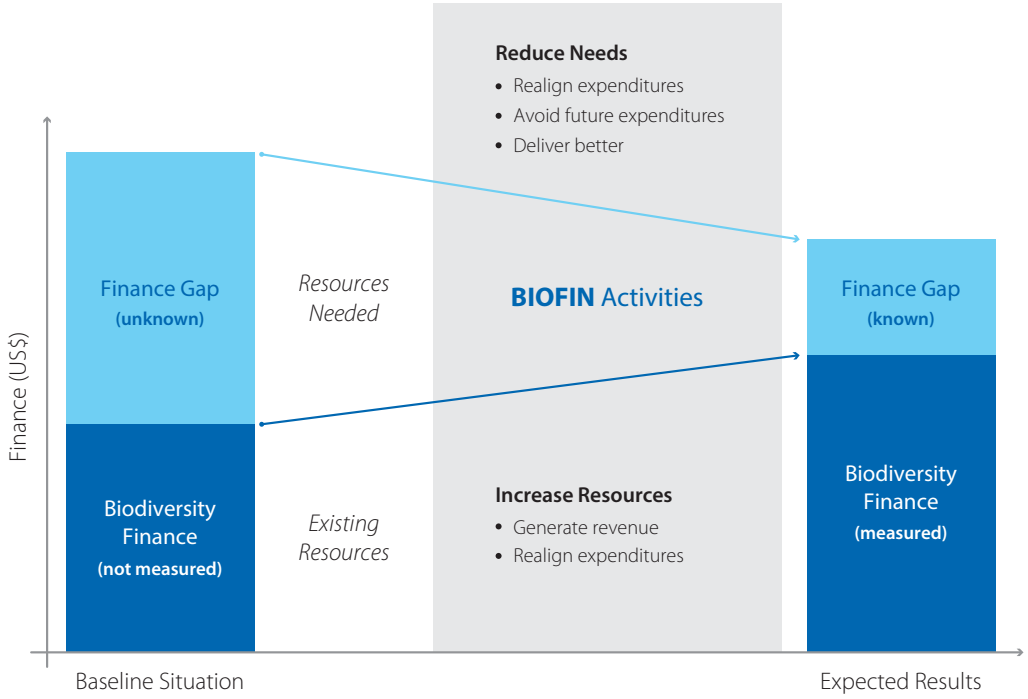
Finance solutions can achieve their desired impact if they:

- **Avoid future expenditures** through strategic biodiversity investments and policy changes;
- **Deliver better** on conservation through improved effectiveness, efficiency and synergies;
- **Generate revenues** targeted towards biodiversity; and
- **Realign expenditures** to reduce negative impacts and improve positive outcomes.

BIOFIN actively seeks buy-in from finance and environmental stakeholders and decision makers (e.g. ministries of finance and environment, innovative corporations, leading NGOs) to identify and mobilize policies, resources and institutional capacities to implement biodiversity finance solutions that are:

- Politically realistic, drawing on knowledge of relevant institutions and public finance management;
- Financially sound, showing the returns on biodiversity investments, backed by an economic case considering the distribution of the costs and benefits; and
- Integrated into the wider sustainable development agenda, contributing to more effective, efficient, and equitable sustainable biodiversity management and development.

Figure S.1: The BIOFIN Approach



Investing in the conservation and sustainable use of biodiversity is a fundamental determinant for achieving the SDGs. The successful uptake of finance solutions is strengthened by a convincing business case for investing in biodiversity, aimed at reaching both the public and private sectors. BIOFIN aims to be integrated into relevant country-level processes in order to influence and sustain change.

Endnotes

1 United Nations Sustainable Development Goals. Available from: www.un.org/sustainabledevelopment/sustainable-development-goals

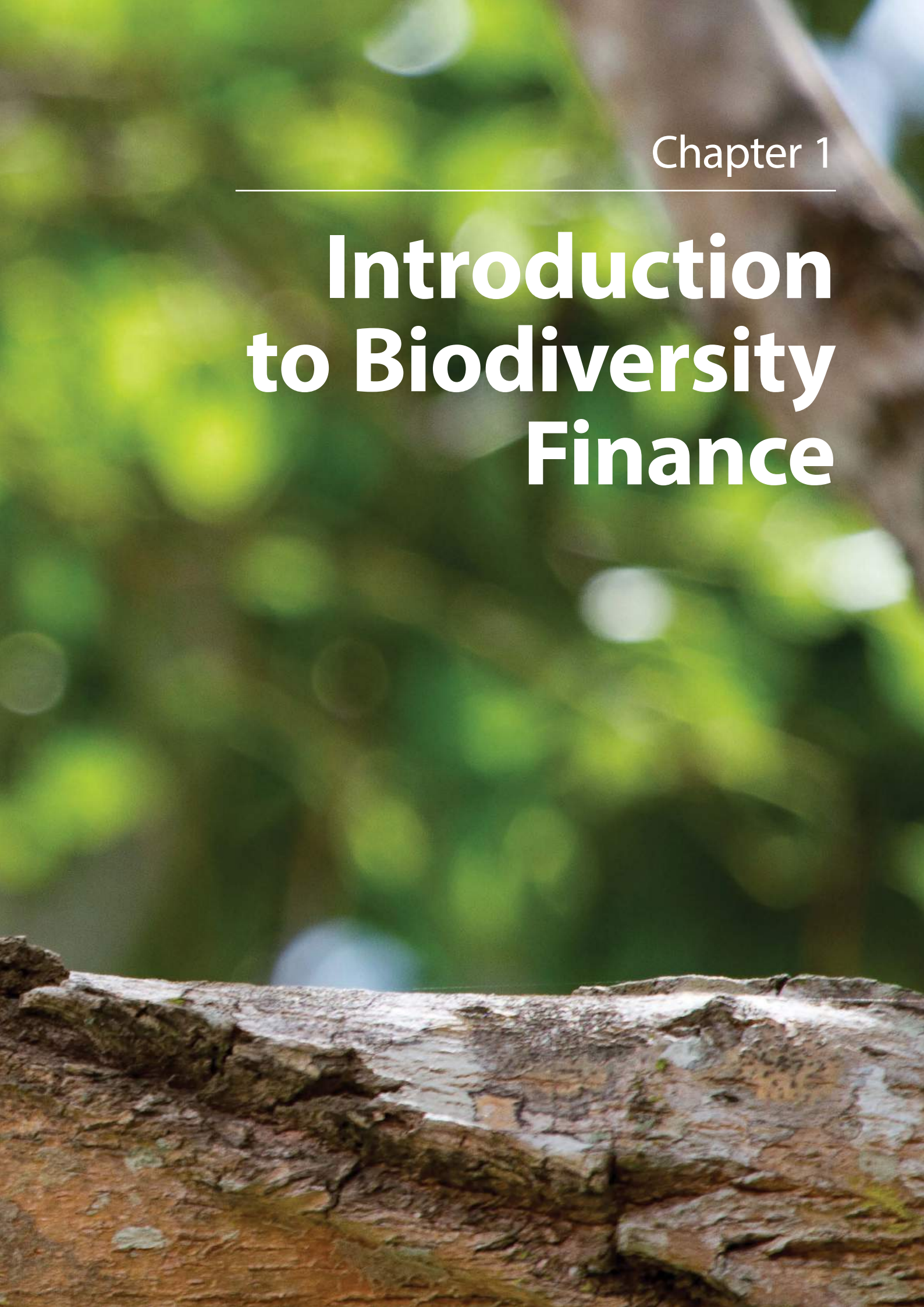
2 Parker, C., Cranford, M., Oakes, N., & Leggett, M. (2012). The little biodiversity finance book. Global Canopy Programme, Oxford. Available from: http://globalcanopy.org/sites/default/files/documents/resources/LittleBiodiversityFinanceBook_3rd%20edition.pdf

3 Convention on Biological Diversity (CBD) (2012). Resourcing The Aichi Biodiversity Targets: A First Assessment Of The Resources Required For Implementing The Strategic Plan For Biodiversity 2011-2020. Available from: https://www.cbd.int/doc/meetings/fin/hlpgar-sp-01/official/hlpgar-sp-01-01-report-en.pdf

4 World Bank (2017). National accounts data. Available from: http://data.worldbank.org/indicator/NY.GDP.MKTP.CD

5 The term is similar to the more commonly used "conservation finance" but avoids the connotation of a focus on "conservation" as the primary or only objective.

6 For details of participating countries and supporting resources see: www.biodiversityfinance.org



Chapter 1

Introduction to Biodiversity Finance

1.1

What is Biodiversity?

Biodiversity is life on Earth. Biodiversity is Nature in all its variety, from the tiniest microorganisms to the magnificent sequoias. Nature provides the essential elements for life, society and the economy – clean air, water, food, recreation, cultural texture, climatic stability, and inputs to many other processes that improve human well-being. Biodiversity is made of the living organisms and ecosystems that underpin our economy and provide the essentials for a healthy and productive human life.

We are increasingly recognizing this. For the first time in history, biodiversity officially entered the global development agenda in 2015. Biodiversity is featured prominently in Sustainable Development Goal (SDG) 14, "Life Below Water" and 15, "Life on Land", while it contributes to a wide range of other SDGs (See Box 1.1). Nearly half the human population is directly dependent on natural resources for its livelihoods, and many of the most vulnerable people rely directly on biodiversity to fulfil their daily subsistence needs. Ecosystem services and other non-marketed goods are estimated to make up between 50 and 90 percent of the total source of livelihoods among poor rural and forest-dwelling households.[1]

Box 1.1: Biodiversity contributes to many more SDGs than SDG 14 and 15

SDG 1: No Poverty

A well-functioning national protected area system can generate entry fees, tax revenue and support local jobs and livelihoods. Subsistence and small-scale agriculture and fisheries provide livelihoods for many of the world's rural poor.

SDG 2: Zero Hunger

The protection of agricultural genetic diversity (agrobiodiversity), including wild relatives of major crops, can help ensure long-term food security, particularly by crossbreeding species that are well adapted to disease and climate extremes such as floods, drought and excessive heat. The protection and restoration of coral reefs, and the prevention of key marine threats, can ensure the long-term health of fisheries, providing critical nutrition and livelihoods to millions.

SDG 3: Good Health and Well-being

Well-managed ecosystems are storehouses of medicinal resources, potentially critical for maintaining health in rural and indigenous community areas and enabling medical discoveries.

SDG 6: Clean Water and Sanitation

Well-managed, restored and protected forests can provide long-term water security, especially during times of drought, and serve as emergency stores of energy and animal browse during times of crisis. Protected and restored wetland ecosystems can function as critical water filtration mechanisms, greatly reducing or eliminating the need for building water-treatment infrastructure.

SDG 13: Climate Action

Ecosystem protection and restoration efforts can help to buffer poor and vulnerable communities from the impacts of climate change, such as buffering coastal communities from more frequent and severe coastal storms and rising sea levels, and preventing landslides and natural disasters from catastrophic deluges.

For further elaboration of the linkages between biodiversity and the SDGs please refer to **"Biodiversity and the 2030 Agenda for Sustainable Development"** Technical Note.

Unsustainable economic growth and short-term profits, insecure or misguided legal and governance institutions, population growth, and the grip of poverty and hunger, contribute to decisions that destroy biodiversity, by trading long-term wealth for short-term private consumption. Open access to natural resources and the perception of nature as a free, unused and unlimited resource base results in the loss of our shared capital. Biodiversity and ecosystem services suffer because markets and politics reflect their values poorly. The "invisibility of nature" in our decisions results in economic inefficiencies, lost growth opportunities, and the misallocation of resources. We under-invest in nature and so reduce the wealth of nations. Governments, the private sector, civil society and consumers all contribute to the problem and are necessary actors in finding the solutions.

Biodiversity finance strategies can transform the prevailing planning, finance, and socio-economic systems and practices by ensuring the sustainable management of nature and preserving our communities' well-being—towards a future where diverse and healthy ecosystems provide habitats for the existence and evolution of the Earth's species and the well-being of the people. The Biodiversity Finance Initiative (BIOFIN) is a process to engine this paradigm shift, where finance solutions are designed to trigger long-lasting positive changes to the environmental, social, and economic systems dependent upon nature.

Chapter 1 sets the context for the BIOFIN Process, including the rationale for investing in biodiversity and the role finance solutions can play. Read the chapter before embarking on the BIOFIN journey.

Two thirds of the world's people currently live in areas that experience water scarcity for at least one month a year[2]

1.2

Why Biodiversity Matters

1.2.1 Understanding the value of biodiversity for achieving the SDGs

Why is biodiversity finance a priority? We must examine the true value of biodiversity to ensure nature's values are adequately reflected in our decision-making. Biodiversity yields both intrinsic and anthropocentric values. Intrinsic values include the right of all species to exist and evolve, and the moral value of respecting nature. Anthropocentric values are what nature produces for humanity. Though no more important than intrinsic values, anthropocentric values are easier to quantify and can generate powerful arguments to influence decision makers. The world's ecosystem services were valued at about US$125 trillion per year,[3] an order of magnitude similar to the global economy. Box 1.2 provides more evidence of nature's extensive benefits.

Box 1.2: How Ecosystem Services Contribute to the SDGs

Fisheries

In 2015, fish provided 3.2 billion people with almost 20 percent of their average per capita intake of animal protein (SDG2). In countries like Cambodia, Kiribati and the Maldives, the fisheries sector contributes over 10 percent of the GDP. Fish is the most valuable agricultural commodity traded internationally, with net export revenues earned by developing countries reaching US$37 billion in 2016 (more than coffee, cocoa, sugar and tea combined).

Yet, around 33.1 percent of global fish stocks are overfished, at the risk of depletion.[4]

Forestry

Forestry accounts for more than 10 percent of the GDP in many of the world's poorest countries. The forestry sector provides formal employment for 10 million people and informal employment for another 30 to 50 million people in developing countries (SDG1). In Cameroon, the Central African Republic and Liberia, forest products make up 30-40 percent of national exports.[5]

Tropical forest loss is estimated at 7 million hectares per year between 2000-2010.[6]

Tourism

Coral reefs are among the most biologically rich ecosystems on Earth[7] and a key asset for tourism. Occupying less than one quarter of 1 percent of the marine environment, coral reefs are home to more than 25 percent of all known marine fish species.[8]

In the Maldives, marine and coastal tourism directly accounts for 20 percent of GDP, and its wider effects help produce 74 percent of national income (SDG8). Tourism contributes more than 60 percent of foreign exchange receipts, employing almost 40 percent of the country's workforce.[9]

Around 60 percent of reefs are seriously damaged by overfishing, destructive fishing, anchor damage, coral bleaching, coral mining, sedimentation, pollution, and disease.

1.2.2 Global biodiversity trends

Even though biodiversity provides enormous value to humanity and is essential to achieve the SDGs, global biodiversity trends indicate a rapid loss of both the area and the quality of natural ecosystems. Possibly even more ecosystems will collapse as we cross a range of local and global tipping points for climate and nature, described as "planetary boundaries".[10] Crossing these boundaries not only a concern just for the environment; it brings a risk that Earth will become much less hospitable, leading to disruptions in the world economy and people's lives.[11] The exceptionally rapid loss of biodiversity indicates the planet is witnessing its sixth mass extinction wave.[12] The loss of biodiversity and ecosystems is often irreversible; once a species is forced into extinction by human activity, it is gone forever.

The Millennium Ecosystem Assessment (the "Assessment") clearly links the state of ecosystems (and ecosystems services) with human well-being. In doing so, it counters the false perception that development priorities are inherently at odds with the sustainable management of ecosystems and biodiversity. The Assessment states that all ecosystems have been transformed by human actions, causing the loss of 35 percent of mangroves, 20 percent of coral reefs and around half of tropical forests.[13] Moreover:

- Loss of tropical forest remains a cause for concern, having been around 0.8 percent per year during 1981 and 1990[14] and estimated to continue at 2 percent per year going forward.[15]
- Projections show that a very large fraction of species will be "committed to extinction" in the 21st Century due to conflicting land use and climate change. The IUCN Red List contains (as of September 2018) 26,000 threatened species or 27 percent of all assessed species, including: 41 percent of amphibians, 33 percent of reef-building corals, 25 percent of mammals, 13 percent of birds, and 34 percent of conifers.[16] The average rate of vertebrate species loss over the last century is up to 100 times higher than the background rate.[17]
- Continued overfishing has a severe impact on marine biodiversity. It reduced the total biomass of predator fish species by 52 percent between 1970 and 2000.
- Invasive species have contributed to more than half of the animal extinctions for which the cause is known.[18]

To manage nature more effectively, it is essential to act upon the drivers of biodiversity loss and link them with policy, economic incentives and finance solutions. Identifying these drivers (explained in Chapter 3) is instrumental to the design of finance solutions. Some drivers, such as excessive application of fertilizers or over-extraction of water, are direct and straightforward, and may be resolved by greening subsidies or reforming certain taxes. Others, such as colonization by non-native invasive species, impacts of climate change and landscape fragmentation, are more indirect, requiring a combination of interventions.

Drivers of Biodiversity Loss in Colombia

In Colombia, conservationists identified key drivers of biodiversity change within each region of the country. **Positive drivers** of change included a suite of public, private and community protected areas and the creation of soil conservation districts. **Negative drivers** of change across all regions included human-caused forest fires; illegal logging (causing forest fragmentation and incursions of invasive species); illegal mining; expansion of the agricultural frontier; illegal encroachment and conversion within protected areas; infrastructure development; indiscriminate use of agrochemicals and excessive mechanization, leading to losses in soil quality; and negative impacts from palm oil plantations.

1.3
The State of Biodiversity Finance

Biodiversity finance[19] is the practice of raising and managing capital and using financial and economic incentives to support sustainable biodiversity management.[20] It is about leveraging and effectively managing economic incentives, policies, and capital to achieve the long-term well-being of nature and our society. Although financial and economic decisions and arguments are effective in preserving biodiversity, they do not capture the most important moral, ethical, and ecological aspects associated with nature. As such, economic and finance arguments should complement and not replace ethical motivations.

Biodiversity finance flows include private and public financial resources used to conserve and restore biodiversity, investments in commercial activities that produce positive biodiversity outcomes, and the value of the transactions in biodiversity-related markets such as habitat banking. Data on biodiversity finance is difficult to track due to the opacity of certain transactions and the lack of commonly understood definitions.

The most recent calculation estimates all expenditures towards biodiversity to be around US$52 billion per year, amounting to only a fragment of its estimated economic value.[21] This equates investing US$20,000 per year on a factory that produces US$10 million a year in revenues. BIOFIN countries show that, on average, biodiversity expenditures account for between 0.03 and 0.94 percent of GDP, or between 0.14 percent and 4.60 percent of the entire public budget.

Currently, public finance is the primary source of financing, in particular domestic public budgets (50 percent), biodiversity-positive agricultural subsidies (14 percent), and Official Development Assistance (ODA, 12 percent). Conservative and partial estimates of the private sector contribution has been relatively modest, but grew exponentially in the last decade. Private capital committed to conservation grew from less than a billion in 2004-2008 to US$8.2 billion in 2015.[22] Figure 1.2 demonstrates that only a small number of finance solutions are responsible for channelling the majority of funding towards biodiversity conservation objectives.

How is the above financing compared to needs? Although we have global estimates from models, neither the current level of investment in biodiversity nor needs have been systematically articulated on a national scale. A global

Figure 1.1: Comparing Biodiversity Values and Finance

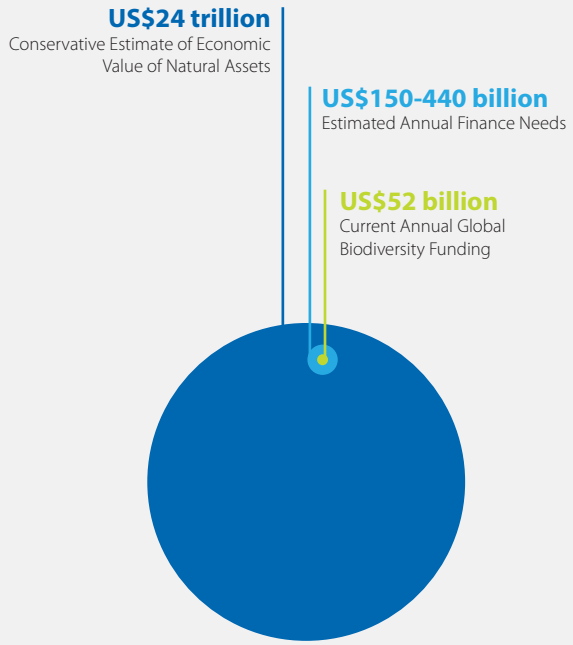
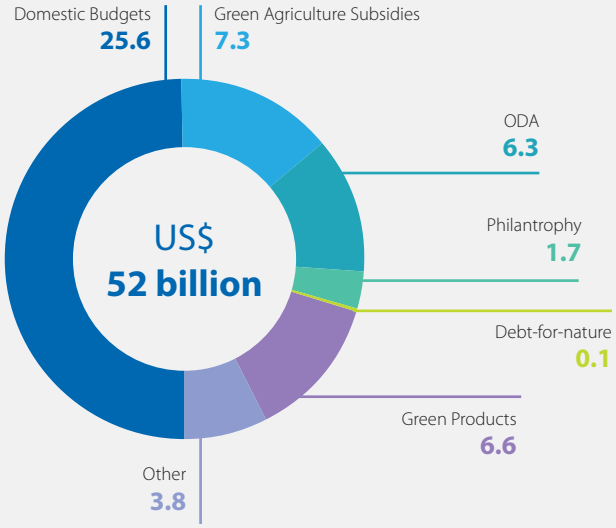


Figure 1.1 compares the economic value of renewable natural resources—measured in the form of assets—with the "maintenance needs" and biodiversity expenditure. Maintenance is only a small fraction of the economic value of renewable natural assets.

Figure 1.2: Historical Annual Biodiversity Finance



Source: Adapted from the Global Canopy Programme, 2012.

assessment estimated the resources required to implement the CBD Strategic Plan for Biodiversity (2011-2020) at US$150-440 billion per year.[23] Parker and others provide a similar estimate in the range of US$300-400 billion per year.[24] On that basis, Credit Suisse and others pointed to the fact that biodiversity finance needs to grow 20-30 times greater than it is today, if this gap is to be closed.[25] While the task might seem insurmountable, it is important to emphasize that the top bracket of the estimated biodiversity finance gap is still only about .05 percent of global GDP.

The scope for increasing financing from traditional sources—central government budgeting, donor funds, royalties and other charges—remains limited. Fierce competition for scarce public resources persists as global challenges from the energy transition to end poverty abound everywhere. Despite challenges, there is scope for optimism. Tax revenues as a percentage of GDP are forecast to increase slightly in many developing countries.[26] We can allocate these additional revenues to sustainable development, including the protection of biodiversity. Much larger opportunities exist to reform and redirect existing financial flows, such as subsidies that work against the very objectives of sustainable management. Potentially harmful subsidies to the environment are estimated at 9 times the total biodiversity expenditures and 75 times ODA levels spent on biodiversity.[27] Similarly the New York Declaration on Forests found that positive financing for activities such as REDD+ is dwarfed by "subsidies and investments in sectors driving deforestation (e.g., agriculture), amounting to 40 times the investments to protect".[28]

Lacking information on recipient country expenditures and needs, development partners have been reluctant to substantially expand their financial support to biodiversity. Only around US$8.7 billion flowed from developed to developing economies in 2014-2015.[29] There is a strong case for increasing funding flows from developed countries.[30] Increased donor funding can in turn leverage and incentivize private sector investment. The Global Environmental Facility (GEF), the largest multilateral funder of biodiversity, has invested more than US$3.5 billion.[31]

Beyond biodiversity, the 2030 Agenda requires unprecedented investments in areas such as health and education, environmental protection, infrastructure and energy, and peace and security. The additional investment faces a gap of US$1.9-3.1 trillion per year in developing countries alone.[32] Investments required in telecommunications and transport, power and climate change mitigation require even more financing than biodiversity, often competing for the same scarce public resources.

This is not due to a structural lack of available finance. The world has never been as rich as it is today. The total stock of global financial assets is valued at over US$200 trillion. Closing the gap is theoretically possible. There is similarly no shortage of liquidity in the world. The problem is the current direction and scale of investment flows. This is about more than the public finance needed. It is also about how to better align private capital with the SDGs.[33] The financing for development process and debate consider ways to finance the implementation of the ambitious 2030 Agenda.[34] The Addis Ababa Action Agenda provides a guide and vision for financing the SDGs.[35] Making a strong case for investing in biodiversity as a driver for sustainable development is the logical, correct thing to do, and it can also potentially capture increased financing.

The poaching of elephants, rhinos, and other endangered wildlife species is a case in point. The price received for killing an elephant for ivory by criminal syndicates represents a tiny share of its economic value to a country, which, in the case of Kenya, has been estimated at US$1.6 million in tourism value over the elephant's lifetime.[36] Preserving biodiversity means preserving the economic assets of developing countries, while expanding opportunities for communities to share in the financial returns of tourism and enjoy sustainable livelihoods.

1.4

Finance Solutions for Biodiversity

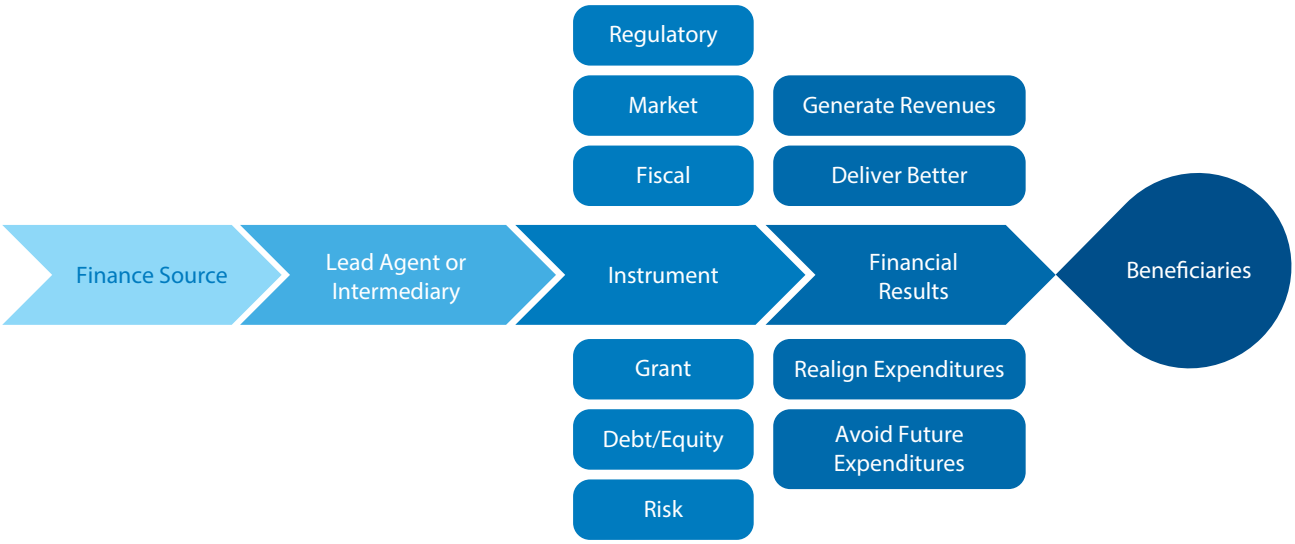
1.4.1 Finance solutions

The BIOFIN Process seeks to understand the drivers of biodiversity loss and ultimately identify, prioritize and implement actions that result in positive changes and outcomes for biodiversity and our society. Most of the actions the BIOFIN Process identifies and prioritizes are implemented through "finance solutions". A finance solution is an integrated approach to solve a specific problem or challenge by the context-specific use of finance and economic instruments. It is built on a combination of elements that includes one or more finance instruments, financing sources, lead agents or intermediaries, beneficiaries or principal stakeholders, and the desired finance result (see Box 1.3). Figure 1.3 presents a finance solution schematic. The following sections describe each element in more detail, beginning with the finance results.

Box 1.3: The Elements of a Finance Solution[37]

1. The financing **sources** the solution relies upon.
2. The **lead agent or intermediaries** tasked to manage the operationalization of the solution: a government entity proposing a tax reform or the bank establishing a trust fund or issuing a bond to deliver conservation finance.
3. The **instruments** or mechanisms used to mobilize, collect, manage and disburse the funding. They can be strictly financial instruments like bonds or equities, or fiscal and regulatory reforms.
4. The desired **finance results**.
5. **Beneficiaries or principal stakeholders** that either receive the financing or are the instrument's targets.

Figure 1.3: Schematic Diagram Showing the Main Elements of Most Finance Solutions and their Relationship with Finance Instruments



1.4.2 Finance results

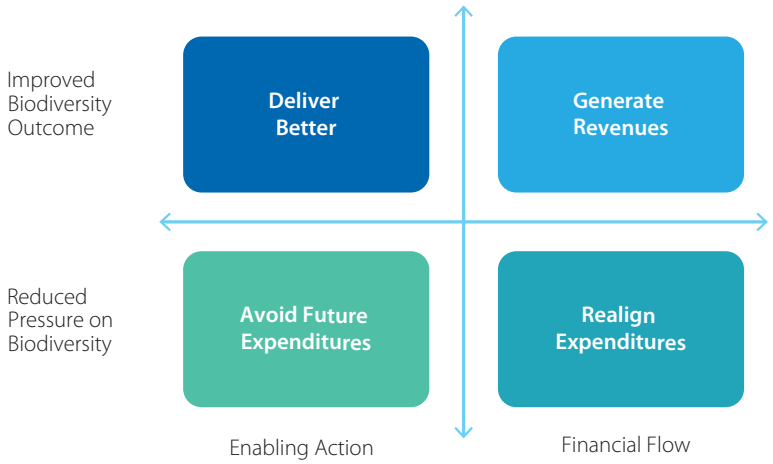
There are many ways of influencing economics and finance to address biodiversity challenges. The most obvious is to assure long-term and steady financial flows to conservation through increased government budgets, publicly-privately funded trust funds, payments for ecosystem services, etc. However, if these finance solutions only mobilize or redirect money, they will not address the root causes of biodiversity loss and directly affect the drivers of biodiversity remediation and restoration. BIOFIN has developed a comprehensive framework for biodiversity finance built around four key desired results. These four complementary results recognize that all finance strategies, tools and instruments operate within complex systems. By specifying these four results as a lens to identify and prioritize finance solutions, stakeholders can seek a mix of comprehensive, innovative and effective finance solutions. Each result is described below:

1. **Avoid future expenditures** - measures that can prevent or reduce the need to undertake a future investment. This means eliminating or amending existing counter-productive policies and expenditures (e.g. increasing taxes on sugar content or tobacco), investing in preventative actions and infrastructure (green infrastructure, prevention of invasive alien species), or aligning business and livelihood practices with sustainable development. Examples include taxes on harmful products (this can generate a double dividend) or strong fines for illegal introduction of alien species.
2. **Deliver better** - measures that can enhance cost-effectiveness and efficiency in budget execution, achieve synergies, align incentives, and favour a more equitable distribution of resources. Examples include the establishment of biodiversity business challenge funds, the merger or coordination of national conservation funds or donor efforts, retention of park entrance fees to better motivate managers, and the establishment of central procurement units or staff incentives to increase delivery of resources.
3. **Generate revenues** - measures that can generate or leverage financial resources allocated to biodiversity. Examples include protected area user fees, the attraction of impact investment in conservation projects, the revision or introduction of green taxes (fuel taxes, taxes on chemical pesticides, water fees, etc.), the issuance of debt instruments such as green and blue bonds, etc.
4. **Realign expenditures** - measures that reorient existing financial flows towards improved biodiversity management. Main options include reducing, redirecting or eliminating subsidies and other spending that harms biodiversity and increasing or redirecting financial flows towards biodiversity. Another example is lobbying for shifting budget allocations towards biodiversity.

A single finance solution can achieve multiple results. Introducing a green tax can help reduce future costs by influencing certain behaviours (e.g. reducing the level of use of chemical fertilizers and thus the need to restore the soil), while mobilizing additional resources the government can direct towards conservation.

Figure 1.4 highlights how financial results are connected to biodiversity, either by producing a measurable biodiversity outcome (e.g. expanding marine protected areas) or reducing a threat or negative pressure on biodiversity (e.g. applying sustainable forestry practices). Delivering better and generating revenues can contribute to improved biodiversity outcomes through increased budgets and more effective execution. The avoidance of future costs and the realignment of existing expenditures (such as phasing out of harmful subsidies) can reduce pressures on biodiversity by addressing the main drivers of loss, such as the overconsumption of natural resources due to unsustainable agriculture or fishery practices. Generating revenues and realigning expenditures directly affect financial flows. Delivering better and avoiding future expenditures are enabling actions that produce a measurable financial impact but not necessarily a financial transaction.

Figure 1.4: Relationship Among Financial Results, Biodiversity Outcomes and Actions



1.4.3 Finance instruments

A finance solution's mix of finance instruments is a central element.[38] Instruments are defined by their transaction type, e.g. a grant or a tax. Table 1.1. presents the six categories of financial instruments, which can often be combined. Multiple instruments often interact in the design of a single solution. For example, grants from ODA and debt from a financial institution can be combined in a blended finance vehicle.

Table 1.1: Categories of Finance Instruments

Instrument	Definition	Examples
Grant	An instrument that encompasses transfers made in cash, goods or services for which no repayment is expected. The definition includes ODA. Individual donations also take the form of grants.	The German International Climate Initiative – IKI – has funded climate and biodiversity projects since 2008. The World Wildlife Fund is 35 percent financed by donations from individuals.
Debt/Equity	An obligation to make a payment or the acquisition of ownership rights (company or financial asset) in exchange of a payment. Debt can be in the form of repayable loans, government or corporate bonds, etc. Equity can be company stock or other forms of ownership and is often a riskier investment than debt.	Green bonds are a rapidly growing US$ 300 billion debt market. The Althelia Climate Fund invests in sustainable land use and conservation of primary forest. The EcoBusiness Fund invests equity in environmental businesses in Latin America and the Caribbean.
Risk management	Any instrument that involves the transfer of risks between two or more parties. The transfer of risks can be attached to a payment transaction (e.g. a typical insurance scheme) or a specific agreement (contract) between two or more parties.	Public guarantees for green investments are provided by the Multilateral Investment Guarantee Agency of the World Bank. A compulsory insurance scheme such as the environmental pollution liability insurance regulations in China can cover the cost of environmental damages in case of a disaster.
Fiscal	Any instrument involving a fiscal reform and a subsequent change in the tax code, subsidies or fiscal allocation formula. Fiscal measures include both revenue-generating activities such as the establishment of a green tax and the phasing out of harmful public subsidies.	Timber taxes and auctioning systems support sustainable forestry in Central Africa. Sri Lanka recently reformed the chemical fertilizer subsidy scheme, thus improving farmer health and environmental quality, and relieving government budgets.
Market	Any instrument that involves or directly influences market transactions or prices. Markets match the supply and demand of a product or service. Markets can be created by public regulations such as cap-and-trade carbon markets.	The United States and Australia have established habitat banking markets. Nestlé provides Payment for Ecosystem Services to farmers in France to preserve water quality.
Regulatory	Any instrument or approach involving a regulatory reform such as a change in laws, policies, regulations, and/or enforcement.	Fines can be used for preventing environmental crimes such as pollution spills or poaching. Compulsory insurance schemes in China are a combined regulatory, risk, and market instrument.

Solutions can be described in general terms such as 'impact investment' or 'payments for ecosystem services' but they become real and alive only when defined in detail. Framing a finance instrument into a finance solution requires understanding and planning for effectiveness, scale, and impact. The success of any solution is similarly highly dependent on the local context. For example, a tax may have been agreed on paper. If it is not collected because there is no capacity to do so, then the solution means fixing the tax collection capacity problem. In addition, some contexts are ideal for certain finance solutions, while others would not be. Understanding the full context is essential to knowing whether or not a solution is appropriate.

Many countries already have a wide range of existing biodiversity-related finance instruments in operation. Building a comprehensive list of these is an essential part of both understanding the biodiversity finance landscape and planning for future biodiversity finance solutions. Chapter 6 provides guidance on how to develop impactful finance solutions from existing instruments and how to contextualize and adapt generic solutions from elsewhere.

Finance solutions building on existing instruments usually have a higher success rate, since their initial costs are lower and usually face less resistance compared to innovative ones that may lack legal precedents. On the other hand, the financing needs of biodiversity are unlikely to be met without innovation. This suggests that the response to the biodiversity finance challenge does require a mix of finance solutions.

The range of available finance instruments is increasing, and the ways in which resources are both mobilized and spent have become progressively more diversified. Impact investment, green bonds, payments for ecosystem services, and other approaches that were not traditionally used to finance biodiversity are becoming more relevant. Blended finance, constituting a mix of philanthropic, public and private capital, can help leverage scarce public resources. The value of green finance markets is booming, spearheaded by the development of green bonds and more innovative forms of venture capitalism. Biodiversity finance practitioners can benefit from bringing in the most effective financial innovations from other sectors and directing them towards biodiversity objectives.

To help navigate this universe, the BIOFIN Catalogue of Finance Solutions (the Catalogue) offers a comprehensive list of available options or more than 150 solutions. Short descriptions accompany each solution, which are tagged by the financial result they produce, common sources of funding, the lead agent or intermediary and the type of financial instrument(s). The revision, adaptation and contextualization of solutions to the local context is at the core of what the BIOFIN Process will produce. Care should be taken in seeking to implement a solution in a country without going through the extensive assessments described in Chapter 6. Chapter 7 provides guidance on implementing finance solutions.

1.4.4 Lead agent or intermediary

The lead agent or intermediary is the main actor responsible for implementing the finance solution. This could be a ministry, a protected areas agency, a private company or business association or any other type of entity. The lead agent or intermediary's role should be considered in detail when developing or implementing a finance solution. Some issues to consider include the agent's motivation, capacity, integrity, and financial stability, among others. The Ministry of Finance is often the lead agent in tax and subsidy reforms. A commercial bank maybe the main intermediary in a green bond issuance. A well-designed finance solution may fail simply because the intermediary does not have the capacity or time to develop the required capacity.

1.4.5 Beneficiary or main stakeholders

The beneficiaries or stakeholders of a finance solution are the target and affected population or entity. Most finance solutions alter existing incentive systems through either market-based instruments that influence prices or through policies, regulations, etc. The beneficiaries and main stakeholders are the organizations, individuals, companies or groups that are directly affected. For example, they can be farmers receiving a certain subsidy "under reform" along with the companies that provide them with agricultural inputs. It is essential to understand what is driving their behaviour under the business-as-usual scenario and be able to make accurate predictions about the finance solution's likely outcome.

1.4.6 Finance source

Finance (or financing) sources are the ultimate source of the capital used for a finance solution. Many solutions do not involve the transfer of monetary instruments but may still have a notable finance source that would include those individuals or groups likely to experience an economic cost because of the solution. Consideration should be made to assure that a finance source has the ability and willingness to pay for the solution and will generally be supportive of these initiatives. Finance sources are internationally categorized as national or international and public or private.

1.5

Public and Private Finance

Biodiversity finance often deals with the interplay between public and private finance. While blended finance options are gaining traction, working on public and private finance requires distinct approaches, different stakeholders, thinking and language.

1.5.1 Understanding public finance solutions: government policies and budgets

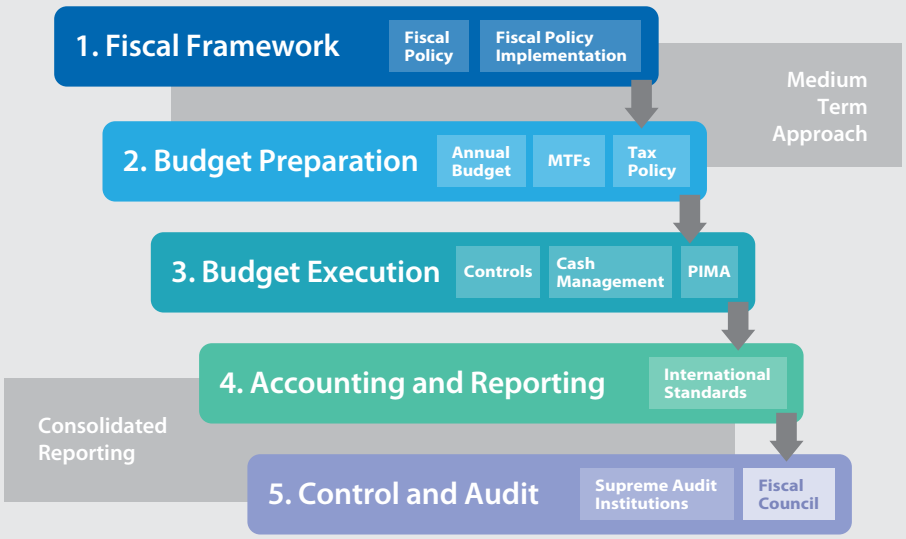
Governments play an essential role in financing biodiversity. Domestic budgets account for approximately 50 percent of the total invested in biodiversity annually. If ODA and biodiversity-positive policies are added, the public sector accounts for 75 percent of all biodiversity expenditures. A study in Latin America and the Caribbean found that governments directly supported 60 percent of protected area management costs on average.[39]

Despite being primarily financed through public budgets, financial allocations to the environment (and biodiversity) tend to be low as there are fewer interest groups or political rewards involved. At a local level, most natural areas have potential alternative uses, such as agriculture, housing, fishing, etc. These economic activities result in clear individual benefits. Arguing to forgo those individual benefits requires clear explanations of how both society and individuals will be better off if they retain nature rather than allowing for its conversion.

Integrating biodiversity targets into long-term strategic planning is one important means of assuring that biodiversity is adequately financed and supported by government fiscal and regulatory policy. Lobbying for fiscal reforms and larger budget allocations often requires an anchor in the national vision and planning process. These documents and planning processes result in multi-year public investment plans, in turn informing annual budgets. The SDGs offer an opportunity for this, with many countries adapting their national strategies to align with them.

Environmental ministries and civil society can shift allocations in favour of nature only if they present powerful arguments responding to a country's development goals, often focusing on economic development. To address how biodiversity targets can support economic development, proponents should provide estimates for job creation, contribution to GDP, costs avoided from protection against natural or climate change-related disasters or agricultural failures. This engagement requires presenting biodiversity values in the language of economics and finance used by the ministries of finance and planning.

Figure 1.5: Fiscal Framework and Public Budgets



Source: IMF, 2018.

Public finance management frameworks usually describe the rules governing taxes, subsidies, fees, fines, intra-governmental transfers, monetary policy, debt management, budgeting and regulatory mechanisms. Policymakers seeking to use fiscal and associated regulatory tools to achieve biodiversity objectives should make every effort to understand the system within which these tools work. Most fiscal policies affect markets and are difficult or costly to reverse once established.

Figure 1.5 describes the main steps undertaken in public finance management. Public budgeting is informed by national planning and the fiscal framework, in turn determining allocation priorities, revenue targets and budget caps. A detailed analysis of the budgeting process, key decision makers, timing of decisions, and specific types of targets and indicators helps to develop strong conservation plans, increasing the likelihood of approval.

The macroeconomic context can limit the availability of public finance—fiscal space. If governments allocate more budget to nature, they may thus decrease allocations to other sectors. Although BIOFIN and others have identified many opportunities to realign public expenditures counterproductive to social welfare (e.g. greening subsidies), many countries still operate under severe public finance constraints leading to investment trade-offs.

1.5.2 Finance solutions involving the private sector

The private sector can play a central role in halting biodiversity loss and financing biodiversity conservation only if one understands the impact and vulnerabilities of private businesses to biodiversity. We can preserve and sustainably use the Earth's species and ecosystems only by expanding and financing sustainable businesses. Only 14.5 percent of the world's land[40] and 7.44 percent of the world's oceans[41] is under protection and mostly under public domains. These protected areas do not cover all areas important for biodiversity. In most countries, private individuals or companies own, lease or occupy most of the land, making their engagement essential for proper biodiversity management. Unfortunately, prevalent business and accounting practices tend to not adequately count and take into consideration biodiversity and natural capital monetary values. They also ignore production- related aspects, and underestimate reputation consequences and supply chain risks related to these traditional practices.[42]

Corporations increasingly provide financial resources through grants and donations. Although altruism and charitable giving are critical, they are only the tip of the iceberg when it comes to impacting nature. This means going far beyond philanthropy and voluntary corporate social responsibility, integrating biodiversity and ecosystems into sustainable business models.

Investment in conservation is growing, even if starting from low figures: Total committed private capital climbed 62 percent in just two years from US$ 5.1 billion to US$8.2 billion.[43] Investors committed an additional US$ 1.6 billion a year in 2014 and 2015. Businesses are beginning to appreciate their dependence and impacts on nature, and leading companies realize the risks and opportunities associated with a better incorporation of nature into business models and operations. The Natural Capital Coalition (a group that evolved from TEEB for Business), the Natural Capital Initiative, and other groups and companies have developed a range of tools and protocols that assist business managers and leaders to understand options and risks associated with their interaction with nature and nature's services.

Box 1.4: Investing in Green Infrastructure is Cost-Effective

New York City evaluated two schemes to manage its storm water flows. One was a green infrastructure plan that emphasized stream buffer restoration, green roofs, and bio-swales–landscape elements designed to remove silt and pollution from surface runoff water. The other was a grey infrastructure plan involving tunnels and storm drains. The green infrastructure option presented relative cost savings of more than US$1.5 billion.[44]

A study by WWF-Guianas looked at potential investments in coastal defences for Paramaribo, the capital city of Suriname.[45] For much of the coastline examined, mangrove regeneration appears to be the more cost-effective solution, with investments having a net present value at least double that estimated for dyke construction. These results are dependent on assumptions, but they are robust under different discount rates, and arise despite additional benefits of mangroves (e.g. carbon storage, fisheries life cycle habitat) not being valued. Where coastal developments preclude space being available for mangrove regeneration, investments in dykes are the only feasible protection option.

Annex

Annex I: Making the Case: Economics and Economic Valuation of Ecosystem Services

Finance solutions require a sound justification using economic and social arguments. Decision makers understand the language of economics and finance better than the one of ecosystems and biodiversity. A justification and business case that includes a combination of moral, financial and economic information is important to motivate leaders and citizens to act. Economic theory can help explain how nature, human decisions, trade, and investment interact. Furthermore, it can help explain some of the reasons behind these decision-making outcomes. Integration of economic theory into biodiversity planning and management is essential to achieve transformative change because:

- Policies, programmes and finance tools require economic assessments to evaluate their feasibility and economic outcomes;
- Understanding the economic and market drivers of biodiversity loss is essential to craft an effective response. The design of the response benefits from understanding who is benefiting from specific ecosystem services, who bears the costs of providing them, and who might win or lose with changes to management or finance. This understanding is essential for setting up incentives for effectively protecting and financing biodiversity.

Many of the solutions to solve market and public policy failures require determining the economic value of nature's goods and services. Economic valuation is a way to understand how much something is worth to people or society.[46] Economic valuation can be used to:

1. Convince decision makers of the importance of investing in nature;
2. Better integrate nature into business decisions;
3. Conduct cost-benefit analyses about alternative investment or infrastructure plans; and
4. Inform feasibility and design studies for a wide range of finance solutions from tax incentives to park entrance fees.

Economic valuation studies that highlight nature's contribution to human well-being are available in the hundreds and are constantly improving in accuracy and rigour.[47] Quantifying the value of biodiversity remains one of the most challenging areas of environmental economics.[48] However, most economic valuation studies are still concerned with raising awareness. They are not conducted within the context of costs and returns on investment. As a result, this information does not provide good enough arguments for prioritizing biodiversity investments. Simply stating that a national park has a high total economic value will not necessarily result in increased funding. It is essential to translate societal and economical values into actionable financial or fiscal terms. The BIOFIN Process aims to do this.

Other methods such as cost-benefit analysis (CBA) can shed further light on public policy and investment debates by comparing the costs and benefits of a proposed policy or project in quantitative terms. CBA application thus allows for the comparison of the expected outcomes of alternative formulations of laws and policies or investment options for infrastructure development and business decisions. Since market prices are not available for many environmental goods and services, it is difficult to include them in a CBA. Many "development" projects result in economic losses when full cost accounting is included in CBA,[49] yet it is often incumbent on civil society to ensure that the environment considerations are captured adequately in analysis.

Despite methodological challenges and data gaps, economic valuation of biodiversity and ecosystem services and CBA have become powerful tools for demonstrating biodiversity's contribution to growth, employment creation and poverty reduction in language familiar to decision makers. They help policymakers understand why ecosystems remain undervalued, identify dependencies on biodiversity, and explain the loss of economic productivity and worsening of poverty associated with ecosystem degradation. Economic arguments help to make the case for investment in biodiversity through National Biodiversity Strategies and Action Plans (NBSAPs) and other relevant sectoral strategies and national development plans. This evidence is examined further in the PIR (Chapter 3) and is a necessary part of making the case for the Biodiversity Finance Plan (Chapter 6).

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Chapter 2

The Biodiversity Finance Initiative

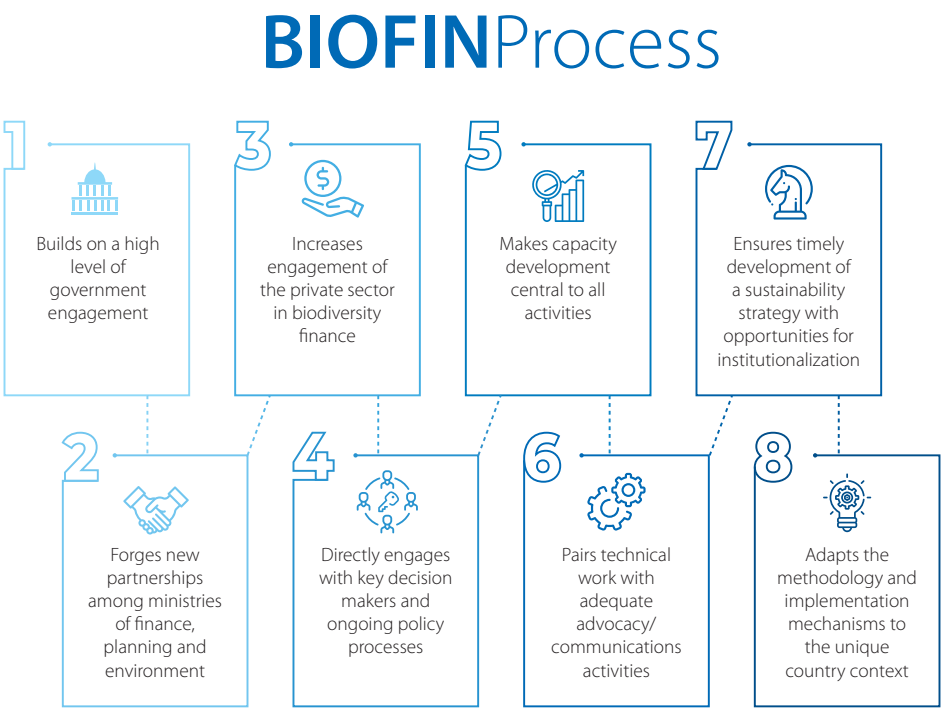
2.1

Introduction

The Biodiversity Finance Initiative (BIOFIN) is a global platform seeking to improve the management of nature and nature's services through an enhanced understanding and use of finance solutions. UNDP manages the platform. BIOFIN offers a comprehensive and stepwise methodology for countries to break from the historical pattern of ecosystem loss and degradation.

This chapter presents the BIOFIN methodological approach. Chapter 1 described the current global biodiversity finance landscape. Chapter 2 outlines BIOFIN's response. It clarifies how the BIOFIN assessments (Chapters 3-5), the Biodiversity Finance Plan (Chapter 6) and implementation (Chapter 7) jointly result in transformational change in a country.

Figure 2.1: Eight Pillars of a Transformational BIOFIN Process



2.1.1 Objectives of this chapter

This chapter seeks to:

1. Explain the BIOFIN Process.
2. Describe how to establish it in a country.
3. Provide guidance on stakeholder engagement and advocacy.

2.1.2 How to use the Workbook

The BIOFIN Workbook provides technical guidance, describing all steps of the BIOFIN Process in a country. Although it was designed primarily to support countries that have embarked on a complete implementation of the BIOFIN Process with outside financing and technical support from UNDP, any country can implement some or all the suggested steps. Although not recommended, it is possible to implement each of the BIOFIN steps on its own.[1] The methodology can be and has been effectively replicated at the subnational level.

2.2

The Biodiversity Finance Initiative

Figure 2.2: Historical Overview of BIOFIN

2010

BIOFIN was developed in response to the 10th CBD Conference of the Parties (COP-10) of the Convention on Biological Diversity (CBD), which identified the need for better information on past expenditures and future financing needs, and for a comprehensive methodology to develop sound finance strategies to significantly reduce financial needs in the future.

BIOFIN
THE BIODIVERSITY FINANCE INITIATIVE

2012

BIOFIN (Phase 1) was launched at CBD COP-11 in India as a bottom-up approach. The initiative started with an initial grant from the EU, and to date has received additional financial support from Germany, Sweden, Norway, Switzerland and Flanders.

This project is co-funded by the European Union

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

NORWEGIAN MINISTRY OF FOREIGN AFFAIRS

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Office for the Environment FOEN

Flanders
State of the Art

2014

BIOFIN launched the first fully developed version of the Workbook to start implementation in 12 countries. The initiative grew exponentially to reach 30 countries by 2015 and 35 in 2018.

2016

Based on lessons from implementation, BIOFIN launched the 2016 Workbook at CBD COP 13 (Mexico). It outlined for the first time the theoretical framework, articulating 4 types of finance results and providing a new method to identify and prioritise finance solutions in the Biodiversity Finance Plan. Launch of the CBD BIOFIN Regional Nodes Platform.

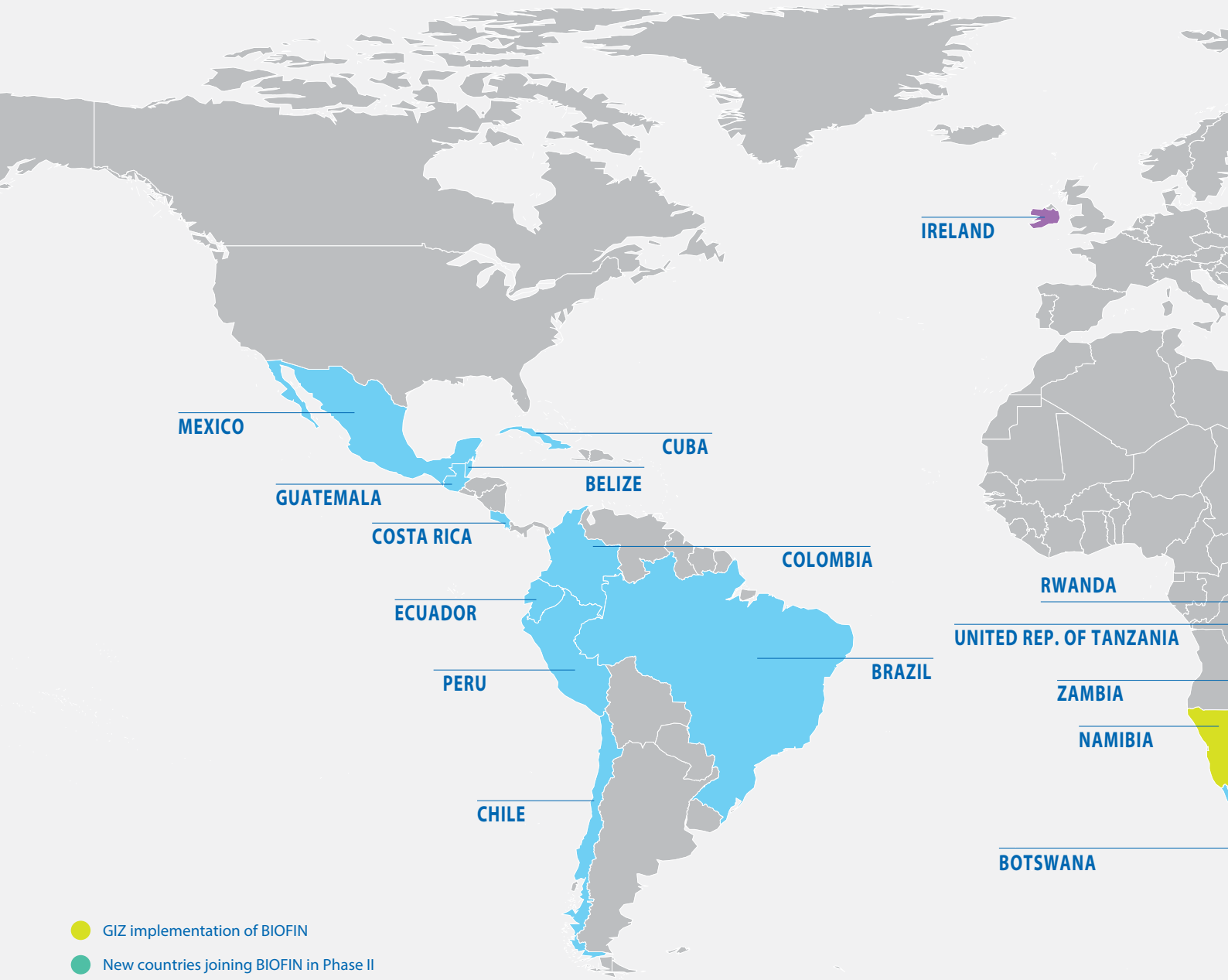
2018

Marks the end of BIOFIN Phase I and the start of BIOFIN Phase II, shifting the focus from methodology development to implementation of national Biodiversity Finance Plans and individual finance solutions – while additional countries can also start the process from the beginning.

