UNDP

Empowered lives.
Resilient nations.

2016

BIOFIN Workbook

Mobilizing Resources for Biodiversity and Sustainable Development

The Biodiversity Finance Initiative

Acknowledgements

UNDP and the Global Biodiversity Finance Initiative (BIOFIN) Team would like to thank our partners for their support to BIOFIN: The European Union, the Governments of Germany, Switzerland, Norway, and Flanders.

The 2016 BIOFIN Workbook was developed based on the inputs and lessons generated from BIOFIN implementation in 30 countries: Belize, Brazil, Botswana, Bhutan, Chile, Colombia, Costa Rica, Cuba, Ecuador, Fiji, Georgia, Guatemala, India, Indonesia, Kazakhstan, Kyrgyzstan, Malaysia, Mexico, Mongolia, Mozambique, Peru, Philippines, Rwanda, Seychelles, South Africa, Sri Lanka, Thailand, Uganda, Vietnam and Zambia. The writing team would like to thank our BIOFIN colleagues, local and international consultants, UNDP Country Offices, Governments, private sector and civil society partners in each of these countries, as well as the UNDP-GEF Regional Technical Advisors in each region. Additional lessons were drawn from the Ministry of Environment/ GIZ Resource Mobilisation project in Namibia. It has undergone intensive consultations with government representatives and experts from these countries through eight major workshops and four webinars, combining the unique ideas and approaches of each country to implement and adapt the BIOFIN methodology. It contains inputs from many colleagues and partners in BIOFIN countries, global experts, and UNDP colleagues.

BIOFIN was developed under the leadership of Nik Sekhran, Yves de Soye, and Caroline Petersen, and is currently managed under the leadership of Adriana Dinu and Midori Paxton.

The authors of the 2016 BIOFIN Workbook are the Global BIOFIN Team members: David Meyers, Massimiliano Riva, Marlon Flores, Annabelle Trinidad, Onno van den Heuvel, Andrew Seidl, Jamison Ervin, and Marco Arlaud; as well as Tracey Cumming (South Africa) and Usman Iftikhar (UNDP).

A special thanks to Jamison Ervin, the lead developer and author of the 2014 BIOFIN Workbook upon which this current Workbook builds.

The Global BIOFIN Team would like to thank all the other people who made important contributions to the workshop, including the lead technical writer, Ian Dickie, for putting together this final publication; Lucia Motaung, Blerina Gjeka and Oscar Huertas for providing additional written inputs during and after the Workbook writing workshop; Csoban Somodi for his work on the BIOFIN Quantitative Tool, Semiray Emeksiz for photo selection; Georgina Wilde for language editing; and the team from LS graphic design for the design work.

Particular thanks goes out to numerous colleagues from partner organizations and UNDP who provided their inputs during the peer review process: Alessandra Alfieri - UNSD, Herve Barois, Bertrand Rassool – BIOFIN Seychelles, Mariana Bellot – BIOFIN Mexico, Juan Bester – BIOFIN South-Africa, Professor A. Damodaran - Indian Institute of Management, Helen Ding - World Resources Institute, Gail Hurley - UNDP, Devika Iyer – UNDP Bruno Mweemba – BIOFIN Zambia, Amath Pathe Sene UNDP, Carlos Manuel Rodriguez, Conservation International, Ainur Shalakhanova – BIOFIN Kazakhstan, Anton Steurer – Eurostat, Ray Victurine – Wildlife Conservation Society, Monika Wozowczyk – Eurostat, and Guillermo Zuniga – BIOFIN Costa Rica.

Photo credits:
Cover: ©Blerina,©Y. de Soye and © Equator Initiative
Pages: ©Blerina pp. 20, 26, 30, 50, 56, 70, 108, 112, 129, 137, 139, 151, 184, 191, 193 and 235. ©Y. de Soye pp. 19, 35, 45, 54, 61, 62, 64, 68, 76, 93, 103, 119, 148 and 176. © UN Photo pp. 110, 163 and 181. © Equator Initiative pp. 24, 33, 52, 58, 66, 74, 83, 100, 106, 142, 156, 181, 201, 217 and 231. ©Andrew Seidl pp. 187, 189 and 212. © David Meyers pp. 144. © Tracey Cumming pp. 98, 125 and 166.

Suggested citation: UNDP (2016). The 2016 BIOFIN Workbook: Mobilizing resources for biodiversity and sustainable development. The Biodiversity Finance Initiative. United Nations Development Programme: New York.

Available at www.biodiversityfinance.net

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in nearly 170 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations.

United Nations Development Programme
One United Nations Plaza
New York, NY, 10017 USA
www.undp.org – www.biodiversityfinance.net

Empowered lives.
Resilient nations.

2016

The Biodiversity Finance Initiative

BIOFIN Workbook

Mobilizing Resources for Biodiversity and Sustainable Development

Table of Contents

Foreword

Foreword from His Excellency the Prime Minister of the Royal Government of Bhutan

According to the Millennium Ecosystem Assessment, in the last half of the 20th century, humans changed ecosystems more rapidly and extensively than in any comparable period of history, primarily to meet growing needs for food, fresh water, timber, fibre, and fuel. Of the 24 services assessed, it reports, only four have shown improvement over the past 50 years, a startling 15 are in serious decline, and five hang in the balance. The study predicted that, as a result of growth-centric policies triggering overexploitation of biodiversity, pollution, invasive alien species, climate change, habitat deterioration – as well as our inability to recognize and appreciate the reinforcing role of biodiversity in socioeconomic development – the degradation is likely to grow significantly worse in the first half of the 21st century.

Therefore, if our society believes our Earth is borrowed from our children rather than inherited from our ancestors, there is an urgent need for a paradigm shift in how we approach our development. Moving forward, in order to achieve individual and societal wellbeing, it will be necessary to put in place a holistic policy framework which promotes the reinforcing role of biodiversity in the development equation and, thereby, provides incentives for individuals, businesses, governments and nations to manage biodiversity on a sustainable basis. The Biodiversity Finance Initiative (BIOFIN), launched in 2012 under the auspices of UNDP, is a noble initiative that will forge a global partnership to collectively address these challenges.

More aptly, BIOFIN provides a much needed global platform to leverage biodiversity finance challenges in a comprehensive manner – building a sound business case for increased investment in the management of ecosystems and biodiversity, with a particular focus on the needs and transformational opportunities at the national level.

In Bhutan, guided by the wisdom in Gross National Happiness Philosophy, we have done extremely well to enter the 21st century with a fairly positive state of our environment. Today, over 50 per cent of the country's landscape is designated as protected area, with policies, legal instruments, and strategies in place to advance environmental conservation. The Constitution of the Kingdom of Bhutan requires maintaining at least 60 per cent of the country's landscape under forest for all times to come. Bhutan is currently a carbon negative country and we pledged to remain carbon neutral in times to come. Nonetheless, maintaining these commitments and realizing the Aichi Targets and SDGs would need concerted efforts at the national, regional and global level. We collectively, with all sustainable development thinkers and practitioners across the globe, must adapt and innovate. This is why we are delighted to partner with UNDP on the global BIOFIN partnership project, joining 29 other nations in a combined effort to ensure the survival and continued vibrancy of our planet's ecosystems, and the livelihoods, traditions and cultures of the people that depend on them.

It is my pleasure and honour to lend my words to the opening of this BIOFIN Workbook. Drawing on experiences from Fiji's Marine Protected Areas, to Botswana's Kalahari Desert, to the Northern Andes of Peru, this BIOFIN Workbook is a culmination of years of hard work by UNDP and BIOFIN nations to assess the policy and institutional drivers of biodiversity losses and ecosystem changes, evaluate current expenditure trends, identify financing gaps, and ultimately develop and implement an innovative resource mobilization strategy for biodiversity conservation.

Foreword

As in other nations, Bhutan appreciates BIOFIN's transformative process of engaging partners across ministries and sectors as fundamental to advancing our combined efforts to achieve sustainable development. We are also exploring ways to take this partnership further, leveraging the BIOFIN Workbook and experience to develop an integrated financing framework for the sustainable financing of biodiversity and climate change challenges in a way that addresses the needs of the most vulnerable people.

Through BIOFIN, we have an unparalleled global platform to "work out loud" on our biodiversity journey, sharing ideas and experiences with diverse nations driven by a common objective: to assure the financial sustainability of managing the unique tapestry that is "life on land". I would like to congratulate UNDP, the Global BIOFIN Team, and BIOFIN nations on the road travelled so far, and we look forward to being part of exciting things ahead!

My best wishes to the Global BIOFIN Team and BIOFIN Nations on this important endeavor.

Dasho Tshering Tobgay
Royal Government of Bhutan
Prime Minister

A GLOBAL PERSPECTIVE ON THE BIODIVERSITY FINANCE INITIATIVE

Over the past two decades, rapid economic growth has lifted millions of people out of poverty. The world also witnessed considerable progress on a number of the Millennium Development Goals and is now working towards achieving the new Sustainable Development Goals (SDGs). Yet, despite remarkable gains, unacceptable levels of inequality and exclusion persist across the globe. At the same time, unprecedented and irreversible losses of biodiversity, the acidification of our oceans, and abrupt and unpredictable manifestations of climate change put in danger the future of our economy and society. The new development agenda–Agenda 2030 and its SDGs–revealed in September 2015, speaks to these intertwined challenges and will rely on the solutions and opportunities made possible by unparalleled innovation and accumulated wealth. Agenda 2030 is about both the people and the planet.

Just as investing in human capital has for decades been the United Nations Development Programme's motto, investing in the well-being of our planet is also a clearly worthwhile investment. The Biodiversity Finance Initiative – BIOFIN – is demonstrating the case for investment in biodiversity and ecosystems. The slaughter of elephants, rhinos, and other endangered wildlife species is a case in point. The price obtained for an elephant killed by criminal syndicates is a tiny share of its economic value, which, in the case of Kenya is estimated at over one million US dollars per elephant annually. Preserving biodiversity means preserving the economic assets of impoverished communities while offering new opportunities to diversify their income.

As growing experience from around the world suggests, the preservation of biodiversity can only be achieved by taking environmental issues into the heart of economic and financial decision-making, particularly into the public budgeting processes and within the wider financial sector. The guiding methodology of this innovative programme – that encompasses the review of policies and institutions relevant for biodiversity finance, the determination of baseline investments, the assessment of the costs of implementing biodiversity strategies and action plans, and the drafting and launching of a biodiversity finance plan – is mindful of the opportunity to tackle poverty and preserve our environment at the same time.

Building on early progress in completing the BIOFIN cycle in numerous countries, we are making a stronger case – a business case – for biodiversity investments in the context of tightening public resources and competing development challenges. This is a compelling and effective approach for driving change that can, and ultimately will, deliver sustainable development. We hope the rich experiences and lessons learned showcased and integrated into the 2016 BIOFIN Workbook can serve as a valuable record in the year of the 13th Conference of the Parties of the Convention on Biological Diversity, which will focus on the inter-connected themes of mainstreaming biodiversity within and across sectors.

Nik Sekhran
Director, Sustainable Development
Bureau for Policy and Programme
Support United Nations
Development Programme

Executive Summary

Key messages

- Awareness is increasing that biodiversity underpins human well-being and is essential to achieve the Sustainable Development Goals.
- Biodiversity is in severe decline: but there is increasing interest and demand to use biodiversity finance tools for public and private investments in biodiversity and ecosystem services.
- Assessment of national biodiversity finance needs, policies, institutions, mechanisms and expenditures is required to develop these tools into sound biodiversity finance solutions.
- Finance and economics are the foundation of a compelling business case for implementing finance solutions.
- Effective governance and partnerships between finance and environmental actors are essential to guarantee sustainability and success in biodiversity financing and management.

Biodiversity—an investment priority

Biodiversity is "Nature" – life on Earth. Biodiversity includes living organisms and ecosystems which underpin human well-being and economies by providing the essentials to healthy and productive human life like clean air, food security and fresh water. Investments in biodiversity are investments in sustainable development, contributing directly to poverty reduction, economic sustainability and the full range of Sustainable Development Goals.[1] By maintaining biodiversity and ecosystems, we are retaining the ability of the planet to sustain our prosperity.

Biodiversity is in severe decline. This decline is due to a combination of conflicting private and public interests, ineffective policy and governance, and insufficient financing. Although it is estimated that 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 and US$440 billion.[3] This funding gap, evident in both developed and developing countries, is a major challenge, hampering our achievement of both the Convention on Biological Diversity's (CBD) Strategic Plan and the Sustainable Development Goals. However, it represents between just 0.2 per cent and 0.6 per cent of the estimated US$73 trillion of global GDP.[4]

Most countries are not investing adequately in biodiversity despite there being no shortage of liquidity in the world. A shift is required towards a new investment and fiscal policy paradigm that better incorporates the economic value and financial benefits of biodiversity and sustainable development. The Biodiversity Finance Initiative (BIOFIN), and this Workbook, are designed to support this changing paradigm and improve the integration of biodiversity into fiscal policy, financial planning, and the financial system in general.

A new framework for biodiversity finance

Biodiversity finance[5] is the practice of raising and managing capital and using financial incentives to support sustainable biodiversity management. The Biodiversity Finance Initiative (BIOFIN) is a UNDP-managed global partnership that supports countries to enhance their financial management for biodiversity and ecosystems: 30 countries have already started a national BIOFIN process.[6] It makes use of three detailed country-level assessments to develop a biodiversity finance plan, drawing on qualitative and quantitative data, innovative methodologies, and global and national expert input. The BIOFIN methodology described in this Workbook provides an innovative, stepwise and adaptable approach that enables countries to:

- Assess the policy, institutional, and economic context for biodiversity finance;
- Measure and analyse current biodiversity expenditures, from the public and private sectors, donors and 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.

Thorough assessments should be produced by countries to build an evidence base from which to identify, prioritize and implement different finance solutions to improve the sustainable management of biodiversity and the contribution of biodiversity to sustainable development. Biodiversity finance solutions are ways of using one or more finance mechanism or instrument (e.g. taxes and subsidies) in a particular context (e.g. finance sources and agencies/institutions involved), targeting results that improve the sustainable management of biodiversity. This will be achieved through improved integration of finance solutions into biodiversity planning, finance and management, and identifying opportunities for leveraging change. A variety of finance solutions is described throughout the Workbook, such as:

- Bioprospecting in Costa Rica, where nearly 30 commercial agreements have been signed.
- Reforming biodiversity-harmful subsidies in Sri Lanka, where aligning fertiliser policy to environmental goals may potentially save US$150 million per year.
- A facilitated discussion between private and public stakeholders in the Seychelles tourism sector, on redirecting part of the country's Corporate Social Responsibility (CSR) tax revenues to fund biodiversity programmes.

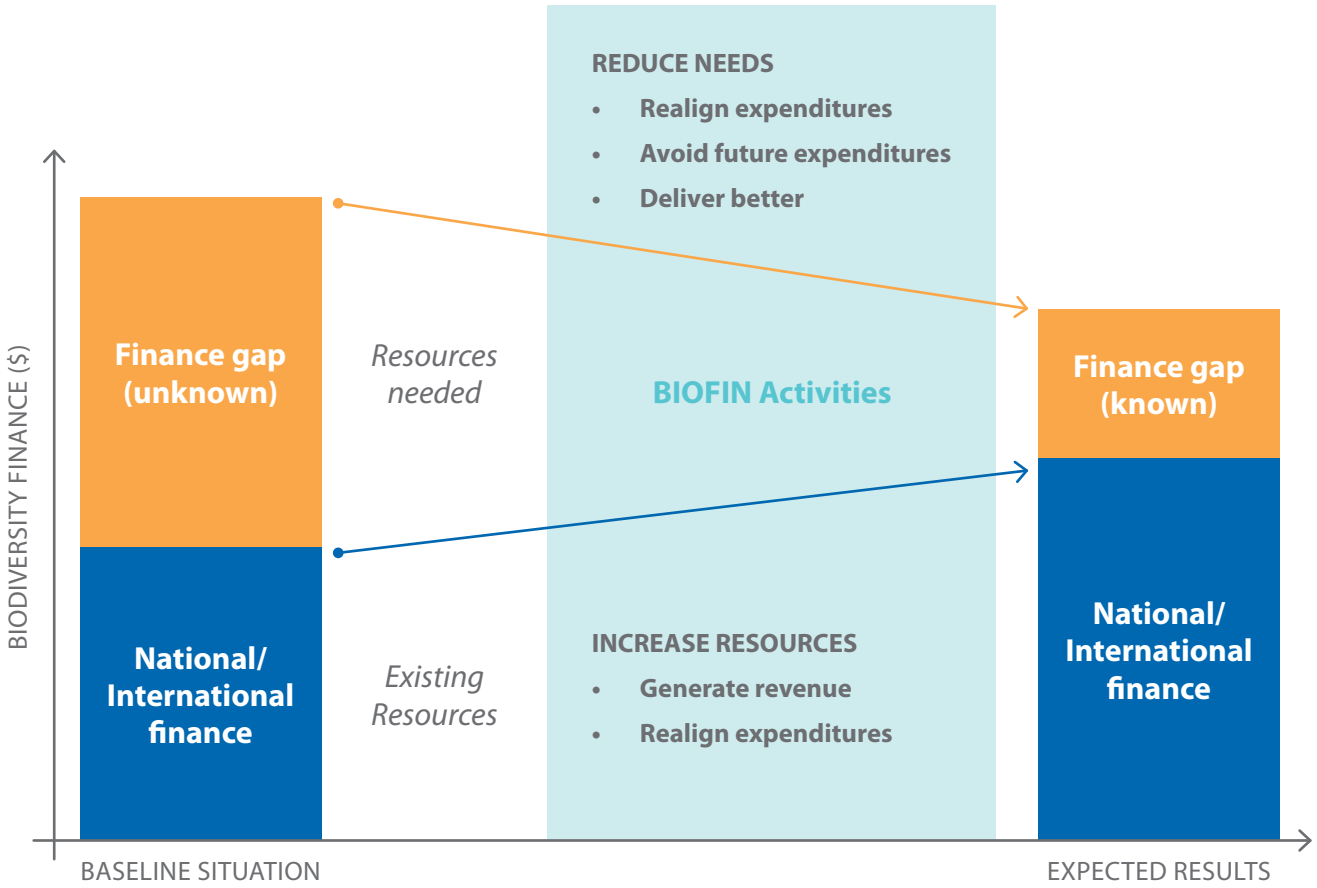
Meeting finance needs will require a complementary mix of finance solutions, adapted for every country, made up of financial strategies, policy changes, and other mechanisms, as shown in Figure S.1. The BIOFIN workbook provides guidance on how to derive this mix of appropriate, priority and effective biodiversity finance solutions. Finance solutions can achieve their desired impact through:

- **Generating new revenues** targeted towards biodiversity;
- **Reorienting or realigning existing financing** to reduce negative impacts and improve outcomes;
- **Avoiding future expenditures** through strategic investment and policy;
- **Delivering better** conservation through improved effectiveness, efficiency and synergies.

The BIOFIN process actively seeks buy-in from finance and environmental stakeholders and decision makers (e.g. ministries of finance, business organizations, ministries of environment, NGOs) to identify and mobilize policies, resources and institutional capacities to implement biodiversity finance solutions. This ensures biodiversity finance solutions are:

- Politically realistic, drawing on knowledge of relevant institutions and fiscal policy;
- 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 NATIONAL BIOFIN APPROACH AND OUTCOMES



BIOFIN aims to be integrated into relevant country level processes in order to influence change. It is important to ensure that sufficient capacity is developed to sustain finance solutions into the future. The uptake and successful implementation of finance solutions will be strengthened by a convincing business case for investing in biodiversity, aimed at both the public and private sectors. Using the language of finance and economics, the value of biodiversity for specific stakeholder groups needs to be articulated effectively.

Investing to support the conservation and sustainable use of biodiversity is a fundamental component of achieving the Sustainable Development Goals – the global intention to harness collective power to achieve social, economic and environmental targets.

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

2 Parker C. and others (eds.) (2012). The Little Biodiversity Finance Book. Global Canopy Programme. Oxford.
Available from: http://globalcanopy.org/publications/little-biodiversity-finance-book-3rd-edition-2012 .

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 2015, World Bank 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.net

Overview of BIOFIN Chapters and Checklist Table

Chapter	Aim	Objectives
1 **Introduction to Biodiversity Finance and Economics**	Chapter 1 provides background on the concepts and methods that BIOFIN uses, and the context in which they are used.	
2 **Introduction to BIOFIN**	Chapter 2 provides background on the rationale and core principles of BIOFIN and the expected results of the BIOFIN process in a country.	
3 **The BIOFIN Process**	To help plan and implement the BIOFIN process in countries to facilitate transformational change and long-term institutionalization of impacts.	▸ Plan the launch and implementation of the BIOFIN process; ▸ Identify the most promising opportunities to ensure the institutionalization and sustainability of BIOFIN results, engaging with decision makers from the outset; ▸ Design a national BIOFIN process that builds links between the ministries responsible for environment and finance, supported by stakeholder consultation and outreach that attracts broad ownership of its outputs; and ▸ Design effective communications for BIOFIN activities and recommendations.
4 **The Biodiversity Finance Policy and Institutional Review (PIR)**	To analyse a country's fiscal, economic, legal, policy and institutional framework to initiate, improve and scale effective biodiversity finance solutions. The PIR establishes a baseline context and orientation for the entire BIOFIN process.	▸ Describe how the management of biodiversity and ecosystem services supports national sustainable development goals and visions; ▸ Assess economic and financial drivers of biodiversity change; ▸ Catalogue existing biodiversity finance mechanisms, incentives, subsidies and other instruments, including an assessment of sources of biodiversity revenues; ▸ Identify barriers to improved or expanded biodiversity finance solutions including legal, policy, institutional, and operational aspects; ▸ Identify biodiversity finance capacity development needs and opportunities; and ▸ Develop specific policy recommendations to initiate, improve, and scale effective biodiversity finance solutions.
5 **The Biodiversity Expenditure Review (BER)**	To use detailed data on public, private, and civil society budgets, allocations and expenditures to inform and promote improved biodiversity policies, financing, and outcomes.	▸ Establish a business as usual biodiversity finance situation, covering who spends how much on what; ▸ Identify patterns of spending within BIOFIN categories, NBSAP targets and other key strategies; ▸ Determine if this spending is aligned with government policies and priorities, and compare spending in thematic areas with sectors' contribution to GDP and other objectives; ▸ Examine if money budgeted for biodiversity is actually allocated to biodiversity spending, and if allocated budgets are actually spent (absorbed) on biodiversity priorities; ▸ Examine whether biodiversity financing can be made more efficient; and ▸ Identify biodiversity expenditure trends and data to help predict future spending.

Steps	Check list
	☐ Review the value of biodiversity and ecosystem services to sustainable development. ☐ Understand the role of finance and economics in sustainable biodiversity management. ☐ Recognition of different types of biodiversity finance solutions and instruments.
	☐ Understand the reasons for the BIOFIN approach. ☐ Key BIOFIN stakeholders have a shared overview of the national BIOFIN process.

Chapter 3 describes how to establish a national BIOFIN process, and the best practices for stakeholder engagement, evidence-based analysis, effective communication, inter-organizational partnership and gender sensitivity that this process should adopt.	☐ National Plan BIOFIN process launched.
	☐ National BIOFIN Steering Group membership and terms of reference established.
	☐ The national BIOFIN process has:
	  ☐ Objectives and multi-year work plan;
	  ☐ Draft implementation mechanisms;
	  ☐ Stakeholder consultation and outreach plan;
	  ☐ Advocacy and communications plan;
	  ☐ A monitoring and evaluation framework.

▸ **Step 4.1**: Preparations ▸ **Step 4.2**: Review and summarize national biodiversity visions and strategies ▸ **Step 4.3**: Identify economic and policy drivers of biodiversity change ▸ **Step 4.4**: Review existing finance solutions ▸ **Step 4.5**: Institutional analysis	☐ Identify the national biodiversity vision, strategies and targets that are the basis of BIOFIN's analysis. ☐ Understand national finance policies, institutions and processes, through which to implement biodiversity finance solutions. ☐ Identify existing biodiversity finance solutions in the country. ☐ Identify decision makers who can take forward biodiversity finance solutions.
▸ **Step 5.1**: Preparations ▸ **Step 5.2**: Defining the main parameters of the BER ▸ **Step 5.3**: Gather data ▸ **Step 5.4**: Data analysis	☐ Report the breakdown of current spending across biodiversity priorities and key sectors. ☐ Identify trends and project future biodiversity spending. ☐ Identify potential finance solutions.

Chapter	Aim	Objectives
6 **The Financial Needs Assessment (FNA)**	To make a comprehensive estimate of the financial resources needed to achieve national and sub-national biodiversity targets. The FNA compares these financial needs to expected biodiversity expenditures over a medium- to long-term planning horizon.	▸ Review and integrate the FNA with the national planning and budgeting process for optimal impact; ▸ Clarify strategies and actions in national biodiversity plans (NBSAPs) to describe "costable actions" that link to expected biodiversity results in a logical framework that lends itself to costing; ▸ Produce a detailed budget for each costable action by defining unit costs and quantities over the target time frame; ▸ Use these detailed budgets to make a stronger case for biodiversity finance, linking the costs of achieving specific results to the national budget processes; ▸ Prioritize biodiversity strategies and actions based on specific biodiversity and cost criteria; ▸ Link the FNA to the Biodiversity Expenditure Review (BER) through a tagging system that associates financing needs with expenditure categories, sectors and organizations; and ▸ Calculate the finance gap between business as usual biodiversity expenditure projections (from the BER) and financial needs identified in the FNA in as detailed a manner as possible.
7 **The Biodiversity Finance Plan (BFP)**	To produce a nationally validated Biodiversity Finance Plan that presents a coherent and comprehensive national approach, engaging the public sector, private sector and civil society, and proposes steps to implement a mix of finance solutions, well beyond the mobilization of new resources, to expand and improve the country's biodiversity financing and achieve national biodiversity targets.	▸ An analysis of existing and potential finance solutions to prioritize and optimize a final list of solutions for inclusion in the Finance Plan; ▸ A compelling presentation of financial needs, biodiversity targets and strategies that can be linked to the prioritized finance solutions; ▸ Detailed technical proposals to operationalize prioritized biodiversity finance solutions; ▸ A clear business case to foster the Plan's implementation. The business case would generally feature a high-level economic case for biodiversity expenditure and investment cases for prioritized finance solutions; and ▸ A final Biodiversity Finance Plan with clear financial objectives, priorities, milestones, budget and responsibilities.

Steps	Check list
▸ **Step 6.1**: Preparations ▸ **Step 6.2**: Scoping and clarifying the NBSAP results, strategies and actions ▸ **Step 6.3**: Desktop study and initial costing tables ▸ **Step 6.4**: Refining costs with expert input ▸ **Step 6.5**: Analyse costing results ▸ **Step 6.6**: Estimate the finance gap	☐ Break down national biodiversity priorities into actions that can be costed. ☐ Estimate the costs of delivering national biodiversity priorities. ☐ Compare these financing needs to current and projected expenditures to determine gaps in biodiversity financing. ☐ Identify potential finance solutions.
▸ **Step 7.1**: Preparations ▸ **Step 7.2**: Description of existing and potential finance solutions ▸ **Step 7.3**: Assessment and prioritization of the finance solutions ▸ **Step 7.4**: Formulation of technical proposals for priority solutions ▸ **Step 7.5**: Formulation of a business case for the Plan and the finance solutions	☐ Identify all potential biodiversity finance solutions for the country. ☐ Prioritize solutions based on conservation priorities, costs and wider benefits. ☐ Develop technical proposals and a business case for each prioritized solution. ☐ Present these business cases in a Biodiversity Finance Plan, along with a high-level business case for all prioritized solutions together. ☐ Embed BIOFIN processes and responsibility for finance solutions into institutions, and begin implementation.

1 INTRODUCTION TO BIODIVERSITY FINANCE AND ECONOMICS

1.1 Introduction

Biodiversity is life on Earth. Biodiversity is Nature.

Biodiversity is defined by the UN Convention on Biological Diversity (CBD) as "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."[1]

Biodiversity includes living organisms and ecosystems which underpin human well-being and economies by providing the essentials for healthy and productive human life like clean air, food security and fresh water. Nature and natural ecosystems are in severe decline due to past and current human activities. These activities are largely driven by economic growth models and heavily influenced by financial flows. Therefore, change is needed to our economies and finances to reverse the decline in biodiversity, and to protect biodiversity and ecosystems so that we retain the ability of the planet to support human well-being.

The Biodiversity Finance Initiative – BIOFIN – is about making these changes.

This introductory chapter sets the context for BIOFIN. It describes reasons for investing in biodiversity and the role of finance and economics in understanding and implementing solutions.

"Humans are fundamentally, and to a significant extent irreversibly, changing the diversity of life on Earth, and most of these changes represent a loss of biodiversity. […] Most changes to ecosystems have been made to meet a dramatic growth in the demand for food, water, timber, fibre, and fuel. […] They have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of nonlinear changes, and the exacerbation of poverty for some groups of people. These problems, unless addressed, will substantially diminish the benefits that future generations obtain from ecosystems."

Source: Millennium Ecosystem Assessment.

1.2 Why Biodiversity Matters

1.2.1. The Value of Biodiversity

Biodiversity provides humanity with innumerable benefits. The diversity of wild plants and animals holds the key to continued food diversity, nutrition, vitamins and economic resilience. But because these benefits are mostly provided without any monetary cost, they are generally taken for granted. Therefore, advocates of increased biodiversity finance must inform decision makers how sustainably managing biodiversity and ecosystems is one of the core underpinnings for economic growth, employment creation, poverty reduction and corporate profitability.

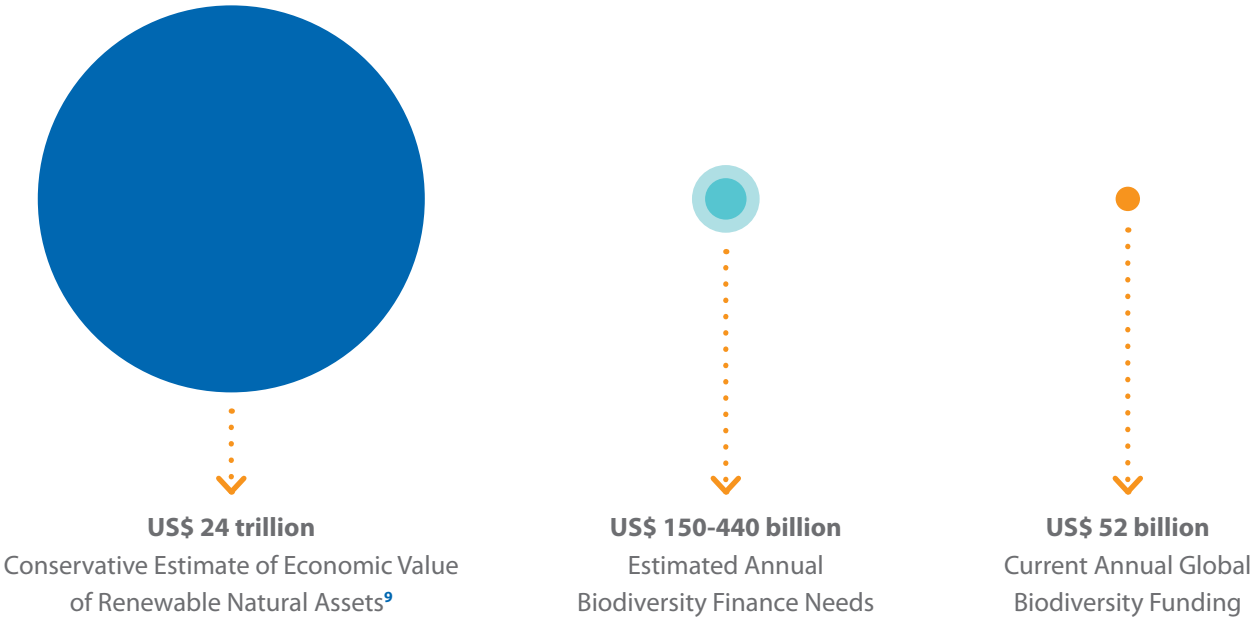
Evidence supported by economic studies is available and is being constantly improved in accuracy and rigor. Costanza and others (2014)[2] estimated the world's natural capital and ecosystem services to be worth on average US$125 trillion per year. Using the World Bank data, in 2005, the total economic value of the world's renewable natural assets was estimated at US$24 trillion, or US$ 4,266 per person on average. In comparison, the cumulative Gross Domestic Product (GDP) of all countries combined stood at US$73 trillion in 2015 (World Bank, 1 July 2016).[3] Although these are broad estimates, the main point is that nature's services provide enormous value that approximates global GDP. These figures can be broken down across habitats, ecosystem services and countries, for example:

- Pollinator dependent crops contribute to 35 per cent of global crop production volume, and it is estimated that an annual market value of US$235-577 billion (in 2015) worldwide is directly attributable to animal pollination.[4]
- Global benefits from coral reefs including tourism, fisheries and coastal protection are estimated at US$30 billion per year.[5]
- The market for Chinese herbal medicine was estimated to amount to US$83 billion in 2012. [6]

- A study from the Economics of Ecosystems and Biodiversity[7] estimated in monetary terms the financial risks from natural capital inputs for which the price was not factored into production. It assessed only primary production (agriculture, forestry, fisheries, mining, oil and gas exploration, utilities) and processing (cement, steel, pulp and paper, petrochemicals) that were shown to have unpriced natural capital costs[8] totalling US$7.3 trillion, equal to 13 percent of global economic output in 2009.

Figure 1.1 compares this economic value – measured in the form of assets – with the maintenance needs exemplified by the financial gap analysis done by the CBD and the current biodiversity expenditures of US$52bn per year. These "maintenance" costs are a small fraction of the economic value of renewable natural assets, most of which are supported by biodiversity.

FIGURE 1.1: BIODIVERSITY ASSET VALUE VERSUS ANNUAL MAINTENANCE



1.2.2. Global Biodiversity Trends

Even though biodiversity provides enormous value to humanity, global biodiversity trends indicate a rapid loss of both the area and the quality of natural ecosystems (see Box 1.1). There is the possibility that even more ecosystems will collapse as we cross planetary boundaries.[10] Crossing these boundaries is not just a concern for the environment; they bring a risk that the Earth will become much less hospitable, leading to a deterioration of human well-being.[11] Moreover, the loss of biodiversity and ecosystems can be irreversible.

BOX 1.1: GLOBAL TRENDS IN BIODIVERSITY AND ECOSYSTEMS

The Millennium Ecosystem Assessment (2005)[12] states that all ecosystems have been transformed by human actions, with the loss of 35 per cent of mangroves, 20 per cent of coral reefs and around half of tropical forests.[13] Loss of tropical forest remains a cause for concern having been around 0.8 per cent per year during 1981 and 1990,[14] and is estimated to continue at 2 per cent per year.[15]

"Over half of the 14 biomes assessed, experienced a 20–50 per cent conversion to human use, with temperate and Mediterranean forests and temperate grasslands being the most affected (approximately three quarters of these biome's native habitats have been replaced by cultivated lands). In the last 50 years, rates of conversion have been the highest in tropical and sub-tropical dry forests."[16]

Projections show a very large fraction of species will be "committed to extinction" in the 21st century due to land use and climate change. The June 2012 version of the IUCN Red List named 19,817 threatened species, including: 41 per cent of amphibians, 33 per cent of reef-building corals, 25 per cent of mammals, 13 percent of birds, and 30 per cent of conifers.[17] The average rate of vertebrate species loss over the last century is up to 100 times higher than the background rate.[18] Persistent overfishing has a severe impact on marine biodiversity and reduced the total biomass of predator fish species by 52 per cent between 1970 and 2000. Invasive species have contributed to more than half of the animal extinctions for which the cause is known).[19]

This exceptionally rapid loss of biodiversity over the last few centuries, could indicate that we are entering the sixth mass extinction. Extinction rates are unequally distributed around the world. They are significantly higher on islands, with 95 per cent of the world's bird extinctions, 90 per cent of reptile extinctions, 69 per cent of mammal extinctions and 68 percent of plant extinctions.[20]

Human activities have directly or indirectly (e.g. via climate change) caused the removal or degradation of so much of nature's resources that we must replace their services – once provided for free – by investing in man-made capital such as flood control systems and water treatment or desalination plants. The identification of these drivers of biodiversity loss (See Box 1.2) is instrumental in the review of economic and financial solutions.

Some direct drivers are straightforward, such as excessive application of fertilizers or overconsumption of water. Others are less clearly monitored, such as invasion by non-native species, impacts of climate change and landscape fragmentation. In a vicious cycle, the development trajectory begins with a low awareness of the value of biodiversity and ecosystems, leading to policies that undermine the social and economic value of biodiversity and ecosystems. These policies typically favour short-term exploitation over long-term conservation and management, leading to unsustainable practices, such as clearcutting forests, over-fishing, and unplanned coastal development. These practices result in negative outcomes for biodiversity and ecosystems, for local communities and for national economies, leading to even further devaluation of nature.

A virtuous cycle, however, begins with a high awareness of the value of biodiversity and ecosystems. This leads directly to effective policies that reflect the value of nature. These policies result in sustainable practices, such as effective networks of well-managed protected areas that maintain key ecosystem services, and sustainable management practices that ensure long-term benefits. These practices in turn lead to positive outcomes for biodiversity and for human well-being, which further reinforce awareness of the values of biodiversity and ecosystems. The goal of BIOFIN is to promote this virtuous cycle.

BOX 1.2: EXAMPLES OF 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, as well as 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;
- Negative impacts from African palm plantations.

The Millennium Ecosystem Assessment (the "Assessment") added new evidence on how biodiversity loss affects people. First, it clearly linked ecosystem services (and thus the state of ecosystems) with human well-being. In doing so, it countered the false perception that development priorities are inherently at odds with sustainable management of ecosystems and biodiversity. By making the positive linkages between biodiversity and well-being explicit, it shed light on how changes to ecosystems affect ecosystem services, which, in turn, affect development priorities. Second, the Assessment provided a review of options to reduce environmental degradation, emphasizing the idea that environmental management must be mainstreamed into development planning and policy to address biodiversity loss.

Biodiversity Finance Solution: Eco-labels

These are distinctive labels and logos that provide consumers with information on the environmental or social attributes of goods or services. For example, the label can certify that a product was produced following recognized environmental standards based on life-cycle considerations. Third party certification can be mandatory or voluntary depending on the label, but the most credible labels require this and are based on standards set through a transparent consultative process.

Example: A WWF and Forest Stewardship Council (FSC) report on the economic impacts of FSC-certification studied companies trading US$1.3 million of certified products. These companies earned, on average, an extra US$1.80 for every cubic metre of FSC-certified roundwood after allowing for costs associated with certification. The analysis also revealed on average a positive Net Present Value (NPV) from certification. The largest quantifiable financial benefits from FSC certification were achieved by small to mid-sized companies, and by producers in the tropics (average NPV of US$20.31 per m^3 of certified production).

See: WWF (2015). Profitability and sustainability in responsible forestry. Economic impacts of FSC certification on forest operators. Available from http://d2ouvy59p0dg6k.cloudfront.net/downloads/profitability_and_sustainability_in_responsible_forestry_main_report_final.pdf, http://www.globalecolabelling.net/what-is-eco-labelling/.

1.2.3. Biodiversity and Sustainable Development

There is now international consensus over the importance of biodiversity for sustainable development as reflected in its inclusion in the 17 Sustainable Development Goals (SDGs). Biodiversity is the subject of two SDGs: (14) Life Below Water and (15) Life on Land,[21] and contributes to a wide range of them (see Box 1.3): many of the 2.7 billion people who survive on less than US$2 a day, depend directly on biodiversity and healthy ecosystems.[22]

For example, up to 70 per cent of the energy in Africa comes from wood fuel.[23] Global annual net forest loss – of the order of 3.3 million ha in 2010-2015[24] – directly limits sustainable development options for the rural poor. Despite this substantial contribution of biodiversity to sustainable development, it remains chronically underfunded.

The SDGs are connected to a parallel process called Financing for Development (FfD) that looks at ways to implement the 2030 Agenda.[25] Its latest outcome document – the Addis Ababa Action Agenda – provides a guide for financing the SDGs. It recognizes the importance of protecting biodiversity and ecosystems, and eliminating the illegal trade of species and natural products.[26]

The 2030 Agenda will require unprecedented investments in areas such as health and education, environmental protection, infrastructure and energy, rural development and peace and security. The order of magnitude of additional investment is measured in trillions of US dollars per annum: the Intergovernmental Committee of Experts on Sustainable Development Finance found an overall investment gap of US$1.9-3.1 trillion per year on a total investment need of US$3.3-4.5 trillion per year to realize the SDGs in developing countries.[27] Investments required in telecommunications and transport, power and climate change mitigation, have even larger financing needs than biodiversity. However, in context of a total stock of global financial assets valued at over US$200 trillion, the possibility of closing this gap is within reach. There is no shortage of liquidity in the world, but the current direction and scale of investment flows is the problem.

BOX 1.3: HOW BIODIVERSITY CAN CONTRIBUTE TO MANY SDGS

- Well-managed, restored and protected forests can provide long-term water security, especially during times of drought, and can serve as emergency stores of energy during times of energy crisis.
- Protected and restored wetland ecosystems can buffer coastal and lowland communities against the impacts of floods, and can provide critical water filtration services, thereby greatly reducing or eliminating the need for built water-treatment infrastructure.
- A well-functioning national protected area system can provide national tax revenue and support local jobs and livelihoods.
- The protection of agricultural genetic diversity, including of crop wild relatives, can help to ensure long-term national food security, particularly for species that are well adapted to climate extremes, such as flood, drought and excessive heat.
- Strategies to identify sustainable management practices of natural resources in agriculture, forestry and aquaculture will ensure the sustainable flow of goods and services for generations to come and can reduce losses in natural capital.
- Efforts at identifying, preventing and eradicating invasive alien species will save millions of dollars, increase the productivity of natural ecosystems, and decrease the risk from natural disasters, such as catastrophic fires.
- 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 more severe coastal storms and rising sea levels, and preventing landslides and natural disasters from catastrophic deluges.
- Well-managed ecosystems can provide a storehouse of medicinal resources that can be critical for maintaining health in rural areas.
- The protection and restoration of coral reefs, and the prevention of key marine threats, can ensure the long-term health of fisheries, providing both critical nutrition and livelihoods to millions.

"The potentially catastrophic changes to biodiversity will have major consequences for people living in poverty who disproportionately rely on biodiversity for their subsistence." Estimates show that about 74 per cent of the 1.5 billion people who depend on degrading land, for instance, live below the poverty line and will continue to be trapped in a cycle of poverty.[28]

Making the business case for investing in biodiversity as a driver for sustainable development has the potential to capture increased flows of finance. The killing of elephants, rhinos, and other endangered wildlife species is a case in point. The price received for killing an elephant 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.[29] Preserving biodiversity means preserving the economic assets of developing countries, while expanding opportunities for communities to share in the financial returns of tourism and related livelihoods.

1.2.4. Why more investments in biodiversity are beneficial

There are two alternative economic consequences of not investing in biodiversity and ecosystems. One is to accept the loss of the benefits they provide to humanity; the other is to pay increasing bills for the capital and maintenance costs required for the man-made replacement of natural assets. Regardless of these societal costs, neither the need to invest in biodiversity nor the opportunities that it offers have yet been appreciated by most public and private planners, investors and decision makers. In fact, the goals of sustainably managing biodiversity and ecosystems are still seen as being distinct from – and sometimes even as conflicting with – economic development goals.

Decision makers within sectors that drive biodiversity loss place a large weight on financial and economic evidence concerning the potential outcomes of policy or investment choices. Competing claims on scarce public funds between health, infrastructure, defence, education, food security, disaster avoidance, and job creation, exemplify the need for powerful arguments on the benefits of investing in the environment, and specifically biodiversity. It is essential to clarify and communicate not just how biodiversity contributes to jobs, health and food security, but also the economic costs of inaction when the biodiversity providing these benefits is declining.

Green infrastructure, the use and maintenance of a network of ecosystems for specific services, for example, is a clear value proposition for preserving and using biodiversity to achieve the SDGs. It is also economically and financially sound. Economic analyses have indicated that we are often better off maintaining or investing in natural infrastructure than trying to satisfy humanity's needs through the replacement of ecosystems with artificial substitutes (See Box 1.4). Thus, alongside the moral and social case for biodiversity conservation, there are powerful economic arguments for investments and enhanced financing for biodiversity and ecosystems. In fact, the replacement of natural assets with man-made infrastructure can only partially deliver the services previously provided by nature, so the consequence is usually a mixture of both increased costs and losses of benefits. A better alternative would be to maintain or "install" natural infrastructure. In some cases, nature can do it for less and with no or low maintenance costs, and no depreciation of assets, if sufficient initial investments are made and policies are enforced. In other cases, nature is an important complement to built infrastructure, for example, an intact watershed can reduce dam siltation.

BOX 1.4: EXAMPLES OF COST-EFFECTIVE INVESTMENTS IN NATURAL INFRASTRUCTURE

New York City evaluated two schemes to manage its stormwater 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 cost savings of more than US$1.5 billion.[30]

A study by WWF-Guianas looked at potential investments in coastal defences for Paramaribo, the capital city of Suriname.[31] 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 used, but are robust under different discount rates, and arise despite some 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.

1.3 Using Economics and Finance for Biodiversity

Economics and finance are both part of the causes of biodiversity loss, and are also essential contributors to its sustainable management. Economic and finance arguments complement, and do not replace, ethical and other motivations for sustainable biodiversity management.

1.3.1. The Economics of Biodiversity

Generating and using economic evidence is an essential part of BIOFIN, and requires an understanding of economics. This information is used for building a case for increased investments in biodiversity and to improve the design of biodiversity finance solutions (see Box 1.5 for a definition). The integration of economic theory into biodiversity planning and management is essential to achieve transformative change because:

- Understanding the economic and market drivers of biodiversity loss is essential to craft an effective response;
- Policies, programmes and finance tools require economic assessments to evaluate their feasibility and economic outcomes;
- Decision makers in finance and planning request economic information on the value and trade-offs among different policy and investment choices, including evaluating how valuable ecosystem services may be affected by changes in ecosystems (see Box 1.6);

- Economics can help to improve our understanding of who is benefiting from what ecosystem services and who bears the costs of providing them. This is important for setting up the right incentives for effectively protect biodiversity; and

- A justification and business case that transcends direct financial and market information is important to motivate leaders and citizens. The use of economic arguments in biodiversity finance can help describe how investments in sustainable biodiversity management are not only conservation efforts, but also constitute an investment in economic activity and human well-being.

Economic theory can help understand how nature, human decisions, trade, and investment interact. It provides metrics that can be used to quantify and monetize the value of nature. Converting non-monetary values of nature into monetary figures provides a way to capture and compare the value of biodiversity in alternative policies, programmes, and investments. Some economic concepts essential to understanding biodiversity issues – e.g. valuation, market failure, public goods and externalities – are described in Box 1.7.

BOX 1.5 THE DEFINITION OF A FINANCE SOLUTION

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

- **The source(s) of finance** the solution relies upon.

- **The lead agent or the intermediary(ies**) 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.

- **The instrument(s) 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.

- And **the desired finance result(s)** the solution aims to achieve.

BOX 1.6: BENEFITS FROM VALUABLE ECOSYSTEM SERVICES

- **Fisheries –** In 2013 fish provided 3.1 billion people with almost 20 per cent of their average per capita intake of animal protein.[32] The fisheries sector contributes over 10 per cent of GDP in Cambodia, Kiribati and the Maldives, and more than 5 per cent in Gambia, Mauritania and Sao Tomé. Fish is the most valuable agricultural commodity traded internationally, with net export revenues earned by developing countries reaching US$17.7 billion in 2001 – more than coffee, cocoa, sugar and tea combined.[33] Around 29 per cent of global fish stocks are overfished[34] and at risk of depletion.

- **Forestry –** Accounts for more than 10 per cent of GDP in many of the world's poorest countries. In all developing countries combined, the forestry sector provides formal employment for 10 million people and informal employment for another 30 to 50 million people. In Cameroon, the Central African Republic and Liberia, forest products make up from just under 30 per cent to more than 40 per cent of national exports.[35] At the same time the net change in forest area in 2000-2010 is estimated at a loss of 7 million hectares per year in the tropics.[36]

- **Tourism –** In the Maldives, marine and coastal tourism directly accounts for 20 per cent of GDP, and its wider effects help produce 74 per cent of national income. This tourism contributes more than 60 per cent of foreign exchange receipts, while over 90 per cent of government tax revenue comes from import duties and tourism-related taxes. Almost 40 per cent of the country's workforce is employed in the industry.[37] Coral reefs are among the most biologically rich ecosystems on earth[38] and a key asset for tourism. However, almost one-quarter of coral reefs worldwide are already considered damaged beyond repair, with another two-thirds under serious threat, according to WWF (2003).[39]

It should be noted that biodiversity is often a special case in finance and economics: it can be more difficult to quantify in economic terms than products and services bought and sold in markets. In fact, quantifying the value of biodiversity remains one of the most challenging areas of environmental economics.[40] Part of the value of biodiversity can be captured in the flows of ecosystem services it supports. Biodiversity is an asset that has distinct properties: it can continue to provide goods and services in perpetuity, but if you lose too much of the asset's stock, it is non-renewable and irreplaceable. This creates potential for a good investment proposition: invest in protecting the asset and the flow of benefits will remain sustainable or even increase. Most countries are not investing adequately in preserving or expanding biodiversity assets.

BOX 1.7: KEY ECONOMIC CONCEPTS

Economic valuation is a way to understand how much something is worth to particular people or to society as a whole.[41] It can be expressed in qualitative, quantitative or monetary terms. Monetary values are most frequently used and are also referred to as monetization. Monetary values are often taken from market prices but this does not always work for the environment. Many environmental goods and services are not traded on markets or adequately priced by markets, which contributes to **market failure.** Market failure occurs when governments or companies fail to reflect the full costs and benefits to society of the production and consumption of goods and services and as such produce or consume quantities that reduce societal well-being, such as too much pollution or too few untouched fish habitats.