Phase 2

BIOFIN resources are available on the BIOFIN website: **www.biodiversityfinance.org**

BIOFIN
AROUND THE WORLD

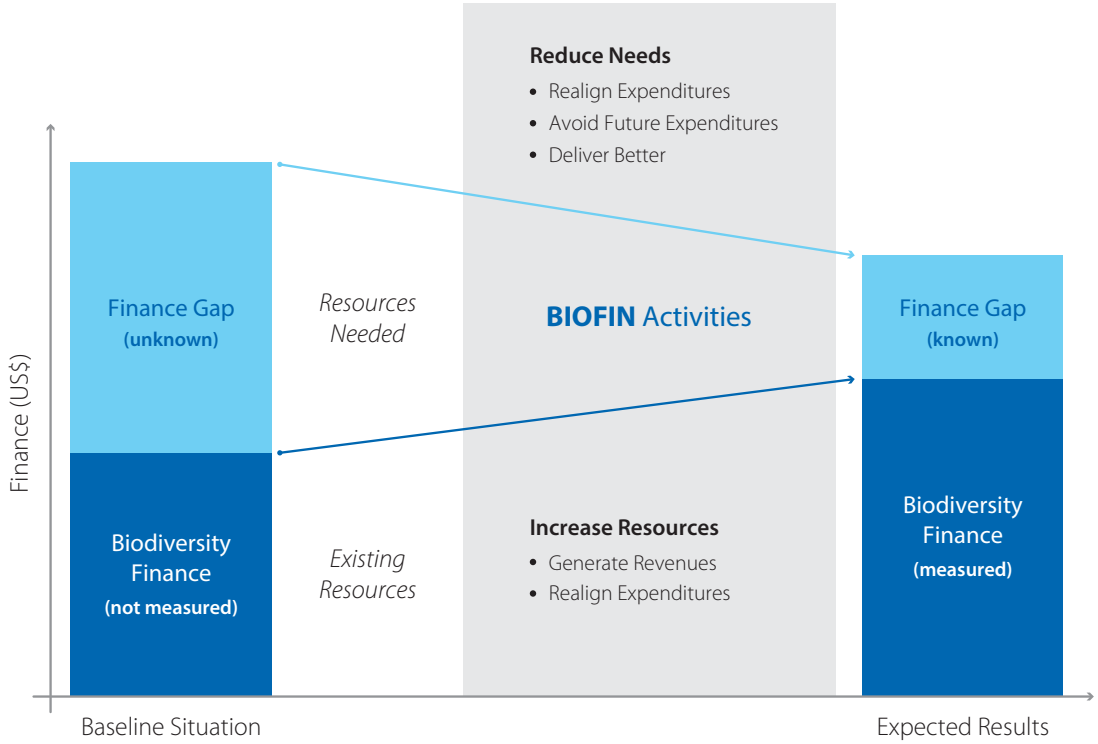


Map No. 4170 Rev. 15.1 UNITED NATIONS, July 2018 | Department of Field Support Geospatial Information Section (formerly Cartographic Section)

2.2.1 The BIOFIN approach

The BIOFIN approach starts with a baseline scenario, typical for most countries, where both the levels and need of biodiversity financing are unclear. BIOFIN works with countries towards a future scenario where these amounts become known (left column in Figure 2.3) and where solutions are deployed to meet the challenge of financing biodiversity. The BIOFIN Process thus aims to increase the financial envelope for biodiversity, realign expenditures where it matters most (e.g. by greening harmful subsidies to biodiversity), reducing future costs by investing in preventive actions (e.g. by stopping alien species and saving the eradication costs), and delivering better on every dollar spent (right column in Figure 2.3). The work leads to improved biodiversity management and enhanced well-being for people dependent on nature's services.

Figure 2.3: The BIOFIN Approach



BIOFIN takes this theoretical approach and creates a practical application to manage its complexity. Figure 2.4 describes how the BIOFIN Process thus becomes operational by combining a technical analysis, detailed in the BIOFIN methodology, with overarching frameworks and activities to produce and implement a Biodiversity Finance Plan (BFP). The BIOFIN approach starts with understanding the drivers of biodiversity change and matching them with financing challenges and solutions. This culminates with a shifting scenario and a new path for biodiversity conservation. BIOFIN promotes a holistic approach that addresses multiple challenges, such as the lack of existing data on finance needs and expenditures, capacity deficits, lack of coordination and too much reliance on a limited number of finance sources and solutions.

BIOFIN
THE BIODIVERSITY FINANCE INITIATIVE

THE BIOFIN

DRIVERS OF BIODIVERSITY CHANGE

Negative

Unsustainable policies and practices in the public and private sector leading to:

- Habitat conversion
- Degradation and fragmentation on land and in the oceans
- Climate change
- Invasive non-native species
- Pollution
- Nutrient overload

Positive

Policies and practices of conservation, investment and sustainable use in the public and private sector

FINANCE CHALLENGES

Insufficient finance allocated towards biodiversity goals

Planning

- Limited financial solutions known and used
- Lack of shared vision in country
- Lack of comprehensive finance tools/methods/strategies
- Limited implementation of NBSAPs and protected area management plans

Institutions

- Limited biodiversity finance capacity and coordination
- Knowledge fragmentation and lack of awareness
- Insufficient engagement

Baseline data

- Expenditure data unknown
- Finance needs not measured

Finance allocated towards biodiversity negative practises

- Unsustainable sectoral policies and practices

Harmful subsidies

THE BIOFIN PROCESS

INSTITUTIONS

POLICY

FINANCE DATA

NATIONAL FINANCE VISION/POLICY

FINANCE SOLUTIONS

Finance Solutions Identified

Figure 2.4: Applying the BIOFIN Approach

APPROACH

Empowered lives.
Resilient nations.

RESULTS

Outputs

TECHNICAL

Biodiversity Finance Policy and Institutional Review (PIR)

- Analysis of existing drivers and challenges
- Analysis of policy environment
- Existing finance solutions understood
  - Fiscal policy options
  - Harmful subsidies
  - Barriers to implementation

Biodiversity Expenditure Review (BER)

- Biodiversity expenditure measured and analysed

Financial Needs Assessment (FNA)

- Financial needs for nature better understood

Biodiversity Finance Plan (BFP)

- Comprehensive finance plan developed and adopted
  - Shared vision
  - Investment case
  - Action plan

Implementation

- Finance solutions implemented
- Policies, plans and legislation improved
- Integration of biodiversity in national and subnational budgets enhanced

CROSS-CUTTING

- Knowledge sharing mechanisms in place
- Knowledge products developed
- Improved and new partnerships
- Gender mainstreaming
- Stakeholder and media engagement
- Capacities developed among key players
- Biodiversity finance champions engaged and nurtured
- High-level engagement of government officials

Outcomes

- Strong national capacities to analyse, design and implement finance solutions
- Institutional framework conducive for biodiversity finance objectives
- Conservation recognized as investment priority for the private sector
- Revenue generated
- Resources realigned
- Resources spent more efficiently
- Costs prevented

Impact

Negative drivers of biodiversity loss reduced/removed

Positive drivers of sustainable biodiversity management enhanced

Unmet finance needs reduced

Achievement of national biodiversity targets

Sustainable development enhanced and supported

Overall increase in health and extent of ecosystems and biodiversity conservation

2.2.2 The BIOFIN methodology

This chapter presents the step-by-step BIOFIN methodology (see Figure 2.5) as well as activities required to frame a national overarching implementation structure. The BIOFIN methodology has five technical steps. Each of these steps are interrelated and may overlap:

- **The Biodiversity Finance Policy and Institutional Review** (Chapter 3) analyses the policy and institutional context for biodiversity finance in the country, to establish the baseline for the BIOFIN Process. This analysis examines the relationship between the state of nature and a country's fiscal, economic, legal, policy, and institutional framework. This helps identify how biodiversity and ecosystem services support national SDG goals and visions and the key policy and institutional drivers of biodiversity change; and catalogue existing biodiversity finance mechanisms.
- **The Biodiversity Expenditure Review** (Chapter 4) uses detailed data on public, private, and civil society budgets, allocations and expenditures to inform and promote improved biodiversity policies, financing, and outcomes. The assessment accounts for "direct" expenditures, where biodiversity considerations are the principal concern; and examines and estimates the value of "indirect" expenditures, where biodiversity considerations are a secondary concern.
- **The Financial Needs Assessment** (Chapter 5) makes a comprehensive estimate of the financial resources needed to achieve the national and subnational biodiversity targets articulated in national biodiversity plans and other key national planning instruments. The assessment clarifies the "costable actions" in these instruments and links them to biodiversity results; generates budgetary data that can be used to advocate for biodiversity investments; helps prioritize biodiversity strategies and actions based on biodiversity and cost criteria; and estimates unmet biodiversity financing needs.
- **The Biodiversity Finance Plan** (Chapter 6) is the guiding document for implementing the most optimal finance solutions to reach national biodiversity targets. It uses the evidence gathered throughout the entire BIOFIN Process to prioritize the most feasible and impactful finance solutions. The plan is a national document engaging the public sector, private sector, and civil society. It goes beyond the mobilization of additional resources to address all four finance results: generate revenues, realign expenditures, deliver better, and avoid future expenditures.
- **Implementing Finance Solutions** (Chapter 7) guides countries on how to continue the BIOFIN Process once the Finance Plan concludes. This chapter shifts the focus to the implementation of individual finance solutions, to help promote institutionalization of biodiversity finance functions in countries, and ensure adequate safeguards and sound M&E frameworks.

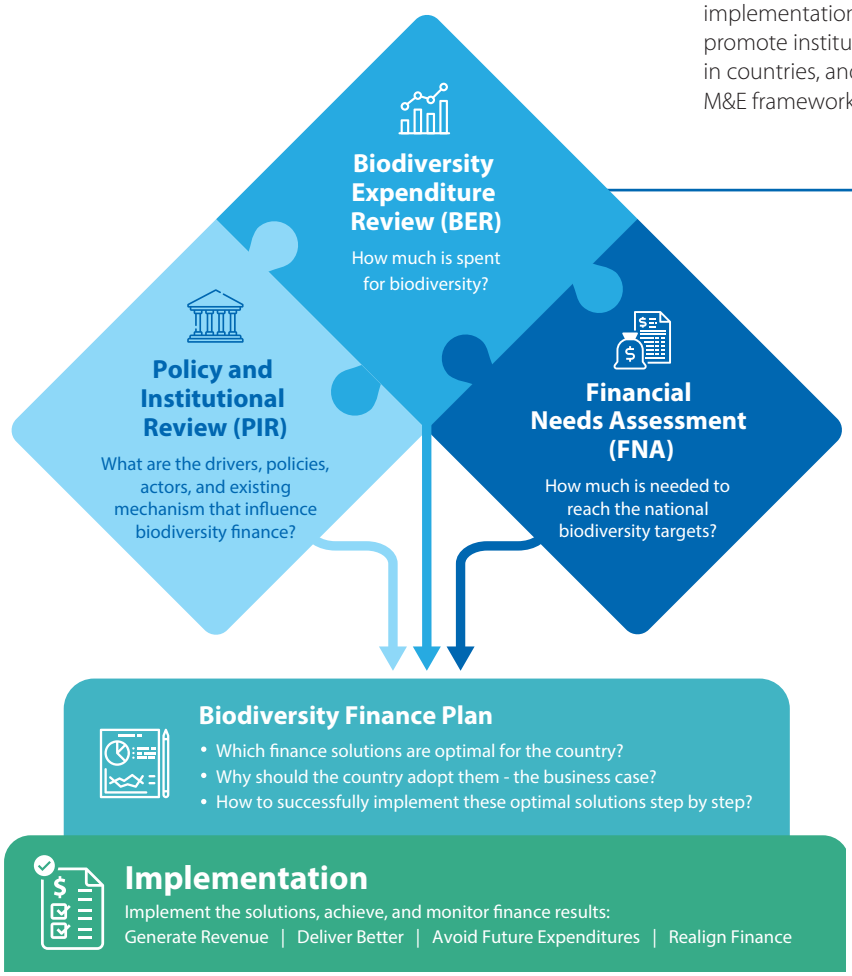


Figure 2.5: The BIOFIN Methodology

The BIOFIN Methodology

An Innovative Approach to Develop National Financing Strategies

Section 2.3 elaborates on the establishment of the BIOFIN Process in countries in a manner that ensures the technical work feeds into policy development. It reviews the requirements and strategies to start the process in countries, as well as the modalities to engage and communicate with stakeholders and decision makers. From the start, the BIOFIN approach and methodology should be calibrated to the national context, and help create an environment conducive to exploring new and scaled finance solutions.

2.3

Integrating the BIOFIN Methodology into the National Context

2.3.1 Prerequisites for BIOFIN implementation

The BIOFIN journey requires several prerequisites:

POLITICAL WILL
Confirmed support from the highest governmental levels.

COLLABORATION
Evidence of willingness across agencies, ministries, and sectors to start a collaborative journey.

OPENNESS TO THE PROCESS
Willingness to consider budgetary and management reforms and to make financial data accessible during the BIOFIN Process, which must in turn respect sensitivities.

CAPACITY
Existence of basic capacity to undertake the technical work.

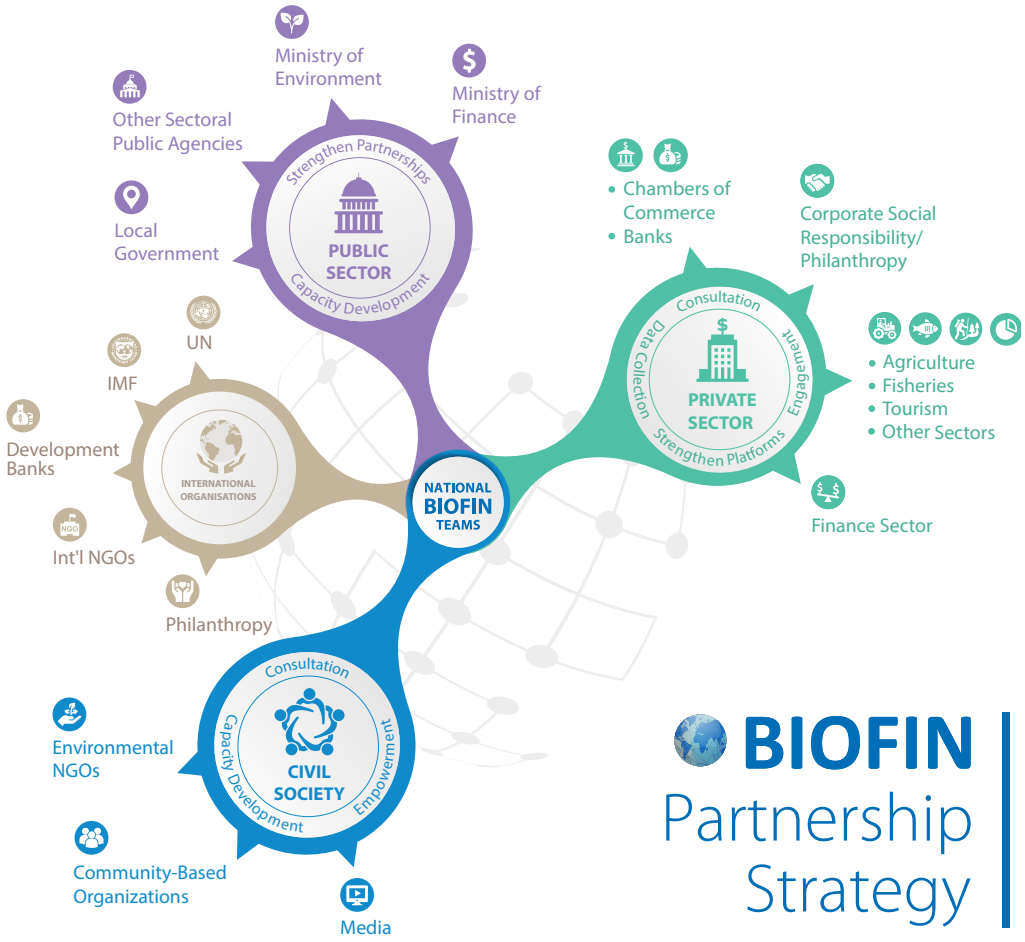
Additional principles that should be pursued:

- **User orientation:** The BIOFIN Process and results are designed primarily for the intended users' own convenience.
- **Evidence-driven:** The selection, design and implementation of finance solutions are based on sound evidence.
- **Inclusiveness:** Prioritization and decision-making are informed by in-depth consultation with a wide group of stakeholders and facilitated by a strong focus on capacity development.
- **Leaving no one behind:** The needs of the poorest and most vulnerable members of the society are carefully considered, with solutions that help to alleviate poverty.
- **Gender-sensitive:** Potential impacts are analysed from a gender perspective.
- **Openness and transparency of data:** Disclosure of expenditure and investment data leads to efficiency and effectiveness gains and can enhance citizens' participation. BIOFIN and UNDP fully respect the rights of privacy, confidentiality clauses and sovereignty of public data.

2.3.2 Modalities of engagement with national stakeholders

Biodiversity finance relates to a large universe of stakeholders, ranging from development banks, central banks, enterprises and ministries at the national level, to community and indigenous organizations operating in key biodiversity areas. Engaging these actors helps to: 1) build a shared understanding and vision among all these key stakeholders; 2) understand capacity gaps and respond accordingly; and 3) coordinate all related initiatives and lead technical debates. The BIOFIN Process builds on three primary engagement axes (Figure 2.6). The first axis connects environmental, finance ministries and other relevant public entities to improve institutional cooperation. The second engages the private sector to identify opportunities for investments with positive conservation benefits and the introduction of sustainable practices. The third axis is about empowering civil society and community organizations. International organizations, including conservation NGOs, development banks, the UN and others, are considered critical supporters. The following section discusses how to engage the stakeholders in the process. The Policy and Institutional Review in Chapter 3 provides more detailed guidance on scanning a country's biodiversity institutional landscape.

Figure 2.6: The BIOFIN Partnerships Strategy at National Level



Navigating the political economy – lessons from OECD

BIOFIN teams need to be very conscious of issues pertaining to the political economy of each finance solution, especially when dealing with areas related to vested interests, such as reforming harmful subsidies or introducing new taxes. OECD analysis highlights the importance of exploiting time-bound windows of opportunity, for example in relation to popular news, a national crisis or when a new government takes office. Other strategies to engage with a country's political economy include:

- Forge alliances between finance and biodiversity groups;
- Base campaigns on robust data and evidence;
- Develop a strategy to address vested interests; and
- Build broad and durable support.

Source: The Political Economy of Biodiversity Policy Reform (OECD, 2017).

2.3.3 Public sector: Promote partnerships between conservation and finance actors

Despite a multiplicity of ministries playing a role in either harming or protecting biodiversity, conservation is often set as a sectoral issue, left under the responsibility of the environment ministry alone. This segregation needs be overcome through a better understanding of the role of biodiversity across government, and reviewing options for closer cooperation. The finance ministry's direct engagement is a critical building block to make those arrangements workable. Actions include: (1) establishing joint leadership of BIOFIN by the finance and environment ministries; (2) strengthening the capacity of environment and finance ministries on matters related to financing instruments and biodiversity, respectively; and 3) improving existing coordination frameworks by expanding mandates to work on biodiversity finance. Countries have demonstrated that multiple public agencies can effectively lead the BIOFIN Process, for example the Ministry of Finance in Indonesia, the Gross National Happiness Commission in Bhutan and the Economic Planning Unit in Malaysia.

Champions of Change

Certain individuals can play a catalytic role in policy processes, acting as true agents of change. Often, they are senior government or visionary entrepreneurs, but they can also be influential media personalities, civil society leaders or scientists.

Congresswoman **Josephine Ramirez-Sato** is facilitating the approval of new laws in the Philippines. The Expanded National Protected Areas System Bill was successfully amended to increase the number of protected areas from 13 to 107. As a result, new protected areas will be eligible to access public funding in an amount estimated between US$1 million and US$10 million per year. Furthermore, a proposal to allocate a portion of the Malampaya Fund – a Php 193 billion (US$3.6 billion) earmarked oil and gas fund – towards conservation is being considered, while access and benefit-sharing legislation has been drafted to better capture the economic benefit of its genetic resources. Decision makers such as Congresswoman Sato should be involved in the BIOFIN Process from an early stage. They may be former heads of state, ministers, or members of parliament as well as corporations' and banks' CEOs. Only decision makers can push for draft laws to be approved, budget proposals to be presented to the Ministry of Finance or a company's investment to be made. Decision makers' engagement also enables better alignment of ideas with current priorities, and builds political and societal support required for reforms and innovations.

Former Minister of Finance of Costa Rica **Guillermo Zuniga** realized throughout his career in the finance sector that more finance is required for conservation. He took up the leadership of BIOFIN Costa Rica in late 2013 and managed to engage effectively with leaders from government organizations and the private sector.

2.3.4 **Private sector:** innovate and build new alliances

Numerous entry points can be leveraged to engage the private sector: In Sri Lanka, BIOFIN and the Central Bank are working with the banking system to design green financial products for biodiversity. SVX Mexico, an impact investment advisory, BIOFIN and the Mexican Fund for the Conservation of Nature have constituted the Regenerative Investments Consortium to expand impact investment in conservation. BIOFIN Costa Rica is working with a major national bank on a green securitization bond to finance and refinance land acquisitions for protected areas. BIOFIN works in the Seychelles to increase investments for biodiversity conservation from the tourism sector. As these examples demonstrate, the private sector is a vast universe of its own, that can be navigated through partnerships that may comprise millions of individual farmers or just one large multinational corporation or bank. To map private sector stakeholders, consider the following groupings:

- **Corporations** including multinational companies and large domestic companies impacting biodiversity in agriculture, fisheries, tourism, forestry, etc.;
- **Micro, small and medium enterprises (MSMEs)** and farmers or groups of farmers in agriculture, fisheries, tourism, forestry etc.;
- **Financial sector** including banks, financial intermediaries, venture capital funds, microfinance organizations, impact investors, etc.
- **Business alliances and other organizations representing the private sector** such as Chambers of Commerce and Industry and their working groups, business associations, etc.;
- **State-owned enterprises (SOE)**, i.e. either wholly or partially owned by a government and that engage in commercial activities as part of an open market system; and
- **Private landowners** who own conservation areas or other areas of relevance.

How to involve the private sector?

Policy and Institutional Review	Map the main sectors/enterprises impacting biodiversity and existing finance solutions involving the private sector.
Biodiversity Expenditure Review	Collect data on how much major enterprises invest in biodiversity positive activities or spend on Corporate Social Responsibility.
Financial Needs Assessment	Identify actions within biodiversity strategy action plans that can be made investible for the private sector.
Biodiversity Finance Plan	Partner to codesign finance solutions and validate the finance plan.
Finance Solutions Implementation	Partner with as a responsible party for the implementation of a finance solutions, such as impact investment, Corporate Social Responsibility, etc.

Biodiversity Finance Solution

Enterprise Challenge Funds

Challenge funds have mainly been used by development partners (since the late 1990s), awarding grants/concessional finance (sometimes loans) to enterprises (NGOs can often apply as well) through competitive processes. Proposals must be both commercially viable and demonstrate significant additional social/environmental benefits. They are assessed against transparent, clearly defined criteria, with cofinance often a precondition. The global amount invested in challenge funds exceeds US$1 billion. So far, its use for biodiversity is limited.

Example: Since 2008, the US$310 million Africa Enterprise Challenge Fund has awarded funding for 267 companies in 24 countries. Some of these funds were used for organic farming investments. A company in Sierra Leone received a grant to improve the quality and quantity of cocoa production, enabling it to secure a price premium through access to the certified social/fair trade and organic markets.[2]

2.3.5 **Development partners:** finding synergies

A country may have a variety of active programmes financed by development partners, from natural capital accounting to the implementation of finance solutions such as payments for ecosystem services. Particularly relevant programmes/activities to investigate include those related to national development planning, conservation finance (e.g. UNDP-GEF projects, WWF, WCS, TNC, CI),[3] climate finance (e.g. REDD+)[4] economic valuation, Targeted Scenario Analysis and Natural Capital Accounting (e.g. TEEB, WAVES, ValuES),[5] and organizations that collect and host large amounts of data (e.g. OECD, UN Statistics Division).[6] Other initiatives to link up with are those focusing on public finance reform (World Bank, IMF, UNDP) and private finance (UNEP-FI and CPIC).[7]

The BIOFIN team must build synergies and formulate joint actions or even establish joint programming and implementation structures. In Kyrgyzstan, BIOFIN works with the UN Poverty and Environment Initiative to align biodiversity and climate finance work. BIOFIN in Namibia was implemented directly by GIZ.[8] Development partners, including bilateral donors, multilateral organizations and conservation NGOs, are among the most influential actors in conservation. They can provide significant financing for biodiversity in developing countries.

Moreover, BIOFIN is expected to play a lead coordination and technical role on biodiversity finance in the country. After mapping the existing initiatives, it may be necessary to organize periodic coordination meetings (or other coordination infrastructure) and involve all interested development partners in the finance plan formulation and implementation.

How to involve development partners?

Policy and Institutional Review	Gather data on biodiversity-related official development assistance (ODA) and reports and projects working on biodiversity finance.
Biodiversity Expenditure Review	Request data on biodiversity expenditures.
Financial Needs Assessment	Request plans for future programming/investments.
Biodiversity Finance Plan	As primary investors in conservation, must be closely involved in the design of the finance plan, but could lead/finance specific finance solutions if requested.
Finance Solutions Implementation	Encourage development partners to lead one or more finance solutions.

Key questions to screen related initiatives

1. What has been their role in the NBSAP process?
2. What activities are undertaken (past, present & future) on biodiversity finance/finance solutions?
3. Which reports produced may contain useful information for the BIOFIN studies?
4. Who should be invited to the inception workshop/other technical workshops?
5. Which organizations are suitable partners for policy and advocacy work?

Biodiversity Finance Solution

Philanthropy

Philanthropy means 'love for humanity,' but in this context it refers to donations by private individuals for specific development goals, often through foundations that function as endowment funds (also leveraging further funds). Global philanthropy flows to developing countries exceeded US$60 billion in 2014. The Leonardo Di Caprio Foundation and MAVA Foundation are two examples.

Example: Tompkins Conservation, through various land trusts and in cooperation with national governments and other philanthropists, helped purchase millions of hectares of land in Chile and Argentina to gazette, expand, restore and manage 11 protected areas (including *Pumalin National Park* and *Ibera National Park*).[9]

2.3.6 **Civil society:** partner and empower

Many of the world's key biodiversity areas overlap with the ancestral lands of indigenous groups, while NGOs and community-based organizations manage a good number of protected areas. Most of the Debt-for-Nature swaps were facilitated by NGOs. Despite this active engagement and results, civil society is often and incorrectly overlooked as a key actor in biodiversity finance. Lack of participation is sometime due to a lack of capacity to interact and opportunities to participate. BIOFIN should try to bridge the gaps, where possible.

How to involve civil society?

Policy and Institutional Review	Map key organizations at national level.
Biodiversity Expenditure Review	Request conservation NGOs to provide expenditure data.
Financial Needs Assessment	Share information on planned budgets, involving NGOs/CBOs in capacity development.
Biodiversity Finance Plan	Consult key organizations in the development of the finance plan and selected finance solutions.
Finance Solutions Implementation	Carefully analyse the interest and perspectives of local communities, indigenous groups, and relevant NGOs in areas where prioritized finance solutions are implemented, empower local organizations and apply safeguards. Countries can consider capacity development for financing CBOs/NGOS as a finance solution.

2.4
The Inception Stage

After completing the scan of the biodiversity finance landscape with its key actors, BIOFIN needs to rapidly start to actively empower and engage national stakeholders, the very first steps of building a national coalition on biodiversity finance. This culminates in overarching coordination and management structures, framing a compelling shared vision on how to tackle the biodiversity finance challenges and ensuring the process becomes fully anchored in existing policy, planning cycles and institutional arrangements.

Once they have decided to embark on the BIOFIN journey, the proponents should examine the contours of the biodiversity finance landscape. Ministries of finance and environment should jointly lead this process. This engagement should lead to responding to the following questions:

1. What value would BIOFIN add to the country?
2. Which are the most critical entry points to make a strong case for investing in conservation?
3. How should the BIOFIN methodology be tailored to the national context?
4. Who are the most critical national stakeholders to involve closely?
5. What are the most optimal coordination and management structures to put in place?

These initial questions can be answered by the undertaking the following actions:

1. Conducting a rapid screening of national strategic policies and documents;
2. Developing proposals for the BIOFIN management and coordination structures and team;
3. Organizing the first national biodiversity finance consultation;
4. Incorporating gender considerations in the BIOFIN Process from its inception; and
5. Completing the inception stage once an inception report is produced and agreed among BIOFIN partners and stakeholders.

Bhutan's Integrated Approach to SDG Implementation

While BIOFIN was designed for biodiversity conservation, we can take a similar approach to additional SDGs. While BIOFIN analysis already touches on other interlinked thematic areas such as climate change, poverty reduction and gender, BIOFIN-like exercises aiming to collect expenditures and financing needs for other SDGs can be easily combined or coordinated. In this way data collection is streamlined and management costs reduced.

The most linear example is the parallel conduction of Climate Public Expenditures and Institutional Review (CPEIR), which took place in several BIOFIN countries. Follow-up work, particularly on budget tagging, can also be aligned. The Governance of Climate Change Finance website provides a summary of climate related work in Asia and the Pacific.[10]

Bhutan is an example. The Royal Government has prioritized three SDGs: **SDG 1 (End poverty)**, **SDG 13 (Combat Climate Change)** and **SDG 15 (Protect Ecosystems and Biodiversity)**. This allows for a closer look at how the BIOFIN Process could be expanded to respond to government priorities and cover for SDG 1 and SDG 13 considerations. The government decided to coordinate assessments for SDG 15 (BIOFIN) and SDG 13 (CPEIR), while mainstreaming poverty reduction considerations across both. BIOFIN Bhutan is implemented by the Gross National Happiness (Planning) Commission, Ministry of Agriculture and Forests, National Environment Commission, Ministry of Finance, and other conservation partners. The team was led by Lam Dorji, former Secretary of the Ministry of Finance.

2.4.1 Conducting a rapid screening of the policy context

The foremost document to review is the country's national biodiversity plan (NBSAP). In most countries this is the only national policy document in place for biodiversity conservation, besides legislation. The plan is the main basis of determining biodiversity financing needs and the response formulated in the BFP.

The review should aim at answering the following questions:

1. What is the formal status of the biodiversity plan, e.g. a formal policy, a strategic paper?
2. At what level of government was the plan endorsed?
3. Which stakeholders were leading the exercise or have been involved?
4. Does the plan include a clear action plan with targets, indicators and actions?
5. Is the plan comprehensive in tackling biodiversity challenges and framing the response?

It is equally important to scan the national development plan, other major policies (e.g. green growth strategy), most relevant legislation, sectoral strategies (e.g. forestry and agriculture) to verify which additional biodiversity goals exist that need to be considered, and to perceive how biodiversity is currently mainstreamed. The objective at this stage is not to critically review and assess these products but to broadly understand the context. The PIR (Ch. 3) will provide the opportunity to conduct a detailed screening of the same and additional documents.

2.4.2 Establishing the BIOFIN coordination and management framework

The primary and ultimate national BIOFIN governing body is the National Steering Committee. The Committee is the formal decision-making body for BIOFIN. It guides the country strategy and actions. It requires the representation of key line ministries and is ideally anchored in the finance or planning ministry. Further members include other relevant ministries (e.g. agriculture), finance experts, and representatives from the private sector, civil society and academia. The Committee should be chaired by a senior government representative.

The effectiveness and the degree of involvement of the Committee in the BIOFIN Process are directly correlated. Costa Rica has been exemplary in having three Vice Ministers (Finance, Planning and Environment), enabling direct linkages with national policy development. In Sri Lanka, the State Secretary of Finance chairs the Committee, and the Central Bank is closely involved.

The Steering Committee should plan to meet at least once per quarter. Countries that enter the finance plan implementation stage need to revisit the composition, ensuring representation of the institutions and actors with a lead role in the realization of the planned finance solutions.

Figure 2.7: Blueprint for a Steering Committee

Scope: The Committee provides strategic guidance to the BIOFIN Process, facilitating both the alignment with, and feeding into national policy processes. It formally endorses workplans and validates reports from national teams. It debates the specific national objectives and targets the country pursues through BIOFIN. To be effective, the Committee needs to have a clear mandate and terms of reference, ideally captured through a formal Memorandum of Understanding or ministerial order. Since BIOFIN requires a thorough review of expenditure priorities and the collection of voluminous data sets, some of which may be proprietary, the Steering Committee can facilitate access to the information and provide subsequent guidance on its use (both generated data and source information).

Technical Working Group: Supplementing the Steering Committee, countries can form a technical working group (composed of technical officers and other experts in the field), to review the BIOFIN technical outputs. This group should also adopt specific terms of reference specifying its composition, mandate and frequency of meetings. Existing working groups working on relevant themes can be used and expanded to limit the number of existing structures.

Countries involved a wide range of experts in these working groups. Botswana included the Ministry of Finance and Economic Development, WAVES (World Bank), The NGO Kalahari Conservation Society, the Department of Water and a state organization called Statistics Botswana. Zambia mobilized the Bankers Association of Zambia, the National Farmers Union, WWF and the University of Zambia for the group.

Biodiversity Finance Solution

Conservation Licence Plates

Conservation licence plates feature wildlife images. They are sold at a higher price (an additional US$15-60 per year, with lower prices for renewal). The funds are used for wildlife conservation and other green causes.

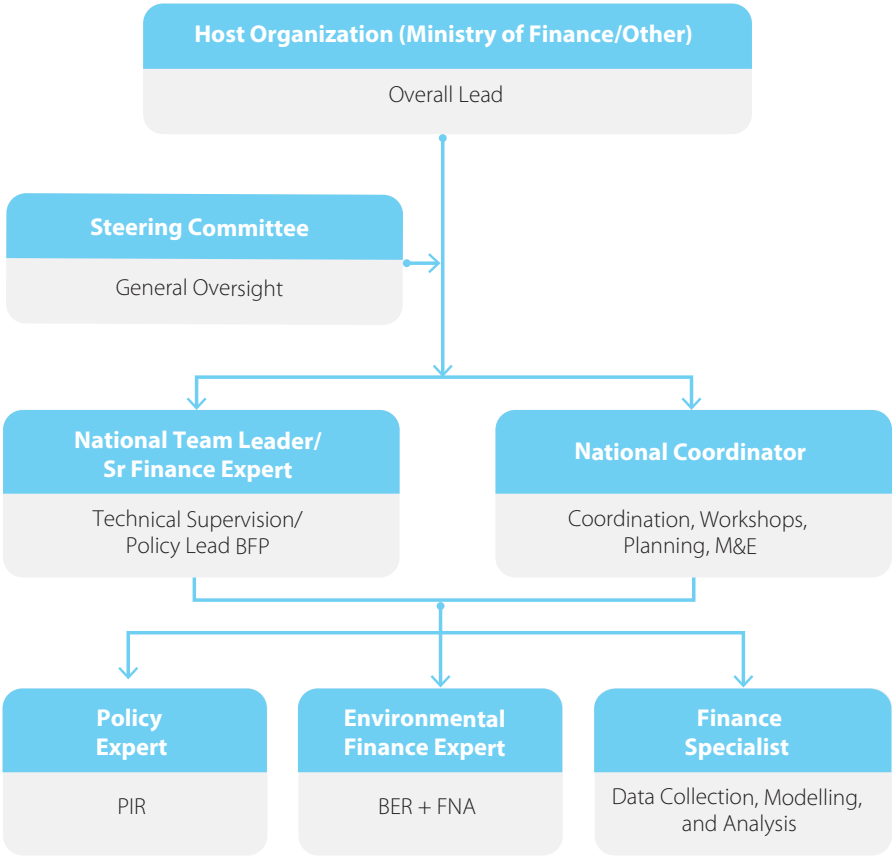
Example: Plates are widely sold in different states in the USA and Canada. The state of Maine raised more than US$40 million since 1994. Malaysia and Thailand are piloting their introduction to conserve tigers.[11]

2.4.3 Constituting the national BIOFIN team

BIOFIN is usually led by a single organization within government, ideally the Finance Ministry, which hosts the dedicated team of experts hired to undertake the technical work and coordinate day-to-day management. The team's composition is determined by the national context and capacity needs. Members can be seconded from government or hired for a specific duration. The core functions can be filled on a full-time or part-time basis as deemed necessary while experts might cover one or more roles. These are:

- **Team Leader (Senior Finance Expert)** – Senior public/private finance expert with a high and respected profile. She/he is responsible for liaising with decision makers, advocacy and reviewing the technical products. She/he leads the preparation of the Finance Plan. Multiple countries mobilized former senior public servants (e.g. the former Minister of Finance in Costa Rica and the former Secretary of Finance in Bhutan).
- **Project Coordinator** – Manager responsible for day-to-day BIOFIN activities, planning and reporting, monitoring and evaluation, human resources, etc.
- **Policy Expert** – Biodiversity expert with sound understanding of public policy processes and public finance management. She/he is responsible for completing the Policy and Institutional Review.
- **Environmental Finance Expert** – Lead expert with a solid background in public finance and or accounting. She/he is responsible for completing the Expenditure Review and Needs Assessment.
- **Finance Specialist(s)** – Junior experts to contribute with data collection and analysis.

Figure 2.8: Schematic Overview of the Ideal Composition of a National BIOFIN Team



2.4.4 Staging the first national consultation on biodiversity finance

Before starting the production of the BIOFIN assessments, a national consultation should be organized to:

1. Create awareness of the BIOFIN approach and related concepts;
2. Engage a wide variety of stakeholders in the process;
3. Gauge the perspectives of key actors on the challenges and potential of biodiversity finance.

The following guiding questions can help to frame the consultation agenda:

1. What are the main entry points for biodiversity finance in the country?
2. What challenges are foreseen to implement BIOFIN?
3. What critical policies are planned for the coming years and how should we align with these?
4. What are the most strategic organizations and initiatives to engage?
5. Which data sources for biodiversity finance are accessible and under what conditions?
6. What is the broad scope and profile of existing finance instruments?

2.4.5 Scoping for gender and biodiversity finance

Within the domains of biodiversity conservation, sustainable development, and gender-based budgeting, gender is a well-anchored priority. The Convention on Biological Diversity adopted the 2015-2020 Gender Plan of Action[12] to provide overall guidance on gender mainstreaming. The UN-REDD has developed an online platform to capture learning and resources related to gender and biodiversity.[13]

The consideration of gender issues in relation to biodiversity involves identifying gender roles and relations on the use, management and conservation of biodiversity. Gender roles of women and men include different labour responsibilities, priorities, decision-making power, and knowledge. The call is to better understand and expose gender-differentiated biodiversity practices, gendered knowledge acquisition and usage, as well as gender inequalities in control over resources.[14] BIOFIN is thus committed to exploring the nexus between gender and biodiversity finance to the fullest. However, sound evidence on the gender impact of biodiversity finance solutions, related literature and best practices is lacking.

BIOFIN recommends collecting knowledge and applying gender lenses throughout the BIOFIN Process, specifically in relation to the assessments and planning documents it produces. Early lessons learned from BIOFIN implementation point to the following:

In the overall BIOFIN Process

- Formulate and include gender-sensitive indicators, e.g., the number of indigenous women and men actively participating in the formulation of the finance plan, and the number of women benefiting from employment opportunities due to increases in investments in ecotourism;
- Assure women's participation in all consultations and BIOFIN bodies and teams: Steering Committee, conference panels, etc.;
- Create a favourable environment for women's engagement in all BIOFIN activities, including by promptly identifying solutions to sensitively deal with social and cultural factors that may prevent their fruitful engagement.;
- Be aware and adopt gender-sensitive language in all documents, including BIOFIN reports, job descriptions, etc.;
- Engage gender experts to obtain professional advice on the above; and
- Foster partnerships with specialized organizations promoting gender considerations, such as Government Gender Focal Points, UN Women and national women's alliances and organizations.

In the Biodiversity Finance Policy and Institutional Review

- Use gender lenses in reviewing and analysing policies, strategies, legislation and institutions, e.g. by identifying opportunities and/or adverse effects towards female empowerment or reflecting on how to bridge gender gaps;
- Examine to what extent the national biodiversity plan has integrated gender aspects; and
- Review and report on the literature tackling gender equality and empowerment. For example, in Uganda the PIR reported the cost of the gender gap in agricultural productivity (US$67 million per year).[15]

In the Biodiversity Expenditure Review

- Apply an additional gender tag for biodiversity expenditures contributing directly to gender equality and empowerment.

In the Financial Needs Assessment

- Ensure gender-related actions are adequately weighted during the prioritization process.

In the Biodiversity Finance Plan

- Ensure gender implications are adequately weighed during the screening and prioritization of finance solutions; and
- Select at least one finance solution with measurable contribution to gender equality and empowerment. The Bhutan Trust Fund for Environmental Conservation developed a Gender Equality Strategy for their grants and operations.[16]

In the Biodiversity Finance Plan Implementation

- Apply gender lenses and indicators through the design, implementation and monitoring of finance solutions; for example, to observe whether men and women have different payment preferences when designing payments for ecosystem services: In Vietnam, men were reported to prefer cash payments while women preferred non-cash payments.

2.4.6 Capture initial baseline findings in an inception report

All findings, decisions and recommendations from the inception stage should be documented in an inception report. The report should formalize all major decisions, including the scope of work, Steering Committee and team composition.

The report should be validated and guarantee that stakeholders will comfortably share a common understanding over BIOFIN objectives and planned activities.

The outline of the inception report is suggested below:

Executive summary

1. Introduction to BIOFIN
Global and national context

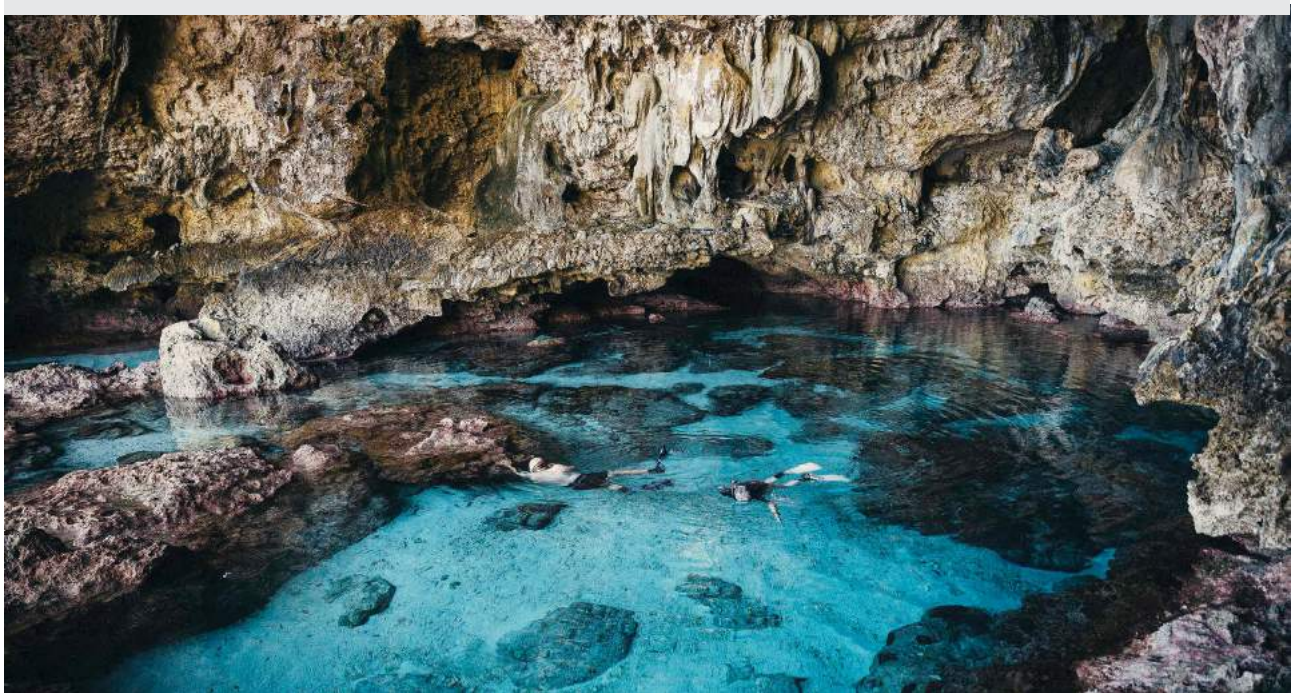
2. Biodiversity in the national policy context
Describes the scope of the national biodiversity plan, and how other major policies relate to biodiversity. Suggests entry points for debating further investments in biodiversity.

3. The existing biodiversity finance context
Describes known and planned biodiversity finance solutions

4. Scope of the BIOFIN Process
Clarifies what sectors need to be included in the analysis, what are the most optimal years to use for the BER/FNA, what is an agreeable definition for biodiversity expenditures. Where are opportunities to have positive gender impacts?

5. Partnerships
Highlights the primary governmental, private sector and civil society stakeholders to involve, and suggests the most strategic initiatives to partner with.

6. BIOFIN Workplan
Outlines suggested membership for the National Steering Committee and technical working group, ideas for the composition of the national BIOFIN team and the main results expected from the process, including targets, indicators, timelines and resources.



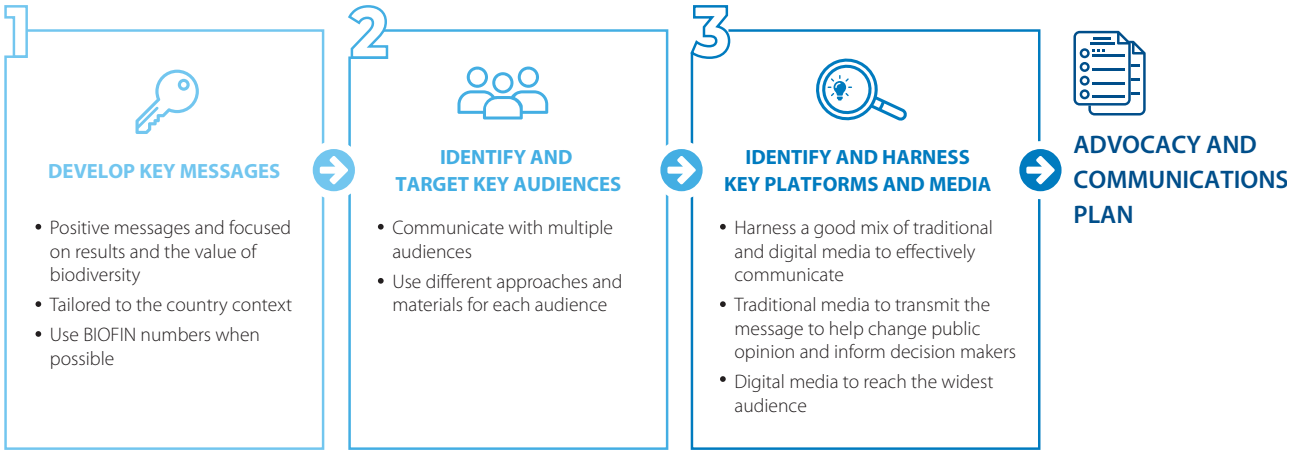
2.5
Communicating Biodiversity Finance

Communication is essential to all stages of the BIOFIN Process, particularly for implementing the Finance Plan and advocating to implement finance solutions. Many may find biodiversity finance a difficult concept to grasp. The process of aligning the language and expectations of the conservation and finance community is a communication challenge on its own. As each country completes the assessments, key messaging can be formed, audiences identified and reached, and a proper advocacy and communication plan put in place (see figure 2.9).

Stories and messages need to be tailored to the audience and wisely reflect on the purpose of the communication. Warning messages on the tragedy of biodiversity "loss" are likely to require balancing with stories about conservation champions that highlight the value of biodiversity to human well-being, our societies and economies, if the aim is to drive action. The formulation of key messages should not be left until the end of the BIOFIN Process. The PIR may already identify critical issues, policies or opportunities. The BER may expose shortcomings in a country's spending. The FNA can offer a simple bulk figure to inform the Minister of Finance of the magnitude of the need.

Advocating for biodiversity finance means communicating complex messages to multiple audiences. Each audience has a different role and interest and requires different approach. The identification of target audiences for communications and advocacy should be undertaken in a systematic way and is a pillar of any advocacy and communication plan. The most appropriate communication channels should be chosen to deliver key messages to the target audiences, including traditional media, events and digital platforms.

Figure 2.9: Advocacy and Communication



BIOFIN Day - Thailand

In Thailand, BIOFIN Day 2017 gained the support of a key champion, Her Royal Highness Princess Maha Chakri Sirindhorn, who proclaimed that conservation finance is not just the responsibility of the public sector. Producers, consumers and the private sector all benefit from biodiversity, so should consider investments in protecting and restoring biodiversity resources. The private sector response and commitment was impressive, with several high-profile companies pledging support to the programme and conservation efforts more generally. The events spanned three days, receiving more than **2,000 participants**, and encompassed a range of activities including public awareness events with both government and the private sector, and media engagement combined with targeted advocacy towards the private sector. When analysing the impact of the BIOFIN Day campaign, BIOFIN Thailand estimated the total fundraising and PR value received from public-private sectors was **US$281,021**.

Endnotes

1 The Biodiversity Finance Initiative also provides complementary support materials that are improved periodically, and best accessed via the internet: www.biodiversityfinance.org and through regular thematic webinars at https://www.youtube.com/watch?v=rzLprdYG_1g&list=PL7pQ1WkR8QnZm6r8iRY3jFxiWjFZPgO7q

2 See www.undp.org/content/sdfinance/en/home/solutions/enterprise-challenge-fund.html and www.aecfafrica.org/

3 See http://www.undp.org/content/undp/en/home/sustainable-development/global-environmental-finance.html, https://www.worldwildlife.org, https://www.wcs.org, https://www.nature.org/en-us/, https://www.conservation.org/Pages/default.aspx

4 See https://redd.unfccc.int

5 See http://www.teebweb.org, https://www.wavespartnership.org, http://www.aboutvalues.net/ecosystem_services/

6 See http://www.oecd.org, https://unstats.un.org/home/

7 See http://www.unepfi.org, https://cpicpgx.org

8 See https://www.giz.de/en/html/index.html

9 See www.tompkinsconservation.org/home.htm

10 See www.climatefinance-developmenteffectiveness.org

11 UNDP (2015). See http://www.asia-pacific.undp.org/content/rbap/en/home/ourwork/development-impact/innovation/projects/malaysia-vehicle-number-plates-for-tiger-conservation.html

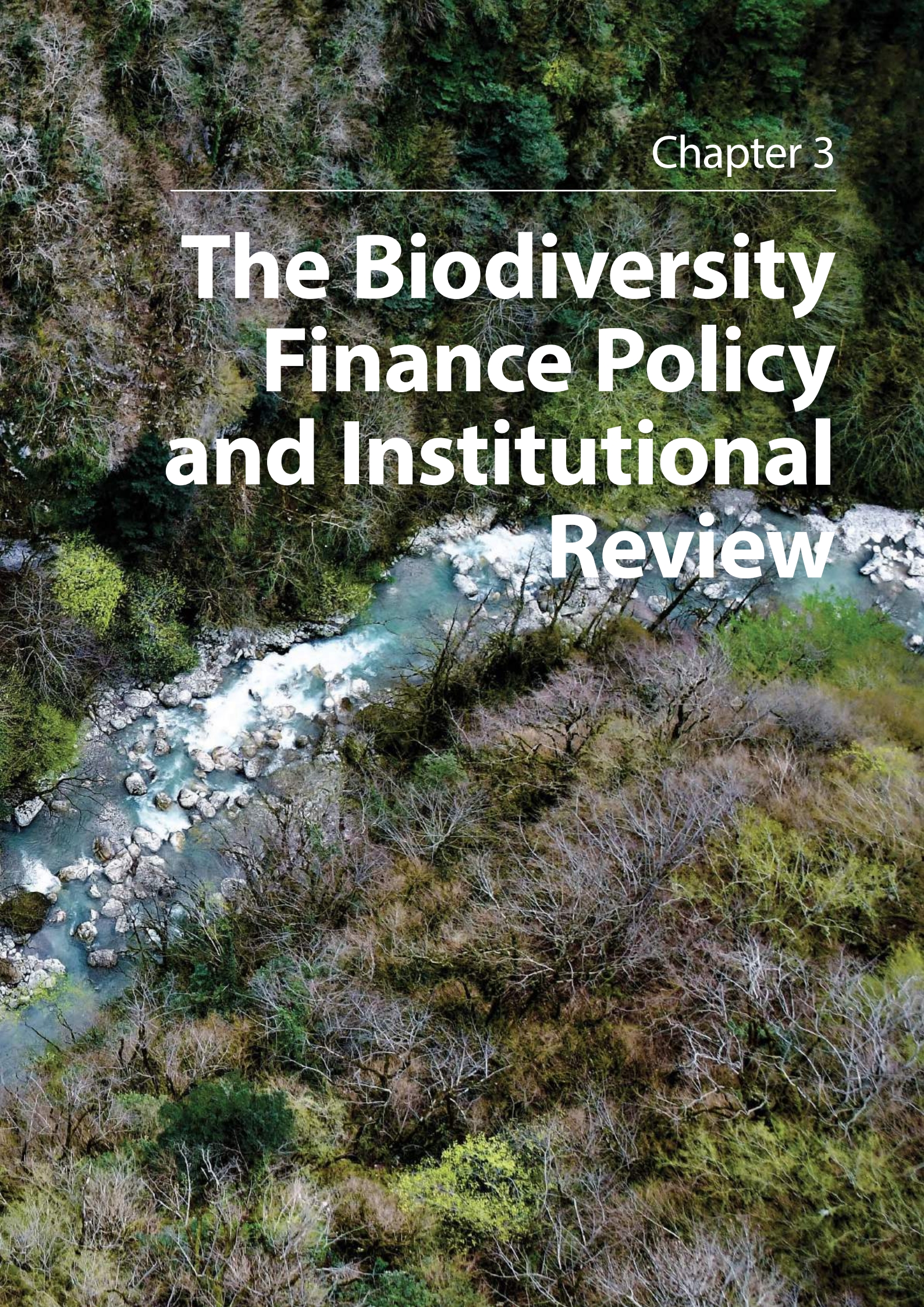
12 CBD, 2015-2020 Gender Plan of Action. Available from: https://www.cbd.int/gender/doc/CBD-GenderPlanofAction-EN-WEB.pdf

13 Available from: https://theredddesk.org/theme/gender-and-redd

14 CBD, What is Gender and Biodiversity? Available from: https://www.cbd.int/gender/biodiversity/default.shtml

15 UN Women (2015). The Cost of the Gender Gap in Agricultural Productivity in Malawi, Tanzania, and Uganda. Available from: http://documents.worldbank.org/curated/en/847131467987832287/pdf/100234-WP-PUBLIC-Box393225B-The-Cost-of-theGender-Gap-in-Agricultural-Productivity-in-Malawi-Tanzania-and-Uganda.pdf

16 (2016). Gender Equality Strategy Framework. Available from: www.bhutantrustfund.bt/wp-content/uploads/2016/12/PDF_FINAL_Gender-Equality-Strategy-Framework_BTFEC.pdf



Chapter 3

The Biodiversity Finance Policy and Institutional Review

3.1

Introduction

Chapter 3 describes the Biodiversity Finance[1] Policy and Institutional Review (PIR). The PIR analyses the policy and institutional context for biodiversity finance in the country. The assessment gathers diverse background information, establishing the baseline situation for the remainder of the BIOFIN Process. This introductory Section (3.1) explains the rationale, while section 3.2 breaks down the detailed steps.

3.1.1 Objectives

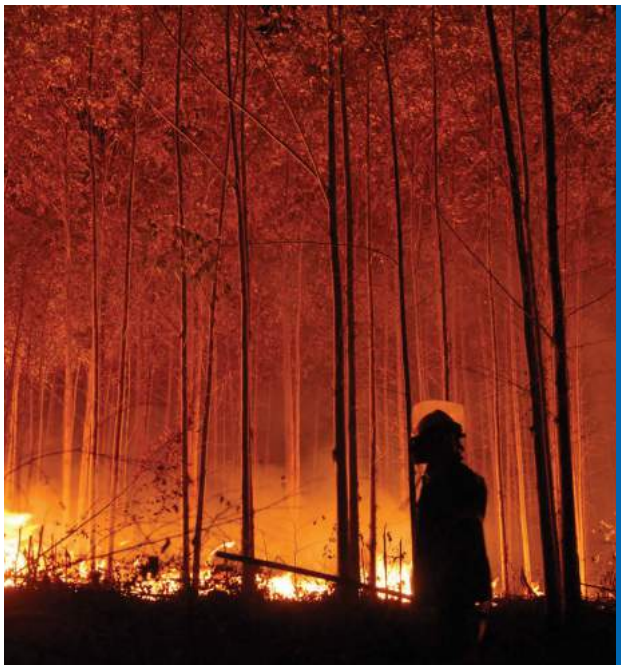
The PIR analyses the relationship between the state of nature and a country's fiscal, economic, legal, policy, and institutional framework to identify:

1. An improved understanding of how the management of biodiversity and ecosystem services supports national sustainable development goals and visions.
2. A comprehension of key policy and institutional drivers of biodiversity change.
3. A first-time catalogue of existing biodiversity finance mechanisms, incentives, subsidies and other instruments, including sources of biodiversity revenues.

3.1.2 What are Policy and Institutional Reviews?

A PIR is a widely used approach to assess strengths and weaknesses of policies and institutions within a given sector (see examples in Box 3.1). They focus on the adequacy of existing policies, identifying gaps, translating policies into practice and examining the functionality of existing institutional frameworks.

PIRs are effectively system analyses and have been applied across many different sectors. They are required under BIOFIN to better understand the complexity of drivers of biodiversity loss and their connection to finance flows. Because nature interacts with so many economic sectors, BIOFIN must analyse a diverse set of drivers to understand and influence the current trajectory of development to improve its outcomes for biodiversity.



Box 3.1: Examples of Policy and Institutional Reviews

Climate Change: Since 2011, Climate Public Expenditure and Institutional Reviews (CPEIRs)[2] have been conducted in Asia-Pacific countries. Results include budget marking and tagging in Nepal and Indonesia; national and subnational climate change financing frameworks in Cambodia; and focused sectoral analyses in Cambodia and Thailand.

Other themes: Other examples include forest and fire management,[3] water,[4] transportation,[5] and health.[6] The International Institute for Environment and Development (IIED) provides a comprehensive approach through its report on policies affecting biodiversity and livelihoods,[7] examining biodiversity governance at local, national and international levels, using country case studies.

3.2

PIR Steps

The Policy and Institutional Review has six steps:

STEP 3.1

Preparations

STEP 3.2

Review national biodiversity strategies, sustainable development strategies, and economic linkages between them

- **3.2A:** National Biodiversity Plans and other biodiversity policy documents
- **3.2B:** Review the role of biodiversity within sustainable development planning
- **3.2C:** Collect existing evidence of the economic value of nature and its contribution to sustainable development

STEP 3.3

Identify important trends and drivers for biodiversity change

- **3.3A:** Identify the main positive and negative trends in biodiversity
- **3.3B:** Underlying drivers and levers of change

STEP 3.4

Review the current state of biodiversity finance

- **3.4A:** Map existing finance instruments and related legislation
- **3.4B:** Review the national budgeting process
- **3.4C:** Analyse biodiversity-related revenues
- **3.4D:** Supportive and harmful subsidies

STEP 3.5

Analyse main institutions

- **3.5A:** Identify the main institutions and organizations
- **3.5B:** Analyse each main institution to produce a score on interest and influence scale
- **3.5C:** Review priority institutions and develop the stakeholder engagement plan

STEP 3.6

Summary and recommendations

Step 3.1: Preparations

This involves:

- Establishing the PIR team
- Developing a stakeholder consultation plan
- Defining the scope of analysis
- Identifying information sources and document owners

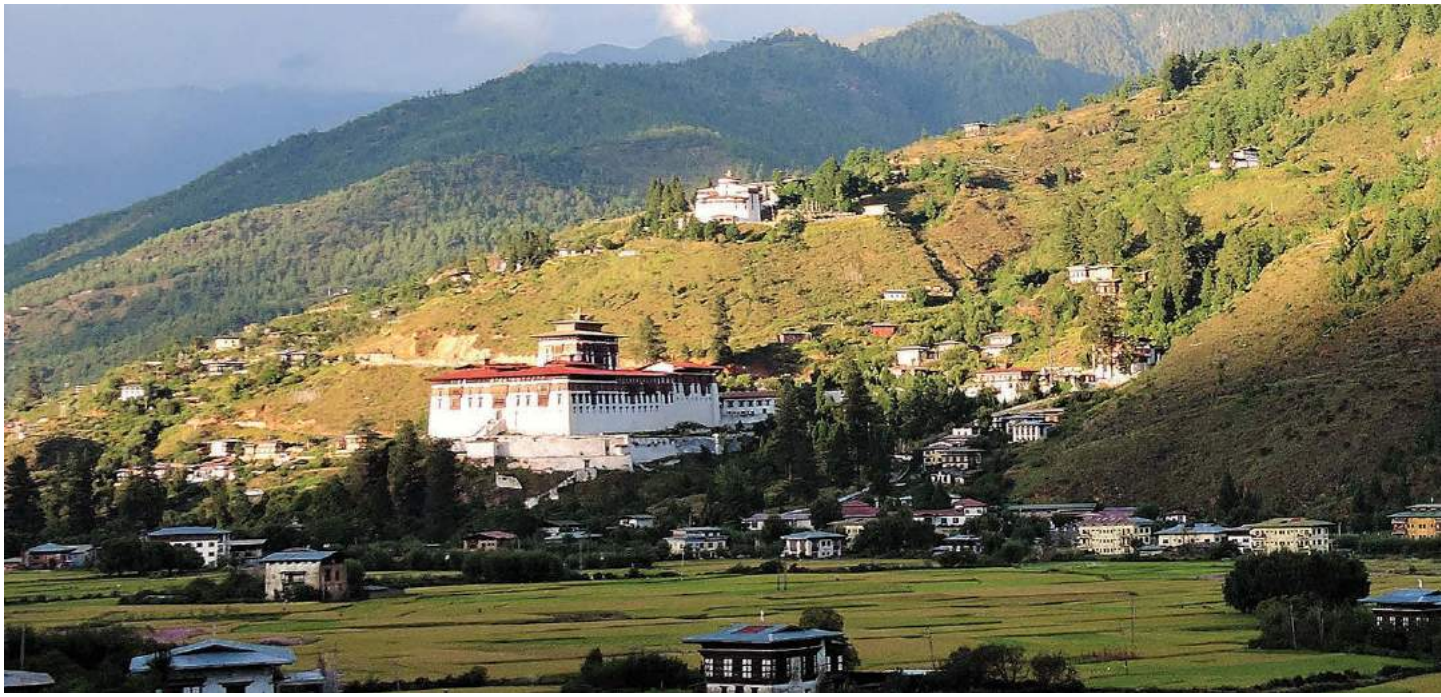
The PIR will be most effective if the team, ideally including biodiversity specialists and public/private finance experts, combines policy and finance skills. The identification or creation of an oversight group is an essential initial step. Countries should already have established Steering Committees and/or technical working groups (see Chapter 2), to fulfil this function. The next step is determining the "owner" of the PIR. The owner is the group or entity most interested in and best placed to use the results. This may be the Steering Committee itself. The report should assess and address the owner's needs.

The PIR helps to develop the BIOFIN stakeholder engagement plan (see Chapter 2). It requires an effective consultation process with a variety of stakeholder types. The scope of analysis needs to be defined early, with flexibility to refine it as more information becomes available. Clarity of scope will help maintain a results-oriented focus. Although the PIR should be a comprehensive national assessment, countries may wish to emphasize:

- Specific **biodiversity issues and trends**
- **Economic sectors** that are most important for driving biodiversity loss
- **Institutions** with high relevance as potential or actual finance stakeholders/decision makers

During the preparation phase, the team should start compiling critical documents such as:

- **National strategic documents** including the NBSAP, national reports to the CBD, strategies for green growth, climate, poverty, etc.
- **National and sectoral development plans**, economic development plans, long- and medium-term fiscal plans
- **Statistical reports** on forests, water, fisheries, tourism and environmental economics
- **Private company reports** for companies depending on or significantly impacting nature
- **Technical reports** relating to biodiversity finance, ecosystem services, etc.
- **Studies and publications** related to biodiversity (finance)
- National **budgets and budget execution reports**.



Step 3.2: Review national biodiversity strategies, sustainable development strategies, and economic linkages between them

Step 3.2A: National Biodiversity Plans and other biodiversity policy documents

Most countries have national biodiversity plans (NBSAPs) in place, as governments committed to develop these under the CBD framework. The plans are first assessed during the scoping phase (see Chapter 2) to determine their status and coverage, and if they are adequate as the central planning document for the BIOFIN Process. Their action plan is the basis for the costing in the FNA (Chapter 5) and is used to formulate finance solutions in the BFP (Chapter 6).

The NBSAP should be summarized in the PIR, describing its legal status and institutional arrangements. In some countries the NBSAP has a formal legal status, whereas in others it is an aspirational document or plan outlining priorities to mobilize further finance. How the government and the private sector treat the NBSAP and other biodiversity strategies could have a major influence on how BIOFIN is perceived and implemented in the country. Countries with a formal NBSAP policy may require less advocacy to invest in the actions. In countries where it has no legal status, the BIOFIN Process can encourage its integration into national development planning and budgeting processes.

The institutional arrangements for the implementation and financing of the NBSAP and other key strategic documents should be investigated and described. These may include the roles of different actors responsible for implementing each set of strategies and actions. A list of organizations involved with planning, budgeting, and implementing the NBSAP and other biodiversity strategies should be prepared to ensure their inclusion in the institutional analysis (described below) and the BER (Chapter 4).

If the NBSAP alone is not considered sufficient to address the biodiversity management needs of the country, then it is time to consider results and targets from complementary sources. When important biodiversity-related strategies that significantly impact biodiversity are not cross-referenced in the NBSAP, we recommend expanding the scope of BIOFIN's work to factor them in. This is essential as other national strategies may have stronger buy-in, potentially higher impacts on biodiversity and can facilitate linking important sectoral policies to biodiversity. This ultimately enhances the chances of securing sufficient finance.

Other biodiversity relevant policy documents to scope out are:

- National sustainable development strategies (green economy, SDGs, etc.)
- Reports for CITES,[8] the Ramsar Convention,[9] and the Convention on Migratory Species[10]
- Protected area expansion strategies, marine and coastal management, biosafety plans (invasive alien species) or desertification[11] and land degradation management plans
- Relevant sectoral strategies, e.g. forestry or fisheries
- Climate change adaptation[12] and mitigation plans and policies.

Step 3.2B: Review the role of biodiversity within sustainable development planning

In this step, countries review major national policy and strategy documents to identify how they understand biodiversity as a fundamental part of sustainable development. This should include multisectoral national planning documents, as well as sector plans from key economic sectors. A review of these documents should highlight how biodiversity and ecosystem services have been integrated into national development planning,[13] green economy strategies, and sector-based plans such as tourism, water and sanitation, forestry, and fisheries.

Box 3.2: Deep Dive: Examining Sectoral Strategies Further to Identify Dependencies on Nature

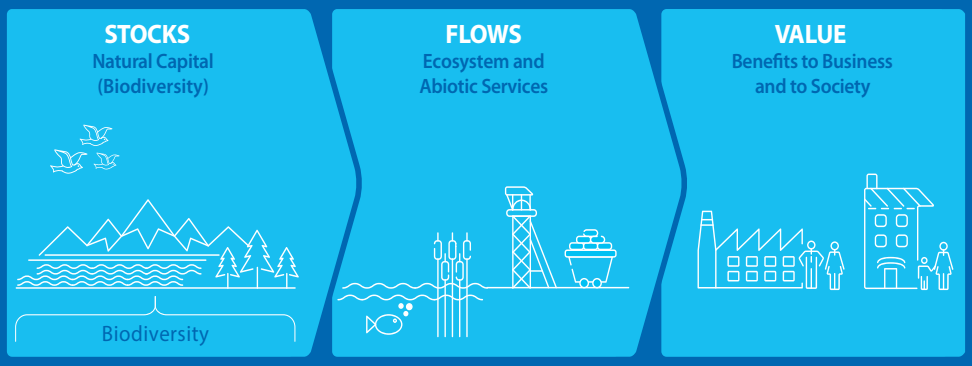
All economic sectors are dependent to some extent on services provided by biodiversity and ecosystems. Sector-based dependencies on biodiversity can be explored further as part of the PIR. Evidence of the importance of a biodiversity-dependent sector could include the contribution to GDP, job creation, or foreign-exchange earnings. Here are some sample criteria to capture the key findings of this analysis.

Sample Criteria for a Sector Dependency Analysis

Criteria	Description
Sector	Name of sector
GDP	Contribution of the sector to the country's GDP
Jobs	Sector employment numbers and estimated potential for job creation
Foreign exchange earnings	Foreign exchange earnings that the sector attracts in the country
Dependencies	How does the sector depend on biodiversity and ecosystem services?
Impacts	How does the sector impact biodiversity and ecosystem services or the well-being and health of people or a particular group?

Box 3.3: Using the Natural Capital Protocol to Identify Natural Capital Impacts and Dependencies

Measurement and valuation of a business or sector's dependencies and impacts can follow a standardized process such as the Natural Capital Protocol. This is a standardized framework for business to identify, measure and value its direct and indirect impacts and dependencies on natural capital. Natural capital is defined as the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people. This is illustrated in the figure below, which also explicitly recognizes biodiversity as an essential part of natural capital.



The Protocol does not just consider positive and negative impacts on biodiversity; it also includes dependencies, covering things as raw material sourcing, water use for production and other often ignored ecosystem services (e.g. pollination, flood mitigation).

The Protocol guides measurement and valuation of natural capital impacts and dependencies. Valuation is defined as an estimate of the relative importance, worth, or usefulness of natural capital to people/business, in a particular context, and can be qualitative, quantitative or monetary. While the Protocol is developed to guide analysis from the perspective of an (private or other) enterprise, it can also be applied to a national or regional economic sector.[14]

Step 3.2C: Collect existing evidence of the economic value of nature and its contribution to sustainable development

It is essential to explain to key decision makers how investing in biodiversity is essential to achieve sustainable development and economic growth. Measuring the economic value of nature is an important approach that can strengthen this debate. As described in Chapter 1, most of the benefits received from nature's diversity and function are in the form of ecosystem services. They are not usually priced in the market economy, and consequently inadequately managed or conserved.

Many countries have conducted a range of economic analyses to determine the economic value of nature, including cost-benefit analyses and environmental impact studies. The PIR must take stock of economic valuation studies and understand and present their findings (Box 3.4). Economic valuation[15] can help to assess trade-offs among investments perceived to be socially or environmentally positive. Studies presenting the benefits of biodiversity beyond just monetary value are also useful. These benefits include socio-economic indicators such as job creation, improvements in health and longevity, and gender equity. This evidence base will be useful throughout the BIOFIN Process, particularly in drafting the BFP. We do not recommend primary research or valuation studies at this stage.

Box 3.4: List and Summarize Environmental-Economic Evidence

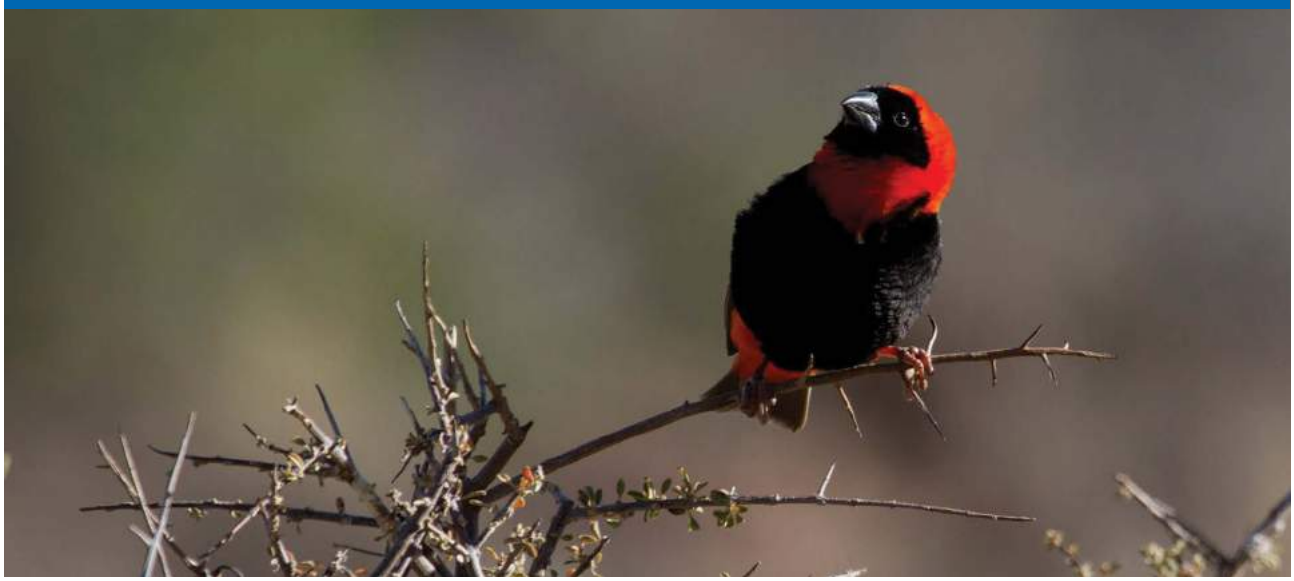
This information provides background to begin building business cases and identify viable existing or potentially new finance solutions in Chapter 6:

- Report information – title, authors, dates, etc.
- What sector, impacts and/or dependencies, biodiversity or ecosystem services were included?
- What was the baseline state of the environment, and direction and scale of change?
- What valuation methodology or approach was used?
- Whose values were measured, where and over what time period?
- What were the main findings? Was the result of the study used to promote policy reform and was the policy reform successful?
- Do the results suggest opportunities for improved biodiversity finance solutions?

Note the rapidly developing research and evidence relating to links among biodiversity, economic sectors, social values and governance. For example, the conceptual framework for the intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services[16] provides guidance on the elements constituting social-ecological systems at different scales.

Box 3.5: How South-Africa Developed a New Paradigm to Link Investments in Nature with Sustainable Development – The Concept of Ecological Infrastructure

In South Africa, the term 'ecological infrastructure' refers to ecosystems that deliver services to society, functioning as a nature-based equivalent of, or complement to, built infrastructure. A recent publication[17] demonstrates how investing in ecological infrastructure supports the implementation of the South African National Development Plan and the SDGs. Using concrete examples, it demonstrated a clear contribution to poverty alleviation (SDG 1), food security (SDG 2), health and well-being (SDG 3), and reducing inequality (SDG 10) in addition to the explicit environmental SDGs (13, 14, and 15). For example, the restoring and maintaining of intact rangelands for sustainable grazing supports food security, contributes to local poverty alleviation, improves water quality by providing a filtering service, and improves the state of biodiversity in these ecosystems. Natural rangelands in the commercial agricultural sector are worth over US$77,300/ha/yr.[18]



Step 3.3: Identify important trends and drivers for biodiversity change

The PIR team identifies and prioritizes the country's main positive and negative trends in biodiversity and understands their underlying drivers, or 'drivers of change'. This may not require additional studies. The NBSAP or other strategic documents and studies should already have established the main drivers of change in the country. If this is the case the PIR can focus on drivers related more closely to finance, economic, and policy issues rather than biophysical concerns. On the other hand, if the NBSAP or other documents do not provide a very detailed root cause (or similar) analysis, then this step needs to be implemented in detail.

Step 3.3A: Identify the main positive and negative trends in biodiversity

Ideally a country will have identified its main biodiversity trends in the reports to the CBD, the NBSAP, national "State of the Environment" reports, etc. It is important to note that almost all these reports focus—in some cases entirely—on negative trends. Although this may be a good reflection of national priorities, BIOFIN also seeks to identify positive trends, as they can often lead to great opportunities for formulating finance solutions.

The PIR team should gather the main documents that describe trends in nature and create a master list with descriptions and references to the original documents. Where spatial analysis is available, it can provide an excellent foundation for the later steps in the PIR. The team should review the described list of trends and assess the following:

1. Is the list comprehensive? – Does it cover changes in species and habitats; ecosystem services; threatened and endangered species and habitat status information; ecosystems of biodiversity importance, both terrestrial and aquatic, and marine and coastal (if relevant); agriculture; water; fisheries; forestry; protected areas; wildlife trade; climate interactions; etc.?
2. Are the trend descriptions specific and clear? – "Deforestation" is occurring in many countries; this is a non-specific trend and very difficult to assess. A more detailed description might be "increasing rate of deforestation (1.5 percent per annum) in tropical forest areas outside of protected areas".
3. Are the trends supported by well documented sources? If not, are they justified otherwise, e.g. by expert input?
4. Have trends been ranked for importance by any criteria? What criteria?

Attempts should also be made to refine the description of each trend (or create #3 out of #1) so that each trend can be connected to the underlying drivers described in Step 3.3B.

Step 3.3B: Underlying drivers and levers of change

The true nature of problems is not always clear at first glance. Instead of spending scarce resources alleviating the immediately obvious symptoms, an understanding of underlying sources can guide a more effective response. A root cause analysis is a common approach to doing this.[19]

While traditional root cause analysis is mostly applied to negative trends—the problems—BIOFIN should also consider positive trends in biodiversity. For example, in South Africa the increase of communal and privately protected areas was considered a positive trend to expand areas under protection. However, the long-term management of these protected areas would have been sustainable only with increased government support.

Root causes analysis has numerous methodologies. The "Five Whys" is among the easiest to implement. The logic is to keep asking 'why' until the root cause(s) is drilled down. Five is just an indication of the number of iterative 'why' questions. If one of your answers results in assigning blame, you've probably not reached the end of the questioning.

For example:

Biodiversity trend:
Increase in the destruction of threatened ecosystems

- **Why?**
  Illegal ploughing of these threatened ecosystems is occurring.
- **Why?**
  Farmers are not being penalized for illegal ploughing.
- **Why?**
  Environmental management authorities are not monitoring illegal ploughing - *this is the answer that assigns responsibility.*
- **Why?**
  There are not enough funds to provide vehicles for the environmental authorities to travel to the farming districts - *this is a useful point to stop asking why, as it is a concrete problem that can be addressed practically.*

Each biodiversity trend investigated may have multiple root causes. In the example above, the answer to why farmers are not being penalized for illegal ploughing might be that environmental management authorities are not monitoring illegal ploughing, as well as that the legislation defining illegal ploughing is ambiguous and not holding up in court.

When identifying the root cause of a positive trend, a good place to stop asking 'Why' is when an answer helps identify what is required to support the biodiversity trend. In the example below, this is about funding communal protected areas.

For example:

Biodiversity trend:
Increase in protected areas

Why?
Several new communal protected areas are being established.

Why?
A new programme brings together conservation authorities, communities and NGOs to create protected areas on communal land with high biodiversity value.

Why?
Government and donors have put funds towards developing this programme.

A root cause may be an economic and/or a financial driver. For example, in the Philippines, the prevalent use of explosives in fisheries can be traced to low financial penalties. The analysis might find that an underlying driver is not financial in nature but can still be addressed effectively by a finance solution. Box 3.6 and 3.7 below describe two more methodologies to identify root causes: the Driver-Pressure-State-Impact-Response Analysis and a Political Economy Analysis.

Box 3.6: Driver-Pressure-State-Impact-Response (DPSIR) Analysis

The DPSIR has been used for environmental management issues for several decades. It can effectively help to identify and track indicators and includes several types of feedback loops. Various internet sites have more information on DPSIR.[20]

A number of approaches have been used to develop and structure indicators. The DPSIR model is a common causal framework for describing the interactions between society and the environment. It is based on the PSR framework model proposed by OECD in 1993. The DPSIR indicator categories can be defined as follows:[21]

Driving forces are the social, demographic and economic developments in societies and the corresponding changes in lifestyles, overall levels of consumption and production patterns. Primary driving forces are population growth, development and activities of individuals. These primary driving forces provoke changes in the overall levels of production and consumption.

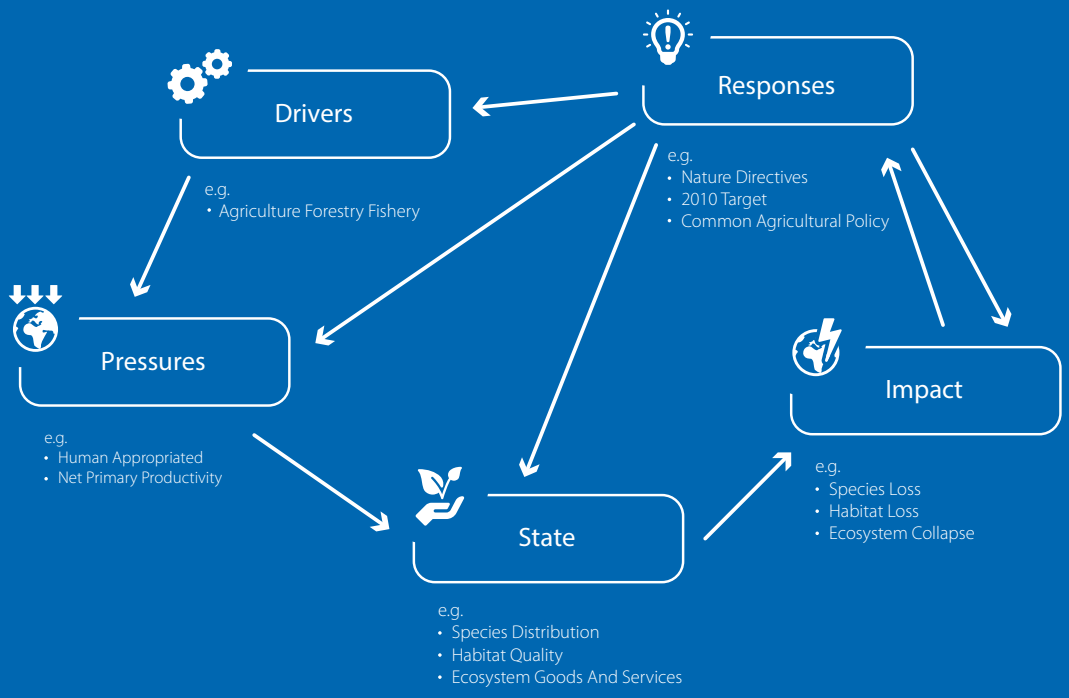
Pressures include the release of substances (emissions), physical and biological agents, resource use and land use. The pressures exerted by society are transported and transformed into a variety of natural processes which manifest themselves in changes in environment conditions.

State is the abiotic condition of soil, air, water, as well as the biotic condition (biodiversity) at ecosystem/habitat, species/community and genetic level.

Impacts on human and ecosystem health, resource availability and biodiversity result from adverse environmental conditions.

Responses are the measures taken to address drivers, pressures, state or impacts. They include measures to protect and conserve biodiversity (*in situ* and *ex situ*), and include, for example, measures to promote the equitable sharing of the monetary or non-monetary gains arising from using genetic resources. Responses also include steps to understand the causal chain and develop data, knowledge, technologies, models, monitoring, human resources, institutions, legislation and budgets required to achieve the target.

The specification sheet for each indicator contains a classification of the indicator in one of the DPSIR categories.[22]



Step 3.4: Review the current state of biodiversity finance

This step is to create a comprehensive background context of the biodiversity finance landscape by identifying and describing many of the existing biodiversity finance solutions in the country. Special attention during this review should be given to:

- The national budgeting processes
- Biodiversity-related revenues
- Supportive and harmful subsidies

Step 3.4A: Mapping existing finance instruments and related legislation

Finance instruments are used to mobilize, collect, manage and disburse funding and can be configured as components of a finance solution. They can be strictly financial instruments like bonds or equities, or fiscal and regulatory tools designed to change incentives, prices and motivation. The term "finance instrument" in this workbook is used flexibly and interchangeably with finance tools, mechanisms, economic incentives, etc. Some features of finance instruments are:

- They are discrete units that can be clearly named and described.
- They are established through policies, laws, and practices.
- They can be altered, expanded, removed, or otherwise manipulated.
- They are or act upon monetary, fiscal or economic incentives.

The listing of existing instruments and mechanisms should be as thorough as possible and include all types of instruments such as regulatory, market, fiscal, grant, debt/equity, and risk-related. This list can be based on a variety of national reports, through direct interaction in workshops and with experts' interviews. The inventory should include all current financial instruments regardless of their status or effectiveness. They should be named and described with sufficient details, e.g. this is not about listing "Payment for Ecosystem Services (PES)"[23] but to detail what kind of PES are implemented (e.g. water PES), where and when. If there is only a legislative provision on PES, but not actual implementation, or only a single pilot was carried out, this should be clearly stated.

The BIOFIN Catalogue of Finance Solutions[24] is a good place to start getting ideas for types of instruments and mechanisms. Additional information on finance solutions can be accessed via the online platform "Financing Solutions for Sustainable Development".[25] These knowledge platforms can be similarly used for awareness-raising and advocacy, but their information cannot be used directly to include in the actual listing of a country's existing instruments, as this needs to be a description of the country-specific mechanism. When developing such a database for the country, consider the columns in Table 3.1.

Table 3.1: Additional Data that can be Added when Relevant

Heading	Description
Result	Select: generate revenues, realign expenditures, avoid future expenditures, and better delivery
Finance source category	Select: government (level), private firm, project developer, national/local/international NGO, national/international financial institution, institutional investor, private foundation, bilateral/multilateral/other donor, household. Add a category, if necessary
Source name	Actual name of the source(s). Example: UK National Lottery
Recipients	Organization(s), group(s), company(s) to whom the resources are transferred and/or which benefit from increased income
Sector	Select sector(s)
Notes	References and information not captured elsewhere

Step 3.4B: Reviewing the national budgeting process

At present, most biodiversity financing comes from the public sector through ministries, public and quasi-governmental agencies, and local governments. Because of this, the national and subnational budgeting process is a principal area to map and understand.[26]

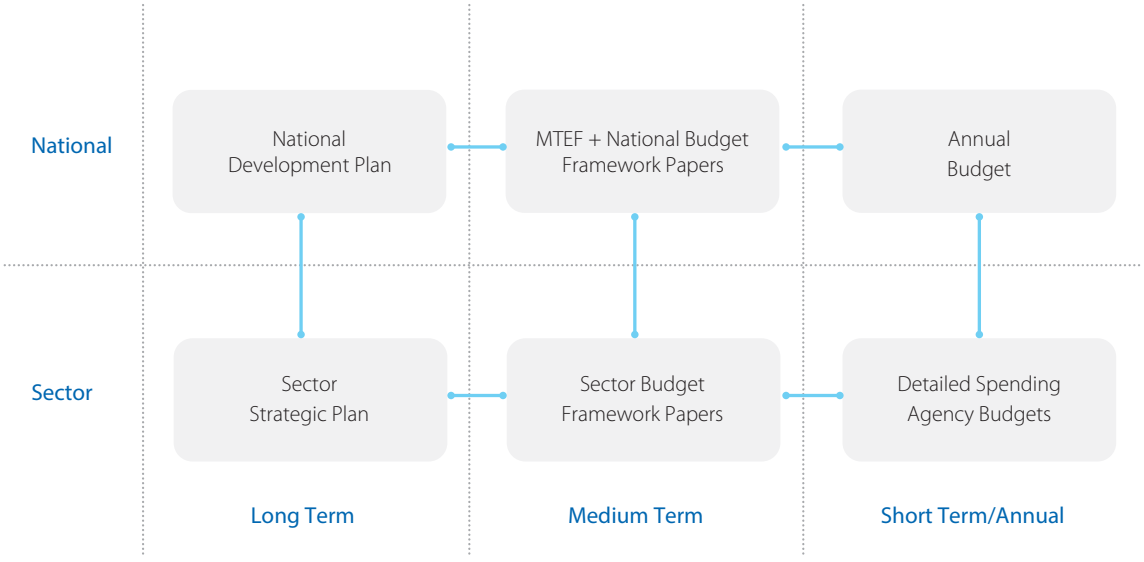
Some questions that this review can address include:

- What is the budget formulation framework and calendar at the national level?
- What is the role of the different levels of government in the budgeting process?
- When and by whom are budget decisions taken?
- When and how are changes in the budget programmed and enacted?
- Who are the stakeholders and decision makers responsible for budget preparation, legislation, execution and auditing?
- Is budgeting done at both the national and local level? If so, describe the similarities, differences and relationships between them.
- How are budgets prepared at the sectoral and agency level?
- Are biodiversity-related budgets aligned with the national budgeting process?

Familiarity with the budgeting process allows insights into the institutions and other stakeholders responsible for planning and budgeting, and provides an understanding of how to introduce changes in programming. For example, the observation of perennial "underfunding" of biodiversity can be assessed and better understood by analysing the steps in the budgeting process. We could better understand things like at what level proposed budgets get curtailed. Other challenges to better integrating biodiversity into the budgeting process include the inability to articulate or link biodiversity targets with medium-term plans and other national targets, or to allocate or disburse funds from previous budgeting allocations, which jeopardize requests for additional budgets. A fundamental challenge for most countries is the earmarking of biodiversity revenues into the budgeting framework, as explained in the next section.

The budgeting process varies from country to country. It is iterative, in that it is perpetually being implemented and requires ongoing adjustments; and it is cyclical according to an established routine: i) budget preparation; ii) approval; iii) execution; and (iv) auditing. Figure 3.1 and Box 3.7 provide an example of the budget process from Uganda.

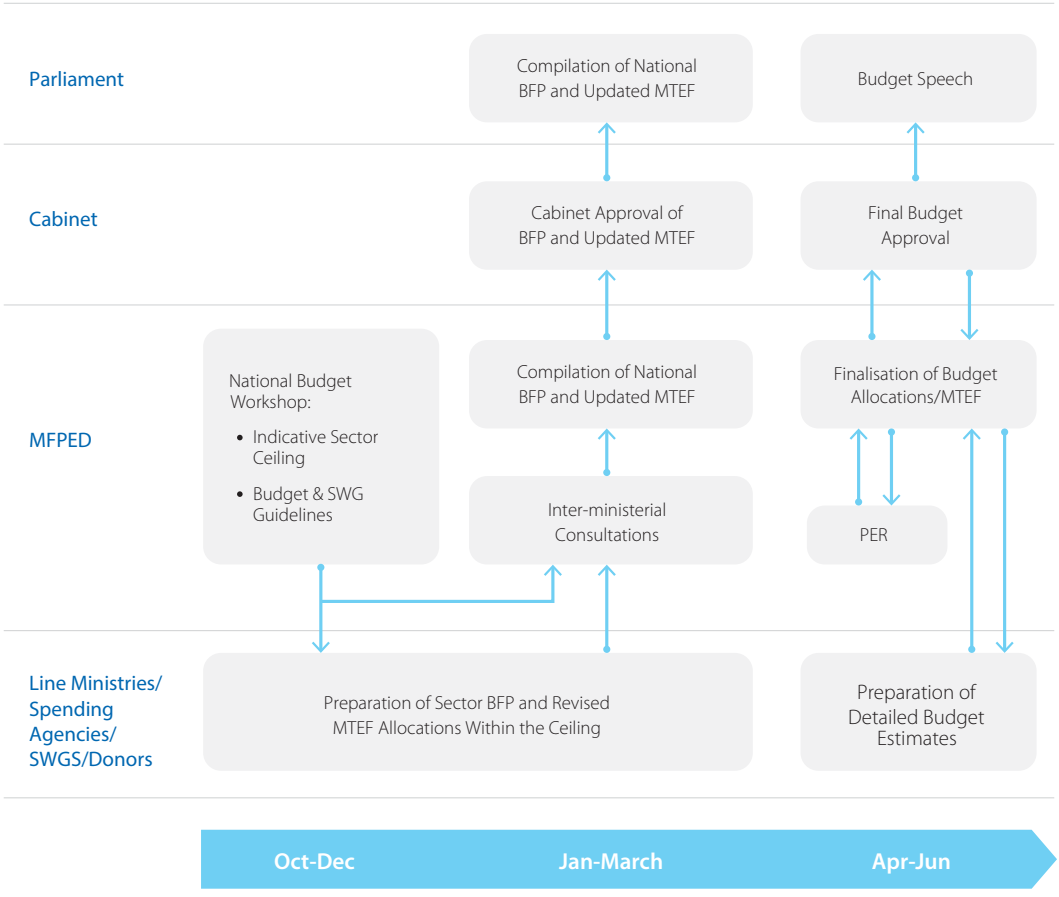
Figure 3.1: Framework for Linking Policies and Strategies to Budgeting in Uganda[27]



Box 3.7: Budgeting Processes in Uganda

In Uganda, government financing for biodiversity conservation is articulated in the national budget process, which is informed by the National Development Plan (NDP), Sector Strategic or Investment Plans (SIP), Sector Budget Framework Papers (BFPs) and Annual Budgets. The annual budget cycle in figure 3.2 shows that budget preparation takes place within ministries and other agencies before it is aggregated at the sector level. The oversight for the sector occurs within the Sector Working Group (SWG). SWG discussions are based on sector priorities, allocation and review of the government budget ceilings. The budget ceilings indicate the government's distribution of resources across different sectors based on priorities in the NDP and annual budget strategy.[28, 29]

Figure 3.2: Example of the Budgeting Cycle in Uganda[30]



Note: Sector Strategic or Investment Plans (SIP), Sector Budget Framework Papers (BFPs), National Development Plan (NDP), Public Expenditure Review (PER), Medium Term Expenditure Framework (MTEF).

A recent UNDP study[31] on protected area financing in Latin America underscored the need for better budget planning and preparation and results in the following conclusions:

1. PA budgets can be better designed to convince decision makers in the Ministry of Environment and the Ministry of finance.
2. Budgets can be better supported with data including conservation results, detailed historical costs and cost comparisons, clear financial needs, and both economic impact and results-based indicators.
3. Site managers should be more engaged in the process.
4. Attention to national budget formulation deadlines is necessary to avoid simply repeating the previous year's budget.

Step 3.4C: Analysing biodiversity-related revenues

Besides direct and economic benefits, biodiversity generates financial revenues for countries through fees and taxes. The PIR identifies sources and types of revenues generated from biodiversity and ecosystem services. The review should cover both tax and non-tax revenue. Box 3.8 outlines some of most common public revenues that can be captured from biodiversity and ecosystem services. It is important to identify whether if biodiversity-related revenues are retained for the management or conservation of biodiversity, or used for other purposes. Biodiversity revenues can be very substantive and exceed expenditures. For example, the BIOFIN team in Belize found biodiversity generated $25 million BZD in revenue in 2016, while only $1.5 million BZD was invested in the country's protected area system of the country.

The purpose of identifying biodiversity revenues in the PIR is to identify important institutions and policies related to biodiversity revenues, and revenue sources to investigate in the BER in more detail. It also helps identify potential finance solutions related to revenue generation or earmarking.

Box 3.8: Types of Public Revenue from Biodiversity and Ecosystem Services

Tax revenues from biodiversity

Tax revenue from biodiversity is income gained by taxing activities related to biodiversity. Taxes can be imposed at any level, national to local. Biodiversity-related taxes consist of direct or indirect taxes. Environmental taxes have the additional benefit of impacting companies' and consumers' behaviour. For example, a tax on harmful and chemical pesticides may help to grow the market for organic pesticides.

Examples of direct taxes:

- Green taxes such as pollution taxes (when related to biodiversity)
- Income taxes paid by companies for biodiversity goods and services
- Import/export taxes by companies for biodiversity goods and services
- Income taxes paid by employees working in a biodiversity-related sector
- Land taxes for the occupation of natural areas/protected areas.

Example of indirect taxes:

- Value-added tax collected on biodiversity goods and services
- Sales tax collected on biodiversity goods and services

Non-tax revenues from biodiversity

Non-tax revenue from biodiversity includes government, NGO, and private biodiversity-related revenue generated from user fees, licenses, permits, etc. Non-tax revenues are more likely to stay within the collecting administration, including protected areas. Biodiversity related non-tax revenue can be divided into several overlapping categories, including:

- **Payments for accessing biodiversity resources and areas (extractive uses)**
  Fees, licenses, or permits for accessing natural resources, e.g. hunting permits, fishing licenses and permits for collecting medicinal plants.
- **Payments for accessing biodiversity areas (non-extractive uses)**
  User fees are collected for accessing parks and protected areas and for conducting leisure activities. They are a good example of the user-pays principle in that they affect only those individuals or groups that directly benefit from biodiversity. Non-extractive uses means that biodiversity resources are not depleted or sold in the process. Examples include entrance fees to protected areas, biosecurity services fees, camping fees, diving fees, and island environmental impact fees.

- **Volume-based resource user fees (water, wood)**

  Volume- or scale-based fees include rents, concessions, dividends and royalties collected in exchange for the right to extract renewable natural resources. Examples include royalties for resource extraction for timber, water tariffs or water extraction fees, royalties from bioprospecting contracts and transportation licenses, export permits, and other fees and charges for transporting biodiversity products.

- **Land-based or infrastructure fees (tourism concessions)**

  Payments made for business access to natural land, the establishment of infrastructure on natural land, and the creation of marketable services on public lands. Examples include concession agreements, payments made to government from directly outsourcing PA management and rights of way or use for telephone, electricity or water infrastructure.

- **Revenue from environmental funds**

  A biodiversity endowment fund is a fund in which the capital is invested in perpetuity, and only the resulting investment income is used to finance grants and activities. It is a common vehicle to mobilize resources from donors, national governments, the private sector as well as private citizens.

- **Environmental fines and penalties related to biodiversity**

  Environmental fines and penalties are collected because of an illegal act such as illegal logging, poaching, illegal dumping, and unplanned pollution, that directly harms the environment. Fines and penalties may be set as a flat rate for specific illegal acts or as fixed amounts. Fines can either be paid to the treasury or local government or placed in special accounts to cover environmental remediation and compensation to affected people and communities. Environmental fines can be set firstly to form a threat that is sufficient to discourage the illegal behaviours. Secondly, the collected revenues can be used to recover the costs associated with rectifying the environmental impact. Fines, similarly to environmental taxes, should not be seen only as a source of revenue generation. This can have the perverse effect of allowing transgressions to happen, simply to collect a fine.

Certain revenues from biodiversity and ecosystem services are explicitly linked to natural resources extraction, e.g. logging fees and fishing licenses. In these cases, it would be useful to note if this practice is sustainable, or if there might be unsustainable practices linked to the revenue generation. Alternatively, revenues may be generated from more sustainable use of natural resources, such as protected area entrance and concession fees, and play an important role in funding protected area management (see Box 3.9 for an example from Latin America). Revenues from biodiversity should be recorded in a table, using the headings shown in Table 3.2.

Box 3.9: Protected Area Funding Sources in Latin America[32]

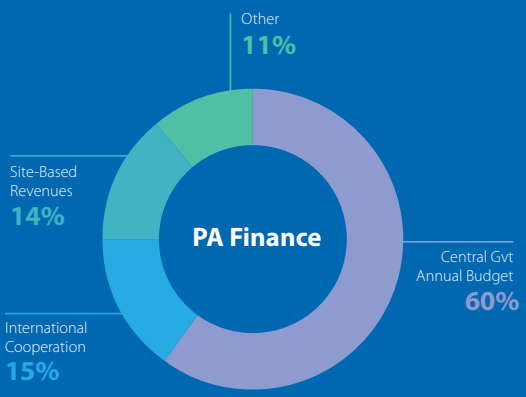


Table 3.2: Table for Recording Sources of Biodiversity Revenues

Heading	Description
Organization/agency	Stakeholders as identified and described in the PIR
Solution name	Actual name of the solution. Example: Mexico Environmental Services Programme
Solution type	BIOFIN catalogue solution name. Example: Penalties and other compensation for unplanned environmental damage
Source of revenue	Example: private foundations
Description	Brief description of the solution and how it functions
Use	What are the current known uses of the revenue? Is the use of the revenue earmarked for a specific purpose?

Step 3.4D: Supportive and harmful subsidies

In general, a subsidy is the result of "a government action that confers an advantage on consumers or producers, to supplement their income or reduce their costs".[33] Subsidies are designed to address a market failure or achieve a specific social or environmental objective. The government action may consist of direct cash payments, relief from a tax burden, protection from competition, or a variety of other policies. Subsidies aim to lessen some type of financial burden, and/or encourage an action. Subsidies can be used to change behaviour at an individual, business or industry level.

The PIR should aim to answer the following questions:

- What are the most prominent subsidies that have an impact on biodiversity (both positive and negative)?
- In which sectors are these subsidies (e.g. agricultural sector, energy sector, biodiversity conservation)?
- If considered harmful to biodiversity, which aspects are harmful and why?
- Who are the primary, secondary or other beneficiaries?

Subsidies can have a positive or negative impact on biodiversity and ecosystems in a wide variety of ways, depending on how they are designed and implemented. Positive impacts include agricultural payments for operating organic farming systems, or grants for investment in equipment with lower biodiversity impact (e.g. fishing gear that reduces seabird bycatch). Many subsidies have an unintended harmful impact on biodiversity, most frequently where they reduce the cost of a harmful activity, increasing its scale and thus its damage. Examples of subsidies include:[34]

- Direct transfers of funds (e.g. government spends money on fossil fuels, roads)
- Potential direct transfers (e.g. government guarantees emergency response)
- Income or price support (e.g. agricultural goods and water)
- Tax credits (e.g. for land donation or land-use restrictions)
- Exemptions and rebates (e.g. reductions on property taxes for protected areas)
- Low interest loans and guarantees (e.g. fishing fleet expansion/modernization)
- Preferential treatment and use of regulatory support mechanisms (e.g. demand quotas, feed-in tariffs)
- Implicit income transfers by not pricing goods or services at full provisioning cost (e.g. water, energy) or value (e.g. access to fisheries, minerals)

Table 3.3: The Value of Harmful Subsidies to Biodiversity Exceeds Global Investments in Biodiversity[35]

Description	US$Billion/Year	Source
Support measures for fossil fuels (Global)	373 (2015)	OECD (2018a)
Water use and treatment (Global)	450 (2012)	IMF (2015)
Support to agricultural production considered potentially environmentally harmful (OECD countries)	100 (2015)	OECD (2016)
Support to Fisheries – including associated fuel subsidies (OECD countries and Global)	7 (OECD countries in 2018), 35 (Global in 2009 dollars)	OECD (2018b) and Sumaila et al. (2016)
Global investments in biodiversity	52 (2010)	Parker et al. (2012)

The OECD defines environmentally perverse subsidies as "all kinds of financial supports and regulations that are put into place to enhance the competitiveness of certain products, processes or regions, and that, together with the prevailing taxation regime, (unintentionally) discriminate against sound environmental practices".[36] In the case of environmentally perverse subsidies, this would mean that the negative economic costs of the environmental harm (including externalities, see Box 3.10) outweigh the positive social and financial impact of the subsidy. In addition to economic costs, other negative social and environmental losses can be also assessed, in particular when looking at biodiversity.

Box 3.10: Reforming Harmful Rice Subsidies in Sri Lanka[37]

In Sri Lanka, 1.8 million people depend on paddy cultivation for rice. A fertilizer subsidy was introduced in 1962 to shift to high-yielding varieties. Later, studies showed no significant correlation between productivity and the use of chemical fertilizers. However, the subsidy was shown to support the livelihoods of many paddy farmers and is considered an assurance over food security. The subsidy cost 2.24 percent of the total public expenditures.

Excessive use of subsidized fertilizer led to heavy metal contamination in soils and waterways (and therefore biodiversity loss) and suspected cases of chronic kidney disease. This was the main argument used to push for reform of the subsidy.

The subsidy's reform process aims at reducing the negative impact on health and the environment as well as public spending, without harming poor farmers' livelihoods. The new policy directive (2015) also supports ecological agriculture by converting in-kind subsidies (chemical fertilizers) into cash transfers, and offering alternative options, including organic fertilizers, to improve productivity and alignment to markets. As a result, public spending on rice subsidies went down almost 50 percent.

When examining subsidies, a careful review of vested interests and socio-economic benefits is required. Regardless of effectiveness, once a private company or interest group benefits from a subsidy, they often lobby to maintain these benefits. As such, subsidy reforms always face sociopolitical challenges. Despite challenges, several phased approaches are possible.

- **Greening subsidies** approaches often retain the payment structure of the subsidy, but adjust the purpose, conditions, regulations and incentives to reduce negative environmental impacts (for example maintaining fisheries subsides while not allowing the use of certain hooks/nets that harm fish and other species). Harmful subsidies may even be turned into biodiversity-neutral or positive subsidies.
- **Reducing the value of subsidies**, which can lessen the biodiversity-harmful impact while saving significant public funds. For example, a 5 percent reduction in a large subsidy can help save millions of US dollars.
- **Eliminating subsidies**, where subsidies are completely cancelled.

The PIR list of subsidies should include biodiversity-supportive and biodiversity-harmful (or potentially harmful) ones. In addition to listing, any information useful to determine how effective these schemes are should be collected. Table 3.4 shows the information to record in the list of subsidies. An example of subsidy reform is provided in Box 3.10.

Table 3.4: Template to Record Information on Subsidies

Heading	Description
Existing subsidy	Name of the subsidy analysed
Responsible stakeholder/ organization/agency	Stakeholders/organization and agency involved or related to the subsidy
Sector	Relevant sector(s)
Drivers	Describe the motivations explaining the introduction and continuation of the subsidy
Direct or indirect	Is it a direct or indirect subsidy?
Financial value	Financial value of the subsidy (if this information is already available)
Description - intended objective and beneficiaries	Describe the main objectives of the subsidy and the intended beneficiaries
Benefits (social, environmental, economic)	Describe the different benefits that the subsidy has and will have on social, environmental and economic aspects. Example: Agriculture subsidy to support rural employment
Biodiversity benefits	How does the subsidy benefit biodiversity?
Biodiversity-harmful impacts	What harmful impacts on biodiversity can be expected or are known?
Is this potentially a "perverse" subsidy?	See definition above
Describe related legislation	Describe the main laws and regulation creating the subsidy
Additional notes	Additional notes
Links to related studies including CBA, economic valuation	Describe different sources of analysis related to the subsidy (e.g. any economic justification)

Step 3.5: Analyse main institutions

This step's purpose is to summarize the role and function of the institutions identified during the previous analyses of drivers and finance instruments. Each main institution can be assessed and scored for its interest and influence in biodiversity finance, and its capacity in the space. As a result, each institution could be better placed in the stakeholder engagement plan.

Step 3.5A: Identify the main institutions and organizations

The description of the main organizations and institutions active in biodiversity finance should answer the following questions:

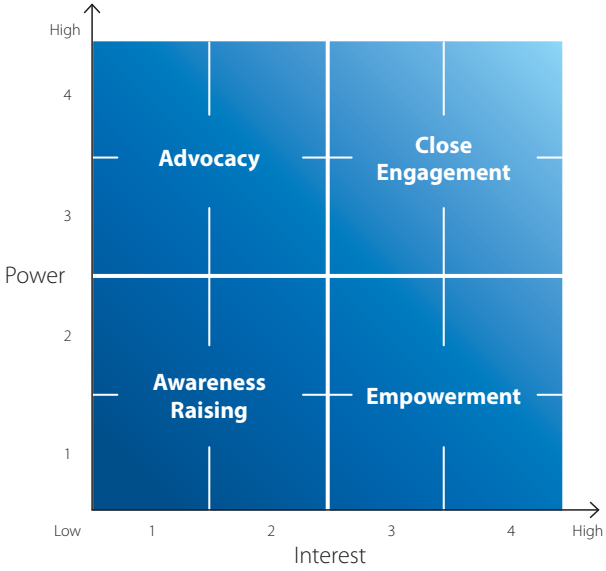
- Which are the main institutions and organizations associated with priority drivers and finance instruments? And who are the decision makers within?
- What is the impact the main institutions are having or could be having on priority drivers or finance instruments?
- What are the main challenges the main institutions face in expanding biodiversity finance?
- What are the opportunities for positive change in the system?

Step 3.5B: Analyse each main institution to produce a score on interest and influence scale

The list of potential and existing biodiversity finance institutions and organizations can be unmanageably large. The objective is to focus on the most important sectors that drive biodiversity change and, within those, the most important institutions. Each organization's description should include at least its mandate and association with biodiversity. The widely published power/interest matrix is one way to evaluate a range of stakeholders (see Figure 3.3).

Institutions can be assessed on two variables – how much power they hold (scale of 1-4) and how much interest they have in biodiversity (1-4). Each organization can then be placed in a matrix. For those organizations that fall into the top right – close engagement – engagement plans might be established. For the most important institutions, the key reasons for their prioritization can also be added.

Figure 3.3: Power/Interest Matrix for Determining Methods of Stakeholder Engagement[38]



Step 3.5C: Review priority institutions and develop the stakeholder engagement plan

A few of the selected ("close engagement") institutions can be evaluated in greater detail in terms of:

- **Effectiveness**

  Reviews and audits of public institutions may be available. If not, the team could conduct a capacity assessment. Where capacity is being assessed, this should focus on the ability of the organization and its staff to design, initiate, and scale biodiversity finance solutions. Detailed capacity assessments are beyond the scope of the BIOFIN Process, but it may be considered if essential to the process.

- **Institutional arrangements**

  Describe these in terms of how existing governance arrangements function in relation to existing finance instruments or transfer mechanisms.

- **Associated finance mechanisms**

  For each priority institution, describe associated finance instruments.

- **Importance for the BER, FNA, BFP and implementation**

  Indicate how the organization can be involved in the consecutive steps of the BIOFIN Process, either as a source of data, expertise, subject of analysis or potential co-creator of finance solution.

Step 3.6: Summary and recommendations

In this final step of the PIR, a summary of all the main results should be prepared and presented as part of a comprehensive written report (see outline below). Detailed policy and institutional recommendations should be developed based on the analysis, validated and improved through consultations with stakeholders. Recommendations should be as detailed as possible, citing legislation, policies, organizations, and sectors; and actionable, providing specific options for correcting or improving a situation. The PIR report will guide the BIOFIN team as the subsequent assessments get underway. It should provide useful information for a range of stakeholders in the biodiversity sector and beyond. In addition to the PIR report, we recommend formulating a policy brief to better present the main conclusions and recommendations.

Communicating the PIR and its recommendations effectively is important. The main report and the policy brief should make clear who the target audience is, and where possible the reports should be presented as part of broader communication campaigns on biodiversity finance (see Chapter 2 for more guidance on communication).

The Suggested PIR Report Outline:

1. Executive Summary – including key findings and recommendations for policymakers

2. Introduction
- Overview of BIOFIN
- Background information on the Policy and Institutional Review, including abbreviated information on the context
- The objectives of the PIR
- Institutional arrangements and contributors to the report
- The methods used to collect data and the structure of the report

3. Biodiversity Vision, Strategies
- Summary of national visions and strategies for biodiversity
- National development plans, green growth plans, etc. and the contribution of biodiversity and ecosystem services towards sustainable development in a country
- Citations of existing economic, fiscal policy, and other studies, and information on how nature contributes to current GDP (and green GDP when available)
- Summary of the availability of economic valuation evidence for the country, subdivided by sectors, ecosystems and households/communities/businesses whose value are affected.
- Sectoral dependencies on, impacts on, risks to, and opportunities for, biodiversity

4. Trends, Drivers and Sectoral Linkages
- Biodiversity-positive and negative trends in the country
- Describe the drivers of change in biodiversity, including, institutions, policies and markets

5. The Biodiversity Finance Landscape
- Overview of the national and state budget process and major government subsidies that impact biodiversity
- Identification of biodiversity-based revenues
- Summary of biodiversity finance solutions identified in the country

6. Institutional Analysis
- Institutional arrangements between and among the institutions responsible for biodiversity-related finance
- Biodiversity finance-related capacities and needs per priority organization
- Stakeholder engagement plan

7. Summary of Key Recommendations

- Overall conclusions and recommendations
- Legal and policy recommendations
- Changes in sectoral policies and practices that would help reduce biodiversity loss, and/or improve biodiversity finance
- Institutional/organizational and capacity development recommendations
- Observations on the potential of existing finance solutions
- Opportunities for improvements in the budgeting and planning process
- Key national entry points, including a rationale for their selection, and the associated agencies and organizations for each entry point

Technical Appendices can contain further detail, including from the:

8. Biodiversity Policy and Institutional Review (in table format where possible)

- Details of the sectoral analysis
- Detailed list and analysis of all policies, laws and regulations reviewed
- Detailed list of all revenues inventoried
- Detailed list and description of each government subsidy reviewed
- Complete listing of all economic valuation studies
- A summary description of all current finance solutions
- Detailed list and description of all stakeholders identified and consulted throughout the PIR

9. Glossary of terms

This section should define all technical terms used in the report.

10. References

This section should include all references cited in the report, ideally with web links.

Endnotes

1 Note the focus is on biodiversity finance and not biodiversity *per se*.

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Chapter 4

The Biodiversity Expenditure Review

4.1

Introduction

The Biodiversity Expenditure Review (BER) builds on extensive experience of public expenditure reviews across many policy areas in defining a "biodiversity expenditure". Besides the public sector, it considers expenditures by a wide range of actors, including the private sector, donors, and civil society actors.