Market failure occurs frequently where there are **public goods** involved. A public good has the following characteristics: it is non-rival and non-excludable, and is valued by individuals. For some public goods, the presence of the first two properties may depend on the context of their provision and use. For example, the property of non-rivalry is lost when the good is so heavily consumed that over-use begin to reduce its availability to others.[42] Public goods include air to breath, law enforcement, parks, etc. A range of goods and services from the environment, including biodiversity and many ecosystem services, are public goods. A common description of the impacts of public good driven market failure is the "**tragedy of the commons**" a term often applied to open access fishing resulting in overexploitation of fisheries resources as well as overgrazing communal or government lands.

Another cause of market failure is externalities. Specifically, **environmental externalities** are uncompensated environmental effects of production and consumption that affect people and/or enterprises outside the market mechanism (OECD definition[43]). These can include both positive and negative externalities. An example of a positive externality is when the co-benefits of organic agriculture (improved pollination, water quality, insect diversity, etc.) are not included in the premium the farmer receives for his organic produce.

These market failures are a challenge for environmental economics for various reasons. For example, because market prices are not available for many environmental goods and services, it is difficult to include them in **cost-benefit analysis** (CBA). Cost-benefit analysis is a decision-making tool that compares costs and benefits of a proposed policy or project in monetary terms. In this case other "non-market" valuation methods need to be used to value changes in the environment where possible.

At a national scale, there are now attempts to integrate the economic values of ecosystems into **national accounting systems**, which measure the economic activity of a country. This is the objective of the World Bank's WAVES programme and UN SEEA[44] guidelines.

Despite methodological challenges and data gaps, the field of economic valuation of biodiversity and ecosystem services has become a powerful tool for demonstrating, in a language familiar to decisionmakers, their contribution to growth, employment creation and poverty reduction. It also helps policymakers understand why ecosystems remain undervalued, and identify dependencies on biodiversity (see Box 4.3) and therefore the loss of economic productivity and worsening of poverty associated with ecosystem degradation.

Economic arguments will help to make the case for adequate resources to be invested in biodiversity, the 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 4), and is a necessary part of the business case for the finance plan (Chapter 7).

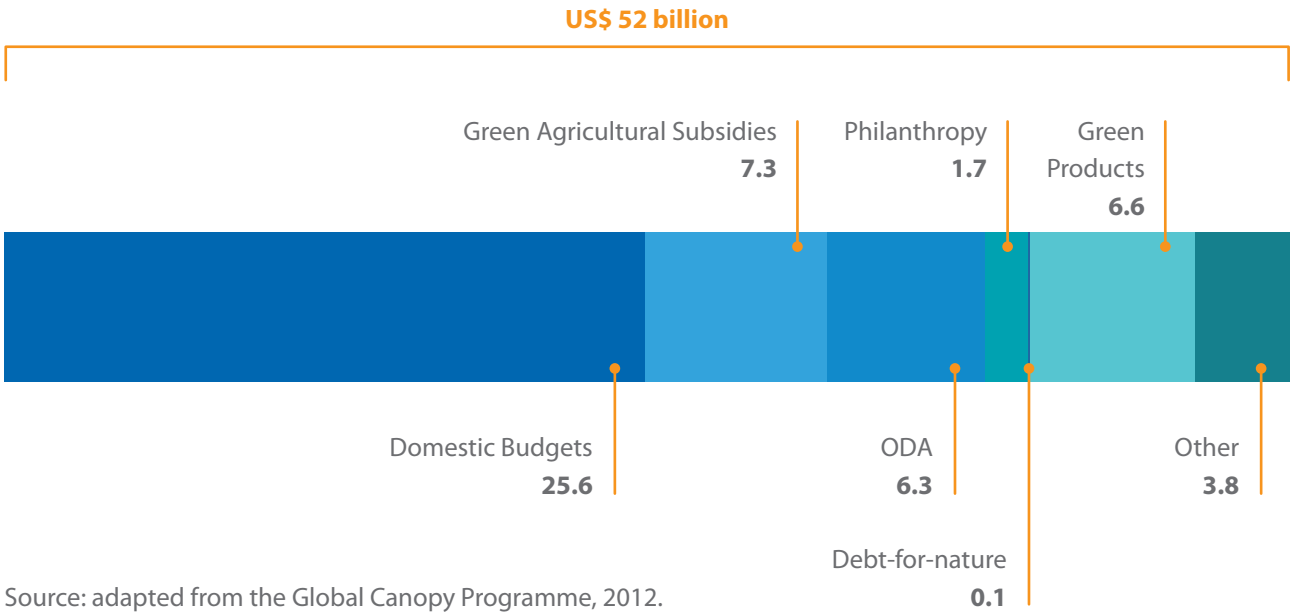
1.3.2. Current Biodiversity Finance

Biodiversity finance[45] is the practice of raising and managing capital and using financial incentives to support sustainable biodiversity management.[46] It includes private and public financial resources used to conserve biodiversity, investments in commercial activities that produce positive biodiversity outcomes and the value of the transactions in biodiversity-related markets such as habitat banking.

Various biodiversity finance approaches have evolved and matured over the past decade, with increasing emphasis on certain innovative finance solutions.[47] Although global finance flows towards biodiversity have not been studied in detail, a number of estimates exist. The need for more accurate assessments of biodiversity finance flows was one of the reasons why BIOFIN was developed. The available funding for biodiversity is estimated at approximately US$52 billion per year.[48] This amount is thought to have been relatively stable in the 2010-2015 period. What is also known is that due to increased pressure the financing needs for biodiversity are increasing at a faster rate than expenditures, and therefore the already large gap in financing continues to increase.

As shown in Figure 1.2, most currently identified biodiversity financing sources are derived from public funds, in particular domestic public budgets (50 per cent), biodiversity-positive agricultural subsidies (US$7.3 billion), and international transfers of public funds (ODA, US$6.3 billion). The reported contribution of private sector financial institutions, sales of green products and philanthropy is relatively modest. This may result from identification challenges (where more substantial investment actual exists than is reported) and points to opportunities for identifying areas of investment growth. Neither the current level of investment in biodiversity, nor the resource mobilization needs have been well articulated at national scales. Moreover, lacking concrete information on recipient country expenditures, needs, aspirations and priorities, development partners have been reluctant to commit support to reach biodiversity management goals and objectives. In terms of multilateral ODA, one of the principal mechanisms is the Global Environmental Facility (GEF). The GEF has been operational since the 1990s as the primary financing mechanism for the Rio Conventions, making grants available to developing countries and countries with economies in transition to meet the objectives of the conventions.[49]

FIGURE 1.2: HISTORICAL ANNUAL BIODIVERSITY FINANCE



Source: adapted from the Global Canopy Programme, 2012.

The CBD has supported the calculation of the global need for financial resources to fulfil the 2020 strategic plan.[50] The analysis, conducted by the High-Level Panel on the Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020, was based on the 20 Aichi Biodiversity Targets (adopted in 2010) and pointed the way to identifying financing gaps and ultimately mobilizing finance. The top down costing exercises were conducted at global and national levels and estimated the global financing needs for achieving the CBD Strategic Plan at between U$S150-440 billion per year by 2020.[51] This implies investment requirements ranging from 0.08 to 0.25 per cent of global GDP. Parker and others (2012)[52] give an estimate of USD$300-400 billion per year for the biodiversity finance needs. Credit Suisse and others (2014)[53] estimate that to meet the global need for conservation funding cash flows to conservation projects need to be at least 20-30 times greater than they are today.

1.3.3. A Framework for Biodiversity Finance

The preceding Sections have described how finance and economics are increasingly being used to achieve biodiversity goals. There is now a wide range of methods and tools which can help design more efficient conservation efforts, improve the cost-effectiveness with which they are delivered, and enhance their co-benefits through synergies with other social, environmental and economic goals. For example:

- The scope for increasing traditional sources of funding – central government budgeting, donor funds, royalties and other charges – remains limited. There is competition from many other sectors of the economy and so this will rarely be sufficient to finance sustainable biodiversity management. However, as tax revenue as a percentage of GDP[54] is forecast to increase slightly, there are some opportunities to allocate these additional revenues to sustainable development, including the protection of biodiversity.

- Opportunities for redirecting finance, such as subsidies that work against the very objectives of sustainable management, remain either unaddressed or at nascent stages. The estimate of the volume of potentially harmful subsidies to the environment is a 9-fold multiple of total biodiversity expenditure and 75-fold multiple of ODA to biodiversity.[55]

- Around a tenth of biodiversity finance, approximately US$6.3 billion,[56] flows from developed to developing economies. This would need to increase tenfold to make an impact on the large gap in biodiversity financing (see Figure 1.2). There is a strong case for increasing funding flows from developed and relatively biodiversity poor countries, to developing and biodiversity rich countries.[57]

- Finally, other options for raising and allocating financial resources to conservation, for example through establishing ecosystem markets, domestic and international private investment, and from the transfer or redistribution of funds between individuals, groups or countries, remain untapped.[58]

BIOFIN aims to make use of appropriate financial mechanisms, approaches and strategies, and economic evidence and tools, to promote finance solutions that improve the sustainable management of biodiverity.

Biodiversity Finance Solution: Bioprospecting

Biodiversity prospecting (bioprospecting) is the systematic search for economically-valuable biochemical and genetic material in nature to develop commercially-valuable products for pharmaceutical, agricultural, cosmetic and other applications. Companies may pay fees, royalties or lump sum amounts for the right to "search", and pay additional amounts for commercialisation of materials. The goal for biodiversity conservation is to extract the maximum commercial value from genetic resources and indigenous knowledge, while creating a fair compensation system that can benefit local communities. It is possible both in terrestrial and marine environments.

Example: Bioprospecting has been piloted in several countries; Costa Rica being one of the most advanced examples where nearly 30 commercial agreements were signed.

See: http://www.undp.org/content/sdfinance/en/home/solutions/bioprospecting.html

The range of available finance solutions is increasing, and the ways in which resources are both mobilized and spent have become progressively diversified. Collaborations between public and private actors have become common. Impact investment, green bonds, payments for ecosystem services, and other solutions that were not traditionally used to finance biodiversity are becoming relevant. Blended finance, which is constituted by a "mix" of philanthropic, public and private capital, can help leverage scarce public resources while using private sources to fund "big-ticket" projects. The value of green finance markets is booming, spearheaded by the development of green bonds and more innovative forms of venture capitalism.

In response to the need for a new approach to biodiversity finance, BIOFIN has outlined a conceptual framework based on four kinds of finance results. In order to identify the mix of finance solutions that is the most effective for a country, it is important to understand the financial results that BIOFIN aims to achieve, namely:

1. **Generate** revenues, i.e. any existing or innovative mechanism or instrument that can generate and/or leverage financial resources to allocate to biodiversity. Examples include the attraction of impact investment in conservation projects, the review or introduction of green taxes (e.g. fuel taxes, taxes on chemical pesticides, water fees etc.), the issuance of debt instruments such as green and blue bonds, etc.;

2. **Realign** current expenditures, i.e. any measure that can reorient existing financial flows towards biodiversity. This result can be achieved by phasing out and reforming fossil fuel/energy subsidies and using these freed resources to invest in renewable energy or green infrastructure instead. Another example is lobbying for changes in budget allocations towards biodiversity and livelihood programmes;

3. **Avoid** the need for future biodiversity expenditures, thus freeing up future resources for investment in other areas, i.e. any measure that can prevent or reduce future investment

needs by eliminating or amending existing counter-productive policies and expenditures. This can be achieved by taxes that can generate a double dividend, or by fines for stopping ecosystem contamination by alien invasive species.

4. **Deliver** financial resources more effectively and efficiently, i.e. any measure or instrument that can enhance cost-effectiveness and efficiency in budget execution, achieve synergies and/or favour a more equitable distribution of resources. Examples include the establishment of biodiversity business challenge funds, the merger of national conservation funds, the establishment of central procurement units or staff incentives to increase delivery of resources.

A single solution can achieve multiple objectives; for example, the introduction of a green tax can help reduce future costs by influencing certain behaviours (e.g. reducing the level of use of chemical fertilizers) while mobilizing additional resources. The involvement of the private sector in conservation can help to deliver resources more effectively, while attracting new capital investments.

Figure 1.3 highlights how the above four financial results are connected to biodiversity goals. Delivering better and generating revenues can contribute to improved biodiversity outcomes through increased budgets and more effective execution. The avoidance of future expenditures and the phasing out of harmful subsidies (realignment of expenditures) can reduce pressures on biodiversity by addressing the main drivers of loss, such as the overconsumption of natural resources due to unsustainable agriculture and fishery practices.

A central element of finance solutions is the mix of financial instruments (or mechanisms) used (see Table 1.1). These instruments can potentially raise substantial sums, but currently only mobilize a small share of the resources required for biodiversity. Multiple instruments might overlap in the design of a single solution, for example grants from ODA and debt from a financial institution as highlighted above in the description of blended finance.

FIGURE 1.3: RELATIONSHIP AMONG FINANCIAL RESULTS, BIODIVERSITY OUTCOMES AND ACTIONS

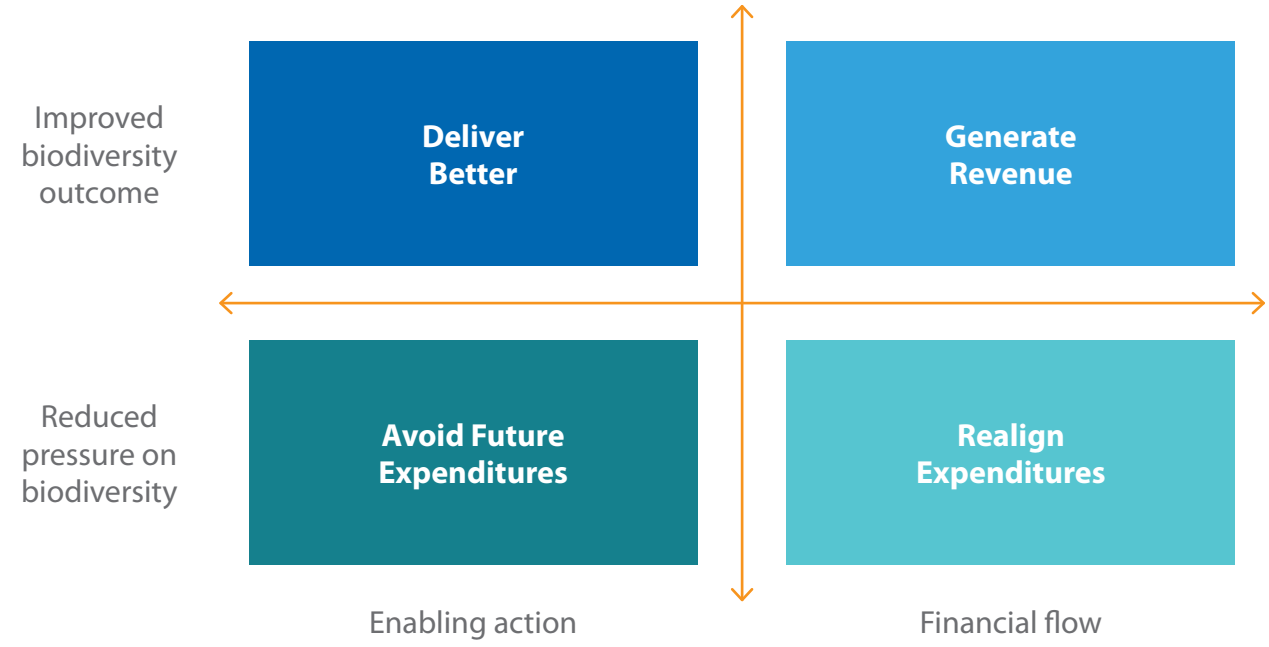


TABLE 1.1: CATEGORIES OF FINANCIAL INSTRUMENTS

Instrument	Definition	Examples
Grant	Any solution that encompasses transfers made in cash, goods or services for which no repayment is required. The definition includes ODA that is provided by official agencies, administered with the promotion of the economic development and welfare of developing countries as its main objective and concessional in character. Philanthropic and individual donations are also considered grants.	The German International Climate Initiative – IKI – funds climate and biodiversity projects in developing countries since 2008. The WorldWide Fund for Nature is 35 per cent 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.	Green bonds, a rapidly growing US$80 billion market. The Althelia Climate Fund that invests in sustainable land use and conservation of primary forest. The European Investment Bank's Natural Capital Financing Facility.
Risk management	Any solution that involves the transfer of risks between two or more parties. The transfer of risks can be attached to the payment transaction (e.g. a typical insurance scheme) or a specific agreement between two or more parties.	A public guarantee for a green investment provided by the Multilateral Investment Guarantee Agency of the World Bank. A compulsory insurance scheme that covers the cost of environmental damages in case of a disaster such as the environmental pollution liability insurance regulations in China.
Fiscal	Any solution that involves a fiscal reform and a subsequent change in the tax code 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 to biodiversity.	Timber taxes and auctioning systems in Central Africa. The recent reform of the chemical fertilizer subsidy scheme in Sri Lanka.
Market	Any solution that involves a market transaction. Markets are established to match the demand and supply of a certain product or service. Markets can also be created by public regulations such as cap-and-trade carbon markets.	Habitat banking markets in the United States and Australia. Payment for Ecosystem Services provided by Nestlé to farmers in France in order to preserve the quality of the water.
Regulatory	Any solution that involves a regulatory reform such as a change in laws, policies, regulations, and enforcement.	Fines for environmental crimes and compulsory insurance schemes in China.

To help navigate among finance solutions, BIOFIN has developed the Biodiversity Finance Solution Catalogue (the "Catalogue") to offer a comprehensive review of available options. The Catalogue lists more than one hundred solutions. They are accompanied by short descriptions and tagged along the main characteristics profiled in Box 1.5, which provides an example of a finance solution. In addition to the financial result they produce, finance solutions are described by the sources of funding, the lead agent or intermediary and the financial instruments used. In reality, many of the solutions combine multiple sources of funding: the same green bond can be issued on the national or the international market, or both.

No single finance solution will be large enough to help achieve all Aichi targets in any country, nor can a single solution alone scale up finance to the level required by 2020 and beyond. The response at the national and international level thus requires a mix of finance solutions, each making use of one or more finance instrument. The approach suggested by BIOFIN starts with the realization that a simple focus on assigning "more resources" to biodiversity will fail, given the large gap and investment requirements. The Workbook provides guidance on how to derive a proper solutions mix that both reduces finance needs and leverages more resources to biodiversity. More needs to be done, but there is good practice to build on. One of the objectives of BIOFIN (see Chapter 2) is to function as a network, enabling information sharing to help scale up pilots and expand or upscale useful concepts.

Mainstreaming biodiversity into the public investment framework - Peru

In Peru, the Ministry of Finance has recognized biodiversity as a trigger for development. A set of interrelated finance solutions was pursued to help establish biodiversity as a public investment category. In 2015 and 2016, the Ministry of Finance and the Ministry of Environment, with the support of BIOFIN, produced: (i) Policy guidelines for public investment in biodiversity, (ii) Guidelines to formulate public investment projects in biodiversity and (iii) Overall guidelines for public investment projects.

All these guidelines were formally adopted by the Government around the same time the NBSAP became an official policy document. Together the NBSAP with the guidelines created a significantly improved enabling environment for public investments in biodiversity, as all major investments in Peru are now required to consider biodiversity impacts. As a result, a greater investment budget has been allocated to biodiversity through the rolling public investment plan. Key factors to securing new investment in biodiversity projects included ongoing communication between partner organizations, and collaboration with GIZ and the water agency SUNASS.

Private sector ecotourism and biodiversity financing - The Seychelles

The Seychelles BIOFIN team engaged private and public stakeholders in the tourism sector to make the case for biodiversity finance as this sector is intrinsically dependent on biodiversity and the preservation of natural assets. Several factors helped their development of a successful business case and engagement of the private tourism sector:

- Several large hotel owners and operators have made significant efforts to eradicate invasive alien species, protect sea turtle nesting sites, restore coral, protect mangroves and other biodiversity conservation actions as they recognize the direct benefits to their business.

- These companies shared their approach at a workshop held by BIOFIN and the government to showcase the importance of biodiversity for the private sector. The workshop was attended by key stakeholders from the public sector including the Ministry of Finance, Ministry of Environment and Climate Change, Ministry of Tourism and the Seychelles Tourism Board, etc., as well as NGOs and of course, the private sector (mostly hotels and diving operators).

- The maintenance of the marine and coastal environment and key unique terrestrial habitats are essential for the long-term viability of the Seychelles economy as the economy is highly dependent on tourism and fisheries. The hotels actively financing biodiversity understand that the opportunity cost of biodiversity degradation is very high to them as individual enterprises and at a national scale. Investing in biodiversity provides competitive advantages to the hotels and creates positive market externalities thanks to cooperation and strategic efforts (i.e. to the Seychelles' image as a pristine destination).

- In the Seychelles, all businesses are required to pay a mandatory Corporate Social Responsibility (CSR) tax of 0.5 per cent of their turnover. The workshop provided an opportunity for the private sector and Government to discuss the use of this tax's revenues to fund biodiversity programmes.

The Amazon Fund - Brazil

The Amazon Fund is the largest dedicated fund supporting efforts to reduce emissions from deforestation and degradation in the Amazon, the world's largest tropical forest with invaluable biodiversity. It is managed by the Brazilian Development Bank with US$1 billion in funding from the government of Norway and technical assistance from Germany. While the US$1 billion is a significant sum compared to national climate funds, it is a small sum of money relative to the size of the Brazilian economy and the economic incentives that are driving deforestation.

A multi-stakeholder Guidance Committee was established to ensure inclusive governance of the fund. At the same time sponsors (Government, NGOs, etc.) leveraged the financial management capacities of the Brazilian National Economic and Social Development Bank (BNDES) to guarantee the high degree of transparency necessary to manage a large operation. Looking forward, the Fund will may have to adapt its strategy, as it is a single donor and a single mechanism of financing.[59]

Endnotes

1 Article 2 in the Convention on Biological Diversity. See www.cbd.int/convention/articles/default.shtml?a=cbd-02.

2 Costanza, Robert and others (2014). Changes in the global value of ecosystem services. Global Environmental Change, May. pp. 152-168. Available from: https://www.researchgate.net/profile/Robert_Costanza/publication/262489570_Changes_in_the_global_value_of_ecosystem_services/links/53d1961a0cf220632f3c1922.pdf.

3 See http://www.worldbank.org/en/news/press-release/2011/01/20/countries-manage-natural-wealth-long-term-move-up-development-ladder-says-new-world-bank-book.

4 World Bank national accounts data. [online] Available from: http://data.worldbank.org/indicator/NY.GDP.MKTP.CD.

5 Potts, S and others (2016). Summary for policymakers of the assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production. Available from: http://www.ipbes.net/sites/default/files/downloads/Pollination_Summary%20for%20policymakers_EN_.pdf.

6 World Meteorological Organization (WMO) (2010). Climate, Carbon and Coral Reefs. Available from: http://www.wmo.int/pages/prog/wcp/agm/publications/documents/Climate_Carbon_CoralReefs.pdf.

7 World Health Organization (WHO) (2010). WHO traditional medicine strategy:2014-2023. Available from: http://apps.who.int/iris/bitstream/10665/92455/1/9789241506090_eng.pdf?ua=1.

8 Russi, D. and others. (2013). The Economics of Ecosystems and Biodiversity for Water and Wetlands. Available from: http://doc.teebweb.org/wp-content/uploads/2013/04/TEEB_WaterWetlands_Report_2013.pdf.

9 The figure of US$ 24 trillion is based on data in The Changing Wealth of Nations Measuring Sustainable Development in the New Millennium, World Bank (2011) and includes the estimated value (in 2005) of Crop Lands, Pasture Lands, Forests/ Timber, Forests/ Nontimber and Protected Areas in the 152 countries where the data was available. See page 47 Table 2A.2 of the above cited publication for more information. Available on https://openknowledge.worldbank.org/bitstream/handle/10986/2252/588470PUB0Weal101public10BOX353816B.pdf?sequence=1&isAllowed=y.

10 These unpriced costs are termed "externalities" because they are external to private company costs, see below.

11 The Stockholm Resilience Centre has defined nine planetary boundaries, four of which have been crossed: climate change; loss of biosphere integrity; land-system change; and altered biogeochemical cycles (phosphorus and nitrogen). See http://www.stockholmresilience.org/research/research-news/2015-01-15-planetary-boundaries---an-update.html.

12 Steffen, Will and others, (2015). Planetary Boundaries: Guiding human development on a changing planet. Science Vol. 347 no. 6223. Available from: http://www-ramanathan.ucsd.edu/files/pr210.pdf.

13 Available from: http://www.millenniumassessment.org/en/index.html.

14 Rainforest Conservation Fund (n.d). Current State of tropical rainforest.] Available from: http://www.rainforestconservation.org/rainforest-primer/3-rainforests-in-peril-deforestation/a-current-state-of-tropical-rainforests/.

15 See http://www.fao.org/docrep/t0829e/t0829e04.htm.

16 Rainforest Conservation Fund (undated). Current State of tropical rainforest. [online] Available at: http://www.rainforestconservation.org/rainforest-primer/3-rainforests-in-peril-deforestation/a-current-state-of-tropical-rainforests/.

17 Millennium Ecosystem Assessment Reports (2005). Available from: http://www.millenniumassessment.org/en/index.html.

18 IUCN Red List Committee (2013). The IUCN Red List of Threatened Species Strategic Plan 2013-2020. Available from: http://cmsdocs.s3.amazonaws.com/keydocuments/red_list_strategic_plan_2013_2020.pdf.

19 Ceballos, G. and others (2015). Accelerated modern human-induced species losses: Entering the sixth mass extinction. Science Advances, June. Available from: http://advances.sciencemag.org/content/1/5/e1400253.full.

20 Secretariat of the Convention on Biological Diversity (CBD) (2014). Global Biodiversity Outlook 4. Available from : https://www.cbd.int/gbo/gbo4/publication/gbo4-en-hr.pdf.

21 CBD (2010). Biodiversity Scenarios: Projections of 21st Century Change in Biodiversity and Associated Ecosystem Services. Available from https://www.cbd.int/doc/publications/cbd-ts-50-en.pdf.

22 Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

23 World Bank (2014). Investing in Natural Capital for Eradicating Extreme Poverty and Boosting Shared Prosperity: A Biodiversity Roadmap for the WBG.] Available from: https://openknowledge.worldbank.org/bitstream/handle/10986/19998/887530REVISED000NC0385272B00PUBLIC0.pdf;sequence=1.

24 Mead, Donald (2001). Plantations and Wood Energy. Food and Agriculture Organization (FAO). Available from http://www.fao.org/3/a-ac125e.pdf.

25 Food and Agriculture Organization (FAO) (2015). Global Forest Resources Assessment 2015. Available from: http://www.fao.org/3/a-i4793e.pdf.

26 In 2015 The United Nations announced new 17 Sustainable Development Goals with 169 associated targets which are integrated and indivisible. The targets will guide the decisions taken over the next 15 years. See https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

27 Link to the FfD Addis Ababa Action Agenda: http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf.

28 Intergovernmental Committee of Experts on Sustainable Development Finance (2015). Available from: https://sustainabledevelopment.un.org/intergovernmental/financecommittee.

29 iworry (2013). Dead or Alive? Valuing an Elephant. Available from: http://iworry.org/wp-content/uploads/2013/09/Dead-or-Alive-Final-LR.pdf.

30 World Resources Institute (2012). Green Vs Gray Infrastructure. Available from: http://www.wri.org/blog/2012/06/green-vs-gray-infrastructure-when-nature-better-concrete.

31 Burke, L. and H. Ding (2016). Valuation of Coastal Protection near Paramaribo, Suriname. Available from: http://d2ouvy59p0dg6k.cloudfront.net/downloads/3__16_02_project_peri_urban_coastal_protection_options_paramaribo___pre_final_report_wri.pdf.

32 FAO (2016). The State of World Fisheries and Aquaculture. Available from http://www.fao.org/3/a-i5555e.pdf.

33 Organisation for Economic Co-operation and Development (OECD) (2008). Natural Resources and Pro-Poor Growth: The Economics and Politics. DAC Guidelines and Reference Series. Available from: www.oecd.org/dataoecd/61/43/42440224.pdf.

34 FAO (2014). The State of World Fisheries and Aquaculture. Available from: http://www.fao.org/3/a-i3720e.pdf.

35 OECD (2008).

36 FAO (2016). 2016 State of the World's Forests. Available from: http://www.fao.org/3/a-i5588e.pdf.

37 Emerton, L. (2006). Counting Coastal Ecosystems as an Economic Part of Development Infrastructure. International Union for Conservation of Nature and Natural Resources (IUCN). Available from: https://portals.iucn.org/library/efiles/documents/2006-076.pdf.

38 United Nations Atlas of the Oceans. Available from: http://www.oceansatlas.org/.

39 Cesar Environmental Economics Consulting (CEEC) (2003) Published by: Cesar Environmental Economics Consulting (CEEC) https://www.wwf.or.jp/activities/lib/pdf_marine/coral-reef/cesardegradationreport100203.pdf.

40 Bolt et al (2016) Biodiversity at the heart of accounting for natural capital: the key to credibility. Cambridge Conservation Initiative. http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/CCI-Natural-Capital-Paper-July-2016-low-res.pdf.

41 Ozdemiroglu, E. and Hails R. (eds) (2016). Demystifying Economic Valuation. Valuing Nature Paper VNP04. Available from: http://assets.worldwildlife.org/publications/921/files/original/VNN-Demystifying_Economic_Valuation-Paper.pdf?1470335837.

42 OECD (2011). Evaluating Policies for Delivering Agri-environmental Public Goods. Available from: http://www.oecd.org/tad/sustainable-agriculture/48185525.pdf.

43 https://stats.oecd.org/glossary/detail.asp?ID=3215.

44 The System of Environmental-Economic Accounting (SEEA) contains 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. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA) to facilitate the integration of environmental and economic statistics. See: http://unstats.un.org/unsd/envaccounting/seea.asp.

45 The term is like the more commonly used "Conservation Finance" but avoids the connotation of a focus on "conservation" as the primary or only objective.

46 Adapted from Clark, S. (2007). A field guide to conservation finance. Washington, DC: Island Press.

47 OECD (2013). Scaling-up Financing Mechanisms for Biodiversity.
Available from: http://www.oecd.org/env/resources/scaling-up-finance-mechanisms-for-biodiversity-2013.htm

48 The available funding for biodiversity is estimated at approximately US$52 billion per year. Parker C. and others (eds) (2012).
The Little Biodiversity Finance Book. Global Canopy Programme. Oxford.
Available from: http://globalcanopy.org/publications/little-biodiversity-finance-book-3rd-edition-2012.

49 See https://www.thegef.org/about/funding.

50 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.

51 CBD (2012).

52 Parker and others (2012).

53 Credit Suisse, WWF and Mckinsey (2014). Conservation Finance: Moving beyond donor funding toward an investor-driven approach.
Available from https://www.cbd.int/financial/privatesector/g-private-wwf.pdf.

54 See http://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS.

55 Based on comparison of annual biodiversity expenditures (identified above) to global agricultural and other subsidies, quantified at over US$450 billion/yr during the 2000s (see Chapter 4).

56 See Figure 1.2.

57 Waldron and others (2013). Targeting global conservation funding to limit immediate biodiversity declines. Proceedings of the National Academy of Sciences. 110.29: 12144-12148.
Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3718168/pdf/pnas.201221370.pdf.

58 Waldron and others (2013).

59 Forstater, M and others (2013). The effectiveness of climate finance: a review of the Amazon Fund. Overseas Development Institute (ODI) Working paper 372. Available from: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8340.pdf.

2 THE BIODIVERSITY FINANCE INITIATIVE – BIOFIN

2.1 Introduction

The Biodiversity Finance Initiative – BIOFIN – is a UNDP-managed global collaborative partnership to develop and implement an evidence-based methodology that improves biodiversity outcomes using finance and economics. The BIOFIN methodology provides an innovative, stepwise and adaptable approach that enables countries to:

- Analyse the policy and institutional context for biodiversity finance;
- Measure the current biodiversity expenditures;
- Assess future financial needs; and
- Identify and mobilize the resources and policies required to successfully implement the most suitable finance solutions to achieve national biodiversity plans and targets.

This chapter describes the rationale and core principles of BIOFIN and the expected results of the BIOFIN process in a country. The introductory section describes BIOFIN's origins and provides general information. Subsequent sections describe the main products and results expected from BIOFIN, the principles it is based on, and links to related initiatives. It concludes with an overview of the remainder of the BIOFIN process and guidance on how to use the rest of the BIOFIN Workbook.

2.2 What is BIOFIN?

BIOFIN was developed in response to the 10th Conference of the Parties (COP-10) of the Convention on Biological Diversity (CBD), which identified the need for better information on current expenditures and financing needs, and for a comprehensive methodology to develop resource mobilization strategies. BIOFIN is considered an important support for the ambitious CBD Strategic Plan for Biodiversity 2011-2020. It responds directly to Aichi Target 20 on Resource Mobilization, which supports the other 19 Targets, to facilitate the delivery of National Biodiversity Strategies and Action Plans (NBSAP) (See Box 2.1). BIOFIN was launched at the COP-11 in India in 2012, under an initial grant from the EU, and to date has received additional financial support from Germany, Norway, Switzerland and Flanders.

The goals of BIOFIN include the following:

- Develop and pilot a new approach and methodology to fill the financing gap for biodiversity;
- Support CBD parties in reporting on resource mobilization (Financial Reporting Framework);
- Assist countries to better mobilize and align domestic and international finance for biodiversity, including implementation of NBSAPs, and to achieve sustainable development goals.

BOX 2.1: THE CBD STRATEGIC PLAN, NBSAPS AND THE 20 AICHI TARGETS

The CBD Strategic Plan

"Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilisation of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach."

A National Biodiversity Strategy and Action Plan (NBSAP)

National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the CBD Strategic Plan at the national level (Article 6). The Convention requires countries to prepare a national biodiversity strategy (or equivalent instrument) and to ensure this strategy is mainstreamed into the planning and activities of all sectors with an impact (positive and negative) on biodiversity.[1]

The Aichi Biodiversity Targets are organized under five Strategic Goals:

A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;

B. Reduce the direct pressures on biodiversity and promote sustainable use;

C. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity;

D. Enhance the benefits to all from biodiversity and ecosystem services;

E. Enhance implementation through participatory planning, knowledge management and capacity-building.

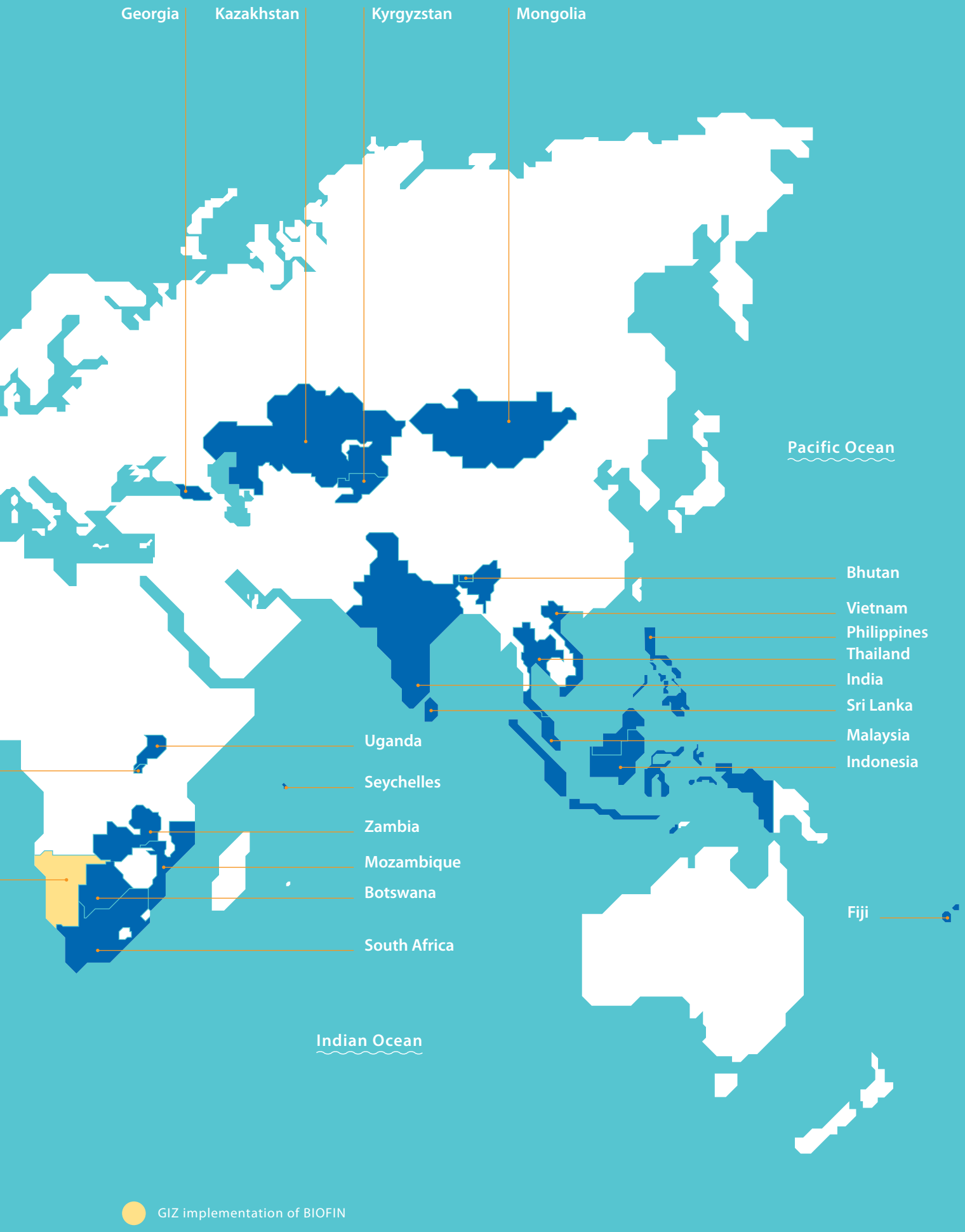
The 20 targets listed under these five goals are provided in Appendix I.

There are currently 30 countries participating in BIOFIN. The project, which began in 2012 and continues through 2018, is coordinated by UNDP through a global team supporting country implementation and the continuous improvement of the BIOFIN methodology. The global team works with interdisciplinary national teams, customizing the methodology to the national context in each country.

The countries where BIOFIN is being implemented, as of December 2016, are shown in Figure 2.1. More details on the latest progress in these countries can be found at: www.biodiversityfinance.net/countries.[2]

FIGURE 2.1: MAP OF BIOFIN COUNTRIES

The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations and BIOFIN donors concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.


Georgia
Kazakhstan
Kyrgyzstan
Mongolia
Pacific Ocean
Bhutan
Vietnam
Philippines
Thailand
India
Sri Lanka
Malaysia
Indonesia
Uganda
Seychelles
Zambia
Mozambique
Botswana
South Africa
Fiji
Indian Ocean
GIZ implementation of BIOFIN

At the regional and global level, BIOFIN enables participating countries to exchange experiences through a variety of South-South cooperation mechanisms, such as regional and global workshops, the BIOFIN website, dedicated webinars and other platforms. BIOFIN collates all learning on the BIOFIN website (www.biodiversityfinance.net), which is continually updated and expanded with new knowledge management materials, including updates on the BIOFIN Workbook, presentation materials, new stories, case studies and data management tools. BIOFIN participates actively in other web platforms including the NBSAP forum (www.nbsapforum.net) and BES-Net (http://besnet.world/biodiversity-finance), which has co-developed a resources library on biodiversity finance with the BIOFIN team.

2.3 What are the expected outcomes from BIOFIN?

BIOFIN functions at a country level by bringing together a core group of national stakeholders from the ministries of finance (treasury), economy, planning and environment as well as other line ministries, the private sector, civil society and donors. This is an important outcome in itself, since such coordination mechanisms are not always functional or present in many countries. This group is essential to engage closely on biodiversity financing issues, and is needed to initiate the most effective finance solutions for biodiversity.

In the short term, the expected outcomes of the BIOFIN process and methodology at the national level include the following:

- Create an effective dialogue among multiple ministries and actors in the biodiversity finance space that improves communication and efficiency in budget planning, resource mobilization, and biodiversity management;

- Improve understanding of the current situation in the country about the economic and financial drivers of biodiversity loss, enabling targeted policy recommendations and the identification of entry points for mainstreaming biodiversity in national development plans and budgets and private sector engagement;
- Determine a baseline level of biodiversity expenditures for the country as a whole, thus enabling both future projections and ultimately tracking biodiversity in budgets;
- Identify specific financial needs for successful implementation of national biodiversity strategies and plans[3] and assess financing gaps;
- Develop, pilot and implement a suite of finance solutions.

FIGURE 2.2: THE NATIONAL BIOFIN APPROACH AND OUTCOMES

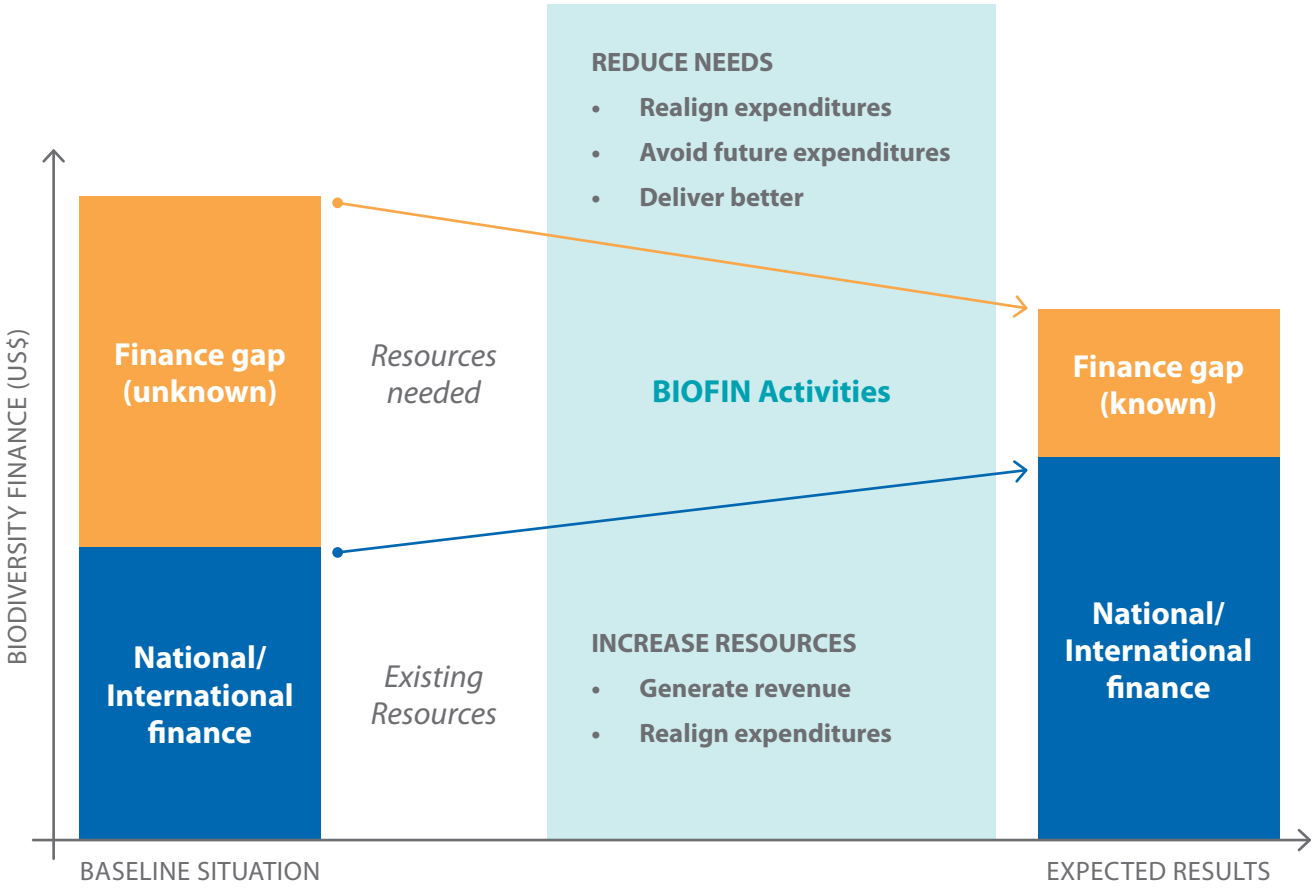


Figure 2.2 shows how the global context translates into a national approach within BIOFIN. The four finance results described in Chapter 1 can be combined to reduce needs and increase resources to meet biodiversity finance needs. Note that "realign expenditures" contributes both to reducing needs and to increasing resources: realigning expenditures such as biodiversity-harmful subsidies can avoid damage to biodiversity and hence reduce the financing need; it can also be a source of funds that may be redirected to deliver biodiversity objectives as well as, or possibly instead of, their existing objectives.

Biodiversity Finance Solution: Greening Subsidies in Agriculture

Agriculture subsidies often encourage production through increased use of chemical fertilizers and pesticides, inefficient irrigation, and conversion of natural habitats, thus directly or indirectly harming biodiversity. Subsidies can include price support, direct income support, tax incentives and subsidized inputs. A feasibility review could highlight the prospect of greening or eliminating the subsidy, with the potential to create savings while also reducing the harmful impacts on biodiversity.

Example: In recent years, Sri Lanka revisited its policy on fertilizers, refocusing support towards ecological and public health objectives. Annual costs were reduced from US$317 million to 165 million.

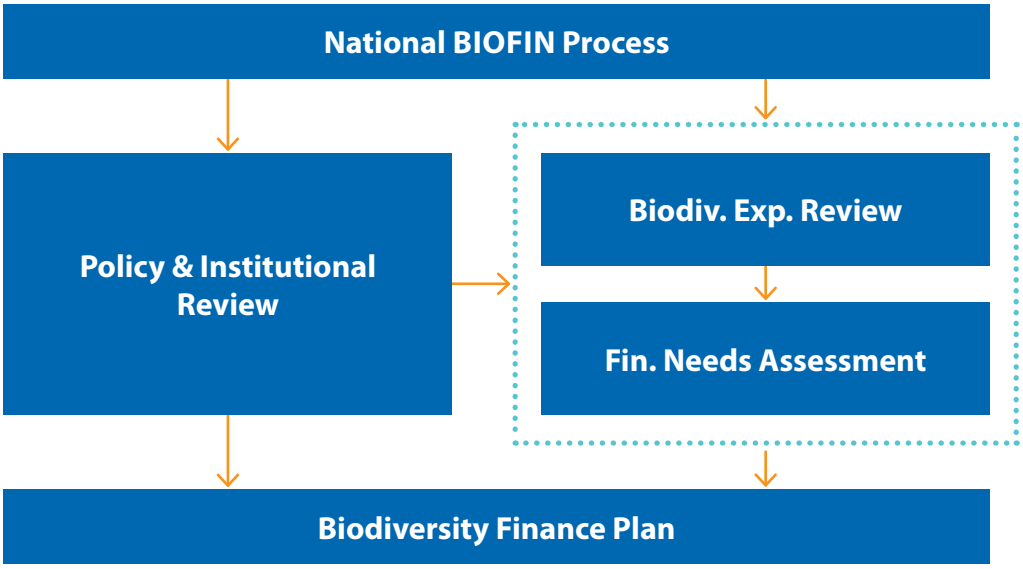
See: http://www.iisd.org/gsi/effects-subsidies.

2.4 Overview of the National BIOFIN Process

The basic approach of the BIOFIN process in a country is outlined in Figure 2.3, illustrating the three assessments that culminate in a Biodiversity Finance Plan, described in Chapters 4-7:

- *Biodiversity Finance Policy and Institutional Review (PIR)* analysis of the policy and institutional context, establishes what will be analysed within the National BIOFIN study (e.g. which biodiversity targets) and the context for the intended change in financing;
- *Biodiversity Expenditure Review (BER)* analysis of public and private expenditures benefitting biodiversity, establishes, past and projected expenditures on biodiversity;
- *Financial Needs Assessment (FNA)* estimates the financing required to deliver national biodiversity plans, targets and results, and then assesses the financing gap between this and the projected expenditures;
- *Biodiversity Finance Plan (BFP)* Prioritizes financing solutions that will close the financing gap by optimizing current and expanding future investments (public, private, national, international, traditional and innovative) in biodiversity management, and develops the business case for the best options.

FIGURE 2.3: NATIONAL BIOFIN PROCESS OVERVIEW



Following the completion of the Biodiversity Finance Plan, the implementation phase will lead to the scaling up and initiation of finance solutions as well as policy, planning and budgeting improvements.

2.5 Foundations of BIOFIN

The BIOFIN methodology that is detailed in this Workbook is designed to be adapted by each country that applies the approach. While designed to be operational at the national level, it can also be adapted to be used at different sub-national scales.

2.5.1. Prerequisites for implementation

In order for the BIOFIN Workbook to be used effectively, there are several prerequisites, including:

- *Political will*: Required to drive the national BIOFIN process forward; the process will not be successful without national ownership, under clear leadership and support from the highest governmental levels.
- *Collaboration*: Willingly entered into across agencies, ministries, sectors and other organizational boundaries.
- *Openness to the process*: To look at long-held expenditure priorities, and be willing to expose and change ineffective expenditures and financial management processes. This also implies a willingness to make budgetary and financial expenditure data accessible to the national BIOFIN process, which must in turn respect potential sensitivities.
- *Engage powerful interest groups*: To have difficult and possibly contentious discussions with powerful interest groups, who may have a strong interest in not exploring issues such as harmful incentives and ineffective expenditures. The BIOFIN Workbook provides tools and guidance for having these discussions, but the hard work of holding national and sub-national dialogues is the only process whereby change can occur.

- *Capacity*: Having a basic level of capacity to undertake each Step in the BIOFIN Workbook, including the capacity to identify robust biodiversity targets, to undertake key assessments and analyses, and to manage complex data.

- *Commitment to use the results*: The BIOFIN Workbook is only as robust as the changes that occur from the results. Developing a Biodiversity Finance Plan is a starting point for the transformation of biodiversity finance in a country, not the end.