A "biodiversity expenditure" is any expenditure whose purpose is to have a positive impact or to reduce or eliminate pressures on biodiversity. These biodiversity expenditures include "direct" expenditures that have biodiversity as their principal purpose, or '*causa finalis*', as well as "indirect" expenditures[1] that have biodiversity as their secondary or joint purpose.

The chapter is divided into three sections: Section 4.1 covers the objectives, main concepts, expected outputs and links to other chapters; Section 4.2 describes the detailed steps in the BER methodology and associated guidance; Section 4.3 provides guidance on developing and communicating conclusions and recommendations.

4.1.1 Objectives

The aim is to use detailed data on public, private, and civil society budgets, allocations and expenditures to inform and promote improved biodiversity policies, financing, and outcomes. The BER should result in a comprehensive report, a clear executive summary and policy briefs to help policymakers understand general trends, challenges and opportunities in biodiversity expenditures.

The BER should cover:

1. **Spending basics:** Traces who spends money, on what types of actions, and how much is spent or invested.
2. **Biodiversity categories:** Specifies expenditure categories that sort biodiversity expenditures and investments by key biodiversity targets, actors, strategies, goals and plans.
3. **Policy alignment:** Analyses the degree to which spending aligns with stated government priorities.
4. **Delivery patterns:** Considers whether the budget is allocated fully and to what extent the allocation has been disbursed and spent.
5. **Financing sources:** Addresses the main government revenues coming from nature-based sources, how flows originate and are transmitted through the system.
6. **Future spending:** Identifies biodiversity expenditure trends and data to estimate future spending.
7. **Analysis and finance solutions:** Highlights which thematic areas are better financed and why. It analyses opportunities for improved delivery. It compares biodiversity and sectoral expenditures to government budgets and GDP to explore opportunities for improved fiscal planning and finance solutions.

4.1.2 Main concepts

An expenditure review[2] is a standard diagnostic tool used across many sectors to help understand how much money is spent within specific sectors or themes, whether budgets and expenditures are aligned with national policy priorities, and what the expenditures have achieved.

Expenditure reviews traditionally focus solely on the public sector (see Box 4.1). Due to the multiplicity of stakeholders in biodiversity, the BER scope needs to go beyond public spending and possibly encompass expenditures from the private sector and civil society, and ODA. National cumulative expenditure figures are useful for biodiversity policy and management planning purposes and can be used for the CBD (being one section of the Financial Reporting Framework), SDGs, donor, and national reporting. The BER ultimately helps develop a biodiversity budget coding protocol and tagging system, which may result in greater or more effective budget allocations. A systemic approach can help countries record and track the amount of money spent on biodiversity over time. For example, the budget coding of climate expenditures in Indonesia led the government to issue a US$1.25 billion green sukuk connected to the climate expenditures identified in the national budget.[3]

Box 4.1: Public Expenditure Reviews in Other Sectors

Indonesia conducted a public expenditure review (PER) on the health sector. The PER included the following elements: desired health outcomes in the country; the existing health care delivery system; trends in national public expenditures in health by various types of classifications; an assessment of the efficiency and quality of health-related finance; and summary recommendations for various types of health finance reforms.[4]

Other areas where expenditure reviews were applied include climate;[5] poverty eradication;[6] education[7] and the environment.[8] They are often linked with policy and institutional reviews as part of an overall assessment of policies, institutions, expenditures and finance within a sector.

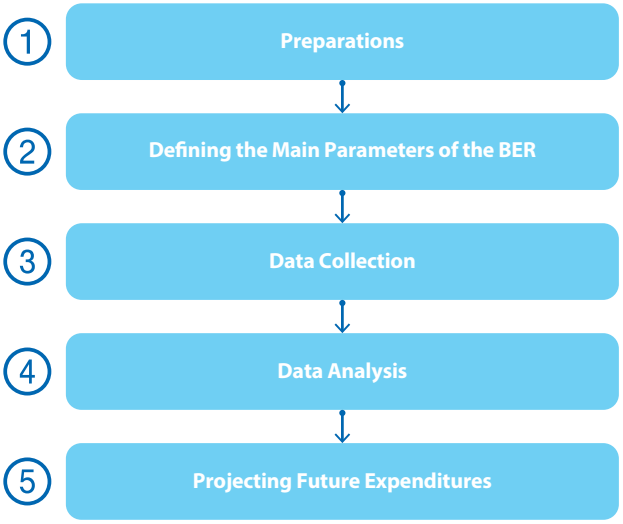
It is important to consider the extent of subnational expenditures (e.g. state, province, and local/municipal) in biodiversity. In countries such as South Africa with decentralized systems, a significant proportion of public budgets is distributed to subnational authorities. Fiscal decentralization might have delegated subnational authorities to manage and spend certain revenues on their own accounts. Due care should be taken to avoid double counting as expenditures can be posted at multiple levels. In some cases, site-based (e.g. protected areas systems) expenditures should also be reported if they are based on locally acquired revenue (entrance fees) that are not accounted for elsewhere.

The BER is designed to compare 1) budgets, 2) allocations, and 3) actual expenditures to determine how resources are disbursed and spent. The BER should also evaluate expenditures against government budgets, revenues, GDP, and sector contributions to GDP, among others.[9] Ultimately, the analysis derived from the BER can be used to address fiscal sustainability and policy alignment concerns as well as efficiency and effectiveness, all of which are important inputs to the BFP as described in Chapter 6.

4.1.3 The Biodiversity Expenditure Review process

The BER process consists of defining the main parameters for the expenditure review (time-frame, institutional involvement, data specificity, data sources); collection and analysis of data; and projection of future expenditures (Figure 4.1).

Figure 4.1: The Process of Developing a BER



4.1.4 Links to other chapters

The PIR (Chapter 3) identifies priority private, public and civil society organizations to include in the BER. The BER then determines to what extent their budgets and expenditures align with national biodiversity priorities. Upon completion of the Policy and Institutional Review (PIR) and BER, we have a clear understanding of the sources, amounts and types of biodiversity expenditures across biodiversity categories and themes. This information establishes a reference point against which to compare the Financial Needs Assessment (Chapter 5) to estimate financing needs. This is critical baseline information to identify, prioritize and implement biodiversity solutions of the Biodiversity Finance Plan (BFP). The BER also helps identify potential opportunities for fiscal reform and areas where expenditures may not be aligned with national visions and strategies. Biodiversity finance solutions that focus on avoiding future budgetary needs, better prioritize current investments or improve the efficiency of programme delivery can be included in the BFP (Chapter 6).

4.2

BER Implementation Steps

The five technical implementation steps for the BER may be adapted based on need.

STEP 4.1

Preparations

Define the scope of the analysis, identify key stakeholders (including the "client" for the BER), develop a stakeholder consultation plan, identify key data sources, and develop a data management system.

STEP 4.2

Define the main parameters

- **4.2A.** Clarify the definition of "biodiversity expenditures".
- **4.2B.** Establish a classification system to map biodiversity budget expenditures.
- **4.2C.** Establish a system for the attribution of primary and secondary expenditures.
- **4.2D.** Tag expenditures to biodiversity categories, national biodiversity and sustainable development targets to allow cross-country and time series comparison.

STEP 4.3

Data collection

Identify and collect data from public, private, and civil society organizations and other data sources.

STEP 4.4

Data analysis

Analyse macroeconomic issues and their relationship to biodiversity expenditures, and review spending patterns of main organizations and sectors involved in biodiversity finance.

- Puts biodiversity expenditures in the national context, including comparisons with revenue generated from biodiversity and ecosystem services.
- Determines how effectively budgets are converted into expenditures.

STEP 4.5

Projecting future expenditures

Analyse likely major future trends in biodiversity expenditures for each priority organization, taking into consideration key assumptions (such as predicted inflation, GDP growth, etc.) that could affect future expenditures.

The chapter concludes with guidance on reporting to targeted stakeholders/decision makers.

Step 4.1: Preparations

The BER preparation stage involves a scoping process, a stakeholder assessment, identification of data sources, and the development of a data management system.

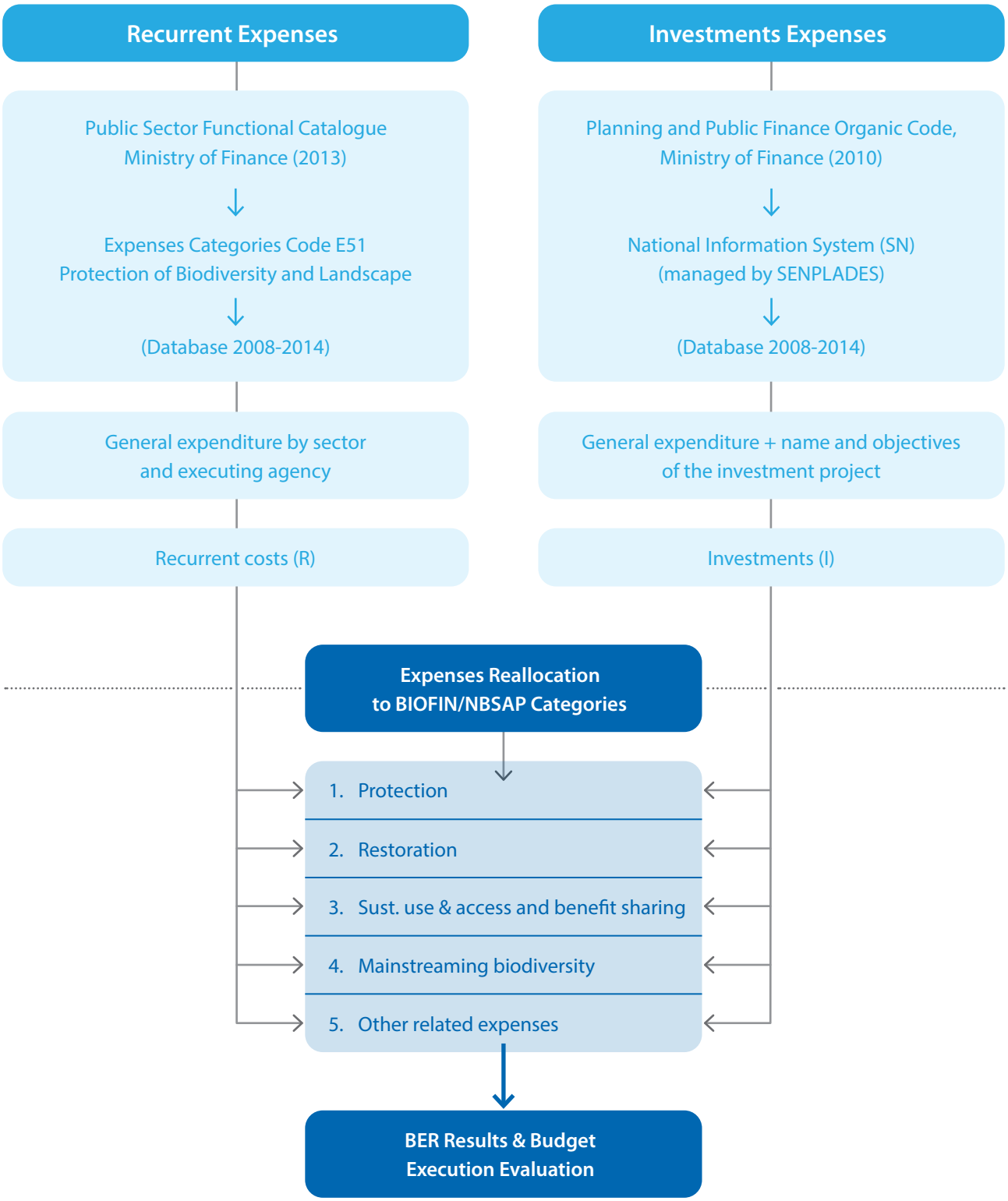
The scoping process aims to build products targeted to the main stakeholders and key decision makers and generate the greatest possible ownership and impact. Issues include what dates to cover, organizations to include (especially the private sector), and the level of detail possible for classification and attribution. The inclusion of government spending, NGOs and donors is essential and should not be subject to elimination through the scoping process. Once data collection begins, the time period may change due to a lack of comparable data. Although the CBD's guidance for financial reporting and resource mobilization requests data collection from 2006, the BIOFIN Process does not require that length of time. The appropriate time period to analyse may depend on national circumstances (e.g. the timing of budget cycles) as identified in the PIR (Chapter 3). The data should include at least the previous five years for which complete data are available, but the longer the time sequence back to 2006, the better the analysis.

It is useful to update and revise the stakeholder consultation plan initially developed as part of the PIR (Chapter 3). Two key types of stakeholders for the BER (that may overlap) are: 1) principal stakeholders and decision makers and 2) organizations from which data is required. For the former (1), individuals and organizations with the greatest influence on public and private biodiversity budget processes, allocations and expenditures should be included (those who have the greatest "power" in the power/interest matrix). The main stakeholders and key decision makers may be in the BIOFIN Steering Committee, the finance ministry, environmental and other key ministries, and national statistics departments, key civil society and private actors such as donors, large NGOs, and some private companies or developers. A subgroup of these key decision makers can be identified as the "client" for the BER—those who have the greatest interest in seeing the results and recommendations—and attention should be paid to ensure their interests and questions are included in the analysis and conclusions. For the latter (2), the list of organizations to be contacted for expenditure data should have been elaborated in the PIR (Chapter 3) and can be adjusted as more information is acquired.

The team should draw on experiences from other environmental expenditure reviews previously conducted in the country, including in other thematic areas such as climate change, poverty, health or education. A scan of data availability, consistency, and the level of detail is required, with the main stakeholders. It should quickly become evident if there are detailed results- or programme-based expenditures or if budgets are only associated with "agencies" or organizations.

Once the framework and targets of the analysis are identified, it is valuable to plan a consultative meeting to validate the scope and build consensus on the definition of biodiversity expenditures, the classification system and the attribution coefficients for expenditures that are only secondarily attributable to biodiversity. The meeting can also cover how the data will be retrieved from both public and private institutions, and resolve any data confidentiality issues. An example of an effective scoping exercise from Ecuador is presented in Figure 4.2, showing the main sources of data disaggregated as recurrent and investment expenses, how the expenditures will be categorized, the dates for data acquisition, and more details.

Figure 4.2: BER Scoping Exercise: Example from Ecuador (Government Information Sources by Sector and Executing Agency)[10]



Step 4.2: Defining the main parameters of the Biodiversity Expenditure Review

The BER quantifies the amount of money intentionally[11] spent on positive biodiversity outcomes. It is essential to distinguish between environmental and biodiversity expenditures (other environmental expenditures are not the subject of a BER). This is done using a clear definition of "biodiversity expenditure". The BER uses standard definitions to promote: 1) multi-year and internal consistency and 2) comparability among countries.

This involves:

- **2A:** Definition of biodiversity expenditure;
- **2B:** Classification of biodiversity expenditures; and
- **2C:** Attribution of expenditures.

Step 4.2A: Definition of biodiversity expenditures

At this point it is worth revisiting the core concept underpinning this review. The definition of "biodiversity expenditure" is ***any expenditure whose purpose is to have a positive impact or to reduce or eliminate pressures on biodiversity***. These biodiversity expenditures include primary expenditures that have biodiversity as their "primary purpose" as well as "secondary" expenditures where biodiversity is clearly identified as an objective. This formulation is derived from the definition provided by the CBD (see Chapter 1).

Box 4.2: The OECD Rio Markers on Biodiversity[12]

OECD Rio Markers are designed to track international development assistance financing for the three main Rio Conventions: Climate Change, Desertification, and Biodiversity. To identify a biodiversity-positive expenditure, refer to the Convention on Biological Diversity's (CBD) 3 main objectives:

- The conservation of biological diversity.
- The sustainable use of the components of biological diversity.
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[13]

The OECD Rio Markers also identify a "principal objective" (what BIOFIN terms "primary") if it "*directly and explicitly aims to achieve*" one or more of the above three objectives. Thus, primary expenditures have one or more of the CBD objectives as a stated primary purpose or "*causa finalis*", and secondary expenditures are identified as when one of the CBD objectives is noted but is not the expenditure's primary purpose.

Unlike the UN System of Environmental-Economic Accounts (SEEA, see Box 4.3), which takes an accounting approach, BIOFIN recognizes secondary expenditures that are not counted under the SEEA. These secondary expenditures are related to activities that include biodiversity as an explicitly described secondary (or tertiary) objective. Step 2B describes how to classify biodiversity expenditures according to BIOFIN categories. Activities that address one of the CBD objectives but are detrimental to another should be excluded. For example, if a subsidy on sustainable use of wood products is considered, but it results in direct loss of biodiversity because of the plantations of exotic invasive species, it should not be counted.

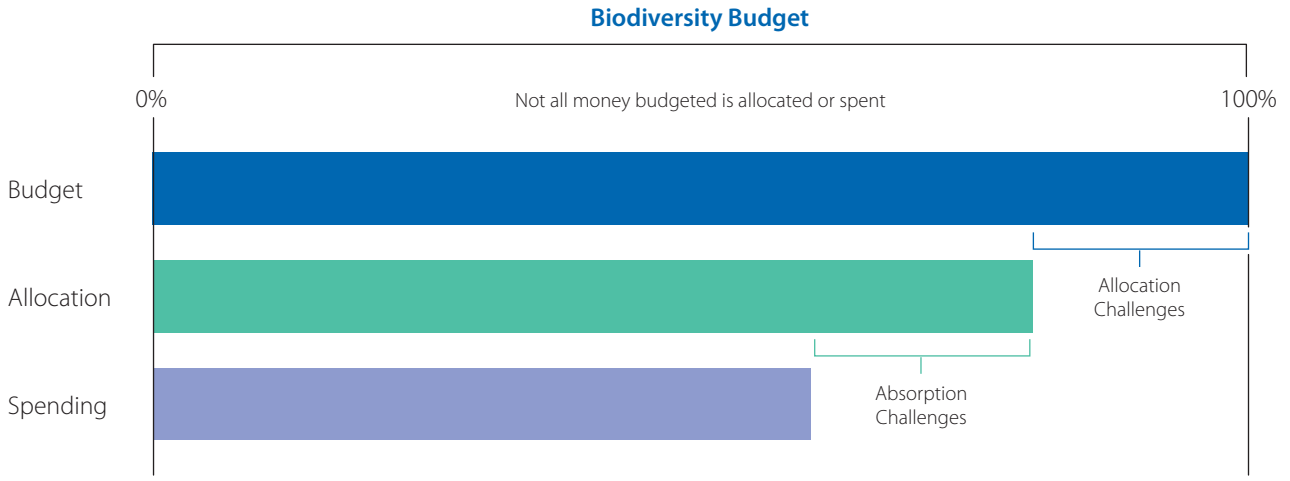
Box 4.3: The UN System of Environmental-Economic Accounting

The SEEA contains internationally agreed standards, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. The SEEA framework is consistent with the System of National Accounts (SNA) to facilitate the integration of environmental and economic statistics.[14] The SEEA expenditure categories are contained in the Classification of Environmental Activities (CEA) and include the Classification of Environmental Protection Activities (CEPA) and Classification of Resource Management Activities (CReMA). Only primary expenditures are accounted for based on the attribution principle of "primary purpose" or "*causa finalis*". This rigorous attribution approach avoids double counting.

The **SEEA Central Framework**,[15] and **SEEA Experimental Ecosystem Accounting**[16] provide more detailed information. The BIOFIN Process should seek alignment with SEEA where possible. In cases where a country endorses the SEEA framework, the BER should start by reviewing all reports and accounting. Mexico's experience highlights how the SEEA and BIOFIN approaches can be harmonized. BIOFIN will continue to work with the United Nations Statistical Division, relevant expert committees and other partners to develop consensus on biodiversity expenditure categories.

Expenditures data include amounts that are **budgeted**, amounts that are **allocated** (i.e. transferred to spending units), and amounts that are spent (**spending**, see Figure 4.3). Care should be taken to attribute expenditure data appropriately and avoid double counting since it is common for public authorities to transfer resources multiple times, e.g. from the ministry of finance to the ministry of environment and then from the ministry of environment to a protected area.

Figure 4.3: Original Budget, Allocated Budget and Spending



Step 4.2B: Classification of expenditures

In the BER, all biodiversity expenditures should be associated with biodiversity categories, organizations and economic sectors. To improve accuracy, precision, and replicability of biodiversity expenditure assessments—including for budget tagging—BIOFIN has developed an expanded set of categories. This classification can be aligned to the UN-SEEA categories as shown in the Mexico example (see Box 4.4). Table 4.1 shows the nine proposed BIOFIN categories and their relationship to the six categories originally derived from the CBD Strategic Plan. The BIOFIN categories can be subdivided further as provided in Annex II. All biodiversity expenditures also should be tagged with national biodiversity targets or strategies. These national strategies/targets are identified in the PIR and are used in parallel with the BIOFIN categories in the FNA.

Table 4.1: BIOFIN Categories

Nine BIOFIN Categories	Previous BIOFIN Categories
• **Biodiversity awareness and knowledge** • **Green economy** • **Pollution management**	Mainstreaming
• **Sustainable use** • **Biosafety**	Sustainable use
Protected areas and other conservation measures	Protection
Restoration	Restoration
Access and benefit sharing	Access and benefit sharing[17]
Biodiversity and development planning and finance	Enabling

Box 4.4: The Biodiversity Expenditure Review in Mexico

To produce a detailed diagnosis of biodiversity expenditures in Mexico, BIOFIN Mexico collaborated with the Steering Committee, the National Institute of Statistics and Geography (by Spanish acronym, INEGI) to take full advantage of inter-institutional synergies. BIOFIN-BER integrated innovatively with INEGI's methodology to measure environmental and energy expenditures, including those related to biodiversity. This resulted in a BER framework to review the allocation of public, private, social resources and those derived from international cooperation.

The Mexico framework aligns with the Central Framework of the United Nations Environmental-Economic Accounting System (SEEA-CF), the international statistical standard that responds to the concepts, definitions and classifications for the compilation of Environmental Accounts; this enables the generation of internationally comparable statistics.

The measure of Environmental Protection Expenses (EPE) for the public sector is based on the Classification of Environmental Activities (CEA). The main inclusion criteria include expenditures whose purpose is the measurement, control or abatement of pollution, or the conservation and protection of the environment and natural resources.

For the calculation, the different sources of information are taken into account, depending on the level of government. In the case of the federal government, the main information source is the Public Account, which contains the "Analytical state of the exercise of the budget of expenditures in the functional-programmatic classification". The latter identifies the programmes and expenditures related to the CEA categories. In addition, other documents such as the list of investment programmes and projects, annual reports, and the official internet sites of Administrative Units, were analysed. Local governments used administrative statements, daily entries and questions about expenses.

The Environmental Protection Expense is calculated as follows:

$$EPE = \textit{Current expenditure} + \textit{Investment}$$

Where:

- ***Current Expenditure*** = payment for personal services + purchase of materials and supplies + payment for general services
- ***Investment*** = Acquisition of real and personal property + public works

The BIOFIN methodology helped to revise the GPAs classified in category 6 of the CEA: Protection of biodiversity and landscape. The following CEA categories were also screened for biodiversity-related expenditures:

2. Wastewater management;
4. Protection and remediation of soils, groundwater and surface waters;
8. Research and development for the protection of the environment; and
9. Other environmental protection activities.

The BER thus compiled further records of expenditures using the BIOFIN methodology, for example in programmes related to the sustainable use of biodiversity. These expenditures were later integrated as subclasses within the CEA by INEGI, resulting in a harmonized accounting of biodiversity expenditures. Moreover, the framework and calculation process was documented and systematized to allow for the management of an up-to-date database, which will ultimately deliver long-term monitoring of the country's biodiversity expenditure.

CEA

Protection of biodiversity and landscapes
Cat. 6 CEA

BIOFIN

Additions:
Cat. 2, 4, 8 and 9 CEA
+
BIOFIN categories

BER

Integrated BIOFIN/CEA expenditure accounting

Step 4.2C: Attribution of biodiversity expenditures

Once expenditures are classified according to these categories, the amount that contributes to sustainable biodiversity management needs to be determined. For detailed expenditure data, specific activities or project/programme components can be counted as either biodiversity or non-biodiversity expenditures. This analysis requires 1) detailed expenditure data and 2) substantial time allocation for the review. When the latter is not possible, alternative approaches are available.

First, attribution approaches require the classification of "primary" and "secondary" expenditures, and then the determination of what percentage of certain expenditures should be attributed to biodiversity. Primary expenditures should be counted at 100 percent (similarly to OECD Rio Markers and SEEA). However, since even primary expenditures where biodiversity is the main intent may include non-biodiversity spending, they may be attributed a value lower than 100 percent. Expenditures are considered "primary" on the basis of the "predominance principle" (they are predominantly for biodiversity). In the absence of mitigating information, a 100 percent value should be attributed to primary biodiversity expenditures.

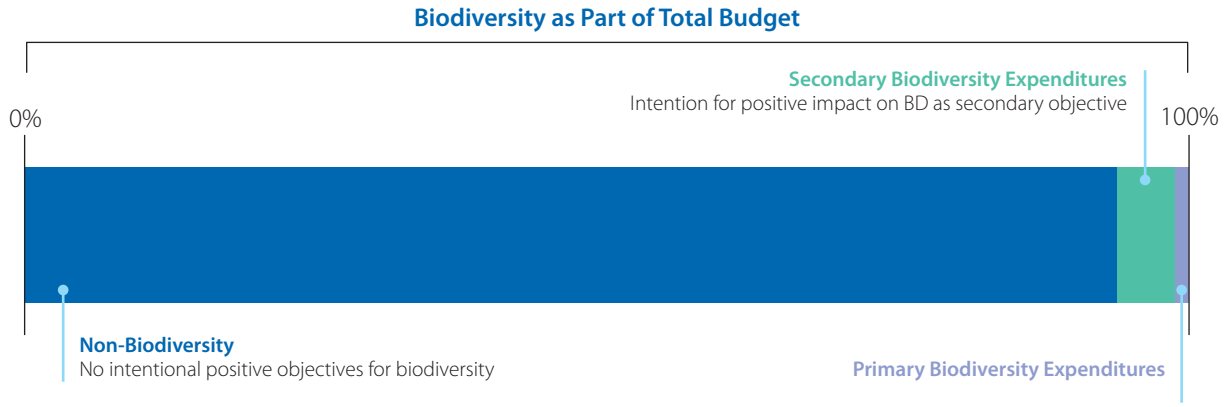
In contrast and despite an increasing number of experiences recorded by BIOFIN and others, there is no international agreement on the attribution of a percentage value to secondary biodiversity expenditures. Indeed, even direct expenditures are best estimates of 100 percent intentionality. The BER should seek to attribute expenditures as accurately as possible using well-defined and transparent attribution criteria and processes. There are two potential approaches for the attribution of expenditures:

- A programme approach, focusing on the detailed expenditures of programmes, and
- An agency approach, focusing on the organizations (or "agents") making the expenditures.

The programme approach is regarded as best practice, as it assures that budget and expenditure data are associated with specific programmes, activities, targets, and indicators. The agency-based approach cannot adequately capture either annual changes or fine details of attribution. Depending on the availability of data and the willingness of specific agencies to allow access to programmatic data, countries may use a mix of both the programme and agency approaches. Both approaches are described in more detail below.

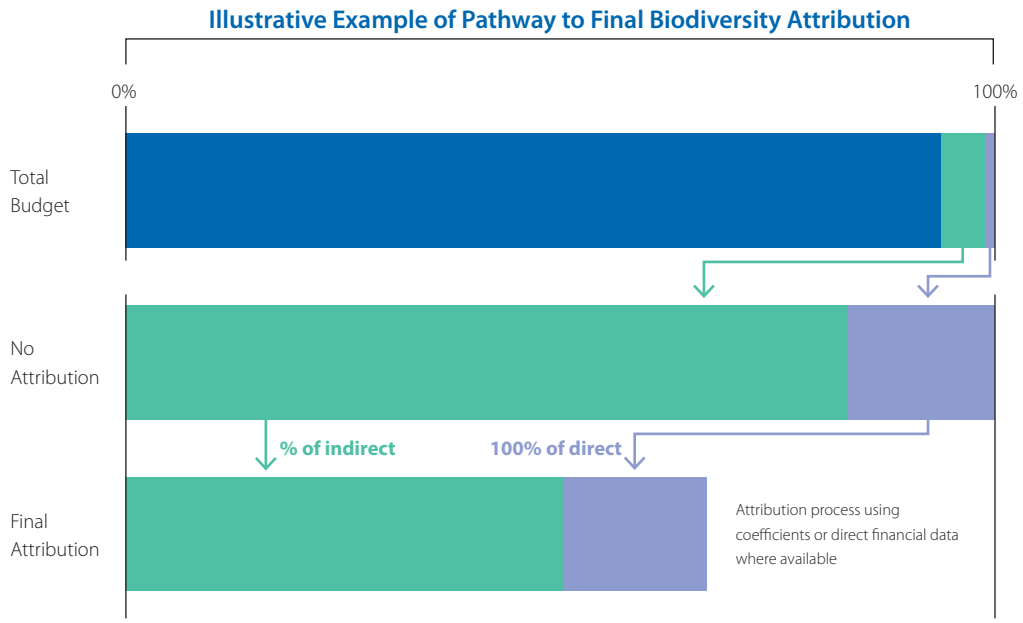
The process of attribution is illustrated in Figures 4.4 and 4.5. Figure 4.4 identifies primary and secondary expenditures. Since most public and private expenditures will not be targeted to biodiversity, we should focus on those budgets and organizations that have been prioritized in the PIR.

Figure 4.4: Identification of Biodiversity Expenditure Within Overall Budget (Percent of Total Expenditures)



In Figure 4.5, the attribution of secondary expenditures is used to reduce the total spent on secondary actions or programmes to the amount spent on intentional biodiversity goals. Since biodiversity is not the primary objective of "secondary" expenditures, the ***amount of the expenditure*** (percent) that is intentionally and explicitly being spent on biodiversity positive goals is the result of the attribution exercise. It is important to differentiate between ***intent and impact***. An action intended to boost agricultural production could have very positive impacts on biodiversity, but if the primary intent of the project or activity is agricultural production (or food security, etc.), the attribution remains only to the amount that was intentionally targeted at biodiversity positive outcomes. Furthermore, the "intent" must be documented (written down in policies/budgets). This approach produces a rough estimate of the amount of money allocated intentionally to biodiversity.

Figure 4.5: Attribution of Direct and Indirect Biodiversity Expenditures



Note that the scale varies between the columns, the first column is in percentages of the national budget; the second and third columns are the percentages of the section of the national budget that supports biodiversity.

The Programme Approach

The aim is to establish a process that can be repeated periodically and produce replicable and consistent results. The system should be accurate, precise, repeatable, and defensible:

- To ensure consistency, written "intent" must be documented, in line with OECD explicit tagging and SEEA's *causa finalis* (or "end purpose").
- To work at the most detailed level of data as possible in the most cost-effective way. This applies to the smallest unit of the organization for which there are budget data or the smallest programme budgets and expenditure data that exist (see Box 4.5).
- To estimate percentage attributions only when detailed data are not available or analysis at such detail would be unaffordable.
- When using estimated attribution, to have a pre-established system with predetermined categories and coefficients.

The attribution system weights expenditures by an estimate of the percentage of money spent (or budgeted) that was targeted to specific biodiversity categories. The range of attribution levels can be from 0 to 100 percent with suggested milestones at 0, 1, 5, 25, 50, 75, and 100 percent and a range of +/- 15 percent for each (see the attribution table example).

Table 4.2: Standard Attribution Table Example

Attribution Level	Median Attribution	Range	Example Expenditures
Primary	100%	None	Protected area management, coral restoration, anti-poaching efforts, removal of alien invasive species (AIS). etc.
Secondary			
High	75%	+/- 15	Biodiversity-related education, private conservation measures, PES schemes
Medium	50%	+/- 15	Organic agriculture support, watershed management
Medium Low	25%	+/- 15	Sustainable wetland use, sustainable fisheries, ecosystem-based adaptation
Low	5%	+/- 5	Improved irrigation systems, reduction of fertilizer use, sustainable forestry
Marginal	1%	+/- 1	Pollution control
Insignificant	0		Energy sector climate mitigation

The Agency Approach

When programmatic data is not available, the "agency" approach can be used. Each agency (organization, branch, division, etc.) is evaluated for its intended financial contribution to biodiversity. It is essential to attribute the percentage to the finest level of organization for which data are available, such as branch, division, local technical agency, etc. The finer the level of analysis, the more likely a 100 percent attribution can be adopted. Avoid attributing the percentage at the ministry level. The same attribution score should be used for all years of the assessment, unless there were significant changes to the organization. There are three ways to attribute expenditures:

1 Review the organization's written or legal mandate.

Reviewing an organization's mandate, mission statements, and annual reports helps to assign biodiversity attribution rates. Where an organization has multiple (including non-biodiversity) mandates, an estimate of the relative budget importance of the different mandates should be made. Where multiple categories are covered under an agency's mandate, it is desirable to highlight these (i.e. a forestry department that supports sustainable use and manages protected areas).

2 Conduct interviews with lead staff such as directors or managers

In managerial interviews it is valuable to begin with a briefing on what biodiversity expenditures are, including the BIOFIN categories. This establishes a shared understanding of "biodiversity expenditure" before asking the interviewee to estimate the amount of their organization's annual budget that is attributable to specific biodiversity categories or national targets. This can be a one-off discussion or a regular activity.

3 Conduct a comprehensive survey of employees

Questionnaires can be effective in determining attribution for certain organizations. The questionnaire should include a clear definition and explanation of biodiversity expenditures. Questions may be formulated to collect evidence on how much time employees spend in an average week on specific biodiversity work (categories); or more directly on the percentage of annual budgets that can be attributed to BIOFIN categories. In addition, a focus group discussion or survey can help to disaggregate the agency budget into personnel, operating expenditures, and capital investment. In the absence of a survey, small consultations or workshops can discuss questions and provide percent attribution results based on participants' judgement.

Box 4.5: Example of Attribution Results from a Questionnaire Approach – the Philippines

With the knowledge that personnel expenditures comprise a significant percentage of public sector spending, BIOFIN Philippines devised a simple questionnaire to assess the share of time that can be acceptably assigned as "biodiversity-related" in each agency surveyed. The table below shows the BER analysis derived using agency data obtained through the personnel survey.

Total average appropriations of the Philippines' Department of Environment and Natural Resources (DENR) agencies from 2008-2013 and estimates of biodiversity spending

Agencies of the DENR	Total appropriations, 2008-2013 in million Philippine pesos	Total biodiversity-relevant appropriations, 2008-2013 in million Philippine pesos	Biodiversity-relevant as percent of total
BMB	5,396	4,187	78
FMB	45,276	10,665	24
ERDB	5,414	2,445	45
LMB	17,141	751	4
EMB	6,947	1,188	17
MGB	15,119	114	1
NAMRIA	383	3	1
PCSD	577	347	60
NWRB	516	19	4
TOTAL	**96,768**	**19,720**	**20**

BMB – Biodiversity Management Bureau
FMB – Forestry Management Bureau
ERDB – Ecosystems Research and Development Bureau
LMB – Land Management Bureau
EMB – Environmental Management Bureau
MGB – Mines and Geo-sciences Bureau
NAMRIA – the National Mapping, and Resource Information Agency
PCSD – Palawan Council for Sustainable Development
NWRB – National Water Resources Board

Box 4.5 shows how the Philippines used detailed surveys to derive expenditure attribution. Kazakhstan used a programme approach (Box 4.6) with attribution percentages from 0 to 100 percent based on biodiversity actions.

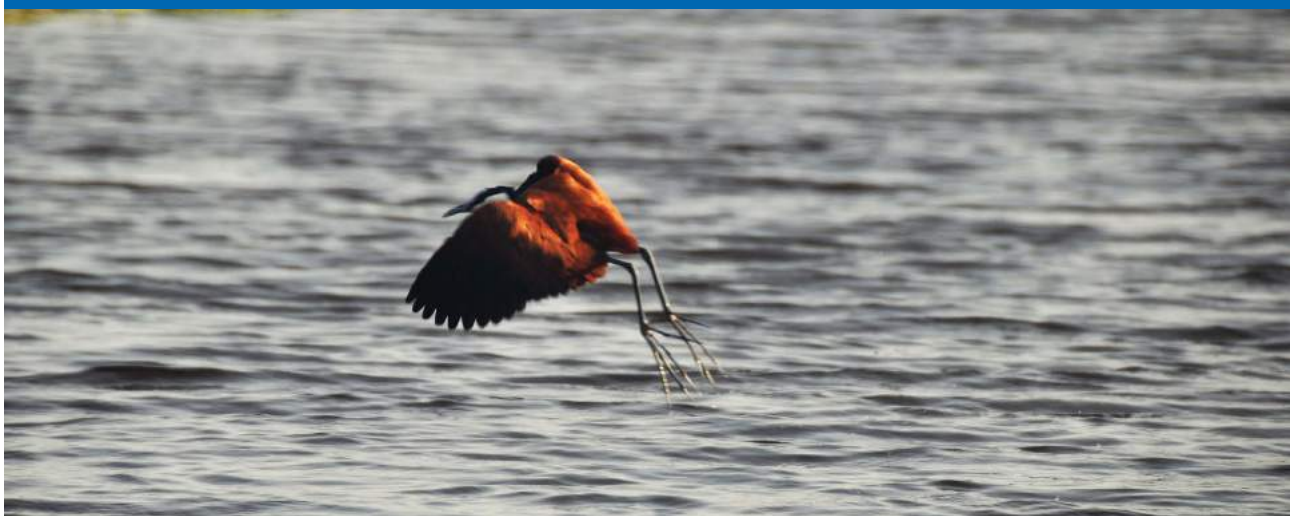
Four BIOFIN countries (Kazakhstan, Philippines, Sri Lanka and Thailand) whose BER reports provided a clear methodology on biodiversity attribution were reviewed and summarized. Using a mixture of agency and programme approaches, Annex III presents the various expenditure categories and biodiversity attribution rates. All expenditure categories are organized according to the three main CBD goals: conservation, sustainable use, and ABS; and classified using a standard range: High (90 percent to 100 percent), Medium High (50 percent to 89 percent), Medium Low (11 percent to 49 percent), and Low (10 percent and lower). The summary information shows how countries have applied the biodiversity attribution percentages, and characterizes the types of expenditures assigned the full range of expenditure rating from 0 percent to 100 percent.

Box 4.6: Example of Biodiversity Expenditure Analysis - Kazakhstan

Kazakhstan assessed its biodiversity expenditures from 2008 to 2014. The attribution of expenditures in Kazakhstan to biodiversity conservation is estimated by experts according to the "impact" that a project has on biodiversity and the Aichi objectives of the CBD. This is captured by an attribution score of 0 percent to 100 percent , with 100 percent reflecting activities which have a "direct" influence on biodiversity conservation, 90 percent to 5 percent reflecting activities with an increasingly "indirect" influence on biodiversity and 0 percent meaning no impact on biodiversity. The table below shows this approach and provides examples of categories.

Examples of Kazakhstan's attribution of expenditures by programme of activity

Biodiversity Relevance	% Influence on Biodiversity	Example
Direct	100%	Improve natural resource planning, monitoring and/or conservation
	90%	Targeting subsidies towards biodiversity conservation
	50%	Supporting ecological stability e.g. connectivity of habitats
	30%	Targeting subsidies towards primary sector output
	10%	Improving a region's built infrastructure
	5%	Increasing water availability
Indirect	0%	No impact on biodiversity



There is a distinction between the public and private sector in the attribution of expenditures. Public sector attribution is directly aligned with policy and public benefits and as such has higher attribution rates than the private sector in most categories (see table 4.3).

Table 4.3: Public and Private Differences in Attribution

BIOFIN Categories	Public versus Private
Biodiversity awareness and knowledge	Equivalent
Green economy	Public is regulatory-focused - medium or low, private mixed objectives also medium or low
Pollution management	Usually focused on people; public higher than private
Sustainable use	Public higher than private
Biosafety	Equivalent
Protected areas and other conservation measures	Equivalent
Restoration	Public higher than private
Access and benefit sharing (ABS)	Public mostly primary while private secondary
Biodiversity and development planning and finance	Equivalent

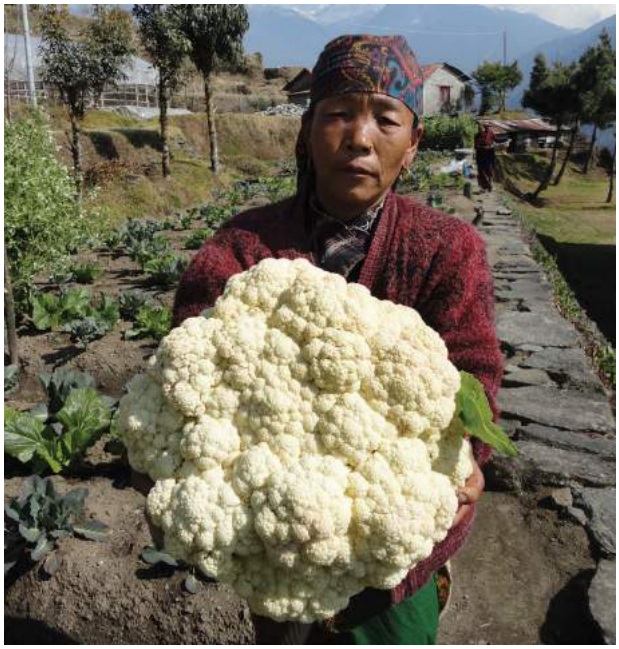
Expenditures also can be tagged to the 20 Aichi Targets. In doing this, care must be taken to avoid attributing primary biodiversity scores to Aichi Targets such as pollution, agriculture, etc. that are secondary by their common application.

Unpacking Aichi Targets into specific actions can improve the resolution and provides for a better understanding of the biodiversity intent.

Step 4.3: Data collection

The third step is to collect, systematically and comprehensively, private and public expenditure data. Data might be collected from either public or confidential sources. In the latter case, confidential and privacy clauses and data sovereignty considerations will be strictly applied. The guidance under this step covers:

- Initiating data collection
- Suggested data sources
- Private sector: private companies and project developers
- The third sector: NGOs and other civil society organizations
- Macroeconomic assumptions and indicators: GDP, inflation and exchange rates
- Managing double counting



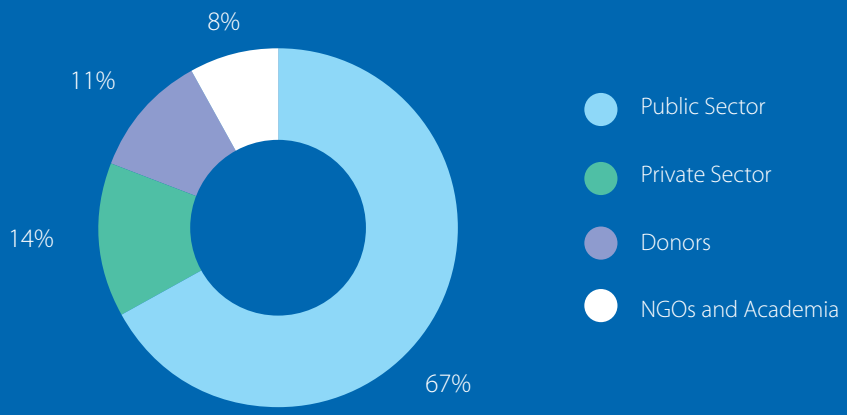
Box 4.7 Private Sector: Data Collection and Results from Guatemala

To determine the biodiversity finance actors, two prioritization criteria were considered. These included the experience of the entities within the environmental field and the economic contribution to biodiversity (based on analysing 20 percent of the institutions/companies that contributed 80 percent of the resources targeted for biodiversity). As a result, within the commercial sector, sugar, African palm, banana, extractive industries and coffee-producing entities were considered in the biodiversity expenditure analysis, as well as Guatemala's principal donors (the G13), NGOs, and academia. To familiarize the selected entities with the purpose of BIOFIN and encourage them to provide information about their biodiversity expenditures:

1. All preselected actors were invited to a workshop where they were asked to share information about their biodiversity expenditures. Personal contacts with key actors could be established, which assisted with later requests for information.
2. After the workshop, the participants were asked via email to complete a questionnaire. The questionnaire included questions regarding the type of international cooperation/NGO/company, location, number and type of projects, time-frames of those projects, sources of funding, amount of biodiversity expenditure, classification of expenditure according to CEPA categories (see Box 4.3). Main stakeholders who could not attend the workshop were contacted by phone.

As a result, it was determined that the private sector contributed US$48 million, development partners US$35.37 million and NGOs and academia US$26.84 million.

Biodiversity Expenditures in Guatemala (2010-2014)



The total biodiversity expenditure of Guatemala from 2010 to 2014 amounted to US$331.16 million, which corresponded to 0.14 percent of GDP. Public expenditure contributed 67 percent of the total amount (US$221 million) and the private sector, international cooperation and NGOs contributed 33 percent (US$110.1 million).

Source: BIOFIN Guatamala.

Initiating data collection

This substep requires the identification of technical partners and data sources needed to capture data on public and private budgets, allocations and expenditures. In data collection, the granularity and specificity of the dataset is what guarantees the depth and quality of analysis. However, there is a trade-off between the resources spent, both time and money, and the results expected from the analysis. Typically, countries will want to collect data on projects and activities at the subagency or departmental level. A data request letter from BIOFIN's principal collaborating ministries, usually the ministry of finance or ministry of environment, can facilitate the sharing of information. Data on budgets, allocation, and actual end spending should be collected for all main organizations.

It is useful to build on existing initiatives where possible (SEEA, natural capital accounting, public environmental expenditure reviews, etc.), and hold discussions with the national statistics department that prepares the SNA.

Care should be taken in data comparison and in describing data sources and any administrative change in budget composition. For example, not all budgeted money is allocated to projects or other activities, and not all allocations are spent (see Step 4.2A). Budget data in one year should not be compared to spending data in another without checking for consistency and controlling for inflation. Attention should be paid to the composition of the data collected. For example, in Indonesia, budget data were collected from 2006, but did not include personnel costs until 2010. Without appropriate correction, any graphical representation would have given an inaccurate impression of trends.

Suggested data sources

To the extent possible, the data used should be authoritative, dependable, and ideally from publicly available sources. The BER should be based on detailed primary data wherever possible, and not on reports that summarize previous studies. The main sources for biodiversity budget, allocation and spending data are:

- National statistics offices, natural capital accounting and UN-SEEA implementation projects
- Government biannual expenditure/execution reviews
- Government auditing reports
- Line ministries and their subdepartments
- Other public expenditure reviews and data
- IMF and World Bank assessments
- Chambers of Commerce – industrial/business surveys
- ODA–OECD–DAC/CRS database[18]

Basic data that should be collected for every BER includes the following for each year covered:

- Total government budget and expenditures
- Gross Domestic Product
- Inflation
- Total budgets for the following ministries and natural resource-based agencies
  - » Ministries and agencies responsible for the environment, agriculture, fisheries, forestry, tourism
  - » Ministry and agencies responsible for water, energy and climate change
  - » Planning or economic development ministries
  - » Agencies or organizations responsible for protected areas
- Donors active in the environmental field
- International NGOs active in conservation or natural resource management
- National and local government revenues generated from renewable natural resource sectors: ecotourism, forestry, fisheries, water management, sustainable agriculture.
- Data should seek to capture capital (or investment) versus recurrent expenditures.

Private companies and project developers

To date, most efforts to understand biodiversity expenditures, needs and investment gaps have focused on the public sector. However, some 80 percent of the global economy is made up of private sector companies and financial institutions, and as a result private companies and developers are inevitably responsible for many harmful impacts on biodiversity. Many are highly dependent on nature for their profits. More and more private companies are reducing their negative impact or even contributing positively to biodiversity. The BER should seek to capture this spending. Moreover, identifying private spending can help generate public support for biodiversity and can inform supply chain management, risk management and the scoping of business opportunities.

Engaging private companies requires the communication of a clear definition of biodiversity expenditures and an explanation of why the private company should be interested in the BIOFIN Process or biodiversity finance. Furthermore, important biodiversity investments taking place in the private sector are not well documented or understood. Incorporating the private sector into the BER will provide critical information to formulate finance solutions.

Collecting comprehensive data on private sector biodiversity expenditures is difficult and may be severely constrained by lack of data, so the BER should be seen primarily as an opportunity for engagement. We must accept that limited financial data may be generated regardless of the collection approach. The identification of leading companies which might have the capacity to collect data, such as those engaged with the UN Global Compact,[19] the Natural Capital Declaration,[20] or similar initiatives is an important step.

It may be possible to look for data sources working in partnerships with the industry and sector or business associations. At the company level, firms are increasingly publishing annual Corporate Social Responsibility (CSR) reports, which often include a narrative on environmental actions and risks. Other reporting, including annual financial reports, government surveys and industry reports, may also provide data or insights. These external reports tend to be available only for large publicly traded companies. If data are collected solely from a subset of company leaders in sustainability—as most who engage with BIOFIN and share data are likely to be—then care must be taken to avoid linear extrapolation to the industry from this subset. Conservative assumptions should be used if drawing general conclusions from any such subsample of leading companies.

Civil society: NGOs and other organizations

The third sector, such as non-profit organizations, are often "end-users" or implementers of projects and investments in biodiversity at the local and national level. Some NGOs[21] typically channel support from a variety of national and international sources[22] into specific biodiversity actions and projects. Expenditure data for these projects may be found in the annual reports of the implementing organization and/or, often, of the donor organization or, failing these preferred sources of information, it can be requested directly. However, care should be taken to avoid double counting expenditures from both the source and channelling organizations.

Macroeconomic indicators: GDP, inflation and exchange rates

To contextualize biodiversity spending, data on macroeconomic values and public and private spending should be collected. Understanding growth and spending patterns in the economy provides inferences upon which to analyse biodiversity spending. Biodiversity expenditures should at the very least be compared to GDP and total public expenditures.

GDP can be gathered from official sources—often online—both in nominal and real terms (adjusted for inflation) but it is important to note the source and type of data referred. Most sources of budget and expenditure data are reported in local currency and in nominal terms, not adjusted for inflation. These data should be entered in any spreadsheet in nominal terms. However, the analysis should preferably refer to real or inflation-adjusted numbers. BIOFIN recommends a GDP deflator.[23] A variety of approaches exist to calculate inflation. It is best to use official inflation data provided by the ministry of finance or the central bank. In the absence of an official deflator, data from the IMF or the World Bank can be used. Since the BIOFIN methodology makes use of both within-year and across-time comparisons, both nominal and real expenditures should be reported.

Cross-country comparisons are desirable to better communicate with policy makers and determine benchmarks for improvement. Countries may thus decide to communicate aggregated numbers in USD. Similar caution is required as for inflation in the use of exchange rates. In addition, countries with significant exchange rate variability may present aggregated numbers based on a conversion to a USD equivalent (or use purchasing price parity-PPP) in addition to adjusting for inflation.

Managing the double counting risk

Double counting happens when one expenditure is counted twice in an expenditure review, resulting in an over-estimation of the amount of money budgeted, allocated or spent.

It is a well-known and common risk in BER. The most common mistakes involve budgets and expenditures reported by organizations that transfer resources to other organizations. This is what happens if both the ministry of environment and a parastatal park entity receiving money from the ministry report the same expenditure. These "transfers" include subsidies and intra-governmental transfers.

To manage the risk of double counting, the BIOFIN team may choose to adopt either an "abatement or execution principle" or a "financing principle". The former principle is recommended and requires the accounting for expenditures to be recorded at the level of the executing or implementing agency. For example, a planning team might determine that the ministry of finance—the financing agency—spends US$100,000 on biodiversity education through allocation to the ministry of education, the executing agency. Under the "execution principle", only the expenditure from the executing agency, the ministry of education, would be counted. Under the financing principle, biodiversity expenditures are instead recorded at the source, thus not allowing the level of detail the BER analysis requires.

Gathering data on nature-based revenues

The BER process also seeks to capture income in addition to expenditures. Tracking revenues serves to 1) better understand and describe the fiscal value that biodiversity and ecosystem services provide to the national and state governments and 2) expand upon the initial review in the PIR to identify opportunities to formulate finance solutions, e.g. to propose the revision of fisheries fees/taxes or the earmarking of a certain revenues to biodiversity. The documentation of fiscal revenues generated by biodiversity is also a powerful tool to make a case for increased biodiversity expenditures.

The focus is recording revenue sources from biodiversity and ecosystem services. Each BER should cover at least protected area entrance and other fees, tourism charges, water tariffs, fines and penalties, Payment for Ecosystem Services systems, and forestry and fisheries revenues. Revenues dependent on biodiversity and ecosystems are rarely categorized as such in public documents and thus require the review of a country's green taxes and the revenues reported by the same agencies identified in the PIR/BER. Further, it is important to consider that revenues raised at a site level may be retained there and not captured in central accounts. Revenues from biodiversity and ecosystem services consist of:

A **Tax revenues from biodiversity,** the income generated by governments through taxation of activities related to biodiversity. Taxes generally go to the state treasury, but they can also be imposed and retained locally. Direct taxes include pollution taxes; income taxes from the selling of biodiversity goods and services; import/export taxes from the selling of biodiversity goods and services; income taxes of employees working in a biodiversity related sector; land taxes for occupation of natural areas, etc. Indirect taxes include the value added tax and sales tax on transactions related to biodiversity goods and services.

B **Non-tax revenues** include user fees for extractive (hunting, fishing, collection of medicinal plants) and non-extractive uses (entrance fees to protected areas, camping fees, diving/snorkelling fees, biosecurity service fees, licenses, permits); volume-based resource use fees (water, wood, non-timber forest products [NTFPs]); infrastructure fees (tourism concessions, rights of way); and biodiversity trust fund interest proceeds are other examples of non-tax revenues.

C **Environmental fines and penalties** collected because of an illegal act that directly harms the environment, such as illegal logging, poaching, illegal dumping, and unplanned pollution from companies. Fines and penalties vary; some can be a flat rate for specific illegal acts while others may vary in amount or type of penalty based on the extent of the environmental impact. Some penalties seek to capture the economic impacts on both nature and society to avoid a transfer of costs from a company to society or the government.

Step 4.4: Data analysis

In this step, the collected data are used to analyse several aspects of biodiversity management and finance in four substeps:

- **Step 4A:** National macroeconomic context.
- **Step 4B:** Biodiversity spending in the national context. This section contains the main results including who spends how much on what. It also looks at what percentage of budgets and expenditures is directed at biodiversity.
- **Step 4C:** Identify relationship between budgets, allocation and expenditures.
- **Step 4D:** Identify other trends in expenditure.

The outcome of this section should include:

1. Estimate of the total biodiversity expenditures for the country – public, donors, NGOs and other civil society players, and partial estimate of private company or individual spending.
2. Total biodiversity public expenditures as a percentage of GDP and as a percentage of the total government budget.
3. Total spending by key natural resource-based ministries as compared to total national government budget (ministries and agencies responsible for the environment, agriculture, fisheries, forestry, tourism, water, energy, tourism).
4. Comparisons among natural resource-based ministries in spending levels.
5. Comparison between natural resource-based ministries and others – education, health, infrastructure, etc.
6. Biodiversity spending results broken down in combinations of the following:
    - » Primary versus secondary spending
    - » Spending per ministry, agency, organization
    - » Capital and recurrent spending per agency and total
    - » Tagged by SDGs, Aichi Targets/NBSAP targets, and BIOFIN categories
    - » Sources of financing including public, private, and official development assistance.
7. Comparison of spending in different themes with revenues.
8. Comparison of budget, allocation, and spending levels in the environmental ministry and key agencies.
9. Analysis of temporal trends.

Step 4.4A: National macroeconomic context

To situate the results of the BER within the national context, it is essential to describe the country's current macroeconomic context and use this information as part of the analysis. Graphs should include the country's GDP and inflation. Government budgets as a percentage of GDP also should be presented in graphical format. Real and nominal GDP should be compared as well. Optionally, a GDP graph converted to USD or euros will also be informative. Other critical contextual information such as high public deficits can be used to justify drops or unexpected changes in historical trends.

Step 4.4B: Biodiversity spending in the national context

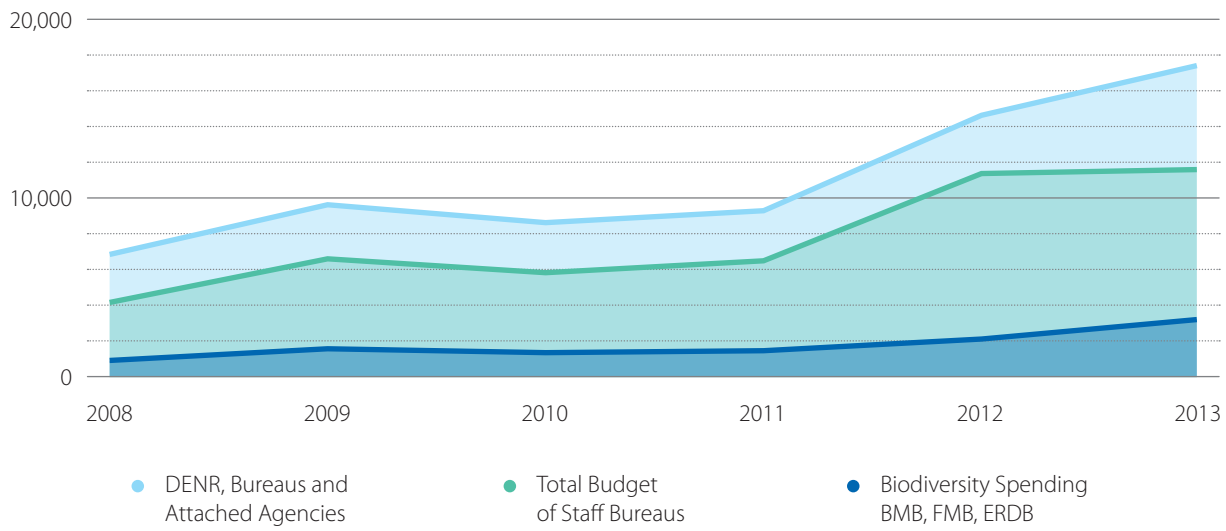
This section examines the partition of biodiversity expenditures in national and BIOFIN categories and among different organizations. It also identifies what percentage of expenditures are directed at biodiversity as compared to other areas and sectors. Finally, it explores how well expenditures are aligned with stated government policies regarding biodiversity.

The analysis should begin with a review of biodiversity spending in terms of primary and secondary expenditures. This can be presented in the form of a simple graph over time. These outputs can then be divided into biodiversity expenditures by institution, national biodiversity targets and BIOFIN categories. If SDG and national development targets were also tagged to expenditures, they can also be examined. This analysis should include not only public sector but also NGOs, other civil society groups, donors and the private sector. Graphics that show how biodiversity expenditures are partitioned among the public sector, civil society, donors, and private companies can be presented as pie charts.

We can examine trends from various angles: for example, Figure 4.6 shows the Philippines' spending evolution from 2008 to 2013. Biodiversity expenditures increased over time, but they remain a small share of the total environmental budget and have grown less than total budgets. The ability to depict medium- to long-term trends is why BIOFIN recommends a time series of expenditures covering at least five years.

Following this basic descriptive presentation, biodiversity expenditures can be analysed relative to line ministries and national budget spending. These graphs and tables present the percent of biodiversity expenditures relative to the budgets of line ministries and sector-based GDP. Multiple graphs could compare biodiversity spending in natural resource-based ministries (environment, forestry, fisheries, agriculture, energy, water, tourism) with each ministry's total budget, along with its contribution to GDP or job creation.

Figure 4.6: Relative Biodiversity and Ecosystem Services Spending – the Philippines (Million Pesos)



Notes: The Department of Environment and Natural Resources (DENR), Biodiversity Management Bureau (BMB), Forestry Management Bureau (FMB), and the Ecosystems Research and Development Bureau (ERDB); Staff Bureaus include all of the specialized services such as those listed above.

By comparing biodiversity and public expenditures, we can discern how much money is budgeted for different sectors and how biodiversity fits into the bigger picture. How does biodiversity expenditure in the forestry sector compare with the contribution of forestry to GDP? How does spending compare to the priorities in the national development plan, green economy plans, etc.?

The presentation of the analysis should also be adapted to decision makers' needs. For example, if the protected areas system is very important for tourism or watershed management, it would be beneficial to conduct a separate targeted analysis of the revenues and expenditures for the PA system.

The analysis of ODA, private and civil society expenditures can follow a similar pattern, but with a more limited focus on the aggregated amounts. It is also insightful to compare international, national and local expenditures, keeping in mind that different data sources may be based on different parameters that reduce their comparability.

Step 4.4C: Public revenue sources from biodiversity and ecosystem services

The analysis required for revenue sources is mostly descriptive. This can include the following:

1. Rank the top 5-10 sources of revenue generated by biodiversity and ecosystem services (or renewable natural resources).
2. For the top sources, calculate the ratio of revenues to expenditures in that sector if the data is available.
3. Calculate the total revenues produced and group it according to sectors or as appropriate.
4. Identify areas with low revenues, but high revenue generation potential (uncaptured user pays opportunities), or where the sector has significant impact (mining, energy), but fees (polluter pays) are not well captured.

Step 4.4D: Relationships among budgets, allocation and expenditures

This analysis evaluates how effectively budgets are transformed into expenditures, and whether spending constraints are due to lack of initial budget allocations, lack or delayed transfer of resources, or the absorptive capacity of the executing agencies. The analysis should be conducted on the main biodiversity actors, such as the ministry of environment. For each priority organization examined, a graph profiling budgets, allocation, and expenditure should help to highlight discrepancies. If the large gap is between budget and allocation, ask why; often delays in transferring or approving budgets are the reason. If the gap is between allocation and expenditure, then it is likely a timing issue or an absorption capacity issue—the receiving organization lacks the capacity to spend the money efficiently. If the latter is the case, increasing budgets will do little to improve impact on the ground.

Step 4.5: Project future expenditures

This step seeks to project future biodiversity expenditures based on historical trends. Future projections should cover a forward period of approximately 5 to 10 years. The exact time period chosen will depend on national budgeting processes and cycles, identified in the PIR (Chapter 3). The projections should cover the timing of the national biodiversity strategy at a minimum.

Clearly documenting and validating methodological decisions and assumptions used with stakeholders is essential. Where the trend does not depict erratic behaviour, and history is our best teacher, a long-term average growth rate can be applied as a factor. A linear regression analysis reveals the average level of budget expenditure and the annual rate of change over the time period and facilitate extrapolation into the future. It also provides a measure of variability around the average that might be used for sensitivity analysis, 'optimistic' and 'pessimistic' projections.

Sensitivity analysis is typically conducted by changing several key variables and assumptions in projected expenditures to identify those assumptions that may be the most impactful if changed. Where greater precision in estimates and predictions can be secured, we can expect less sensitivity to change.

When we have information about past budgets that leads us to believe that their predictive power is questionable, we can follow alternative paths. We can accept expert opinion or an *ad hoc* algorithm to combine what we know about the future with what we observe in the past; for example, moving average or trend analysis based on biodiversity expenditures as a percentage of government budget or GDP. Countries that historically demonstrate a high degree of variation in rates of exchange and inflation may want to adopt a three- or five-year weighted moving average (WMA) approach to reduce prediction error in future forecasts due to unusual or temporary short-term variations in these factors. However, the effectiveness of the models depends on the quality of the data.

Examples of projections are profiled in Annex 1, including:

- Disaggregated BER data by source of funds and NBSAP target from the Philippines; and
- Expenditure projections by departments, projected under different scenarios, in the context of the national budget in Namibia.

4.3

Reporting and Outreach

The BER should be able to answer the questions outlined in the objectives (Section 4.1.1) and at minimum include the basic data and analysis suggested in Box 4.7. The BER should help policymakers understand the general trends in biodiversity expenditures and their future consequences. The output is a comprehensive report (suggested outline below) accompanied by spreadsheets with original data and calculations. Additional outputs include short reports, policy briefs and the formulation of key messages. The latter can be used for policy advocacy, communication and as an input to the BFP (Chapter 6).

Model outline of a BER Report:

1. Executive Summary

2. Acknowledgements

3. Introduction

4. Methodology
- Scope of BER – dates, institutions, audience
- Definition of biodiversity expenditures and biodiversity categories
- Attribution methodology for allocating indirect biodiversity expenditures
- Data acquisition: sources of data

5. Results
- Summary results – macroeconomic data and budget trends
- Sector budgets
- Biodiversity in the budget
- Biodiversity spending by sector/theme/categories
- Biodiversity spending by organization
- Challenges and opportunities in the budgeting process
- Projecting future expenditures

6. Recommendations and Conclusions

7. Annexes

Annexes

Annex I: Examples of BER Results from Namibia and Philippines

BER in Namibia

The Namibian Ministry of Environment and Tourism (MET) collected expenditure data from 2006 to 2012 and budget data from 2012 to 2015. The MET then created three future expenditure scenarios for their medium-term planning framework, covering 2015-2020, as shown in Figure 4.7. Biodiversity expenditures by ministry over the 15-year period starting 2006/2007 indicate an expected decreasing future trend, as shown in Figure 4.8. The relative share of the Ministry of Agriculture, Water and forests has grown significantly, and to a lesser extent this is also the case for the Ministry of Environment and Tourism.

Figure 4.7: Namibian Government Biodiversity Expenditure Review
Ministry of Environment and Tourism (MET) Biodiversity Expenditure Projections: 2006/07 – 2012/13

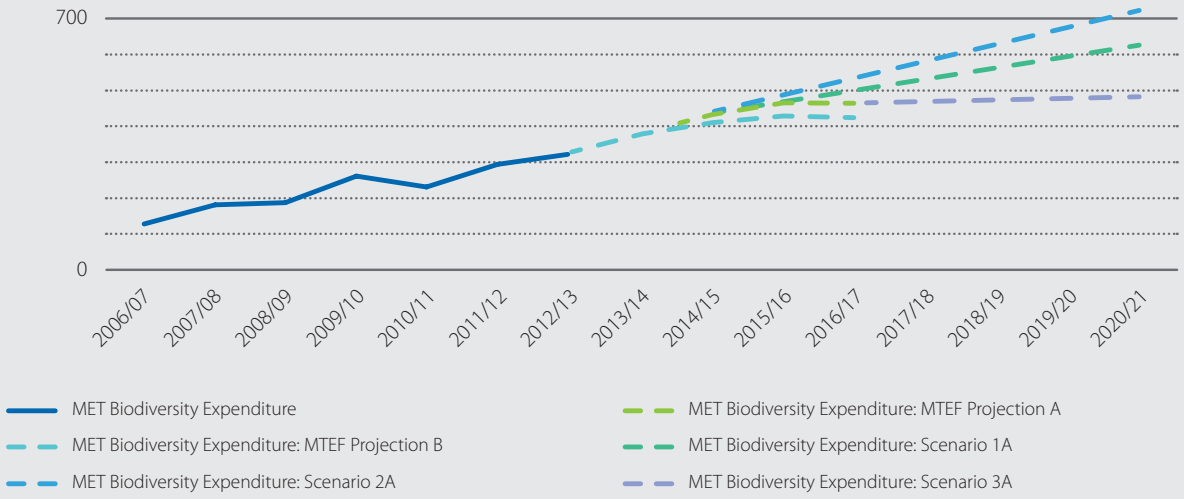
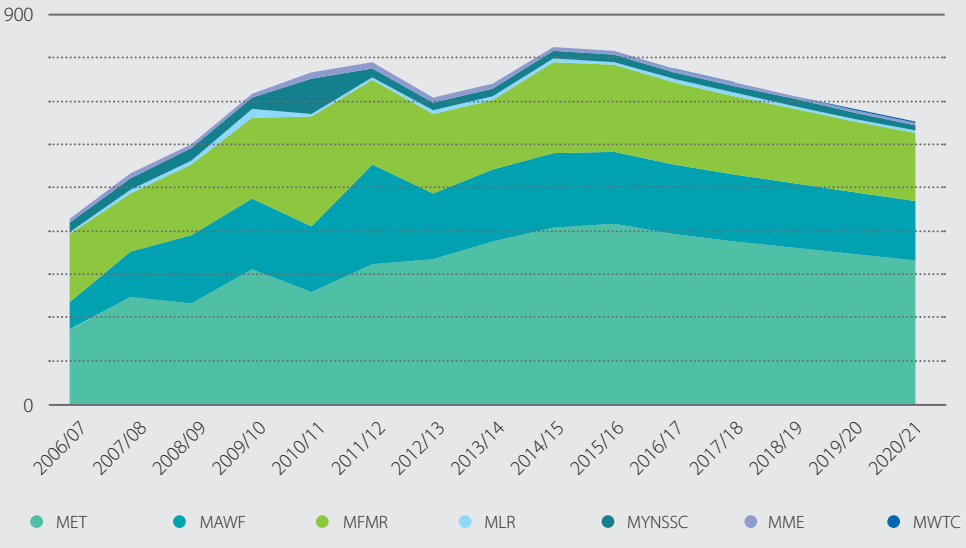


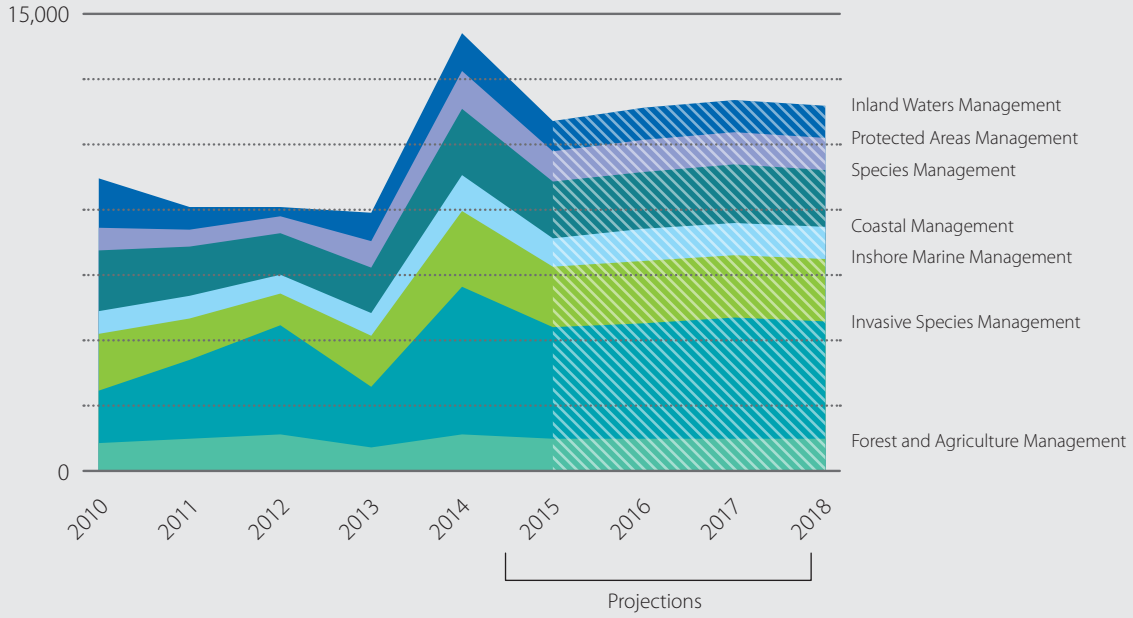
Figure 4.8: Namibian Government, Biodiversity Expenditure Review, Real Govt. Biodiversity Expenditure & Projections – 2006/07-2020/21
(N$, Millions, 2013 prices)



BER in Fiji

BIOFIN Fiji used a time-series forecasting method to predict biodiversity expenditure levels under a Business-As-Usual scenario.

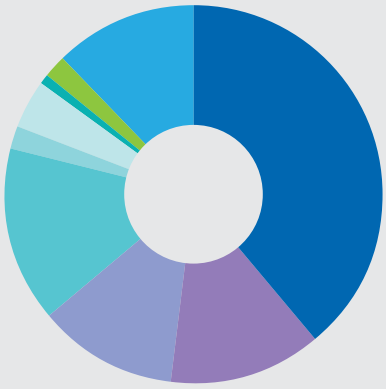
Figure 4.9: Historic Data and Future Predictions of Expenditure (in Thousands of Fiji Dollars, Nominal) for Biodiversity in Fiji



BER Results from the Philippines

Figure 4.10 and 4.11 show how BIOFIN Philippines disaggregated their BER data. Figure 4.9 indicates the high importance of the Department of Environment and Natural Resources in the implementation of biodiversity programmes in the Philippines. Figure 4.10 illustrates how the country's coastal areas are the main spending priority, followed by wetlands and agro-biodiversity. The share of protected areas stands only at 10 percent of the total.

Figure 4.10: Philippines – Disaggregation of Expenditures According to Sources of Funds



- **39%** → DENR and Attached Agencies
- **13%** → DENR ODA
- **12%** → DENR Locally Funded Projects/Loans
- **15%** → DA and BFAR
- **2%** → Others
- **4%** → Social Sector
- **1%** → Defense Sector
- **2%** → General Public Services
- **12%** → Local Governments

Figure 4.11: Philippines – Disaggregation of Spending According to Sources of the National Biodiversity Action Plan, Per Thematic Sector

- **6%** → Access and Benefit Sharing
- **13%** → Agrobiodiversity
- **8%** → Caves
- **19%** → Coastal and Marine
- **10%** → Forests
- **12%** → Invasive Alien Species
- **15%** → Inland Wetlands
- **7%** → Urban Biodiversity
- **10%** → Protected Areas

Annex II: The BIOFIN Expenditures Categories

Classification Level 1	Definition	Classification Level 2
Access and benefit sharing	Access to genetic resources, with a focus on prior informed consent, and the distribution of the benefits of genetic diversity, with a focus on equity and transparency (to those whose knowledge is used) and on mutually agreed terms.	Contractual arrangement
		Financial compensation
		Cost of notification to ABS clearing house mechanism
		Nagoya Protocol (ratified/enforced)
		Bioprospecting, including establishing permitting processes and enabling FPIC/PIC consultations
Biodiversity awareness and knowledge	Any campaign, action or initiative aimed at raising awareness about biodiversity, its use and/or its value, whether in informal or formal settings; and any action aimed at generating and providing the data and/or information required to make sound decisions regarding biodiversity; scientific research and investigation into key areas related to all aspects of biodiversity, including ecological, social, economic sciences.	Data generation and spatial mapping
		Formal biodiversity education
		Non-formal biodiversity education, including technical training
		Biodiversity awareness (e.g. public awareness campaigns, park visitor education, events)
		Biodiversity communication
		Biodiversity scientific research
		ICT innovation for biodiversity
		Valuation of biodiversity and ecosystems
		Indigenous and local communities knowledge
		CBD clearing-house mechanism
Biosafety	Prevention, containment, and eradication of invasive alien species (IAS) as well as safe handling, transport and use of living modified organisms (LMOs/GMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, also taking into account risks to human health.	Genetically modified organisms (GMOs), including living modified organisms (LMOs)
		Invasive Alien Species (IAS)
Green economy	Sustainable biodiversity benefits from private and public sector actions that aim to reduce negative impacts on nature through improved design, engineering, planning, investing, operations, policy, and management. Certain initiatives go beyond reducing negative impacts to encompass the financing and management of nature through green infrastructure, biodiversity-friendly business, sustainability certification, and greening supply chains. Climate change mitigation (industry) benefits biodiversity indirectly and is included.	Corporate social responsibility (CSR)
		Environmental Impact Assessment (EIA)
		GHG mitigation
		Green supply chain
		Sustainable extractive industries
		Sustainable consumption
		Sustainable energy
		Sustainable investing
		Sustainable tourism
		Sustainable transportation
		Sustainable urban areas
Biodiversity and development planning	National, state or local planning, policy, finance, legal, coordination, and enforcement actions that cover multiple biodiversity categories or general issues such as biodiversity and development planning and policy.	Biodiversity laws, policies, plans
		Other relevant laws, policies, plans
		Biodiversity coordination and management including networks and partnerships between national and subnational governments
		Biodiversity finance
		Strategic Environmental Assessment (SEA) frameworks
		Spatial planning
		Multilateral Environment Agreement (MEA)

Classification Level 1	Definition	Classification Level 2
Pollution management	Biodiversity benefits that derive from activities whose primary purpose is the prevention, reduction and elimination of pollution. This category covers most of the activities in the environmental protection category used by the SEEA central framework excluding 6, Protection of biodiversity and landscapes (and 8.6, Research on species, etc.). It overlaps with certain pollution control measures in the sustainable use category, such as promotion of sustainable agriculture. If the written objective is to reduce negative impacts, it should be included here; if it is to improve biodiversity in production systems it should be in "sustainable use".	Protection and remediation of soil, groundwater and surface water
		Protection of ambient air and climate
		Other pollution reduction measures
		Waste management
		Wastewater management
		Coastal and marine pollution debris management
Protected areas and other conservation measures	*In situ* and *ex situ* measures to protect and safeguard biodiversity at genetic, species and ecosystem levels.	Protected areas management, including indigenous and communities conserved areas
		Expansion of protected areas including transboundary areas and biodiversity corridors
		Landscape/seascape conservation, including valuable ecosystem services
		Poaching, wildlife trade and CITES
		Loss of valuable habitats, including targeted conservation of species outside PAs
		Ecosystem connectivity
		Ex situ conservation of species (botanical gardens and gene banks)
		Other effective area-based conservation measures (OECMs), including buffer zones
Restoration	The restoration or the rehabilitation of degraded ecosystems for biodiversity and ecosystem services objectives.	Reintroduction of species - consider specific sectors under this (e.g., mined out areas, reforestation)
		Site redevelopment and engineering
		Site management
		Post-disaster relief
Sustainable use	Sustainable use of renewable natural resource as defined by the CBD. This category is distinguished from the green economy by its focus on ecosystem services, primarily production and the underlying support services. Activities are targeted towards improving biodiversity outcomes in coordination with other co-benefits related to natural resource use.	Agrobiodiversity
		Sustainable agriculture
		Sustainable aquaculture
		Sustainable fisheries
		Sustainable forestry
		Sustainable land management (UNCCD and multiple uses)
		Sustainable marine and coastal management
		Sustainable rangelands
		Sustainable wildlife

Annex III: Example of Attribution Rates Adopted by BIOFIN Countries

Annex III presents the attribution rates adopted by BIOFIN countries in a table format. While the table below can be used as a reference to discuss and define national attribution rates, it does not constitute an advice or recommendation to apply those rates. The attribution exercise remains highly contextual. BIOFIN will continue to work with its partners on providing more detailed guidance on biodiversity attribution rates.

CBD Targets	Biodiversity Attribution Rates			
	HIGH (90% to 100%)	**Medium High (49% to 89%)**	**Medium Low (10% to 49%)**	**Low (less than 10%)**
Conservation	Protected areas (marine, terrestrial/forest) including establishment, management, research, surveys and assessments, *in situ* conservation, restoration, policy and planning, and setting up information systems	Promoting and institutionalizing ecotourism		Defense and national security including enforcement of environment laws
	Species conservation	Forest fire prevention		Integration of biodiversity in formal curriculum
	Ecosystem conservation and management including coastal resources and forest resources	Monitoring and evaluation		Participate/monitor/ensure payments and compliance with environment treaties
	International agreements (negotiation, policy development, compliance monitoring, reporting)	Capacity-building for state employees		
	Plant genetic conservation, research, protection, awareness-raising			
	Forest management and engineering, accounting and biological assessment in the field of forestry and wildlife			
ABS	Policy development/Nagoya Protocol ratification	Ensuring indigenous people's rights including land titling and securing tenurial instruments	Synthesizing, developing, and transferring local knowledge that leads to the development of traditional and herbal products, medicines, treatments and therapies	Conducting research for public health
	Free and prior informed consent/consultations		Research on biosafety	Mainstreaming ABS
	ABS implementation including contracting, determination and collection of fees and royalties, patents			
	Empowering local communities through business development for biodiversity-based economic development			
	Capacity-building for ABS			
	Maintaining genetic resources database			

CBD Targets	Biodiversity Attribution Rates			
	HIGH (90% to 100%)	**Medium High (49% to 89%)**	**Medium Low (10% to 49%)**	**Low (less than 10%)**
Sustainable use	Mainstreaming agrobiodiversity conservation and use	Forestry research including commercial species, clonal nursery maintenance	Prevention of IAS, propagation of high value crop varieties	Mainstreaming of climate change, disaster risk reduction, sectoral and local development planning, investments in climate-sensitive sectors such as water resources , agriculture, forestry, coastal and marine resources, health and infrastructure
	Conservation and sustainable use of microbial diversity	Forest management including plantations, use of alien and indigenous species	Preparing and implementing a comprehensive National Fisheries Industry Development Plan;	Agriculture and fisheries education
	Nature protection permits to replenish river systems	Maintaining ecological limits of lake ecosystems, ensure permitting system, generate revenues from user fees	Monitoring and reviewing joint fishing agreements	Land tenure improvement including shift to organic agriculture
		Maintaining national parks, tourism programme, including research and product development	Establishing and maintaining a comprehensive fishery information system	Water resources conservation
		Enforcing all fisheries laws including commercial fishing	Establishing a corps of specialists in monitoring, control and surveillance (MSC) of fisheries activities	Fisheries research focusing on commodity roadmaps
		Maintaining sustainable forestry management standards	Border area and heritage site management	Allocating budget and implementing climate tagging
		Botanical tourism site enhancement	Development of seed production	Integration of biodiversity in formal curriculum
		Community forestry	Vehicle emission testing	Pollution management
		REDD	Awareness programmes on climate change impacts	Disposition of foreshore lands
		Other international obligations (UNFCC, Kyoto Protocol, Montreal Protocol, UNCDD, Minamata Protocol)	Policy development on climate change (INDC and NAMA preparation)	Setting of environmental standards, rehab and pollution thresholds
		National Green Reporting System establishment and reporting	Addressing climate change impacts on marginalized agricultural communities	Solid waste management
		Green Procurement and Policy guidelines	Controlling the consumption and imports of HCFCs	Mapping and oceanographic surveys
			Establishment of a system for the management of electrical and electronic waste through extended producer responsibility	Issuing water permits; protecting and utilizing surface and groundwater
			National post-consumer plastic waste management project	Implementing sustainable livelihoods programme

CBD Targets	Biodiversity Attribution Rates			
	HIGH (90% to 100%)	Medium High (49% to 89%)	Medium Low (10% to 49%)	Low (less than 10%)
			Plastic waste management programme	Promotion of cash crops
			Establishment of green accounting mechanism	Issuance of land titles to support farming and poverty alleviation
Sustainable use			Promoting innovative low interest financial scheme/s	Coastal and sea water quality monitoring
			Incentives for environmentally friendly investments	Coastal erosion prevention
			Cleaner production applications	Inland water quality monitoring
				Promotion of zoos for tourism
				Management of water reservoirs
				Promotion of green agriculture town
				Sustainable urban planning
				Development of underground water protection facilities and industrial effluent treatment
				Riverbank rehab
				Water quality monitoring of major river bodies

Endnotes

1 They include categories from the UN System of Environmental-Economic Accounts (SEEA) Classification of Environmental Protection Activities (CEPA) and Classification of Resource Management Activities (CReMA), but they are not 100 percent comparable due to the BER's inclusion of indirect expenditures, see below.

2 Also called a spending review, sectoral spending analysis or comprehensive spending review, among other terms.

3 See http://www.undp.org/content/undp/en/home/blog/2018/Indonesias-green-sukuk.html

4 World Bank (2008). Investing in Indonesia's health: challenges and opportunities for future public spending. Available from: http://documents.worldbank.org/curated/en/875621468284350480/pdf/463140WP0HPER11086B01PUBLIC100final.pdf

5 Bird, N., Beloe, T., Hedger, M., Lee, J., O'Donnell, M., & Steele, P. (2011). Climate Public Expenditure and Institutional Review: A methodology to review climate policy, institutions and expenditure. An ODI and CDDE methodological note. Available from: https://www.cbd.int/financial/climatechange/g-cpeirmethodology-undp.pdf

6 Kazoora C. (2013). Public Expenditure Review for Environment and Climate Change for Rwanda, 2008-2012. Available from: https://www.unpei.org/sites/default/files/e_library_documents/Rwanda_PEER_2013.pdf

7 World Bank and Australian Aid (2012). Philippines: Basic Education Public Expenditure Review. Available from: https://openknowledge.worldbank.org/bitstream/handle/10986/13809/71272.pdf?sequence=1&isAllowed=y

8 MEA (2005). Millennium Ecosystem Assessment Ecosystems and Human Well-Being. Available from: http://www.millenniumassessment.org/documents/document.356.aspx.pdf

9 E.g. debt payments as percent of GDP, foreign exchange rate, and poverty and employment statistics.

10 PER refers to the Public Expenditure Review as that was the focus of this analysis. PNBV is the Spanish translation of the National Development Plan – literally "National Plan for Good Living". Source: BIOFIN Ecuador.

11 There may also be expenditures that unintentionally benefit sustainable biodiversity management. Without any written intentional link to the NBSAP or other biodiversity or ecosystem objectives, their inclusion becomes very subjective. However, where these impacts are identified, it is worth noting, as unintentional positive impacts could become intentional if they are recognized and mainstreamed into the actors' plans.

12 OECD Rio Marker for Biodiversity. See http://www.oecd.org/dac/environment-development/rioconventions.htm

13 Convention on Biological Diversity, Article 1. Objectives. Available from: https://www.cbd.int/convention/articles/default.shtml?a=cbd-01

14 SEEA. Available From: http://unstats.un.org/unsd/envaccounting/seea.asp

15 UN, E., & FAO, I. (2014). System of environmental-economic accounting 2012: central framework. New York: United Nations. Available from: http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_Cf_final_en.pdf

16 SEEA: Available from: https://unstats.un.org/UnSD/envaccounting/eea_project/default.asp

17 Access and Benefit Sharing (ABS) was part of Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services under the CBD strategic plan, but separated out in the previous BIOFIN categories.

18 OECD, OECD Statistics on External Development finance Targeting Environmental objectives including the Rio Conventions. Available from: http://www.oecd.org/dac/environment-development/rioconventions.htm

19 UN Global Compact and others (2015). Private Sector investment and Sustainable Development. Available from: https://www.unglobalcompact.org/docs/publications/Private_Sector_Investment_and_Sustainable_Development.pdf

20 UNEP Finance Initiative and Global Canopy Programme (GCP) (2012). The Natural Capital Declaration. Available from: http://www.naturalcapitaldeclaration.org/the-declaration/

21 Especially large international NGOs such as World Wildlife fund (WWF), Conservation International (CI), The Nature Conservancy (TNC), and the Wildlife Conservation Society (WCS).

22 e.g. World Bank Group, GEF, UNEP, bilateral aid organizations, such as GIZ, DANIDA, SIDA, DFID, USAID, etc.

23 See https://quickonomics.com/calculate-gdp-deflator

Chapter 5

Biodiversity Financial Needs Assessment

5.1

Introduction

This chapter provides in-depth guidance on undertaking a Biodiversity Financial Needs Assessment (FNA). It is organized in four sections. This first introductory section describes the FNA's goals and objectives, overall process, and links to other chapters. Section 2 covers costing terminology, principles and methods, and Section 3 describes the steps for implementing the FNA. Conclusions, recommendations, and awareness-raising are described in Section 4.

5.1.1 Objectives

The FNA aims to make a comprehensive estimate of the financial resources needed to achieve national and subnational biodiversity targets. National biodiversity targets are typically articulated in biodiversity plans and other key national planning instruments, such as national development plans, sectoral development plans and climate change plans. The FNA compares these financial needs to projected biodiversity expenditures over a medium- to long-term planning horizon as part of an assessment of unmet financing needs.

The FNA seeks to specifically:

1. Clarify strategies and actions in national biodiversity plans (i.e. NBSAPs) to describe "costable actions" that link to expected biodiversity results in a logical framework that lends itself to prioritization and detailed costing.
2. Cost actions by defining unit costs and quantities over the target time period.
3. Use this costing as a basis to develop detailed budgets to make a stronger case for biodiversity finance – linking the costs of achieving specific results to the national budget processes.
4. Prioritize biodiversity strategies and actions based on specific biodiversity and cost criteria.
5. Estimate unmet biodiversity financing needs.

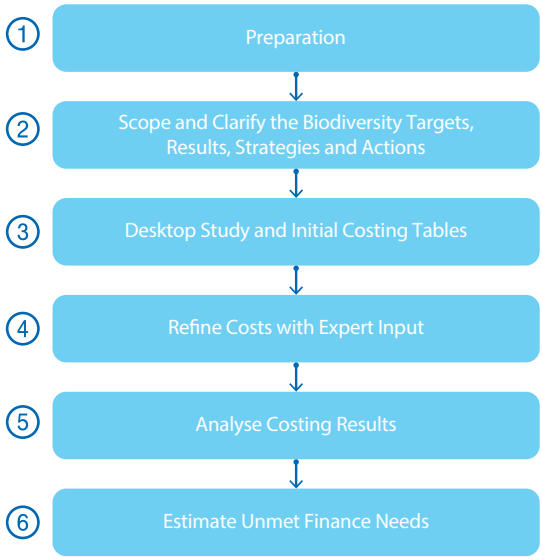
The CBD produced high-level estimates of the financing necessary to achieve the Aichi Biodiversity Targets on a global level (see Chapter 1). In contrast with this global assessment, the FNA is a bottom-up approach seeking to produce a detailed and realistic costing of the targets in national biodiversity-related strategies and action plans. This approach is meant to answer the question: "What financing is really needed for the country to achieve its stated biodiversity targets?" It starts from zero and builds a costing estimate of the full set of human resources, capital investments and financial resources needed. It is aspirational in that it identifies the necessary resources required for effective delivery, even if this may not be immediately achievable in practice.

Each country may have its own approach to medium- and long-term costing. The BIOFIN process should seek to support the existing approaches to ensure compatibility and alignment. In many countries, environmental budgets are vague and not based on detailed cost estimates on the investment needed to achieve prioritized targets. Hence they lack strong justification, lessening their ability to garner the support from ministries of finance and other budgetary decision makers. This has especially been the case with traditional NBSAPs, most of which never included detailed budgets or costing estimates at all. As a result, finance for NBSAPs was rarely adequate, and their results correspondingly poor. This is why the CBD has encouraged countries to apply an FNA-type approach to develop a detailed and realistic resource needs assessment and budgets for their NBSAPs.

5.1.2 The FNA process

The FNA's objectives are not simply to generate the best costing process for the NBSAP and other relevant national related strategies, but also to assess finance needs through a process, shown in Figure 5.1. This will be accomplished with a combination of a sound methodological approach and working with the right timing,[1] format, and partners using a participatory approach. Key partners include the finance ministry, central planning agencies and other key stakeholders identified in Chapters 2 and 3.

Figure 5.1: The Financial Needs Assessment Process



The estimation of financial needs should be done at the national level, linked to national economic development planning and public finance ("fiscal") management. It should be broken down to the level of the country's biodiversity results (called "targets" or "outcomes"), strategies, and actions. This is so finance needs can be assessed at a level of detail that allows:

- Finance sources and solutions to be developed or redirected,
- Subsequent assessments of cost effectiveness, and
- Understanding of the required scale and timing of biodiversity actions.

Ideally this detailed FNA methodology will encourage improved performance through more effective biodiversity planning, budgeting and fiscal management (See Box 5.1).

Box 5.1: BIOFIN and Public Financial Management

Public financial management covers several aspects of government planning, including both revenue and expenditure management. The FNA exercise can be linked to a country's public financial management process, and be aligned particularly with any reforms that are underway, to advance the mainstreaming of biodiversity finance into public finance and budgeting. The FNA should take into consideration the following planning and finance issues (as identified under the PIR, Chapter 3):

1. Mid-term or long-term budget and expenditure frameworks
2. Integration of Sustainable Development Goals into national planning and budgeting
3. Approaches to detailed performance-based and results-based budgeting
4. Decentralization
5. Fiscal responsibility and transparency, and other rules
6. Fiscal councils and new fiscal risk management initiatives.

BIOFIN acknowledges that each country takes its own approach to planning, budgeting, and fiscal reforms. As such, the FNA methodology seeks to provide approaches that can be employed in a wide range of country processes. BIOFIN's approach is in line with international principles in public financial management as well as well-documented new trends in public finance.[2]

5.1.3 Links to other chapters

The FNA uses information and insights developed throughout the national BIOFIN Process. The FNA builds on and should be compatible with the national planning and budgeting practices and approaches that have been identified in the PIR (Chapter 3). The process also relies on the analysis of the NBSAP and other strategic national documents, strategies and priorities assessed in the PIR. The FNA helps refine and apply the system used for categorizing, attributing and tagging expenditures in the BER (Chapter 4), where possible. A sound process for estimating biodiversity finance needs, allowing comparisons of specific finance needs with available resources, can guide the prioritization, development and implementation of sound finance solutions in the BFP (Chapter 6).

5.2

Methods for the Financial Needs Assessment

This section describes several principles and methods used to undertake the FNA. It starts with the definition of terminology and principles, and then looks at costing approaches. Detailed implementation steps are described in the following section.

5.2.1 Terminology and principles

The terms used in this chapter have some established meanings within public finance, but they can mean different things to different stakeholders. This section clarifies key terms and the Glossary defines others.

First, the detailed costing outlined in the FNA could be termed a "bottom-up" approach in comparison to the CBD High-Level Panel "top-down" financial needs assessment (see Chapter 1), but the term bottom-up budgeting can also refer to local administrative budgeting. The FNA focuses on direct costs or financial costs unless explicitly stated. This contrasts with an economic definition of costs, which, in addition to financial costs, can include indirect costs and welfare implications (such as "opportunity costs"; see Appendix III on Cost-Benefit Analysis). While BIOFIN recommends the use of cost-benefit analysis (or other multivariate approaches) to build a case for biodiversity investments, the FNA does not require it.

Certain actions must be translated into detailed "costable actions" to achieve the level of detail needed for accurate costing. Costable actions can be defined as "*specific actions or activities that seek to achieve a clear or quantified result, the estimated cost of which can be calculated based on their description, research, or expert opinion*".

Finally, BIOFIN encourages the use of the term "investment" in biodiversity to highlight that resources allocated to biodiversity management are not simply costs without returns. Budget allocations to biodiversity management can protect or enhance natural assets that provide future economic benefits, similar to investments in infrastructure or health care. However, the term investment also refers to capital expenses as compared to recurring or operating expenses in the budget.

BIOFIN encourages FNA to be:

- **Comprehensive** – to cover all aspects of sustainable biodiversity management[3] even if it requires the scope to go beyond national biodiversity strategies.
- **Accurate** – to be based on justifiable costs and actions directed specifically at achieving identified results.
- **Detailed** – to organize actions under targets or results, and results under strategies.
- **Prioritized** – to rank activities or results in terms of: 1) importance for achieving national biodiversity vision and targets, 2) potential net benefits of the investment, and 3) other national priorities.
- **Aligned** – to be compatible with national budgeting processes and public financial management provisions to enable effective results uptake.

5.2.2 Approaches to costing

Several approaches can be used to construct a cost basis (costing) for a strategy or programme. They all relate an input of costs allocated to certain activities to some output in connection with strategies/targets, and ultimately results (outcomes). Different costing approaches have different strengths and weaknesses and uses, and several are often used in combination. They are described here, and summarized in Table 5.1:

Incremental budgeting approach (IBA)

Perhaps the most common approach in use. It provides a contrast to the FNA's focus on "costing" rather than budgeting since budgets are constrained by available funding, whereas the costing in the FNA should indicate realistic needs independent of available budgets. In incremental budgeting, the previous year's budget is taken as a starting point and a percentage increase (or decrease) is applied. This approach is not recommended because it does not adequately address the basic principles outlined above.

Historical projections

Historical costs are used to project future costs. This could differ from incremental budgeting if it builds on detailed historical activity or results-based costs. Where detailed historical costs are known, these can be used to estimate future costs for specific activities. For example, the costs for replanting a hectare of mangroves in the past can be used to estimate the costs of replanting a targeted amount in a specific country or area in future. When using historical costs, it is important to: 1) make sure they are accurate and cover the entire cost of an activity; 2) base the new costs on specific biodiversity management targets (i.e. number of hectares, days of ranger missions); and 3) account for inflation, diminishing marginal returns, economies of scale and any other issues that would affect future costs.

Cost modelling

Estimating future costs based on quantitative models with input variables. Models are almost always used for costing and can be as simple as multiplying a unit cost by the number of units needed. However, this approach here generally refers to complex, potentially non-linear, models with multiple variables. For example, models for estimating protected areas costs based on their area, distance from cities and local purchasing price parity, have been derived from historical costs and used to make future costing predictions.[4] Complex models supported by the literature may be useful for the FNA, especially in cases where actions are new to a country with no available historical estimates.

Activity-Based costing (ABC)

Estimating budgets based on specific programmes and activities identified and the costs related to those activities. Administrative overheads are tied to activities more closely than in traditional budgeting (which simply adds on administrative costs as a supplement). This is useful when details of biodiversity activities are well known (and quantified), tracking project or programme "outputs" (immediate results of actions) is desired and the "outcomes" (longer-term results) of activities are difficult to quantify or track. For this approach, it is useful to have a catalogue of costing units to help cost activities in an integrated manner.

Results-Based costing (RBC)

An expansion of activity-based costing where all costs are associated with specific medium- to long-term results, so that the "outcome" of the activity is the budgeting focus and not the activity or short-term outputs. There is a strong push towards this type of costing in national budgeting processes. It is also called "performance-based budgeting," because it allows the finance ministry and central planning agencies to more easily track performance. RBC is described in further detail below. This approach could also be framed as a finance solution to improve efficiency and cost-effectiveness in biodiversity spending.

Box 5.2: Moving from Incremental to Results-Based Budgeting - Peru

Peru's "National Budget System Reform Strategy"[5] promotes the use of results-based budgeting (RBB) to ensure the government provides people with the planned quantity and quality of goods and services. The RBB strategy demands:

- Clear and objective definitions of the results to be achieved;
- Commitment by government entities to achieve these results;
- Clear responsibilities in implementing instruments and accountability of public expenditure; and
- Mechanisms to generate information on products, results and management efforts.

This strategy is implemented by the Ministry of Economy and Finance through: i) budget programmes, ii) performance monitoring based on indicators, iii) independent evaluations, and iv) management incentives.

Table 5.1: Summary of the Costing Approaches

Costing Approach	Common Use	Opportunities	Challenges
Incremental Budgeting Approach	Annual increments allocated, most budgets	Gradual change	Limited vision, lack of connection with results
Historical Projections	Empirical data used for budgeting	Accurate, based on real experience	Not comprehensive, may not be optimal but based on limited budgets
Cost Modelling	Extrapolation from small cases, budgeting new activities	Alternative scenarios, understanding cost effectiveness	Lack of empirical data, country or geographic specificity
Activity-Based Costing	Project budgeting, programme budgets	Detailed bottom-up budgeting	Not necessarily focused on outcomes
Results-Based Costing	Planning by objectives, log frame, programme- based budgeting	Best practice, detailed, focused on outcomes	Advanced approach, not used in most countries

BIOFIN encourages building up budgets from smaller costable actions and budget line items. Using a catalogue of unit costs is also useful in order to base activity cost estimations in well-defined categories such as human resources, infrastructure, equipment, inputs, consultancies and public consultations, among others. In future, it may be possible to build refined models for future biodiversity management budgeting needs, based on data from a wide range of BIOFIN countries and biodiversity activities linked to strategies and results, similar to models currently used in health care and education. In all cases, unit costs should be based on government norms, research and published documents, and be peer reviewed or validated. Economics and biodiversity literature provides some useful cost estimates for particular actions such as reforestation costs, coral reef restoration, and seagrass restoration. (See Box 5.3).

Box 5.3: Cost Modelling to Estimate Biodiversity Management Costs - Thailand[6]

Cost models can derive cost estimates for defined actions. They can help introduce comparable unit costs for different actions that may be chosen to achieve the same objective. The options for coral reef restoration and coastal erosion prevention have been estimated by Thailand using a modelling tool that may be adapted to other countries. Note that the cheapest actions are not necessarily the most efficient or cost-effective.

Coral Reef Restoration Costs

Restoration Methods	Unit Cost (Baht/Rai)	Unit Cost (Baht/Ha)
Transplanting on concrete	106,400	17,024
Providing Artificial Reef	7,560,000	1,209,600
Floating Nursery	18,720,800	2,995,328

Source. N. Thongtham. Unpublished Report. Department of Marine and Coastal Resources, Thailand.

Coastal Erosion Prevention

Protection Measures	Unit Cost (Baht/Meter)	Durability and Effectiveness*
1. Geo-bag/Geo-tube/Geo-container	9,300	++
2. Bamboo Wall	3,850	+
3. Concrete Sea Wall	31,600	+++
4. Revetment	13,300	+++
5. Offshore Breakwater	200,000	+++
6. Sand Sausage	30,000	++
7. Groin (Groyne)	70,000	++
8. Gabion Box	18,000	+

** Note: Effectiveness depends to a large extent on the physical terrain of the site; different protection measures are suitable for different physical conditions.*

BIOFIN recommends RBC, or elements from it, in line with best practice in public budgeting. Working backwards from impacts to outcomes, outputs, and actions is a common planning approach and is part of a logical framework methodology. Many countries are moving toward RBC to ensure good governance and hold different government agencies to high standards.[7] Early adoption of RBC-RBB reforms in the ministry of environment can help to achieve cost-effectiveness, and also qualify priority institutions for additional allocations. The extent to which results-based costing is adopted or appropriate for the FNA will depend on each country's capacity and appetite, particularly in the finance ministry.

5.3

FNA Implementation Steps

The Financial Needs Assessment has six steps:

STEP 5.1

Preparation

Establish a team with appropriate skills and capacity to conduct the FNA, define key stakeholders and roles, establish a consultation plan, and begin consultations on methodology.

STEP 5.2

Scope and clarify the biodiversity targets, results, strategies and actions

Translate the NBSAP and other national priorities to a logical framework that converts the biodiversity results and indicators into "costable actions"; make initial prioritization of biodiversity results and strategies.

- **5.2A:** Review and refine the scope
- **5.2B:** Use a logical framework to structure and clarify actions and results
- **5.2C:** Prioritize initial pre-costing

STEP 5.3

Desktop study and initial costing tables

Identify unit costs; research unit costs for common budget items (salaries, vehicles, human resources, infrastructure, etc.).

- **3A:** Identify budget units and standard costs
- **3B:** Build cost tables

STEP 5.4

Refine costs with expert input

Refine cost estimates and the results of the costing using individual expert consultations and then a workshop; validate and elaborate quantitative details of costable actions, results, indicators; conduct tagging exercise; refine initial models and assumptions.

STEP 5.5

Analyse costing results

Prepare a multi-annual direct cost statement, subdivided by strategies, targets, sectors and actors etc. depending on stakeholder needs; compare costs to biodiversity priorities.

STEP 5.6

Estimate the unmet finance needs

Compare the detailed costing statements with the projected available financing or estimated future expenditures as calculated during the BER (Chapter 5); analyse the unmet financing needs by national strategy or targets, BIOFIN categories, organization, etc.

Step 5.1: Preparations

During the FNA preparation phase, it is necessary to identify the most important stakeholders, experts and key decision makers to which the results of the assessment can be addressed. This stakeholder engagement effort builds on the work of the PIR (Chapter 4) and the BER (Chapter 5). National governments are likely to finance the bulk of the national biodiversity strategies and action plans through the existing budgeting processes. As such, the ministries of finance and planning should be considered principal decision makers and actors involved in the costing process. Other agencies, ministries, and organizations previously discussed should also be included.

These partners should be kept in mind as potential "owners" of the FNA, and their involvement can be aided by linking the FNA to existing fiscal management in a country (see Box 5.1).[8] For example, in some cases ministries of finance are willing to consider increased funding requests from ministries of environment only with further evidence and stronger data to understand the return.

Other elements in the preparation phase include:

- Form a working group containing experts to work in tandem with the national BIOFIN team.
- Draft a work plan including a timeline and stakeholder consultations. A series of consultation workshops a variety of stakeholders from a wide array of sectors is recommended.
- Review methodology and seek lessons from other countries.
- Identify potential data sources through initial outreach to stakeholders.

Step 5.2: Scope and clarify the biodiversity targets, and actions including the NBSAP

The scoping and clarifying of biodiversity targets, national strategies and specific action plans (including the NBSAP) required in this step goes beyond the initial work described in Chapter 3, and includes the following:

- Review and refine the scope
- Use a logical framework to structure and clarify actions and results
- Prioritize initial pre-costing

Step 5.2A: Review and refine the scope

During the PIR (Chapter 3) there will have been a detailed review of the NBSAP and other key national biodiversity-related strategies. If the NBSAP was determined insufficiently comprehensive for the costing exercise, other national plans and strategies should be included at this stage. The main documents to review alongside the NBSAP in this step were identified in the PIR under the section covering the national biodiversity vision. The scoping will also assess how the BIOFIN Process can support the refinement of the above strategies and plans, including clarification of quantitative targets and indicators to define costable actions. Many countries have used the NBSAP as the starting point, but some (e.g. Chile, Fiji, Malaysia) have expanded their analysis to better mainstream biodiversity into national development plans.

Each country should choose the most appropriate scope of the FNA based on:

1. Comprehensiveness and quality of the NBSAP;
2. Greatest biodiversity impact potential; and
3. Stated interest of important decision makers.

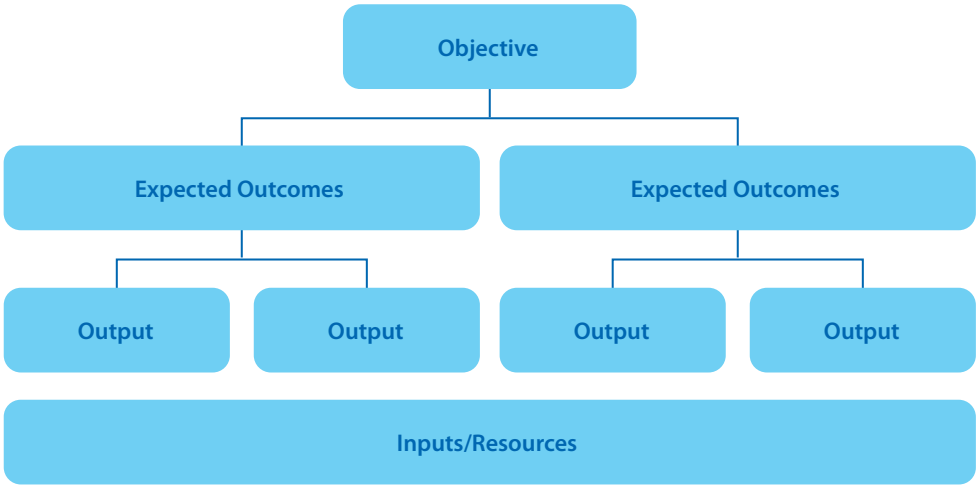
NBSAPs and other strategic documents tend to include actions are either difficult to cost or stated in general terms. If the action or target is too broad, it should be divided up into its elements and more specific activities that will contribute to achieving stated results. A generic strategy such as "protect endangered species" would need to be linked to a specific result statement such as "decrease poaching incidents of elephants by 30 percent", and a related set of outputs and activities (such as increasing the number of rangers, strengthening the prosecution of illegal wildlife trade cases, etc.). Using a costing catalogue can help translate these actions into costable units. Also, not all activities or actions are costable. Some are political or coordination decisions with zero or minimal costs attached. The team should decide if these actions should be included in the FNA; countries may prefer to include them even though achieving them does not depend on funding allocations.

It is important to link the FNA process to results that are meaningful to decision makers (e.g. water resources management, livelihoods), making them more likely to act. The FNA could become, when relevant, the baseline and guidance to develop an actual budget. This can be facilitated by using government budget categories and unit costs for the costing process, building on existing national and subnational budgeting and planning processes, and engaging with the right stakeholders and decision makers throughout the process. A catalogue of costs is a useful tool in this process. See Box 5.4.

Step 5.2B: Use a logical framework to structure and clarify actions and results

Once everyone agrees on the FNA's scope, biodiversity actions should be framed into a logical structure that is clear, quantifiable and written in the right language (accounting/finance). For this purpose, all relevant biodiversity targets, strategies, results, and actions, should be identified and organized into a logical framework to assist with the costing exercise. The terms used in this framework to assist the costing reflect those used in results-based management (See Figure 5.3).[9]

Figure 5.2: Hierarchy of Inputs to Objectives



The terms in Figure 5.2 may not be evident in an NBSAP or other action plan, but they can be derived by translating information from the plan's targets, strategies, sub-strategies and actions.

Table 5.2 provides some guidance on translating NBSAP terms into classic logical framework terms.

Table 5.2: Logical Framework to Structure NBSAP Results for Costing

NBSAP		Links	Costing Structure Elements
Element	**Description**		
National Biodiversity Targets	High-level targets for the country to achieve the NBSAP and other national strategies. Often reflect Aichi Biodiversity Targets.	The elements of the NBSAP may or may not translate effectively to the costing structure, but they should always be linked in a consistent order.	Targets (Results)
Strategies (and Sub-strategies)	NBSAP categories that lead to targets (ideally).		Outcomes
Actions	A description of how strategies and sub-strategies are implemented.		Outputs
Costable Actions	Disaggregation of actions into specific actions that can be costed with minimum ambiguity.		Outputs

Inputs/Resources/Unit costs are commonly used in the country budgeting process. They include both recurring and capital costs. This can be valuable input for countries wishing to develop a budget based on the costing process.

It is essential to provide specific, quantified where possible, results for all main strategies. Some countries, like Mexico, identified key milestones to achieve the expected action or results in their NBSAPs and costed these milestones. This resulted in a simpler process, considering their NBSAPs did not have clear results or outcomes. Once the results are defined clearly, the actions can be examined to ensure that they are the most appropriate to achieve those results. Putting content into the logical framework (Table 5.2) and defining quantitative outcomes and other results requires a consultative process with NBSAP stakeholders and other partners.

To cost an action, it is necessary to understand various details about that action, including the timeline, scale, location, responsible organization, etc., that help costing in Step 3. This detailed costing is the main objective of the FNA process. If the actions described in the NBSAP are too vague, lack quantitative results or lack spatial definition, estimating budget costs will be arbitrary, indefensible, and thus risk rejection by finance decision makers. In most countries, the FNA process has provided valuable input for decision makers on how to better design biodiversity action plans oriented towards more concrete results and expected outcomes. This approach makes actions more traceable and costable and, ultimately, can support a prioritization process (see Step 2). For example, in Table 5.3, alternative actions designed to reduce white rhino poaching are compared. Even before making detailed costs estimates, we can compare different approaches and assess approaches in a consultative manner.

Table 5.3: Analysis of Alternative Actions to Achieve a Result

Expected result	Optional actions to achieve result	Analysis				
		Rapid impact	Long-term impact	Cost	Most cost effective short-term option	Combination of all or several options
Decrease poaching incidents of white rhino by 30%	Public education	Low	High	High		X
	Increase patrolling staff and patrolling equipment	High	Medium	Medium	X	X
	High fines	Low	High	Low		X
	Legal reform to include illegal hunting of white rhino as a criminal offense	Low	High	Low		X

The clarified actions and results are taken forward to detailed costing, starting in Step 3. Table 5.4 provides an example of turning a result into a costable action, from Ecuador.

Table 5.4: Example of Results, Strategy, Costable Actions/Key Performance Indicators (KPIS)-Ecuador

Prioritized Target, Result	Strategy	Costable Action (and KPI)	Cost Details
RESULT 2: Biodiversity costs are incorporated into national accounting systems, and national and decentralized development plans, in order to support poverty reduction and improvement of the new national productivity scheme.	02.1. Introduction of biodiversity value into policy formulation cycles	A dedicated unit to address Economic Valuation and Sustainable Finance (UVESF) will be established at the Ministry of Environment (MAE).	Technical team of the UVESF: One senior economist, one finance expert, three junior accountants
		At least three valuation projects and other stand-alone initiatives are identified in the MAE (SCAN, Coastal/ Marine Project, PSF) to be managed by the new UVESF.	Operational costs
		Key national environmental accounts are completed.	Research plan (studies)

Step 5.2C: Prioritize initial pre-costing

A prioritization exercise should be implemented during and after the process of refining the NBSAP actions into costable actions. This should identify those strategies and activities that are: i) the most likely to achieve results; and ii) the most important for achieving the biodiversity goals and vision of the country. Prioritization criteria will differ among countries and can be elaborated by stakeholders through the consultation process described above, and converted into a scoring system.

This is an initial prioritization based on the impact on biodiversity. It does not consider costs. The output is a list of the most important strategic priorities amongst biodiversity targets, strategies, and actions. The list may be ranked, or simply grouped (e.g. into high, medium and low priorities). Higher priority strategies and actions may be programmed for earlier delivery compared to lower priority strategies, and this will influence the timing of the financial needs analysed in steps 3-5. The proposed prioritization exercise does not seek to eliminate low priority actions.

Box 5.4: Building a Catalogue of Costs

Mexico identified a set of questions to decide if NBSAP actions were feasible to cost, e.g.: "Does the action have concrete activities for its implementation?" and "Can the action be costed and assigned a particular unit cost?" By answering these questions, the actions were classified as 'highly feasible to estimate the cost', 'feasible to estimate the cost', or 'not feasible to estimate', after which the BIOFIN team decided how to proceed. The actions that could not be costed included political will, to which is difficult to assign a quantitative value. This process was validated with country stakeholders through validation workshops and expert consultations. Other actions were not costable because they required drafting a plan before implementation, but the plan was yet to be drafted. In that case, only the drafting could be costed.

Step 5.3: Desktop study and initial costing tables

This step will result in the production of initial costing tables for the biodiversity targets. Specific substeps include:

- Identify budget units and standard costs.
- Build cost tables.