Building on these requirements, appropriate governance for BIOFIN needs to be established. This is described in detail in Chapter 3.

Biodiversity Finance Solution: Lotteries

Lotteries have traditionally provided supplementary revenues to the government treasuries for promoting social and environmental outcomes. They are a form of gambling that involves the drawing of lots for a prize, and include instant games, lotto, and electronic terminals. Governments and NGOs use lotteries to mobilize funding for a variety of causes such as educational, cultural or social activities, sometimes including biodiversity conservation.

Example: The WWF-Netherlands received US$128 million from the Dutch lottery to fund network activities and biodiversity conservation projects, including for marine activities in Mexico.

See: http://www.undp.org/content/sdfinance/en/home/solutions/lotteries.html.

2.5.2. Principles

The three key overarching principles to follow when undertaking the national BIOFIN process are:[4]

- **Effectiveness:** To achieve the most important biodiversity goals and objectives through appropriate choices of actions and investments, and simultaneously deliver on both on biodiversity goals and other national sustainable development goals.

- **Efficiency:** To achieve goals and objectives using the least amount of resources, including time. It implies maximising the use of material, human and community resources.

- **Equity:** A concept of justice, impartiality or fairness. It recognizes that those who have unequal opportunities should receive differential treatment to put them on par with others. For example, children, women, people with physical or mental disabilities and ethnic minorities face different kinds of inequities. Their specific needs have to be addressed to enable them to make choices and utilize opportunities. Equity is not to be confused with the idea of equality which implies equal treatment of all people.

Other important principles that are relevant to the national BIOFIN process include:

- *User-orientation:* The final results should be focused on helping the key stakeholders – the organizations that will be responsible for implementation – understand, interpret and implement the results.

- *Evidence driven:* BIOFIN aims to generate high-quality quantitative analysis to make the case for biodiversity finance solutions. To maximise effectiveness, the selection, design and implementation of finance solutions should be based on available evidence.

- *Inclusiveness:* The assessments and the Biodiversity Finance Plan should be developed in an inclusive fashion, through in-depth consultation with a strong focus on capacity development, and involving many interest groups and stakeholders, as described in Chapter 3.

- *Pro-poor:* When weighing the pros and cons of different policy and investment scenarios, finance mechanisms, actors and priorities, impacts on the poorest and most vulnerable members of their society should be considered carefully, and solutions that help to alleviate poverty should be sought.

- *Gender sensitive:* During every Step of the BIOFIN process, potential impacts need to be analysed from a gender perspective (see Section 3.3.4).

- *Openness and transparency of data:* While not all information may be appropriate for full public disclosure, most of the outputs from Chapters 4-6, including recommended finance mechanisms and potential consequences of and safeguards for these mechanisms, should be made publicly available. However, it should be noted that the data generated under all national BIOFIN work will remain confidential if governments (or other parties) so decide.

The BIOFIN process aims to implement good practice in all aspects of its work. The methodology has been aligned with international best practise from the evolving public finance discourse, which has developed substantially in the past decades.[5]

2.6 Links to related international initiatives

For the BIOFIN process to be effective the initiative should not focus solely on the Aichi Targets, the CBD and the NBSAP. There are other important national and international initiatives that will be integrated into the BIOFIN process in each country. Just as national teams build collaboration by working closely with a variety of government partners, civil society, and other national stakeholders and experts, the BIOFIN process should connect with a wide range of related initiatives. These initiatives can include a range of national and donor driven projects and programmes, related global initiatives, other related conventions, research initiatives, and more.[6]

For example, BIOFIN assessments and plans will probably include strategies that are derived from other Conventions such as: the Convention on Migratory Species; the Convention on International Trade of Endangered Species; the RAMSAR Convention on Wetlands; the United Nations Educational, Scientific and Cultural Organization World Heritage Convention; the United Nations Convention to Combat Desertification; and the United Nations Framework Convention on Climate Change.

BIOFIN also seeks to increase its effectiveness by promoting synergies with related international and national programmes, such as:

- Programming on **Conservation Finance** by a large variety of organizations,[7] often includes work on protected area finance and innovative finance solutions, which should be closely involved when developing the finance plan;

- Global programmes working to expand environmental accounting practices: The **United Nations System of Environmental-Economic Accounting (UNSEEA)**[8] is an international standard for including environmental data in national statistical reports and especially in national accounts. The World Bank's **Wealth Accounting and Valuation of Ecosystems (WAVES and WAVES+)** helps countries to establish Natural Capital Accounts and carry out the required economic valuation studies.[9] In the medium and long term, tracking stocks and flows of environmental assets can contribute to the documentation of impacts from investments in biodiversity;

- The German Development Agency's GIZ's[10] **ValuES**[11] provides guidance and training on methods and uses for environmental economic analyses and combines country level technical capacity development activities with a central knowledge management platform;

- The United Nation's Environment Programme's **The Economics of Ecosystems and Biodiversity, (TEEB)**,[12] works in many countries assessing, summarizing and deepening understanding of how economic valuation studies can provide insight and guidance on biodiversity policy and planning. BIOFIN seeks to identify and utilize economic analyses of changes to biodiversity and ecosystems, particularly on the value of ecosystem services. BIOFIN does not allow time or resources to generate such analyses.

Biodiversity Finance Solution: Green Bonds

Green bonds can mobilize resources from domestic and international capital markets for climate change adaptation, renewable energy and other environment-friendly projects. They are no different from conventional bonds, except proceeds are invested in projects that generate environmental benefits. A relatively small number of these bonds currently have a positive impact on biodiversity but there is potential to increase this in the future, including in combination with bonds for related themes such as climate change, agriculture or forestry.

Example: Green bonds issuance in Latin American is relatively small (US$4.4 billion) but growing. Recent bonds include a US$500m bond from Costa Rica's Banco Nacional in April 2016. While green bonds have primarily been in the energy theme in Latin America, the Climate Bonds Initiative expects to see future developments in the agriculture & forestry themes.

See: https://www.climatebonds.net/.

2.7 How to use the BIOFIN Workbook

The BIOFIN Workbook provides both technical guidance and direct implementation steps for undertaking the BIOFIN process in a country. Although the Workbook was designed primarily to support counties that have embarked on a complete implementation of the BIOFIN process with outside financing and technical support from UNDP, it has been written in a way that countries with no external support can implement BIOFIN directly with internal resources. In addition, it is possible to implement each of the BIOFIN assessments (PIR, BER, FNA) and even prepare the Biodiversity Finance Plan as stand alone reports.

The Biodiversity Finance Initiative (through UNDP) also provides complementary support materials that are being improved periodically, which are best accessed via the internet: www.biodiversityfinance.net, and regular thematic webinars are also organized. The most important of these supporting materials include a series of quantitative tools (in Excel) that facilitate data input and analysis for the BER and the FNA. In addition, there is a tool that supports the analysis required for prioritizing the finance solutions in the BFP. Using these tools is optional, but they are designed to support the BIOFIN Workbook and associated implementation guides. Additional implementation guidance and insights are provided in Chapter 3.

Questions or clarifications on the BIOFIN Workbook and the supporting tools and documentation can be addressed to biofin@undp.org.

Endnotes

1 Available from: https://www.cbd.int/nbsap/.

2 United Nations Development Programme (UNDP) (2016). BIOFIN: The Biodiversity Finance Initiative: Countries. Available from: http://www.biodiversityfinance.net/countries.

3 Including the NBSAP.

4 Adapted from UNDP guidance: UNDP (n.d.). Principles underlying the idea of human development. Available from: http://www.in.undp.org/content/dam/india/docs/principles-underlying-the-idea-of-human-development.pdf.

5 Cangiano M. et al (2013) Public Financial Management and Its Emerging Architecture. International Monetary Fund. Available from: https://www.imf.org/external/pubs/cat/longres.aspx?sk=40035.0.

6 This is described more fully in Chapter 3.

7 Such as UNDP-Global Environment Facility GEF, and non-government organizations such as World Wildlife Fund, Conservation International, Wildlife Conservation Society, The Nature Conservancy and Birdlife International.

8 United Nations (2016) System of Environmental-Economic Accounting (SEEA) contains 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. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA) in order to facilitate the integration of environmental and economic statistics. Available from: http://unstats.un.org/unsd/envaccounting/seea.asp.

9 World Bank Group (2016). Wealth Accounting and Valuation of Ecosystem Services (WAVES). Available from: https://www.wavespartnership.org/.

10 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2016) Deutsche Gesellschaft für Internationale Zusammenarbeit. Available at: https://www.giz.de/en/html/index.html.

11 ValuES (2016) Counting on Nature's Benefits. Available from: http://www.aboutvalues.net/.

12 The Economics of Ecosystems and Biodiversity (TEEB) (2016).The Economics of Ecosystems and Biodiversity. Available from: www.teebweb.org.

3 THE BIOFIN PROCESS

3.1 Introduction

The national BIOFIN process involves several detailed and interrelated assessments and processes. The approach should follow best practices for stakeholder engagement, evidence based analysis, effective communication, inter-organizational partnership and gender sensitivity.

Following this introduction, subsequent sections cover how to start the BIOFIN process in a country, and planning effective stakeholder engagement. Then embedding the BIOFIN process into existing frameworks and advocacy and communications are covered. Both are important to sustain the implementation of BIOFIN's outputs after the completion of the national BIOFIN work.

3.1.1. Aims and Objectives

The aim of this chapter is to help plan and implement the BIOFIN process in countries to facilitate transformational change and long-term instutionalization of impacts. The specific objectives of the chapter are to:

- Plan the launch and implementation of the BIOFIN process;
- Identify the most promising opportunities to ensure the institutionalization and sustainability of BIOFIN results, engaging with decision-makers from the outset;
- Design a national BIOFIN process that builds links between the ministries responsible for environment and finance, supported by stakeholder consultation and outreach that attracts broad ownership of its outputs;
- Design effective communications for BIOFIN activities and recommendations.

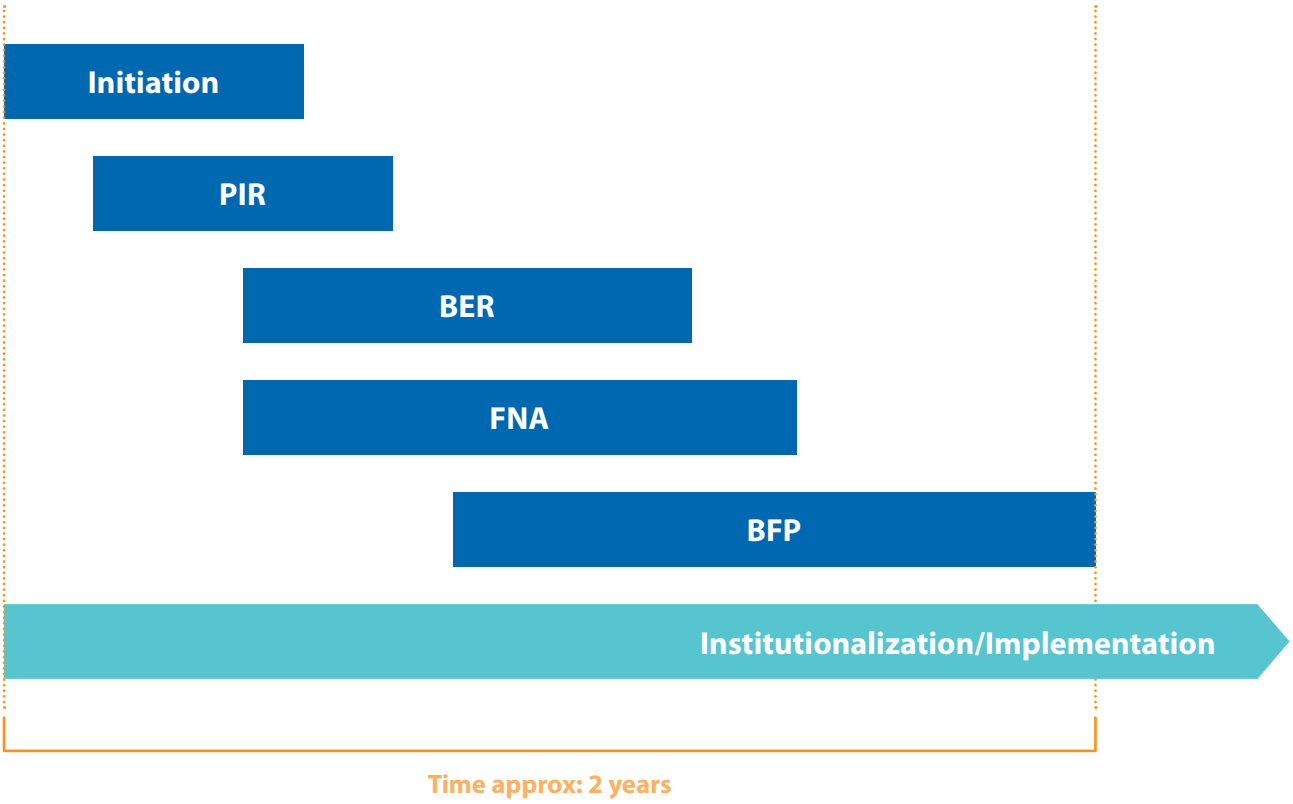
The BIOFIN methodology should be adapted to the national context, materials being translated into national languages where necessary.[1] It follows an adaptive management approach, always allowing further refinements of the design, sequence and scope of the BIOFIN process in order to respond to emerging opportunities. Advances with different methodological approaches can be shared among countries and with the global BIOFIN community through the BIOFIN website.[2]

3.1.2. Overview of BIOFIN Planning

The BIOFIN process is a complex, multi-stakeholder initiative in each country and proper planning is essential for successful implementation. The process can be divided into three main phases: Initiation; Assessments and Documentation; and Institutionalization. This chapter is focused on the initiation and the institutionalization phases.

Figure 3.1 shows the approximate timing of the different phases beginning with the initiation phase which leads rapidly into the Policy and Institutional Review. The PIR in turn identifies information, such as biodiversity targets and key stakeholders, etc., which are necessary for the BER and the FNA. These assessments can overlap and must interact as they have important common parameters (e.g. tagging of biodiversity spending). Therefore, the BER and FNA should be completed by teams working closely together, or a single team covering both. The BER should be completed before the completion of the FNA as its results are necessary to estimate the biodiversity finance gap in the FNA.

FIGURE 3.1: TIMELINE FOR NATIONAL BIOFIN PROCESS



The national BIOFIN process concludes with the Biodiversity Finance Plan. Institutionalization of the BIOFIN results and approaches should be considered early in the process to ensure the Finance Plan is implemented fully as part of long-term institutional objectives after the national BIOFIN process concludes. For example, a system should be in place to periodically undertake Biodiversity Expenditure Reviews, and a specific unit in the finance ministry should be responsible for the implementation and monitoring of the Finance Plan.

Outputs from this Chapter should include:

- A multi-year BIOFIN work plan, setting out implementation mechanisms and a Monitoring and Evaluation framework;
- Membership and terms of reference for a national BIOFIN team and advisory group;
- A stakeholder analysis and engagement plan;
- Draft advocacy and communications plans.

These items will be updated at subsequent stages of the national BIOFIN process as new information is generated with the goal of building a comprehensive framework and process for the implementation of the Biodiversity Finance Plan.

3.1.3. Links to Other Chapters of the BIOFIN Workbook

This Chapter helps countries to set out the overall process for implementation of all the steps in the following four Chapters (4–7: referred to as "the three BIOFIN assessments and Finance Plan") that make up the national BIOFIN process. Good planning of these assessments will enable a national BIOFIN team to produce high quality outputs. Planning also facilitates a national process to build partnerships across major public and private entities, develop national capacity and stimulate thinking about the way biodiversity, finance and the economy relate to each other. Countries implementing BIOFIN at the national level are encouraged to refer to Chapter 3 during the preparation of each of the three assessments and the Finance Plan. This should ensure the different assessments are properly linked, while also having time required for full completion.

3.2 Starting the BIOFIN process in a country

The BIOFIN process can be initiated by a range of organizations and approaches. For countries receiving support from the Global UNDP-BIOFIN Programme, the UNDP Country Office initiates the process in collaboration with environment and finance ministries. These two ministries, often together with the planning or economy ministries, form the core government partners who will then establish or link with a national Steering Committee for ongoing oversight, support and institutionalization of the BIOFIN process. The BIOFIN process includes essential detailed assessments (Chapters 4-6), so a designated lead unit will be required to implement the bulk of the analytical work.

Several initiation steps are recommended:

- Initial scoping
- NBSAP review
- Identify related initiatives
- Establish steering committee
- Establish the national team
- Detailed planning
- Establish a monitoring and evaluation (M&E) framework
- Organise an inception workshop.

Further steps and guidance described below include:

- Stakeholder engagement
  - Engaging decision makers
  - Private sector involvement
  - Working with donors and civil society
- An integrated framework for the Sustainable Development Goals (SDGs)
- Embedding the national BIOFIN process into planning and fiscal frameworks
- Advocacy and communications.

3.2.1. Initial Scoping

This part describes how to structure the initial dialogue around the launch of the BIOFIN process in a country. The concepts, benefits and added value for the country need to be determined and agreed upon by key stakeholders. In this stage, a government reviews the main BIOFIN concepts in order to make a well-informed decision on whether or not to launch the Initiative in the country. The initial scoping process can also help build a shared understanding, expectations and vision of what the country can achieve through the national BIOFIN process.

To take a national BIOFIN process forward, its objectives need to be clearly stated at the national level. Although this may build on the overall BIOFIN goals described in Chapter 2 (see Section 2.1), it should be targeted to the specific needs of the country. For many countries the basic need could be successful funding and implementation of the National Biodiversity Strategy and

Action Plan (NBSAP). Other key issues could include ecosystem services such as natural disaster risk management, watershed maintenance, sustainable agriculture or fishing, and tourism.

Scoping should also consider the level of interest in biodiversity finance among key government organizations, and existing capacity levels in biodiversity finance. These will be looked into further when identifying related initiatives (see 3.2.3), and will help identify potential implementation arrangements and the best available approach for collaborations.

3.2.2. Initial NBSAP Review

An initial review of the NBSAP is a core feature of the initiation phase. The NBSAP will be reviewed in detail during the Biodiversity Finance Policy and Institutional Review (PIR) and the details and the status of the NBSAP will influence resources needed, and the nature of consultation required, for the Financial Needs Assessment. The latter, especially, will influence the timing and key partners for the national BIOFIN process, so it is essential to have an early assessment of the situation for sound planning purposes. At this stage a brief NBSAP review should focus on:

1. What is the current level of development of the NBSAP? Is the NBSAP completed? Is there an opportunity for expansion or completion if the NBSAP does not include detailed information on targets, indicators and actions?

2. How comprehensive is the NBSAP? To what extent is it aligned to the 20 Aichi targets? Are significant sectors excluded for any reason? Sustainable agriculture? Fisheries? Is it a project based NBSAP that only includes incremental projects for donor funding or is it a comprehensive plan that includes ongoing government actions?

3. Is the NBSAP detailed enough to allow a costing exercise? Does it include quantitative targets and indicators? Are actions specific in space and time? Are results achievable? Are activities prioritized?

4. What is the legal status of the NBSAP in the country (the CBD calls upon countries to adopt their NBSAPs as formal policy documents)?[3] Does the NBSAP become law? and/or policy? Is funding guaranteed?

5. Who is the main owner of the NBSAP process and what are its institutional arrangements? How can they best be integrated into the BIOFIN process? Are there important stakeholders and decision makers that were not engaged in the NBSAP elaboration process that should be included in the BIOFIN process and how can their interest be motivated?

3.2.3. Identify Related Initiatives

Other key national strategies that relate to biodiversity, past, present and planned, should be identified (to be analysed in more detail in the PIR), and rapidly reviewed to understand the following:

- How they relate to the NBSAP;
- What is the level of interest in biodiversity finance among key government organizations (e.g. key ministries such as finance, agriculture, tourism, fisheries, and land use planning);
- What are the existing capacity levels in biodiversity finance and what potential implementation arrangements might be identified as the best available approach for collaboration;
- What data and experiences are available for the national BIOFIN process to build on;
- What potential partnerships can be brokered;
- What opportunities may arise at the policy level to develop and implement biodiversity finance solutions; and
- Who are relevant partners to be invited to the inception meeting and included in the stakeholder assessment.

Particularly relevant programmes which should be reviewed include national development strategies, national environmental studies (e.g. the Economics of Ecosystems and Biodiversity (TEEB) work; or ecosystem assessments, green growth studies) and climate change (e.g. risk assessments). Related international programmes include the UN Poverty-Environment Initiative (PEI), especially if there is a Climate Policy, Expenditure and Institutional Review (CPEIR see Box 4.1); other climate finance actors or programmes including REDD+; the Global Environmental Facility (GEF) and other existing conservation finance programmes. The review should also cover major public finance projects, results-based government budgeting, economic valuation/Targeted Scenario Analysis (TSA), and other natural capital accounting work, including the World Bank's WAVES program and the UN System on Environmental-Economic Accounting (See Chapter 2, Section 2.5).

3.2.4. Establish the Steering Committee

The Steering Committee represents the formal decision-making and approval body for the national BIOFIN process and outputs. It requires representation of key line ministries[4] and is ideally anchored in a finance or planning ministry. Members could also include officials from sectoral ministries, academia, biodiversity experts, environmental economists and representatives from the private sector/civil society. Membership can be based on the initial stakeholder analysis made during the scoping phase (see Section 3.2.2) that would reveal the main decision makers on biodiversity finance and other key institutions that can provide input to the process (e.g. national scientific bodies).

To do this, the implementing unit and Steering Committee should identify entry points for biodiversity finance in the country: issues or needs that the government, businesses and people care about and which sustainable biodiversity management can contribute to; for example, job creation and poverty reduction, economic growth, climate change, access to water, response to disasters, etc. could be profiled. Institutions that will lead the process of implementing finance solutions should be involved in the national BIOFIN process and particularly the formulation of the business case for finance solutions in Chapter 7.

Setting clear objectives for the national BIOFIN process is important, since this shapes the subsequent planning of the national BIOFIN process, such as defining stakeholders, identifying essential strategic documents and defining the mandate of the national BIOFIN Steering Committee. The mandate of the Steering Committee should be captured in the inception report (see below). It can be helpful to formalize this mandate to ensure commitment to the process and long-term engagement. This could be done through the signing of a Memorandum of Understanding (MoU) between key stakeholders (e.g. the government ministries involved), or for core BIOFIN countries, an endorsement letter from the UNDP process.

Since BIOFIN requires a thorough review of expenditure priorities and voluminous data sets, some of which may be proprietary, the Steering Committee and or the technical working group can facilitate access to the information and provide subsequent guidance on its use, whether in raw or processed form.

The Steering Committee should plan to meet at least once per quarter to discuss progress, exchange experiences, review policy issues and approve deliverables. The first Steering Committee meeting should approve the terms of reference, work plan, monitoring and evaluation framework, and the final composition of the national BIOFIN team (See 3.2.5) and technical working group if desired.

It is helpful for the implementation of the Biodiversity Finance Plan (see Chapter 7) if the committee's mandate extends beyond undertaking the national BIOFIN process to a period of embedding the Finance Plan into permanent processes and institutions, and overseeing its implementation.

Some countries will find it useful to create a technical working group to supplement the Steering Committee, and work on resolving technical issues. This group should also adopt specific terms of reference. This should ensure its remit is distinct from the Steering Committee, with specific roles identified for different members, as necessary, and specifying the frequency and venue for meetings. An alternative approach is to expand the scope of existing national coordination/operational structures, adding a focus on biodiversity finance. The technical working group can develop and update a work plan with a scope beyond the national BIOFIN process, ideally providing a programme or roadmap for the implementation of the Biodiversity Finance Plan.

Biodiversity Finance Solution: Conservation licence plates

Conservation licence plates feature wildlife pictures and are sold at a higher price to car owners. The revenue is channelled to environmental causes and projects illustrated by the plate, mostly related to conservation of wildlife.

Example: They are widely sold in different states in the USA and are currently being piloted in Malaysia for Tiger conservation.

See case study: http://www.dec.ny.gov/lands/5067.html.

3.2.5. Establish National BIOFIN Team

The BIOFIN process requires input from a broad range of stakeholders, decision makers, and experts. Countries supported by the UNDP-BIOFIN programme commonly hire a group of expert consultants who work hand in hand with government counterparts for implementation (and are ideally based at government premises). Other countries could implement the entire BIOFIN process directly through existing government agencies in collaboration with key NGOs and private sector organizations. Strong government and civil society participation in the core team will support long-term institutionalization of elements of the BIOFIN process into ongoing government functions.

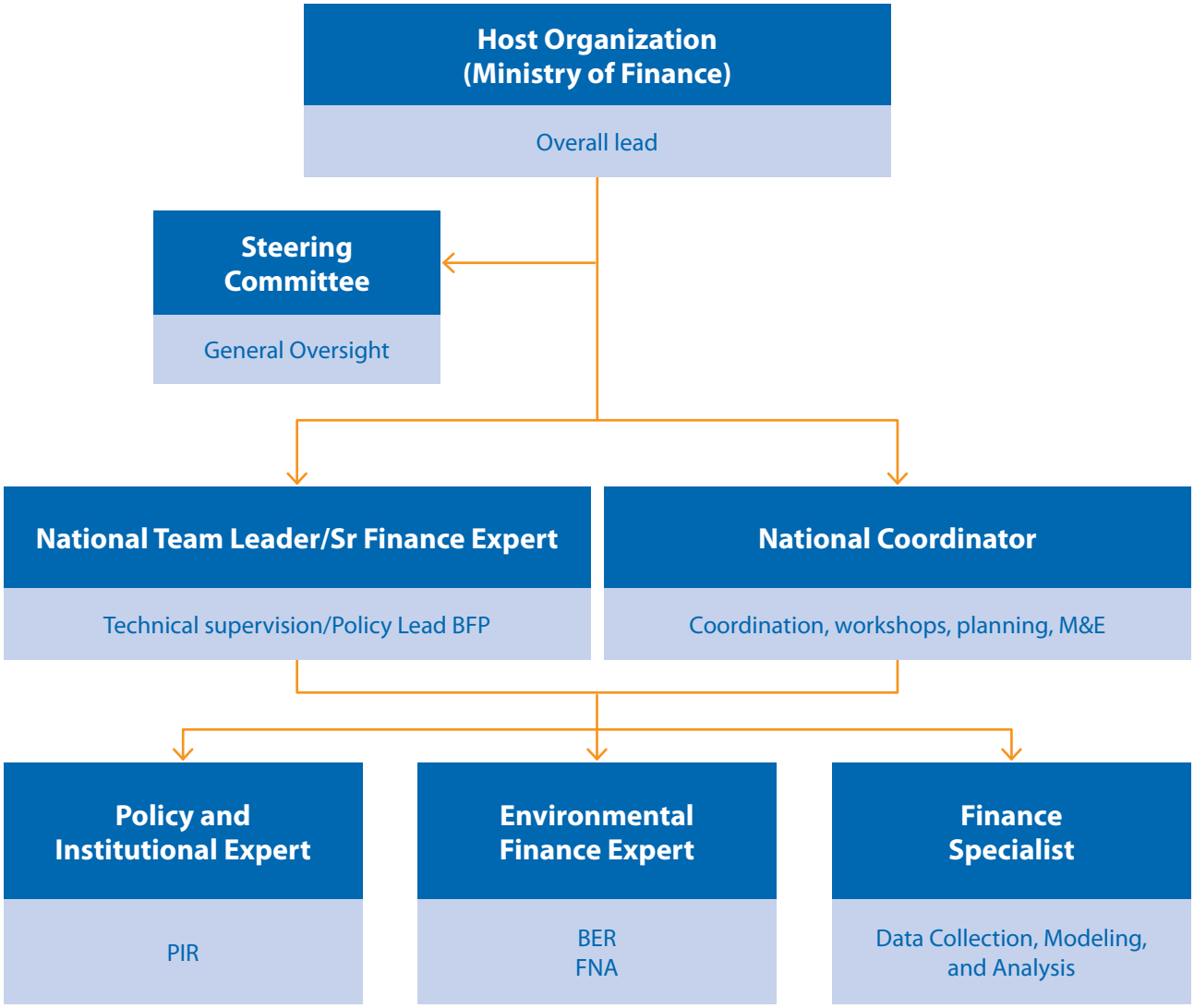
Where funding or human resources are available, a dedicated team should be formed to lead implementation with a team leader having high standing in national environmental or fiscal policy circles. Long-term impact will be greatly enhanced by the involvement of finance ministry colleagues in both the national Steering Committee, where the ministry of finance can be the chair, and as part of the implementation team.

While various people, organizations and sectors need to be involved in the national BIOFIN process, one single administrative unit or organization should be formally responsible for leading it. The selected unit could be based at a central planning/financing organization or at the environmental ministry.

The configuration of the national BIOFIN team can differ greatly between countries. An integrated team structure is suggested, combining the required skillset across team members in the fields of public finance, private finance, economics, biodiversity and policy development.

During planning, the roles and responsibilities of the main parties (i.e. the national team and Steering Committee) need to be described in detail, in the context of the national objectives for BIOFIN and the mandate of the Steering Committee. Figure 3.2 shows a typical national BIOFIN team structure for UNDP-supported countries. Countries undertaking BIOFIN without this formal support may wish to adopt a different structure, but should note the different parts of the team shown in Figure 3.2, and the roles they play.

FIGURE 3.2: THE NATIONAL BIOFIN TEAM STRUCTURE FOR UNDP-SUPPORTED COUNTRIES



The national BIOFIN team may assemble skills and institutions that have not previously collaborated in relation to biodiversity, as described in Box 3.1. This non-conventional collaboration can trigger new governance relationships that in turn can help institutionalize new biodiversity finance solutions, both of which can be beneficial outcomes of the national BIOFIN process.

The BIOFIN process requires specific expertise that may not be part of the main implementing unit. As such, there are several ways to add this expertise to the process. First, if money is available, short term consultants can be hired for specific technical tasks. Second, a technical work-

ing group can be created by the Steering Committee or implementation unit to provide timely support beyond consultative workshops (see above). Finally, if the capacity exists in government departments, individual experts could be seconded to the BIOFIN team for these specific technical issues. However, when gathering the required expertise within or alongside the national BIOFIN team, engagement and partnerships should be as long- term as possible to assure continuity and maximum capacity-building.

BOX 3.1: THE BIOFIN TEAM IN INDIA, A UNIQUE COOPERATION BETWEEN GOVERNMENT AGENCIES

When the BIOFIN process began in India, the government proposed a different implementation approach. Rather than hiring a team of experts to carry out the bulk of the work, four government agencies are taking it on directly together with a private company. The process is led by the Ministry of Environment, Forest and Climate Change and hosted by the National Biodiversity Authority. The National Institute of Public Finance and Policy and the Wildlife Institute of India, together with IORA Ecological Trust, are producing most of the assessments, building on their previous experiences.

3.2.6. Detailed Planning

This involves the development of a multi-year work plan, identifying the main individuals and organizations that will implement the different BIOFIN assessments and the Biodiversity Finance Plan as well as the main workshops and other consultative efforts to be undertaken. Regardless of whether there is a budget provided by the BIOFIN programme or another organization for implementation, the work plan itself should be budgeted and a concrete timeline should be determined. Adaptive management will be necessary to respond to changing information availability and other issues as they arise over implementation.

The work plan elaborates the intended outcomes and outputs, and identifies available inputs. The development of the work plan should be based on a good understanding of the national biodiversity finance context and the BIOFIN methodology. The work plan should cover:

- Available inputs, the staff and financial resources that may be committed to the process;
- The documented knowledge base at that point in time (e.g. the comprehensiveness of the data available in the NBSAP);
- A project timeline such as a Gantt chart ensuring sufficient time for the work to be completed and for stakeholder engagement activities. There are also specific workshops, consultations and stakeholder engagement required in BIOFIN to take into consideration (see Annex 3.I), particularly those that play a role in gathering the evidence needed to deliver the three BIOFIN assessments and finance plan;
- Planned outputs, including the reports from the three BIOFIN assessments and plan as relevant; and

- Intended outcomes, articulated with reference to the NBSAP or other national goals and strategies. The work plan can also identify broader policy goals that the national BIOFIN process will aim to support.

The timeline should be responsive to national level budget and planning cycles to maximize impact and integration with existing initiatives. One way to implement the work plan is to use an outcome mapping[5] or theory of change[6] exercise to formulate sensible outcomes by linking each Step of the BIOFIN process to the projected change the country aims to achieve. There may be a need for iterations between the key parts of the work plan to ensure outputs and outcomes are realistic given the available inputs and timeline.

3.2.7. Establish a monitoring and evaluation (M&E) framework

The BIOFIN process should include effective monitoring and evaluation (M&E). This M&E work will occur throughout the entire BIOFIN process and specific targets and indicators will be identified in the work plan for the process itself as well as part of the Biodiversity Finance Plan (BFP). Good M&E provides evidence to help communicate the progress of the national BIOFIN process. The M&E framework should reflect the UNDP monitoring policy (see Box 3.2).

BOX 3.2: EXAMPLE OF AN M&E FRAMEWORK FROM UNDP

The monitoring policy of UNDP states each programme supported by UNDP must be monitored to ensure that:

- The **outcomes** agreed in each programme (country, regional and global) and their constituent projects **are being achieved**. This is a collective responsibility among UNDP and its partners. However, UNDP is responsible for monitoring its contribution towards the outcome by ensuring that the outputs being generated with UNDP assistance are contributing towards the outcome.
- Each constituent project of the respective **programme produces the envisaged outputs** in an efficient manner as per the overall development plan and the corresponding annual work plan. This is a specific UNDP responsibility.
- **Decisions** of programmes and projects are **based on facts and evidence**.
- **Lessons learned are systematically captured** for knowledge and improving future programmes and projects.

A dedicated M&E structure for the BFP will be necessary to ensure the planned actions contribute to the original objectives, and will help embed the BIOFIN recommendations and finance solutions into national activities. M&E components for the BFP should use appropriate indicators identified in the FNA (Chapter 6), and built into each prioritized finance solution.

An M&E framework should be established at this stage to provide the basis for the adoption of corrective measures, both strategic and operational, to improve the design, means of application, and quality of the outcomes obtained. Moreover, it makes the strengthening and replication of the positive outcomes possible. The BIOFIN work plan is a good example of an integrated M&E framework.

3.2.8. Organize an inception workshop

An inception meeting or launch of BIOFIN in-country is one of the highlights of the initiation phase. It ensures all stakeholders are aware of the work plan and objectives of the national BIOFIN process. It should include the following discussion topics:

A. Which are the main entry points for discussing biodiversity finance in the country;

B. Whether the BIOFIN assessments will focus only on the national level or if it will include sub-national processes;

C. What is the status of various CBD related products, such as the NBSAP;

D. Which issues, sectors or agencies are essential to include in the assessment process;

E. Key sources of data and contact points to help access the data;

F. What time periods for past and future data sets should be used (i.e. for the expenditure and costing analyses);

G. Whether there are certain data sets that should remain confidential throughout the assessment process; and

H. Some of the most important existing biodiversity finance solutions in the country to be highlighted in the analysis.

The conclusions from the inception workshop and a summary of baseline information should be summarized in a national BIOFIN inception report. The purpose of this report is to ensure all stakeholders have a common understanding of the objectives and organization of the national BIOFIN process. The inception report captures the details of the scope of the BIOFIN process, describes the main related initiatives and important available data sources, concluding with a timeline for implementation.

A suggested structure for the Inception Report is as follows:

1. Introduction to BIOFIN

2. Review of the NBSAP and other biodiversity related strategies

3. Main entry points for biodiversity finance

4. Scope of BIOFIN
- **A.** Sectors to include in the analysis
- **B.** Years to review under the BER and FNA
- **C.** Definition of a biodiversity expenditure
- **D.** Primary government, private sector, and civil society partners

5. BIOFIN Work plan
- **A.** Implementation Unit or Team
- **B.** Steering Committee
- **C.** Technical Working Group
- **D.** Timeline / Budget

6. Expected outcomes

3.3 Stakeholder engagement

Stakeholder engagement is a necessary activity if the national BIOFIN process is to be a vehicle for genuine transformational change in a country. Stakeholder engagement begins at the early inception phase of BIOFIN through the organization of the Steering Committee and other activities described under planning above and will continue to develop and improve throughout the entire process. A detailed stakeholder analysis is part of the PIR and additional guidance for this is provided in Chapter 4.

Main goals for stakeholder engagement activities are to:

- Promote stakeholder involvement in the analysis, for example by contributing data and expertise. There are several points in the national BIOFIN process at which consultations and/or workshops are suggested to gather evidence from stakeholders or review outputs. A list of the main suggested consultations and workshops is provided in Annex 3.I, to help plan the timing of these workshops with stakeholders. Depending on the timetables for the three BIOFIN assessments, it may be possible to combine some of these activities, leading to more efficient use of time and resources for the national BIOFIN team and the stakeholders involved; and

- Lay the basis for successful implementation of biodiversity finance solutions by embedding key elements of the BIOFIN process into national planning, budgeting, and governance systems.

It is appropriate to start thinking about the best opportunities for implementation and embedding of solutions from the moment BIOFIN starts. A crucial prerequisite of their success is government-wide ownership and stakeholder acceptance of the process. It also requires careful consideration of the design and engagement for each of the steps in the three BIOFIN assessments and finance plan. A wide number of tools are available to guide the stakeholder engagement process.[7]

3.3.1. Engaging decision makers

Decision makers include government actors and leaders from the private sector and the development community. The stakeholder analysis and initiatives review in the PIR (Chapter 4) should generate a good overview of the main actors to be involved, but should be updated to reflect upcoming electoral cycles. In general, the ministry of finance is often making budgetary decisions and should be involved from the start while technical ministries, being responsible for drafting their annual budgets, are also important agents of change. The team should identify which individuals are the most important decision makers and who supports and advises these individuals. Often there is a separate ministry or division of the finance ministry that establishes and revises fiscal policy. As well, many countries have planning departments that oversee the development of medium- to long-term strategic plans and budgets.

In the ideal scenario, cross-party political support will be obtained for the main BIOFIN recommendations. Parliamentary standing committees (e.g. on the environment) and Green Caucuses, representing multiple parties, can be strategic partners with high political leverage. To engage with these groups, a combination of informal discussions (e.g. working lunches) and formal meetings can gather support for the process. Advisors to politicians and lobbyists are other groups with much influence on policy processes.[8]

Identifying champions of change

It has been well-documented that certain individuals can play a catalytic role in a policy process, and act as a true agent of change. It is important to identify such people, and closely involve them in the national BIOFIN process. Often these are senior government or private sector individuals, but they can also be NGO or community leaders or community leaders.

3.3.2. Private sector involvement

Engagement with the private sector is essential to advance the national biodiversity finance agenda. It is important to remember the drivers for private companies are distinctly different from the motivations of public actors. Rather than seeking development returns as the primary objective in the public sector, companies look for investment opportunities based on the balance between risks and expected financial returns.

Biodiversity activities and results should be presented as clear investment cases for business, often related to wider issues around their impacts and dependencies of ecosystems or

natural capital. Alongside profitability, companies have a range of other considerations including brand reputation, supply chain risk, opportunities for new markets, and regulatory concerns.[9]

Companies may also provide investments or donations through their Corporate Social Responsibility (CSR) initiatives. The experience of national BIOFIN activities has shown that countries face a challenge to engage with the private sector as a group. Several approaches and structures can provide useful entry points.

Biodiversity Finance Solution Example: Enterprise Challenge and Innovation Funds

Enterprise challenge and innovation funds are a funding instrument that distributes grants or concessional finance to profit-seeking projects on a competitive basis. It subsidizes private investment in developing countries where there is an expectation of commercial viability accompanied by measurable social and/or environmental outcomes. Challenge funds can mitigate market risks while spurring innovation to fight poverty and environmental degradation in all sectors.

Example: The Africa Enterprise Challenge Fund helped to reduce poverty by supporting private sector businesses that have a positive impact on rural communities in Sub-Saharan Africa.

See: http://www.undp.org/content/sdfinance/en/home/solutions/enterprise-challenge-fund.html.

A. Corporate social responsibility (CSR)

CSR as a concept has existed for over a century, but has gained strong traction in the past decade. Based on the notion that companies bear responsibility for the environment and communities they work with[10/11] many businesses contribute to the well-being of their stakeholders through targeted initiatives that ultimately may benefit the company. KPMG[12] identified over 50 per cent of major companies globally that reported on CSR in 2013 (up from 20 per cent in 2011, and 9 per cent in 2008), including 82 per cent of the world's 250 largest companies.

CSR includes multiple development objectives, of which biodiversity is only one, relatively small objective. However, biodiversity objectives can often overlap with other CSR objectives, strengthening their appeal to private businesses. CSR activity and reporting presents one significant entry point to engage with the private sector on biodiversity investments. This can be supported by other government action. For example, in India and the Seychelles the government has made CSR a legal requirement, and several initiatives are underway to facilitate the channelling of CSR finance to dedicated funds.

A related concept termed corporate sustainability is similar to CSR, but more focused on maintaining the quality and consistency of supply chains, natural resources (water, energy), and oth-

er aspects of their business model. Often engagement with private companies on issues more centrally related to their actual business model will generate greater long-term interest and engagement in biodiversity than traditional CSR.

B. Business Groups and Banks

Various groups will represent businesses interests in a country. There may already be environment-specific business groups, but mainstream business groups can also be engaged. Chambers of Commerce can be useful platforms to engage the national BIOFIN process with the private sector. For example, Chambers can reach out to their members to request and collect expenditure data for the BER (chapter 5). Some examples from BIOFIN countries include:

- Costa Rica's BIOFIN team has worked closely with its national **Chamber of Commerce,** launching a survey on environmental expenditures. They have also established a partnership with the financial institutions association to examine how biodiversity risk can be better incorporated into investment decisions;
- In Sri Lanka, the Business and Biodiversity Platform (operating under the Chamber of Commerce) is planning to carry out a similar survey on biodiversity expenditures;
- Organizing a "**Marketplace**" for biodiversity investments, as piloted in the Philippines (See Box 3.3).

BOX 3.3: A MARKETPLACE FOR BIODIVERSITY

An innovative way to link private sector financiers with potential project developers was recently designed in the Philippines. A biodiversity marketplace is being prepared at the time of writing, in partnership with the Philippine Business for the Environment, where "buyers" and "sellers" of biodiversity projects are matched. An initial screening process ensures that the projects focus on top priorities within the NBSAP. Prospective "buyers" will include national and international companies and donors. A mentoring programme is ongoing to assist potential sellers of biodiversity projects to improve their value proposition by ensuring financial worthiness, determining the potential for scaling, and addressing biodiversity issues.

C. Develop biodiversity investment principles, standards or declarations

Another umbrella concept that can be used to launch a central dialogue with the private sector is national investment guidelines or principles. For example, the BIOFIN Costa Rica team has made headway on this in cooperation with the country's Chamber of Banks. International examples of such guidelines include the Equator Principles,[13] and IFC performance standards[14] as well as national and international certification standards such as "Fair Trade", Organic labels, etc. Initial scoping will indicate where there is demand for such engagement. Another emerging opportunity is provided by the activities with private business groups on the Sustainable Development Goals, support for the Natural Capital Declaration or similar sector level initiatives (e.g. the Forest Stewardship Council (FSC), or the Roundtable on Sustainable Palm Oil, (RSPO)).

3.3.3. Working with Donors and Civil Society

Traditional Donors

While the share of Official Development Assistance (ODA) within biodiversity finance flows is limited, ODA-related programmes are an important traditional and strategic partner for biodiversity finance on multiple levels. Globally, ODA is at an all-time high. The planning above should have identified (and mapped) initiatives related to this finance source.

Donors or ODA-financed programmes can play a role in implementing the Biodiversity Finance Plan by:

- taking up the responsibility to implement one or more of the activities/ recommendations emerging from the Finance Plan;
- financing certain activities by supporting local institutions;
- acting as strategic partners to jointly work on policy results; and
- providing an important source of data to develop the business case for biodiversity.

The identification of these and other roles can continue through the three BIOFIN assessments (Chapters 4–6) and be updated during the design of the Biodiversity Finance Plan (Chapter 7).

Biodiversity Finance Solution: Philanthropy

Philanthropy is a finance solution that allows the private sector and individuals to voluntarily contribute to biodiversity conservation. Philanthropic foundations such as the Rockefeller Foundation, the Bill and Melinda Gates Foundation or the Leonardo DiCaprio Foundation play an important role in supporting sustainable development in developing countries mostly by providing grants generated from interest on large endowments.

Example: The Leonardo DiCaprio Foundation financially supports a project, led by SavingSpecies, which will support the development and implementation of multi-year restoration projects in the Pacific lowland forests of Ecuador, one of the most threatened and biodiverse ecosystems on Earth.

See: http://leonardodicaprio.org/ http://www.oecd.org/site/netfwd/.

Foundations

The importance of foundations is on the rise globally, but also in many developing countries. For example, the Gates Foundation, the largest of its kind in the world, spent an unprecedented US$3.9 billion 2014. The growth of foundations is particularly apparent in emerging economies. Another trend is that foundations, traditional allies of NGOs, are increasingly working with governments and have sharpened their focus on capacity and policy development.

As such, foundations are well positioned to function both financing and implementing. They are also known to have strong capacities to roll out advocacy campaigns and often focus on financing innovative solutions. In many cases, conservation trust funds have become important advocacy vehicles as they can get a seat at the table in important policy discussions and offer critical co-financing. It can be helpful to the national BIOFIN process, if not already done as part of the identification of initiatives, to identify and map the national and international foundations active in the country that have, or may be willing to adopt, biodiversity as one of their priorities. Finance flows from foundations are known to be, to a large extent, unmapped.[15]

Private Investors

Although Public investment in biodiversity conservation remains the most important one, private sector investment is increasing relatively fast. 128 organization responding to a survey conducted by Forest Trends on private investment in conservation, reported a total of US$8.2 billion of private capital committed between 2004 and 2015, up considerably from the US$2.8 billion of private investment stated in the 2014, as well as from the updated number of US$5.1 billion from the 2016 survey. The investments were divided in three categories: Sustainable food and fiber, Habitat conservation, Water quality and quantity. Investors reported committing US$6.5billion in capital towards sustainable food and fiber production across all years (2004–2015), nearly four times as much as capital reported in the habitat conservation (US$1.3 billion), and water quality and quantity (US$0.4 billion) categories combined.[16] Evidence of recent growth in impact investment for biodiversity is shown in Box 3.4.

BOX 3.4: GROWTH OF IMPACT INVESTMENT FOR BIODIVERSITY

The impact investment market has grown in recent years, including through markets for conservation-related impact investments. There is evidence of rapid growth and increasing interest in the market, which implies that impact capital will increase in importance for conservation in future. An investor survey identified US$23.4 billion in global conservation impact investments from 2009 through 2013. Investments by development finance institutions (DFIs) such as the International Finance Corporation totalled US$21.5 billion; private investments accounted for US$1.9 billion.

Source: https://www.iucn.org/sites/dev/files/pdf_final_social_impact_investing.pdf.

Civil Society

The role played by national and international NGOs, Community Based Organizations (CBOs), and other civil society organizations in biodiversity depends on the national context and their specific objectives and strengths. Civil society participation in workshops and consultations relevant to the PIR, the FNA – especially on sharing project information on costs, and the BER, is essential. The BIOFIN process and assessments will define the role civil society groups can play in the implementation of the finance plan. If civil society organizations are to fulfil this role they may require capacity support. A significant number of financing solutions involve engagement

with local communities. In such cases, careful analysis is required of community rights, customs, culture and priorities, and whether civil society organizations can adequately represent these communities' views. Consultations with community representatives are essential. UNDP's Equator Initiative provides a rich database on community engagement.[17]

3.3.4. The BIOFIN Gender Strategy

In the BIOFIN process there are numerous means to assure strong gender mainstreaming. This section provides specific suggestions to integrate gender into BIOFIN implementation. *For more information, the UNDP Training Manual on Gender Mainstreaming[18] provides practical guidance on gender concepts and gender mainstreaming in projects, policies and organizations.*

The importance of gender considerations in biodiversity conservation and natural resource management is well-recognized and promoted as part of different global strategies, conventions and development programmes, including the Sustainable Development Goals (SDGs), the UN Framework Convention on Climate Change (UNFCCC), the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), etc. The SDGs include a specific goal aiming to achieve gender equality and empower all women and girls. Better gender equality translates into more equal societies and women's empowerment has a direct impact on poverty reduction, social inclusion and biodiversity conservation. In addition, the Convention on Biological Diversity (CBD) recognises "*the vital role that women play in the conservation and sustainable use of biological diversity and affirms the need to the full participation of women at all levels of policy-making and implementation for biological diversity conservation*".[19] Furthermore, it acknowledges the importance of gender considerations in the achievement of the Aichi Biodiversity Targets, encourages Parties to give gender due consideration in their National Biodiversity Strategy and Action Plans (NBSAPs), and to integrate gender into the development of national indicators.

Contributing to gender equality in BIOFIN

- In line with the CBD's Gender Plan of Action 2015-2020, collect and share knowledge on gender and biodiversity (i.e., whenever possible include data, information, pictures, photo-stories, case studies related to gender and biodiversity);
- In line with the UNDP gender equality Strategy 2014-2017, promote a learning environment and knowledge sharing through communities of practice;
- Pay specific attention to sex-disaggregated data and gender-sensitive information, especially in the process of the Biodiversity Expenditure Review and the Biodiversity Financial Needs Assessment;
- Use gender lenses in planning, reviewing, implementing, monitoring and evaluation of projects, strategies and policies (e.g., PIR takes into consideration the implications for women/men; does the policy being reviewed provide opportunities/adverse effects towards women's empowerment? How can it be improved to close the gender gap?);
- Learn from the experience, methods and lessons of other countries (e.g., BIOFIN Uganda PIR; the cost of gender gap in agricultural productivity in Uganda is US$ 67 million per year;[20]

- Identify at least one recommended finance solution which offers a direct and measurable contribution to gender equality;

- Formulate gender sensitive indicators to measure the desired change (e.g., the number of indigenous *women and men* that are actively participating in the design process of the five-year management strategy of protected areas in the country; and the number of women benefiting from employment opportunities because of changes in a forest management policy);

- Involve both women and men as main stakeholders, Steering Committee members, partners, role models and champions of biodiversity conservation;

- Use gender sensitive language in documents such as policy papers, reports, job descriptions;

- Create a favourable environment for women's active participation in meetings, capacity-building activities, Steering Committee, project / policy design, implementation and M&E. (e.g., if there are major social restrictions on women attending meetings with men, create possibilities for separate meetings);

- Work with gender experts and foster communication and cooperation links with specialized organizations/institutions in this field such as Government Gender Focal Points in related ministries or UN Women.