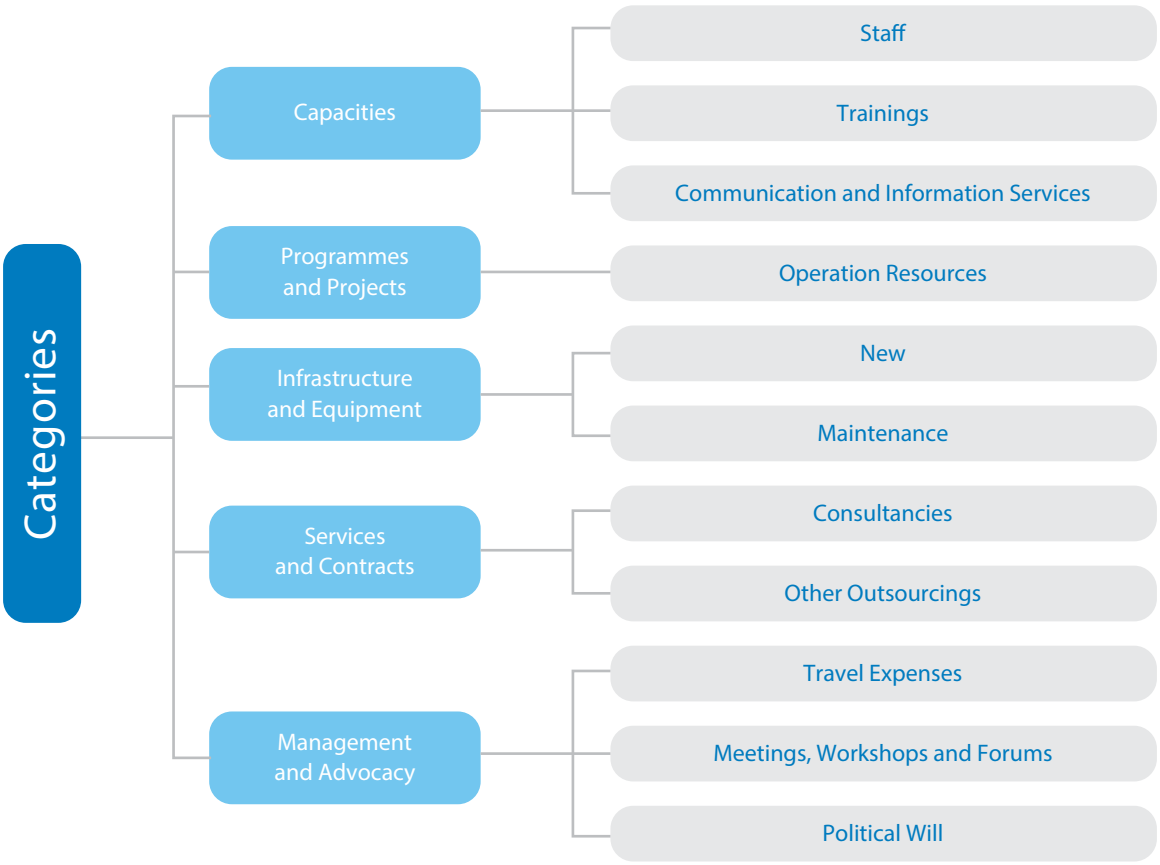
Step 5.3A: Identify budget units and standard costs

Each government has a standard set of budget (or cost) units and account codes. These may also be termed line items, budget categories or budget accounts. An FNA that abides by government practices and guidelines is more likely to be integrated into budgeting processes and, therefore, is strongly recommended.[10] Standard costs relevant to costing biodiversity targets (i.e. salaries, vehicle miles, etc.—see Table 5.5A) will usually be organized by these country references. Most budget structures are presented in a hierarchy, with summary categories divided into more detailed subcategories. For example, see an extract from the accounts for South Africa as well as the unit cost catalogue developed for the FNA in Mexico in Tables 5.5A and 5.5B.

Table 5.5A: Sample Budget Line Items - South Africa

Summary Categories	Subcategories
Administrative	Advert
	Audit fees
	Bank charges
	Communication
	Maintenance & repair
Equipment	Motor vehicles
	Audiovisual equipment
	Computer hardware & systems
	Emergency/rescue equipment
	Office equipment
Human resources	Salaries
Miscellaneous	Catering
	Venues and facilities
Professional services	Contracts
Travel	Travel and subsistence
	Transport for public events
Transfers	South African National Parks
	Poverty relief projects
	Global Environmental Fund (GEF)

Table 5.5B: Unit Cost Catalogue-Mexico



Standard unit costs can be identified from several sources:

- **Previous budgets and budgeting processes.** National or local plans and strategies have already been elaborated and budgeted. These budgets should be reviewed to scope for data, models, assumptions and approaches that have been used effectively. This includes the review of audit reports.
- **Standard government cost scales.** Unit costs of standard items can be determined from government salary scales, budget guidance notes, and other official and semi-official sources (e.g. on services, salaries, materials, operations, capital purchases, consultant days, miles travelled, etc.). These numbers may be checked with actual data (if available) from the BER to determine, for example, if the price of one salaried person is consistently costed in relation to pay scales.
- **Historical costs.** Costs of biodiversity management actions (reforestation, protected areas management, conversion of conventional agriculture to organic, cost of sustainable wood harvesting relative to clearcutting, etc.) may be available related to historical actions in the country or in similar countries.
- **Cost modelling.** Based on past experience of project modelling (see Box 5.3 in Section 5.1.5). These data should be broken down to the smallest detail possible.

Step 5.3B: Build cost tables

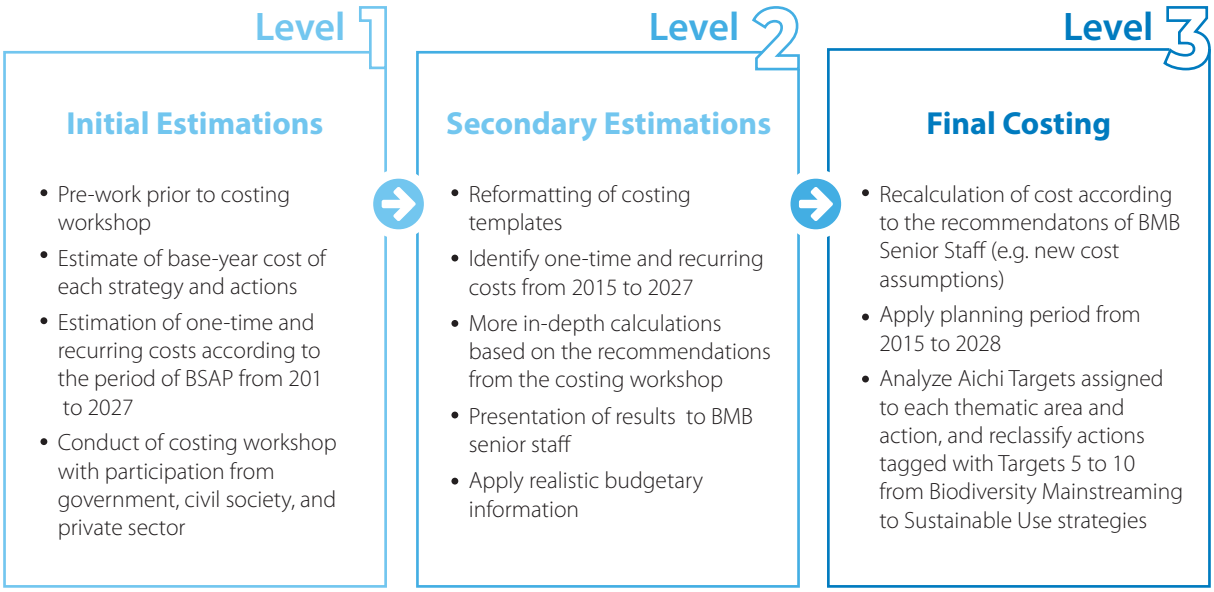
Once all costable activities have been identified and initial unit costs determined, the costing spreadsheets can be built. Costs, when possible, should be divided into recurring (or operating costs) and capital expenditures (or investments). Recurring costs include salaries, fuel, and other expenditures required on a more or less continual basis, and can be projected over time in proportion to changes to effort and number of units, plus inflation. Although recurring expenditures tend to be long term, they may not be annual;[11] the timing of these expenditures should be determined by the NBSAP stakeholders during consultations. Capital expenditures can be one-off or periodic.

All costs should be linked to specific organizations or actors to which they can be earmarked. In some cases, costs are shared among actions (for example, for a fleet of vehicles). Therefore, to the extent that it is practical and possible, those costs should be subdivided and attributed to all the actions to which they are attached. Administrative costs should be attributed to actions and can be assessed as a percentage of total action costs or estimated directly. For example, if an employee performs duties for three major strategies (e.g. restoration, conservation and ABS strategies), then a percentage of the employee's salary should be allocated to each of these strategies.

Step 5.4: Refine cost models with expert input

Once the initial costing models are established, they can be refined through an iterative process. Consultations with experts can be used to refine costing assumptions, base costs and unit numbers. These discussions with experts can also assess the most cost-effective alternative actions and approaches to achieve biodiversity results. Following individual expert consultations, a workshop may be needed for specific actions. The workshop can be used to test, finalize and validate the assumptions, and the choices of costable actions, results, indicators, targets, etc. refined during the FNA process. Figure 5.3 summarizes an example of this multistage process from the Philippines, working through three levels of detail. An example of how this was applied, to progress from a draft to a more specific inland wetlands budget in the Philippines, is provided in Box 5.5. Note that in the future, more complex biodiversity costing models can be developed, with learning from other sectors (see Box 5.6).

Figure 5.3: Using Three Estimation Levels as a BIOFIN Process in the Philippines



Box 5.5: Example of Budgeting for Inland Wetlands Rehabilitation - the Philippines

An example from the Philippines concerns the initial formulation of the NBSAP Action, "*Rehabilitate priority inland wetlands including peatlands*". The costing process involved several steps, as follows:

1. Identification of specific sites: Lake Lanao; Lake Naujan; Lake Malasi; Seven Lakes; Mangyaw; Taal & Pansipit; Lake Maiinit; Lake Danao; Caimpugan Peat Swamp; Lalaguna Marsh; Cagayan River System (Upstream, midstream, coastal); Ilog Hinabangan; Pasig River; Rinconada Lakes; plus 22 marshes.
2. Identification of sub-actions, as follows: i) design and implementation of plan to manage human settlements in wetlands; ii) reforestation; iii) soil conservation; and iv) identification of degraded marshlands.
3. Determination of unit costs and quantities for personnel requirements.
4. Determination of unit costs and quantities for maintenance and other operating expenses: reforestation (peso/hectare); assessment of marshes (peso/unit); soil quality monitoring (peso/unit); maintenance of wastewater management facility (peso/facility).
5. Determination of unit costs and quantities for capital outlay: Peso 10 billion per facility for six wastewater management facilities.

These steps illustrate the process of clarification and quantification of specific actions and their costs, enabling a detailed budget.

Box 5.6: Future Directions for Biodiversity Costing

Note that that models for costing biodiversity results are less developed than in other areas of public policy. For example, the One Health Tool[12] is software designed to inform national health planning. It links strategic objectives and targets of disease control and prevention to the required investments in health systems. The tool provides a single framework for scenario analysis, costing, impact analysis, budgeting and financing of strategies for all major diseases and health system components. Its development in the last decade was overseen by an Inter-Agency Working Group on Costing (UNAIDS, UNDP, UNFPA, UNICEF, World Bank and WHO). Other similar tools have been designed to support costing and investment decisions in economic sectors, including infrastructure, trade and industry.

Biodiversity has a gap: Despite an emergent literature, and several attempts to link biophysical, economic and financial models, there is no available tool BIOFIN can recommend for immediate use. Additional research is being pursued to identify (and develop wherever possible) tools to facilitate results-based costing for biodiversity, linking alternative actions to cost structures and expected results. Moreover, attempts will be made to develop costing models within BIOFIN, on the basis of the analysis of the detailed expenditure reviews and costing exercises completed under national BIOFIN Processes. These will be used to derive cost-coefficients and/or list comparable standard costs.

Tagging Biodiversity Costs

In addition to reviewing and validating the costings, in this step all actions should be tagged to a range of additional categories that allow for further cross comparisons and analyses.

The recommended tags are:

1. National biodiversity targets, themes or strategies;
2. Implementing organization – based on the organizations identified in the PIR;
3. Sectors – agriculture, forestry, fisheries, extractives, etc.; and
4. The 9 BIOFIN categories.

And where possible:

1. SDGs;
2. Aichi Targets; and
3. SEEA categories.

By tagging each action to these categories, it will be possible to calculate the financial needs under each of them (see Step 5.5). Once the consultation process has been completed, the team working on the spreadsheets and tables can update the assumptions and results, and produce the final costing draft for validation by the report's clients.

Step 5.5: Analyse costing results

Costing results can be summarized and analysed in a variety of ways. Firstly, the results should be summarized for stakeholders based on their organization and subdivided across BIOFIN and national categories. Then more detailed analyses can be carried out. Three detailed analyses of the costs are described here: the relative size of different costs, comparisons of ratio of costs to biodiversity priorities, and cost-effectiveness analysis. These analyses provide an input to the screening of finance solutions in Chapter 6.

The most important way to summarize costing results is annual (per year) cost projections (also called cost statements) for each of the main national targets, organizations, BIOFIN categories, and sectors. Different forms of summary results should be presented graphically. These summaries will help stakeholders compare results and gain a better understanding of the distribution of future inputs (costs) required to achieve different outputs (i.e. biodiversity objectives) across organizations, and types of activities.

Relative costs of different biodiversity results

This analysis compares the results of the costs that can be projected or summarized for different groups of actions. Useful comparisons may include costs over different budget cycles, and for different biodiversity results (at a finer level of detail than the summaries of national biodiversity targets). Costs can be analysed and presented for any of the tags applied, and for any level of the biodiversity strategy/action hierarchy covered by the FNA.

Questions that can be investigated include:

- What are the most prominent costs by code/type (e.g. salaries) and institution?
- What is the balance between recurrent and investment costs?
- What are the most relevant cost drivers (e.g. increase in the number of compensation liabilities, price of land)?
- What are the expected trends in marginal costs (are any economies of scale or diminishing returns identified)?
- Are there any patterns in financial needs connected to the types of results/actions or by organization?
- What are the main risks related to the costing assumptions for the relevant period (e.g. currency fluctuations, price of certain services or goods, cost of capital)? This can be calculated using sensitivity analysis.

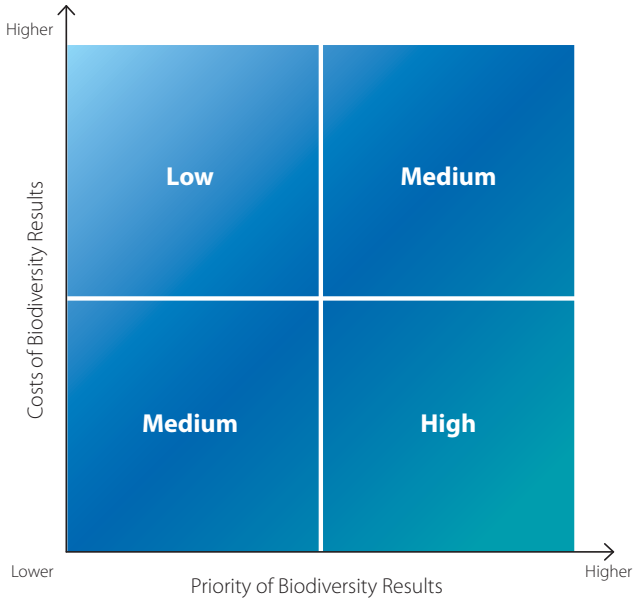
This analysis should also include a reality check of the expected costs, the relationship between cost and desired results, and a quick review of whether there are alternative approaches to achieving the same results. For example, the Philippines initially explored the option of constructing ballast treatment facilities in all the country's major ports, but soon realized that the costs were prohibitive for the Biodiversity Management Bureau (BMB). Instead, they identified partner organizations that the BMB could train, and provide technical support to include ballast treatment facilities in future port upgrading plans.

Comparisons of costs to biodiversity priorities

The costs of biodiversity results can also be organized according to their biodiversity priority score made in Step 2. The prioritization criteria should be focused on specific results (or outputs or outcomes) to be achieved, and not the overall priority of the biodiversity issue in question. For this comparison, the biodiversity results costed can be mapped on a simple matrix with costs and biodiversity priority on the two axes (see Figure 5.4). This can help take into account the relative importance of the different results costed from a biodiversity conservation standpoint.

Higher biodiversity priorities with relatively low costs may help identify the most cost-effective ways to achieve biodiversity goals. Also, this comparison can lead to questions such as how high costs for higher biodiversity priorities could be mitigated (e.g. through economies of scale; management strategies such as competitive outsourcing/bidding; central procurement). Further (optional) comparison of biodiversity results and costs may be useful to select finance solutions for the BFP (Chapter 6). Appendix III discusses the use of cost-effectiveness analysis and cost-benefit analysis to assess biodiversity finance solutions.

Figure 5.4: Sample Biodiversity Priority and Cost-Comparison Matrix



Step 5.6: Estimate unmet biodiversity finance needs

The FNA seeks to estimate the financing necessary to achieve the CBD strategic plan and the related SDGs in a country. This cost estimation is only one part of the "finance" equation. By far the greatest indirect cost for biodiversity stems from needing to slow, stop or reverse the human activities that degrade or decrease natural ecosystems. Many of these are also financed by governments, donors and private companies (see Chapter 1). These issues were identified in the PIR (Chapter 3) and can be addressed in the BFP (Chapter 6). The direct costs identified in the FNA do provide a useful target for spending on biodiversity and the natural questions are: "How much of this target is currently covered and how much do we need to raise?" This section explores challenges and options related to answering these questions.

It is tempting to compare the results of the BER projections (Chapter 4) with the FNA results to determine the gap between financing needs and expenditure projections. Although this approach may result in a "financing gap" estimate, the comparison may be misleading and likely to produce a false estimate of the gap. In a few cases, a "surplus" may result from the comparison despite well-reported and substantial financing needs.

The BER and the FNA are most often not fully comparable.[13] The BER seeks to estimate all biodiversity expenditures in the country, including secondary expenditures where biodiversity is not a primary objective. Firstly, although biodiversity strategies may include some secondary costs—such as pollution control in ecologically sensitive rivers—they are, for the most part, limited to only a subset of a country's biodiversity actions. Secondly, many of the routine biodiversity management activities—protected area management, environmental inspection, etc.—are not considered "activities" in the NBSAP, or in green national development plans, because the latter tends to focus only on incremental activities and changes to the status quo. So, while the BER seeks to capture the status quo, the FNA instead seeks to capture the additional costs needed to change the status quo. These different approaches need to be reconciled for any meaningful comparison.

Three strategies to reconcile the incompatibility of the BER and FNA

1 FNA reflects unmet needs

Avoid comparison altogether (not recommended)

2 FNA-focused

Make one-on-one comparisons for specific activities in the FNA (recommended)

3 BER-focused

Reduce the BER results to only those well-captured in the FNA (recommended only if BER data is of high quality)

1 FNA reflects unmet needs - Avoid comparison altogether

The most straightforward approach is to assume that the biodiversity strategies costed are incremental and thus, except for specific financing identified for specific actions, the entire FNA directly reflects unmet financing needs. To implement this approach, each activity is reviewed and identification of existing funding sources are determined and quantified. The gap is focused on each activity and the total can be calculated once the exercise is complete. This approach would not lead to a true national biodiversity finance needs calculation, but only a baseline measurement for an NBSAP.

2 FNA-focused - Make one-on-one comparisons for specific activities in the FNA

In this approach, the costs in the FNA and the expenditures in the BER (Chapter 4) are categorized by the FNA actions. For each FNA action, the BER can be examined to determine if there is a corresponding expenditure(s) closely tied to that action. The expenditure(s) is then tagged to a specific FNA action. This approach will be most effective when the BER is organized by programmes and results. If the BER is based on agencies, FNA actions should also be tagged to agencies. Even with a close tagging of agencies, it is unlikely that the costs of FNA actions and the expenditures for the agencies will be well-aligned. Moreover, even with the most detailed programme budgets and expenditures, establishing how each programme may be linked to specific (NBSAP) actions can be time-consuming and difficult to defend, as programme descriptions do not conform to the (NBSAP) actions. Still, this technique has the potential to produce good results and may offer a more robust planning tool if executed well. In an optimal scenario, the BER would be developed first, followed by the NBSAP (if it aims for a comprehensive national perspective and not only incremental activities) and finally the FNA. This ensures strong alignment from the start. In practice most countries develop their NBSAP first.

3 BER-focused - Reduce the BER results to only those fully captured in the FNA.

An alternative to the above approach is reducing the BER to include only the expenditures linked to the FNA. This is similar to the above approach, but the categories are based on the BER and not the FNA actions. Again, this solution is dependent on the quality and level of detail of the original data that went into the BER, and on the quality of the BER tagging system. The use of BIOFIN categories to link the BER and the FNA will be further explored, although it involves similar misalignment risks as those discussed above. This approach will probably narrow the types of solutions considered in the BFP, and substantially underrepresent the overall level of investment required to meet biodiversity investment needs.

"Budgetary" costing

In comparison to the aspirational costing of the biodiversity targets, it may be useful to establish a more pragmatic or "budgetary" costing. The actual or "budgetary" FNA is a budgeting exercise that identifies what financial, human, physical and political capital is needed to implement the prioritized costable actions identified in the NBSAP, or other focal planning document, and, potentially, to be financed or addressed by finance solutions through the BFP. If the aspirational FNA is considered unrealistic or politically infeasible, then the conversion of the costing exercise into a budgeting exercise can produce a more realistic and marketable target amount.

This revised FNA can be used to trace a logical framework from results or actions back to the needed resources. However, the more reduced needs identified here are not likely to solve the national biodiversity finance crisis, as it aspires to do what is politically feasible (realistic budget), not what is ecologically sufficient or optimal.

Finally, existing studies on the finance gap dwell on the difference between optimal and current spending in the case of protected areas[14] or the gap between finance needs and finance sources. To close the gap, finance sources must be identified and mobilized. The BIOFIN methodology nurtures resource mobilization for biodiversity, but it suggests a unique narrative: Closing the gap will involve not only the expansion of finance sources, but lowering future needs by improved prioritization of budgetary outlays, cost-effectiveness measures and preventive actions to avoid future expenditures. Bear in mind that even if the finance gap cannot be estimated, the evidence from the BER and FNA will be instrumental for the BFP formulation.

5.4
Conclusions and Recommendations

The FNA process ends with the presentation of detailed conclusions and recommendations. The detailed results of the FNA should be captured in a report that illustrates their robustness for decision-making. The FNA's impact ultimately depends on the success of preceding approaches to build stakeholder and decision makers' engagement.

The main output is a written report accompanied by a spreadsheet with detailed budget information. The FNA results ideally should be shared broadly with and validated by government, private and third sector stakeholders. The aim is for the report to be adopted and the estimations included in official financial planning and budgeting. Pending the government's decision, FNA figures can be useful for many reporting frameworks, including CBD financial reporting. It is also important to communicate and disseminate the main findings to stakeholders. Therefore, in addition to the report, summaries can be developed for different audiences, such as briefings for the high-level decision makers.

Clear and well-supported recommendations are essential to shift the analysis from a technical report to action-oriented, 'projectized' document. Conclusions and recommendations, therefore, should be precise and expressed clearly. The conclusions can include the significance of the finance needs and gaps described in the previous sections. Conclusions also can explore biodiversity priorities, financial issues, cost-effectiveness, the scale of the costs relative to other sectors and the contribution of biodiversity to key sector dependencies on natural resources, etc.

Potential recommendations include:

- Better **inclusion** of biodiversity results in national policies and planning
- The **linking** of existing and proposed finance solutions to specific targets, organizations, and results, etc.
- The **integration** of the FNA into the regular national budget planning cycle and institutionalization of the FNA process in the environmental sector

A suggested structure for the FNA Report is as follows:

A. Executive summary

Highlight main findings and recommendations in a clear and concise manner.

B. Acknowledgements

C. Introduction

Include the links to other BIOFIN reports and the structure of the report. Keep the introduction brief.

D. Methodology

Briefly outline the FNA methodology. Explain the stakeholder engagement process and the main hypotheses. Describe sources of data. Detailed tables can be provided the appendices.

E. Results

- Present overall figures of the costing using the cost statement and gaps tables. Each table should be supported with a clear explanation of what is in the table and a brief analysis of its content.
- Several cost statements can be prepared depending on the "client" interests. Compare the costs and priority of different biodiversity results. Aggregate by categories, by national priorities (targets), organizations and by sectors as relevant.

F. Biodiversity Investment Needs

This is the core of the report. Where do the data indicate there is the greatest need and how could biodiversity finance tools address these needs?

G. Conclusions and Recommendations

- Distil the main conclusions and recommendations, including policy and technical recommendations.
- Include recommendations on how to embed the elements of FNA costing into the institutions covered; to better integrate biodiversity costs in national and subnational budgeting processes; to better integrate biodiversity budgets in related sectors (indirect); and other ways in which the results can be used for improved biodiversity management and financing.
- Where costing has defined detailed finance solutions, this information should be transferred to use in the technical description of potential solutions in the BFP (Chapter 7).

H. References

I . Annexes

a. Detailed methodology
b. Detailed data sheets
c. Glossary
d. Supporting detail for recommendations

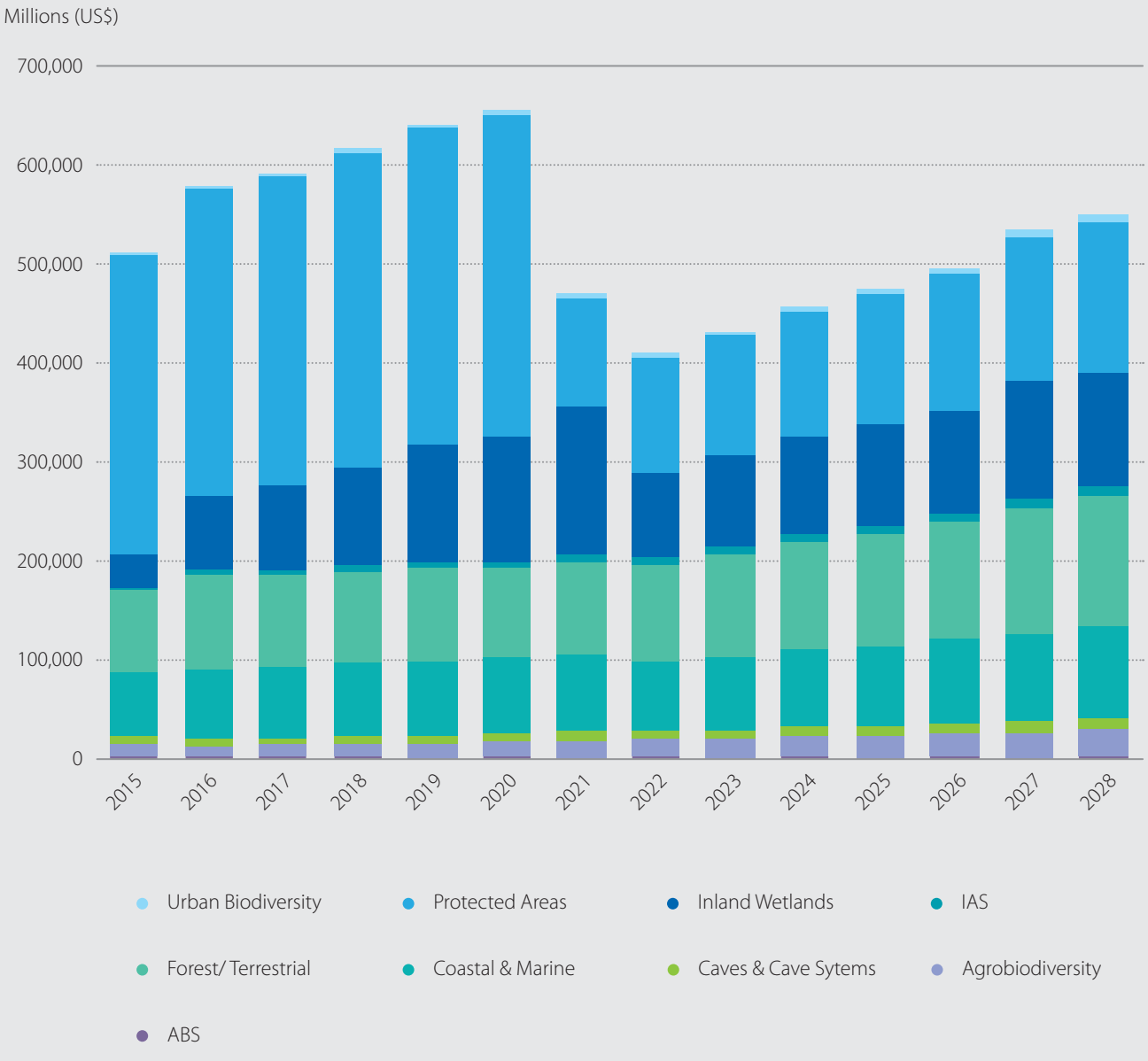
Annex

Annex I: Examples of FNA Results

Philippines

The Philippines developed a detailed PBSAP costing using an iterative process involving the main stakeholders, key experts and government officials. Figure 5.5 shows estimated costs (US$) for each year from 2015 to 2028, categorized into the main PBSAP themes. Initial costs were high due to investments associated with protected areas (PA) management efforts to relocate occupants of PAs to areas of lower biodiversity value.

Figure 5.5: Timeline of Costs for Implementing the PBSAP, 2015-2018 - The Philippines



Ecuador

Ecuador costed the eight priority results in Ecuador's NBSAP, for a basic and optimal scenario.

The basic scenario is the minimum level of funding required to operate key conservation programmes and meet basic requirements to sustain functions of ecosystems in protected areas. The optimal scenario describes the ideal state if all necessary funding, personnel, equipment, and other resources were available. This would ensure achievement of short-medium-long-term goals for protected areas, in accordance with the highest environmental, social, and economic standards.[15] The financial gap is equal to the difference between the financial needs and the existing available funding. The results for the basic and optimal scenarios are shown in Figure 5.6. For the optimal scenario, the data suggest Result 2 is already funded. Deficits are estimated for the other seven results.

Figure 5.6: Biodiversity Finance Gap Disaggregated by Result in a Basic Scenario - Ecuador

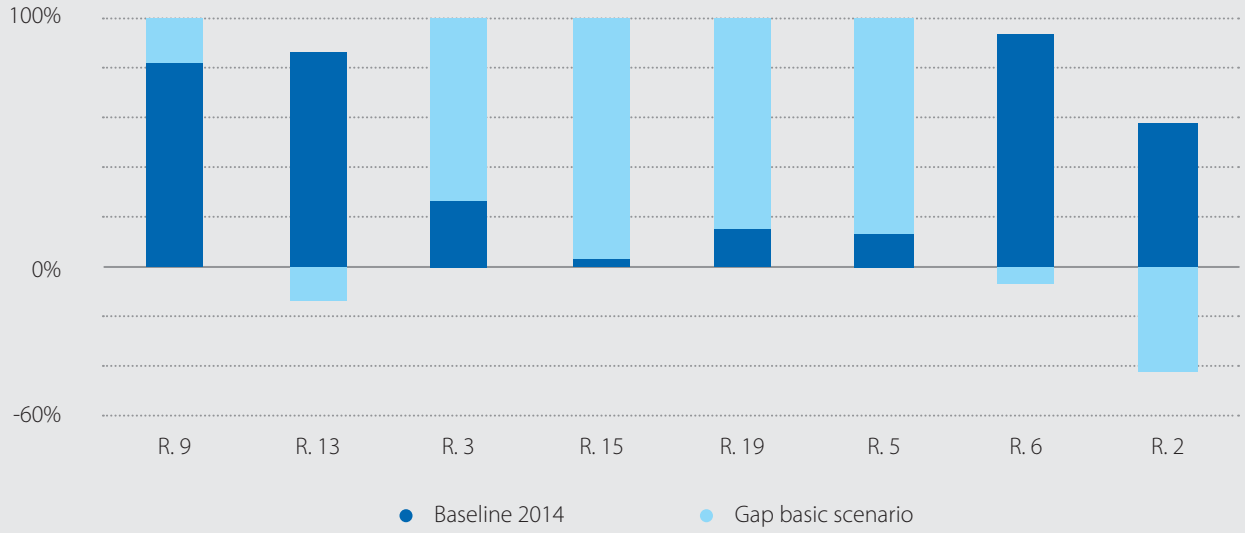
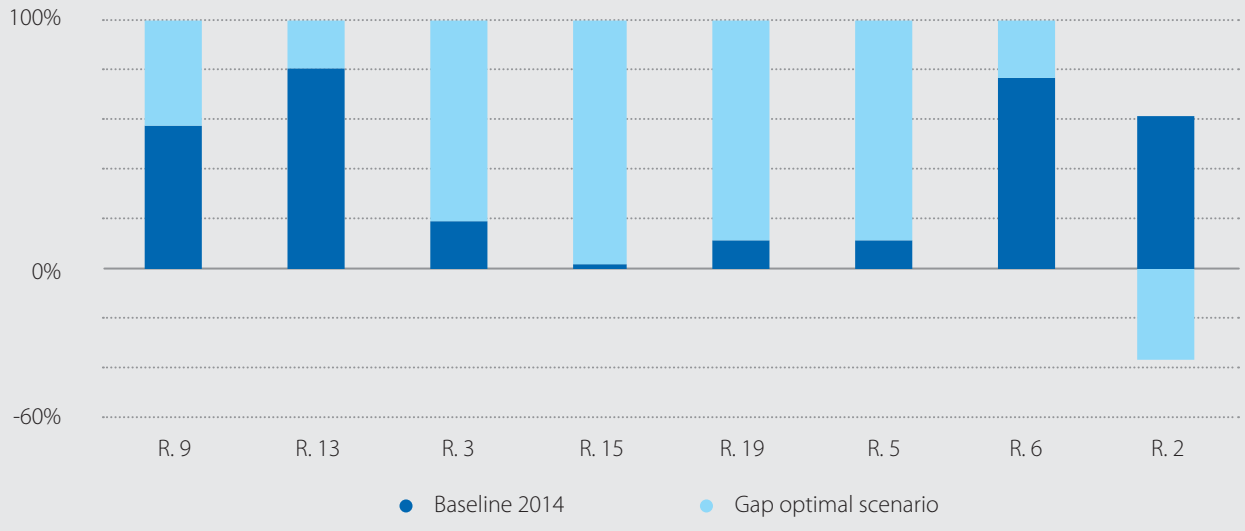


Figure 5.7: Biodiversity Finance Gap Disaggregated by Result in an Optimal Scenario - Ecuador



Endnotes

1 Or the ministry responsible for budgeting and finance.

2 Cangiano, M. M., Curristine, M. T. R., & Lazare, M. M. (2013). Public financial management and its emerging architecture. International Monetary Fund. Available from: https://www.odi.org/sites/odi.org.uk/files/odi-assets/events-presentations/1505.pdf

3 Defined in Chapter 1 (Section 1.3) through the three objectives of the CDB: biodiversity conservation; sustainable use of biodiversity; and fair and equitable sharing of its benefits.

4 Balmford, A., Gravestock, P., Hockley, N., McClean, C. J., & Roberts, C. M. (2004). The worldwide costs of marine protected areas. Proceedings of the National Academy of Sciences, 101(26), 9694-9697. Available from http://www.pnas.org/content/101/26/9694.full.pdf

5 RBB is governed by Law No. 28411, General Law on the National Budget System, specifically in Chapter IV "RBB" in Title III, "Supplemental Norms for Budget Management".

6 Department of Marine and Coastal Resources (2012). An Analysis of Results from Modelling of the Impact of Sea Level Rise on the Upper Part of the Gulf of Thailand (in Thai). A Report Prepared by TESCO Co. Ltd. for the DMCR. Available from https://www.researchgate.net/publication/260166201_Recent_estimate_of_sea-level_rise_in_the_Gulf_of_Thailand

7 See more at: http://www.focusintl.com/RBM062-RBB(2012)4_en.pdf

8 Flores, M., & Bovernick, A. (2016). Guide to improving the budget and funding of national protected areas systems. Lessons from Chile, Guatemala and Peru. United Nations Development Programme, New York. Available from: https://www.cbd.int/financial/guides/undp-rblc-pabg.pdf

9 Organisation for Economic Co-operation and Development. Development Assistance Committee. Working Party on Aid Evaluation. (2002). Glossary of key terms in evaluation and results based management. Available from: http://www.oecd.org/dac/evaluation/2754804.pdf

10 Public accounting practices may differ from country to country and be fully or partially aligned to international standards. The United Nations Statistics Division and the International Monetary Fund provide guidance material on budget classification and formulation, which is relevant to costing.

11 For example, monitoring surveys on endangered species and/or habitats may be conducted less than annually, say every 3, 5 or 10 years, depending on practicality in the scarcity of the biodiversity in question.

12 World Health Organization (2014). Cost effectiveness and strategic planning (WHO-CHOICE). World Health Organization. OneHealthTool. Available from: http://www.who.int/choice/onehealthtool/en/

13 Most BIOFIN countries have been able to link expenditures with costs in the BIOFIN categories, but only at the highest levels.

14 Bovarnick, A., Alpizar, F., & Schnell, C. (2010). The Importance of Biodiversity and Ecosystems in Economic Growth and Equity in Latin America and the Caribbean: An economic valuation of ecosystems. United Nations Development Programme, 2.

15 Flores, M., & Bovernick, A. (2016). Guide to improving the budget and funding of national protected areas systems. Lessons from Chile, Guatemala and Peru. United Nations Development Programme, New York. Available from: https://www.cbd.int/financial/guides/undp-rblc-pabg.pdf

Chapter 6

The Biodiversity Finance Plan

6.1

Introduction

This chapter provides guidance on compiling the Biodiversity Finance Plan (BFP, the "Finance Plan", or the "Plan"). The Finance Plan is the guiding document for implementing finance solutions for the next 5-10 years in a country. It uses the evidence and understanding gathered on biodiversity finance throughout the entire BIOFIN Process. This introduction clarifies the aims and objectives. The second part describes the six steps to develop the Plan.

6.1.1 Objectives

The BFP aims to present a coherent and comprehensive approach to biodiversity finance, encompassing a full suite of priority finance solutions. The plan is a national document engaging the public sector, private sector, and civil society.

It goes beyond mobilizing additional resources, addressing all four finance results (Chapter 1): generate revenues, realign expenditures, deliver better, and avoid future expenditures. The objectives are to develop:

1. A comprehensive list of potential finance solutions including existing instruments and new opportunities;
2. A rigorous prioritization and vetting of potential finance solutions to achieve an optimal mix of prioritized solutions for inclusion in the Finance Plan;
3. Detailed technical proposals to operationalize prioritized biodiversity finance solutions;
4. A clear investment case for each prioritized finance solution and a high-level economic case for increased biodiversity investments and implementing the Plan;
5. A well-written and compelling Biodiversity Finance Plan with clear financial targets, priorities, milestones, budget and responsibilities.

The BFP formulation requires a range of technical capacities along with a coordinated effort from decision makers in government, civil society, and private companies. Specialized expertise is required to elaborate the technical proposals for the finance solutions selected in the Plan. The Plan can be prepared over the course of one year and should be considered a living document more than a definitive report.

More than previous assessments, the BFP configuration will be the result of compromises between political economy arguments and evidence-based propositions. Ownership of the document and the organization of the validation process are necessary milestones for assuring follow-up and implementation.

6.1.2 Finance solutions and plans

The BIOFIN Workbook distinguishes between policy and finance instruments (i.e. the individual financial, fiscal or regulatory instruments used) and finance solutions. A finance solution seeks to use one or more instruments to achieve a specific outcome or solve a specific problem (hence "solution"). In Chapter 1 we defined a finance solution as "an integrated approach to solve a specific problem or challenge by the context-specific use of finance and economic instruments". A finance solution is built on a combination of elements that includes one or more finance instruments, financing sources, lead agent or intermediaries, beneficiaries or principal stakeholders, and the desired finance result. A finance solution seeks to increase the effectiveness, scale, or impact of a specific instrument to achieve a clear biodiversity outcome. A solution can involve the revision of a protected area entrance fee system in five key parks by increasing the fee rate and earmarking a percentage of park entrance fees. The finance instrument in this case is the change in regulatory provisions for modifying park entrance fees.

Biodiversity finance solutions are extremely varied – BIOFIN has made a list of over 150 available online. Solutions can rely on public or private revenues or contributions; be built around voluntary or compulsory schemes; be guided by markets or regulations; be available on a short- or longer-term basis; be associated with particular conditions set by the finance providers; be procyclical or countercyclical; and be available in different currencies. However, it cannot be overstated enough that to realize the BFP, each proposed finance solution must be adequately described and specific.

Countrywide Finance Plans, synthesizing major finance solutions at the national level, were applied across different sectors, particularly for infrastructure and energy (Boxes 6.1 and 6.6). They were rarely developed for biodiversity prior to BIOFIN (at least not in a similar comprehensive manner). Box 6.1 shows a planning cycle for the health sector, very similar to the entire BIOFIN Process, indicating how the Finance Plan builds from a systematic series of assessments.

Box 6.1: Finance Planning for Immunization: WHO-UNICEF Guidelines for Comprehensive Multi-Year Planning (CMYP) for Immunization (2013)[1]

World Health Organization

The World Health Organization (WHO) developed detailed guidance to plan immunization programmes. These programmes can be successful only when they have adequate and reliable funding and are combined with efficient procurement and use of resources. WHO details the planning process in seven steps:

- **STEP 1. Situation analysis:** A review of the immunization system's strengths and weaknesses.
- **STEP 2. Objectives, milestones and priority-setting:** Prioritizes national goals, objectives and strategies for three to five years.
- **STEP 3. Planning strategies:** Outlines the means by which national objectives will be achieved.
- **STEP 4. Links to national health plans and global goals and targets:** For the immunization strategy.
- **STEP 5. Setting an activity timeline and monitoring and evaluation framework:** For the main activities and milestones.
- **STEP 6. Costs, financing and financing gaps:** Includes costing and financing assessments linked to the planning and budgeting cycle of the Ministry of Health. Identifies financing gaps, conducts cost-benefit analysis, and links the plan to potential resources mobilization strategies.
- **STEP 7. Putting the CMYP into action:** Outlines detailed annual work plans with links to national planning and budgeting cycles at national and subnational levels of the health system.

6.1.3 Private investment in biodiversity

Biodiversity conservation targets cannot be achieved by public finance alone. Mobilization of private finance via regulatory frameworks, smart incentives and awareness of inclusive and sustainable business models are essential. Only by expanding and financing sustainable businesses can we preserve and sustainably benefit from Earth's terrestrial and marine ecosystems. Fifteen percent of the world's land is currently under protection, but that does not cover all areas important for biodiversity. Nurturing a new generation of enterprises and investors is critical for achieving Sustainable Development Goal (SDG) 14 (Life below water) and 15 (Life on land).

The challenge is that private investment is not at the scale needed to address biodiversity finance systemic problems. We estimate the gap at hundreds of billions of dollars. Despite the small numbers, investments in companies and financial products generating both a financial return and a measurable conservation impact have grown. From 2013 to 2015, the total private capital committed to conservation investments jumped by 62 percent, to a total committed private capital of US$8.2 billion tracked from 2004 to 2015.[2]

Achieving scale requires a shift in how private companies and financial institutions view investment opportunities in biodiversity and ecosystems, and how public and philanthropic actors act to correct market failures and catalyse private capital. Conservation finance is a massively undeveloped market. Private investors—wealthy individuals, pension funds, other institutional investors and even mainstream retail investors—could supply as much as the US$200 billion to US$300 billion[3] per year needed to preserve the world's most important ecosystems, still a small fraction of total wealth. This ambitious goal can be already compared to the US$23 trillion of wealth that is already invested responsibly,[4] in other words between a fifth and a fourth of all dollars under professional management.

A "supplement" to the Biodiversity Finance Workbook will help public and private practitioners understand and implement finance solutions aimed at attracting private investment. It will first delve into the role of private businesses and the financial sector in financing biodiversity, before reviewing recent trends in private investment in conservation and summarizing the prevailing forms of engagement, and the ways and means to implement private sector-oriented finance solutions.

Box 6.2: The Coalition for Private Investment in Conservation (CPIC)

The Coalition for Private Investment in Conservation (CPIC) is a group of leading civil society organizations, private and public sector financial institutions and academia working to deliver a material increase in private, return-seeking investment in conservation. CPIC is developing new investment models and funding pipelines that will help close the current conservation funding gap and contribute to the global goals for biodiversity conservation and sustainable development. The Coalition has focused on the following sectors: Coastal Resilience, Forest Landscape Conservation and Restoration, Green Infrastructure for Watershed Management, Sustainable Agriculture Intensification and Sustainable Coastal Fisheries.

CPIC maintains a list of resources at: **http://cpicfinance.com/resources/related-reports**

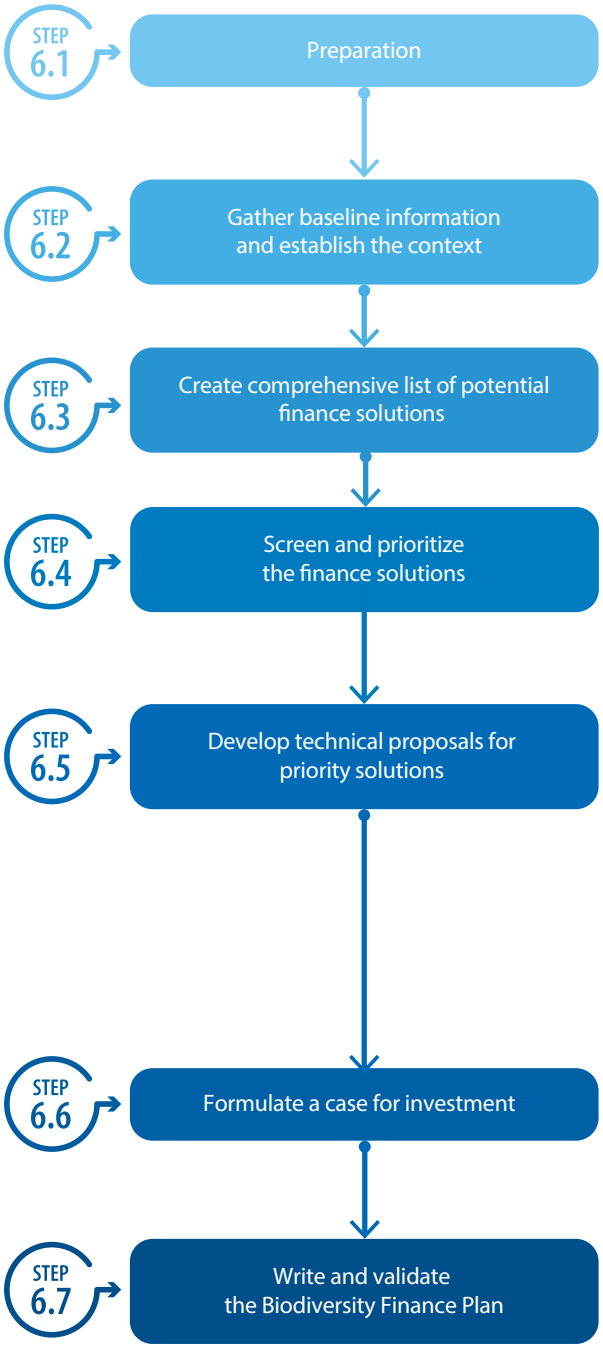
6.2

Steps for the Biodiversity Finance Plan

This section outlines the six steps required to complete the BFP (see Figure 6.1). After the preparatory step, in Steps 2 and 3, a comprehensive review of the existing finance instruments and the BIOFIN assessments should be completed to establish a BFP vision, the order of magnitude of the financing needs, and a comprehensive list of existing finance instruments and potential solutions. In Step 4, finance solutions are prioritized. Step 5 is developing technical proposals for priority finance solutions while Step 6 is the drafting of the BFP.

Figure 6.1: Biodiversity Finance Plan Process

The steps are:



Preparation

Define the scope of the work, the owner of the document and key stakeholders; to establish the validation process and gather relevant documents, data, and the components of the team.

Gather baseline information and establish the context

Review the BIOFIN assessments (PIR, BER, FNA) and identify a clear vision and entry points. Most importantly, to list of existing finance instruments and potential solutions for prioritization.

Create comprehensive list of potential finance solutions

Systematically convert the list of existing finance instruments and potential solutions into finance solution descriptions that can be evaluated during the prioritization process.

Screen and prioritize the finance solutions

Manage a rapid screening process of all identified finance solutions, followed by a more detailed screening exercise to derive prioritized solutions. The selection should be based on evidence and participatory engagement of local experts and stakeholders.

Develop technical proposals for priority solutions

Produce feasibility assessments to design prioritized finance solutions. Design will include defining core elements of the solutions, justification and rationale, expected financial results, sequencing, risks, etc. It may be difficult for countries to conduct detailed assessments for all solutions before the BFP is presented to decision makers. Consider the BFP a living document: The conduction of further analysis and detailed feasibility can be shifted according to political economy considerations and budget and time constraints. Nevertheless, solutions that are not described and presented well are unlikely to ever be implemented.

Formulate a case for investment

The investment case for the finance solutions should convince decision makers to act and be formulated in language that the investors can understand

Write and validate the Biodiversity Finance Plan

Write a Finance Plan that should be seen as a formal policy document owned by the government

Step 6.1: Preparations

The preparations for the drafting of the Finance Plan involve the establishment of a team and partnerships, including any technical advisory committees. The BFP formulation is different from other assessments in weighting the political commitment to implementation, such as responsibilities related to the different solutions and expectations. The Steering Committee is likely to be the main client and will approve the BFP. The team should include a lead writer—ideally a natural resource economist or public finance expert—,other members of the BIOFIN team, national and international experts, and key government and civil society partners. The greater the outreach and engagement, the higher the chance that the BFP will become a true national plan. All previous documents produced by BIOFIN (including any spreadsheets) and the main source documents, NBSAP, green economy strategies, etc. should be gathered and shared among all BFP team members.

Agreeing on the ownership and legal status of the Plan is a milestone task. This requires a clear understanding of the roles and responsibilities of the institutions involved.

When deciding on the Finance Plan's ownership and governance, consider the following questions:

- What will be the official or legal status of the Plan (e.g. adopted as legally binding, published as a medium-term national strategy) and what formal processes are required for validation and approval? How long will the approval process take?
- Who will own and implement the Plan after the BIOFIN project cycle is completed?
- Will the owner of the Plan or implementing organizations face serious capacity challenges in the implementation of the Plan? And if so, how can capacity be built?
- What measures and recommendations could be fast-tracked for implementation to retain and motivate a high level of interest amongst decision makers[5] during a lengthy officialization process?

Step 6.2: Gather baseline information and establish the context

This step is to compile and revisit all necessary baseline information. This is essential to ensure the Finance Plan builds on the comprehensive assessments produced by BIOFIN and additional relevant sources. It should result in a preliminary list of existing financial instruments and potential finance solutions, approximately between 100 and 200 entries. This process aims to identify and elaborate information that can be used to develop a powerful and technically accurate BFP. Specifically, these solutions feed into the following sections of the BFP:

- Framing a clear national **vision for biodiversity** in the context of the SDGs and national development agenda, to which the plan contributes;
- **Identifying entry points** to engage decision makers, company leaders, and other interest groups to build a critical mass of support for the Plan;
- Building the **case for investment** in biodiversity and the finance plan itself;
- **Clarifying** financing needs to match the estimated financial contribution of the Plan's finance solutions;
- And, perhaps most important, creating a comprehensive **list of existing finance** instruments and potential solutions for prioritization.

The preceding assessments provide the following inputs: the PIR generates insights into key trends, drivers, subsidies, revenues, and existing finance instruments and mechanisms. The BER provides data on current sources and opportunities for expansion. The FNA includes information on existing finance for NBSAP and other biodiversity plans, and links available financing to specific financial needs. More specifically, the PIR includes a preliminary list of all existing finance instruments in the country. This list (Chapter 3) is essential in the formulation of finance solutions and should be carefully reviewed and updated. It can be elaborated with additional information such as finance sources.

The listing of existing financial instruments and other relevant tools and strategies from the PIR should be converted into a list of potential finance solutions, to be elaborated during Steps 6.2 and 6.3. The reviews of the PIR, BER, and FNA should allow for the identification of a wide range of existing challenges and corresponding opportunities for reforms of existing instruments and the design of new and innovative solutions.

This idea generation process takes various forms; for example, each fee, fine, permit, royalty, license listed in the PIR could be framed as a separate instrument and reviewed for possible improvements; and the description of the forestry sector may suggest solutions around concession bidding, stumpage fees. At this stage, entries can be listed such as "Increase stumpage fees for natural forest concessions to better capture value and price". Care should be taken to list as many instruments and mechanisms as possible of all types – regulatory, market, fiscal, grants, debt/equity, and risks.

The list of existing finance instruments can be expanded with new ideas by examining the **BIOFIN Finance Solutions Catalogue** and the **Finance Solutions for Sustainable Development Platform** (see Box 6.3). The finance solutions mentioned in the Catalogue and Platform consist of generic descriptions that cannot be transposed directly into national finance solutions. They need to be firmly anchored and adapted into the specific national context, with much added detail. To include a potential finance solution in the list, it is essential to determine its function and specificity in a given context. For example, a green bond is featured as a solution to mobilize private capital in these platforms, but it cannot be included as such in the list of potential finance solutions. To be included, it needs to be contextualized, e.g. as 'a green bond issued by Banco Nacional to finance past and future land acquisitions by the Protected Areas System in Costa Rica' or 'the development of an impact framework to measure biodiversity impact for Indonesian Green Sukuk.

Box 6.3: The BIOFIN Catalogue of Finance Solutions

BIOFIN
THE BIODIVERSITY FINANCE INITIATIVE

The **BIOFIN Catalogue of Finance Solutions** (the "Catalogue")[6] is a simplified listing of more than one hundred finance solutions. It offers a comprehensive landscape map of possible solutions. Solutions are characterized by source, results, instrument and sector.

The **Financing Solutions for Sustainable Development Platform**[7] (the "Platform") is an additional tool to help users navigate through several finance solutions. The platform provides guidance to review and operationalize financing solutions that can enable the implementation of national sustainable development plans. While not focused only on biodiversity, it provides a detailed review of the different solutions, including several related to biodiversity, with references to e-learning and detailed technical guidance.

Step 6.3: Create comprehensive list of potential finance solutions

Step 6.3 is to transform the list of 100-200 existing instruments and potential finance solutions into a clearly defined list that can be effectively used for prioritization (Step 6.4). Three critical elements are involved in the formulation of finance solutions.

1 **First,** each solution must have a clear objective through which it seeks to change a situation from a present state to a new desired state.

2 **Second,** each solution must be described in sufficient detail.

3 **Third,** each solution should lead to an estimate of a financial impact along the four results described in Chapter 1. If this is not possible, then it is not a finance solution.

These three critical aspects can be supported by the identification of a clear name and definition for each finance solution. If these are too vague, different interpretations and assumptions could produce wildly varying scores in the prioritization. By defining solutions clearly, it is possible to generate consistent assessments.

The prioritization process requires each finance solution to be properly formulated and described by referring to the core components listed in Box 6.4. The solution name should be descriptive enough to differentiate it from other solutions. For example, if the finance solution is a payment for ecosystem services (PES), the name should include the fact that it is PES, the relevant ecosystem service, and potentially a location. For example, "Establish a new PES for water services in the Magdalena River watershed in Mexico City". Communication products at a later stage might require shortened names and more appealing messages (e.g. PES 2.0), but this is not required for the prioritization of finance solutions at this stage.

The description should ultimately allow an expert to score each finance solution with a reasonable degree of accuracy. It is ideally a short and concise paragraph of three-four sentences. The description should ideally contain the following elements:

- Justification for the solution
- Opportunity – why is this needed now?
- Tentative impact formulation

Box 6.4: The Definition of a Finance Solution

An action-driven term – "solution" – characterized and described by:

1. The **sources** of finance the solution relies upon.
2. The **lead agent or intermediaries** tasked to manage the operationalization of the solution: a government entity proposing a tax reform or the bank establishing a trust fund or issuing a bond to deliver conservation finance.
3. **Beneficiaries or principal stakeholders** that either receive the financing or are the targets of the instrument.
4. The **instruments** used to mobilize, collect, manage and disburse the funding. They can be strictly financial instruments like bonds or equities, or fiscal and regulatory reforms.
5. The desired **finance results** the solution aims to achieve.

An example from South Africa's BFP

Name : Water tariff funding for ecological infrastructure

Description : Investing in ecological infrastructure as part of catchment management offers significant water regulation and supply benefits along with co-benefits for biodiversity, livelihoods and disaster risk reduction, among others. This finance solution aims to improve existing means, and establish new viable mechanisms, to capture and distribute an adequate portion of water tariffs for investment in ecological infrastructure in catchments. This would be in keeping with the user-pays principle and is achievable by operationalizing elements of the revised Draft Water Pricing Strategy.