3.3.5. An integrated framework for the Sustainable Development Goals (SDGs)

The BIOFIN process enables countries to formulate finance plans and solutions that are aligned with multiple SDGs. The broad relationship between biodiversity finance and the SDGs is discussed in Chapter 1 (Section 1.3.5).

Biodiversity finance solutions can be integrated with SDGs in different ways:

- Develop an integrated BIOFIN methodology that combines biodiversity with other SDG issues such as climate change or poverty, as applied in several countries, such as Indonesia (climate and biodiversity finance) and Bhutan (see Box 3.5),
- Identify biodiversity opportunities within finance strategies for other SDG areas, such as national climate finance strategies, sustainable development finance plans, etc.

BOX 3.5: BIOFIN IN BHUTAN: ADDRESSING POVERTY, CLIMATE CHANGE AND BIODIVERSITY SDGS IN AN INTEGRATED MANNER

The Government of Bhutan has prioritized three SDGs (1, 13 and 15) and proposed modifying the BIOFIN approach to screen expenditures that affect not only biodiversity, but also have climate and poverty impacts. The National BIOFIN team in Bhutan, led by former finance Minister Dasho Lam Dorji, and overseen by the Gross National Happiness Commission, is developing their finance plan to highlight finance solutions that are likely to have the strongest possible impact on biodiversity conservation, climate change adaptation and mitigation, and poverty reduction combined.

3.4 Embedding the national BIOFIN process into planning and fiscal frameworks

BIOFIN builds on the NBSAP process and the results of the BIOFIN assessments to produce both a specific budget for successful achievement of national biodiversity targets and a Biodiversity Finance Plan that mobilizes the finance needed to achieve these targets. The BIOFIN process will be most effective if it is well integrated into the national planning and budgeting process (See Box 3.6). This integration is essential for long-term institutionalization of the advances made by BIOFIN. National frameworks for planning and policy development, including fiscal policy, are reviewed in detail in the PIR (Chapter 4).

BOX 3.6: BEST OPTIONS FOR EMBEDDING BIOFIN ACTIVITIES

1. Policy and Institutional Review – Close engagement and capacity development of ministries, private firms, think tanks or academia to carry out similar analysis in the future.

2. Biodiversity Expenditure Review – The budget tagging/ coding system is developed with the Ministry of Finance, and public expenditure review systems are amended to include biodiversity.

3. Financial Needs Assessment – Capacity development of environment and finance ministry officials to undertake similar costing exercises in the future.

4. Finance Plan and Solutions - The overall plan is adopted as a formal policy through government resolution. Each specific solution is supported by an adequate legislative framework and by capacity development/awareness raising activities.

Three outputs of the PIR are essential to integrate the main elements of the Biodiversity Finance Plan into a country's planning and budgeting frameworks:

1. Identify opportunities **for embedding into national policy and fiscal frameworks**. From the outset the national BIOFIN teams need to engage with relevant policy processes to identify areas where a receptive environment exists to integrate biodiversity finance solutions into national institutions and process.

2. Use the **policy mapping process** to identify the potential policy implementation steps for specific biodiversity finance solutions. For example, a new law can usually be proposed by different entities, (e.g. a ministry, parliamentarian or a head of state), but one entity may be more effective at pushing the law through the correct channels.

3. Use the knowledge from the PIR to **engage decision makers throughout the national BIOFIN process**, advocating for the integration of the proposed recommendations from each assessment (Chapters 4-6) and the biodiversity finance solutions from Chapter 7, into national activities.

Further to these three elements, there are other national frameworks and processes that BIOFIN can be integrated with to improve its chances of success. An example of integration into policy processes is provided in Box 3.7. Key frameworks for BIOFIN to integrate with include:

The land use planning framework

The core elements of both the NBSAP (and other biodiversity strategies) and the Biodiversity Finance Plan merit integration into the national land use planning process. Land use planning can occur at local to national levels. Opportunities to integrate BIOFIN's recommendations into any land use planning/spatial planning initiatives should be pursued actively. Land use planning can have a very significant influence, both negative and positive, on biodiversity, with very low direct costs.

Sub-national planning:
Depending on the level of decentralization, sub-national planning processes may present viable opportunities for the implementation of financing solutions, including the integration of biodiversity into the planning and budgeting process. The chances of success may be higher when selecting a limited number of regions for this process rather than seeking to undertake this level of integration for all regions simultaneously.

Sectoral planning:
Sectoral policies and plans are often the main vehicles through which countries develop and implement national development plans. Together with the PIR (Chapter 4), the BER (Chapter 5) will identify entry points to engage with sectoral policy and planning processes, in particular related to incentives, subsidies and taxes. Having strong background data from these assessments allows more effective engagement with sectoral policymakers. This engagement process is best initiated at the earliest possible stage.

BOX 3.7: GUATEMALA – FINDING BIODIVERSITY FINANCE OPPORTUNITIES

One of the first countries to complete the assessment and planning stage of BIOFIN, the team in Guatemala is now working on a number of finance solutions. "For Guatemala, the BIOFIN process has been about identifying opportunities," says BIOFIN Guatemala Lead Expert Oscar Villagran. When a new government emerged in 2016, the team started engaging directly with the Ministers of Finance and Environment. They work on supporting better justified budget proposals for the protected area system, biodiversity prospecting, allocating land fees to the protected area system and several other finance solutions.

Fiscal framework:
There are ample opportunities to embed BIOFIN related work into national fiscal frameworks. Five-year and medium-term development plans are often well aligned with current political cycles and include specific financial commitments linked to national and sub-national budgets. These budgets are the most important source of biodiversity finance around the world,[21] thus representing a prime opportunity for advancing investments in biodiversity in a country.

Fiscal policy reform is a potential consequence of the finance plan in many countries. Such reforms can develop from the review of specific processes in place for existing fiscal instruments (from the PIR, Chapter 4) as well as from engaging relevant stakeholders (described above). The political and financial feasibility of fiscal policy reforms needs to be analysed carefully, in the context of the understanding gained through the PIR, before commencing any engagement.

The economic impacts, including the distributional and unintended consequences, of any tax or subsidy alteration must be analysed in detail in the Biodiversity Finance Plan so that any stakeholder objections to reform can be addressed. Most analyses of this type include fiscal, economic, and social analysis. A fiscal analysis is the process of reviewing and analysing budg-

ets, finances or other financial matters. Social and economic analyses look at the size of changes in costs and benefits resulting from a proposed action (i.e. changes in welfare to different parties), and their distribution across different social groups.

National legislation:
The BIOFIN analysis is likely to recommend specific finance solutions requiring changes in the legislative framework. To help implement these, the national BIOFIN process, in the Biodiversity Finance Plan, needs to produce a clear work plan to draft the necessary laws or regulations. Stakeholder engagement should include identifying agents in government able to lead the process to its conclusion.

3.5 Advocacy and Communications

A clear advocacy and communications plan is essential if the BIOFIN objectives, especially with respect to implementation and institutionalization, are to be realized. This is especially the case to support implementation of the solutions proposed in the Biodiversity Finance Plan (Chapter 7). In the early stages of a national BIOIFN process, communication activities will focus on explaining the main concepts of the BIOFIN approach and activities. This should create opportunities for the promotion of the recommendations generated during the BIOFIN assessments (Chapters 4-6). However, the majority of available resources for advocacy and communications are usually best used by launching a dedicated national advocacy campaign for the implementation of the Biodiversity Finance Plan (see below).

Planning for this campaign at an early stage will help ensure there is capacity to take it forward (e.g. by ensuring there are communications professionals with an understanding of biodiversity finance). It can also help remove potential barriers to successful communications (e.g. by ensuring communications teams in the government bodies and other stakeholder organizations involved in finance solutions are aware of BIOFIN and prepared to be supportive of its messages). To support and develop the communications strategy it is advisable to include a communications specialist in the national BIOFIN team.

3.5.1. A national advocacy campaign for investing in biodiversity

The entire BIOFIN process aims to build a better investment climate for biodiversity in a country. Aligned with the Biodiversity Finance Plan, this campaign should focus on two layers:

1. The overall business case: why the country will benefit from more investment in biodiversity.

2. Making the case for adopting specific biodiversity finance solutions and recommendations.

The results from the analytical work done under the PIR and BER as well as the figures produced through the FNA should present the country-specific case for further investments, while identifying ways to improve the enabling environment. The central line of thought for the general advocacy campaign can be built around the costs vs benefits of investing in biodiversity, including the economic cost of inaction. When the campaign is designed, the first steps are to define the objectives, core messages and key target stakeholders. A perception survey could be undertaken to gather good baseline information on these stakeholders, complementing the initial stakeholder analysis.

Planning the campaign also requires the selection of the most suitable media to reach the target audience, and a plan and budget for the communications campaign. A wide range of tools and media are available (see Box 3.8) and can be selected based on the national, issue-specific and stakeholder context. During the implementation the effectiveness of the campaign should be systematically reviewed (based on the Policy Influencing Cycle):[22]

1. Identify the most promising finance solutions and recommendations
2. Gather the most relevant data to be used for the campaign (use perception surveys if needed)
3. Identify the main decision makers
4. Develop targeted messages
5. Select the most suitable media[23]
6. Design and resource the campaign
7. Implementation and deliver the messages
8. Evaluation

BOX 3.8: TYPES OF MEDIA THAT CAN BE USED:

1. Policy paper/scientific article
2. Newspaper article/press release
3. National debate
4. TV programme/documentary/radio
5. Social media campaigns/website
6. Working lunches/informal meetings
7. Crowdfunding campaigns
8. Special events
9. Policy summary
10. Study Tours

Advocacy for specific finance solutions and BIOFIN recommendations can be a part of the overall campaign, or the subject of smaller campaigns. Much of the advocacy may be done in an informal matter, aiming to build a broad base of support within national media, improving the sustainability of finance solutions in the long run.

Communications in relation to biodiversity finance can face a number of challenges with different stakeholders. In particular, when discussing biodiversity, some countries may wish to use

other terms for better communication. In many cases, the term "biodiversity" seems too complex and alternatives such as "nature" and "nature's services" can be useful alternatives, especially in communications with households or the private sector. In general, biodiversity changes are linked to changes in ecosystem services, and this combination is often referred to as "biodiversity and ecosystem services" (BES). Businesses are increasingly referring to the capacity of the natural environment to provide ecosystem services as "natural capital", aligning it with the idea of productive assets that they are familiar with.

3.5.2. Capacity Development and Education

Capacity development has been acknowledged to be a key driver of progress for sustainable development, and needs to work alongside the three BIOFIN assessments to contribute to the implementation of the Biodiversity Finance Plan. The stakeholder analysis in the PIR should describe existing capacity levels of all relevant working areas of the BIOFIN process. From this a capacity development plan can be drawn up, for example using the three levels of capacity development recognized by UNDP:[24]

1. The Enabling Environment;
2. Organizational Capacity; and
3. Individual Capacity.

Central to this approach is the need for transformation of organizational capacity, moving beyond the enhancement of certain individual skills. The development plan should be built around specific capacity development targets that are worthwhile outcomes in their own right. The use of temporary and/or external expertise to provide capacity to implement the Biodiversity Finance Plan is to be applied as a "last resort", once all options for utilizing national capacity are exhausted.

Ultimately, capacity development itself needs to be institutionalized. Each country needs to develop its own national curricula on biodiversity finance to start educating a new generation of public officials, protected area managers and other professionals to be able to continue work on biodiversity finance. The core elements of the BIOFIN methodology, complemented by the wealth of guidance that exists on possible finance solutions, provides sufficient material to start piloting such curricula in countries engaged in the BIOFIN process. India and Namibia are countries piloting integration of BIOFIN methodology in education curricula.

ANNEX 3.1: List of National BIOFIN Process Workshops and Consultations

The following is a list of some of the important workshops and consultations that are described in the BIOFIN Workbook. The actual events run during the national BIOFIN process will vary with country needs, and the potential to merge some of the activities required by the three BIOFIN assessments and finance plan, depending on the timetables adopted for them. In particular, a validation meeting at end of one assessment can also undertake consultation, based on initial work, for the subsequent assessment in the process.

It is suggested that the national BIOFIN team develops its own list of planned workshops and consultations. Creating a clear schedule for the workshops and consultations can help smooth planning of the national BIOFIN process because it helps:

- Anticipate and plan for organizing them;
- Coordinate activities, for example merging workshops to deliver different parts of the approach. This can be efficient in terms of use of resources (e.g. travel and hosting meetings) and also in using stakeholders' time (and avoiding "consultation fatigue");
- Inform stakeholders of forthcoming BIOFIN activities and chances to input to the work.

Phases	Activities	Purpose
Initiation Chapter 3	Inception meeting	Confirms and informs objectives & scope of BIOFIN assessments with relevant stakeholders, and handling of confidential of data. The result of this meeting will be reflected in the Inception Report.
PIR Chapter 4	Consultation (Step 4.1)	Gather evidence from relevant stakeholders in order to understand the drivers of biodiversity change and current biodiversity finance and policy landscape. The BIOFIN scope and stakeholders identified in the initiation will revised and prioritized by the PIR team.
	Validation Workshop (Step 4.6)	Consult on the policy and institutional recommendations in the PIR with key stakeholders. They are validated and improved through the consultation, and presented in the PIR report.

Phases	Activities	Purpose
BER Chapter 5	Consultation (Step 5.1)	Key stakeholders identified in the PIR will have different influence and interest in budgeting and expenditure processes. Pinpointing the key stakeholders (which may different from the PIR), for the BER team will allow the national BIOFIN team to consult with them on the scope of the BER analysis and sources of expenditure data.
	Validation Workshop (Step 5.1)	Work with experts and key stakeholders to build consensus on the definition of biodiversity expenditure, the tagging system and the attribution coefficients for expenditures that are only partially for attributable to biodiversity. It also can cover obtaining data and data confidentiality.
FNA	Consultation (Step 6.1)	Identify key stakeholders and review the methodology for conducting the financial needs assessment. This process also provides allows the national BIOFIN team to identify potential data sources from key stakeholders.
	Workshop / Consultation (Step 6.2B)	Identify with NBSAP stakeholders the biodiversity results to be costed, and agree on how biodiversity strategies and sub-strategies contribute to targets and these results. This may require reformulating NBSAP (and other biodiversity) targets, strategies, and sub-strategies.
	Consultation (Step 6.2D)	Work with experts and NBSAP stakeholders to identify the costable actions from implicit elements of the NBSAP actions. Prioritize biodiversity strategies, actions, costable actions and results with regard to the national biodiversity vision and plans in Step 6.2E.
	Expert consultation & validation workshop (Step 6.4)	Initiate discussion with experts and stakeholders to refine the costing assumptions, base costs and unit numbers in the cost model. It also can validate the choice of costable actions used in the costing.
BFP	Expert interviews and/or workshop (Step 7.3A, 7.3B & 7.4)	Workshop/ interviews with experts to compile responses or scoring in order to prioritize the most promising finance solutions. Identify external experts' input to develop the technical proposals. Followed by a validation workshop where applicable.
BIOFIN Results	Dissemination Workshop	Large stakeholder workshop to highlight all the results from the PIR, BER, FNA & BFP, and build support for implementation and institutionalization of biodiversity finance solutions.

Endnotes

1 This Workbook will be translated into French, Spanish, and Russian.

2 Visit www.biodiversityfinance.net.

3 See https://www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf.

4 A ministry that makes expenditures.

5 See http://www.outcomemapping.ca.

6 See http://www.theoryofchange.org/what-is-theory-of-change.

7 See http://www.gaportal.org/ and http://www.unep.fr/shared/publications/pdf/WEBx0115xPA-SEhandbookEN.pdf.

8 Howell, M. and A. Higgins (1990). Champions of change: Identifying, understanding, and supporting champions of technological innovations. Organizational Dynamics, Vol.19, Issue 1.

9 See Natural Capital Protocol: http://naturalcapitalcoalition.org/protocol/.

10 The Norwegian Ministry of Foreign Affairs (2009). Corporate social responsibility in a global economy. Available from: https://www.rederi.no/en/DownloadFile/?file=71634.

11 OECD (2011). OECD Guidelines for Multinational Enterprises. Available from: http://www.oecd.org/corporate/mne/.

12 KPMG International (2013). The KPMG Survey of CSR Reporting 2013. Available from: https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/corporate-responsibility/Documents/kpmg-survey-of-corporate-responsibility-reporting-2013.pdf.

13 See http://equator-principles.com.

14 See: http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Our+Approach/Risk+Management/Performance+Standards In particular, Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living. Natural Resources.

15 UNDP (2016). UNDP Private Sector and Foundations Strategy for the SDGs 2016 – 2020. Strategy Note. Available from http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/iicpsd/strategy-note---undp-s-private-sector-and-foundations-strategy-f.html.

16 Kelley Hamrick (2016). State of Private Investment in Conservation 2016 A Landscape Assessment of an Emerging Market. Forest Trends. Available from: http://forest-trends.org/releases/p/sopic2016.

17 See http://www.equatorinitiative.org.

18 http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Sustainable%20Energy/Gender_Mainstreaming_Training_Manual_2007.pdf.

19 United Nations (1992). Preamble of the Convention on Biological Diversity. Available from: https://www.cbd.int/doc/legal/cbd-en.pdf or https://www.cbd.int/convention/text/default.shtml.

20 UN Women, UNDP, UNEP, the World Bank Group (2015). The Cost of the Gender Gap in Agricultural Productivity in Malawi, Tanzania and Uganda. http://documents.worldbank.org/curated/en/847131467987832287/pdf/100234-WP-PUBLIC-Box393225B-The-Cost-of-the-Gender-Gap-in-Agricultural-Productivity-in-Malawi-Tanzania-and-Uganda.pdf.

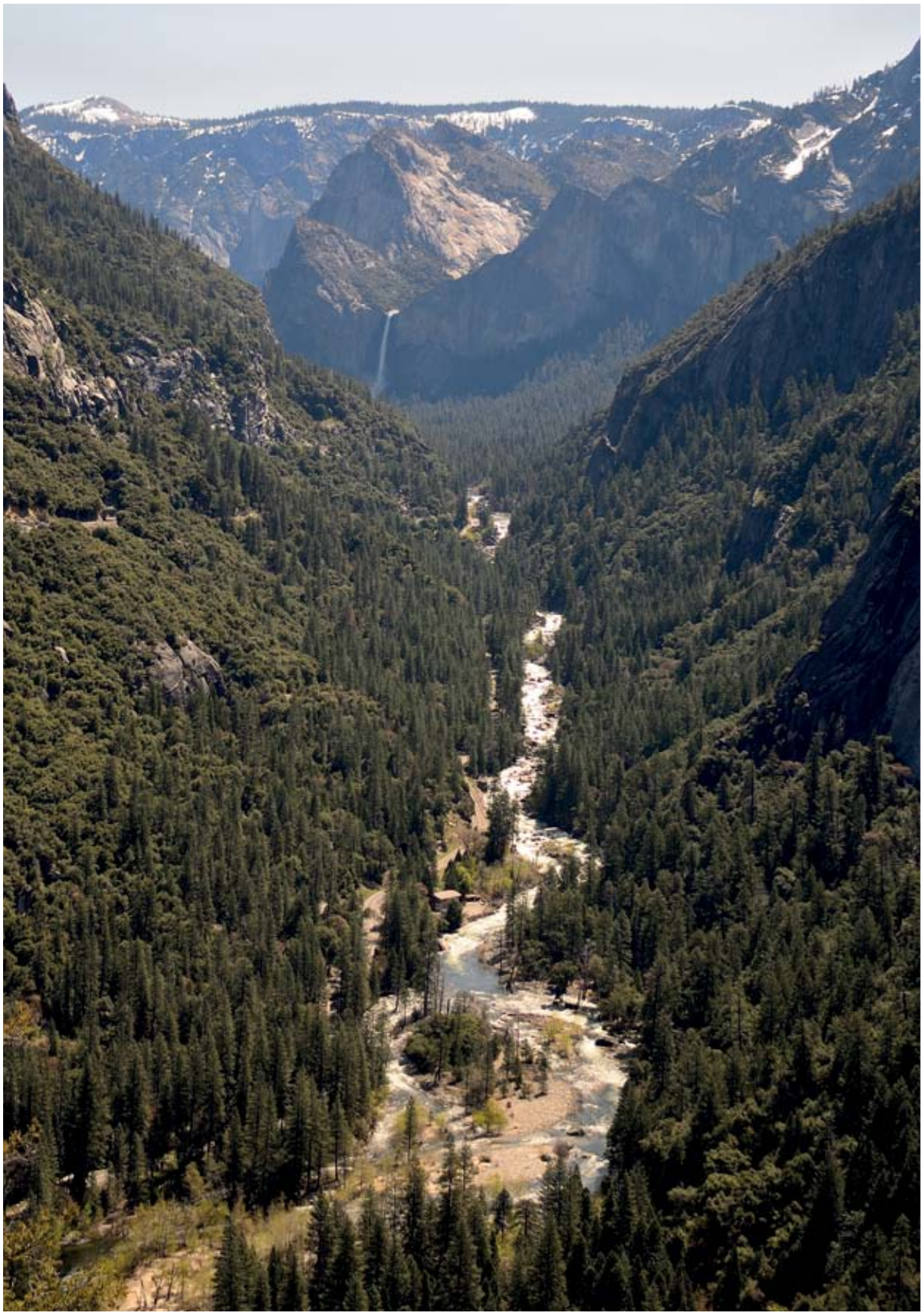
21 Parker C. and others (eds.) (2012). The Little Biodiversity Finance Book. Global Canopy Programme. Oxford. Available from: http://globalcanopy.org/publications/little-biodiversity-finance-book-3rd-edition-2012.

22 Technical Asssistance for Civil Society Organizations – TACSO (2011) Advocacy and Policy Influencing for Social Change. Available from: http://www.tacso.org/doc/doc_manual_5.pdf.

23 For more examples see www.unicef.org/evaluation/files/Advocacy_Toolkit.pdf.

24 UNDP (2009). Capacity Development: A UNDP Primer. Available from: http://www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/capacity-development-a-undp-primer/CDG_PrimerReport_final_web.pdf.

4 THE BIODIVERSITY FINANCE POLICY AND INSTITUTIONAL REVIEW



4.1 Introduction

This Chapter describes the process for undertaking the Biodiversity Finance Policy and Institutional Review (PIR). The PIR establishes an understanding of the policy and institutional context in which a national BIOFIN process is working to improve biodiversity finance.

This introductory Section covers goals and objectives, background, and links to other chapters of the Workbook. Section 4.2 describes the detailed steps in the PIR methodology and gives associated guidance.

4.1.1. Aims and Objectives

The aim of the Biodiversity Finance Policy and Institutional Review (PIR) is to analyse a country's fiscal, economic, legal, policy, and institutional framework to initiate, improve, and scale effective biodiversity finance solutions. The PIR establishes a baseline context and orientation for the entire BIOFIN process.

To achieve this aim, the Review has specific objectives:

A. Describe how the management of biodiversity and ecosystem services supports national sustainable development goals and visions;

B. Assess economic and financial drivers of biodiversity change;

C. Catalogue existing biodiversity finance mechanisms, incentives, subsidies and other instruments, including an assessment of sources of biodiversity revenues;

D. Identify barriers to improved or expanded biodiversity finance solutions including legal, policy, institutional, and operational aspects;

E. Identify biodiversity finance capacity development needs and opportunities; and

F. Develop specific policy recommendations to initiate, improve, and scale effective biodiversity finance solutions.

To meet these objectives the Review needs to investigate the questions shown in Table 4.1. In doing so it will start to identify opportunities for improving biodiversity finance[1] as described in Chapter 2 (see Figure 2.2).

TABLE 4.1: PIR QUESTIONS

Biodiversity Context:

- What are the major national and sub-national laws, strategies and policy documents for sustainable biodiversity management?
- How can laws and regulations be improved to facilitate more effective biodiversity finance solutions?

National Economic Context:

- What sectors cause the major pressures that increase the cost of biodiversity management?
- What sectors have the greatest dependency, impacts, risks and opportunities with biodiversity?
- What are the specific policies related to these pressures, impacts and dependencies, and how might they be reformed?
- Which budgetary processes offer opportunities to implement biodiversity finance solutions?

Biodiversity Finance Context:

- What are the most significant existing policies or instruments affecting biodiversity finance?
- What existing finance solutions create the greatest opportunity for scaling and success?
- What are the revenues generated by biodiversity for the government nationally? And at the site level? How are these revenues managed and used?
- What are the best opportunities for further revenue generation, and for increasing the share of biodiversity revenue that is re-allocated towards biodiversity management?

Capacity and Institutions:

- What level of capacity do institutions have to implement the NBSAP?
- What level of capacity do institutions have to identify, initiate, and scale biodiversity finance solutions?
- What level of capacities are needed to enable institutions to identify, initiate, and scale biodiversity finance solutions? Which capacity development interventions are likely to have the most impact on achieving better finance results?
- What institutions and issues should be included in the Biodiversity Expenditure Review (BER, Chapter 5) and the Financial Needs Assessment (FNA, Chapter 6)?
- What are the strengths and weaknesses of the national and state level budgeting that affect biodiversity finance?
- What are the most critical (important) stakeholders to include in the BIOFIN process? What are the optimal roles for each stakeholder in BIOFIN?

4.1.2. Background on PIRs

A policy and institutional review is a widely used approach to assess the strengths and weaknesses of policies and institutions within a given sector. Some relevant examples are described in Box 4.1. These reviews focus on questions related to the adequacy of existing policies, the existence of policy gaps, the translation of policies into practice, the role of the broader policy environment in influencing existing practices, and the adequacy of existing institutions and institutional frameworks.

Policy and institutional reviews are effectively system analyses and have been applied across many different sectors. They are required within the BIOFIN process due to the complexity of the current direct and indirect drivers of biodiversity loss and the complexity of finance flows for biodiversity. BIOFIN must analyse the whole set of drivers because it aims to influence the current trajectory of development to improve its outcomes for biodiversity.

BOX 4.1. EXAMPLES OF POLICY AND INSTITUTIONAL REVIEWS IN OTHER POLICY CONTEXTS

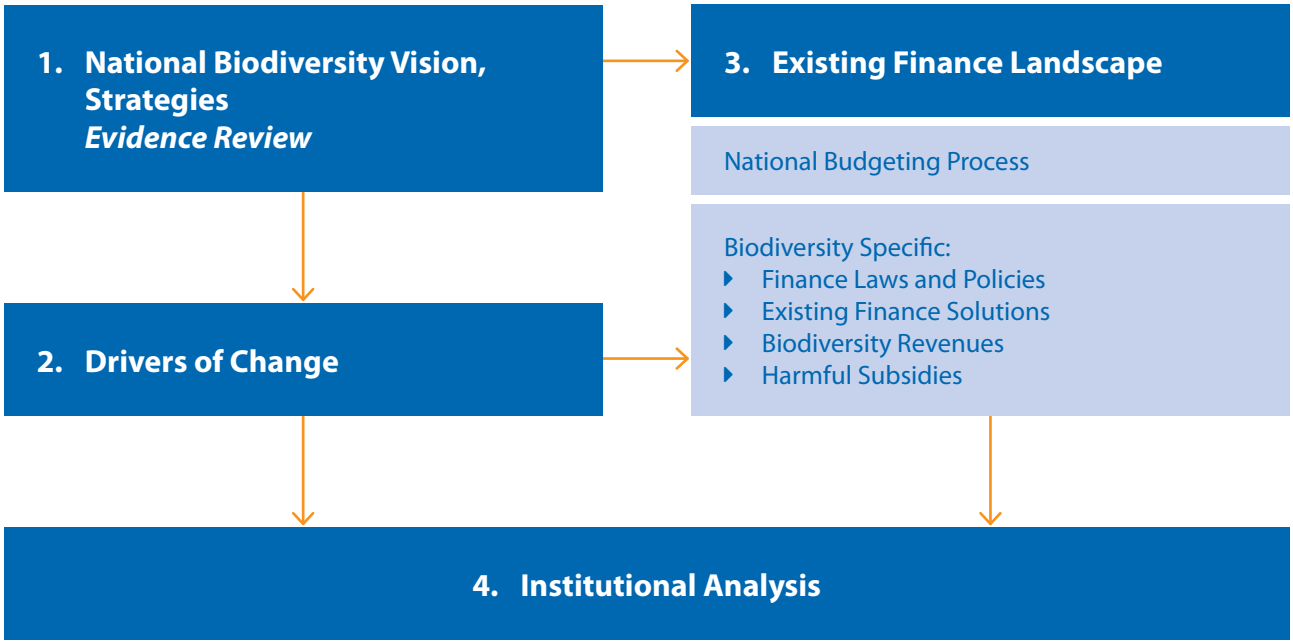
- **Climate Change:** Since 2011, Climate Public Expenditure and Institutional Reviews (CPEIRs)[2] have been conducted in many countries in Asia-Pacific. Results include: Budget marking and tagging in Nepal and Indonesia; A climate change financing framework at both national and sub-national levels in Cambodia; focused sectoral analyses in Cambodia and Thailand. Similar studies are undertaken in Africa and Latin America. The Global Partnership on Climate Change Finance and Development Effectiveness has produced multiple resources on CPEIRs.

- **Other themes:** As well as other examples for climate change,[3] other examples of PIRs relate to forests and fire management,[4] water,[5] transportation,[6] and health,[7] among many other sectors. A comprehensive approach is provided by the International Institute for Environment and Development (IIED) through its report on policies affecting biodiversity and livelihoods,[8] examining biodiversity governance at local, national and international levels, through country case studies.

4.1.3. The PIR Process

The Policy and Institutional Review identifies the national biodiversity vision, strategies and trends which establish what will be analysed within the National BIOFIN work (e.g. which biodiversity targets) and the context for the intended change in financing. As Figure 4.1 shows, in this first Step the sectors driving biodiversity loss and gains are identified. The existing finance landscape is then examined in more detail, including the national budgeting process, biodiversity finance laws and policies, and existing biodiversity finance measures, including the assessment of sources of biodiversity revenues and biodiversity-harmful subsidies. Finally, an institutional analysis maps biodiversity finance stakeholders and decision makers.

FIGURE 4.1: PIR IMPLEMENTATION STEPS



4.1.4. Links to Other Chapters

The findings of the Policy and Institutional Review directly inform other chapters of the BIOFIN assessment process. These links include:

- The review of national strategies and vision (Step 4.2) → prioritize the actions selected in the Financial Needs Assessment (Chapter 6);
- The sectoral analysis in Step 4.3B → identify the most important sectors to include in the Biodiversity Expenditure Review (Chapter 5), and identify stakeholders and decision makers relevant for the Finance Needs Assessment and Finance Plan (Chapter 6 and 7);
- The legal and policy analysis (Step 4.3C) and the review of existing finance solutions (Step 4.4) → identify potential solutions to include in the Finance Plan (Chapter 7);
- The institutional analysis (Step 4.5) → identifies further organizations to be included in the Biodiversity Expenditure Review (Chapter 5) and the Biodiversity Finance Plan (Chapter 7);
- Analysis of biodiversity revenues (Step 4.4) → feeds into assessing the finance gap in Chapter 6 and the Finance Plan (Chapter 7).

4.2 PIR Implementation Steps

This Section describes the five steps of the Policy and Institutional Review:

- **Step 4.1 Preparations**
- **Step 4.2. Review and summarize national biodiversity visions and strategies**
- **Step 4.3. Identify Economic and Policy Drivers of Biodiversity Change**
  - Step 4.3A. Prioritize Biodiversity Trends
  - Step 4.3B. Prioritize economic sectors that interact with biodiversity
  - Step 4.3C. Review fiscal policies associated with biodiversity
  - Step 4.3D. Review existing economic valuation studies
  - Step 4.3E. Identify other barriers and opportunities for finance solutions
- **Step 4.4. Review existing finance solutions**
  - Step 4.4A. Map the national and sub-national budgeting process
  - Step 4.4B. Analysis of laws and policies affecting biodiversity finance
  - Step 4.4C. Assess Biodiversity Revenue
  - Step 4.4D. Prepare a list of potentially biodiversity-harmful subsidies
  - Step 4.4E. List current biodiversity finance solutions
  - Step 4.4F. Summarize drivers and existing biodiversity finance solutions

- **Step 4.5. Institutional Analysis**
  - Step 4.5A. List all main stakeholders and decision makers
  - Step 4.5B. Prioritize stakeholders and decision makers
  - Step 4.5C. Evaluate Priority organizations

Step 4.1: Preparations

Preparations for undertaking the PIR involve the following tasks:

- Establish the PIR team
- Identify owner(s) of document, key partners and decision makers
- Develop stakeholder consultation plan
- Define the scope of analysis
- Identify information sources

BIOFIN Data Tool

BIOFIN has produced a tool to facilitate data management and analysis that can be downloaded at the BIOFIN website – biodiversityfinance.net – along with a detailed guidance note. This tool is referred to throughout the Workbook as the "BIOFIN data tool".

Throughout the PIR, pointers towards biodiversity solutions of different kinds (e.g. a business dependency (see Box 4.3), existing subsidy or charge, or biodiversity revenue) will be encountered. These should be recorded in the BIOFIN data tool for reference when completing a list of current solutions (Step 4.4B) and in developing further solutions in the Biodiversity Finance Plan (Chapter 7).

Establish PIR team

Establishing a team with both policy and finance skills and an oversight group is an essential initial Step in the preparation phase (see Chapter 3 for the overall suggested team structure). An ideal team for the PIR would combine biodiversity specialists and public/private finance specialists. The oversight group can be a national Steering Committee (see Chapter 3).

Identify owner(s) of document, key partners and decision makers

Once this oversight group is established, it should be determined who the "owner" of the PIR should be. The owner is the group or entity that is best placed to use the results of the PIR for specific objectives. It could be the steering committee itself. The report should be sure to assess and address the owner's needs.

Develop stakeholder consultation plan (see Chapter 3)

The PIR will need to gather evidence from a wide range of stakeholders. This will require an effective consultation process, building on the identification of stakeholders, communications approaches, consultation and advocacy plans, from Chapter 3.

Agree on the overall scope of analysis – to be refined as more information becomes available.
The scope of the analysis initially identified in Chapter 3 (i.e. which biodiversity targets) should be revisited at this stage. Countries may wish to focus on:

- Specific biodiversity status and trends, such as those that are the most important for sustainable development;
- Economic drivers that are most important for driving biodiversity loss; and/or
- Institutions that are most important as potential or actual finance stakeholders and decision makers.

The scope of the report can be refined, as initial information is gathered and analysed. A clear scope will help maintain a results orientated focus, and ensure the subsequent components of the BIOFIN process will be relevant to the key biodiversity finance issues.

Identify data and information sources

Information sources for the PIR include:

- National strategic documents including the NBSAP, national reports to the CBD, green growth, climate, poverty, etc.
- Other government documents and reports
- National statistical publications
- Private company reports
- NGO, academic, technical and other reports
- Web based information
- National and sectoral development plans
- Publications and reports related to biodiversity status and trends, finance, institutions and policies
- National budgets and budget execution reports
- Direct communications from stakeholders

Step 4.2: Review and summarize national biodiversity visions and strategies

Step 4.2 frames biodiversity finance issues within the specific country context. There are two main objectives of this Step:

- Step 4.2A: NBSAP Analysis – to identify results and targets to be used in the national BIOFIN process.

- Step 4.2B: Biodiversity in Sustainable Development – should assess how biodiversity objectives and plans are placed within the broader sustainable development agenda of the country.

Step 4.2A: NBSAP Analysis

The NBSAP is a document mandated by the CBD, but its coverage, legal status, and institutional ownership/ political engagement varies from country to country. The NBSAP is assessed initially during the scoping phase (Chapter 3) to determine its current status and coverage, and whether this is likely to be adequate as a basis for the national BIOFIN process. The NBSAP will contain a set of specific strategies and actions. These strategies and actions will provide the foundation for the actions to be included in the Financial Needs Assessment (Chapter 6), and the financial solutions in the Biodiversity Finance Plan (Chapter 7).

If preliminary analysis has concluded the NBSAP is not considered a comprehensive strategy for addressing the main biodiversity management needs of the country, results and targets from other complementary sources need to be included in the analysis. So the specific strategies and actions drawn from the NBSAP may need to be complemented by further sources of evidence, biodiversity-related goals, strategies and actions in other documents, such as:

- National sustainable development strategies (green economy, SDGs, poverty reduction strategy, etc.);

- Documents on the implementation of global treaties such as CITES,[9] the Ramsar Convention on Wetlands,[10] and the Convention on Migratory Species;[11]

- Other strategies such as on marine and coastal management, biosafety plan (invasive alien species) or on desertification;[12]
- Strategic documents and broader development strategies for activities that depend on biodiversity and ecosystem services. These may cover issues such as sustainable forestry or fisheries better than the NBSAP, and
- Climate change adaptation and mitigation documents, such as National Adaptation Plans of Action.[13]

BIOFIN Data Tool

The available targets and actions from biodiversity strategies in the NBSAP (and other sources as relevant) need to be recorded in the BIOFIN data tool, to help structure the analytical framework for subsequent BIOFIN assessments (e.g. needs assessment in Step 6.2B).

When important sectoral strategies (that significantly impact biodiversity) are not included in the NBSAP, it is recommended to expand the scope of BIOFIN by adding these. This is important because:

- Other national strategies may have stronger public and private buy-in and could benefit from other financial resources.
- They help identify links to sectoral policies.
- The goal is to achieve the CBD's Strategic Plan, including the 20 Aichi Biodiversity Targets.

It is essential the NBSAP and BIOFIN process integrate effectively into these broader plans to support their implementation and coordination with other related initiatives. These plans may have specific actions directly related to biodiversity management that may not be explicitly included in the NBSAP, but do represent significant national biodiversity needs.

Other aspects of the NBSAP should also be evaluated and described in the PIR, including its legal status and institutional arrangements. In some countries the NBSAP has a formal legal status. In other countries, it is seen as simply aspirational, outlining potential projects to offer to donors. How the NBSAP and other biodiversity strategies are treated by the government and the private sector will be a major influence on how BIOFIN is implemented in the country. In those countries where the NBSAP is a legal budgeted document, there may be little advocacy effort needed. On the other hand, in the countries where the NBSAP has no legal status, either the concepts should be integrated into national development plans, or directly into budgets, or significant advocacy and awareness raising will be required.

This analysis should explore the range of institutional arrangements for the implementation and financing of all aspects of the strategies and actions within the NBSAP and other key strategic documents. These may include, for example, understanding the specific 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 strate-

gies should be prepared to ensure their inclusion in the institutional analysis (described below) and the Biodiversity Expenditure Review (Chapter 5).

Step 4.2B: Biodiversity in Sustainable Development

As described in Chapter 1, it is useful to understand and describe the biodiversity agenda within the broader sustainable development agenda of the country. Poverty alleviation, sustainable livelihoods, health and security are often high priorities for government (above pure biodiversity conservation) and linking biodiversity activities to these goals supports the business case for biodiversity solutions.

Biodiversity finance solutions can be integrated with SDGs in different ways:

1. Develop an **integrated BIOFIN methodology** that combines biodiversity with other sustainable development issues such as climate change or poverty, as applied in several countries, such as Indonesia (climate and biodiversity finance) and Bhutan (see Box 3.5).

2. Identify opportunities to mainstream biodiversity within **finance strategies for other SDG areas**, such as national climate finance strategies, sustainable development finance plans, etc. Attempts to mainstream the NBSAP into the development agenda in South Africa are described in Box 4.2.

Aligning the BIOFIN process within the national finance and policy context enables the identification of potential "entry points" for engagement with decision makers by identifying and focusing on their priorities and helps make the business case for investment.

BOX 4.2: OPPORTUNITIES TO MAINSTREAM BIODIVERSITY INTO DEVELOPMENT AGENDA – SOUTH AFRICA.

South Africa has a rich endowment of natural resources, which include its biodiversity and ecosystems. The diversity of these ecosystems delivers a range of services that are essential to people, and the development and growth of the economy. Naturally functioning ecosystems that deliver these valuable services to people are referred to as ecological infrastructure. These rich endowments of biodiversity assets and ecological infrastructure provide immense opportunity to support South Africa's development path and play an important role in underpinning the economy.

The 2015–2025 National Biodiversity Strategy and Action Plan (NBSAP) outlines a roadmap to ensure the management of biodiversity assets and ecological infrastructure continue to support South Africa's development path and play an important role in underpinning the economy. The vision of the NBSAP is to "Conserve, manage and sustainably use biodiversity to ensure equitable benefits to the people of South Africa, now and in the future".

A number of key development polices, strategies and plans express the possibilities biodiversity presents to the development agenda. These provide opportunities for mainstreaming biodiversity concerns into the national agenda. One key document is the National Development Plan (NDP) .

The NDP is a key over-arching plan that guides South Africa's development path until 2030. The NDP places a strong emphasis on economic growth and development, with the implication that environmental planning needs to be robust enough to secure biodiversity from decisions driven largely by a development agenda. It recognizes that some of our development objectives are in conflict with each other, but affirms that South Africa "needs to protect the natural environment in all respects, leaving subsequent generations with an endowment of at least equal value". The NDP deals extensively with natural resources and biodiversity across topics and content focused on tourism, agriculture and rural development, economic infrastructure (water), and human settlements (spatial planning).
Source: http://www.gov.za/issues/national-development-plan-2030.

The Medium Term Strategic Framework is a framework guiding the Government's programme of work in a particular electoral period – currently 2014-2019. It provides a prioritized framework for focusing government efforts on strategic priorities for moving South Africa to an environmentally sustainable, climate-change resilient, low-carbon economy.

Step 4.3: Identify Economic and Policy Drivers of Biodiversity Change

The national BIOFIN process requires a detailed understanding of the current economic and policy drivers of biodiversity change – both positive and negative. This Step provides guidance on how to assess these drivers, through five sub-steps:

- Step 4.3A: Prioritize Biodiversity Trends – based on the greatest impact from a biodiversity, social and economic perspective.
- Step 4.3B: Evaluate how economic sectors interact with biodiversity – considering both impacts and dependencies to identify the most important sectors for biodiversity engagement and finance opportunities.
- Step 4.3C: Review fiscal policies – associated with the priority biodiversity trends, impacts and dependencies.
- Step 4.3D: Review relevant economic valuation studies that shed light on economic drivers of change (as described in Chapter 1) and present information on the justification of further investments.
- Step 4.3E: Identify other barriers and opportunities for finance solutions.

A comprehensive assessment should build on existing studies where possible and will also include some original analysis by evaluating existing data and studies in new ways.

Step 4.3A: Prioritize Biodiversity Trends

The NBSAP, CBD National Reports and other biodiversity assessments often include descriptions of biodiversity trends such as in forest coverage, coral extent and condition, wetland health, and more. These often contain a wide range of biodiversity issues and trends, and so some prioritization of these is helpful to focus the analysis of drivers on the key issues. Prioritization should reflect the trends with greatest impact from a social and economic perspective, and in terms of their importance for achieving the biodiversity and sustainable development goals.

In many cases, Geographic Information Systems (GIS) are used to map and track trends in land use cover and can be used to project trends into the future. They can also be used to understand the value of ecosystem services – including through bespoke tools for this purpose such as ARIES[16] and InVEST.[17] Other data could come from climate change reports, agricultural outlook reports, and environmental indicators prepared by governments to track environmental issues. Trends can be positive as well as negative and ideally can be tied to national development priorities and sustainable development goals.

Using the available information on trends, it should be possible to describe two future scenarios: 1) with and 2) without successful biodiversity vision implementation. Major differences between the two scenarios can be further explored using economic valuation studies tied to the habitats, ecosystems, or species involved (See Step 4.3D). Although a full economic scenario analysis (such as a Cost-Benefit Analysis or a Targeted Scenario Analysis) will not be possible for most issues, a basic qualitative description of these trends can reveal the opportunity cost of inaction in terms of lost resources, ecosystem degradation, and lost ecosystem services.

One way to conduct the prioritization of the trends, is to score each one (e.g. on a 3 level scale) across four issues: conservation importance (threatened and endangered species); economic value (ecosystem services, jobs, etc.); social value (culture or religious, spiritual, etc.), and political importance. The output is a ranked list of the main biodiversity trends.

Step 4.3B: Economic Sector Prioritization

To some extent all economic sectors are dependent on basic services provided by biodiversity and ecosystems – clean water, renewable raw materials, waste purification, climate regulation, etc. This Step evaluates how economic sectors interact with biodiversity – considering the country's main economic sectors in terms of their contribution to GDP, and impacts and dependencies on biodiversity. Dependencies include revenues from biodiversity and ecosystem services. A comparison of these impacts and dependencies with biodiversity trends is suggested to prioritize the most important sectors for biodiversity engagement and finance opportunities.

There are certain sectors that directly interact with ecosystems such as agriculture, food and drink, water services, forestry, fisheries, electricity, oil, gas, mining, and tourism etc., and so are more closely tied to biodiversity. Other sectors have only an indirect relation, but biodiversity is also relevant to general retail, healthcare, pharmaceuticals, financial services, and others.

It should be noted that fully quantifying the interactions between the state of biodiversity and ecosystems and the economy is a significant and challenging task. Detailed academic studies of these links at national level have been hampered by a lack of suitable data and models.[18] For BIOFIN only a desk review is expected, largely based on existing data/studies.

One framework with which to approach this analysis, particularly in engaging with the private sector, is provided by the Natural Capital Protocol (NCP, See Box 4.3). The Protocol guides business to analyse its impacts and dependencies on natural capital, including biodiversity, and how to use available tools such as economic valuation of environmental changes. Such analysis of impacts and dependencies will provide insights into direct and indirect drivers of biodiversity change, and identify organizations that could be part of finance solutions.

BOX 4.3: USING THE NCP TO IDENTIFY NATURAL CAPITAL IMPACTS AND DEPENDENCIES.

The Natural Capital Protocol 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 builds on existing environmental and economic tools, guides, methods and techniques, including the Corporate Ecosystem Services Review.[19] It does not replace the methods in these existing approaches (described in Chapter 1), but guides how to use them, according to the study's objectives and scope.

Importantly, the Protocol does not just consider impacts – including both positive impacts, such as support for protected areas through ecotourism, as well as negative impacts such as conversion of forests to agriculture or the impacts of fragmentation from roads. It also considers dependencies – but also considers such things as raw material sourcing, water for production, and other ecosystem services that are often ignored such as pollination and 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. The Protocol, and subsequent work of the Natural Capital Coalition, also highlight a number of resources to use when conducting such analysis.

Note that the Protocol is developed to guide analysis from the perspective of a (private or other) enterprise. However, it can also be applied to an economic sector at a larger (e.g. country) scale.

Source: Natural Capital Coalition.[20]

BIOFIN teams have found it useful to review the main economic sectors in terms of contributions to GDP and jobs. This information can be compared with a sector's dependencies and impacts on biodiversity, as well as relation to priority trends (from Step 4.3A). Measurement and valuation of a business or sector's impacts and dependencies can follow a standardized process as described in the Natural Capital Protocol (see Box 4.3).

Market-related economic evidence includes assessments of the valuations of the sectors' impacts and dependencies on the environment (as described in Chapter 1, e.g. mangroves are important for disaster resilience, how biodiversity is important for tourism, etc). These analyses often consider how changes in the natural environment result in changes to ecosystem services – the benefits to people from ecosystems (see Chapter 1), but can also relate to risks and perceptions of environmental change (e.g. flood risk or threats to species). Analysis of ecosystems should use a recognized ecosystem services typology[21] to assist with transparency, and avoid omissions or double-counting.

The sector prioritization results can be recorded in a table under the headings shown in Table 4.2.

TABLE 4.2: CRITERIA FOR RECORDING RESULTS OF SECTOR ANALYSIS.

Criteria	Description
Sector	Select a sector.
GDP	Contribution to GDP.
Jobs	Sector employment and potential for job creation.
Priority Trends	Describe the priority biodiversity trends from 4.3A that are most important to the sector.
Dependencies	How does the sector depend on biodiversity and ecosystem services?
Impacts	How does the sector impact biodiversity and ecosystem services?

Using these results, sectors can be prioritized based on the strongest combination of economic impact (GDP and jobs), and biodiversity trends, impacts and dependencies. Prioritization can be based on government interest as well as technical information, but the criteria for prioritization should be clearly stated.

For the prioritized sectors, more detailed analysis can be prepared to better understand the interactions between that sector and biodiversity. This is described in the next two steps for fiscal policies (4.3C) and economic valuation evidence (4.3D).

Biodiversity Finance Solution: Payment for Ecosystem Services: Water

The idea of payment for ecosystem services (PES) is that whoever preserves or maintains an ecosystem service should be paid for doing so by the beneficiaries of the services. Water users can make payments to those who preserve watershed assets thus ensuring good quality water supplies. Payments can be agreed directly through a private contract, or indirectly through an intermediary such as the State (with funds raised from a tax or fee on users), a water utility (funded from customers' bills), an NGO or a trust fund.

Example: An example of water related PES is at Fuquene in Colombia. The Cuencas Andinas project aims to reduce nutrient loads in the Fuquene Lake by helping farmers access commercial bank loans to improve their agriculture practices and switch to more environmentally friendly methods (e.g. reducing use of fertilizers). In another example for the private sector, the Vittel payment scheme to farmers in France helps ensure water quality for a bottling plant at a lower cost than end-of-pipe treatment.

See more in: http://www.iied.org/developing-markets-for-watershed-services and IIED, 2006, The Vittel payment for ecosystem services: a "perfect" PES case? http://pubs.iied.org/pdfs/G00388.pdf.

Step 4.3C: Review fiscal policies

For the prioritized sectors from Step 4.3B, more detailed reviews should be prepared of the key fiscal policies that are associated with the priority trends, impacts and dependencies: this can identify opportunities for change.