Note that the three-sentence description above includes the instruments ("water tariffs", distribution of tariffs), expected results ("water regulation and supply benefits"), and the strategy ("operationalizing" the Draft Water Pricing Strategy) all framed under investment in ecological infrastructure.

Step 6.3 often requires several weeks of team efforts in collaboration with national experts in tax law, protected areas management, budgeting, natural resource economics, etc. To transform the list of existing instruments and potential finance solutions into the above, we suggest the following strategies:

1 Reforming or combining existing finance instruments.

The team should review existing instruments and think of solution formulation by asking a series of questions, e.g. Is the instrument functioning optimally? If not, why? What would be the most impactful change? Can the instrument be scaled or replicated to achieve greater impact? If the instrument is well-designed but not functioning, what supporting actions can be taken? The change is the finance solution to be included in the BFP. For example, the proliferation of small and independent trust funds might suggest opportunities for a rationalization and mergers among those institutions.

2 Refining policy and regulatory opportunities.

Issues with policy, regulations, legal aspects, enforcement and other related areas were identified during the BIOFIN process. Biodiversity finance solutions can be designed to address these challenges. To frame reforms in finance solutions, questions like these can be asked for each driver: Are existing policies, regulations and laws effectively implemented? If not, how can small improvements create powerful economic or financial incentives? For example, the prevalence of harmful subsidies in the forestry sector may suggest a greening subsidy agenda.

3 Expanding and/or earmarking existing revenues.

Biodiversity-related revenues are often collected from accessing or exploiting a natural resource or from a polluter responsible for the degrading of an ecosystem. Options will typically include: 1) increasing the revenue; 2) earmarking revenues for conservation; and 3) measuring the impact of change in behaviours by technical reforms. The latter (#3) may include a new fee design to better reduce consumption patterns, e.g. addressing the largest consumers.

4 Exploiting planning and budgeting opportunities.

Public budgets remain the primary source for biodiversity in most countries. Finance solutions address possibilities for additional or more effective allocations. This may require working with multiple ministries (agriculture, mining, etc.) to mainstream biodiversity into their budgets, lobbying for greater budget allocation, etc. In the Philippines the engagement with Parliament resulted in the approval of a legislation to allow several protected areas to access earmarked funding. In Peru, biodiversity-related investment was added as an eligible category in the public rolling investment plan.

5 Achieving cost-efficiency.

Opportunities to deliver better on each dollar invested in biodiversity are often overlooked. Proposals to achieve efficiency and effectiveness can be derived from the PIR, the BER and the FNA. In addition to identifying organizational cost-efficiency gains, there could be opportunities to inform future spending practices. For example, reforestation projects could switch to plant only native trees. Subsidies for fishing and agriculture that can be used for sustainable products could be simplified.

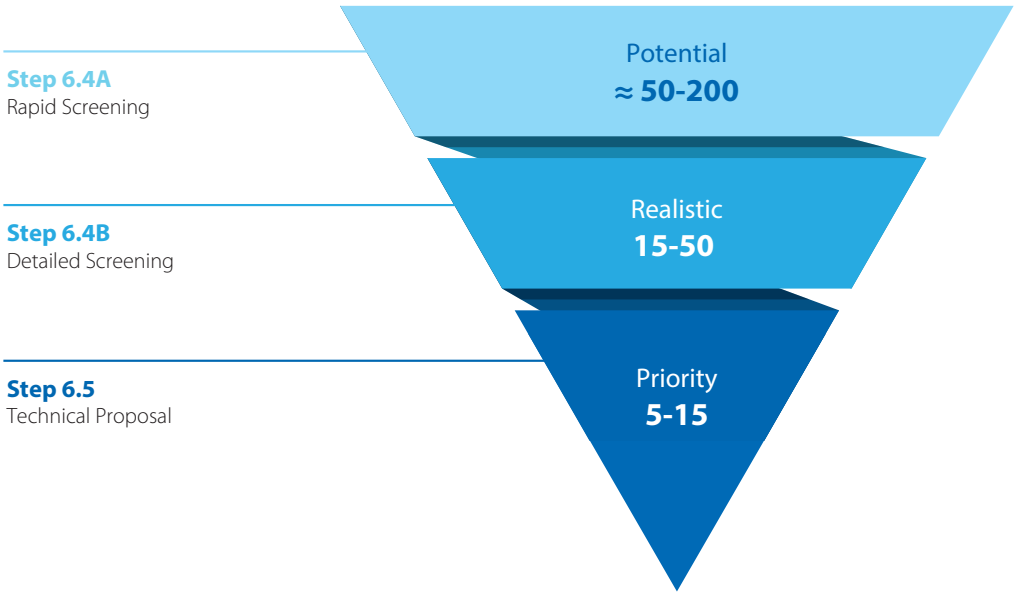
6 Introducing innovative strategies and approaches.

While innovative approaches and strategies may require more time and in certain cases higher sunk costs, existing instruments have been largely failing to provide adequate financing for biodiversity. Technology-driven solutions such as crowdfunding or blockchain can be explored through innovative partnerships with the private sector.

Step 6.4: Screen and prioritize the finance solutions

Step 6.4 aims to assess and prioritize finance solutions. Detailed feasibility studies and technical proposals (Step 6.5) will be drafted for the selected solutions, to ultimately be included in the BFP. The prioritization process needs to be accurate and credible. The priority given to each finance solution should be based on desk reviews and analysis, expert interviews and ideally a prioritization workshop. A two-step selection process is suggested with a rapid screening (Step 6.4A) and a more detailed assessment (Step 6.4B). Figure 6.2 visualizes the selection process, i.e. the identification of a subset of priority finance solutions for which detailed technical proposals will be prepared.

Figure 6.2: Prioritization of Proposed Finance Solutions



Based on lessons from the BIOFIN Process, we recommend the following:

- Carefully select the experts and participants invited to scoring and validation workshops;
- Conduct one-to-one detailed interviews with experts;
- Make explanatory information available to experts when asked to rate and rank the finance solutions (a clear definition for each finance solution is a prerequisite); and
- Cross-check the scoring made by experts with international literature and comparable countries.

Box 6.5: Cognitive Bias in Decision-Making

When selecting, prioritizing and screening finance solutions, be aware of biases that commonly influence people's decision-making.

- **Bandwagoning**, for example, is the tendency to adopt the same beliefs as the people around you, or to assume that people are making the right decisions and follow that. This could bias the results in a consultative workshop assessing people's perception about finance solutions. Good information and evidence are the best prerequisites for good decisions but even with those, decisions can be biased.
- **Confirmation bias** is the tendency to favour information that conforms with your existing beliefs and discounting evidence that does not.
- **Availability heuristic** is people's tendency to place higher value on information that comes to mind quickly despite no systematic research.
- Similarily, **anchoring bias** occurs when people focus too much on a single piece of information rather than all available information, typically the first, most recent or the most emotional information piece of information received.
- When considering different finance solutions and evaluating their appropriateness, we risk **outcome bias**, which occurs when people tend to evaluate a choice based on its outcome rather than the information available at the time of the decision.
- Similarly, the **pro-innovation** or **anti-innovation bias** is the tendency to believe something is good (or bad) simply because it is new. When we assess and screen finance solutions we should do it based on their merits and potential to solve the identified problem, not because they are new or old.
- Finally, when designing our technical proposal, we should be particularly careful about the **planning fallacy**, the tendency to be overly optimistic about how much time it will take to accomplish something.

Step 6.4A: Rapid screening

The rapid screening process focuses on selecting the most promising and realistic finance solutions and excluding those that are not. It seeks the solutions that bear the highest potential for implementation and the largest impact. The BIOFIN team can run a rapid screening and/or implement it during a workshop. The input to the screening is the list of finance solutions (existing and potential) from Step 6.3. Each solution can be scored on a scale of 0 to 4 (0 being worst, 4 being best as shown in Table 6.1) against three criteria:

Impact on biodiversity

The significance and scale of the biodiversity impact can be judged in different ways, e.g. by its urgency, the presence of key biodiversity areas or endangered species, and the value of ecosystem services.[8]

Financial impact

The potential scale and sustainability of the resources that can be leveraged, i.e. how much? for how long? and how stable?

Likelihood of success

A general assessment of the technical, social, and political feasibility of the proposed solution.

The above criteria can be adapted slightly to suit the country context, but this might imply more time and costs. For example, the likelihood of success could be expanded by scoring technical, social, and political feasibility separately.

Table 6.1: Rapid Screening Criteria and Scoring Guidance

Criteria	Scoring Guidance
Impact on biodiversity	(4) Very high impact on threatened/endangered species and habitats (biodiversity) and critical[9] ecosystem services. (3) High impact on biodiversity and ecosystem services. (2) Moderate impact on biodiversity and ecosystem services. (1) Low impact or high uncertainty about the same. (0) No or insignificant impact.
Financial impact	(4) Potential to mobilize or save a very high amount of resources. A significant impact on the biodiversity finance agenda. (3) Potential to mobilize or save a high amount of resources. Approximately about 5-15 percent of current expenditure or financing needs. (2) Potential to mobilize or save a moderate amount of resources. Approximately between 1-5 percent of current expenditure or needs. (1) Potential to mobilize or save a low amount of resources. Approximately under 1 percent of current expenditure or needs. (0) Minimal scale of resources mobilized or saved compared to current expenditures or needs.
Likelihood of success	(4) Very high likelihood of success. Broad political and social support and sound commercial viability (if relevant). No operational challenges known. Strong record or expectation of success, replicability or scalability in comparable contexts. (3) High likelihood of success. Sufficient political and social support. Commercially viable (if relevant). Operational challenges are manageable. Relevant record of success, replicability or scalability in comparable contexts. (2) Moderate likelihood of success due to limited political and social support or known operational or technical barriers. Limited commercial viability (if relevant). Limited record of success, replicability or scalability in comparable contexts. (1) Low likelihood of success due to high political and social resistance or major operational or technical barriers. Limited commercial viability (if relevant). (0) Virtually no chance of success under current conditions. Commercially unviable (if relevant).

If there is uncertainty about whether a solution should be retained, then it is usually better to retain it for further analysis rather than risk losing a potentially viable solution. A cut-off score can be set to produce a desired number of solutions for the next level of screening (see Figures 6.2 and 6.3). The desired number of solutions that make it through the preliminary screening should reflect the capacity of the BIOFIN team, associated experts and stakeholders to conduct the detailed prioritization (Step 6.4B). Figure 6.3 shows analysis from the BIOFIN data tool capturing the application of screening criteria in South Africa.

Figure 6.3: Example of Screening Criteria in the BIOFIN Data Tool

Broad mechanism/ solution category	Name of mechanism/solution	Description	Potential for Biodiversity Impact	Scale of Financial opportunity	Political feasibilty and likelihood of success	Sum of Rapid Feasibility Scores	Consider in next screening step? (Yes/No) -	
			0 = none, 4 = very high	0 = none, 4 = very high	0 = none, 4 = very high	Out of 12 points	9 points cut-off	STRICTER 10 points cut-off
Biodiverstiy offsets	Resolve fiscal and administrative procedures required for the successful implementation of offsets	The biodiversity offsets policy will need to be accompanied by clarity on how offsets are to be implemented and administered. There is thus a need to ensure that fiscal and administrative obstacles to implementation are identified and resolved. Links to stewardship programmes and the potential for other facilitating measures such as offset banking should also be considered.	4	3	3	10	Yes	Yes
Bonds, other loan mechansims	Introduction of ecological infrastructure bonds and/or the introduction of ecological infrastructure components within traditional 'hard infrastructure' bonds (e.g. for water infrastructure)	Ecological infrastructure projects particularly in the water sector are gaining traction and their potential for implementaiton could be further enhanced through the use of these kinds of bonds.	2	3	2	7	No	No
Biodiversity enterprise development	Expanding investment in aquaculture (potentially assisted by 'Blue Bonds')	One of the primary threats to marine resources is over-exploitation of fish and shellfish stocks driven by increasing demand. Increased aquaculture has the potential to meet this demand whilst also decreasing pressure on wild stocks.	3	3	3	9	Yes	No
Biodiversity enterprise development	Making increased use of conservation impact investment funds to finance biodiversity-based enterprises	Conservation impact investment funds offer a potential source of finance (mostly soft loans) and could be used to start or support viable small businesses that contribute to conservation outcomes (e.g. Verde Ventures – IUCN, NatureVest – Nature Conservancy).	3	3	2	8	No	No
Climate change finance	Use of offset provisions in the pending Carbon Tax to fund projects with biodiversity benefit (e.g. restoration)	Once the national Carbon Tax is introduced, polluters will have the option to fund offsetting projects instead of paying the tax (up to a maximum of 10% of total tax liability). A portion of this funding could flow to restoration projects which sequester carbon whilst achieving biodiversity conservation goals and often enhanced water outcomes. The proviso is that investment in such projects are attractive and ready to receive investment.	2	4	3	9	Yes	No
Tourism levy/tax	Tourism levy reform and adjustment to include environmental component	Currently levy used for national tourism marketing and is collected on voluntary basis from accommodation and other tourism related operators. +/- R100 million is collected per year by TOMSA and is administered by the Tourism Business Council of South Africa.	0	1	1	2	No	No

Step 6.4B: Detailed screening

The rapid screening process (Step 6.4A) will produce a list of finance solutions that are deemed "realistic". The detailed screening process reviews this list to identify those to include in the Finance Plan. The screening is based on 20 questions that can be scored from 0 to 4 (lowest to highest) using the criteria in Table 6.2. Note that certain criteria may be considered more or less relevant to different finance solutions.

The detailed screening should be undertaken by experts with a reasonable knowledge of the finance solutions. They can be drawn from the BIOFIN team, Steering Committee and technical advisory group (see Chapter 2) as well as from external organizations and academia. These experts should receive background information in order to perform any scoring (see Steps 6.2 and 6.3).

The responses or scoring can be compiled through self-administered questionnaires, face-to-face workshops, or both. Once solutions are scored, a ranking should be produced. A cut-off can be set for inclusion in the Plan. The scoring should be cross-checked with literature reviews and by an expert panel, and publicly validated. The Finance Plan will provide a diverse mix of solutions, and this scoring should be seen only as an input to the final list of solutions.

Table 6.2: Detailed Screening Criteria and Scoring Guidance

Questions	Indicative marks for scoring (0-4)	Score
1. Is there a positive record of implementation?	(0) None (1) Ongoing pilots – results unclear (2) Successful pilots, functions poorly (3) Currently functions moderately in country (4) Currently functions well in country	
2. Will it generate, leverage, save, or realign a large volume of financial resources?	(0) No, or an insignificant volume (1) 1 percent or less of current expenditures/finance needs (2) 1-5 percent of current expenditures/needs (3) 5-15 percent of current expenditures/needs (4) Game changer, > 15 percent	
3. Will financing sources be mobilized in a timeline compatible with needs?	(0) No, delays expected (2) Moderate likelihood of being mobilized in alignment with needs (4) Yes, forthcoming and compatible schedules	
4. Will financing sources be stable and predictable?	(0) No, highly unstable and vulnerable to external factors (2) Likelihood of being reasonably stable and predictable source (4) Yes, very stable and predictable	
5. Do the persons or entities paying have a willingness and ability to pay or invest?	(0) No, or totally unknown (2) Possibly (4) Yes, willingness shown	
6. Are main financial risks adequately managed (e.g. exchange rate, lack of investors)?	(0) No, high risks remain (2) Moderate risks (4) Yes, low residual risks	
7. Are start-up and operational costs onerous in comparison to the expected financial returns?	(0) Very costly compared to returns (2) Moderate costs compared to returns (4) Very low/minimal costs compared to returns	
8. Does the solution improve incentives to manage biodiversity and ecosystems sustainably (see Chapter 1)?	(0) Not clear (2) Likely (4) Most certainly	
9. Will the financial resources remain targeted to biodiversity over time?	(0) Not clear, high risk of allocation to other sectors (2) Likely, current administrative provisions (4) Yes, strong legal provisions	
10. Are risks to biodiversity (e.g. disrespect of mitigation hierarchy) low or easily mitigated? How challenging would it be to develop safeguards?	(0) High risks, no easy mitigation (2) Reasonable risks, mitigation possible (4) Low risks, easy safeguards	

Questions	Indicative marks for scoring (0-4)	Score
11. Will there be a positive social and economic impact (e.g. jobs, poverty reduction and cultural)?	(0) None or unknown (2) Moderate (4) Strong positive impact	
12. Would there be a positive impact on gender equality, especially regarding participation in design and implementation or access to opportunities and benefits?	(0) None or unknown (2) Moderate (4) Strong positive impact	
13. Have risks of significant unintended negative social consequences been anticipated and managed?	(0) No, high risks likely remain (2) Moderate and manageable risks (4) Yes, minimal residual risks	
14. Will the solution be viewed as equitable and will there be fair access to the financial and biodiversity/ecosystem resources?	(0) No, high risk of inequitable outcome (2) Moderate possibility (4) Yes, built into design features	
15. Is the solution backed by political will?	(0) No, resistance from key stakeholders (2) Moderately (4) Yes, with public statements in support	
16. Have political risks been anticipated and managed?	(0) No, high risks remain (2) Moderate and manageable (4) Yes, minimal residual risks	
17. Is buy-in among stakeholders (i.e. potential investors/ decision makers, implementers, and beneficiaries) sufficiently strong to counter potential opposition?	(0) No, weak buy-in (2) Moderate buy-in (4) Yes, strong buy-in	
18. Do the managing actor(s) have sufficient capacity? Can they rapidly acquire it?	(0) No, severe and persistent capacity gap (2) Moderate capacity gap (4) Yes, strong implementation capacity	
19. Is it legally feasible? How challenging will any legal requirements be?	(0) No, new law is required (2) New regulations required (4) Yes, new regulations are not needed	
20. Is it coherent with the existing institutional architecture and can synergies be achieved?	(0) No, limited or no synergies/coherence (2) Potential synergies (4) Yes, fully coherent/large synergies and compatibilities	
Total Score	**From 0-80**	

Once the scoring is completed, a list of 5-15 priority finance solutions is identified. The exact number of solutions ultimately depends on national factors (such as the size, diversity of ecosystems and biodiversity management issues, institutional capacity etc. in the country).[10] This mix of the solutions should then be assessed according the four criteria listed in Box 6.6. If the mix is not conducive—e.g. if the total amount of financial resources is not sufficient to address the country's most urgent needs or if it is dependent on the success of a single solution—the list should be revisited. If the mix is assessed as adequate, each selected finance solution will be developed further in Step 6.5.

Box 6.6: Appropriateness of the Mix of Solutions Proposed – Suggested Criteria

Finance

Financial adequacy – the sum of the resources expected to be mobilized through the solutions listed is adequate to significantly address the previously identified financial needs.

Risk Management

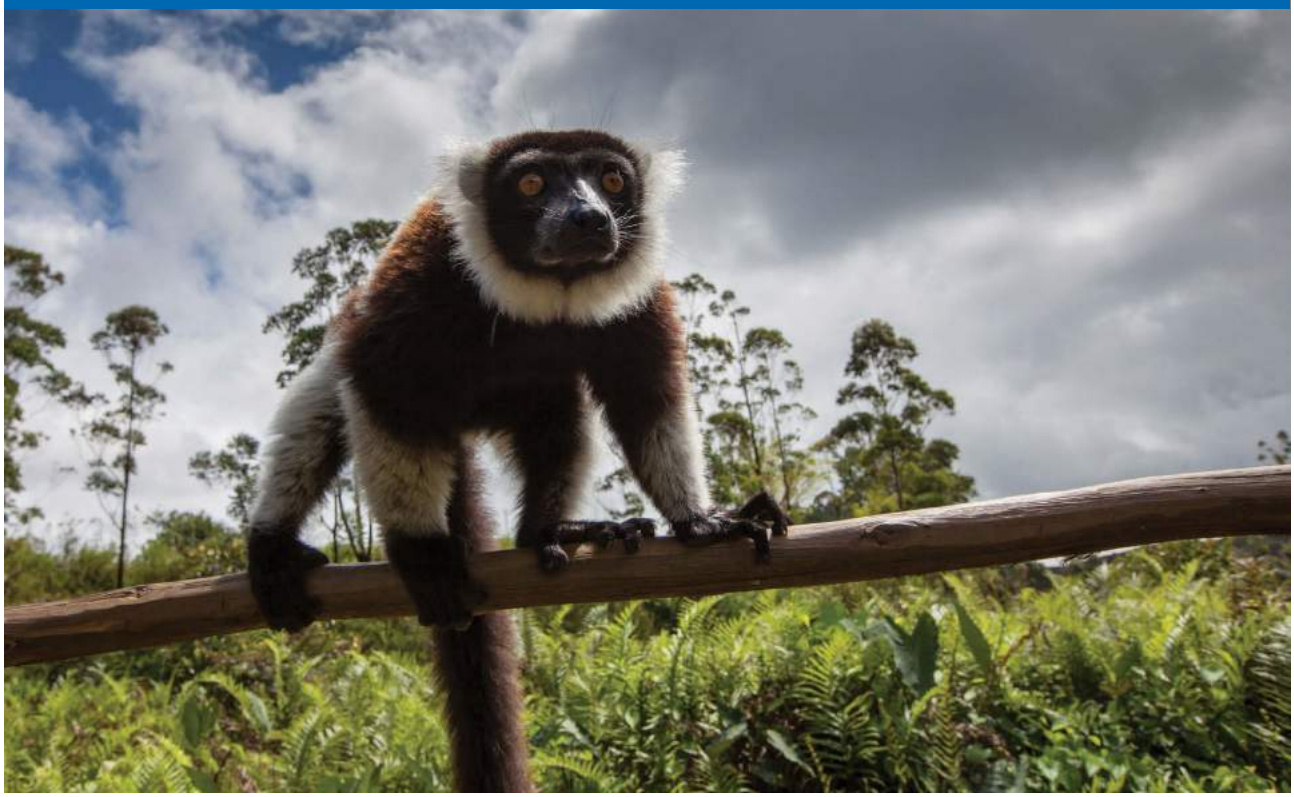
Diversity of solutions – focusing on one or a few solutions might put a country's biodiversity future at risk, should the solutions fail for any reason. A country's BFP should contain a diverse set of solutions to be more resilient to shocks, delays, and institutional challenges.

Planning

Appropriate sequencing – some solutions might require several years before they can be implemented or achieve biodiversity results. The Finance Plan should take into consideration urgent biodiversity priorities and long-term goals; a mix of short- and long-term solutions is useful.

Integration

Contribution to sustainable development – the Finance Plan needs to be framed within a wide understanding of sustainable development, and promote social and economic development. Subcriteria include: acceptability of trade-offs, contribution to reducing gender and income inequality and poverty, and fairness.



Step 6.5: Develop technical proposals for priority solutions

During this step, the priority solutions identified through the screening in Step 6.4 will undergo a full feasibility analysis and initial design phase. The information gathered during the screening process and the additional evidence from the BIOFIN assessments in Chapters 3-5 can be starting points for the analysis. The feasibility analysis should be carried out for each priority solution. Design and analysis will include defining core elements of the solutions, justification and rationale, expected financial results, sequencing, risks, etc.

The lack of information and knowledge about a solution may necessitate the commissioning of detailed research, which, depending on the complexity, may continue after drafting the Plan. When all the information is collected, the Plan will be updated. The Plan should be presented as a working document rather than a single one-off report. Comprehensive feasibility studies can include the following:

1. **Executive Summary** – The summary contains all the essential information that a high-level decision maker needs in a concise format (not exceeding a few pages). Infographics or summary bulleted tables may facilitate the presentation.
2. **Finance Solution Description** – This introductory section should include a detailed description. The finance solution must be detailed including a) area of focus, both geographical and sectorial, b) key actors and stakeholders, c) sources of financing, d) financial instruments involved, and e) expected results as per Step 6.2.
3. **Environmental, Social, and Political Considerations** – This includes a review of risks and opportunities as well as legal and regulatory issues that should be addressed in the design.
4. **Market Demand or Finance Sources** – For market-based finance solutions, it is essential to understand market demand including the willingness (and ability) to pay for the associated goods and services. Demand can be assessed through market research, interviews, surveys, and comparative studies. If the tool is not market-based, this section should analyse likely finance sources.
5. **Marketing or Communication Strategy** – A brief marketing analysis and main elements of a marketing strategy are essential for all market-based instruments. Alternatively, for non-market instruments, a communication strategy to reach and convince key donors, finance sources and other stakeholders is useful.
6. **Organization and Staffing** – Identifies the human resource and institutional needs for success, including existing and required technical and implementation capacity.
7. **Schedule** – Elucidates a realistic timetable for implementation, including key milestones.
8. **Financial Projections** – Detailed timeline of design, start-up, and operational costs as well as financing needs and sources. Projections should be on a yearly basis and even if estimated, should cover the years required to reach a financially viable state for the solution in question.
9. **Findings and Recommendations** – Summary conclusions including key opportunities and challenges. The recommendations should be very specific and provide guidance on design features if the planned finance solution is advance to the next stage.

The feasibility assessment can be turned into a concise technical proposal for both the BFP and/or for seeking outside financing. Each feasibility study will be included as an annex while summaries will be presented in the main text (Step 6.7).

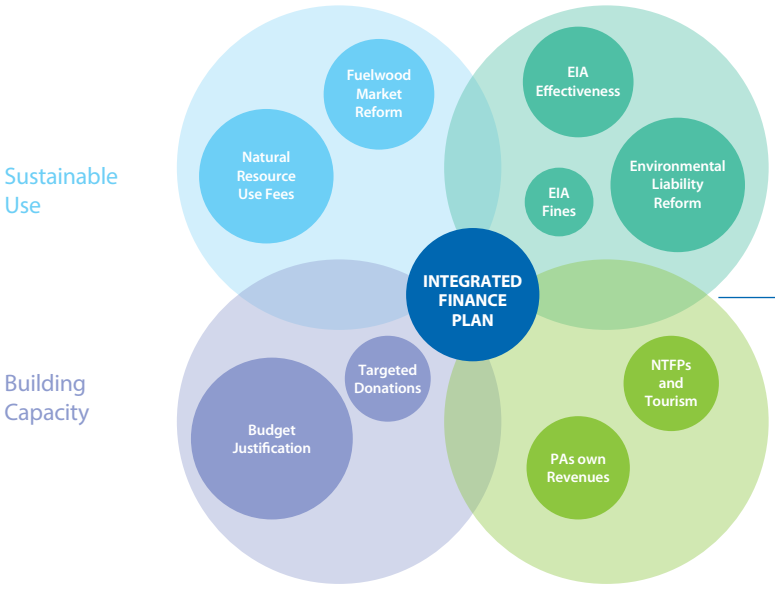


Figure 6.4: Example of the Biodiversity Finance Plan from Georgia. The Size of the Circles Corresponds to the Estimated Finance Potential of Each Biodiversity Finance Solution

Step 6.6: Formulate a case for investment

The case for investment sets out the rationale for prioritizing biodiversity finance in policy, legislation, plans and projects in language that the investors and financers can understand. It should convince decision makers to act by highlighting the benefits of taking biodiversity into account in decision-making, and recognizing the associated costs and risks of business as usual. The investment case for the Plan and the cases for the different finance solutions can be adapted to different perspectives and interests based on the target audiences (see Box 6.7).

Box 6.7: Adapt the Investment Case to Different Perspectives and Interests

Depending on the key stakeholders and decision makers for the Plan and its finance solutions, the investment case should be adapted to different perspectives, such as:

- Government is usually interested in the economic and social returns. This includes the impact on GDP, jobs, etc., and also resilience and avoided social and capital costs (e.g. from improved flood risk management as a result of catchment rehabilitation). Benefits are assessed against trade-offs and the needs of different interest groups and political constituencies.
- The private sector is interested in its dependency on natural resources (e.g. sourcing raw materials, water, energy, etc.), the impact of businesses on biodiversity and via biodiversity on health, well-being, and other companies, operational risks (e.g. supply chain disruption) and market opportunities (e.g. new products, markets, leadership, growth, etc.).
- Development partners usually seek to support global and national public goals such as the SDGs. They consist of traditional donors, civil society organizations and faith-based organizations.
- Philanthropists usually seek to understand the social and environmental impact of the initiatives they finance. They also seek assurances on how the money will be spent and on transparency. The strategy will be different for foundations, high net worth individuals and the general public.

As stated above, the investment case for the Finance Plan is a combination of two approaches. The first examines the economic benefits of sustainable biodiversity management in the country – why implement a Biodiversity Finance Plan at all? The other approach is aimed at elaborating an investment case for each finance solution. Both business case types can be subdivided into five elements described in Box 6.8.

Box 6.8: Five Elements of an Investment Case

This approach, most commonly used in the UK, New Zealand and Australia, distinguishes five elements of the business or investment case. Generally, business plans and early-stage business cases will use the elements earlier in the list; more developed cases (approaching delivery) will put more emphasis on the elements lower down the list.

1. **Strategic case**[11] – Is the proposed solution supported by a compelling case for change that fits within the strategic context and meets biodiversity, public sector, or business needs?
2. **Economic case** – Under a cost-benefit analysis, will society be better off? Are the distribution of any economic changes (who faces costs and who receives benefits) manageable or desirable?
3. **Financial case** – Is the proposed financial cost affordable and is there a clear path to funding? Does the solution optimize value for money?
4. **Management case** – Is the proposal achievable and can it be delivered successfully?
5. **Commercial case (for market instruments only)** – Is the proposed solution commercially viable?

It is important to think about a case for investment not only as an economic argument but also as a social and emotional argument, and consider intrinsic arguments. Table 6.3 from South Africa provides some talking points for building buy-in for biodiversity in decision makers and the public.

Table 6.3: South Africa's Eight Value Propositions for Biodiversity[12]

Message	Short Description
National asset	Biodiversity is natural capital with immense economic significance for South Africa. Investing in natural capital, by giving a superior return on the investment, is investing in our country.
Children's legacy	Every decision government makes affect the future of biodiversity – a rich or impoverished natural world that we leave for our children and children's children. By investing in nature we take care of our families.
Practical solutions	There are practical, realizable things that government can do to protect and enhance our "natural infrastructure".
Wealth of the rural economy	Biodiversity is the natural capital of the rural poor. We need to unleash the potential of biodiversity to develop rural economies.
Climate change	Good biodiversity management can slow down climate change and its impacts. Our natural wealth can help to save us from natural disasters.
Global leadership	South Africa is a world leader in biodiversity. As the world faces a global biodiversity crisis, South Africa can spearhead innovative solutions.
Health	Healthy, thriving biodiversity is vital for a healthy population. Our rich variety of flora and fauna provides natural medicines used by over 80 percent of our population.
Humanity	As humans, we are part of the web of life. Nature's ubuntu is all around.

Plan-Level Case

At the Plan level, the investment case should address both the benefits of investing in biodiversity in general, and the benefits of investing in and implementing the BFP itself. It can focus on the strategic case and the economic case. The strategic case is a narrative that highlights how the investments will enhance biodiversity's contribution to the economy, society and sustainable development. The economic case can be compiled using cost-benefit analysis and cost-effectiveness analysis approaches (see Appendix III), drawing on economic valuation studies, natural capital accounting or studies from programmes like TEEB and the Poverty Environment Initiative (PEI). This analysis is presented in the early part of the Plan and builds on the information compiled in BIOFIN assessments. Second, the case should present arguments for implementing the BFP itself, including the value of a mix of solutions, the benefits of leveraging small investments for larger long-term financial flows, etc.

Many NBSAPs and other strategic plans already provide sound arguments to use in the Finance Plan by highlighting the benefits that will accrue to biodiversity, including threatened and endangered species and habitats. These plans include ecosystem services arguments. However, these benefits are often not effectively translated into supporting economic, financial and social arguments. Studies that contain an economic valuation of ecosystem services can provide additional arguments for investing in biodiversity, using appraisal tools such as CBA (see Appendix III). Initial data was identified in the PIR and can be summarized here. If there are no adequate data, additional (social) CBA or a Targeted Scenario Analysis (TSA) might be required in support of the Plan or a specific finance solution. The package of solutions in the Plan could create a "scenario" for sustainable biodiversity management that effectively lends itself to economic analysis comparing expected outcomes under the Plan to a current or "business as usual" case. Arguments should focus on key entry points for decision makers. For example, improved water resource management has greater value in the context of increased risks of drought and/or floods because of climate change.

The Plan-level business case should start with the financial data: putting the sum of the resources to be mobilized and/or saved, in the context of national budgets and current biodiversity expenditure, revenues and gaps identified in the BER and FNA (Chapters 4 and 5). The investment case for the Plan as a whole makes references to the criteria for an appropriate mix of solutions, described in Box 6.6: finance, risk management, planning, and integration.

Solution-Level Case

At the solution level, the investment case includes more technical and financial justifications to explain the selection and design of the prioritized finance solutions. This information is elaborated in the feasibility studies and presented in the technical proposals. In general, each finance solution has its own investment case that is summarized as part of its technical description in the main body of the BFP and presented in greater detail as part of the feasibility assessment. These solution-level business cases are derived entirely from the feasibility analysis described in detail in Step 6.5. They may need to present this information in a detailed economic case (see Appendix III), or use it to make a financial case, such as calculating returns on investments (see Box 6.9).

Some countries might want to organize the investment case for solutions by grouping some solutions as a finance package for a specific objective such as protected area (PA) financing. Each of those items might in turn be linked to a combination of finance solutions. This is the approach used for finance for permanence initiatives such as "Bhutan for Life" and "Costa Rica Forever". These initiatives, together with the Bear Rainforest project (British Columbia, Canada) are examples of a large-scale and concentrated efforts to mobilize significant resources for biodiversity programmes.

Box 6.9: Calculating Return on Investment (ROI) in Biodiversity Finance

Evaluating expected returns, or return on investment (ROI), is one of the major challenges in building the investment case for biodiversity finance. Unlike pure financial investments, for which returns can be measured simply in monetary terms, the objectives of biodiversity investments are often more complex and difficult to evaluate quantitatively.

A range of financial indicators fall under the term ROI. These include internal rate of return (IRR), net present value (NPV) or return on equity (ROE), and are used depending on the type of solution, the underlying projects, financial instruments and the type of investors. Also, for issues of sustainable development, including biodiversity, we can distinguish among financial, economic, social, and conservation-based returns. For example, people in the emerging category of "Impact Investors"[13] are interested in measuring extra-financial implications of investments, and generally combine financial with other types of returns. Some options for ROI for biodiversity finance include:

The Financial Return on Investment

Where ROI is measured as the total growth in value, expressed as a percentage of an investment during a particular time period.[14]

$$ROI = \frac{\textit{Gain from investment - Cost of investment}}{\textit{Cost of investment}}$$

The Social Return on Investment (SROI)[15]

SROI measures extra-financial values (i.e. environmental and social value not reflected in conventional financial accounts) relative to resources invested. It can also be used as a measure of social and economic return to society where the return includes benefits to companies, the population, private and public sector. SROI can be measured as a contribution to GDP, growth in wages, economic diversification, and sustainable development impact.[16]

The Biodiversity Conservation Return on Investment

This approach applies the idea of ROI to conservation results. It is possible to evaluate the ROI in biodiversity conservation using measurement tools like the Biological Distinctiveness Index (BDI) and other ecological information as well as sociopolitical and economic measures such as the Ibrahim Index of African Governance.[17] This type of ROI, if done well, can allow decision makers to prioritize the conservation areas in which investments will be more effective. Another example is a study that used information on marine ecosystem threats, the effectiveness of management actions, and management and opportunity costs to calculate the ROI in two different conservation actions in 16 ecoregions.[18]

Some of the gains from sustainable biodiversity management can be given monetary values, and this supports economic appraisal methods such as CBA (see Appendix III). A good example of using monetization of ecosystem conservation benefits to calculate an ROI is a study in Kenya of the creation of the Upper Tana-Nairobi Water Fund to help protect and restore the quality and supply of water. The analysis found that a US$10 million investment would result in an expected NPV return of US$21.5 million over the 30-year time-frame. This includes an increase in agricultural yields, an increase in the annual revenue of the Kenya Electricity Generating Company (increased power, avoided shutdown and filtration costs), improved water quality, and reduction of diseases.[19]

Step 6.7: Write and validate the Biodiversity Finance Plan

The final step is drafting, validating, and communicating the Finance Plan. The Plan is BIOFIN's final product, requiring the highest level of partners' engagement in its preparation, validation and endorsement. The Plan should be seen as a formal policy document owned by government, preferably adopted through a government order issued by the Ministry of Finance. Formal endorsement, if possible, may require the pursuit of lengthy national approval processes, the timing of which should be planned in advance. Care should be taken that the approval process does not block the implementation of priority actions and the piloting of certain finance solutions. Finalizing the Plan also entails a transfer of implementation responsibilities from the BIOFIN national team (if separate from government) to a permanent body or branch of government.

The Plan's format is adapted to the country context. The outline below provides indicative guidance on the structure of the report.

The outline of the Biodiversity Finance Plan:

1. Executive Summary

- Vision for Biodiversity Finance
- Investment case for the Plan
- Summary of finance solutions mix and expected impacts
- One paragraph on each finance solution with the following points:
  i. Background/Justification for the solution
  ii. Opportunity – why is this needed now?
  iii. Finance Solution – be as specific as possible
  iv. Expected Impact (can include the ROI)
  v. Key Implementation Steps
- Implementation expectations

2. Vision and Investment Case

- Frame a vision for biodiversity in the country – why is it important globally and nationally?
- Explain how the Plan is linked to the country's priorities and national strategies, i.e. NBSAP, green growth, climate change, SDGs, etc.
- Present the investment case for the Plan as a whole:
  - » Why invest in biodiversity
  - » Highlight the Plan's contribution to the country, the economy, people, and nature.

3. Goals and targets

- Introduce prioritized finance solutions.
- Summarize the Plan's intentions and goals.
- Describe the Plan's specific targets including the resource mobilization targets based on the costing and expenditure review.
- Review the appropriateness of the mix of solutions.

4. Finance Solutions. This section is the core of the Plan.

- Describe each priority finance solution (2-5 pages each) with the following subsections:
  - » One paragraph explaining the solution (See Executive Summary note)
  - » Context for the solution
  - » Objectives of the finance solution
  - » Expected financial results and investment case
  - » Next steps and key actors including a table with milestones
- Describe the role of the different actors and the Plan's governance and implementation.

5. Summary Action Plan

- Group actions in the detailed action plan in order to offer a landscape view of the Plan's components.
- Include an indicative budget and estimation of overall financial return on investment.

6. Annexes (optional – as needed)

I. Detailed feasibility study or technical proposals if conducted for each finance solution

II. Detailed overall action plan and budget
   - » Provide a detailed description of the actions contained in the Plan, including responsibilities and time-frame. For each action, describe the responsible organization and any necessary institutional changes/capacity development required to formally take up this mandate.
   - » Present the budget required to implement the Plan. Indicate existing resources and gaps.

III. Resource mobilization strategy for the implementation of the Plan
   - » If the Plan itself requires significant financing or if there are major gaps in funding, a short resource mobilization strategy is required. Its implementation will be one of the Plan's first steps.

IV. Summary of the BIOFIN Process
   - » Describe the process that led to the drafting and validation of the Plan, the stakeholders and sources of evidence that gave inputs, and summarize the main findings of the BIOFIN assessments.

Endnotes

1 World Health Organization (WHO). Immunization, Vaccines and Biologicals (2013). WHO-UNICEF guidelines for developing a comprehensive multi-year plan (cMYP). Available from: http://www.who.int/immunization/programmes_systems/financing/tools/cmyp/en/

2 State of Private Investment in Conservation (2016). Available from: https://www.forest-trends.org/publications/state-of-private-investment-in-conservation-2016/

3 Conservation Finance (2014).Moving beyond donor funding toward an investor-driven approach. Available from: https://www.cbd.int/financial/privatesector/g-private-wwf.pdf

4 Global Sustainable Investment Review (2016). Available from: www.ussif.org/files/Publications/GSIA_Review2016.pdf

5 UNDP BIOFIN program core countries receive financing for initial piloting of the BFP. Small pilot successes could provide strong incentives to implement the rest of the Plan, and timely opportunities to scale existing finance solutions should be explored throughout the BIOFIN Process.

6 Four broad results of finance solutions are described in Chapter 2: Realign expenditures; Avoid future expenditures; Deliver better; Generate revenue. See: http://biodiversityfinance.org/finance-solutions

7 See: http://www.undp.org/content/sdfinance/en/home.html

8 Economic valuation evidence is defined and identified in the PIR (Chapter 4).

9 "Critical" ecosystem services may be defined as those with a very high value to people, those that are impossible or very expensive to replace, and/or those where there is a risk of collapse (See Section 1.2.1 in Chapter 1).

10 This could be more if many are similar, i.e. a series of PES/Water solutions in different regions that are mostly the same other than location.

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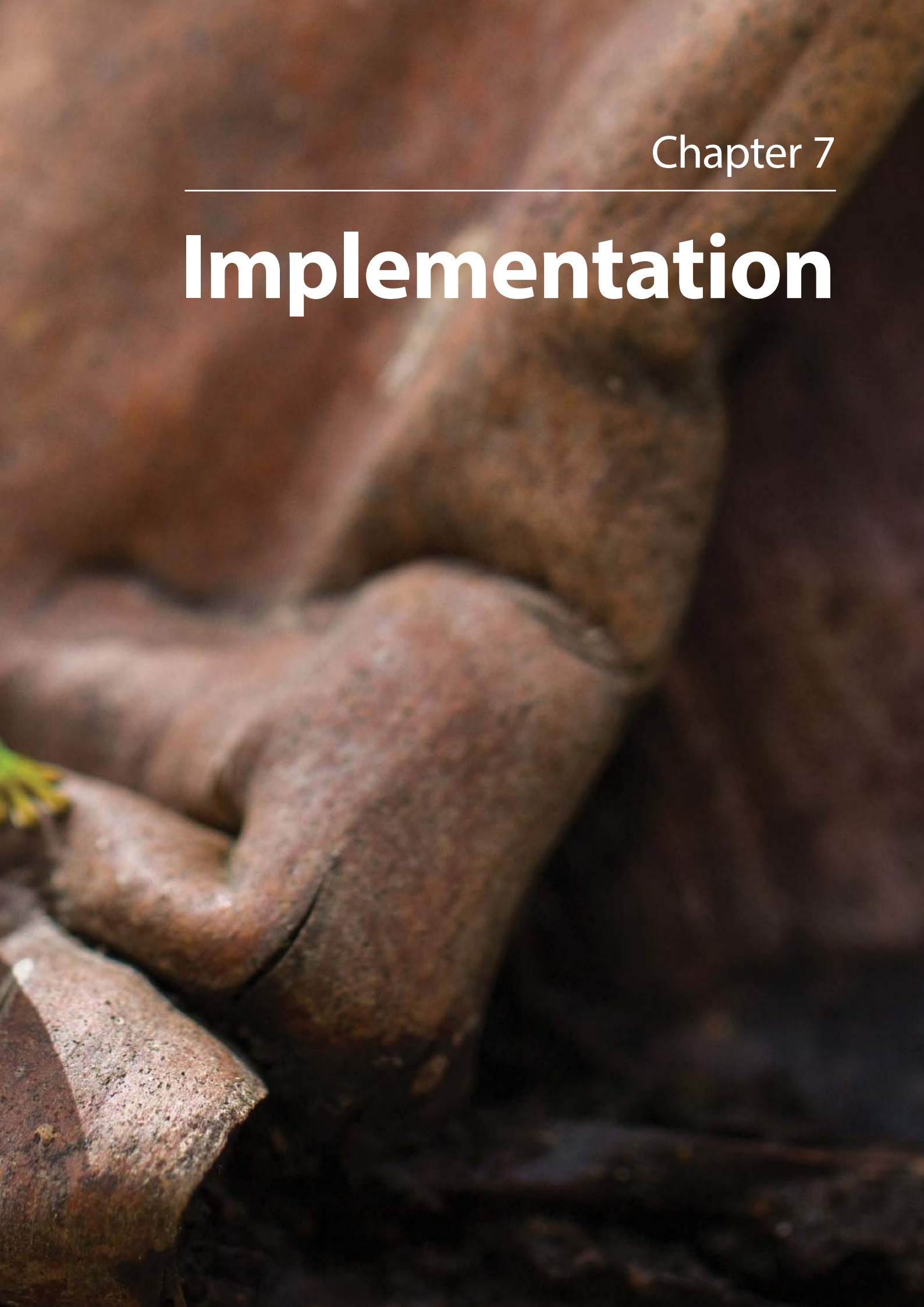


Chapter 7

Implementation

How does this chapter relate to other chapters?

Inception Stage	Diagnostic Stage	Planning Stage	Implementation Stage
Chapter 1/2	PIR/BER	FNA/BFP	Finance Solutions

Sustainability/Institutionalization ➤

This chapter guides countries on how to continue the BIOFIN Process once the Biodiversity Finance Plan is completed. To succeed, countries should not exclusively focus on the implementation of stand-alone finance solutions identified in the plan. They equally need to preserve and maintain a lead role in supporting national actors in coordinating biodiversity finance and widening the space for policy debates. The chapter first describes how to embed each BIOFIN step into existing governing frameworks to guarantee the highest degree of ownership and ensure their long-term sustainability (Section 7.1). This is followed by further guidance on implementing specific finance solutions (Section 7.2).

7.1

Sustainability of the BIOFIN Process

To match a country's financial biodiversity needs, a long-term commitment is required, often crossing multiple political and public planning cycles. For transformational change to happen and last, the BIOFIN function needs to graduate from aid-funding and become embedded into government and private sector structures. Institutionalization aims for this transition. The guiding question is: How can we ensure the BIOFIN Process continues once BIOFIN concludes as a project?

Institutionalization is not limited to integrating results into the institutional framework. It is much broader, happening in parallel across three levels:

1. **The normative framework** (laws, policies, plans and budgets) consists of all existing policies and laws as well as codified public finance management practices. This is the highest level of institutionalization achievable by BIOFIN in the short to medium term. It deals with reshaping national development priorities to include biodiversity in the medium and longer term. Work in this area can be divided into amending formal documents (policies, plans, budgets, etc.) or practices connected to their implementation (enforcement, accounting, reporting, etc). All BIOFIN Phase I reports should help identify gaps in the normative framework and possibly suggest an action agenda to address them.

2. **The organizational framework** includes organizational mandates, structures, capacities and the way they are interlinked. Gaps and inconsistencies are likely to be identified throughout the BIOFIN Process. BIOFIN teams should advocate for capacity enhancement and institutional coherence on a needs basis or in the context of a specific finance solution. Even a small amendment in an organizational mandate (such as adding functionalities related to biodiversity finance), the refinement of responsibilities of a unit or division, or the terms of reference of a certain critical post, can make a difference. For example, many environment ministries lack finance and economy professionals who could spearhead the implementation of multiple finance solutions.

3. In the realm of dynamic relationships, effectiveness, engagement, trust-building and cultural change (perceptions of stakeholders and decisions makers, **behavioural and attitudinal changes**) matter. Normative and organizational reforms need to be underpinned by a broad-based change in perceptions and behaviours. BIOFIN teams can support behavioural change through capacity development, empowerment, and awareness and advocacy campaigns. This process must include effectively managing and addressing resistance to change.

Institutionalization by Design: Belize

Belize opted for an implementation structure featuring the creation of two new government positions within the core National BIOFIN Team. As members of the team, the officials took part in each step of the BIOFIN Process. The two posts will be retained and funded by the Government of Belize once the UNDP-BIOFIN project ends. This ensures critical capacities are built into the leading agency, a guarantee of contribution beyond a project's life cycle.

The following sections presents proven and innovative strategies for BIOFIN institutionalization at all three levels.

7.1.1 Normative framework

The Policy and Institutional Review (PIR), the Biodiversity Finance Plan, and certain finance solutions should already contain recommendations for the amendment and enhancement of specific policies and regulatory frameworks. Follow-through is required next. The continuous mapping of the policy development cycle and stakeholders' engagement should have similarly provided critical insight to propose reforms to the policy landscape. The profound understanding of a country's political economy is necessary to identify where policies stand in their approval trajectory, who the main actors are, and where opportunities for engagement exist. (See Figure 7.1).

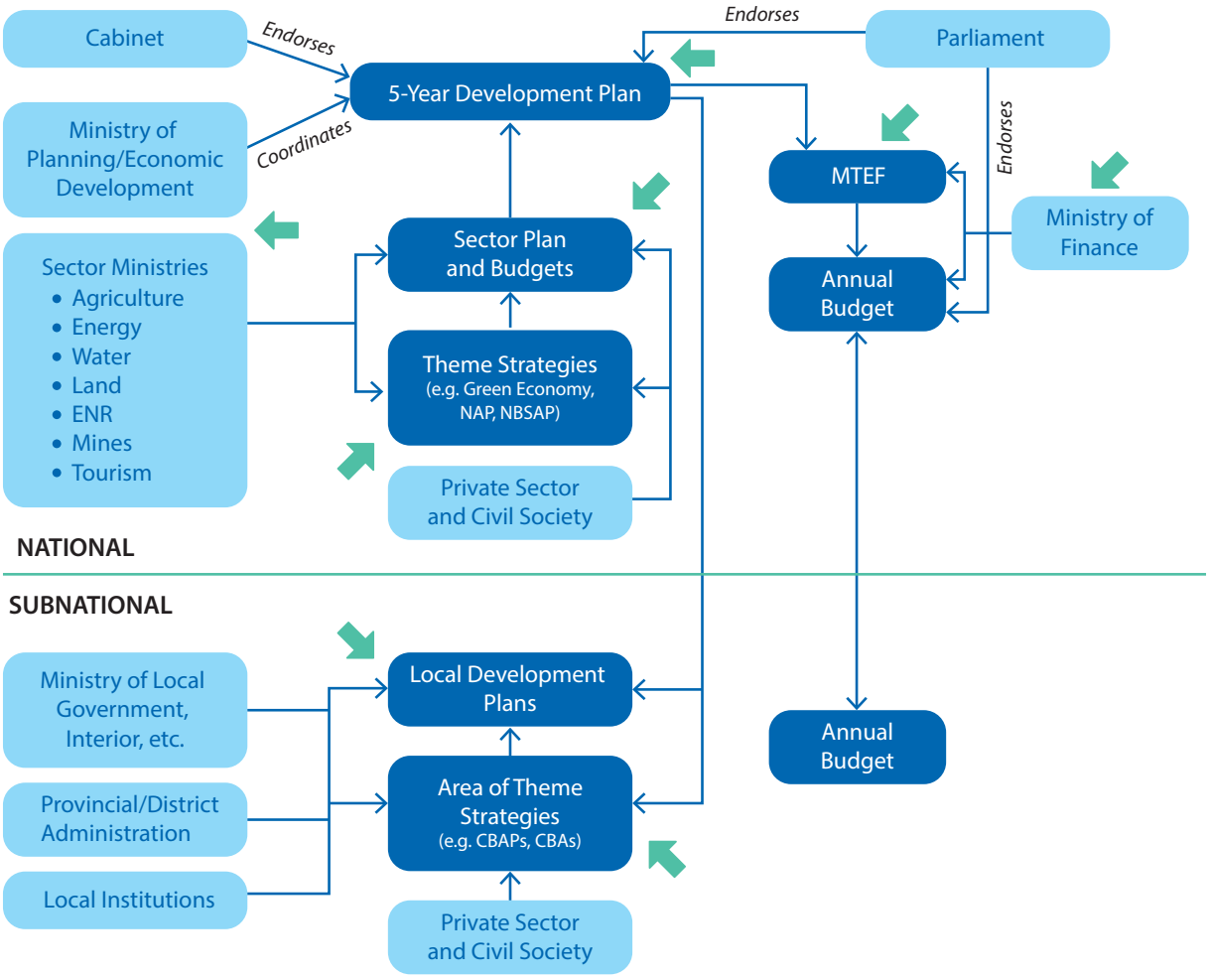
Systematization of the PIR: The PIR analysis is not likely to require frequent updating. It can be revisited every five years in conjunction with the update of the Biodiversity Finance Plan. Governments are advised to maintain an active database of the country's existing biodiversity finance solutions.

Amending Legislation in Kazakhstan

Kazakhstan successfully responded to regulatory framework gaps identified in the policy and institutional analysis. As a result, three legislative areas were enhanced in 2017:

1. The approval of the first legislation on **biodiversity offsets**;
2. The introduction of the concept of **ecosystem services** in national law; and
3. The amendment of the **protected area law**, explicitly requiring funding to be allocated in line with protected area management plans.

Figure 7.1: National Policy and Planning Cycles[1]



The lessons learned from mainstreaming biodiversity into national policies demonstrated the need to address the entire spectrum of a country's planning cycle, including laws, national development strategies, national biodiversity plans, sectoral strategies and subnational plans. This is not only about influencing macro-level planning, but working on the preparation and design of the underlying policy documents and budget proposals. Change can be achieved even in the early stages of the BIOFIN Process: Malaysia has integrated biodiversity finance elements into the 11th Malaysia Plan, while Fiji has helped to develop a results-based framework for the National Biodiversity Strategy and Action Plan.

The Biodiversity Finance Plan's chances of success can be increased by formally adopting the plan as a public document. In an ideal scenario, the plan becomes a new national policy, anchored in national legislation. At a minimum, the plan should be formally adopted through a government order after being validated through a wide stakeholder consultation process. To achieve this, it is necessary to focus on the institutionalization process of the plan from the beginning. The plan can be informed by a political road map that proactively tends towards its institutionalization, and empowers an institution (or a coalition of institutions) to take ownership and leadership in steering implementation. The Ministry of Finance can provide stronger policy leverage if it has a leading role. Countries may also opt to keep this role with environment ministries to ensure a clear biodiversity focus.

As detailed in Chapter 6, the first step is about clarifying ownership of the Plan by national institutions. However, since the solutions will be implemented by different stakeholders, there should be considerations both at the plan and solution level. The most likely scenario is an overarching institution or a coalition of institutions accepting global ownership of the BFP. The Ministry of Finance is often the most suitable institution to play this important role, along with the ministry responsible for the environment or planning. The finance plan should also specify the lead/responsible agency within government for individual solutions.

Systemization of the BFP: It is advisable to update the plan at least once in five years. The update should focus on the design of new or significantly amended finance solutions, and ensure that the revised suite of finance solutions forms a comprehensive and complementary package.

7.1.2 Organizational framework

Integrating biodiversity finance functions

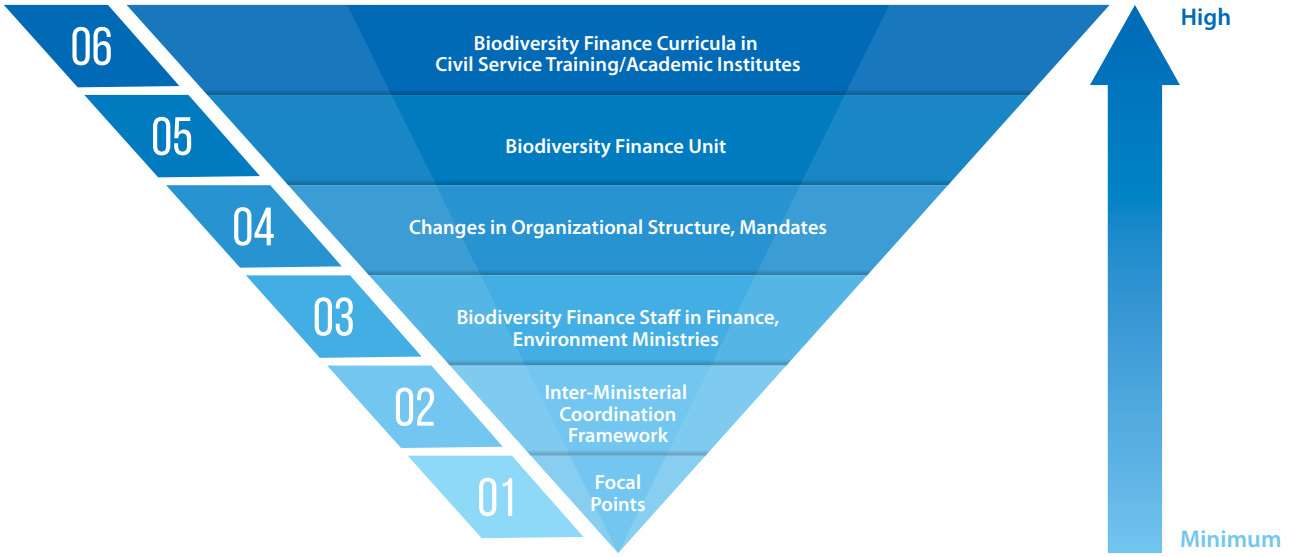
BIOFIN activities cover multiple functions. They encompass advocacy and awareness-raising (e.g. nurturing champions), coordination and policy coherence, technical support for the design and implementation of finance solutions spanning from public to private sector, and costing and modelling biodiversity actions. The sustainability of the BIOFIN Process is influenced by the way the activities are designed and managed. Government and stakeholder ownership, under the leadership of focal ministries, is no doubt critical. Ownership can be achieved in many ways including by favouring direct implementation from government institutions: in India the technical work was undertaken by government agencies, including the National Institute for Public Finance and Policy and the Wildlife Institute of India. The objective is to empower and enhance the organizational capacity of national institutions to promote and manage biodiversity finance into the future.