Key fiscal policies will include specialized tax regimes, subsidies, quotas, and budget support to these sectors. A rigorous analysis of a fiscal policy in any one sector or subsector can be a very large task, but the review should be limited to those policies that have the largest impact on biodiversity. Engagement with the public institutions responsible for these fiscal policies (i.e. ministries of finance and related line ministries) is essential to access evidence for this review. This engagement should already have happened through the stakeholder engagement activities initiated under Chapter 3.

BIOFIN Data Tool

The analysis of fiscal policies will provide information on sources of biodiversity-dependent revenues. These should be recorded in the BIOFIN data tool for further analysis in Step 4.4D.

Step 4.3D: Review existing economic valuation studies

A further dimension to understanding economic drivers of biodiversity change (as described in Chapter 1) comes from existing economic valuation studies. Monetary valuation of the environment (see Box 1.7) can be considered a three-step process of qualitative assessment, quantitative assessment and valuation in monetary terms.[22] Analysis of ecosystem services helps with the first two of these steps, allowing economic valuation to be applied in the third. Valuation results can be reported, accompanied by discussion of the underlying assumptions and caveats, to provide additional understanding of the interactions between the prioritized economic sectors and biodiversity. For example, economic valuation evidence can help to assess trade-offs and priorities, particularly with issues outside biodiversity management, if they provide monetary values.

Recording of economic studies relating to environmental changes related to prioritized sectors should include key evidence, as described in Box 4.4. Note that this recording helps identify existing evidence, which can potentially be applied through value transfer.[23] Primary valuation studies to generate economic valuation evidence for particular environmental changes are not recommended at this stage.

BOX 4.4 LIST AND SUMMARIZE ENVIRONMENTAL-ECONOMIC EVIDENCE

This information provides background to begin building business cases and to identify viable existing or potentially new finance solutions in Chapter 7:

- 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 financing solutions?

Note that links between biodiversity, economic sectors, social values and governance are an area with rapidly developing research and evidence. For example, the conceptual framework for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services[24] provides guidance on the elements constituting social-ecological systems at different scales.

Step 4.3E: Identify other barriers and opportunities for finance solutions

The next Step is to review if the previous analysis points to possible finance solutions and barriers for their further development. The main sectors and subsectors that impact and depend on biodiversity and ecosystem services have been identified in Step 4.3B. For each sector, the review should cover:

- Key risks and opportunities related to biodiversity, based on understanding of their impacts and dependencies on biodiversity and ecosystems (see Box 4.3).
- The principle economic and fiscal drivers related to biodiversity (including fiscal policies identified in 4.3C).

It should be noted that the potential finance solutions identified do not need to be deeply analysed at this stage, but can be listed and described for later development in the Biodiversity Finance Plan. However, the barriers for initiating or scaling finance solutions should be identified and described. Attention should be made to the economic "system" structure and function. A system approach is likely to provide better insight and long term solutions than a simple "cause and effect" approach. For each main sector-biodiversity interaction, seek to identify leverage points that can be used to engage decision makers and private sector actors to create significant change. Using root-cause analysis in the Drivers–Pressures–State–Impacts–Responses

framework (Box 4.5) is one approach to determine the financial and/or economic drivers associated with barriers to biodiversity finance solutions.

For example, the tourism sector may have a high dependency on biodiversity due to nature-based tourism. It may also be having a significant negative impact through poor waste treatment practices or uncontrolled development. A review of fiscal policy may indicate, that because of the desire for economic development goals, the government provides a tax relief (subsidy) for new hotels. A finance solution in this case could be to tie the tax relief to the installation of adequate waste treatment or other eco-design features that benefit biodiversity and maintain the economic growth that hotels provide, while avoiding the risk of lobbying against a change in subsidies.

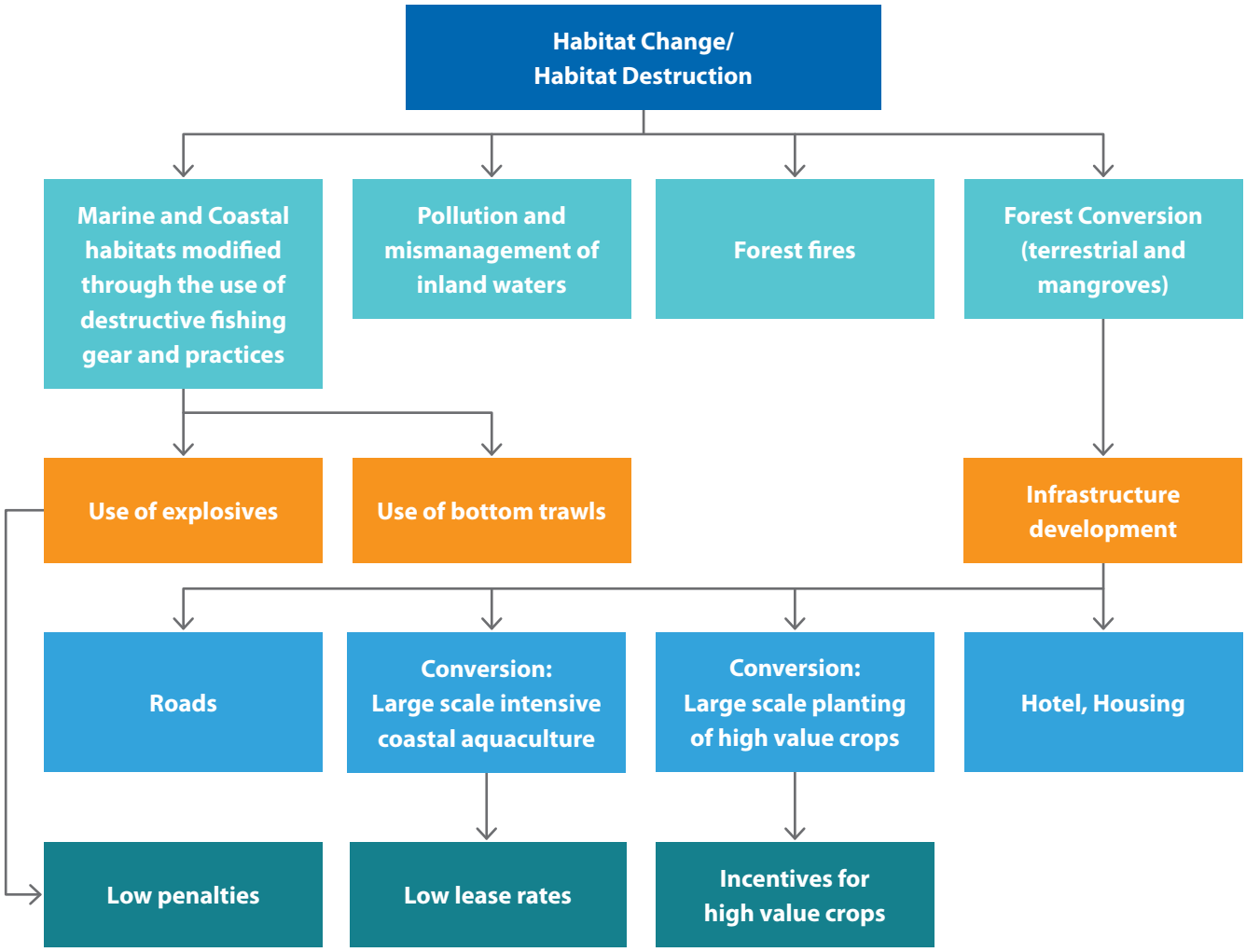
During the course of the national BIOFIN process, the use of existing economic valuation, fiscal policy, and other related studies and reports is essential. These studies should be catalogued in table form for future use (see Step 4.3D).

BOX 4.5: ROOT CAUSE ANALYSIS AND DPSIR

When the NBSAP and other principal documents provide too little analysis of some of the main causes of biodiversity change, a root-cause analysis can be conducted. Root cause analysis[25] depends upon a clear framework of drivers, pressures, impacts, state and response (DPSIR)[26] and repeatedly asks the question of "why?" for every driver of trends until the root driver is identified.

The root driver may sometimes be an economic or financial driver, as seen in an example from the Philippines, where some policy reform may change prevailing resource use patterns and create positive impacts on biodiversity, without necessarily requiring additional financing. The Philippines launched the "BIOFIN journey" through a series of consultations relating to the PIR, where a mapping of drivers of biodiversity loss allowed for an extended causal chain (or root cause) analysis (see Figure 4.2). In addition, field experience by various stakeholders contributes to the understanding of how economic and financial factors influence human behaviour leading to habitat destruction.

FIGURE 4.2: DRIVERS OF BIODIVERSITY LOSS FOR AN EXTENDED CAUSAL CHAIN IN THE PHILIPPINES



Step 4.4: Review existing finance solutions

In this Step, the review will seek to identify and describe most or all of the existing biodiversity finance solutions in the country. Special attention during this review should be given to:

- National and sub-national budgets, which are the principle source of biodiversity financing in most countries; and
- The reform or greening of subsidies, which has been identified by the CBD and BIOFIN as an area of high potential and also significant challenges.

This Step provides guidance on how to review existing finance solutions, through five sub-steps:

- Step 4.4A: Map the national and sub-national budgeting process.
- Step 4.4B: Analysis of laws and policies affecting biodiversity finance.
- Step 4.4C: Assess biodiversity revenue.
- Step 4.4D: List potentially biodiversity harmful subsidies.
- Step 4.4E: Summarize drivers and existing biodiversity finance solutions.

> **BIOFIN Data Tool**
>
> It is helpful to ensure the drivers of biodiversity change, and existing and potential finance solutions identified during the analysis are accurately captured for reference during subsequent work under the national BIOFIN process. Tables for recording this information are provided in the BIOFIN data tool, and described in Step 4.4E.

Step 4.4A. Map the national and sub-national budgeting process

Given that in almost all countries the vast majority of biodiversity financing comes from the public sector through ministries, public and quasi-governmental agencies, and local governments, the national and sub-national budgeting process is a principal area to understand and optimize. Some questions that can be addressed in this review 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? and if so, describe the similarities, differences and relationships between them.
- How are budgets prepared at the sectoral and agency level?

Familiarity with the budgeting process allows insights into the institutions and other stakeholders responsible for planning and budgeting, and provides an understanding (to be used in the FNA, Chapter 6) of how changes in programming can be introduced.

For example, the observation of perennial "underfunding" of biodiversity can be assessed and better understood by analysing the steps in the budgeting process.[27] One question that could be answered includes "at which point do 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.

The budgeting process itself varies substantially from country to country. The process can be considered both:

- Iterative, in that it is perpetually being implemented and requires ongoing adjustments; and

- Cyclical, with a generic categorization of budget cycles suggesting the following stages: i) budget preparation; ii) approval; iii) execution; and (iv) auditing and transparency.

A recent UNDP study[28] on protected area financing in several Latin American countries underscores the need for better budget planning and preparation. In that study, Protected Area System (PAS) budgeting processes emphasize good budget preparation. Some conclusions include:

1. PA budgets can be better designed to convince decision makers in the Ministry of Environment and the Ministry of Finance;

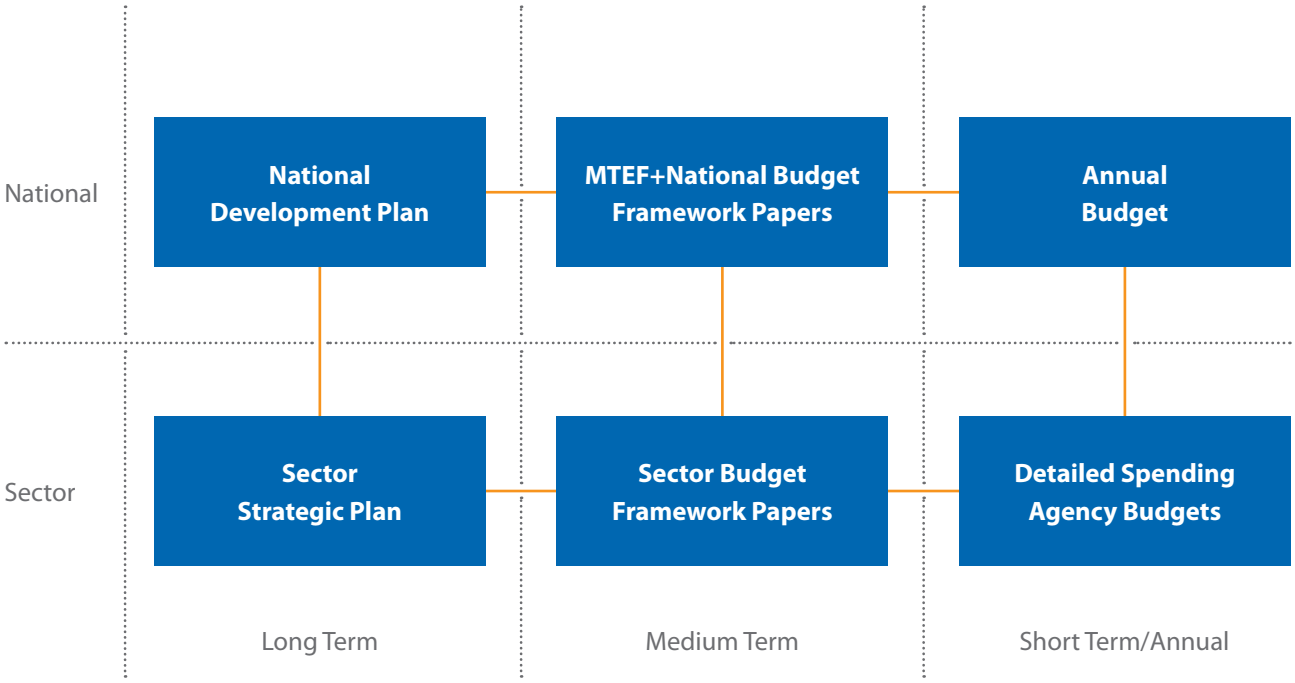
2. Budgets can be better supported with data including conservation results, detailed historical costs and cost comparisons, clear financial needs, and both economic impact and results-based indicators;

3. Site managers should be more engaged in the process; and

4. Attention to national budget formulation deadlines is necessary to avoid simply repeating the previous year's budget.

An example of the budget process from Uganda is provided in Box 4.6.

FIGURE 4.3: FRAMEWORK FOR LINKING POLICIES AND STRATEGIES TO BUDGETING IN UGANDA[29]



BOX 4.6: BUDGETING PROCESSES IN UGANDA.

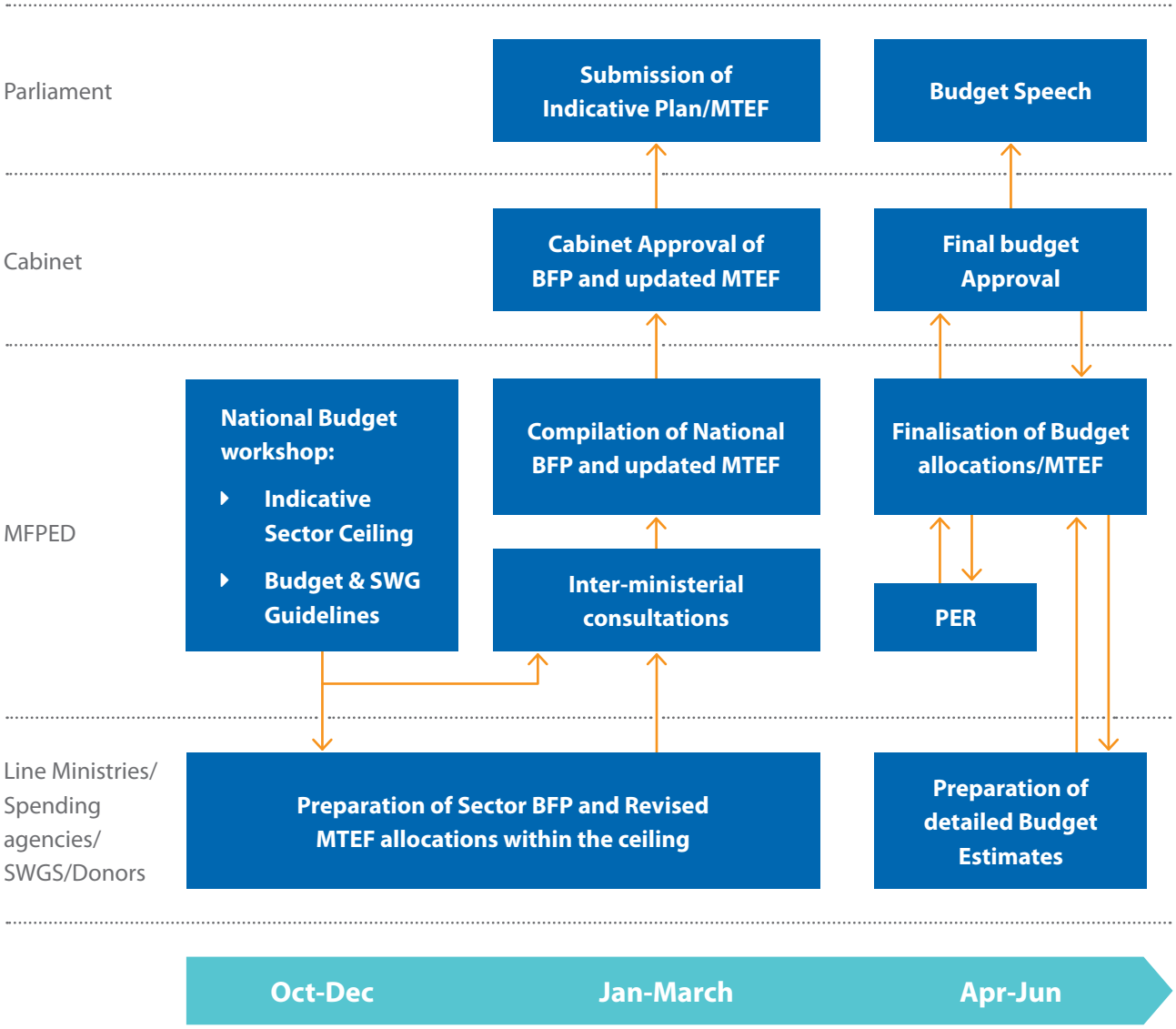
In Uganda, central Government financing for biodiversity conservation, like all other national Government financing, is articulated in the national budget process. This is usually linking the National Development Plan (NDP), Sector Strategic or Investment Plans (SIP), Sector Budget Framework Papers (BFPs) and Annual Budgets (Figure 4.3).

The annual budget cycle in Figure 4.4 shows that the central budget preparation and estimation processes take place in ministries, departments, and agencies (MDAs) before the budget process is collated at the sector level. The oversight for the sector occurs within the Sector Working Group (SWG). The discussions by the SWG 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.

For additional information and guidance on public budgeting processes see:

- UNDP/UNEP: Mainstreaming Environment and Climate for Poverty Reduction and Sustainable Development (Chapter 5, p 53-63).[30]
- IMF: Guidelines for Public Expenditure Management. Section 3: Budget Preparation (IMF, undated).[31]

FIGURE 4.4: EXAMPLE OF THE BUDGETING CYCLE IN UGANDA[32]



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).

Step 4.4B: Analysis of laws and policies

The mapping of the national and sub-national budgeting process, existing finance solutions, and subsidies provides a comprehensive look at the main biodiversity finance approaches that already exist in the country. Each approach may have specific laws and policies that create a financial instrument, influence market prices, define a procedural Step, and otherwise set the parameters for the finance solution. There may be other general laws and policies that provide a background framework that helps or hinders the impact and effectiveness of biodiversity finance solutions.

Laws, regulations, and policies that impact on the budgeting process, existing finance solutions, and subsidies impacting biodiversity (both harmful and beneficial) should be reviewed and analysed in terms of their opportunities, limitations, and suggested improvements.

The goal of analysing laws and policies in the PIR is to understand:

- Are the laws and regulations coherent with the biodiversity and sustainable development vision that was summarized in the first Step of the PIR process?
- How might they be improved to assure better coherence among sectoral laws and policies and national biodiversity objectives?
- Are there laws containing specific and/or peripheral provisions on funding biodiversity which can be optimized?
- Guidance on how to do things: what not to do and things to copy.

The analysis of finance laws and policies should include a full reading and review of the biodiversity finance related policies including relevant implementing rules and regulations and administrative issuances. While implementing the PIR, the BIOFIN national team should organize consultations among government, civil society, academia, private sector, and programmes and projects with site-based work.

BIOFIN seeks to evaluate the policy framework from the economics and finance angle, including fiscal instruments such as licences and fees, charges, and penalties, to further analyse how these incentives result in negative and positive impacts (see Box 1.3 and Box 1.5). Negative impacts on biodiversity within this system can include:

- Overexploitation of resources may result from low user fees or concessions (fishing licences, logging permits) that do not reflect the full economic value of the resource, risk mitigation programmes that encourage over-investment (e.g., crop insurance), specific tax regimes for natural resource consuming industries (e.g., agriculture, forestry), etc.
- Low user fees represent low barriers to entry which encourages overexploitation of open access natural resources.
- Low penalty systems encourage harmful practices such as dynamite fishing and pollution and bonds or taxes that do not adequately reflect the social costs of the industry (e.g., mining, oil and gas) results in uneconomical environmental damage.

Biodiversity Finance Solution: Landing fee

Under this system, fishermen pay a fee to an authority based on the quantity (number or weight) of fish they catch. The landing fee encourages the true economic price to be paid for the fish, thereby reducing incentives for overfishing. The money raised by the landing fee could be allocated to fishery conservation activities.

See: http://www.fao.org/docrep/003/t0388e/T0388E05.htm.

Step 4.4C: Assess Revenue from Biodiversity and Ecosystem Services

As well as being a subject of expenditure, biodiversity can be a source of financial revenue. Therefore, the PIR should also consider existing charges and revenues from biodiversity. This includes revenues such as government taxes or charges on natural resource exploitation (e.g. logging licences) and locally raised revenues (e.g. protected area entry fees) that may not pass through the Finance Ministry (see Box 4.7). These are obviously also included as finance solutions and mechanisms.

This analysis is not expected to be comprehensive, nor is it seeking to examine issues of overall governmental fiscal sustainability, but is implemented for two reasons: first, to better understand and describe the fiscal value that biodiversity and ecosystem services provide to the national and state governments; and second to identify sources of financing generated from biodiversity that may also be used for biodiversity management.

Sources of revenue may also be identified in the analysis of dependencies described above. Further biodiversity revenues can be identified by considering common revenue sources:

- Green taxes
- Forestry - Fees/Fines/Royalties
- Fisheries - Fees/Fines/Licences
- Payment for Ecosystem Services (PES)[33]
- Park/Reserve Entrance Fees
- Concessions and other tourism based fees (e.g. hotel surcharges).

BOX 4.7: PROTECTED AREA FUNDING SOURCES IN LATIN AMERICA

Total funds available for protected area financing can be divided into four categories: government budgeted funds, extra-budgetary sources including international cooperation through donor funds, revenues generated by site-level protected areas' activities, and other sources. Looking at the composition of funds for protected areas systems in Latin America yields the following breakdown: 60 per cent from central government annual budgeted funds; 15 per cent international cooperation; 14 per cent from site-based revenues; 11 per cent are noted as "Other".

Source: Bovarnick, A., and others (2010). Financial Sustainability of Protected Areas in Latin America and the Caribbean: Investment Policy Guidance. United Nations Development Programme (UNDP) and The Nature Conservancy (TNC).
Available from: https://www.cbd.int/financial/finplanning/g-planscorelatin-undp.pdf.

The assessment of revenues should aim to capture public sector revenues. It should also consider the different ways that revenues are used. Many revenues dependent on biodiversity and ecosystems will be present in national accounts, for example taxes related to industries managing natural resources. However, they are usually not distinguished as biodiversity-dependent. In other cases, revenues raised at a site level may enter the site management budget and therefore not feature in central government accounts.

Public revenues from biodiversity and ecosystem services may be explicitly linked to these resources (e.g. logging fees, fishing licences). In other cases the link between public revenues and biodiversity may not be clear: for example the proportion of the private sector tax base that is dependent on ecosystem services is often not well understood. Revenues can be examined on a sector basis by exploring revenues generated for the government by different economic sectors.

Revenues from biodiversity should be recorded in a table, using the suggested headings shown in Table 4.3, for reference in subsequent Chapters:

- In the BER (Chapter 5) they can help identify related biodiversity expenditures;
- Their contribution to general taxes, local taxes, or site based revenues, is examined in the FNA, and helps to estimate future finance needs (Chapter 6);
- The Biodiversity Finance Plan (Chapter 7) then seeks to identify opportunities for scaling-up or replicating effective revenue generation schemes as part of potential finance solutions. These may align incentives to biodiversity users (user pays) with sustainable biodiversity management, or deter those with harmful impacts on biodiversity (polluter pays).

TABLE 4.3: FIELDS FOR RECORDING DETAILS OF BIODIVERSITY REVENUES

Heading	Description
Organization/Agency	Stakeholders have been 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: PES/Water.
Source of Revenue	For example: private foundations
Description	Brief description of the solution and how it functions
Use	What are the current known uses of the revenue?
Year 1, Year 2, etc.	Annual quantities and values going back 5 years if possible

Step 4.4D: Prepare a list of potentially biodiversity harmful subsidies

In general, a subsidy is the result of "a government action that confers an advantage on consumers or producers, in order to supplement their income or reduce their costs."[34] They are designed to address a market failure or achieve a specific social objective. The government action may consist of a payment of money, relief from a tax burden, protection from competition, or a variety of other policies. Subsidies can be used to change behaviour, both at a firm level, such as carbon sequestration subsidies in the forest sector that aim at to reduce deforestation as a climate change mitigation measure, and household level, such as government action to supplement people's income.

The goal of collecting data on subsidies in the PIR is to understand:

- What are the most prominent subsidies in each of the prioritized sectors that have an impact on biodiversity?
- If considered harmful to biodiversity, which aspects are harmful and why?
- Who are the primary, secondary or other beneficiaries?
- How does the subsidy work? What is the transfer mechanism?
- What is the estimated annual benefit to beneficiaries?
- What is the average annual cost to the government?
- What is the source of funding to pay the subsidy? If different than general treasury funds.
- What level of approval is needed to reform the subsidy? This may have been identified through the mapping of national and sub-national budgeting processes in Step 4.4A.

Some examples of subsidies include:[35]

- Direct transfers of funds (e.g. government spends money on fossil fuels, roads, ship capacity)
- Potential direct transfers (e.g. government guarantees emergency response on nuclear energy and liability risk)
- Income or price support (e.g. agricultural goods and water)
- Tax credits (e.g. land donation/use restrictions)
- Exemptions and rebates (e.g. on fuel taxes)
- Low interest loans and guarantees (e.g. fish 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)

From an environmental-economics perspective, it can be argued that tolerating negative external costs to the environment, as a result of individual or business activities, is effectively a subsidy from government (on behalf of society) to the organizations involved; for example, not internalising pollution damages lowers costs to polluters in the market and thereby confers an advantage to those industries (TEEB, 2009[36]).

Subsidies consume substantial public funds, as demonstrated in Table 4.4.

TABLE 4.4: EXAMPLES OF SUBSIDIES IN VARIOUS COUNTRIES

Description	Source	US$ Billion
Total support to agriculture in OECD countries, 2004	OECD 2005b	378
Support to agricultural producers in OECD countries, 2005	OECD 2006	280
Upper estimate of annual total incentive expenditures for economic development, by state and local governments in the United States, early 2000s	Peters & Fisher, 2005	50
Estimate of annual government financial transfers benefiting commercial fishing, worldwide, late 1990s	Virdin, 2001	15
Estimated annual subsidies for irrigation in Egypt	Raphaeli, 2004	5
Annual "sales aid" supporting production of hard coal in Germany	Storchmann, 2005	3
Annual Central Government subsidies to support fertilizer use in India, crop year 2004-05	Govt. of India, 2004	3
Annual subsidies for electricity in Iran	IranMania, 2006	2
Annual tobacco subsidies provided by the EU, 2003	www.epha.orga/a/1556	1

Source: OECD.[37]

Estimating the value of subsidies

There are different definitions of subsidies that lead to various approaches to calculating financial values:[38]

1. Financial transfers from the State to private or public entities, including both:
   - Subsidies - payment from a public entity to the beneficiary.
   - Tax credits - waiver of a monetary transfer from a private entity.

2. Government actions granting an advantage in the form of income or forgiven cost (OECD, 2005), i.e. Definition 1 plus:
   - The value of regulatory advantages.
   - The benefit from non-application or partial application of regulations.

3. Difference between the observed market price and the marginal social cost of production (TEEB, 2009),[39] i.e. Definition 1 and 2, plus:
   - implicit subsidies (values of externalities).

An inclusive definition of a subsidy is preferable for BIOFIN assessments. However, it should be noted that the 3rd definition cannot be applied effectively without detailed economic studies that value externalities.

Impacts of subsidies on biodiversity

There are a wide variety of ways subsidies can have a positive or negative impact on biodiversity and ecosystems depending on how they are designed and implemented. Positive environmental impacts from subsidies can 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.

Economists define "perverse subsidies" as those that are uneconomical—that is they destroy economic value. 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".[40] For the case of environmentally perverse subsidies, this would mean that the negative economic costs of the environmental harm (including externalities, see Box 1.3) outweighs the positive social and financial impact of the subsidy.

From the public budget standpoint all government subsidies use public funds. Most economists consider a subsidy unsuccessful if it fails to improve the overall economy. Policymakers, however, might still consider it a success if it helps achieve a specific social objective. Regardless of effectiveness, once a private company or interest group benefits from a subsidy, they often lobby hard to maintain these benefits. As such, elimination of a specific subsidy often faces socio-political challenges.

Therefore, BIOFIN promotes selection of appropriate approaches to address biodiversity-harmful subsidies, such as:

- Greening, which retains the payment structure of the subsidy, but adjusts the purpose/ conditions/ incentives attached to the payment to produce a better result for the natural environment. If a subsidy is reformed in this way the pre-existing transfer mechanism is

not eliminated. Once the harmful criteria are reformed, a biodiversity-harmful subsidy can be transformed into a biodiversity neutral or positive subsidy;

- Reducing, which can lessen biodiversity-harmful incentives and also save significant public funds. For example, a 5 per cent reduction in a large subsidy can help save millions of US dollars; and

- Eliminating, where subsidies are scrapped entirely.

Biodiversity-supportive subsidies can be listed in the table on finance solutions and in the list of subsidies. Biodiversity-harmful (or potentially harmful) subsidies can also be recorded in the list of subsidies. For BIOFIN, it is also important to assess existing green subsidies in order to determine how effective they are and how they might be scalable or sustainable in the long term.

Table 4.5 shows the information to record in the list of subsidies. An example of subsidy reform is provided in Box 4.8.

TABLE 4.5: 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
Annual amount	Financial value of the subsidy
Description - intended objective and beneficiaries	Describe the main objectives of the subsidy and who are the beneficiaries of this subsidy
Benefits (social, environmental, economic)	Describe the different benefit 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)

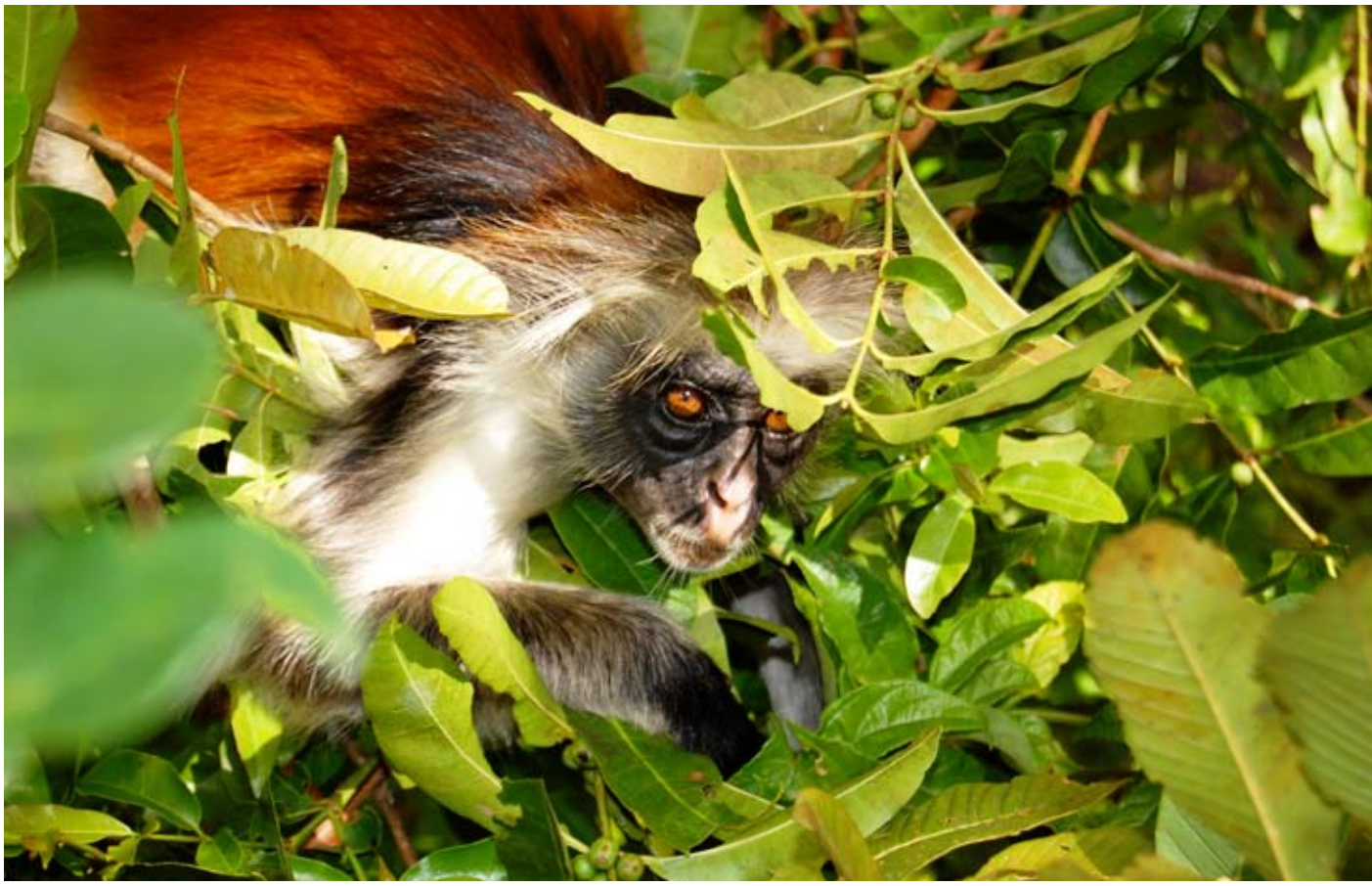
BOX 4.8: REFORMING HARMFUL RICE SUBSIDIES-SRI LANKA

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, but supports the livelihoods of many paddy farmers and is considered an assurance over food security. The subsidy cost 2.24 per cent 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) supports ecological agriculture also 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 was reduced by almost 50 per cent.

Weerahewa, J., and others (2010) Case study #7-11, The Fertilizer Subsidy Program in Sri Lanka. In: per Pinstrup-Andersen and Fuzhi Cheng (eds.), Food Policy for Developing Countries: Case Studies. Available from: http://cip.cornell.edu/dns.gfs/1289505412.



Step 4.4E: Inventory of biodiversity finance solutions

The previous and following steps of this policy and institutional review will help to identify existing biodiversity finance solutions, including fiscal instruments and incentives impacting biodiversity from which further potential solutions could be developed. An inventory of current solutions, that is as comprehensive as possible, should be compiled. This can be prepared based on reviewing identified national reports, project reports, and other studies, and through BIOFIN workshops and experts' interviews, as well as all national BIOFIN work to date.

The inventory should include all current financial solutions regardless of their current effectiveness or future potential. Solutions should be named and described in detail. For example, countries should avoid listing Payment for Ecosystem Services (PES) as a solution but should instead describe what kind of PES programme it is and where it is located. Information will be collected in the format shown below in Table 4.6.

TABLE 4.6: EXAMPLE OF THE INVENTORY OF BIODIVERSITY FINANCE SOLUTIONS

Heading	Description
Name	Actual name of the solution. Example: Mexico National Water PES programme
Solution	BIOFIN catalogue solution name. Example: PES/Water
Result	Select: generate revenues, realign expenditures, avoid future expenditures, and better delivery
Description	Brief description of the solution and how it functions
Source category	Select: Government (level), private firm, project developer, national/local/int. NGO, national/int. 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
Responsible Party	Organization(s) playing a major role. Example: trust fund manager
Recipients	Organization(s), group(s), company(s) to whom the resources are transferred / benefit from increased income
Financial Data	Assets, income, expenditure, and savings. Estimate past/current/future financial resources that can be mobilized for biodiversity
Law	Legislative/regulatory act upon which the solution is based
Gaps	Known gaps and/or challenges
Opportunity	Opportunity(s) for improvement and scale-up.
Sector	Select sector(s).
Notes	References and Information not captured elsewhere.

BIOFIN has developed a BIOFIN Finance Solutions Catalogue that is continually updated.[41] It can be used in this assessment to assist with building the inventory of biodiversity finance solutions through providing detailed examples of a very wide range of solutions. Additional information on finance solutions can be accessed via the online platform "Finance solutions for sustainable development"[42] produced by UNDP.

Step 4.5: Institutional Analysis

This Step provides guidance on carrying out institutional analysis, through three sub-steps:

- Step 4.5A: List all main stakeholders and decision makers
- Step 4.5B: Prioritize stakeholders and decision makers
- Step 4.5C: Evaluate priority organizations

Step 4.5A: List all main stakeholders and decision makers

Building on the stakeholder engagement planning from Step 3.3, further stakeholders are likely to have been identified during the PIR. All the main stakeholders and decision makers should be listed in a table, best filled out as other sections of the PIR are implemented.

This will result in a comprehensive list of organizations, agencies, ministries, companies, etc. that were found to be associated with all of the various biodiversity finance aspects identified and evaluated. This list should be complemented by adding any additional organizations that may have not been included because they are multi-sectoral, donors, industry associations, chambers of commerce, etc.

The list should record the type of organization (see below); whether they are public or private sector, or civil society; and whether they are relevant to overall biodiversity finance planning/ multiple finance solutions (e.g. ministry of finance) or only specific biodiversity finance solutions.

Stakeholders should be classified as one of the following:

- Federal Governments
- State Governments
- Local Governments
- 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
- Households
- Other Public
- Other

Step 4.5B: Prioritize decision makers and other stakeholders

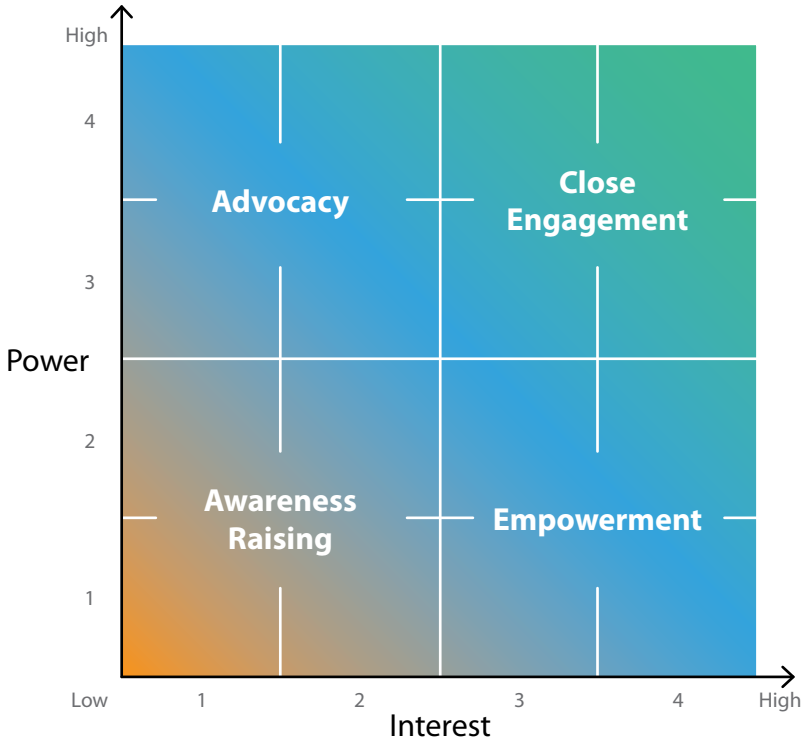
In many countries, the list of potential and existing biodiversity finance stakeholders and decision makers will be unmanageably large. The objective of the Policy and Institutional Review is to focus on the most important sectors that drive biodiversity change and identify the most important related organizations. Prioritizing these organizations is essential to focus on those who have or could have a major role in any of the four BIOFIN types of biodiversity finance solutions (see Chapter 1):

- Mobilizing further resources;
- Realigning existing resources;
- Preventing future costs; and
- Improving delivery of existing finance.

The description of each organization identified in this process should at least include their mandate, organizational affiliation, and specific association with biodiversity. Prioritization should use this information to identify those organizations that have the most relevance for biodiversity finance, and that should be included in the additional assessments and plans developed by the BIOFIN process. One such process for evaluating a range of stakeholders is to use the widely published power/interest matrix (see Figure 4.5).

Organizations are assessed on two parameters – how much power do they have to enact change in biodiversity finance (scale of 1-4) and how much interest do they have (1-4). By combining these two variables, each organization can be placed on the matrix and a specific strategy can be built around how to work with them. For those organizations that fall into the top right – close engagement – it is clear that they should be prioritized for BIOFIN assessments. Some of the other categories will contain important organizations to include in assessments. This analysis should not be considered a definitive prioritization exercise, but more of a means to elaborate and target a stakeholder engagement plan.

FIGURE 4.5: FROM THE POVERTY-ENVIRONMENT INITIATIVE (PEI) HANDBOOK[43]



The results of this prioritization can be used to order the stakeholders listed in the table from Step 4.5A. For the most important stakeholders, a summary of the key reasons for their prioritization can also be added to this table. Though for the most part the same institutions will be prioritized for the BER, FNA and the Biodiversity Finance Plan, it should be borne in mind that different organizations may have a different priority level for each one of these analyses. This can also be noted in the summary table.

Step 4.5C: Evaluate priority stakeholders

Once stakeholders have been prioritized, a few selected high priority ("close engagement") organizations can be evaluated in greater detail. Priority organizations should be evaluated in terms of:

- The **effectiveness of an organization**. This depends on a range of issues and can include questions of coordination with other entities, efficiency, cost effectiveness, and more. One approach to exploring organizational effectiveness is to conduct a capacity assessment. Where possible existing reports and studies should be used that have assessed operational and financial capacity. 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. Extremely detailed capacity assessments are generally beyond the scope of most BIOFIN implementations, but there may be one or two key institutions where it is essential to understand opportunities for biodiversity finance.

- **Institutional arrangements**. These should be described in terms of how existing biodiversity finance solution(s) associated with an organization currently function. This can lead to recommendations on how to make the case for this finance solution to be scaled up, and/or its effectiveness improved.

- **Associated finance solutions**. For each priority organization, associated finance solutions, instruments and functions should be described. Once a list is prepared for each priority organization, these finance solutions should also be added to the main PIR list of finance solutions.

Analysis of the priority organizations can be recorded under Headings shown in Table 4.7.

TABLE 4.7: SUMMARY OF PRIORITY STAKEHOLDERS FOR BIODIVERSITY FINANCE

Headings	Description
Stakeholder/Institution	Name of the stakeholder/institution
Description	Describe the stakeholder/institution
Main Relation to Biodiversity Finance or Drivers/Mandate related to Biodiversity	Describe how the stakeholder/institution is related to biodiversity finance
Organizational effectiveness	Describe efficiency, capacity and coordination activities.
Biodiversity Finance Capacity	Describe the stakeholder/institution capacity to have finance results (generate revenues, deliver better, avoid future expenditures, realign expenditures) for biodiversity finance
Associated Finance Solutions	Describe which finance solutions affecting biodiversity areas related to the stakeholder / institution

4.3 Summarize and communicate policy and institutional recommendations

In this final Section of the PIR, a summary of all the main results of each Step will be prepared and presented as part of a comprehensive written report (see outline below). More importantly, detailed policy and institutional recommendations will be developed based on the analysis, validated and improved through consultations with stakeholders, and presented in a detailed analytical report. The main conclusions and detailed recommendations should be written as stand-alone results from the review and also will be used as a background assessment for the other BIOFIN assessments and the Biodiversity Finance Plan. Recommendations should be as detailed as possible, citing legislation, policies, organizations, and sectors, and actionable, providing specific options for correcting or improving a situation.

In addition to the main report, it is recommended that a policy brief is prepared with the main conclusions and recommendations. Communicating the results and especially the recommendations is an important element of completing the PIR. The main report and in the policy brief should make clear who the target reader is, and where possible the reports should be presented as part of broader communication campaigns on finance for sustainable biodiversity and ecosystem service management. See Chapter 3 for more guidance on communication.

The following is a possible outline of a PIR Report:

1. Executive Summary – including key Sector findings and Recommendations for policymakers (3-5 pages)

2. Introduction (1-2 pages)

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

3. Biodiversity vision, strategies, and trends (2-4 pages)

   - Summarizing visions and strategies from the revised NBSAP, the 4th and/or 5th National Report.
   - Key national visions of biodiversity status and trends, and their links to national biodiversity goals and strategies.
   - National development plans, green growth plants etc.
   - Synthesize the contribution of biodiversity/ecosystem services towards sustainable development.
   - Biodiversity trends.

4. Economic Drivers and Sectoral linkages (4-8 pages)

   - This section will take an economic approach to understanding the drivers of biodiversity change, positive and negative.
   - Describe sectoral dependencies, impacts, risks and opportunities.
   - Include a description of the specific sectoral practices impacting biodiversity trends and uncover the economic and financial drivers for sector specific and general practices.
   - Cite existing economic, fiscal policy, and other studies and cite how nature contributes to current GDP (and green GDP when available).
   - A summary of the availability of economic valuation evidence for the country, subdivided by sectors, ecosystems and households/communities/businesses whose value are affected.

5. The Biodiversity Finance Landscape (8–15 pages)

   - Detailed review of the National and State Budget Process and major government subsidies that could be having a harmful impact on biodiversity. The focus on these two finance solutions is based on their importance on improving government expenditure on biodiversity.
   - Identification of biodiversity-dependent revenues, at least within the public sector and qualitatively estimated for the private sector.
   - A brief gap analysis of the legal framework for finance solutions (the constitution, national legislation, national plans, sectoral policies and specific policies and regulations.
   - A description of key national entry points, including a rationale for their selection, and the associated agencies and organizations for each entry point.
   - Summary of biodiversity finance solutions identified in the country.

6. Institutional Analysis (4-7 pages).

- Institutional roles and responsibilities - Include a graph + description of institutional arrangements between and among the institutions responsible for biodiversity-related finance.
- Biodiversity finance-related capacities and needs per priority organization.
- Summary table of prioritization results.

7. Summary of key recommendations (3-5 pages)

- Overall conclusions and recommendations/national level barrier analysis organized by sectors.
- Legal and policy recommendations.
- Changes in sectoral policies and practices that would help reduce biodiversity loss, and/or that could improve biodiversity finance.
- Institutional/organizational and capacity development recommendations.
- Opportunities for improvements in the budgeting and planning process.

Technical Appendices can contain further detail, including from the:

8. Biodiversity Finance 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.

Ecosystem Services Finance and SDGs - South Africa

A forthcoming publication,[44] gives an example of a business case for biodiversity finance, linking ecosystem services and sustainable development in South Africa and giving a multi-sectoral approach for investments to achieve economic and socio-ecological priorities. For example, the 2013 National Water Resources Strategy explicitly recognizes the value of ecosystem services for water security. It articulates policy objectives focused on investment in the rehabilitation and maintenance of water-related ecosystems, particularly in strategic water source areas.

South Africa's National Development Plan includes objectives that directly relate to the SDGs. Since public resources are limited, it is necessary that investments generate a high return in terms of social, economic, and environmental values and should maximize the achievements across multiple development goals. Ecosystem services are shown to contribute 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, intact rangelands for sustainable grazing are also important for local poverty alleviation and improving water quality by providing a filtering service. Another example is the Working for Water (WfW) programme which employs on average 9,000 people/yr (SDG 8), strives to address gender equality (SDG 5) and aims to reduce inequality within the country (SDG 10)—while also eradicating invasive alien species. Climate change adaptation and mitigation (SDG 13) is shown to be highly linked to biodiversity conservation and partnering with finance stakeholders such as the Global Climate Fund expands finance options for biodiversity.

Case Study: The Nature Conservancy Conservation Notes

The Nature Conservancy (TNC or the "Conservancy") developed Conservation Notes (the "Notes") as part of an institutional strategy to broaden support for the Conservancy among a growing market of impact investors. They helped The Nature Conservancy diversify its capital sources while providing a new impact investment vehicle to foundations and other investors.

Research released in 2010 by Hope Consulting suggested that there was more than US$100 billion of capital within individual high-net-worth households looking to invest for impact. The Conservation Notes, which are a retail investment-grade vehicle, are specifically targeted at high-net-worth individuals with an interest in conservation. The Conservancy issued US$25 million of Conservation Notes in early 2012. This was the first investment-grade retail product focused on conservation. Structured as general obligation debt of the Conservancy, the Notes carry an Aa2 rating from Moody's ratings service.

The Notes were sold directly and were accessible to only a small segment of the retail investor market; nevertheless, the offering was fully subscribed in less than a year. Proceeds from the Notes have been used to support Conservancy projects, primarily as bridge capital for land acquisitions or for conservation easement purposes in the United States. To date, the Notes' proceeds have supported 105 projects and facilitated the conservation of more than 500,000 acres (over 200,000 hectares) of land.

As a model for attracting retail investors, Conservation Notes offer a few critical attributes:

- A creditworthy counterparty: investors have specifically pointed to the Conservancy's Aa2 rating on the Notes as an attractive part of the offering.
- High-impact use of proceeds: investors receive an annual Impact Report that details how proceeds have been used. All projects are focused on achieving the Conservancy's mission.
- Shorter-duration terms: that suit different investors' needs.

Source: Nature Vest and EKO (2014).[45]

Endnotes

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

2 Examples: UNDP (2012). Climate Public Expenditure and Institutional Reviews (CPEIRs): Approaches and Lessons Learned. Available from: https://www.oecd.org/env/cc/UNDP%20-%20BBB%20Doha%20side%20event%20-%20CPEIR.pdf.

3 Berndes G., and others (2011). Bioenergy, land use change and climate change mitigation. Available from: http://www.ieabioenergy.com/wp-content/uploads/2013/10/Bioenergy-Land-Use-Change-and-Climate-Change-Mitigation-Background-Technical-Report.pdf.

4 Food and Agriculture Organization (FAO) (2013). Fire Management Working Papers. Available from: http://www.fao.org/docrep/018/ar053e/ar053e.pdf.

5 Pant, D. and M. Samad (2010). Synthesis of IWMI work in Nepal. Colombo, Sri Lanka: International Water Management Institute. IWMI Working Paper 138. Available from: http://www.iwmi.cgiar.org/publications/iwmi-working-papers/iwmi-working-paper-138/.

6 Albrecht J., and others (2014). The German Impact-Mitigation Regulation. Environmental Policy and Law, Vol. 44, no. 3.

7 Bitrán R., and others (2010). Review of World Bank's Experience with Country-level Health System Analysis. Available from: http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/ReviewofWorldBanksExperiencewithCountryLevelHealthSystemAnalysis.pdf.

8 Swiderska K., and others (2008). The Governance of Nature and the Nature of Governance: Policy that works for biodiversity and livelihoods. International Institute for Environment and Development. Available from: http://pubs.iied.org/pdfs/14564IIED.pdf.

9 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (2013). National laws for implementing the Convention. Available from: https://cites.org/eng/legislation.

10 RAMSAR (2014). The wise use of wetlands. Available from: http://www.ramsar.org/about/the-wise-use-of-wetlands.

11 United Nations Environment Programme (UNEP) (1999). Convention on the Conservation of Migratory Species of Wild Animals: Strategic Plan for the Convention of Migratory Species. Available from: http://www.cms.int/sites/default/files/document/Res6.04_E_0_0.pdf.

12 United Nations Convention to Combat Desertification (UNCCD) (2012). United Nations Convention to Combat Desertification. Available from: http://www.unccd.int/en/Pages/default.aspx.

13 United Nations Framework on Convention of Climate Change (UNFCC) (2014). National Adaptation Programmes of Action (NAPAs).] Available from: http://unfccc.int/national_reports/napa/items/2719.php.

14 Available from: https://www.cbd.int/doc/world/za/za-nbsap-v2-en.pdf.

15 Availablefrom: http://www.gov.za/issues/national-development-plan-2030.

16 Artificial Intelligence for Ecosystem Services (ARIES). See http://aries.integratedmodelling.org/ and ARIES publications: http://aries.integratedmodelling.org/?page_id=546.

17 Integrated valuation of ecosystem services and tradeoffs (InVEST). See http://www.naturalcapitalproject.org/invest/.

18 UK National Ecosystem Assessment Follow-on (UKNEA FO) (2014). UK National Ecosystem Assessment Follow-on: Synthesis of key findings. Available from: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx.

19 Hanson, C. and others (2012). The Corporate Ecosystem Services Review: Guidelines for Identifying Business Risks and Opportunities Arising from Ecosystem Change. WRI, Meridian Institute and WBCSD. Available from: http://www.wri.org/sites/default/files/corporate_ecosystem_services_review_1.pdf.

20 Natural Capital Coalition (2016). Natural Capital. Available from: http://naturalcapitalcoalition.org/natural-capital/.

21 e.g. Common International Classification of Ecosystem Services: http://cices.eu/.

22 Ozdemiroglu, E. and Hails R. (eds) (2016). Demystifying Economic Valuation. Valuing Nature Paper VNP04. Available from: http://assets.worldwildlife.org/publications/921/files/original/VNN-Demystifying_Economic_Valuation-Paper.pdf?1470335837.

23 A technique that takes a value determined in one context and applies it to another context. Where contexts are similar or appropriate adjustments are made to account for differences, value transfer can provide reasonable estimates of value, see eftec (2009). Valuing Environmental Impacts: Practical Guidelines for the Use of Value Transfer in Policy and Project Appraisal. Available from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/182376/vt-guidelines.pdf.

24 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem (IPBES) (2013). Decision IPBES-2/4: Conceptual framework for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Available from: http://www.ipbes.net/sites/default/files/downloads/Decision%20IPBES_2_4.pdf

25 See for example Wood, A. and others (eds.) (2000). The Root Causes of Biodiversity Loss. London: WWF and Earthscan.

26 See for example Maxim, R. and others (2009. An analysis of risks for biodiversity under the DPSIR framework. Ecological Economics 69(1):12-23. Available from: https://www.researchgate.net/publication/222918383_An_analysis_of_risks_for_biodiversity_under_the_DPSIR_framework

27 This is also one objective of the BER and FNA.

28 Flores, M., and A. Bovarnick(2016). Guide to Improving the Budget and Funding of National Protected Area Systems: Lessons from Chile, Guatemala and Perú. UNDP. Available from: http://www.latinamerica.undp.org/content/rblac/en/home/library/poverty/guide-to-improving-the-budget-and-funding-of-national-protected-/

29 Williamson, T. 2011 Reforms to Budget Formulation in Uganda: The challenges of building and maintaining and a credible process, Overseas Development Institute (ODI), London.

30 UNDP and UNEP (2015). Mainstreaming Environment and Climate for Poverty Reduction and Sustainable Development: A Handbook to Strengthen Planning and Budgeting Processes. UNDP-UNEP Poverty-Environment Initiative. Available from: http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/mainstreaming-environment-and-climate-for-poverty-reduction-and-.html

31 IMF (n.d.) Budget Preparation. Available from: https://www.imf.org/external/pubs/ft/expend/guide3.htm

32 Williamson, T. 2011 Reforms to Budget Formulation in Uganda: The challenges of building and maintaining and a credible process, Overseas Development Institute (ODI), London.

33 The nature of revenues from PES is complex, as a standard broad definition of PES (a system for provision of environmental services through conditional payments to voluntary providers) covers a range of finance flows. A PES will be a cost to the buyer and source of revenue to the seller. Governments and public agencies, and private and third sector stakeholders can be both buyers and sellers, so revenues can accrue to each of them and be identified in the list of revenues.

34 OECD (2005). Environmentally Harmful Subsidies: Challenges for Reform. OECD Publications: Paris. Available from: http://www.oecd.org/tad/fisheries/environmentallyharmfulsubsidieschallengesforreform.htm?_sm_au_=iqVF4vT022Z302T6

35 Adapted from (TEEB) (2009) The Economics of Ecosystems and Biodiversity TEEB for National and International Policy Makers, Chapter 6: Reforming subsidies. Available from: http://img.teebweb.org/wp-content/uploads/Study%20and%20Reports/Reports/National%20and%20International%20Policy%20Making/TEEB%20for%20National%20Policy%20Makers%20report/TEEB%20for%20National.pdf

36 TEEB (2009). TEEB for National and International Policy Makers – Summary: Responding to the Value of Nature 2009. Available from: http://www.teebweb.org/publication/teeb-for-policy-makers-summary-responding-to-the-value-of-nature/

37 OECD (2007). Subsidy Reform and Sustainable Development. Available from: https://www.cbd.int/financial/fiscalenviron/g-subsidyreform-oecd.pdf

38 Adapted from Centre d analyse stratégique (2012). Public Incentives that harm Biodiversity: Summary. Available from: https://www.cbd.int/doc/strategic-plan/2011-2020/summary_biodiversite_traduction_en_01032012.pdf

39 TEEB (2009).

40 Meyers C., and others (n.d.). Environmental Harmful Subsidies – A Threat to Biodiversity. Available from: http://www.dnr.de/downloads/bodiversitysummaryen.pdf

41 See: http://www.biodiversityfinance.net/home

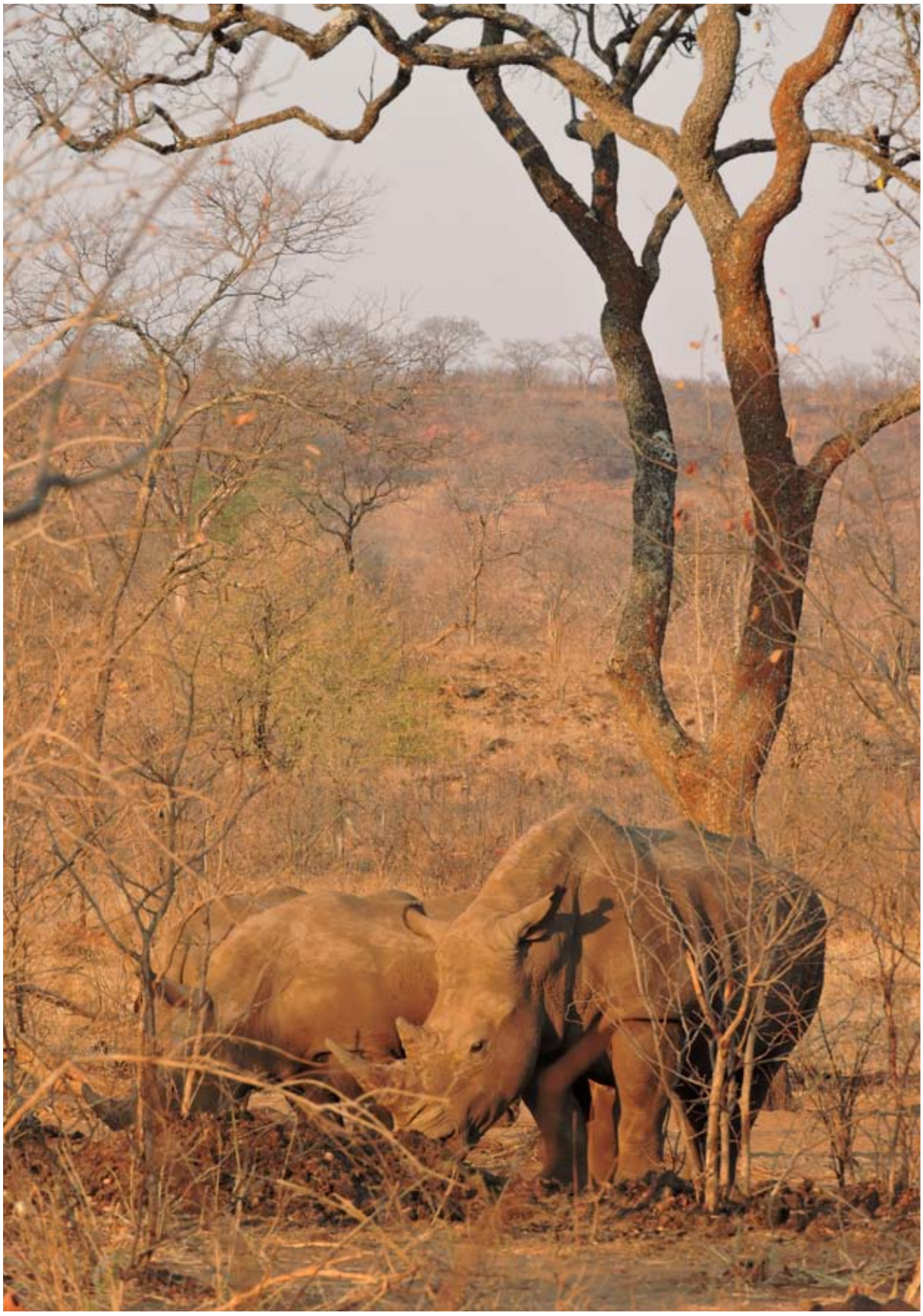
42 See: http://www.undp.org/content/sdfinance/en/home/how-to-use-this-toolkit/

43 UNDP-UNEP Poverty-Environment Initiative (2015). Mainstreaming Environment and Climate for Poverty Reduction and Sustainable Development: A Handbook to Strengthen Planning and Budgeting Processes. Annex A. Available from: http://www.unpei.org/sites/default/files/publications/PEI%20handbook-low%20res.pdf

44 Cumming, T and others. (In Review). Towards achieving the South African national development agenda and the Sustainable Development Goals (SDGs) through investment in ecological infrastructure.

45 Nature Vest and EKO (2014). Investing in Conservation: A landscape assessment of an emerging market. Available from: https://www.jpmorganchase.com/corporate/Corporate-Responsibility/document/InvestingInConservation_Report_r2.pdf

5 THE BIODIVERSITY EXPENDITURE REVIEW



5.1 Introduction

This chapter provides in-depth guidance on undertaking a Biodiversity Expenditure Review (BER). The BER described in this chapter builds on extensive experience of public expenditure reviews across many policy areas. It considers expenditures by a wide range of actors and stakeholders as well as the public sector, including the private sector, donors, NGOs and other civil society actors. It reflects the multiple-dimensions of biodiversity issues by allowing partial inclusion of expenditures that are indirectly targeting biodiversity. It also focuses on a range of key natural resource sectors – forestry, fisheries, agriculture, mining, water, etc. (sectors prioritized in the PIR), and supports the CBD financial reporting agenda.

The BIOFIN BER definition of a "biodiversity expenditure" is any expenditure whose purpose is to have a positive impact or to reduce or eliminate pressures on biodiversity, broadly defined. These biodiversity expenditures include direct expenditures that have biodiversity as their "primary purpose" as well as indirect expenditures.[1]

The chapter is divided into three sections: Section 5.1 covers the aims and objectives, main concepts, expected outputs and links to other chapters of the Workbook; Section 5.2 describes the detailed steps in the BER methodology and the associated guidance; Section 5.3, provides guidance on developing and communicating conclusions and recommendations and communicating the results.

5.1.1. Aims and Objectives

The aim of the Biodiversity Expenditure Review 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. It should cover:

- **Spending Basics:** Who spends money, how much do they spend, and what do they spend it on – establishing a "business as usual" situation upon which to build a Biodiversity Finance Plan.
- **Biodiversity Categories:** What are the concentration patterns for spending within biodiversity categories, NBSAP targets and other key strategies.
- **Policy Alignment:** Is spending aligned with stated government policies and priorities? Which thematic areas are the better financed and why? How does financing compare to these sectors' contribution to GDP? How does spending on biodiversity compare to spending on other sectors/objectives? Are there allocations that do not fit with stated government priorities?
- **Delivery Patterns:** Is all the money that is budgeted being allocated? Has all the money that has been allocated been disbursed and spent? If not, why? Are there barriers for spending allocated budgets? What opportunities exist for integrating biodiversity more effectively into the budgeting processes?
- **Financing Sources and Solutions:** Are there opportunities to for improved efficiency of biodiversity financing?

- **Future Spending:** What biodiversity expenditure trends and data can be identified to predict future spending? How do these projections compare to future expected biodiversity financing needs in Chapter 6 – the FNA?

- **Business Case:** How can we use the information in the BER to make a better business case?

The outputs of the BER should be in the form of a comprehensive report supported by policy briefs that will answer the above questions, helping policymakers understand the general trends in biodiversity expenditures and their future consequences.

5.1.2. Main BER concepts

An expenditure review[2] is a standard diagnostic tool used across many sectors to help understand how much money is spent within a specific sector, whether budgets and expenditures are aligned with national policy priorities, and what outcomes the expenditures have achieved. Expenditure reviews are traditionally focused entirely on the public sector (see Box 5.1). They aim to understand sector-specific budgets and expenditures, analyse the budget and expenditure of important organizations within each sector, and gather some indication of the effectiveness or outcome of expenditures (e.g. World Bank, 2014).[3]

A Biodiversity Expenditure Review is interested in all types of expenditure contributing to sustainable biodiversity management including private sector spending in addition to public spending, and also spending by international organizations, and national civil society. It can generate national level cumulative expenditure figures which are useful for biodiversity policy and management planning purposes and can be used for CBD reporting.

The incentives for private sector involvement in the BER are distinct from those of the public sector and many private companies are reluctant to share data on budgets and operations. One incentive for the private sector to share data with the BIOFIN process is when they gain an understanding of the biodiversity and ecosystem resources they are dependent on or affect-

ing. Identifying private business' spending to manage these resources helps generate public support for protecting them, and can inform supply chain management, risk management and business opportunities. Engaging with private companies for biodiversity expenditure data 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 in general. Collecting private sector data is discussed further in Step 5.3.

BOX 5.1: PUBLIC EXPENDITURE REVIEWS IN OTHER SECTORS

A public expenditure review in the health sector in Indonesia focused on the desired health outcomes in the country, the existing health care delivery system, the 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 (World Bank, 2008).[4]

Public expenditure reviews for other sectors that were undertaken include those for climate (e.g., Bird et al., 2011[5]); poverty eradication (e.g., Kazoora, 2013[6]); education (e.g., World Bank and Australian Aid, 2012[7]) and the environment (e.g., MEA, 2013[8]). Expenditure reviews 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 to which the Biodiversity Expenditure Review will cover sub-national expenditures (e.g. state, province, local/municipal biodiversity expenditures). In some countries, a significant proportion of national public budgets are distributed through sub-national budgets and expenditures. Also, sub-national budgets and expenditures require attention because of their critical role in the implementation of site-based programmes. These will either require transfer payments from national government to sub-national budgets (as in the case of South Africa), and/ or involve direct contributions from sub-national government. Site-based (e.g. park entrance fees) revenues and expenditures should also be reported.

The BER process and attribution approach can ultimately be used to assist with the development of biodiversity tracking in budgets and expenditures. The tracking or tagging of biodiversity expenditures offers one valuable long term outcome of the BIOFIN process for countries as they can consistently record and track the amount of money that is being spent on biodiversity over time (See Section 5.2).

Expenditure reviews must be grounded in a background of macroeconomic and fiscal information in each country. The BER should use measures such as Gross Domestic Product (GDP), real GDP growth and inflation, sectoral jobs and sector contributions to GDP, government budgets as a per cent of GDP, among others,[9] as inputs. The BER also compares initial budgets with allocations and actual expenditures to determine whether planned budgets are actually disbursed as expenditures, both within sectors and by spending bodies or actors. Ultimately the analysis derived from the BER, together with other BIOFIN results, can be used to measure fiscal sustainability, policy alignment, efficiency and effectiveness, all of which are important inputs to making the business case for biodiversity finance as described in Chapter 7.

Biodiversity Finance Solution: Ecological Fiscal Transfers

Ecological fiscal transfers are fiscal transfers, usually from the central government to sub-national government, according to specified ecological principles and priorities. These make conservation indices (e.g. size/quality of protected areas) part of the fiscal allocation formula. Doing so rewards local investments in conservation and incentivizes the expansion of protected areas - states or provinces with more protected areas receive more funds.

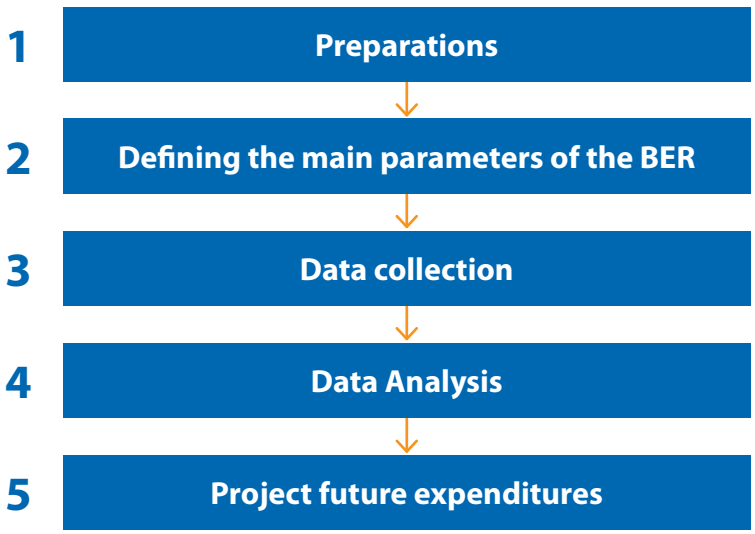
Example: Ecological fiscal transfers have been applied in a number of countries, with Brazil being one of the most advanced examples. Starting in the 1990s, 5 per cent of municipal tax allocations are determined by biodiversity conservation areas (2.5 per cent) and watershed protection (2.5 per cent). In 2009, this amounted to funding allocations of US$70 million.

See: http://www.undp.org/content/sdfinance/en/home/solutions/ecological-fiscal-transfer.html
https://www.cbd.int/financial/fiscalenviron/brazil-fiscalicms.pdf.

5.1.3. The BER Process

The overall 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 finally, projection of future expenditures (Figure 5.1).

FIGURE 5.1: THE BIODIVERSITY EXPENDITURE REVIEW PROCESS



5.1.4. Links to Other Chapters

The results of the Biodiversity Expenditure Review help decision makers and other stakeholders understand how much is being spent on sustainable biodiversity management. The Biodiversity Finance Policy and Institutional Review (Chapter 4) will have identified priority private, public and civil society organizations to include in the BER. The BER then determines to what extent their budgets and expenditures are aligned with national biodiversity priorities.

It inputs to other chapters in the national BIOFIN process in two ways. First, upon completion of the PIR and BER, there will be 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 the Financial Needs Assessment (FNA, Chapter 6) can be compared to establish the biodiversity finance gap which is an important element for the Biodiversity Finance Plan (BFP, Chapter 7).

Second, the BER also helps identify potential areas for environmental fiscal reform and areas where expenditure may not be in alignment with national visions and strategies. Biodiversity finance solutions can then be developed to support these reforms or realignments in the BFP (Chapter 7).

5.2 BER Implementation Steps

This section presents the preparation phase and five technical implementation steps for the BER. The implementation sequence may be adapted based on need and some steps can occur in parallel.

Step 5.1 Preparations – this includes developing a stakeholder consultation plan, identifying key stakeholders (including the "client" for the BER), defining the scope of the analysis, identifying key data sources, and developing a data management system.

Step 5.2 Defining the main parameters of the BER – this includes: A. clarifying the definition of "biodiversity expenditures" being applied; B. establishing a system for classification and attribution of direct and indirect expenditures (using coefficients); and C. establishing a tagging system to align the BER with national biodiversity targets and the Financial Needs Assessment.

- 5.2A: Definition of biodiversity expenditure;
- 5.2B: Classification of biodiversity expenditures; and
- 5.2C: Attribution of expenditures

Step 5.3 Gather Data – this entails identifying and collecting data from public, private, and civil society organizations and other data sources.

Step 5.4 Data Analysis – this includes analysis of macroeconomic issues and their relation to biodiversity expenditure as well as reviews of spending patterns of main organizations and sectors involved in biodiversity finance.

- Step 5.4A: Putting biodiversity expenditure in national context.
- Step 5.4B: Determine how effectively budgets are turned into expenditures.
- Step 5.4C: Identify trends in expenditure.

Step 5.5 Future Expenditure Projections – this includes an analysis of major future trends likely to be observed in biodiversity expenditures for each priority organization, taking into consideration key assumptions (such as predicted inflation, GDP growth, etc.) that could affect future expenditures.

This chapter concludes with guidance on reporting to targeted stakeholders and decision makers.

Step 5.1: Preparations

In the preparation stage of the BER, it is useful to update and revise the stakeholder consultation plan that was initially developed as part of the Policy and Institutional Review (Chapter 4). Principal stakeholders and decision makers for the BER will be those individuals and organizations that have the greatest "power" in the power/interest matrix and/or those with greatest influence on public and private sector biodiversity budget processes, allocations and expenditures. The main stakeholders and key decisionmakers may be in the BIOFIN Steering Committee, the ministry of finance, the ministry of environment and/or other key ministries, and national statistics departments,[10] but can also include the private sector and civil society such as donors, large NGOs, and some private companies or developers. One or several of these key decision makers can be identified as the "client" for the BER – those who will have the greatest interest in the results and recommendations – and attention should be paid to ensuring that their interests and questions are included in the analysis and conclusions.

The aim of the scoping process is to build products that are targeted to both the main stakeholders and key decisionmakers and will generate the greatest possible ownership and impact among them. Some scoping issues to resolve include dates to cover, organizations to include (especially private sector), the level of detail possible for classification and attribution, etc. 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, it is possible that the time period analysed may need to be altered due to lack of data from key organizations. The CBD's guidance for financial reporting and resource mobilization requests data collection from 2006 until the present and this is the ideal time period for BIOFIN for that reason. However, the BIOFIN process does not require that length of time for the analysis to be valuable. The appropriate timescale to analyse may depend on national circumstances (e.g. the timing of budget cycles) as identified in the PIR (Chapter 4). 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.

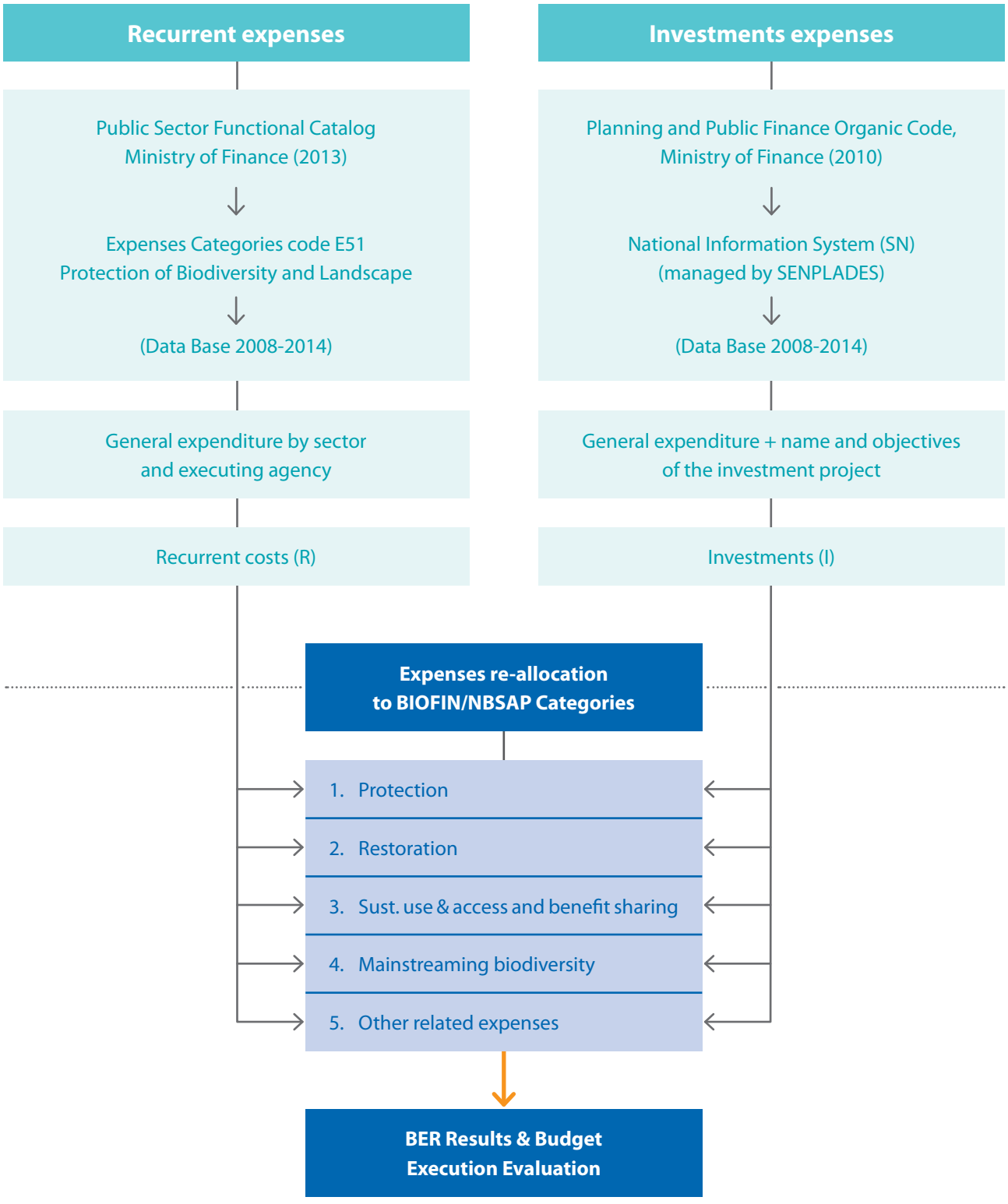
Throughout the preparation phase the team should make reference to the PIR and draw on experiences from Public/Private Expenditure Reviews previously conducted in the country, or in similar countries. In addition, it is advised to learn from expenditure reviews in other thematic areas like climate change, poverty, health or education. A scan of the data availability, consistency, and the level of detail is required, with the main stakeholders providing useful leads in the process. It should be evident if there are detailed public data on results or programme-based expenditures or if budgets are only associated with "agencies" or organizations (see below for the implications).

Once the framework and the targets of the analysis are identified, it is valuable to plan a consultative meeting to validate the scope and to build consensus on the definition of biodiversity expenditures, the tagging system and the attribution coefficients for expenditures that are only partially attributable to biodiversity. The meeting can also cover how the data will be retrieved from both public and private institutions, and resolve any sensitive data confidentiality issues.

An example of an effective scoping exercise from Ecuador is presented in Figure 5.2, showing the breakdown of recurrent and investment expenses (or expenditures), how the expenditures will be categorized (tagged), the dates for data acquisition and more details.

FIGURE 5.2: BER SCOPING EXERCISE: EXAMPLE FROM ECUADOR

(Government information sources by Sector and Executing Agency)



Biodiversity Finance Solution: Reducing future expenditures related to invasive alien species

Invasive alien species (IAS) are one of the most important direct drivers of biodiversity loss and ecosystem service changes, and constitute the greatest threat to fragile ecosystems such as islands. The intentional or unintentional introduction of alien species has been shown to have harmful effects on biodiversity, natural resources and human wellbeing causing billions of economic losses globally. For example, IAS can cause serious economic damage to agriculture, forestry and fisheries.

Example: The economic damage related to IAS in Europe is estimated to be at least EUR12 billion per year, while the cost of addressing IAS in Europe is estimated between EUR40 to 190 million per year – a potentially massive economic and financial saving.

See: ten Brink, P. and others (2013). The Economic costs of Invasive Alien Species (IAS). Available from: https://www.iucn.org/sites/dev/files/import/downloads/ten_brink_economic_impacts_of_ias__ptb_of_ieep_at_the_iucn_ep_event_21_feb_2013_final.pdf and European Environment Agency (2012) The impacts of invasive alien species in Europe http://www.eea.europa.eu/publications/impacts-of-invasive-alien-species.

Step 5.2: Defining the Main Parameters of the Biodiversity Expenditure Review

The Biodiversity Expenditure Review is focused on identifying and quantifying the amount of money that was intentionally[11] spent on positive biodiversity outcomes. It is essential to make the distinction between general environmental expenditure and biodiversity expenditure. This is done through the use of a clear definition of "biodiversity expenditure".

The BER uses standard biodiversity definitions and categories to classify biodiversity expenditures in order to promote: 1) annual and internal consistency; and 2) comparability among countries. In general, most countries attribute 100 per cent of "direct" biodiversity expenditures to biodiversity while indirect expenditures have not been attributed consistently. However, even countries that record "direct" ependitures that would be classified as "principal" under the OECD Rio Marker for biodiversity (see Box 5.2) may not be spending the entirety of their budgets on biodiversity. The remainder of this section is focused on exploring attribution or expenditure coefficients for both direct and indirect biodiversity expenditures.

This Step this involves:

- 5.2A: Definition of biodiversity expenditure;
- 5.2B: Classification of biodiversity expenditures; and
- 5.2C: Attribution of expenditures.

Step 5.2A: Definition of biodiversity expenditure

The definition of biodiversity provided by the Convention on Biological Diversity (CBD – see Chapter 1) is the starting point to define biodiversity expenditures. Identifying biodiversity expenditures requires defining biodiversity focused activities – this can also be done with reference to the three objectives of the CBD (see Box 5.2).

BOX 5.2: THE OECD RIO MARKERS ON BIODIVERSITY[12]

The OECD Rio Markers are designed to track International Development Assistance financing for the three main Rio Conventions: Climate Change, Desertification, and Biodiversity. To identify an expenditure that is biodiversity positive, reference is made 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 "direct") if it "*directly and explicitly aims to achieve*" one or more of the above three objectives. Thus, direct expenditures have one or more of the CBD objectives as a stated *causa finalis,* and indirect expenditures are identified as when one of the CBD objectives is noted but is not the primary purpose of the expenditure.

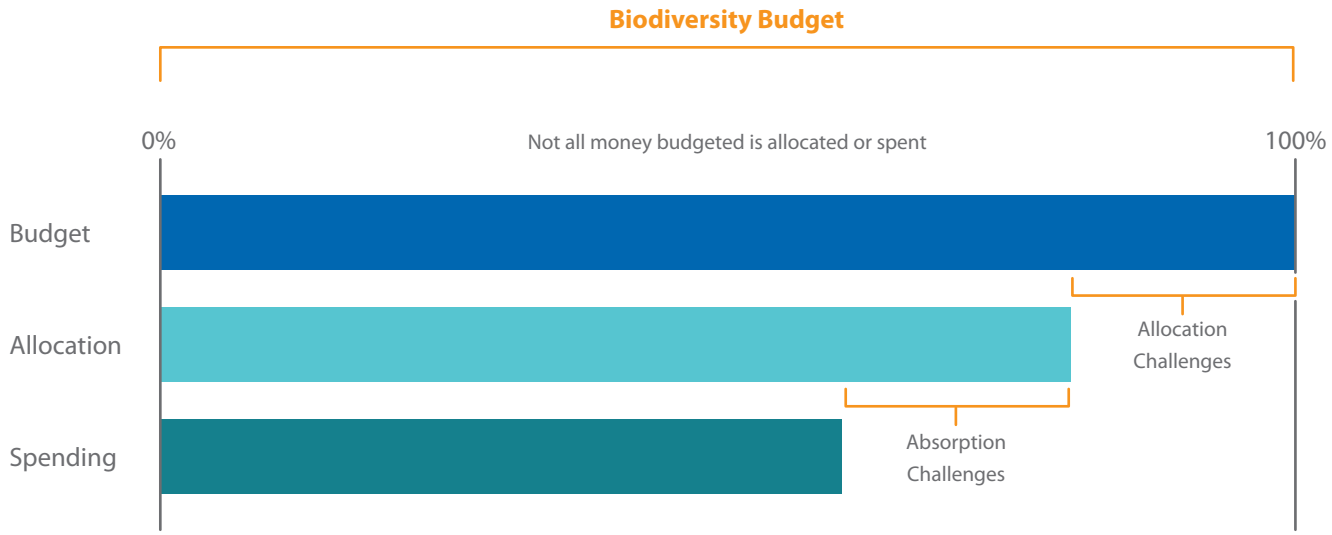
In BIOFIN's BER the definition of a "biodiversity expenditure" is any expenditure whose purpose is to have a positive impact or to reduce or eliminate pressures on biodiversity, broadly defined. These biodiversity expenditures include direct expenditures that have biodiversity as their "primary purpose" as well as "indirect" expenditures. Unlike the UN System of Environmental-Economic Accounts (SEEA, see Box 5.3) which takes an accounting approach, BIOFIN recognizes that some indirect activities that would not be counted in a SEEA process should also be included in the Biodiversity Expenditure Review. These indirect expenditures are activities or results that include biodiversity as an explicitly described secondary objective. Classifying different types of biodiversity expenditures in the BER is described in Step 5.2B. It should be noted that the terms "biodiversity" or "ecosystem services" do not need to be stated explicitly, but the activities (or results) contributing to the CBD's main objectives must be described.

Consistently identifying biodiversity expenditures within budgeting systems uses a process referred to as classification or "tagging". The definition above provides governments with the ability to tag annual expenditures as biodiversity expenditures on a regular basis as many now do for gender and climate.

Expenditures are meant here to include financing that is planned in budgets (budgeted), money that is actually allocated to an organization (e.g. government department), and money that is spent on goods and services (spending, see Figure 5.3). For example, within government, money that is transferred from the National Treasury to a line ministry that makes expenditures

or from the federal government to state or local governments should also be included as an expenditure allocation. However, care should be taken to attribute this expenditure appropriately to avoid double counting (see below).

FIGURE 5.3: ORIGINAL BUDGET, ALLOCATED BUDGET AND SPENDING



It is likely that expenditures will be identified during the course of examining sources of revenues in Step 4.4D of the PIR. The revenue sources, assuming that they are for biodiversity, should be tagged and attributed to biodiversity, and included in the expenditure review, even if they are site based and not part of government budgets. Again, attention should be paid to avoid double counting.

BOX 5.3: THE UN SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING – SEEA

The System of Environmental-Economic Accounting (SEEA) contains 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. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA) and uses concepts, definitions and classifications consistent with the SNA in order to facilitate the integration of environmental and economic statistics.[14]

The SEEA expenditure categories are contained in the Classification of Environmental Activities (CEA) and are broken into several categories including the Classification of Environmental Protection Activities (CEPA) and Classification of Resource Management Activities (CReMA). The SEEA defines Environmental Protection Expenditures as, "activities whose primary purpose is the prevention, reduction and elimination of pollution as well as any other degradation of the environment" and Natural Resource Management, as "economic activities whose primary purpose is to reduce or eliminate pressures on the environment or to make more efficient use of natural resources." Only direct expenditures are included based on the expenditure's "primary purpose" or "*causa finalis*". The concept of primary purpose avoids double counting and is necessary for a rigorous accounting approach; i.e. all expenditures must go into one of the SEEA categories.

In the case for BIOFIN in Mexico it was very useful for both BIOFIN and the National Institute of Geography and Information (INEGI) to work together in identifying biodiversity expenditure and the challenges and limitations of both the BIOFIN methodology and the SEEA framework. In cases where the SEEA framework is already developed in the country, the BIOFIN BER could benefit from this analysis. In those cases where the SEEA methodology for expenditures has not yet been conducted, BIOFIN could greatly contribute to starting national environmental accounting.

For more information on SEEA see the SEEA Central Framework,[15] and SEEA Experimental Ecosystem Accounting.[16] The BIOFIN process should seek alignment with SEEA, where endorsed in the country. At the global level the BIOFIN project is working with the United Nations Statistical Division and the relevant expert committees to develop consensus on biodiversity expenditure categories.

Step 5.2B: Classification of biodiversity expenditures

In the BER, all expenditures should be associated with biodiversity categories, organizations and economic sectors. With the goal of improving the accuracy, precision, and replicability of biodiversity expenditure assessments – including maintaining the potential for detailed budget tagging for biodiversity – BIOFIN has developed an expanded set of biodiversity expenditure categories that describe certain types of activities and can be used to group and analyse expenditure results. This classification can be aligned to UN-SEEA categories, and doing so supports the objective of deriving an international standard and the emergence of environmental accounting initiatives as a means to institutionalize the BER. Table 5.1 shows the relationship between nine BIOFIN high level categories and the six categories originally derived by BIOFIN from the CBD Strategic Plan – Aichi Targets.

TABLE 5.1: RELATIONSHIP BETWEEN EXPANDED AND ORIGINAL BIOFIN CATEGORIES

Nine BIOFIN Categories	Six Aichi 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 (ABS)	ABS[17]
Biodiversity and Development Planning	Enabling

The Nine BIOFIN Categories can be further subdivided into a longer list of sub-categories provided in Appendix II.

All biodiversity expenditures in the BER ultimately should be tagged not only with the nine categories (and potentially subcategories) but also with the national biodiversity targets or strategies that they address. These national strategies are identified during the PIR process and are used in parallel with the nine BIOFIN categories as the main categories in the Financial Needs Assessment. Being able to align the expenditures in the BER with the financial needs in the FNA through a combination of the nine BIOFIN categories and the national biodiversity targets is essential in order to determine a financing gap and to use that information to develop a prioritized Biodiversity Finance Plan.

When tagging biodiversity expenditures, it should be clear that expenditures for activities developed and implemented by environmental ministries and organizations are not all necessarily biodiversity focused. On the other hand, "non-environmental" ministries and different private sector businesses can make both direct and indirect biodiversity expenditures.

The BER process, in particular the categorization approach described above, can ultimately be used to assist with tracking of biodiversity in budgets and expenditure. The tagging of biodiversity expenditures offers one valuable long-term outcome of the BIOFIN process for countries, as they can consistently record and track the amount of money that is being spent on biodiversity over time.

Step 5.2C: Attribution of biodiversity expenditures

Once expenditures are classified into different categories of "biodiversity expenditures" as described above, then the amount of these expenditures that actually contributes to sustainable biodiversity management needs to be identified. This is done by first classifying "direct" and "indirect" expenditures, and then determining what percentage of these expenditures should be

counted. Direct expenditures are generally counted at 100 per cent of their total but for BIOFIN even direct expenditures may include some non-biodiversity spending and as such could be actually less than 100 per cent; these would still be considered direct following the "predominance principle" as they are predominantly for biodiversity. There currently is no international standard for the percentage attribution of indirect biodiversity expenditures and the range of attribution goes from 0[18] to 100 per cent, depending on the policy of each country.

The following guidance aims to help standardize biodiversity expenditure attribution systems. The methodology seeks to allocate expenditures as accurately as possible (limited only by data and time constraints) using a well-defined system based on specific criteria.

There are two potential approaches for the attribution of expenditures within the BER:

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

Both of these approaches are described in more detail below. BIOFIN strongly encourages the use the programme approach as the preferred method for attribution of biodiversity expenditures. However, the nature of the available data collected and the country-specific approach to the budgeting process will determine what process is used.

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 analysis is more limited and cannot adequately capture either annual changes or fine level attribution.

The process of attribution is illustrated in Figure 5.4 and Figure 5.5. In Figure 5.4, direct and indirect expenditures are identified.

FIGURE 5.4: IDENTIFICATION OF BIODIVERSITY EXPENDITURE WITHIN OVERALL BUDGET
(Per cent of Total Expenditures)

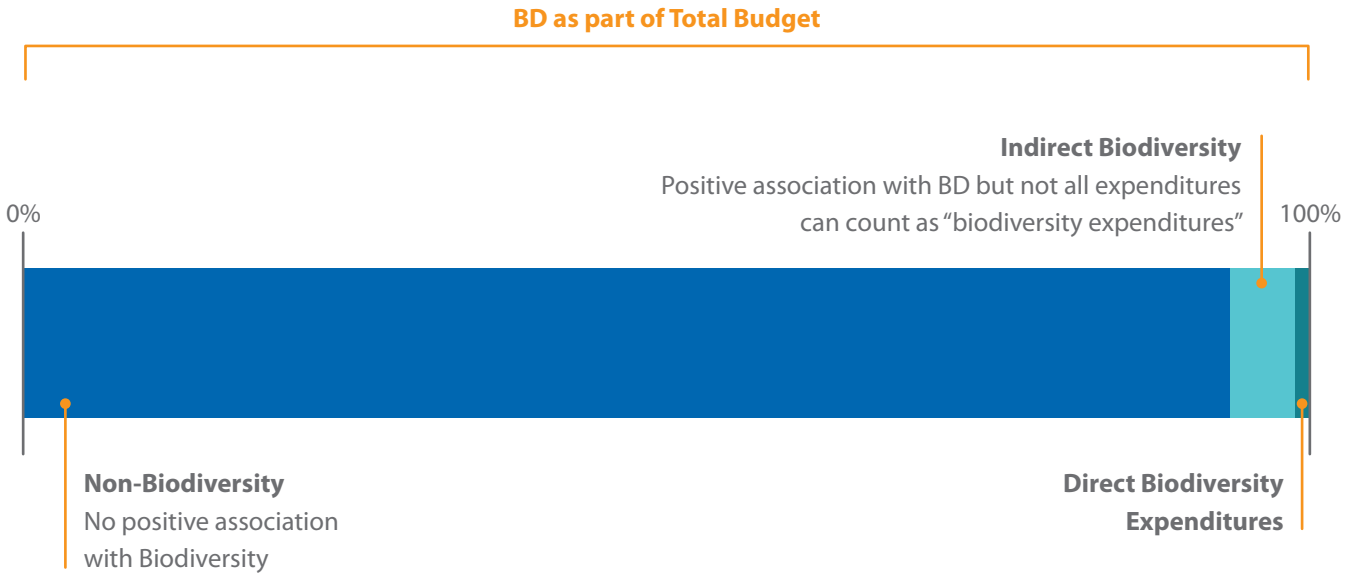
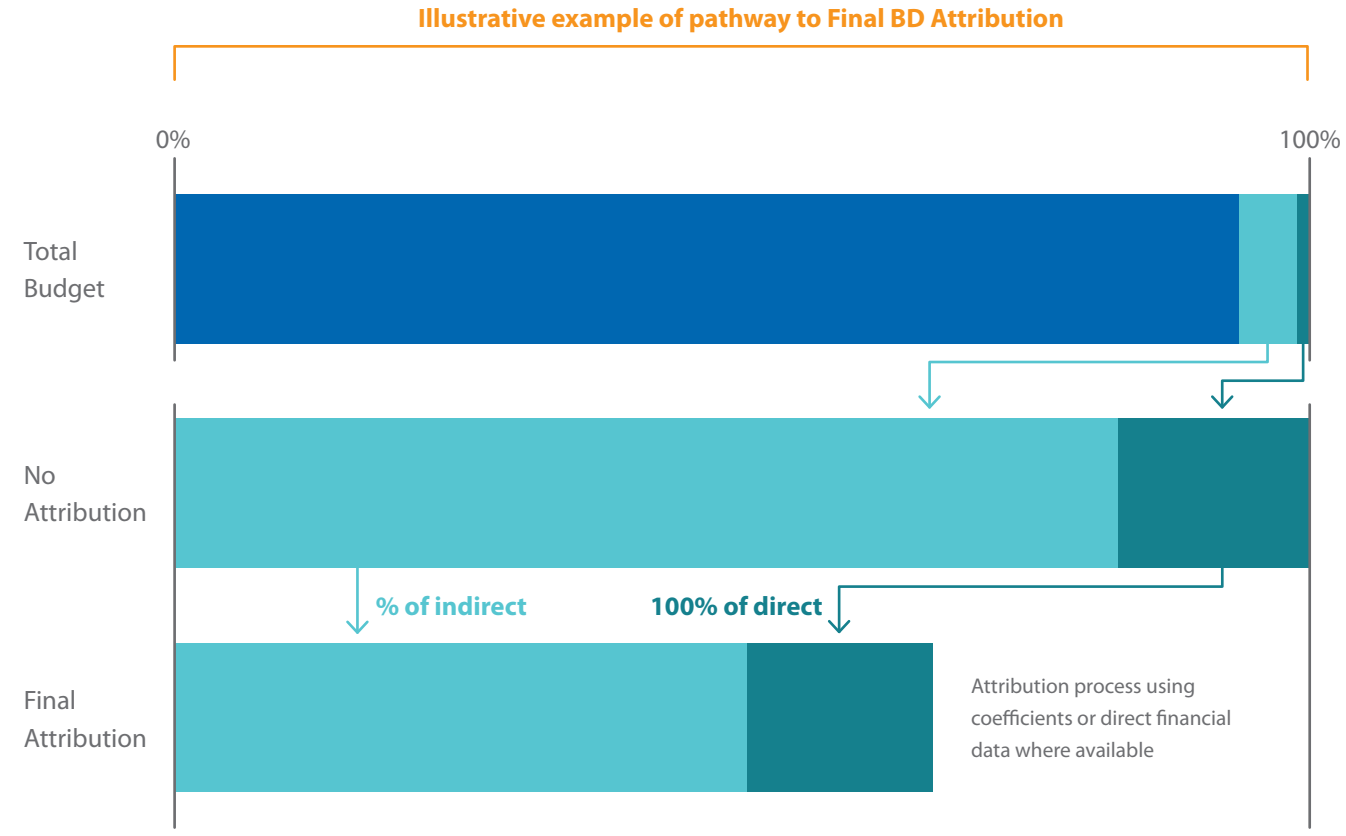


FIGURE 5.5: ATTRIBUTION OF DIRECT AND INDIRECT BIODIVERSITY EXPENDITURES
Note that the scale varies between the columns, the first column is in percentages of the national budget; the second and third columns are the percentages of the section of the national budget that supports biodiversity.



Programme Approach

Using detailed programmatic data allows for attribution of biodiversity expenditures in the most accurate way possible. The following description of expense allocation and coefficients applies to both programme and agency approaches. The method requires three steps: 1) define the category that the expenditure falls into (both national and BIOFIN); 2) describe the budget detail, and (if necessary); 3) determine the appropriate attribution/coefficient. The coefficient system weights expenditures by an estimate of the percentage of money spent (or budgeted) that was targeted at specific biodiversity categories. The range of coefficients can be from 0 to 100 per cent for expenditures. In the system described here, which can be adapted to country-specific needs, the suggested target coefficients are 0, 5, 25, 50, 75, and 100 per cent with a range of +/- 15 per cent for each (see Appendix I). Although the goal is to be as accurate as possible on biodiversity expenditures, the concept of primary purpose would suggest that all direct expenditures could be counted at 100 per cent unless there was specific data or reasons to use other coefficients. More detailed estimates are encouraged where justified by data or expert opinion.

The system of attributing expenditures should be accurate, precise, repeatable, and defensible. The aim is to establish a process that can be repeated periodically to give results that are replicable and consistent. The following key points will help achieve this under the programme approach, and are also relevant to the agency approach:

- To ensure consistency, written "intent" should be present. This captures the idea of "explicit" as per OECD and *causa finalis* (or "end purpose") as with the SEEA.
- Always work at the most detailed level of data as is possible and cost-effective. 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. For an example see Box 5.4.
- Estimates or systems of percentage attributions (coefficients) should be used only when detailed data are not available or analysis at such detail would be too time consuming.
- When using estimated attribution coefficients, it is best to have a pre-established system with pre-determined categories and coefficients.

It should be noted that there is always a trade-off between time and detail – the higher the resolution, the more time is needed for analysis. Detail can involve the extent to which budgets are broken down for attribution, and the accuracy with which attribution takes place. A further factor is that there may be a goal to track annual budgets or expenditures over time. In this case the system needs to be repeatable, and this will be more efficient if the assumptions made can be re-used in following years.

Germany tracked biodiversity expenditures in international development assistance by attributing each component of every programme.[19] If the component was biodiversity focused, the entire component budget would be attributed. In this way, they could accurately attribute programme expenditures at a more detailed level (programme component), but one that was not excessively time consuming.