BIOFIN-related functions can be embedded into a country's organizational framework (see figure 7.2) at multiple levels of commitment:

1. At minimum, **focal points** for biodiversity finance/BIOFIN need to be appointed in the ministries of finance and environment.
2. The Steering Committee can be transformed into a permanent, **inter-ministerial coordination body**, formally established through a government decree and made responsible for the implementation of the Biodiversity Finance Plan. Equally, the technical committee could become a permanent advisory board.

Biodiversity finance functions in public agencies

Figure 7.2: Levels of Institutionalization for the BIOFIN Process in a Country's Organizational Framework



3. **Biodiversity finance experts** can be formally embedded in key ministries (such as finance, environment, or planning) to work full-time on biodiversity finance and act as lead technical advisors. Uganda, for example, has been exemplary by turning the BIOFIN project coordinator position into a staff post within the National Environment Management Authority.

4. A higher level of sustainability can be achieved by **amending formal mandates and functions** of units/divisions within ministries or even entire ministries, ensuring they have a firm mandate to identify and deploy finance solutions.

5. A **dedicated biodiversity finance unit**, responsible to monitor the implementation of the Finance Plan, provide technical advice, coordinate all initiatives related to biodiversity finance and generate new and innovative ideas for additional finance solutions can be established and staffed (see the example from Seychelles).

6. The BIOFIN Methodology and related biodiversity finance courses can be **integrated into academia and civil service training curricula** to train the next generation of biodiversity finance experts. BIOFIN teams can also proactively deliver lectures at universities or training institutes within existing curricula. India and Thailand have taken steps towards developing and delivering national training material. **Online training modules and webinars** can offer the same to a wider audience.

Establishing a Biodiversity Finance Unit in the Seychelles

When BIOFIN started, no government entity in the Seychelles was mandated to work on biodiversity finance. Their finance plan contains provisions for establishing a new unit to work exclusively on biodiversity finance.

Introducing budget tagging/coding systems

BIOFIN assessments can be integrated as recurrent activities within public institutions. The Biodiversity Expenditure Reviews can be institutionalized by introducing biodiversity budget tagging or coding in public finance management software and practices. The tagging system will flag expenditures partly or fully allocated towards biodiversity, thus enabling the production of regular biodiversity expenditure assessments and lowering transaction costs. Budget tagging was successfully applied for climate change and is currently being piloted for biodiversity in both the Philippines and Indonesia.

Adding biodiversity categories to periodic public expenditure reviews is another approach. Development organizations could adopt biodiversity-related expenditure markers, the best-known example being the OECD-DAC Rio Markers. Finally, biodiversity expenditure recording can also be aligned to natural capital accounting and the reporting of statistical agencies.

Private companies do not usually register biodiversity spending as such, but several methodologies exist to track conservation spending, for example by including it in CSR reporting or by applying natural capital accounting systems.

Systematization of Biodiversity Expenditure Reviews: To enable countries to regularly conduct expenditure reviews, a rapid assessment can be conducted to find out the capacities required to do so. Ideally, this is done before the first BER or during an update of the report.

Climate Change Budget Tagging in Indonesia

Indonesia has shown that it is possible to institutionalize an expenditure review, by adopting a tagging system into the national public finance management software. The software enables marking the relevance of each expenditure towards climate change mitigation. After this is done, automatic reporting can be produced. The tagging system resulted in the issuance of the first sovereign US$1.25 billion Sukuk, which relied upon it for the identification of eligible projects.

Aligning financial needs data with planning and finance practices

To increase the use of Financial Needs Assessment (FNA) in the national planning cycle, alignment with government expenditure accounting practices is crucial. Ideally, the FNA should generate data that can be used for medium- and long-term planning frameworks as well as annual budget proposals. Bhutan is one of the countries guaranteeing full compatibility. Its FNA directly provided baseline data for the 12th Five Year Plan.

An FNA, while necessarily a time-bound exercise, can reduce the costs of undertaking similar exercises in the future, including by identifying most applicable costable actions and unit costs and the development of costing models where possible. Costing exercises let us compare multiple implementation models with different costs, which can provide vital information for planning and decision-making and inputs to more sophisticated cost-benefit analysis. Building sound costing practices into any organization brings rigour to planning exercises and eventually fosters cost-effectiveness in public planning.

Systematization: Once the initial costing data are produced, and reporting templates have been developed and lessons documented, future costing exercises are likely to require less effort. Key government officials might need training on costing and modelling methodologies.

7.1.3 Behaviour and perceptions

While being a less tangible objective than changing policies or organizational structures, any finance solution's success must be anchored in wide support and belief among core stakeholders.

To measure perceptions around finance solutions, two major tools are available:

1 **Perception surveys** are increasingly used to collect baseline information for policy reforms. They can gauge existing views on a finance solution before starting any work, and flag any concerns. Results demonstrate to what extent key (groups of) stakeholders understand and support the concept. Effective perception surveys inform the activities and advocacy strategy for the solution. The OECD provides detailed guidance on the design and application of perception surveys.[2]

Box 7.1: Six Steps in Designing a Perception Survey According to the OECD

Define survey objectives and target group

- Define the objectives
- Define the final use of the results
- Ensure a perception survey is the adequate tool
- Define target groups

Draft survey questions

- Set up discussion with members of a target group to identify key issues
- Translate those into questions and answer categories
- Draft simple and clearer questions
- Keep the questionnaire short to maximize response rate and concentration
- Ensure respondents have the opportunity to report problems

Pilot and readjust the questionnaire

- Test the survey on a smaller target group to identify weakness in the survey design
- Possibly ask volunteers to think aloud while answering questions and analyse what motivated their answers
- Adjust the questionnaire if needed

Select respondents and the data collection method

- Select a sample by random sampling or other methods
- Ensure that the sample size allows for a valid conclusion from the results
- Choose the data collection method: personal interviews, telephone interviews, internet surveys, email surveys, etc.
- Maximize response rate through appropriate data collection method

Run the survey

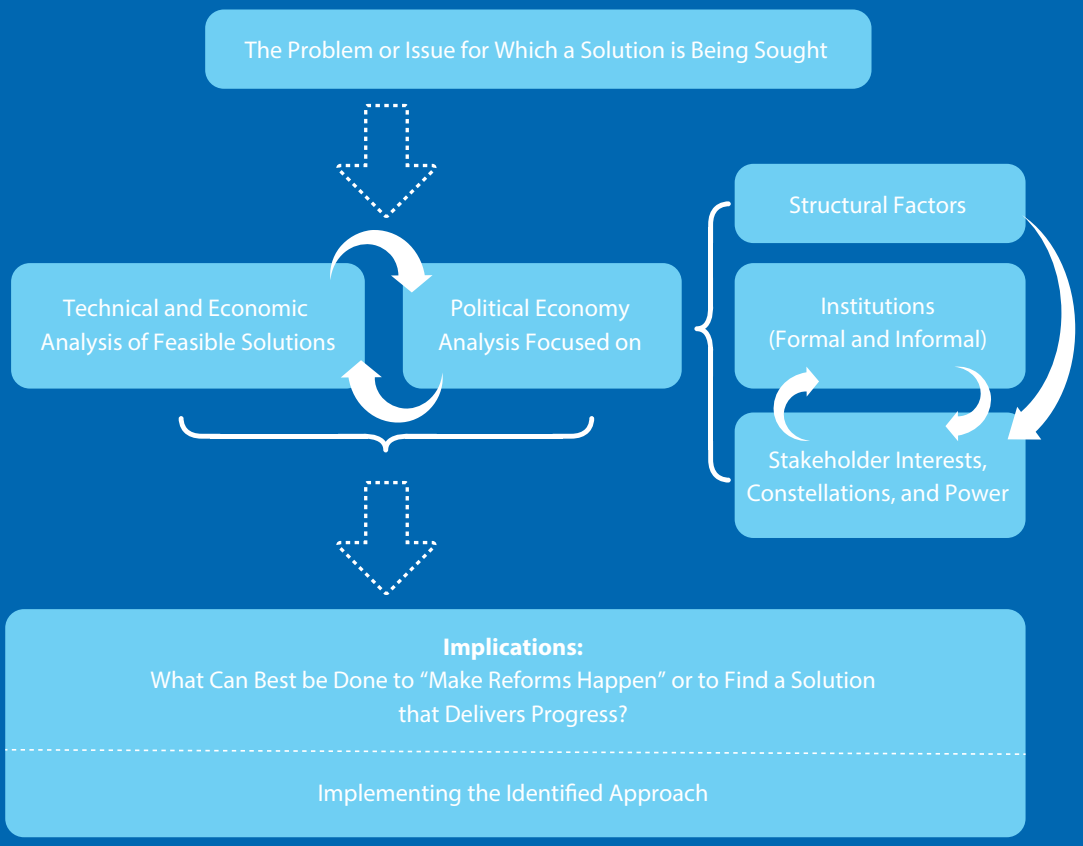
- Ensure high response rate through follow-up emails, to avoid biased conclusions
- Use trained interviewers to avoid unintentional influence on responses

Analyse the results

- Interpret results as perceptions rather than facts
- Take into account the response rate. A low rate means that no general conclusions can be drawn
- Take into consideration the number and the way respondents have been selected in the result analysis
- Understand how results were reached as this is essential to draw policy conclusions
- Attach documentation regarding Steps 1-6 to results and interpret results in combination with other data sources

2 **Political Economy Analysis (PEA)** stems from the challenges of addressing development issues with strong technical approaches and repeatedly seeing these approaches fail. We now know that additional elements must be considered in planning and development investment. The World Bank's problem-driven PEA model is presented below (Box 7.2). It shows that in addition to exploring the technical and economic feasibility of an approach, we should also explore three levels of the political economy: ① structural factors, ② institutions, and ③ stakeholder interests, constellations and power.

Box 7.2: Political Economy Analysis Explained Further[3]



Note: This figure is an amended version of three-layer approach proposed in their 2009 Good Practice Framework (see Fritz, Kaiser, and Levy 2009, 7).

Although a problem-focused PEA is appropriate for specific biodiversity trends, a PEA can also be implemented for a specific sector or finance solution. Below are some sample questions for conducting a PEA.

Roles and responsibilities

Who are the key stakeholders? What are the formal/informal roles and mandates of different players? What is the balance between central/local authorities in provision of services?

Ownership structure and financing

What is the balance between public and private ownership? What are financing arrangements (e.g. public/private partnerships, user fees, taxes, donor support)?

Power relations

To what extent is power vested in the hands of specific individuals/groups? How do different interest groups outside government (e.g. private sector, NGOs, consumer groups, the media) seek to influence policy?

Corruption and rent-seeking

Is there significant corruption and rent-seeking? Where is this most prevalent (e.g. at point of delivery, procurement, allocation of jobs)? Who benefits most from this? How is patronage being used?

Service delivery

Who are the primary beneficiaries of service delivery? Are social, regional or ethnic groups included/excluded? Are subsidies provided, and which groups benefit most from these?

Ideologies and values

What are the dominant ideologies and values which shape views? To what extent may these serve to constrain change?

Decision-making

How are decisions made within the sector? Who is party to these decision-making processes?

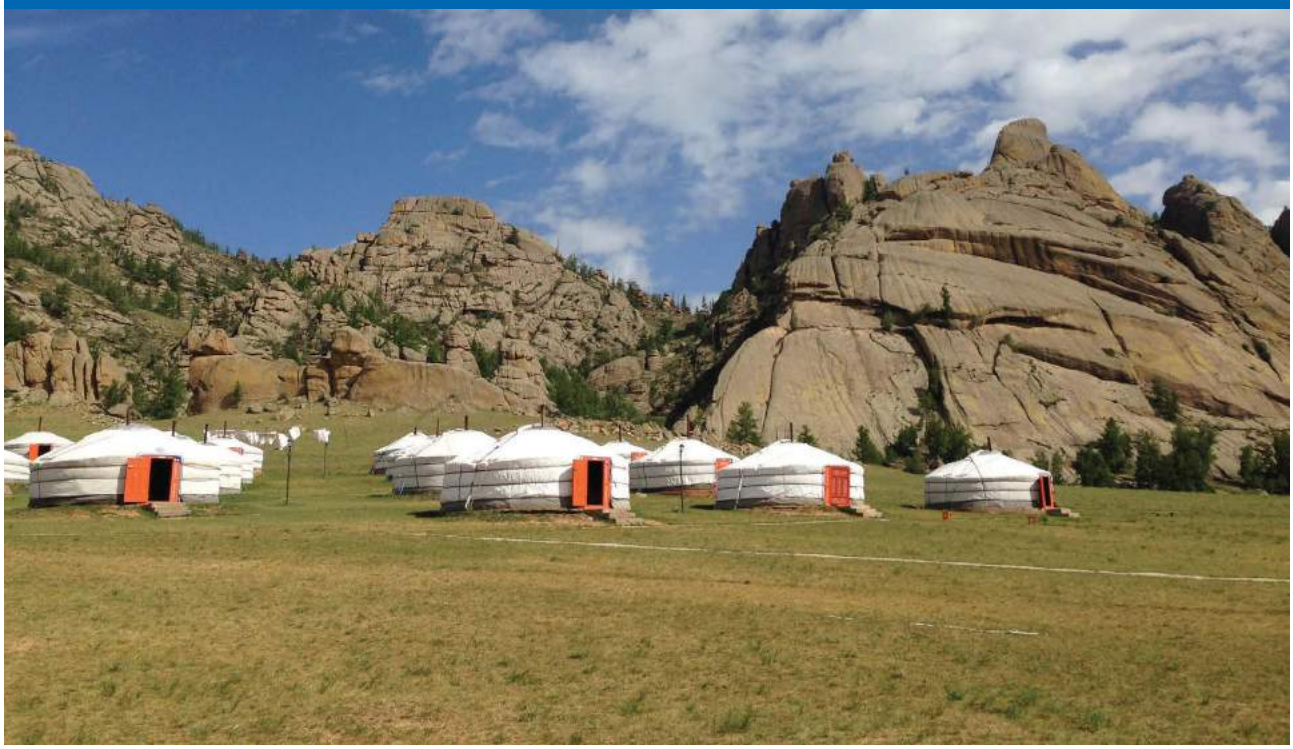
Implementation issues

Once made, are decisions implemented? Where are the key bottlenecks in the system? Is failure to implement due to lack of capacity or other political/economic reasons?

Potential for reform

Who are likely to be the "winners" and "losers" from particular reforms? Are there any key reform champions within the sector? Who is likely to resist reforms and why? Are there "second best" reforms which might overcome this opposition?[4]

Numerous resources are available online for PEA. The GSDRC Topic Guide is one good starting point.[5]



7.2
Implementing the Finance Plan and Finance Solutions

The national BIOFIN team's role changes in the BFP implementation stage. No longer will their primary focus be to collect and analyse data, or to generate new biodiversity finance figures. The weight of the work becomes overseeing the design and implementation of specific finance solutions and convening the required discussion space to keep the BFP and biodiversity finance as a whole at the centre of the country's attention. While the finance solutions constitute the building blocks of the plan, BIOFIN teams need to ensure all related initiatives are well integrated and coordinated. This is about promoting a shared vision on biodiversity finance and sustaining platforms for knowledge sharing and learning, for example by organizing webinars, convening working groups or holding an annual biodiversity finance conference in the country. Enhancing national capacity on all aspects of biodiversity finance remains a core function of BIOFIN in the implementation phase as well, embracing not only public agencies but also private companies and civil society.

To enhance the impact and relevance of results, countries need to adopt a systemic approach to finance solutions. This means moving beyond one-off interventions such as carrying out a feasibility study, developing legislation or piloting a mechanism in a single location. The development or amendment of legislation, while in itself a potentially lengthy task, often requires further work to embed the changes, such as communication of the new legislative norm; training on implementation to enable the new legal regime to be enforced; amendments to institutional structures, plans and policies, including budgeting, etc. The piloting of a mechanism should not be an end in itself – lessons learnt from pilots (both successful and not successful) should inform policies or institutional changes, and successful pilots should be replicated and scaled up wherever possible.

The plan's implementation will likely continue through multiple policy cycles. As highlighted by OECD, experience demonstrates that new policies usually need to be sustained and motivated over a longer period than may be expected, as government priorities shift. This could also happen due to high turnover of staff at government institutions, or as champions of change move on to different roles. While the focus remains on public institutions, similar considerations are valid for the private sector, where levers of competition, shareholders and management may change, and markets and regulatory frameworks could evolve in different directions. Working with the media and civil society is also critical in maintaining the momentum and influencing wider public audiences and political movements, and to ensure that the rights and interests of indigenous and vulnerable groups are addressed.

Ensuring sufficient human and financial resources are in place for implementation is necessary for both the Biodiversity Finance Plan and individual finance solutions. The Plan needs a specific budget, which may be in kind if hosted in a public agency.

Each finance solution should, to the extent possible, address major elements of sustainability from the design/feasibility stage, including activities to generate awareness, improve the institutional framework and strengthen national capacities. The plan should specify the lead/responsible agency for every solution. In many cases this agency may be public. In some

Box 7.3: Public–Private Partnership for the Conservation of Sailfish in Guatemala, the Implementation of a Finance Solution

BIOFIN Guatemala is developing a finance solution related to tourism and sailfish sport fishing, both relying on environmental services arising from coastal marine ecosystems. Tourism related to fishing in Guatemala is an economic activity with an important potential for growth, as demonstrated by some of its neighbouring countries. Sailfish sport fishing is a growing economic activity in the country. BIOFIN helps to ensure economic and conservation priorities are tackled in conjunction, by developing a formal public-private sector strategic alliance to better regulate and deliver financial resources for sailfish management, research and monitoring and associated biodiversity conservation activities. The government and private sector agreed to set up a financial mechanism to attract voluntary contributions (US$10/day or US$30/week) by people and companies related to sport and tourism sail fishing. It is estimated this solution will mobilize at least US$155,000/year directed to coastal marine biodiversity. BIOFIN also works on complementary aspects including the compliance of registration of sport fishing vessels and payments for fishing quotas. It is estimated these mechanisms will generate approximately US$100,000/year. The funds will be channelled through the budget of the Fishing and Aquaculture National Authority to ensure revenues are used to finance sailfish conservation and monitoring of the sailfish stock and sport fishing activities.

cases, the lead organization could be an NGO. Lead NGOs must ensure that there is sufficient funding and capacitated staff to take on this work. Mechanisms to ensure good communication between NGOs and relevant governmental agencies are critical to the success of these finance solutions.

Finally, establishing an adequate monitoring and evaluation (M&E) framework for the implementation of the BFP will guide implementation across multiple partners and support cohesion across multiple finance solutions.

7.2.1 Planning and managing finance solutions

Each finance solution can constitute a separate project on its own, with unique dynamics on engagement, leaders and stakeholders, costs of implementation, political exposure and timeline. While written with the best intentions, the analysis produced might not be detailed enough to determine detailed steps for each finance solution. In the implementation phase, the critical task is to reach a sufficient level of detail to guide operationalization. We can broadly distinguish three development stages:

1. Feasibility analysis
2. Development
3. Implementation

1 Feasibility

For many solutions, sufficient feasibility and preliminary decision-making processes should already have been undertaken in the BFP formulation. For solutions still at a conceptual stage, or requiring a detailed feasibility study, additional analysis can be conducted. This includes gathering baseline data, such as cost-benefit information, the legal requirements, capacity assessments for implementation and perception surveys over investors or payers. The result is a well-informed decision to either adopt the solution as it is or in an amended form, or not. With time the configuration of some solutions may also change, depending on endogenous and exogenous factors. An example is the cost-benefit analysis of a tax or subsidy reform or a feasibility assessment for an investment in sustainable tourism.

Box 7.4: Using Willingness-to-Pay Surveys to Assess Biodiversity Finance Opportunities

Willingness-to-pay surveys are designed and often used to determine or review the rate of protected areas' entrance fees. They aim to determine the maximum amount users are willing to pay for the benefits derived from the site.

The determination of entrance fee levels should also be balanced with a comparison of fees charged at other similar sites in similar circumstances and the analysis of the costs associated with the provision and maintenance of recreational opportunities.[6]

We can uncover the willingness to pay using two methods: stated and revealed preferences. The stated preference (or contingent valuation) is a survey-based technique asking direct questions about the value associated with the protected area. For example, visitors could be asked whether or not they would still choose to visit the site if the fee increased by a specified amount. Revealed preferences are found by studying the actual decisions people make; for example, how much visitors are paying in transportation costs to reach the site or how much real estate pricing is affected by the protected area. The revealed preferences may be very different from the stated preferences. However, the stated preferences method generates information about market options that do not yet exist.

The Tanzania National Parks used willingness-to-pay surveys to review the existing entrance fees. 6,000 people responded. Visitors from overseas represented 75 percent of park users, and the study found that for this group a US$60 increase in the Serengeti conservation fee over several years would not seriously diminish visitation, and would raise an additional US$14.8 million in 2020, equivalent to a 57 percent increase in total revenue from the park.[7]

2 Development

Development of the solution includes drafting and adopting the required legal and policy documents, bylaws, charters, HR policies, organizational charts and other regulations required for the solution. This results in the solution being ready for implementation. Adequate safeguards and M&E need to be built in (see next sections). For many finance solutions, detailed guidance exists on how to design the solution step by step. Examples include the Biodiversity Offset Implementation Handbook,[8] suggesting 8 steps for the design stage and 14 actions for implementation, and the CIFOR, which guides countries in assessing the feasibility of PES projects.[9]

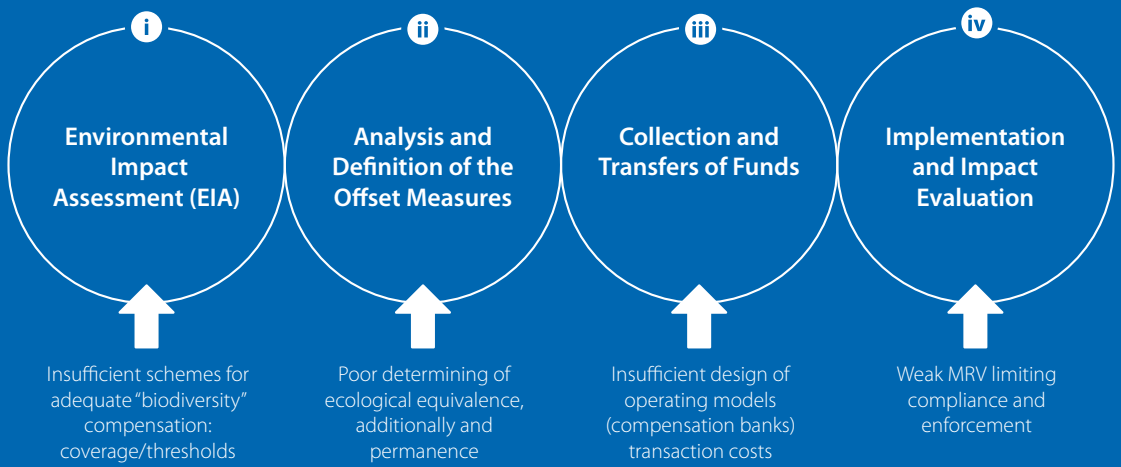
3 Implementation

The solution is operational, based on the regulations and policy provisions, financial and human resources in place. This solution produces measurable finance results. M&E mechanisms are in place and provide insights into adaptive management; for example, a conservation trust fund that shifts its focus to nature-based adaptation projects in response to funding opportunities from climate facilities. Learning is extracted and shared with a wider group of stakeholders.

BIOFIN recommends the use of a specific template to plan the feasibility, design and implementation of finance solutions (see Annex I), regardless of their unique characteristics. External experts and decision makers should assess the filled template, which must contain a clear business case for the investment. The template mirrors the distinction between finance solutions that are in the feasibility stage and those at the development and implementation stages.

Box 7.5: Improving the Biodiversity Offset Framework in Chile

In Chile, biodiversity offsets are regulated under the Environmental Impact Evaluation System (EIS). The BIOFIN Team conducted a study to assess 531 biodiversity offsets-like projects in the period 2000-2017. Out of the total, only 78 percent of the projects estimated their impact on biodiversity and 29 percent contained commitments on compensation. The value of compensation was below 0.5 percent of the project investment costs. The figure below illustrates the challenges in implementing biodiversity offsets. BIOFIN identified opportunities for improving the underpinning regulatory framework and the organizational management cycle to increase effectiveness. It is estimated that the optimization strategy will increase offset financing from 0.5 percent to 2 percent of the total costs.



7.2.2 Applying safeguards

We tend to assume that biodiversity finance solutions will have only positive impacts, but this may not necessarily be the case. Imagine the impact that removing an agricultural subsidy can have on the income of farmers, or an increased entrance fee on tourism development of a region. To prevent adverse impacts resulting from implementing finance solutions, social and environmental safeguards should be in place. The concept of safeguards emerged in the 1990s, spearheaded by organizations like the World Bank,[10] to prevent potential negative social and environmental impacts from major investments in infrastructure, agriculture and similar projects. The concept has evolved over time, from 'do not harm' and 'compliance' approaches, to identifying areas for co-benefits across SDGs. One area where safeguards have been more developed is REDD+.[11]

Environmental safeguards generally follow the mitigation hierarchy,[12, 13] and its goals include:

- Strengthen social and environmental outcomes
- Avoid negative impacts
- Minimize, mitigate and offset negative impacts that are inevitable
- Develop capacity for risk management

Safeguards in biodiversity finance are thus measures for maximizing the protection of biodiversity and people's livelihoods, while minimizing negative impacts or, preferably, producing co-benefits instead. Under the CBD framework, countries have committed to applying safeguards to all biodiversity finance mechanisms, as formally agreed at CBD COP 12 in Korea in 2014.[14]

a *The role of biodiversity and ecosystem functions for **local livelihoods and resilience**, as well as biodiversity's intrinsic values, should be recognized in the selection, design and implementation of biodiversity finance solutions.*

b ***Rights and responsibilities of actors and/or stakeholders** in biodiversity finance solutions should be carefully defined in a fair and equitable manner, with effective participation of all actors concerned, including the prior informed consent or approval and involvement of indigenous and local communities, taking into account the Convention on Biological Diversity and its relevant decisions, guidance and principles and, as appropriate, the United Nations Declaration of the Rights of Indigenous Peoples.*

c *Safeguards in biodiversity financing mechanisms should be **grounded in local circumstances**, be developed consistent with relevant country-driven/specific processes as well as national legislation and priorities, and take into account relevant international agreements declarations and guidance, developed under the Convention on Biological Diversity and as appropriate, the United Nations Framework Convention on Climate Change, international human rights treaties and the United Nations Declaration of the Rights of Indigenous Peoples, among others.*

d ***Appropriate and effective institutional frameworks** are of utmost importance for safeguards to be operational and should be put in place, including enforcement and evaluation mechanisms that will ensure transparency and accountability, as well as compliance with relevant safeguards.*

Which finance solutions require attention for safeguards? All. However, the degrees of application safeguards and due diligence on risks vary. Cost-benefit analysis and impact considerations are similarly differently measured across solutions. Some—e.g. a tax reform—would not require the compliance with safeguards but must be recommended only after their impact is assessed, e.g. on farmers' income. Instead an impact investment in a certain area would require a project-specific assessment in line with UNDP or other guidance material. Several organizations, public agencies in countries where BIOFIN is implemented, have frameworks that can be used as reference. Some are legislated, requiring the conducting of strategic or environmental impact assessments. UNDP has developed a system of screening and managing social and environmental impacts that can be applied to projects and initiatives above a certain value threshold.[15]

Any finance solution with potential impact on areas where indigenous groups or vulnerable groups reside or may significantly impact nature and ecosystems requires attention, for example investments in sustainable tourism in remote locations. These finance solutions must be developed in consultation with local communities and adapted to relevant cultural aspects and language.

While the BFP should have screened all finance solutions to ensure there is a positive impact on biodiversity, it is useful to continue monitoring this impact. Several solutions, for example generic green lending facilities, may bring about some good, but not impact conservation. The ultimate aim is to improve the state of biodiversity, not to increase biodiversity finance for its own sake. This is important when teams look at opportunities for financing under climate change, renewable energy and extractive industries.

Safeguards as a Finance Solution

Applying biodiversity safeguards in the financial sector or other investment operations is a finance solution on its own. The application of biodiversity safeguards or the promotion of standards that include biodiversity standards (e.g. the Equator Principles) will ensure biodiversity is not negatively affected by investments and that opportunities for positive impacts are explored. Examples include the integration of biodiversity safeguards in green bonds, energy funds or carbon offset schemes. BIOFIN Indonesia is working to suggest biodiversity safeguards for investments under a sovereign Green Sukuk.

7.2.3 M&E frameworks for individual finance solutions

The application of sound M&E frameworks for each finance solution is imperative to ensure that they achieve their set objectives and measure financial and non-financial performance. Each solution should include an M&E plan, with clear finance targets and milestones.

Despite the great variety among the structure, sources and governance of the different solutions that exist, we recognize several generic M&E principles as vital guidance.

The following questions are generic in nature and can be adapted for a specific finance solution, and complemented by other relevant queries:

Organizational

- Are all operational procedures clearly defined and respected?
- Do the required governing mechanisms operate as planned?
- Are appropriate communication channels in place to inform stakeholders about the use of the funds?
- Is there sufficient capacity to implement the finance solution? Is the right profile of team members available?
- Are any gaps observed in terms of the national legislation, regulations and bylaws, terms of reference or other legal documents that are not included in the finance solution?

Finance

- To what extent are funds or savings really allocated towards biodiversity objectives?
- Did any barriers emerge in disbursing/collecting the required finance?
- Are accountability and grievance mechanisms (e.g. auditing, inspections) operational?

Monitoring and evaluation

- Are effective M&E systems in place?
- Are proper social and environmental safeguards in place? Are the rights of indigenous groups and other local communities affected?
- Is the solution informed by gender analysis and are gender-positive outcomes being achieved?
- Are any other aspects observed that prevent the solution from succeeding? How can they be remediated?
- Are there mechanisms in place to guarantee long-term sustainability, scaling up or replication?

Box 7.6: Selected Resource Documents on Monitoring and Evaluating Specific Finance Solutions

1. The UNDP Financial Sustainability Scorecard for Protected Area Systems
2. The Management Effectiveness Tracking Tool for Individual Protected Areas
3. The CFA Practice Standards for Conservation Trust Funds
4. The Biodiversity Offset Implementation Handbook (Chapter 4)
5. Evaluating Payments for Environmental Services: Methodological Challenges (2016) Gwenolé Le Velly and Céline Dutilly.
6. Developing Monitoring and Evaluation Framework for Budget Work Projects
7. Evaluating Impact Bonds (2015) Roger Drew and Paul Clist
8. Monitoring and evaluation of social investment: Practitioner note 2 (2017) IPIECA
9. The UNDP Capacity Scorecard

Box 7.7: M&E Framework for Finance Solutions: Sample Indicators

Finance mobilized:

- Increased generated revenues for biodiversity conservation or sustainable use
- Resources aligned to benefit biodiversity conservation or sustainable use
- Increased financial delivery of existing funds
- Avoided expenditures for biodiversity conservation

Estimated future finance flows:

- Estimated increased generated revenues for biodiversity conservation or sustainable use
- Estimated resources aligned to benefit biodiversity conservation or sustainable use
- Estimated increased financial delivery of existing funds
- Estimated avoided expenditures for biodiversity conservation

Annex

Annex I: Further Guidance on Finance Solutions

The BIOFIN Catalogue of Finance Solutions

Guidance material on designing and implementing finance solutions already exists. The BIOFIN Catalogue of Finance Solutions lists over 150 different finance solutions grouped in over 65 categories (see www.biodiversityfinance.org/finance-solutions). The searchable catalogue provides an alphabetical listing of all solutions profiled, but they can also be searched by the financial result they produce, the financial instrument they rely upon, whether they are public or private finance, and the economic sector in which their use is most prevalent.

The catalogue should also be used in conjunction with the following companion products:

1. The **Biodiversity Finance Initiative Workbook**, which guides the identification, development and implementation of finance plans and solutions for nature, and describes how to use the catalogue in the context of BIOFIN implementation.
2. The **Financing Solutions for Sustainable Development online platform**, which provides a technical review of finance solutions' potential, advantages, disadvantages, risks and characteristics.
3. **BES-Net** maintains an online database of publications related to biodiversity finance, hosting over 325 documents.
4. The Conservation Finance Alliance (CFA) online guide [upcoming], developed with BIOFIN support, will provide detailed and step-by-step guidance on a subset of finance solutions. The CFA has previously published a manual on several finance solutions, which is currently updated. It will include detailed guidance on over 20 individual finance solutions. The publications are available on **www.conservationfinancealliance.org**

Other partners and institutions:

- **The OECD** has researched several finance solutions such as biodiversity offsets, payments for ecosystem services and others, and hosts numerous publications on their website. See **www.oecd.org/environment/resources/biodiversityfinance.htm**
- **The CBD** has built up an extensive repository of resources over the years on biodiversity, including finance: **www.cbd.int/information/library.shtml**

Endnotes

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6 See: https://www.cbd.int/doc/nbsap/finance/Guide_Tourism_Nov2001.pdf

7 See: http://conservation-strategy.org/sites/default/files/field-file/EN_discussion_paper_TANAPA.pdf

8 Business and Biodiversity Offsets Programme (BBOP) (2009). Biodiversity Offset Implementation Handbook. BBOP, Washington, D.C. Available from: www.forest-trends.org/wp-content/uploads/imported/biodiversity-offset-implementation-handbook-pdf.pdf

9 Fripp, E. (2014). Payments for Ecosystem Services (PES): A practical guide to assessing the feasibility of PES projects. Bogor, Indonesia: Center for International Forestry Research (CIFOR). doi:10.17528/cifor/005260 Available from: http://www.cifor.org/publications/pdf_files/Books/BFripp1401.pdf

10 See: https://www.worldbank.org/en/projects-operations/environmental-and-social-policies

11 See: https://redd.unfccc.int/fact-sheets/safeguards.html

12 The decision-making cycle that prioritizes each project's reviewing options for avoiding negative impacts, and if not possible, minimizing and rehabilitating biodiversity loss. If those options are exhausted and biodiversity loss is considered inevitable, deploying biodiversity offsets is a valid, but last resort option.

13 See Business and Biodiversity Offset Programme (BBOP). Available from: http://bbop.forest-trends.org/pages/mitigation_hierarchy

14 CBD 12th meeting (2014). Decision adopted by the Conference of the Parties to the Convention on Biological Diversity. XII/3 Resource Mobilization. Available from: www.cbd.int/doc/decisions/cop-12/cop-12-dec-03-en.pdf

15 See: http://www.undp.org/content/undp/en/home/librarypage/operations1/undp-social-and-environmental-screening-procedure.html

Glossary

Term	Definition	Acronym	Reference
Accrued (Executed) Budget	Recognizes transactions when the activity (decision) generating revenue or consuming resources takes place.		
Activity-Based Costing	An approach to the costing and monitoring of activities that involves tracing resource consumption and costing final outputs. Resources are assigned to activities, and activities to cost objects based on consumption estimates. The latter utilize cost drivers to attach activity costs to outputs.		CIMA (2005)[1]
Actual Cost	Cost accounting based on the most factual allocation of historical cost factors.		Merriam-Webster (n.d)[2]
Addis Ababa Action Agenda	The ground-breaking agreement that provides a foundation for implementing the global sustainable development agenda.		UN (n.d)[3]
ARtificial Intelligence for Ecosystem Services	ARIES (ARtificial Intelligence for Ecosystem Services) is a networked collaborative software designed for rapid ecosystem service assessment and valuation.	**ARIES**	AIRIES (n.d)[4]
Biodiversity (Biological Diversity)	Biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.		CBD (n.d)[5]
Biosafety	The prevention of large-scale loss of biological integrity, focusing on both ecological and human health. Set of measures or actions addressing the safety aspects related to the application of biotechnologies and to the release into the environment of transgenic plants and organisms, particularly microorganisms, that could negatively affect plant genetic resources, plant, animal or human health, or the environment.		UNEP Glossary (2007)[6]
Budget Execution	After the government enacts the budget, this concerns how funds are actually spent to implement the policies, programmes, and projects outlined in the budget.		International Budget Partnership (n.d)[7]
Budget Formulation	The first stage of the budget process takes place almost exclusively with the executive branch of government, though it can include a number of actors within the branch. At this point the parameters of the budget are set and decisions made about revenues and how these resources will be distributed across programmes and activities.		International Budget Partnership (n.d)
Budget Tagging	A system for consistently identifying types of expenditures (e.g. on biodiversity) within budgeting systems.		
Cap and Trade	A system where an upper limit on emissions/activity is fixed, and permits are either auctioned off or distributed for free according specific criteria. Polluters that reduce their emissions/activity more than they are obliged to can earn "credits" that they sell to others who need them to comply with regulations.		OECD (n.d)[8]
Capital Cost	The acquisition of fixed capital assets, such as purchase of machinery and equipment, loans and purchase of securities, transfer resources for capital expenditure.		
Certified Budget	The resources reserved for a specific acquisition or specific expense.		
Climate Finance	Climate finance aims at reducing emissions, enhancing sinks of greenhouse gases and reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts.		UNFCCC (n.d)[9]
Committed Budget	The total value of the expenditure committed for specific contracts for works, provision of goods, services, transfers or subsidies.		

Term	Definition	Acronym	Reference
Corporate Social Responsibility	The responsibility of an organization for the impacts of its decisions and activities on society and the environment.	**CSR**	ISO 26000[10]
Cost-Benefit Analysis	A decision-making tool that compares costs and benefits of a proposed policy or project in economic (as distinct from financial accounting) terms.	**CBA**	
Cost Object	A term used primarily in cost accounting to describe something to which costs are assigned. Cost objects may be a product, a department, a project, etc.		
Debt-for-Nature Swap	A voluntary transaction in which an amount of hard-currency debt owed by a developing country government (debtor) is cancelled or reduced (discounted) by a creditor, in exchange for financial commitments to conservation—in local currency—by the debtor.		CBD (n.d.)[11]
Decentralization	The dispersion or distribution of functions and powers, specifically the delegation of power from a central authority to regional and local authorities.		Merriam-Webster (n.d)
Depreciation	An accounting method of allocating the cost of a tangible asset over its useful life. Businesses depreciate long-term assets for both tax and accounting purposes.		
Direct Capital Investment	Also foreign direct investment (FDI), refers to an investment in a business enterprise in a country other than the investor's country designed to acquire a controlling interest in the foreign business enterprise. Direct investment provides capital funding in exchange for an equity interest without the purchase of regular shares of a company's stock.		
Direct Costs	Costs that can be accurately traced and assigned to a cost object. Direct costs typically benefit a single cost object. The classification of any cost either as direct or indirect is done by taking the cost object into perspective.		
Disaster Risk Reduction	The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, through methods including reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.	**DRR**	UNISDR (n.d.)[12]
Drivers, Pressures, State, Impact, Responses	A causal framework for describing the interactions between society and the environment.	**DPSIR**	
Economic Analysis	The changes in costs and benefits of all types (i.e. changes in welfare to different parties) from a proposed action.		
Economic Valuation (Monetization) (of the environment)	Assigning monetary value to changes in environmental factors (such as the quality of air and water, and damage caused by pollution). "Environmental valuation" and "resource valuation" are used.		
Ecosystem Services	Benefits people receive from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth.		Millennium Ecosystem Assessment (n.d)[13]
Ecosystems	The complex of a community of organisms and its environment functioning as an ecological unit.		(Merriam-Webster undated)
Ecotourism	Responsible travel to natural areas that conserves the environment and improves the well-being of local people.		The International Ecotourism Society[14]
Externalities	Effects of a person's or firm's activities on others who are not compensated or included in decision-making; they can be either positive or negative.		

Term	Definition	Acronym	Reference
Fiscal Policy	Government financial actions and norms including both revenues, such as taxes, and expenditures.		
Finance Solutions	Described by a source(s) of finance, the lead agent or the intermediary(ies), the instrument(s) or mechanisms used and the desired finance result.		See Box 1.5
Food Security	When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.		FAO (n.d.)[15]
Genetic Diversity	The variety of genes within a species. Each species is made up of individuals that have their own particular genetic composition.		WWF (n.d.)[16]
Geographic Information Systems	A computer-based tool that analyses, stores, manipulates and visualizes geographic information on a map.	**GIS**	GIS Geogrpahy, (n.d.)[17]
Global Environment Facility	A financial mechanism for several environmental Conventions. Through its strategic investments, the GEF works with partners to tackle the planet's highest priority environmental issues.	**GEF**	GEF (2016)[18]
Green Bonds	Bonds from which proceeds are invested in projects that generate environmental benefits.		
Green Economy	An economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low-carbon, resource-efficient, and socially inclusive.		UNEP (2011)[19]
Green Finance	The financing of public and private green investments (including preparatory and capital costs) in the following areas: • environmental goods and services (such as water management or protection of biodiversity and landscapes); • prevention, minimization and compensation of damages to the environment and to the climate (such as energy efficiency or dams); • the financing of public policies (including operational costs) that encourage the implementation of environmental and environmental damage mitigation or adaptation projects and initiatives (for example feed-in-tariffs for renewable energies); • components of the financial system that deal specifically with green investments, such as the Green Climate Fund or financial instruments for green investments (e.g. green bonds and structured green funds), including their specific legal, economic and institutional framework conditions.		Lindenberg (2014)[20]
Green Growth	Fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.		OECD (n.d.)[21]
Green Infrastructure	A strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation.		EU (2016)[22]
Green Taxes	A tax whose tax base is a physical unit (or a proxy of it) that has a proven specific negative impact on the environment. Four subsets of environmental (green) taxes are distinguished: energy taxes, transport taxes, pollution taxes and resources taxes.		OECD (n.d.)[23]
Greenhouse Gas	Those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. This property causes the greenhouse effect.	**GHG**	IPCC[24]

Term	Definition	Acronym	Reference
Gross Domestic Product	An aggregate measure of production equal to the sum of the gross values added of all resident and institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs).	**GDP**	OECD (n.d)[25]
Gross National Happiness	A term coined by His Majesty the Fourth King of Bhutan, Jigme Singye Wangchuck, in the 1970s. The concept implies that sustainable development should take a holistic approach towards notions of progress and give equal importance to non-financial aspects of well-being. See also, National Happiness Index.	**GNH**	Centre For Bhutan Studies & GNH Research (n.d.)[26]
Habitat Banking	A market where credits from actions with beneficial biodiversity outcomes can be purchased to offset the debit from environmental damage. Credits can be produced in advance of, and without *ex ante* links to, the debits they compensate for, and stored over time.		eftec, IEEP et. al (2010)[27]
Harmful Subsidy to Biodiversity	A government policy that creates an incentive for or induces behaviour or activity that is harmful to biodiversity, often as unanticipated (and unintended) side effects of policies designed to attain other objectives.		CBD (2012)[28]
Impact Investment	Investments made into companies, organizations, and funds to generate social and environmental impact alongside a financial return.		The GIIN (n.d.)[29]
Incremental Budgeting Approach	Management accounting based on adding incremental amounts to existing budgets to arrive at the new budgeted numbers.	**IBA**	efinance management[30]
Indirect Costs	Accounting costs not directly associated with a single activity, event, or other cost object. Such costs are frequently aggregated into an overhead cost pool and allocated to various activities, based on an allocation method that has a perceived or actual linkage between the indirect cost and the activity.		Accounting Tools[31]
Inflation	The change in the prices of a basket of goods and services that are typically purchased by specific groups of households.		OECD (n.d.)[32]
Integrated Valuation of Ecosystem Services	A suite of free, open-source software models used to map and value the goods and services from nature that sustain and fulfil human life.	**InVEST**	Natural Capital Project (n.d.)[33]
International Monetary Fund	An organization of 189 countries aiming to secure stability of the international monetary system.	**IMF**	IMF (n.d.)[34]
Invasive Alien Species	A species occurring in an area outside of its historically known natural range as a result of intentional or accidental dispersal by human activities that invades natural habitats.		UNEP (n.d.)[35]
Investment Cost	Accounting cost used for asset formation such as expenses or costs of in investing in funds, public works, etc.		
Key Performance Indicators	"SMART" indicators (specific, measurable, achievable, realistic, and time-bound) used to gauge or compare results related to meeting strategic biodiversity goals, as well as financial performance in terms of cost-effectiveness, efficiency, and economic impact.	**KPI**	
Line Ministry/Agency	A government ministry or agency responsible for implementing a programme or group of programmes through an institutional structure with central and localized branches, as opposed to one responsible for general planning and administration. For example, includes agriculture, social security, but excludes finance, planning.		IIEP Learning Portal undated[36]
Macroeconomics	The economics subdiscipline that studies how aggregates of households and communities behave. Macroeconomics examines price levels, business cycles, rates of growth, national income, aggregate savings and investment, multiplier effects of consumption and investment, gross domestic product and changes in employment, for example.		
Millennium Development Goals	A set of eight goals and associated targets to achieve poverty alleviation by 2015.	**MDG**	UNEP (n.d.)

Term	Definition	Acronym	Reference
Mitigation Hierarchy	A set of prioritized steps to alleviate environmental harm as far as possible through avoidance, minimization (or reduction) and restoration of detrimental impacts to biodiversity.		FFI (n.d.)[37]
National Biodiversity Strategies and Action Plans	The principal instruments for implementing the Convention on Biological Diversity (CBD) at the national level (Article 6). The Convention requires countries to prepare a national biodiversity strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all those sectors whose activities can have an impact (positive and negative) on biodiversity.	**NBSAP**	CBD (n.d.)
Natural Capital Accounting	A tool to measure the changes in the stock of natural capital at a variety of scales and to integrate the value of ecosystem services into accounting and reporting systems.	**NCA**	EU (n.d.)[38]
Natural Capital	The stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.		Natural Capital Protocol (2016)[39]
Natural Capital Protocol	A framework designed to help generate trusted, credible, and actionable information for business managers regarding their effects on and management of natural capital.	**NCP**	Natural Capital Coalition (n.d.)
Official Development Assistance	Those flows to countries and territories on the (Development Assistance Committee) list of ODA Recipients and to multilateral institutions that are: i. provided by official agencies, including state and local governments, or by their executive agencies; and ii. each transaction of which: c. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and d. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).	**ODA**	OECD (n.d.)[40]
Organic Farming	A method of crop and livestock production that involves choosing not to use pesticides, fertilizers, genetically modified organisms, antibiotics and growth hormones. (Precise definitions and acceptable practices vary by country.)		Canada Organic[41]
Payments for Ecosystem Services	A voluntary transaction whereby a well-defined ecosystem service, or a land use likely to secure that service, is being bought by at least one buyer from at least one provider, if, and only if, the provider secures the provision of the service.	**PES**	Vakrou (2010)[42]
Poverty-Environment Initiative	A global Initiative of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) that supports country-led efforts to put pro-poor, pro-environment objectives into the heart of government by mainstreaming poverty-environment objectives into national and subnational development planning, from policymaking to budgeting, implementation and monitoring.	**PEI**	UNPEI (n.d.)[43]
Protected Areas	Physical preservation and/or conservation of important stocks of natural, cultural and social capital, yielding flows of economically valuable goods and services that benefit society, secure livelihoods, and contribute to sustainable development.	**PA**	CBD (n.d.)[44]
Public Expenditure	General government spending—generally consists of central, state and local governments, and social security funds.		OECD (n.d.)[45]
Public Good	A good or service that one individual can consume without reducing its availability to another individual, and from which no one is excluded.		
Replacement Cost	The cost to replace an asset of a company at the same or equal value. It uses cost of artificial substitutes for environmental goods or services.	**RC**	TEEB (2013)[46]

Term	Definition	Acronym	Reference
Results-Based Budgeting	Budgeting process which revolves around a set of predefined objectives and expected results, which in turn justify the resource requirements linked to outputs, and where actual performance is measured using objectively verifiable indicators.	**RBB**	
Results-Based Costing	An expansion of activity-based costing where all costs are associated with specific medium- to long-term results so that the "outcome" of the activity is the budgeting focus and not the activity or short-term outputs.	**RBC**	
Results-Based Management	A strategy by which all actors contributing directly or indirectly to achieving a set of results ensure that their processes, products and services contribute to the achievement of desired results (outputs, outcomes and higher-level goals or impact).	**RBM**	UNDG (2011)[47]
Subsidies	Current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services which they produce, sell or import.		OECD (n.d.)[48]
Subsistence Agriculture	Farming or a system of farming that provides all or almost all the goods required by the farm family, usually without any significant surplus for sale.		Merriam-Webster (n.d.)
Sustainable Development Goals	Also the "Global Goals"—a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, and peace and. The goals are interconnected; often the key to success in one involves tackling issues more commonly associated with another.	**SDG**	UNDP (n.d.)[49]
Sustainable Livelihood	A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future without undermining the natural resource base and opportunity set of future generations.		FAO (n.d.)[50]
System of Environmental Economic Accounting	The internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy.	**SEEA**	UN SEEA (n.d.)[51]
Targeted Scenario Analysis	An analytical approach developed by UNDP that captures and presents the value of ecosystem services within decision-making, through the description and comparison of "business as usual" and "sustainable ecosystem management" scenarios to help make the business case for sustainable policy and investment choices. See also "Cost-Benefit Analysis".	**TSA**	UNDP (2013)[52]
Variable Costs	Costs that vary depending on the production volume; they rise as production increases and fall as production decreases. Variable costs differ from fixed costs such as rent, advertising, insurance and office supplies, which tend to remain the same regardless of production output.		
Water Security	The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.		UN-Water (n.d.)[53]
World Trade Organization	The organization responsible for regulation of trade between participating countries by providing a framework for negotiating trade agreements and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements, which are signed by representatives of member governments.	**WTO**	

1 CIMA (2005). CIMA Official Terminology.

2 http://www.merriam-webster.com/dictionary/actual%20cost

3 Link to the FfD Addis Ababa Action Agenda: http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf

4 http://aries.integratedmodelling.org/?page_id=632

5 Article 2 in the Convention on Biological Diversity. See www.cbd.int/convention/articles/default.shtml?a=cbd-02

6 http://www.unep.org/delc/portals/119/Glossary_terms%20_for_Negotiators_MEAs.pdf

7 http://www.internationalbudget.org/why-budget-work/

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12 https://www.unisdr.org/we/inform/terminology

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14 http://www.ecotourism.org/

15 www.fao.org/docrep/005/y4671e/y4671e06.htm

16 http://www.wwf.org.au/our_work/saving_the_natural_world/what_is_biodiversity/genetic_diversity

17 http://gisgeography.com/what-gis-geographic-information-systems/

18 https://www.thegef.org

19 https://sustainabledevelopment.un.org/index.php?menu=1446

20 https://www.die-gdi.de/uploads/media/Lindenberg_Definition_green_finance.pdf

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Appendices

Appendix I: The Aichi Biodiversity Targets

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

- **Target 1:** By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
- **Target 2:** 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.
- **Target 3:** By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
- **Target 4:** By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: *Reduce the direct pressures on biodiversity and promote sustainable use.*

- **Target 5:** By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
- **Target 6:** By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
- **Target 7:** By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
- **Target 8:** By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
- **Target 9:** By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
- **Target 10:** By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: *Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.*

- **Target 11:** By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.
- **Target 12:** By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
- **Target 13:** By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: *Enhance the benefits to all from biodiversity and ecosystem services.*

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E: *Enhance implementation through participatory planning, knowledge management and capacity-building.*

Target 17: By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

Appendix II: Economic Appraisal

The BIOFIN Process prioritizes finance needs and biodiversity results in the FNA (Chapter 5) and finance solutions in Chapter 6 using expert interpretation of the evidence generated (such as the costs of biodiversity results). The reliance on expert judgment is partly due to the difficulty in measuring biodiversity results and subsequent impacts on people (e.g. improvements in ecosystem services) in quantitative terms.

In many policy assessments, cost-benefit analysis (CBA) and cost-effectiveness analysis (CEA) are used for this prioritization. However, these are not always reliable for biodiversity, due to the difficulties of:

- Valuing environmental outcomes, due to factors such as market failure, as required in CBA, and
- Consistently measuring the effectiveness that sustainable biodiversity management actions might achieve, as required for CEA.

Nevertheless, CEA and CBA are powerful tools to provide evidence to decision makers that biodiversity finance solutions will be efficient and effective. Therefore, where possible, they should be used within the BIOFIN Process, particularly in making a detailed business case within the Biodiversity Finance Plan, as long as data are considered reliable enough to overcome the above difficulties.

Cost-Effectiveness Analysis of Biodiversity Results

CEA is a tool to determine the most effective actions to achieve an objective. It is used when significant variables, often including environmental impacts (particularly those on biodiversity) cannot be valued for cost-benefit analysis. However, unlike cost-benefit analysis, CEA cannot determine whether a given objective is worth achieving; but it can assist in prioritizing one alternative over the other. A comparison of biodiversity results and associated costs using cost-effectiveness analysis may be useful in Step 6.5 to select biodiversity results or targets for finance solutions to prioritize.

The NBSAP may have already considered the cost-effectiveness of different ways of achieving biodiversity results. If required, we can develop CEA by building on that work, and/or the biodiversity cost/priority comparisons. Note that comparisons of detailed effectiveness scoring of different biodiversity results are potentially a complex and time-consuming exercise. It is unlikely to be feasible for the majority of a country's NBSAP targets, but could be undertaken for a subset of biodiversity results, selected from the prioritization.

Effectiveness criteria may be expanded to consider: delivery capacity and delivery risks (such as the certainty in the scientific basis for an action), and links to ecosystem services and other socio-economic development objectives. The complexities of effectiveness scoring mean that CEA is likely to remain qualitative to some extent and rely on expert judgment. Where expert judgment is used, it is important to state which experts are involved.

Note that in the Biodiversity Finance Plan CEA may be used to select and/or justify specific approaches within the technical proposals for specific biodiversity finance solutions.

Using Cost-Benefit Analysis and Monetary Valuation

CBA is a decision-making tool that compares the economic and financial costs and benefits of a proposed policy or project in monetary terms. It compares as many benefits and costs of an option (project, policy or programme) as feasible, including impacts on environmental goods and services. In principle, it can be applied both *ex ante* and *ex post*, and should note major costs and benefits which are not possible to value in monetary terms. However, the latter does not always occur in practice, meaning that environmental impacts are inadequately considered in decision-making due to their valuation challenges.

Perhaps the most important aspect of CBA is that it is designed to target two of the most crucial policy questions: "Is a given objective worth achieving?" and if so, "What is the most efficient way of doing this?" Another CBA question that policymakers might need to consider is which biodiversity objective can also generate the highest multiple benefits (e.g. social benefits, such as job creation and higher local income as a result of biodiversity enhancement) and contribute to the highest welfare in society. Recent studies have tried to quantify environmental impacts in monetary terms and recognize economic and social benefits through job creation and ecosystem services.[1]

As well as appraisal of these overall economic impacts, CBA results are useful because they can indicate the distribution of costs and benefits across different groups (e.g. social groups, locations, economic sectors). This can be important information to help design effective and socially and politically acceptable finance solutions.

A particular CBA challenge is attributing monetary values to natural environment impacts. Many environmental goods and services are not bought and sold, at least not directly, and so there are no market prices with which to value them (see Chapter 1). Also, complex ecological interactions weaken the effectiveness of direct cause-effect models. However, non-marketed environmental goods and services can be just as important as, and in some cases more so than, things we do buy and sell.[2]

Because monetization of social and environmental costs and benefits is very useful for comparing options, economists have developed different methods that put a value on certain benefits of biodiversity: hedonic pricing, benefit transfer, avoided costs, travel cost method, willingness-to-pay surveys and others.[3] For example, using a willingness-to-pay method, one study estimated that the total annual economic value of the National Parks in the United States to the American public is US$92 billion.

When we don't know some environmental costs and/or benefits, we use different kinds of evidence for decision-making, such as subtracting 'known' (i.e. monetized) benefits from costs, and then assessing whether the non-monetized benefits might influence the decision.[4]

As evidence on the value of ecosystem services improves, more CBA of biodiversity actions is becoming possible. For example, Switzerland conducts a CBA for all proposed actions in its NBSAP as stated in the Swiss Biodiversity Strategy.[5]

Appendix III: Sector and Organization Lists

Recommended List of Sectors

- Agriculture and Hunting
- Forests
- Fishing
- Aquaculture
- Mining and Extractives
- Manufacturing
- Energy
- Water
- Infrastructure and Real Estate
- Trade
- Transport
- Tourism and Recreation
- ICT
- Finance
- Defence
- Education, Science, and Research
- Health
- Public Administration (General Governance/Finance/ Planning)
- Environmental Protection
- Other

Organization Types and Finance Source Category

- Federal Government
- State Government
- Local Government
- Private Company National
- Private Company International
- National/Local NGO
- International NGO
- National Financial Institutions
- International Financial Institutions
- Private Foundations International
- Private Foundations National
- Bilateral Donor
- Multilateral Donor
- Community-Based Organizations (CBOs)
- Households
- Other Public
- Other

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