The Agency Approach

In the case where programmatic data are not available, the "Agency" approach can be used. With the Agency approach, each specific prioritized Agency (organization, branch, division, etc.) is evaluated for its intended financial contribution to biodiversity, based on the same definitions described above

and given an attribution coefficient (per cent), this coefficient will represent the percentage of the specific Agency's annual budget that was likely to have been intentionally spent on biodiversity. When using this approach, it is important to use the finest level of organization for which you are able to determine both a budget and a description of the organization's mission or activities such as at the level of the branch, division, local technical agency, etc. Working at the level of a ministry should be avoided unless there are absolutely no alternatives. The same attribution score can be used for an Agency in all years of the assessment, unless there were significant changes to the organization during the assessment period. Note that most other key points, described under the Programme approach, are also relevant to the Agency approach.

There are three main ways to assign attribution coefficients using an Agency approach:

1. **base it on the organization's written or legal mandate;**
2. **conduct interviews with lead staff such as directors or managers; or**
3. **conduct a comprehensive survey of employees.**

1) Base it on the organization's mandate

To review an organization's mandate, examine laws, mission statements, annual reports, and others. Where an organization has multiple elements (including non-biodiversity) in its mandate, an estimate of the relative budget importance of the different elements should be made. Where there are multiple NBSAP or BIOFIN categories, attribution of budget to each theme is desirable to compare expenditures thematically (i.e. a forestry department that does both sustainable forestry and protected areas).

2) Conduct interviews with lead staff such as directors or managers

For managerial interviews, it is extremely valuable to begin the interview with a discussion and briefing on what biodiversity expenditures are and the detailed categories. This establishes a shared understanding of "biodiversity expenditure" before requesting 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. An example of a regular briefing was conducted by the Philippines, where elements of the NBSAP have been incorporated into agencies' mandates. Countries are encouraged to develop briefing materials to increase appreciation of biodiversity targets and actions.

3) Conduct a comprehensive survey of employees.

Questionnaires can be an effective means of determining attribution for certain organizations. The questionnaire should include a clear definition and explanation of what biodiversity expenditure is. Questions that yield attribution data could include asking for:

- An estimate of how much time in an average week, employees spend on specific biodiversity categories.

- The percentage of annual budgets that can be attributed to different biodiversity categories, and then calculate an average across the multiple estimates gathered, which can be used for the entire branch or organization.

In addition, a focus group discussion or survey can also disaggregate the agency budget into major classifications such as personnel, operating expense, and capital investment. This way, the biodiversity attribution can be calibrated and not applied unilaterally, to remove possible bias. In the absence of a survey, small consultations and/or workshops may be organized to discuss these questions and provide per cent attribution results-based on participants' judgement.

BOX 5.4: 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. Table 5.2 shows the BER analysis derived using Agency data obtained through the personnel survey.

TABLE 5.2: TOTAL AVERAGE APPROPRIATIONS OF THE PHILIPPINES' DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR) AGENCIES FROM 2008-2013 AND ESTIMATES OF BIODIVERSITY SPENDING[21]

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 Per Cent 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

Boxes 5.5 and 5.6 outline the approaches taken in Kazakhstan and India, respectively, to estimating attribution rates.

BOX 5.5: EXAMPLE OF BIODIVERSITY EXPENDITURE ANALYSIS-KAZAKHSTAN

Kazakhstan assessed their biodiversity expenditures during the period 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 per pent to 100 per cent , with 100 per cent reflecting activities which have a "direct" influence on biodiversity conservation, 90 per cent to 5 per cent reflecting activities with an increasingly "indirect" influence on biodiversity and 0 per cent meaning no impact on biodiversity. Table 5.3 shows this approach and provides examples of categories.

TABLE 5.3: 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

BOX 5.6: EXAMPLE OF BIODIVERSITY EXPENDITURE ANALYSIS-INDIA

The methodology for determining the expenditure attributable to biodiversity in Maharashtra, India, follows a two Step approach:

1. **Define the scope of biodiversity-related activities:** all activities that contribute to the goals of the CBD can be defined as biodiversity related. Furthermore, the scope is guided and inspired by the National Biodiversity Action Plan (NBAP) and existing classification of activities (e.g. CEPA, CEA and BIOFIN)

2. **System for attribution of indirect expenditures of schemes/activities**: this Step is guided by existing methodologies (e.g. Rio markers) and consultations with national, sub-national levels in India, and with state and district level personnel. To reflect the varied levels of contribution the "indirect" expenditures have been further classified into: "indirect high"; "indirect medium"; and "indirect low" according to the criteria set out in Table 5.4. Three scenario analyses are then undertaken to provide sensitivity to the estimates of "direct"' and "indirect" expenditure.

The first scenario attributes the indirect expenditures a coefficient of 50 per cent for highly relevant expenditures, 25 per cent for medium and 2.5 per cent for low. The second scenario allows more detailed analysis by applying ranges instead of fixed numbers: 50-75 per cent for highly relevant expenditures, 25-50 per cent for medium, 0-25 per cent for low. The final scenario breaks the total expenditure of a programme into specific activities and then determines the actual amount of money spent on biodiversity for these activities.

TABLE 5.4: INDIA'S APPROACH TO ATTRIBUTING TOTAL EXPENDITURE TO BIODIVERSITY

Biodiversity Relevance	Criteria	Example	Attribution to biodiversity conservation		
			Scenario 1	Scenario 2	Scenario 3
Direct	Primary purpose of the scheme is biodiversity conservation.	Tiger conservation, afforestation, protection of PA and sanctuaries, control of invasive species, protection of endangered species.	100%	100%	100%
Indirect High	Biodiversity conservation is a significant objective.	Promotion of organic farming.	50%	50%-75%	To get activity-wise expenditure using district level data. Target big programs.
Indirect Medium	Biodiversity conservation is an important objective.	Water conservation, soil quality improvement.	25%	25%-50%	
Indirect Low	Biodiversity conservation is a secondary/ tertiary objective.	Example: renewable energy, general awareness and training, climate mitigation activities.	2.5%	0%-25%	

Step 5.3: Data Collection

The third Step in the BER is to collect, systematically and comprehensively, private and public expenditure data. All data provided to BIOFIN are confidential and are only divulged publicly in aggregated form and with the permission of the government and those providing data. Ideally, public sector data will have been collected from publicly accessible sources in order to facilitate validation and replication.

The guidance under this Step covers the following issues:

- Initiating Data Collection
- Suggested Data Sources
- Private Sector: Private Companies and Project Developers
- The Third Sector: NGOs and other Civil Society Organizations (CSO)
- Double counting
- Macroeconomic assumptions and indicators
  - GDP
  - Inflation and Exchange Rates

BIOFIN Data Tool

BIOFIN has produced a tool to facilitate data management and analysis that can be downloaded at the BIOFIN website, biodiversityfinance.net, along with a detailed guidance note. This tool is referred to throughout the Workbook as the "BIOFIN data tool".

All data collected should be entered into the BIOFIN data tool or another spreadsheet or database programme. The BIOFIN data tool is the primary vehicle to conduct data analysis in Step 3, but if countries receive data in another programme or format, they can use any programme that facilitates consistent and replicable data collation and analysis. A description of the data collection process and BER results from Guatemala is provided in Box 5.7.

BOX 5.7: THE DATA COLLECTION PROCESS AND BER RESULTS FROM GUATEMALA

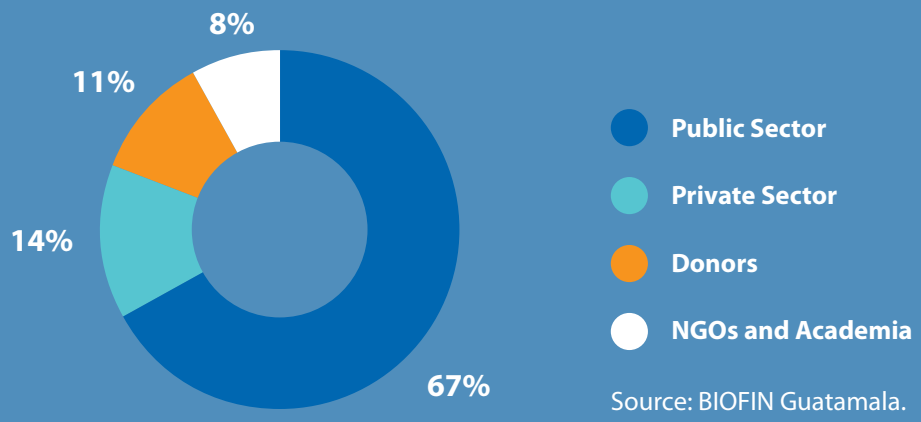
To determine the biodiversity finance actors of these sectors, two prioritization criteria were considered. These included the experience of the entities within the environmental field and the economic contribution to biodiversity (based on analysing 20 per cent of the institutions/companies that contributed 80 per cent of the resources targeted for biodiversity). During the period analysed, the biodiversity expenditure of the private sector amounted to US$48 million, donors contributed US$35.37 million and NGOs and academia US$26.84 million.

As a result, within the productive 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, several data collection steps took place:

1. All pre-selected actors were invited to a workshop where they were asked to share information about their biodiversity expenditures. During the workshop personal contacts with key actors could be established, which assisted with later requests for information.

2. After the workshop, the participants were contacted via email with a written description of BIOFIN and the BER, and were asked for their cooperation and to complete a questionnaire. The questionnaire included questions regarding: type of international cooperation/NGO/company, location, number and type of projects, time frame, sources of funding, amount of biodiversity expenditure, classification of expenditure according to CEPA categories (see Box 5.3). Main stakeholders that could not attend the workshop were contacted by phone.

BIODIVERSITY EXPENDITURES IN GUATEMALA (2010-2014)



Source: BIOFIN Guatamala.

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

Initiating Data Collection

First identify the key technical partners and data sources needed to capture data on public budgets, allocations and expenditures. Determine to what level of detail (or "granularity") data will be collected across all technical partners. Greater specificity is generally better. However, it should be recognized that there is a cost to data collection. Therefore, at some stage the time spent gathering increasingly detailed cost information may not be worthwhile in terms of the improved expenditure information it generates for the BER. Typically, countries will want to collect data on projects and activities at the sub-agency or departmental level. A data request letter from BIOFIN's principal collaborating ministries, typically the ministry of finance or ministry of environment (etc.), can facilitate release of public agency data at the sub-agency level.

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 (those who prepare the System of National Accounts (SNA). Particularly when building on existing efforts, it is important to note that "Environmental Protection Expenditures"[21] are only a subset of biodiversity expenditures and cannot be used as a substitute.

Care should be taken to ensure the data are commensurable or easily comparable. For example, not all money that is budgeted is allocated to projects or other activities, and not all allocations are spent (see Step 5.2A). Budget data in one year should not be compared to spending data in another without ensuring consistency, or noting caveats on inflation or other macroeconomic changes that should be accounted for.

One area of analysis in the BER requires the tracking of budgets and allocations to look at absorption rates and capacity (see Figure 5.3). As such, data on budgets, allocation, and actual end spending should be collected for all main organizations contributing to the BER.

Attention should be paid to the completeness of data. For example, in Indonesia, agency budget data reported for 2006 did not include personnel costs, but did from 2010 onward. As a result the data will give an inaccurate impression of budget trends in the public agencies. Therefore, either a correction to the older data to reflect the newer data must be made, or only the compatible data should be used.

Suggested Data Sources

To the extent possible, the data used should be considered authoritative, dependable, and should be readily available, ideally publically. The BER should be based on detailed primary data wherever possible, and not on reports that summarize previous studies. For example, the following are potential sources of biodiversity budget, allocation and spending data:

- National statistics office, natural capital accounting and UN-SEEA implementation projects
- Published online budgets and audits
- Government bi-annual expenditure / execution reviews
- Government auditing reports
- Line ministries and their sub-departments
- Other public expenditure reviews and data
- IMF and World Bank assessments
- Chambers of Commerce – Industrial / business surveys
- ODA–OECD–DAC/CRS database[22]

Private Sector: 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 per cent 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. There are a growing number of private companies that are reducing their impact and also contributing positively to biodiversity and the BER seeks to capture an estimation of this spending.

Furthermore, there are important biodiversity investments taking place in the private sector that are often not well documented or understood. Incorporating the private sector into the BER and the other BIOFIN assessments will provide a more comprehensive portfolio of biodiversity finance solutions available to stakeholders and decision makers, public and private.

Because getting comprehensive private sector financial data on biodiversity expenditures is very difficult and insights may be limited by the lack of data, the BER work with the private sector should be seen primarily as an opportunity for engagement and communication. It should be accepted that limited or no financial data may be generated regardless of how it is requested. However, every interaction with the private sector offers an opportunity to engage in discussions about sustainable biodiversity management and will be useful for private sector engagement in the Biodiversity Finance Plan.

Understanding a sector's impacts, dependencies, risks, and opportunities with biodiversity (see the PIR) will help identify finance solutions that would not have originated from the public sector. A good starting point for private sector engagement is identification of leading companies in this area, such as those which are engaged with the UN Global Compact,[23] the Natural Capital Declaration,[24] the Natural Capital Coalition or similar sectoral or regional initiatives.

Interest in biodiversity and ecosystem services in the private sector has been increasing, for example in relation to the publication of the Natural Capital Protocol in July 2016.[25] As private business' knowledge of natural capital increases, their ability to distinguish related expenditures also increases.

It may be most efficient and effective to look for data sources with large businesses, at the industry level or with private sector organizations or associations (e.g. local Chambers of Commerce, business and biodiversity groups, etc. as well as members of international organizations such as the World Business Council on Sustainable Development (WBCSD), the Sustainable Agriculture Initiative (SAI) etc.). At the individual company level, firms are increasingly publishing annual Corporate Social Responsibility (CSR) reports, which often include a narrative on environmental actions undertaken by the firm. Other, more standard, corporate financial reporting may also provide data or insights to support the BER including: annual financial reports; government surveys and industry reports. These external reports tend to be available only for large publicly traded companies.

More specific data can be obtained, at some cost, from targeted surveys conducted by national statistics departments. These may be conducted as part of the SEEA data collection on environmental protection activities and natural resource use, or in industry level studies (such as in agriculture, fisheries, forestry, tourism, energy or mining), or by the national BIOFIN team itself. The results of carefully designed and administered surveys can potentially be extrapolated to the industry level or, for example, to create a per unit area estimate for protected areas or wildlife reserves.

If data are collected from some companies or land owners who are leaders in their sector – 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 as a whole from this subset. Conservative assumptions should be used if drawing general conclusions from any such sub-sample 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[26] typically channel support from a variety of national and international sources[27] 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 (see Box 5.8) from both the source organization and from the organization it is channelled through.

BOX 5.8: DOUBLE COUNTING

Double counting is when one expenditure is counted twice in an expenditure review, resulting in an over-estimation of the amount of money budgeted, allocated or spent. There are many potential areas where double counting is a high risk. The most common double counting issues involve the budgets and expenditures of financing organizations reporting along with their implementing agencies or organizations. These "transfers" include subsidies and intra-governmental transfers, and can be international, national and local, public, private, etc. If attention is not paid to these issues during the design and data collection phase of the BER, they can be very difficult to track.

The BIOFIN team may choose to adopt either an "abatement or execution principle" or a "financing principle", to avoid double counting. The former principle is best for BIOFIN and requires accounting for expenditures at the level of the executing or implementing agency or organization. The financing principle looks to account for biodiversity expenditures at the source of the funding and not at the executing agency; this will not allow the level of detail sought in the BER.

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. While it is important to understand and document where funds originate, it is more important for the BER to examine expenditures at the finest level of resolution and granularity possible. As such, the "execution principle" would capture the greatest detail of spending and is thus recommended for BIOFIN BER where possible. It is always recommended to record the financing source data as well but not count it in the summary.

BIOFIN Data Tool

The BIOFIN data tool can facilitate data management and analysis in the BER. The guidance below applies to all analyses for the BER regardless of whether the tool is used.

In the data tool, data are systematically coded such that data collection and analysis within a given country can be replicated over time and, potentially, realistic and robust comparisons and analyses across nations can be undertaken as well. For example, BER data should all be associated with: organization/agency, programme, sector, National (NBSAP) targets, BIOFIN category, and can include other optional tags such as SEEA, etc. as shown in Table 5.5.

The main structure of the BIOFIN data tool is based on three tiers of programme (i.e. programme, activity, and output) and three tiers of agencies (i.e. ministry, department, branch). Where detailed programme or results-based data are available, all of these categories can be used, allowing the most finely grained analysis.

All expenditures should be tagged with the dominant economic sector based on the sector list provided in Appendix IV and used in the BIOFIN data tool.

TABLE 5.5: FIELDS INCLUDED IN DATA COLLECTION AND ANALYSIS FOR A BER

Field	Description
Sector	The sector that most accurately is associated with the expenditure – see Appendix IV
Organization type	Organization type or executing agency or entity – see Appendix IV
Detailed description of program	2 or 3 sentences
Budget/Expenditure	Is the quantity in a Budget, Allocation or Expenditure or is it the total budget for an organization?
Recurrent/Investment	Is the expense a Recurrent (Operational) or an Investment (Capital) expense?
Expense Unit	What budget line item is this? – should be based on government categories
Year	Quantitative data in nominal currency for a given year for each expense
Coefficient	What % of the expenditure is attributed to biodiversity?
Revenue source type	What type of entity is the financial source? – see Appendix IV
National Target	National biodiversity strategies, targets, or themes – country determined
BIOFIN Category	Which of the BIOFIN categories most accurately captures the expenditures?
Aichi Target	Which of the 20 Aichi Biodiversity Targets does the expenditure most precisely target? (optional)
SDG	Top Sustainable Development Goal associated with the expenditure (optional)
SEEA	Environmental Protection Expenditure or Resource Management (SEEA) category (optional)
Notes or Comments	Additional notes or comments including reference for data if different (optional)

Inflation and Exchange Rates

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 into any spreadsheet in nominal terms, as these are the actual data that is being collected. However, expenditures reported for different years or over a period of time (a time series) are most appropriately compared and analysed over time in real or inflation-adjusted form. Since the BIOFIN methodology makes use of both within year and across time comparisons it is recommended to report both nominal and real expenditures in the BER.

A variety of approaches exist to calculate inflation and countries may have their own approach. It is best to check with the finance or economics ministry for official inflation data[28] for each year that the BER covers, or get the results from an international standard such as the IMF.[29] BIOFIN recommends using the GDP deflator and a conversion function is included in the BIOFIN data tool.

Although BIOFIN is implemented at the national level, cross-country comparisons and lessons learnt are often desirable. For countries with significant exchange rate variability, it may be useful to present results-based on a conversion to a US$ equivalent (or use purchasing price parity (PPP)) in addition to adjusting for inflation. Countries that historically demonstrate a high degree of variation in rates of exchange and inflation may want to adopt a three-year weighted moving average (WMA) approach to reduce prediction error in future forecasts due to unusual or temporary short term variations in these factors.

Step 5.4: Data Analysis

In this Step, the collected data are used to analyse several aspects of biodiversity management and finance in three sub-steps:

- Step 5.4A: Putting biodiversity expenditure in national context. This looks at what percentage of budgets and expenditures are directed at biodiversity as compared to other areas.
- Step 5.4B: Determine how effectively budgets are turned into expenditures.
- Step 5.4C: Identify trends in expenditure. Trends can be examined from various angles to allow future projections (see Chapter 6) to be based on sound knowledge of trends.

Step 5.4A: Putting biodiversity expenditure in national context

This part of the analysis identifies what percentage of national budgets and expenditures are directed at biodiversity as compared to other areas. It also examines the partition of biodiversity expenditures in national and BIOFIN categories and among different organizations. This can help determine how well expenditures are aligned with stated government policies regarding biodiversity. It requires complete budget or expenditure data from all ministries and all departments of the main ministries associated with biodiversity as well as total government budgets. Macroeconomic data are also essential background for this analysis: GDP, employment, and inflation.

Results can begin with a simple graph showing the evolution of GDP, the total government budget (and expenditure if available), and inflation. The GDP and government budgets, as well as most of the BER results can be presented in both nominal and real terms. Graphs and tables should also present the per cent of biodiversity expenditures relative to the budgets of line ministries and sector based GDP.

By comparing the general expenditures of the different public sector organizations, it is possible to see how much money is budgeted for different sectors and how biodiversity fits into this picture. How does biodiversity expenditure in the forestry sector compare with the contribution of forestry to GDP? The same could be done for fisheries, agriculture, etc. How does spending compare to the priorities in national development plans, SDG related strategies, green economy plans, etc.?

The private and civil society reviews will be similar, but focus only on the total amounts of bio-

diversity expenditure and not the comparisons. The exception could be looking at Official Development Assistance and calculation of the proportion spent on biodiversity as compared with other sectors.

Once public, private company, NGO, donor and all other sources have been summarized, a table and graph should be produced showing the evolution of biodiversity expenditures over the time period of the BER. This amount can be compared with GDP, total government spending, and other macroeconomic indicators.

BIOFIN Data Tool

The BIOFIN data tool can facilitate detailed analysis that allows biodiversity expenditures to be reviewed for each agency or ministry, private company, NGO etc., depending on the availability of base data. Within the tool's output tables, filters can be used to dissect and compare results. Data can be exported or copied and pasted into new spreadsheets to create custom graphs and tables.

In addition, the graphs and results should also focus on comparisons between public

and private sector expenditures and GDP or other macroeconomic indicators. It is also interesting to contrast international, national and local expenditures, keeping in mind that different data sources may be based on different parameters that reduce their comparability. The data analysis should also be adapted to the target stakeholders and decision makers identified during the preparation Step.

Step 5.4B: Expenditures from budgets

This analysis evaluates how effectively budgets are turned into expenditures and whether spending constraints are due to lack of initial budget, lack or delayed allocation of resources, or the absorption capacity of the executing agencies and organizations. The analysis should be conducted on the main biodiversity actors such as the ministry of environment.

This Step can identify barriers to implementing expenditures. Understanding these barriers helps to identify opportunities for increased efficiency in the finance system.

Biodiversity Finance Solution:

Incentives for Public Budget Execution

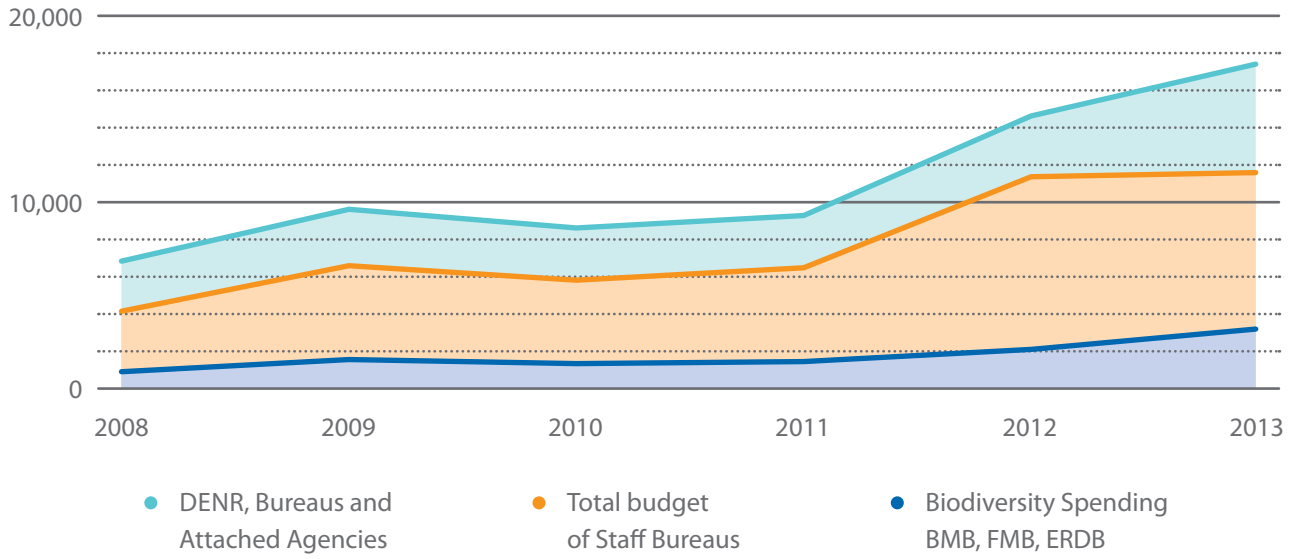
Incentives for public budget execution are actions that incentivize the spending of committed funds for the purposes for which the money is appropriated. Effective budget execution is expressed as a percentage of annual public budget allocations and can vary from as little as 40 per cent to as much as 100 per cent. Spending agencies and programmes often fail to spend due to capacity constraints, administrative challenges, and technical limitations. Incentives (e.g. staff incentives) and support (i.e. additional capacity) can be provided to increase the delivery and effectiveness of public expenditures, when funds are available. Ideally, incentives should be linked to results rather than rate of delivery.

See: https://www.imf.org/external/pubs/ft/expend/guide4.htm.

Step 5.4C: Identify trends in expenditure

Trends can be examined from various angles to allow future projections to be based on sound analysis. It is important to create absolute and relative (per cent) graphs and tables to better understand and illustrate the recent trends in a country's expenditures. For example, Figure 5.6 shows the Philippines' relative biodiversity and ecosystem services spending evolution from 2008 to 2013. The biodiversity expenditures increase over time, but remain a small part of the total environmental budget over this period and may be growing relatively less than total budgets.

FIGURE 5.6: RELATIVE BIODIVERSITY AND ECOSYSTEM SERVICES SPENDING – 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.

The two main trends described are biodiversity expenditure as a share of total government spending and as a share of the budget of the environmental ministry. These patterns are useful in order to project future biodiversity expenditures, under the assumption that these trends are likely to continue without the implementation of a strong biodiversity finance strategy.

Biodiversity Finance Solution: Official Development Assistance (ODA) Multilateral/Bilateral Environmental Trust Funds

ODA is a financial mechanism designed to channel aid resources from one or multiple donors to one or multiple recipient countries with the objective of helping them address social, economic and environmental challenges. With an ODA Environmental Trust Fund, the trustee transfers financial resources to awarded programmes and projects that are implemented by other accredited agencies. Although the most common form of funding is grant, funding may come in a variety of forms, including loans, guarantees and equity.

Example: The Global Environment Facility and the Green Climate Fund are the main international financing mechanisms for biodiversity and climate change.

See: http://www.undp.org/content/sdfinance/en/home/solutions/environmental-trust-funds.html.

Step 5.5: Project future expenditures

The next Step in the BER is to project expected future biodiversity expenditures based on current trends. Projected expenditures to 2020 are useful for reporting on CBD NBSAP compliance, but projections should cover a forward period of approximately five to 10 years. The exact time period chosen will depend on national budgeting processes and cycles, identified in the PIR (Chapter 4). The projections should cover the timing of the NBSAP at a minimum.

Projections of future expenditures are typically based upon past expenditures, existing government projections, and any known sources of project funding or other sources of biodiversity finance already in the pipeline. Uncertainty is unavoidable, but projections are necessary for planning and budgeting purposes. Clearly documenting all methodological decisions and validating potentially competing visions of the future status quo and alternative scenarios with stakeholders are essential.

Simple methods can be applied to projecting an expenditure trend using past data. Where the trend does not depict erratic behaviour, a long term average growth rate can be applied as a factor. More sophisticated modelling techniques can also be applied, such as statistical regression and/or ad hoc forecasting techniques (e.g. weighted moving average (WMA) or trend analysis based on biodiversity expenditures as a percentage of government budget or GDP). However, the effectiveness of these depend on the quality of the past data analysed in Step 5.3.

Examples of analysis of BER results are in Annex 5.1, including:

- A trend analysis using a WMA in Fiji: these projections reflect BAU assumptions wherein no substantial or atypical change in financial support for biodiversity is anticipated. They will be considered the "baseline" from which the biodiversity finance gap is calculated in the Financial Needs Assessment (FNA);

- Disaggregated BER data by source of funds and NBSAP target from the Philippines; and

- Expenditure projections are broken down by departments, projected under different scenarios, and put in context of the national budget in Namibia.

In projections, uncertainty may be reflected by creating "pessimistic" (low) and "optimistic" (high) scenarios, and/or using sensitivity analysis. Sensitivity analysis should focus on key variables and assumptions in projected expenditures, identified during the projection, and may use different levels of statistical sophistication as appropriate. Where greater precision in estimates and predictions can be secured, less sensitivity to change can be expected, and superior gap analyses and budget planning can result.

5.3 Reporting and Outreach

At the end of the BER the analysis should have answered the questions outlined in the objectives (Section 5.1.1). The outputs of the BER should help policymakers understand the general trends in biodiversity expenditures and their future consequences.

Presentation of the results should also consider the different audiences for the BER, identified during the PIR (Step 4) and the BER's preparation (Step 5.2.1). Outputs for these audiences could be in the form of additional short reports and policy briefs. The results can be used for policy advocacy, communication and also as an input to the business case for biodiversity finance solutions developed in the Finance Plan (Chapter 7).

The following is a possible outline of a BER Report:

1. **Executive Summary**

2. **Acknowledgements**

3. **Introduction**

4. **Methodology**

   - Scope of BER including past and future time periods
   - 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**

ANNEX 5.1: Examples of Biodiversity Expenditure Review Results

Projecting future expenditure patterns for biodiversity is an important Step in calculating the national finance gap. This annex contains three country examples.

Forecasting trends in biodiversity spending in Fiji BER[30]

BIOFIN Fiji uses a time-series forecasting method to predict biodiversity expenditure levels under a Business-As-Usual scenario. It is based on the observation that patterns in past biodiversity expenditure data are fairly consistent (only protected areas management showed any significant variation), and the assumption that this is likely to continue into the future. This assumption is considered sound for short term forecasts (of around 1-3 years), and therefore the forecasts obtained are considered to have relatively low uncertainty.

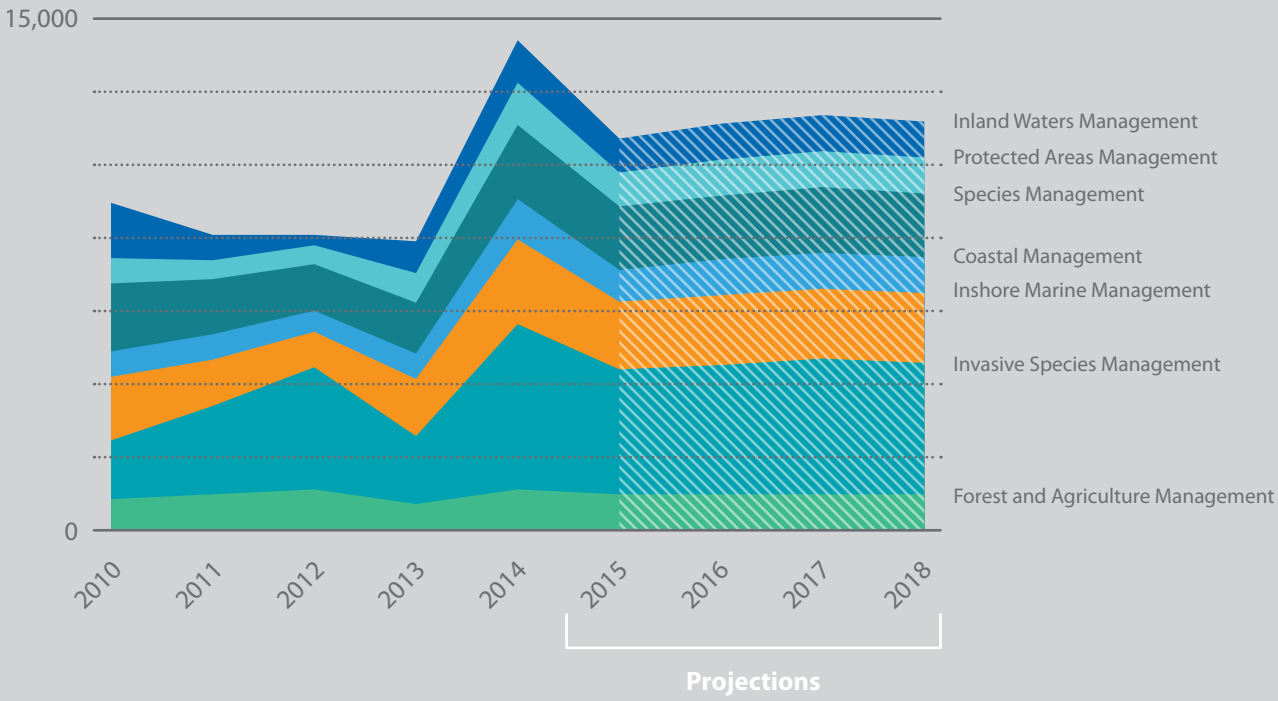
As no significant directional growth was identified, a 3-year "Weighted Moving Average (WMA)" model was selected as it places more importance on biodiversity expenditure in the most recent years. This is based on the assumption that expenditure in recent years is a better indicator of expenditure levels in the upcoming years. The formula that was applied was:

$$\frac{\Sigma\ (\text{weight for period } n) \bullet (\text{Expenditure in period } n)}{\Sigma\ \text{weight}}$$

Where n is the number of periods in the moving average (3 years in the current model). The weighting applied was as follows: 3 for the immediate past year, 2 for the year before and 1 for the first year in the averaging time series.

Note that in contrast to the WMA, a forecast based only on a single year's change in total budget (e.g. 2012 – 13, or 2013 – 14) could have given a very different projection. WMA can also be used for % change in budget where there is a directional trend. The result is shown in Figure 5.7.

FIGURE 5.7: HISTORIC DATA AND FUTURE PREDICTIONS OF EXPENDITURE (IN THOUSANDS OF FIJI DOLLARS, NOMINAL) FOR BIODIVERSITY IN FIJI



BER Application in Namibia

The Namibian Ministry of Environment and Tourism (MET) collected expenditure data from 2006-2012 and budget data from 2012-2015. The MET then created three future expenditure scenarios for their medium term planning framework, covering 2015-2020, as shown in Figure 5.8. Biodiversity expenditures by ministry over the 15-year period from 2006/07, indicating an expected decreasing future trend, as shown in Figure 5.9. 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 5.8: NAMIBIAN GOVERNMENT BIODIVERSITY EXPENDITURE REVIEW

Ministry of Environment and Tourism (MET) biodiversity expenditure Projections: 2006/07 – 2012/13

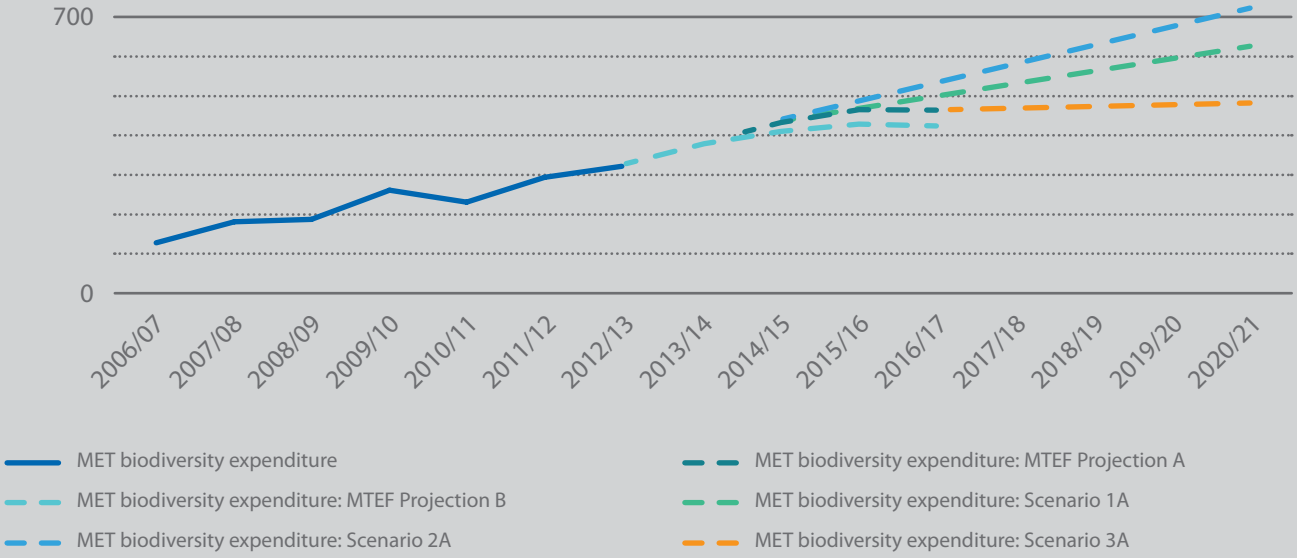
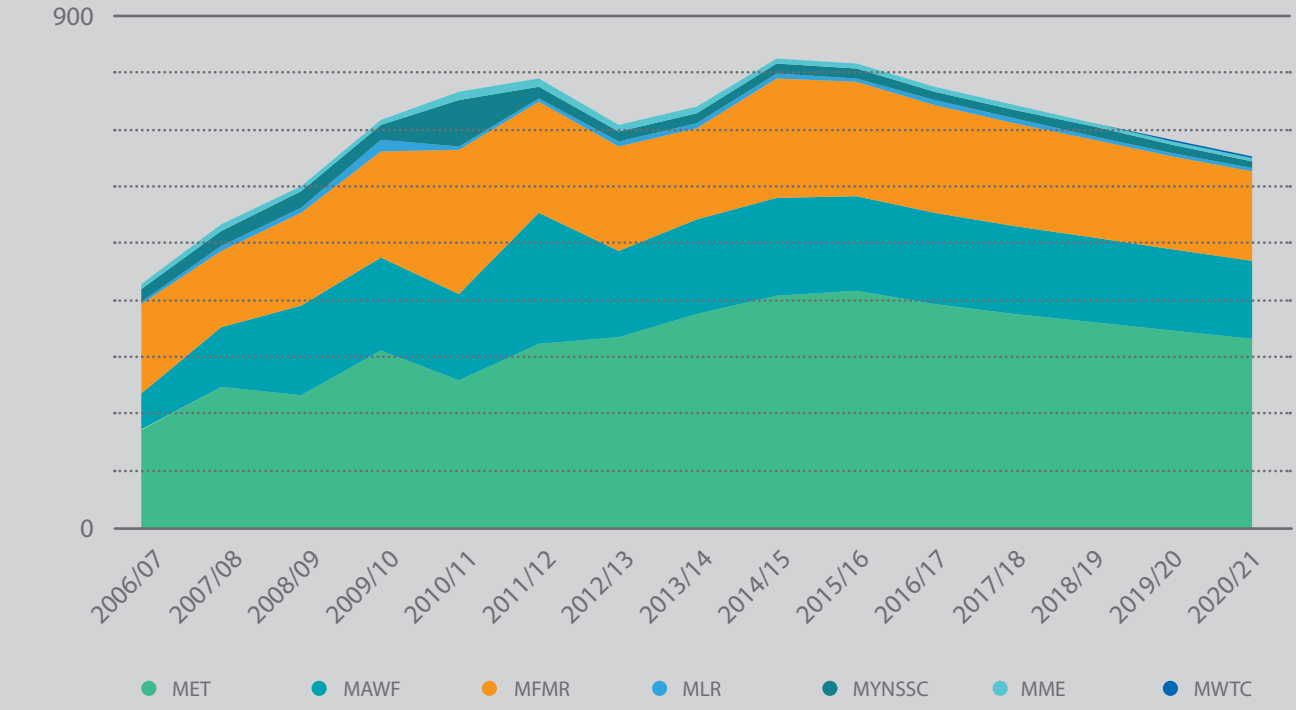


FIGURE 5.9: NAMIBIAN GOVERNMENT, BIODIVERSITY EXPENDITURE REVIEW, REAL GOVT. BIODIVERSITY EXPENDITURE & PROJECTIONS – 2006/07-2020/21

(N$, Millions, 2013 prices)



BER Results from the Philippines

Figure 5.10 and 5.11 show how BIOFIN Philippines disaggregated their BER data. Figure 5.9 indicates the high importance of the Department of Environment and Natural Resources in the implementation of biodiversity programmes in the Philippines. Figure 5.10 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% of the total.

FIGURE 5.10: PHILIPPINES – DISAGGREGATION OF EXPENDITURES ACCORDING TO SOURCES OF FUNDS

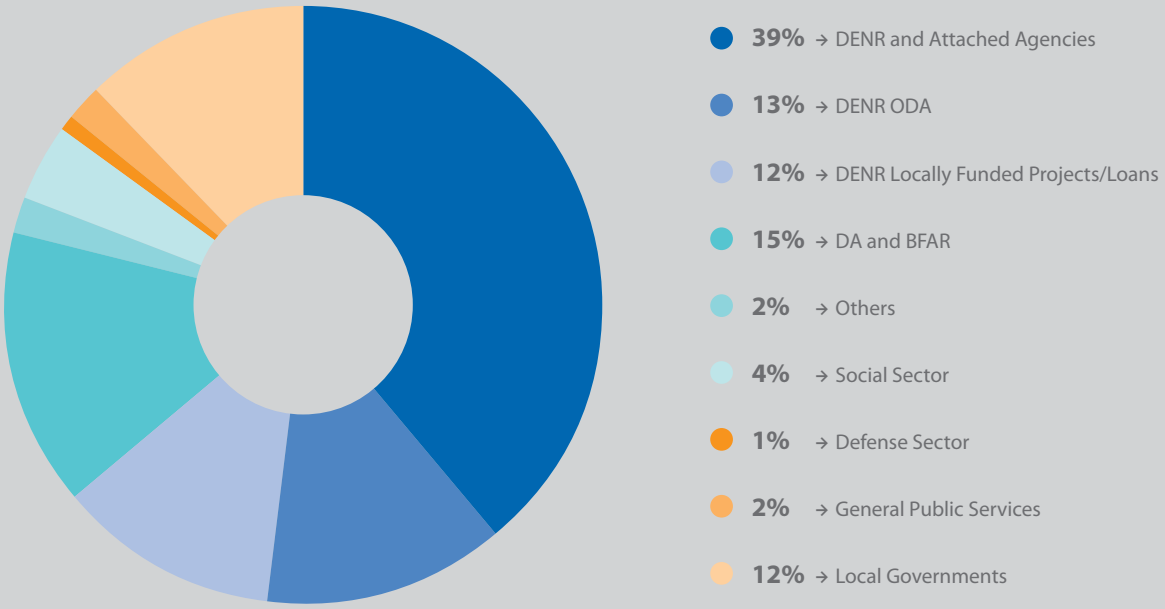
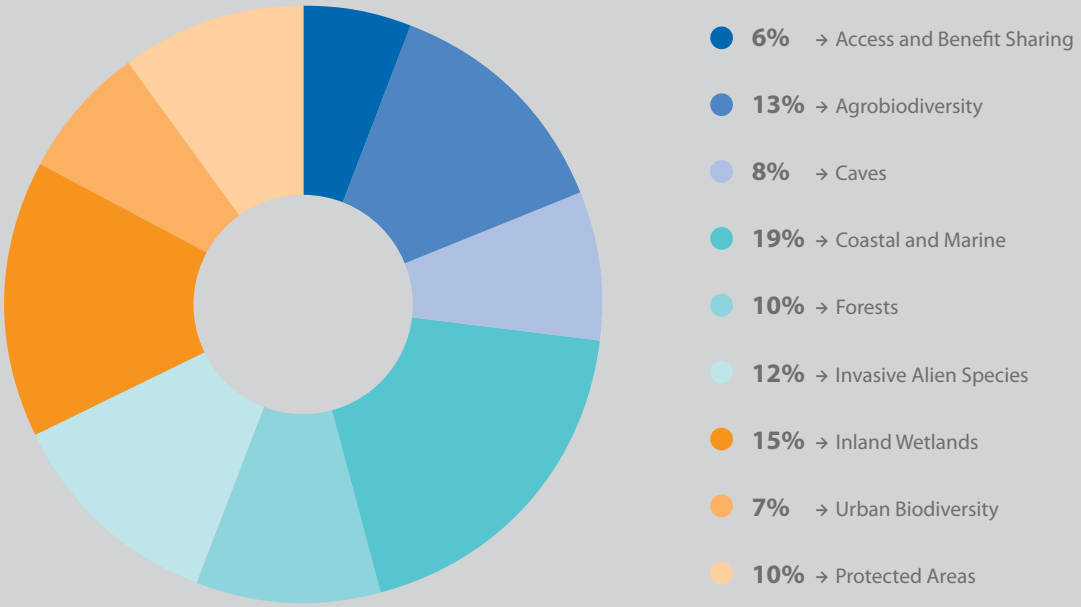


FIGURE 5.11: PHILIPPINES: DISAGGREGATION OF SPENDING ACCORDING TO SOURCES OF THE NATIONAL BIODIVERSITY ACTION PLAN, PER THEMATIC SECTOR



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 are not 100 per cent 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 World Bank (2014). Mozambique Public Expenditure Review. Available from: http://documents.worldbank.org/curated/en/677921468275102771/Mozambique-Public-expenditure-review-addressing-the-challenges-of-today-seizing-the-opportunities-of-tomorrow (2014).

4 World Bank (2008). Investing in Indonesia's Health: Challenges and Opportunities for Future Public Spending. Available from: http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/Peer-Reviewed-Publications/HPEREnglishFinal.pdf.

5 Bird N. and others (2012). Climate Public Expenditure and Institutional Review: A methodology to review climate policy, institutions and expenditure. Available from: https://www.cbd.int/financial/climatechange/g-cpeirmethodology-undp.pdf.

6 Kazoora C. (201). 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 Millennium Ecosystem Assessment (MEA) (2005). Ecosystems and Human Well-Being. Available from: http://www.millenniumassessment.org/documents/document.356.aspx.pdf.

9 e.g. debt payments as per cent of GDP, foreign exchange rate, and poverty and employment statistics.

10 Who are responsible for the System of National Accounts (SNA) and responsible for implementing the UN System of Environmental-Economic Accounts (UN SEEA).

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 See http://unstats.un.org/unsd/envaccounting/seea.asp.

15 See http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf.

16 See http://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 The attribution range starts at 0. Potential biodiversity expenditure may in fact be given a 0 per cent coefficient, meaning they are not contributing measurable finance to sustainable biodiversity management. Alternatively, spending may be given a very low coefficient, of some fraction of a per cent (e.g. 0.5 per cent), which, within a very large expenditure programme, may still be significant.

19 Federal Ministry for Economic Cooperation and Development (BMZ) and Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (2014). Committed to Biodiversity: Germany's International Cooperation in support of the Convention on Biological Diversity for Sustainable Development. Available from: https://www.international-climate-initiative.com/fileadmin/Dokumente/2014/2014_brochure_committed_to_biodiversity_en.pdf (BMUB), 2014 Committed to Biodiversity. Available from: http://www.bmub.bund.de/fileadmin/Daten_BMU/Pools/Broschueren/bio_vielfalt_verantwortung_broschuere_en_bf.pdf

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

21 As defined in the UN SEEA Central Framework.

22 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.

23 UN Global Compact and others (2015). Private Sector Investment and Sustainable Development. Available from: https://www.unglobalcompact.org/library/1181.

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

25 Natural Capital Coalition(2016). Natural Capital Protocol. Available from: http://naturalcapitalcoalition.org/protocol/.

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

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

28 The rate used should be in line with financial analysis guidelines in the country, which are usually provided by the ministry of finance or its equivalent. GDP deflators are highly recommended.

29 The Data Tool uses https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/WEOApr2015all.xls.

30 This analysis is the work of the BIOFIN Fiji Team – with thanks to Amir Barssoum.

6 THE BIODIVERSITY FINANCIAL NEEDS ASSESSMENT

6.1 Introduction

This chapter provides in-depth guidance on undertaking a Biodiversity Financial Needs Assessment (FNA). It is organized in three 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.

6.1.1. Aims and Objectives

The FNA aims to make a comprehensive estimate of the financial resources needed to achieve national and sub-national biodiversity targets. It compares these financial needs to expected biodiversity expenditures over a medium- to long-term planning horizon. As described previously, national biodiversity targets are typically articulated in NBSAPs and other key national strategies such as national development plans, sectoral development plans and climate change plans.

In order to achieve the above aims, the objectives of the FNA are to:

- Review and integrate the FNA with the national planning and budgeting process for optimal impact.
- Clarify strategies and actions in national biodiversity plans (NBSAPs) to describe "costable actions" that link to expected biodiversity results[1] in a logical framework that lends itself to costing.
- Produce a detailed budget for each costable action by defining unit costs and quantities over the target time frame.
- Use these detailed budgets to make a stronger case for biodiversity finance – linking the costs of achieving specific results to the national budget processes.[2]
- Prioritize biodiversity strategies and actions based on specific biodiversity and cost criteria.
- Link the FNA to the Biodiversity Expenditure Review (BER) through a tagging system that associates financing needs with expenditure categories, sectors, and organizations.
- Calculate the finance gap between business as usual biodiversity expenditure projections (from the BER) and financial needs identified in the FNA in as detailed a manner as possible.

The Convention on Biological Diversity (CBD) produced high level estimates of the financing needed for achieving the Aichi Biodiversity Targets on a global level (see Chapter 1). In contrast with this generalized global assessment, the FNA methodology seeks to produce a detailed and realistic costing of the targets in national biodiversity-related action plans (i.e. NBSAPs). This approach is meant to answer the question of "what financing is really needed for the country to achieve its stated biodiversity targets?" It starts from zero and builds a budget based on estimating the full set of human resources, capital investments and financial resources needed. It is aspirational in that it identifies the budget required for effective delivery, even if this may not be immediately achievable in practice.

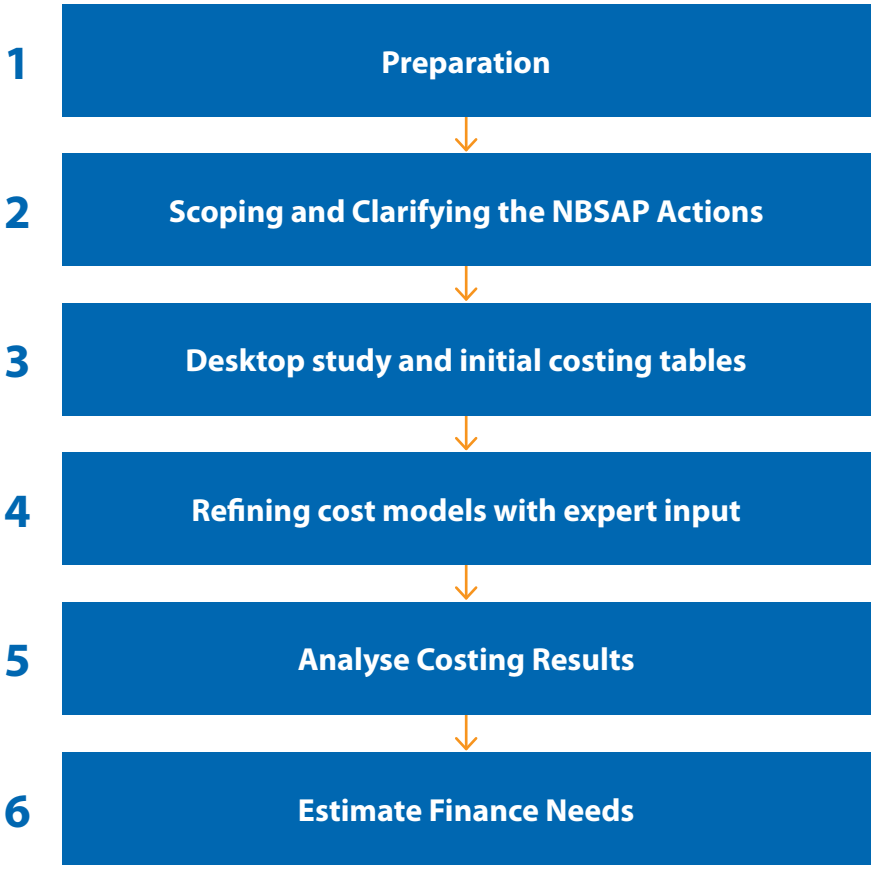
Each country may have its own approach to medium- and long-term budgeting and the BIOFIN process should seek to support the existing approaches to assure compatibility and alignment. In many countries, environmental budgets are vague and lack strong justification – lessening their ability to garner the support from ministries of finance and other budgetary decision makers. This has especially been the case traditionally with NBSAPs – most of which never included detailed budgets at all, and as a result, finance for NBSAPs was rarely adequate. The CBD has encouraged countries to apply an FNA type approach to develop a detailed and realistic budget for their NBSAPs for precisely this reason.

The main end-product of the FNA is a well-documented and argued, prioritized, fully costed budget for achieving the country's biodiversity targets.

6.1.2. The FNA Process

The objectives of the FNA are not simply to generate the best budget possible for the NBSAP and related strategies, but to build the budget through a process, shown in Figure 6.1, that increases its likelihood of receiving full funding. This will be accomplished with a combination of a sound methodological approach in the budget elaboration process, and working with the right timing, format and partners. Key partners include the ministry of finance,[3] central planning agencies and other key stakeholders identified in Chapters 3 and 4.

FIGURE 6.1: THE FINANCIAL NEEDS ASSESSMENT PROCESS



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

- Finance sources and solutions to be developed to address them;
- Subsequent assessments of cost effectiveness, and
- Understanding of the scale and timing of biodiversity actions.

Ideally this detailed FNA methodology will encourage improved performance through more effective budgeting and fiscal management (See Box 6.1).

BOX 6.1: BIOFIN AND FISCAL MANAGEMENT

Fiscal policy refers to aspects of government finances; both revenues, such as taxes, and government expenditures. The FNA exercise can be linked to the fiscal planning process in a country, including any reforms that are underway, in order to advance mainstreaming of biodiversity finance into public finance and budgeting. The FNA and other elements of BIOFIN should take into consideration the following planning and finance issues (as identified under the PIR, Chapter 4):

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, fiscal reform and management and as such, the FNA methodology seeks to provide approaches that can satisfy a wide range of country processes.

BIOFIN's FNA exercise could be a useful tool to improve national public financial management in the environmental sector more generally. BIOFIN's approach to costing has been designed based on best practices and fits with the emerging international principles in public financial management, which are well documented in the IMF's 2013 study, *Public Financial Management (PFM) and Its Emerging Architecture*.[4]

6.1.3. Links to Other Chapters

The FNA uses information and insights developed throughout the national BIOFIN process, and many links are described within the individual steps of this chapter. The FNA should build on and be compatible with the national planning and budgeting practices and approaches that

have been identified in the PIR (Chapter 4). The process also relies on the analysis of the NBSAP and other strategic documents assessed in the PIR.

The FNA will help define and apply the system used for tagging expenditures in the BER (Chapter 5) to enable detailed and consistent analysis. A sound process for estimating biodiversity finance needs, allowing comparisons of specific finance needs with expenditures, can guide the selection, development and implementation of sound finance mechanisms or solutions that will be prioritized for development in the BFP (Chapter 7).

6.2 Methods for the Financial Needs Assessment

This Section describes a number of the principles and methods used to undertake the FNA. It starts with some terminology and principles, and then looks at costing approaches, including applying the emerging approach of results-based costing to biodiversity. Detailed implementation steps are described in the following Section.

6.2.1. Terminology and Principles

The terms used in this Chapter have some established meanings within public finance, yet can mean different things to different stakeholders. Some terms are clarified in this Section and other terms are defined in the Glossary.

First, in this Chapter, the terms "budgeting" and "costing" are used interchangeably. The detailed budgeting 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 often refers to local administrative budgeting so the term "detailed budgeting" is used to refer to the costing process defined here.[5]

The FNA focuses on direct costs or financial costs unless explicitly stated. This is in contrast to an analysis of costs in an economic sense, which as well as financial costs can consider indirect costs and welfare implications (such as "opportunity costs", see Appendix III on Cost-Benefit Analysis). Some countries conduct full cost-benefit analyses for all NBSAP activities. BIOFIN recommends using cost-benefit analysis (or other multivariate approaches) in this way to help build the case for biodiversity investments in the Biodiversity Finance Plan (Chapter 7). However, the FNA does not require this level of analysis.

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 healthcare. However, the term investment also refers to capital expenses as compared to recurring or operating expenses in the budget.

In addition to the overall principles described in Chapter 2 (Section 2.4.2: effectiveness; efficiency; equity), BIOFIN encourages the following principles for costing the national biodiversity targets:

- **Comprehensive** – covering all aspects of sustainable biodiversity management[6] even if it requires the scope to go beyond the National Biodiversity Strategy and Action Plan (NBSAP).
- **Accurate** – based on justifiable costs and actions directed specifically at achieving identified results.
- **Detailed** – actions are organized under strategies (or sub-strategies) and strategies under targets or results. Certain actions must be translated into detailed "costable actions" to achieve the level of detail needed for accurate costing.
- **Prioritized** – activities or results will be prioritized in terms of: 1) importance to achieving national biodiversity vision and goals, and 2) other national criteria, including costs.
- **Aligned** – the BIOFIN process should be well aligned with national budgeting processes and fiscal policy that enables effective uptake of results.

6.2.2. Approaches to Costing

There are several approaches that can be used to construct a budget for a strategy or programme such as an NBSAP. They all relate an **input** of budget allocated to certain activities to some **output** in connection with strategies/targets, and ultimately results. Different budgeting approaches have pros and cons, different uses, and several are often used in combination. They are described here, and summarized in Table 6.1:

- **Incremental budgeting approach (IBA)** – this is perhaps the most common approach currently used for public budgets. In incremental budgeting, the previous year's budget is taken as a starting point and a percentage increase (or decrease) is applied. This leads to incremental ideas for expansion, i.e. increasing the number of forest guards, increasing enforcement missions, etc. This approach is not recommended for a BIOFIN methodology 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. It is important, when using historical costs to: 1) make certain 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, etc.; and 3) account for inflation, diminishing marginal returns, economies of scale and any other issues that would impact future costs.

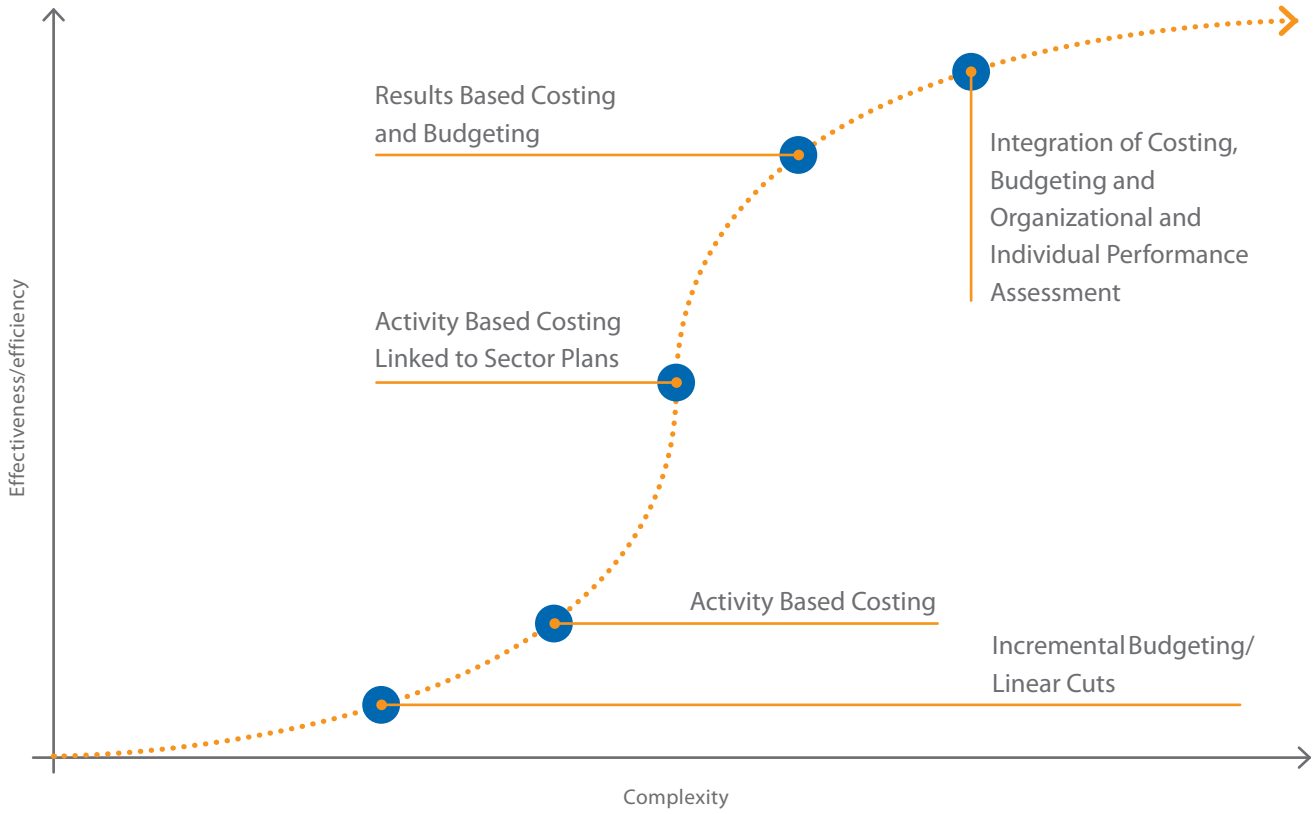
- **Cost modelling** – estimating future costs based on quantitative models with input variables. Models are almost always used for budgeting and can be as simple as multiplying a unit cost by the number of units needed. However, this approach generally refers to complex models that have multiple variables and could even be non-linear. 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.[7] Complex models supported by the literature may be useful for the FNA especially in cases where actions are new to a country and costs are unknown.

- **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.

- **Results based costing (RBC), or results-based budgeting (RBB)** – 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 national budgeting process—which is also called "performance based budgeting" because it allows the finance ministry and central planning agencies to more easily track the line ministries' performance with regards to proposed results. RBC is described in further detail below. Following the expansion of fiscal revenues in developing countries and technological developments (public

finance software), protected areas and biodiversity management have the opportunity to align and advance the implementation of results-based costing. This shift is illustrated in **Figure 6.2** and an example of RBC from Peru is provided in Box 6.2.

FIGURE 6.2: IMPROVEMENTS IN EFFECTIVENESS AND EFFICIENCY OF BUDGETING



BOX 6.2. MOVING FROM INCREMENTAL TO RESULTS BASED BUDGETING-PERU

Peru has launched a National Budget System Reform Strategy[8] including Results Based Budgeting (RBB) with the aim to ensure the government provides people with the planned quantity and quality of goods and services. The RBB includes several elements:

- Clear and objective definitions of the results to be achieved;
- Commitment by government entities to achieve these results;
- Responsibilities for both implementing instruments and accountability of public expenditure;
- The establishment of mechanisms for generating information on products, results and management efforts.

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

TABLE 6.1: SUMMARY OF 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. In the future, based on data from a wide range of BIOFIN countries and biodiversity activities linked to strategies and results, it may be possible to build refined models for future biodiversity management budgeting needs similar to models currently used in healthcare and education. In all cases, unit costs should be based on government norms, research and published documents, and be peer reviewed or validated. The literature on economics and biodiversity provides some useful estimates of costs for particular actions such as reforestation costs, coral reef restoration, seagrass restoration, etc. (See Box 6.3).

BOX 6.3: COST MODELLING TO ESTIMATE SUSTAINABLE BIODIVERSITY MANAGEMENT COSTS-THAILAND[9]

Cost modelling may be used by deriving estimates from modeling of the particular actions involved or may be derived from the literature or experiences in similar locations. It is particularly helpful to have comparable unit costs for different actions that achieve the same objective, as shown in the two tables below.

The options for coral reef restoration and coastal erosion prevention have been estimated by Thailand and may be useful for other countries with similar economic situations. Note that the cheapest actions are not necessarily the most efficient or cost-effective: this depends on the duration and effectiveness of the infrastructures and also depends on the quality of implementation.

Coral Reef Restoration Costs

Restoration methods	Unit cost (Baht/Rai)	Unit cost (USD/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. Revetiment	13,300	+++
5. Offshore Breakwater	200,000	+++
6. Sand Sausage	30,000	++
7. Groin (Groyne)	70,000	++
8. Gabin 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 encourages using results based costing (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. This connection to results is important in order to make the case for sustainable public finance for biodiversity. Many countries, are moving towards results based costing as a means of ensuring good governance and holding different government agencies to high standards of services.[10] The extent to which results based costing is formally adapted or appropriate for the FNA will depend on the capacity and appetite in each country, particularly in the finance ministry.

6.3 FNA Implementation Steps

There are six steps in the Financial Needs Assessment:

- **Step 6.1: 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 6.2: Scoping and clarifying the NBSAP results, strategies and actions**. Translate the NBSAP results to a logical framework that converts the biodiversity results and indicators identified in the PIR into "costable actions"; make initial prioritization of biodiversity results and strategies;
  - 6.2A: Review and refine the scope
  - 6.2B: Use a logical framework to structure and clarify actions and results
  - 6.2C: Initial pre-costing prioritization

- **Step 6.3: Desktop study and initial costing tables**. Identify unit costs; review existing detailed budgets, budgeting exercises, and budgeting processes (building on the work of the PIR and BER); research unit costs for common budget items (salaries, vehicles, etc.); build initial budget tables and models;
  - 6.3A: Identify budget units and standard costs
  - 6.3B: Building cost tables

- **Step 6.4: Refining 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 6.5: 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 6.6: Estimate the Finance Gap**. Compare the detailed costing statements with the projected future expenditures as calculated during the Biodiversity Expenditure Review (BER, Chapter 5); analyse the gap by national strategy or targets, BIOFIN categories, organization, etc;

Step 6.1: Preparations

During the preparation phase for the FNA, 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).

The organization that is likely to finance much of a detailed, budgeted national biodiversity action plan is the national government through the existing budgeting processes. As such, the ministries of finance and planning should be considered as principal decision makers. The agency responsible for (i) clarifying the targets, strategies and actions of the NBSAP, and (ii) implementing the plan and actions is also key, i.e. the ministry of environment. By involving all these important decision makers from the start, and following an appropriate budget format and elaboration process, the FNA's end product will have a greater impact. Additionally, it is important to include line ministries other than the environment ministry – e.g. agriculture, water, energy, etc. in the FNA process to ensure that indirect biodiversity expenditures are also included adequately.

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 6.1). For example, in some cases, ministries of finance are willing to consider increased funding requests from ministries of environment, but they do not understand the return from these proposed expenditures.

If not already done in the PIR, it is essential to identify the existing budget processes, determine their timing, and investigate integrating the FNA into it.[11] To align where possible with existing budget processes, an understanding of how they work needs to be brought in to the organization of the national BIOFIN process. The existing national or regional budget elaboration process was examined under the PIR (Chapter 4). It may already be extremely detailed and collaborative, thus following some of the principle tenets of the FNA. However, a costing exercise conducted outside of the existing budgeting process has advantages; it can be effective in that it is not limited to the use of an incremental budgeting approach.

Other elements in the preparation phase include:

- Form a working group containing experts who will work in tandem with the national BIOFIN team.
- Draft a work plan including a timeline and stakeholder consultations.
- Review methodology and seek lessons from other countries.
- Identify potential data sources through initial outreach to stakeholders.

Step 6.2: Scoping and Clarifying the NBSAP Actions

The scoping and clarifying of the NBSAP actions required in this Step goes beyond the initial work described in Chapter 4, and includes the following three sub-steps. The detail needed in this Step depends on the actual structure of the NBSAP. In some cases adjustments will be small and in other cases the work can be significant.

- 6.2A: Review and refine the scope
- 6.2B: Use a logical framework to structure and clarify actions and results
- 6.2C: Initial pre-costing prioritization

Step 6.2A: Review and refine the scope

During the PIR (Chapter 4) there will have been a detailed review of the NBSAP and other key national biodiversity-related strategies. If the NBSAP was determined to not be a sufficiently comprehensive national plan to use for the costing exercise, other national plans should be included as well to fully cover the required biodiversity investments. The scoping will also assess how the BIOFIN process can support refinement of the NBSAP including clarification of quantitative targets and indicators to define costable actions (see below).

Many countries use the NBSAP as a logical starting point, but some (e.g. Chile, Malaysia, Fiji) have expanded their analysis to better mainstream biodiversity investment strategies into national development plans. Although this Chapter refers to "costing the NBSAP" there is the assumption this includes the expanded scope, if agreed in advance.

It is also critical at this stage to gauge to what extent national actors are receptive towards making additional changes in the NBSAP, noting the main changes would predominantly affect the Action Plan elements. As shown from country experience implementing BIOFIN, the costing work is ideally done in parallel with the development stage of the NBSAP. In countries where the NBSAP cannot be refined, the methodology can be modified, but noting that the cost figures produced are less likely to represent the full scope of national financial needs for biodiversity. Most countries have been open to increasing the level of detail in the NBSAP to allow costing.

The main documents to review alongside the NBSAP in this Step were identified in the PIR (Chapter 4) under the section covering the national biodiversity vision. These will include national strategies, such as climate change strategies, protected area expansion strategies, national development plans and sectoral 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.

It is important to link the FNA process to objectives that are meaningful to political and financial decision makers (e.g. water resources management, livelihoods) making it more likely that they will act upon the results. Accordingly, the entire process should be embedded in the national development planning and budgeting systems and cycles as much as possible (initially reviewed in the PIR in Chapter 4). This can be enhanced by using government budget categories and unit costs, building on existing national and sub-national budgeting and planning processes, and engaging with the right stakeholders and decision makers throughout the process.

Step 6.2B: Use a logical framework to structure and clarify actions and results

Once the scope of the FNA has been agreed, biodiversity results need to be put into a logical structure that is clear, quantified and in the right language for 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 Box 6.4).

BOX 6.4 TERMS USED IN RESULTS-BASED MANAGEMENT

Goal: The higher-order objective to which a development intervention is intended to contribute.

Results: The output, outcome or impact (intended or unintended, positive and/or negative) of a development intervention. Changes in a state or condition that derive from a cause-and-effect relationship. There are three types of such changes that can be set in motion by a development intervention: output, outcome, and impact.

Impacts: Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended, on identifiable targets by a conservation intervention. These effects can be environmental, economic, socio-cultural, institutional, technological, or of other types.

Outcome: The likely or achieved short-term and medium-term effects of an intervention's outputs. The intended or achieved short-term and medium-term effects of an intervention's outputs, usually requiring the collective effort of partners. Outcomes represent changes in conditions that occur between the completion of outputs and the achievement of impact.

Outputs: The products, capital goods and services which result from a development intervention; may also include changes resulting from an intervention which are relevant to achieving outcomes.

Inputs: The financial, human and material resources used for the development intervention.

Indicator: Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement to reflect the changes connected to an intervention, or to help assess the performance of a development actor.

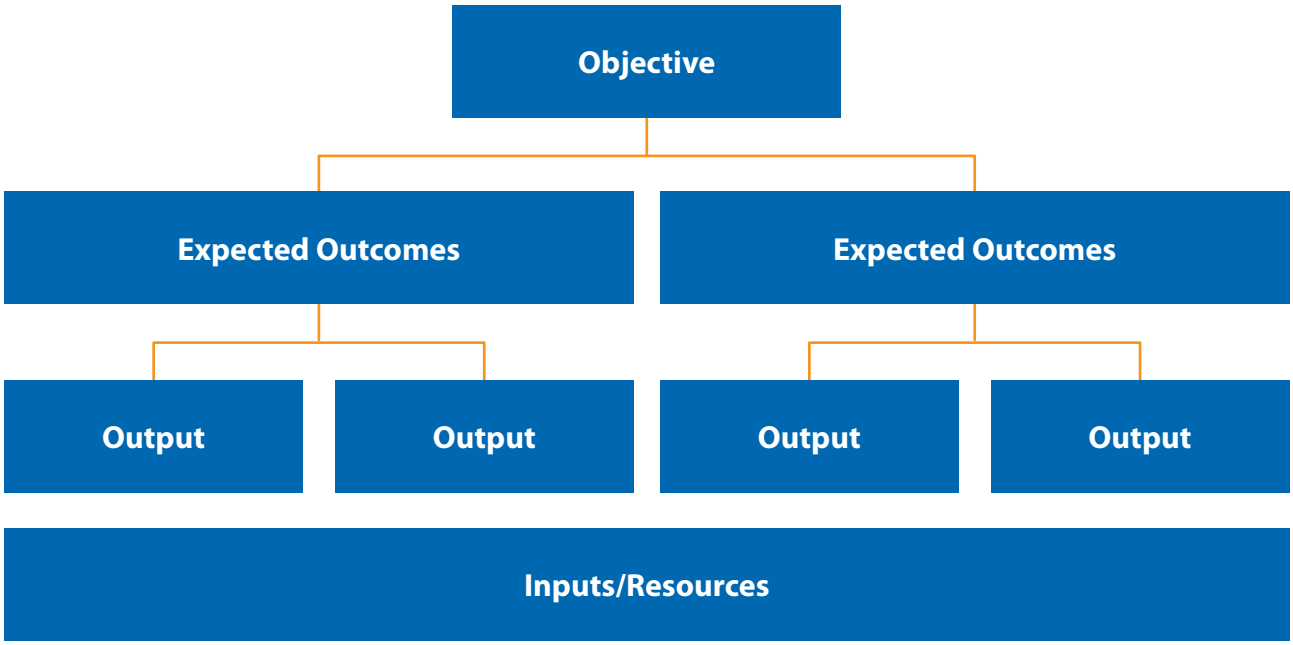
Efficiency: The measure of how economically resources/ inputs (funds, expertise, time, etc.) are converted to results. This generally requires comparing alternative approaches to achieving an output, to see whether the most efficient approach has been used.

Effectiveness: The extent to which an activity's stated objectives have been met.

Source: OECD DAC Glossary of Key Terms in Evaluation and RBM.[12]

Results-based management defines inputs under a hierarchy that stems from the desired results. A classic structure of this hierarchy is shown in Figure 6.3.

FIGURE 6.3: HIERARCHY OF INPUTS TO OBJECTIVES



The terms in Box 6.4 may not be evident in an NBSAP, but when this is the case they can be derived by translating information from the NBSAP targets, strategies, sub-strategies and actions. This can be done using in the logical framework shown in Table 6.2. This framework for actions and results is essential, along with clarifying the lowest level of costable actions to accurately define costs and justify investment. There are many forms of logical frameworks and for this FNA, the terminology based on the NBSAPs and summarized in Table 6.2 will be used and can be adapted to the national context.

TABLE 6.2: 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 will include both recurring and capital costs.

It is essential to provide specific – quantified where possible – results for all main strategies. Once the result is clear, the actions can be examined to ensure that they are the most appropriate to achieve those results. Putting content into the logical framework (Table 6.2) and defining quantitative outcomes and other results will require 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 to be carried out in Step 6.3. This detailed budgeting is the main objective of the FNA process. If the actions that are described in the NBSAP are too vague, lack quantitative results or lack spatial definition, estimating budget costs will be arbitrary, indefensible, and thus risk being rejected by finance decision makers.

A generic strategy such as "protect endangered species" would need to be linked to a result statement such as "decrease poaching incidents of white rhino by 30 per cent", and a related set of outputs and activities (e.g. such as increasing the number of rangers, strengthening the prosecution of illegal wildlife trade cases, etc.). For example, in Table 6.3, alternative actions are compared that are all designed to reduce poaching of rhinos. Even before detailed costs estimates are made, it is possible to compare different approaches and assess in a consultative manner which approaches should be used and costed. Once the chosen actions are defined, they can be described in terms that make them "costable actions".

TABLE 6.3: 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

This analysis is not designed to screen or prioritize results-based on cost effectiveness, as this Step comes later in the analysis (see Step 6.5). The clarified actions and results are taken forward to detailed costing, starting in Step 6.3. An example of turning a result into a costable action is provided in the example from Ecuador in Table 6.4.

TABLE 6.4: 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)

BIOFIN Data Tool

The results can be inputted to the BIOFIN data tool in four levels that link to the NBSAP. The levels are described as Strategy, Sub-Strategy, Action, and Costable Action, but these names can be altered by the country if needed. The BIOFIN data tool allows for the inclusion of both a result and an indicator for each action. The indicators can also be described with a baseline and target level if available.

In addition, SMART indicators (see Box 6.5) can be defined for the results being costed. Indicators are used to monitor attainment of the NBSAP results, but are not an end in themselves. They are useful because having clear indicators for the results expected helps any finance solution track activities and therefore manage delivery risks. This risk management improves the likelihood of a finance solution actually being financed. In the public sector, it improves accountability and helps feedback to decision makers; for the private sector reduced risk means lower rates of return can be accepted by funders. Certain Key Performance Indicators (KPIs) are high level indicators that can be used to evaluate the performance of expenditures and are especially valuable to ministries of finance and other finance decision makers. Another purpose of KPIs is as inputs to the business case for biodiversity finance solutions developed in Chapter 7.

BOX 6.5: FORMULATING SMART INDICATORS

Result based performance indicators can be formulated using the SMART concept. SMART indicators are Specific, Measurable, Achievable, Relevant and Time-bound. SMART indicators can be quantitative, qualitative or behavioural and should specify the performance standard to be reached in order to achieve an outcome or an objective.

Indicators should specify the target group (for whom); quantity (how much); quality (how well); time (by when); and, the location (where). SMART indicators that are linked to priority strategies and results are considered KPIs.

There are varied forms of indicators including those for biodiversity, finance and socio-economic performance.[13] In general, indicator elaboration should focus on results that are relatively easy to measure in the short and medium term, but should not ignore the most important long-term outcomes even if they are difficult to measure.

Biodiversity indicators typically use metrics linked to biological or ecological results or outputs generated by programmes and activities that are included in the NBSAP and other key national strategies or targets.

Financial performance indicators measure whether sustainable biodiversity management activities are financially viable, such as through return on investment (See Chapter 7, Box 7.7 ROI), and are closely related to economic performance. These include measures of cost effectiveness.

Socio economic impact indicators are metrics used to assess the social and/or economic impact of biodiversity interventions. Examples include: the percentage of new jobs in the tourism sector from nature-based activities; agricultural productivity increases resulting from more reliable water supplies from a Protected Area for irrigation; etc.

Step 6.2C: Initial Pre-costing Prioritization

During and following the process of refining the actions in the NBSAP into costable actions, clarifying results, and quantifying indicators, etc. a prioritization exercise should be implemented. This should identify those strategies and activities that are: i) the most likely to achieve results (see above); 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 biodiversity importance and does not take into account costs. The output of this Step will be 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.

Biodiversity Finance Solution Habitat Banking

Habitat banking preserves or enhances habitat for the purpose of providing compensation for expected adverse impacts from development activities to similar ecosystems nearby. They are a type of biodiversity offset, but create the compensation (i.e. "bank" it) before the adverse impacts arise. The value of a bank is defined in compensatory mitigation credits. These credits are tradable units of exchange defined by the ecological value associated with changes in habitats.

Example: Wetland banking has been applied in the USA since the 1980s, and is now a US$2 billion per year industry. Biodiversity offsetting schemes are established in over 30 countries.

See more in www.undp.org/content/sdfinance/en/home/solutions/biodiversity-offset.html.

Step 6.3: Desktop study and initial costing tables

This Step will result in the production of initial costing tables for the biodiversity targets. Specific sub-steps include:

- 6.3A: Identify budget units and standard costs;
- 6.3B: Build cost tables.

Step 6.3A: Identify budget units and standard costs

Each government has a standard set of budget (or cost) units and account codes by which government budgets are described and allocated.[14] These may also be termed line items, budget categories or budget accounts. Standard costs relevant to costing biodiversity targets (i.e. salaries, vehicle miles, etc. see below) will usually be organized within these units and codes. Most budget account 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 in Table 6.5.

A financial proposal that is provided to the government using its standard costing units, structure, and codes is more likely to be integrated into national and other budgeting processes. Use of government budget or accounting codes also facilitates communication with stakeholders and allows for an immediate use of BIOFIN outputs as required in budget processes.

TABLE 6.5: SAMPLE BUDGET LINE ITEMS-SOUTH AFRICA

Summary Categories	Sub-categories
Administrative	Advert
	Audit fees
	Bank charges
	Communication
	Maintenance & repair
Equipment	Motor vehicles
	Audio visual 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)

Standard unit costs to use in the FNA can be identified from a number of sources. They include data on unit costs and /or standard costs for particular actions; both for standard public budget items (e.g. salaries, materials, capital purchases), and other actions that are more specific to biodiversity management (e.g. rangers, field surveys). This is also where cost modelling or historical cost data can be useful.

Sources to search to identify standard unit costs include:

- **Previous budgets and budgeting processes**. Many existing national or local plans and strategies have already been elaborated and budgeted. These budgets should be reviewed to see what data, models, assumptions and approaches have been used effectively in existing budgeting exercises. This includes government audits.

- **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 estimates should be checked with the actual data (if available) from the BER, for example, to see if the price of one salaried person is consistently costed in relation to pay scales.

- **Historical costs**. Costs of biodiversity management actions (e.g. reforestation, protected areas management, conversion of conventional agriculture to organic, cost of sustainable wood harvesting relative to clearcutting, etc.) may be available relating to historical actions in the country or in similar countries.

- **Cost modelling**. Based on past experience of project modelling (see Box 6.3 in Section 6.1.5). These data should be broken down to the smallest detail possible.

BIOFIN Data Tool

Unit costs should be placed in an excel table at the finest level possible. These data can then be used to build detailed models for the costable actions. Once unit costs are determined, they can be used in the BIOFIN data tool.

While using the BIOFIN data tool, it may be necessary to establish more detailed worksheets with alternative costable actions and cost models.

Step 6.3B: Build cost tables

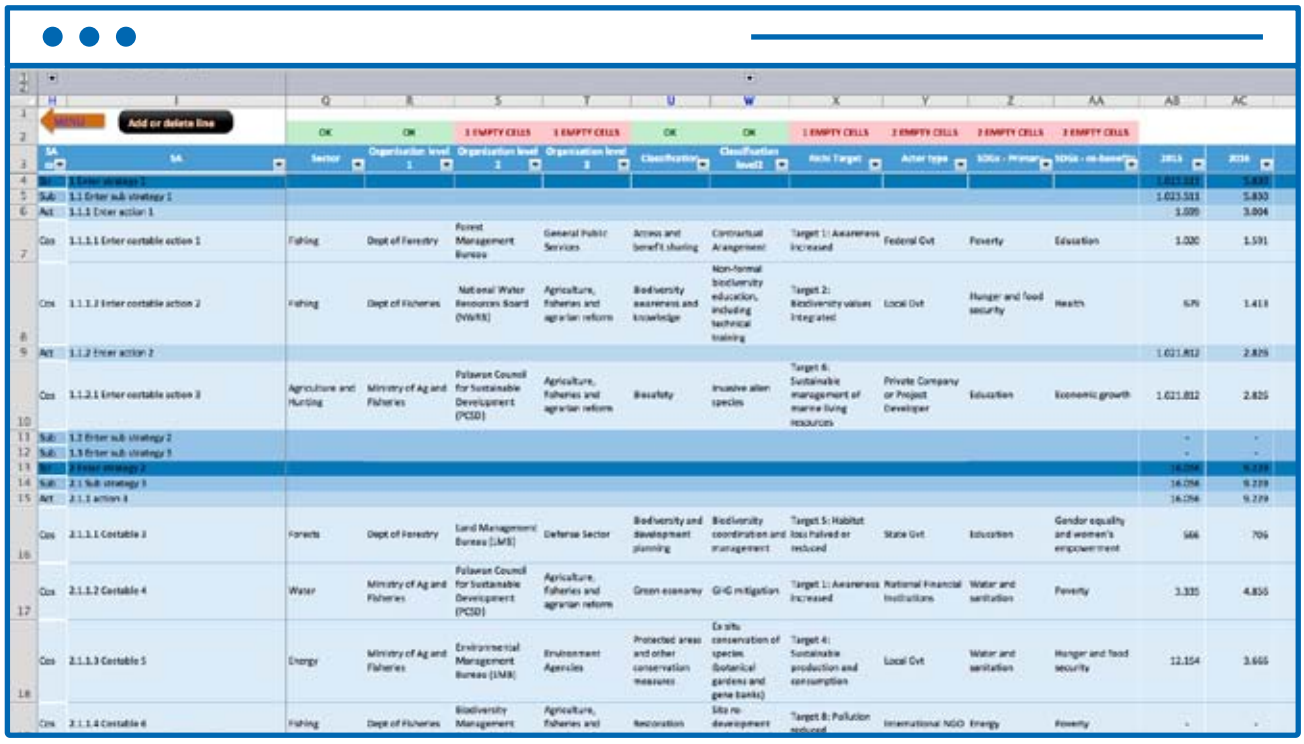
Once all costable activities have been identified and initial unit costs have been determined, the initial costing spreadsheets can be built. Costs should be divided into recurring (or operating costs) and capital expenditures (or investments). Recurring costs include salaries, fuel, and other expenditures that are 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;[15] 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 who will use the funds. In some cases, costs will be shared among actions (for example, for a fleet of vehicles). Therefore, to the extent that it is practical and possible, those costs should be sub-divided and attributed to the actions that share them. Administrative costs should be attributed to actions and can be estimated 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.

BIOFIN Data Tool

The BIOFIN data tool is designed to facilitate the completion of these elements of the FNA (see example from the Philippines below). Alternatively, self-made spreadsheets can be used. During this elaboration of costs, many details of the actions, and even alternative options of costable actions to achieve results will arise, and should be well documented.

TABLE 6.6: EXAMPLE OF BIOFIN DATA TOOL WITH FNA COUNTRY DATA



Step 6.4: Refining cost models with expert input

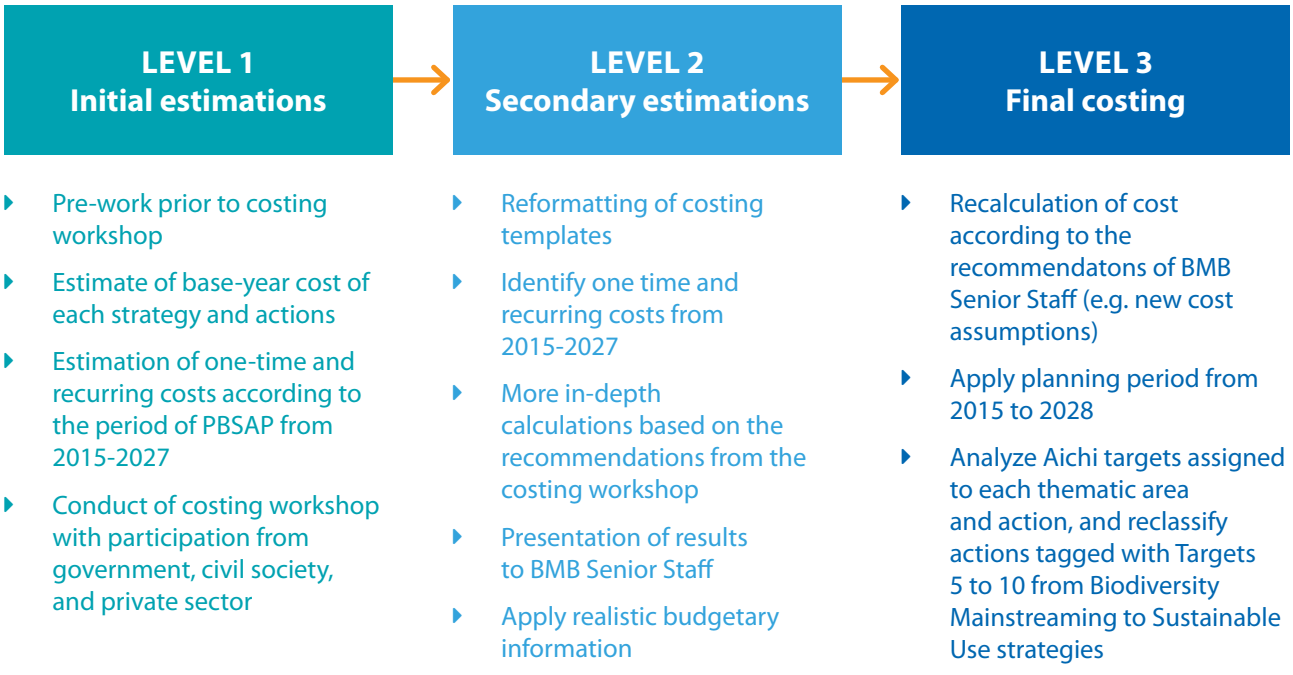
Once the initial costing models are established, giving a detailed basis for discussion, an iterative process is essential to refine them. There are numerous ways to engage experts in detailed discussion to refine the costing models. The suggested approach combines individual expert consultations with the organization of a workshop.

This Step should also tag all costed actions to a range of categories that allow comparisons and financial analyses across the BIOFIN process. Note that a key purpose of the cost models is to compare costs to current expenditures from the BER (Chapter 5). The BER can usually tag all expenditures with the main national biodiversity targets or themes and the BIOFIN categories. Therefore these national biodiversity targets and/or themes and BIOFIN categories will be the main basis for comparison of the BER with the FNA.

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 is needed for the specific choices for actions and their costs to be validated with specific experts and stakeholders. The workshop tests, finalizes and validates the assumptions, and the choices of costable actions, results, indicators, targets, etc, used in the costing. An example of this from the Philippines, working through three levels of detail is summarized in Figure 6.4. 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 6.6. Note that in future, more complex biodiversity costing models can be developed, learning from other sectors (see Box 6.7).

FIGURE 6.4: USING THREE ESTIMATION LEVELS AS A BIOFIN PROCESS IN THE PHILIPPINES



BOX 6.6: 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 6 wastewater management facilities.

These steps illustrate the process of clarification and quantification of specific actions, and their costs, allowing a detailed budget to be constructed.

BOX 6.7. FUTURE DIRECTIONS FOR BIODIVERSITY COSTING

It should be noted that models for costing biodiversity results are less well developed than in other areas of public policy. For example, the OneHealth Tool[16] is a 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 (i.e. UNAIDS, UNDP, UNFPA, UNICEF, World Bank and WHO). Other and similar tools have been designed to support costing and investment decisions in economic sectors, including infrastructure, trade and industry.

In biodiversity, there is currently a gap: despite an emergent literature, and a number of attempts to link biophysical, economic and financial models, there is no similar 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 categories that allow cross comparisons and financial analyses across the BIOFIN process.

The main tags that are recommended are the following:

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.;
4. BIOFIN categories.

And where possible

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

By tagging each action to these tags, a range of analyses is possible to calculate the financial needs under each of them (see Step 6.5). Once the consultation process has been completed, the team working on the detailed spreadsheets can update the assumptions and results, and produce the final costing draft that will be ready for validation by the report's clients.

Step 6.5. 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 sub-divided 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 costs to biodiversity priorities, and cost-effectiveness analysis. This analysis provides an input to the screening of finance solutions in Chapter 7.

The most important way to summarize costing results are 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. The purpose of these summaries is to 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.

BIOFIN Data Tool

The BIOFIN data tool is designed to capture all the information required do this analysis. However, the national BIOFIN team can make any necessary adjustments to it to be able to respond to specific questions required at the national or sector levels.

Relative costs of different biodiversity results

This analysis compares the results costed for different groups of actions that can be projected or summarized. 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 that that have been 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 considered period (e.g. currency fluctuations, price of certain services or goods, cost of capital, etc.?).

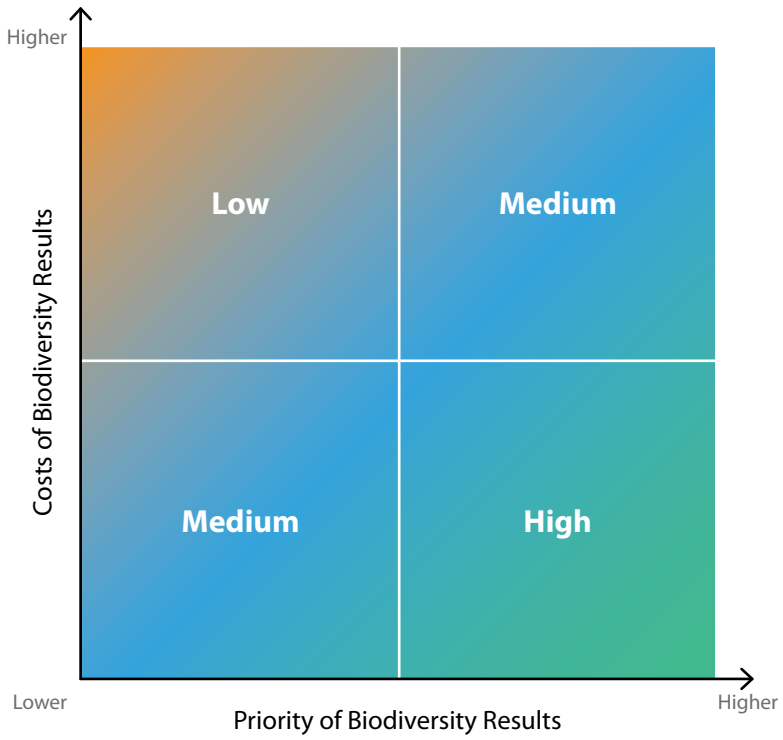
This analysis should also include a double check of the realism of the expected costs, the relation between cost and results, and a quick review of whether there are alternative approaches to achieving the same results. For example, the Philippines initially explored the option of constructing ballast treatment facilities on all of the major ports of the country, but soon realized that the costs of these facilities were prohibitive for the Biodiversity Management Bureau (BMB). Instead they identified partner organizations that the BMB would train and build capacity in so that they would 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 6.2C. The prioritization criteria should be focussed 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 6.5). This can help consider the relative importance of the different results costed from a biodiversity conservation standpoint.

FIGURE 6.5: EXAMPLE BIODIVERSITY PRIORITY AND COST-COMPARISON MATRIX



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). Higher biodiversity priorities with relatively low costs may lead to identification of the most cost-effective ways to achieve biodiversity goals.

Further (optional) comparison of biodiversity results and costs may be useful to select finance solutions for the Finance Plan in Chapter 7. Use of cost-effectiveness analysis and cost-benefit analysis to assess biodiversity finance solutions is discussed in Appendix III.

Biodiversity Finance Solution Debt-for-Nature-Swaps

This is a mechanism that can help reduce national debt levels, while raising funds for conservation at the same time. Debt restructuring enables governments to write off a proportion of their foreign held debt and instead direct payments into funds to support domestic conservation. Since 1987, debt-for-nature-swaps have generated over US$1 billion for conservation in 47 developing countries.

Example: In 1988, WWF purchased an initial US$390,000 of Philippine debt at a discounted cost of US$200,000 (51 per cent of face value). One of uses of the funds was the establishment of the El Nido Marine Reserve (1991) on Palawan, now a major tourist destination.

See more in www.cbd.int/financial/debtnature/costarica-naturalsolutions.pdf.

Step 6.6: Estimate Finance Needs

It is important to determine the scale and details of unmet financial needs (or "gap") at the national level. The goal of this Step is two-fold: 1) to explore the finance gap nationally and in detail; and 2) to enumerate existing finance solutions and sources and their association with specific actions and targets. The former can be summarized in the report from this Chapter and the latter should be noted for potential development in the Biodiversity Finance Plan (Chapter 7).

In the first instance, the total expected future expenditures as determined in the BER can be compared with the total future costs as elaborated in this FNA. However, this comparison needs to be made carefully and may be of limited use. First, a check is needed on the validity of the comparison: that the assumptions and approaches used (e.g. categories, recurring and investment costs) are consistent. Second, an estimate of the scale of this financial gap at national level does not provide adequately detailed information to make strategic choices with regards to biodiversity finance and policy options. It will be necessary to look deeper at specific elements to best understand the finance gap and what it means to the country.

To calculate the finance gap accurately, it is essential to have linked the outputs from the BER and FNA (in Step 6.4). This requires tagging of the BER and the FNA at the finest level of detail possible with the data and time available. Then the expenditures from the BER should be matched to the finance needs from the FNA at the finest level of detail that is shared between the two. In practice the comparison can be done in different ways, such as using national biodiversity targets (or themes), the BIOFIN categories, and organizations.[17]

A comparative table can be built that shows expected future expenditures and financial needs for each national target and BIOFIN category analysed. The comparison can also be presented in graphs and tables on finance gaps and needs by organization and where possible, further broken down by categories.

Care should be taken comparing the BER to the FNA results, especially where NBSAPs are project focused. Because the BER systematically includes all operating costs, at worst, a simple comparison of the FNA direct project/programme costs and the BER will wrongly show a significant surplus. Care should be taken in any comparisons to ensure that the expenditures on the biodiversity results equate to the costs of the actions to achieve them. Not doing so will produce a spurious comparison.

Large discrepancies between the BER and the FNA will make national level gap analysis ineffective. However, these detailed explorations of the finance gap will support brainstorming on potential finance solutions (such as reallocations of resources) that might address the underlying issues or be tied in some way to the targets or organizations. First, analysis of the gap at an organizational level – especially for the main organizations working on biodiversity in the country – will shed light on potential finance sources and solutions targeted towards those institutions.

Second, for each part of the finance gap identified, an assessment should be made of whether or not there are existing funds, budgets or finance solutions that are targeted to those actions. This is an indication of their financing potential, and should be recorded in the list of existing finance solutions established in the PIR (Chapter 4) in the BIOFIN data tool, for further assessment when developing the Biodiversity Finance Plan. Finance solutions can be associated with any level in the hierarchy, such as a sub-strategy or strategy, and this information should be noted too.

6.4 Conclusions and Recommendations

The final part of the FNA is to pull together and present detailed conclusions and recommendations. The detailed results of the FNA need to be captured in a report that illustrates their robustness for decision-making. The impact of the results of the FNA will also depend on the success of preceding approaches to build stakeholder and decision maker engagement during the course of the analysis that produced them.

The results of the FNA should ideally be shared broadly with and validated by government, private and third sector stakeholders in sustainable biodiversity management. The aim is to have the analysis adopted as official government figures to be used for financial planning and budgeting purposes. This is much more likely if the appropriate stakeholder engagement and government buy-in has been occurring during the national BIOFIN process. If this is not possible it is still useful to have the figures "approved" as recognized evidence. Although it is obviously a government decision, these figures can be useful for any formal reporting frameworks such as CBD financial reporting.

It should be borne in mind that even if the finance gap cannot be estimated in detail, the evidence from the BER and FNA can still be useful for the Biodiversity Finance Plan. Finance Plan and other future financial planning.

The main outputs of the FNA are a written report and a spreadsheet with all of the detailed budget information (cost sheets or statements) and analyses described above. Principle conclusions should be identified and expressed clearly. The conclusions can include the significance of the finance needs and gaps described in the previous sections. This can be based on 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.

Clear and well-supported recommendations are essential to moving the analysis from an analytical report to a useful document. Potential recommendations include:

- Better inclusion of biodiversity targets and results in national policies and planning (both sectoral and national);
- Institutionalizing the tools and analyses of this approach in environment sector budgeting including future NBSAP elaboration;
- Adopting approaches to tying existing and proposed finance solutions to specific targets, organizations, and results, etc;
- Integrating the results and processes derived from the FNA into the regular national budget planning cycle.

It is also important to consider the need to communicate and disseminate the main findings to all stakeholders in national biodiversity finance. Therefore, in addition to the main report, summaries of results can be developed for different audiences, such as a policy briefing for the higher level decision makers in the government and private 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. 2–3 pages

B. Acknowledgements

C. Introduction
  - Include the links to other BIOFIN reports and the structure of the report. Keep the introduction brief. 2–3 pages

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 in the appendices. 2 pages

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. Include comparisons to budgets of other sectors or strategies and to GDP. Compare the costs and priority of different biodiversity results. Aggregate by categories, by national priorities (targets), organizations and by sectors as relevant.

- Financial gap analysis.
- This is the core of the report. 10-20 pages.

F. Conclusions and recommendations
- Distil the main conclusions and recommendations, including policy and technical recommendations.
- Include recommendations on how to embed the elements of results based budgeting used in the FNA into the institutions covered; to better integrate biodiversity costs in national and sub-national 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). 3–5 pages.

G. References

H. Annexes
- **a.** Detailed methodology
- **b.** Detailed data sheets
- **c.** Glossary
- **d.** Supporting detail for recommendations

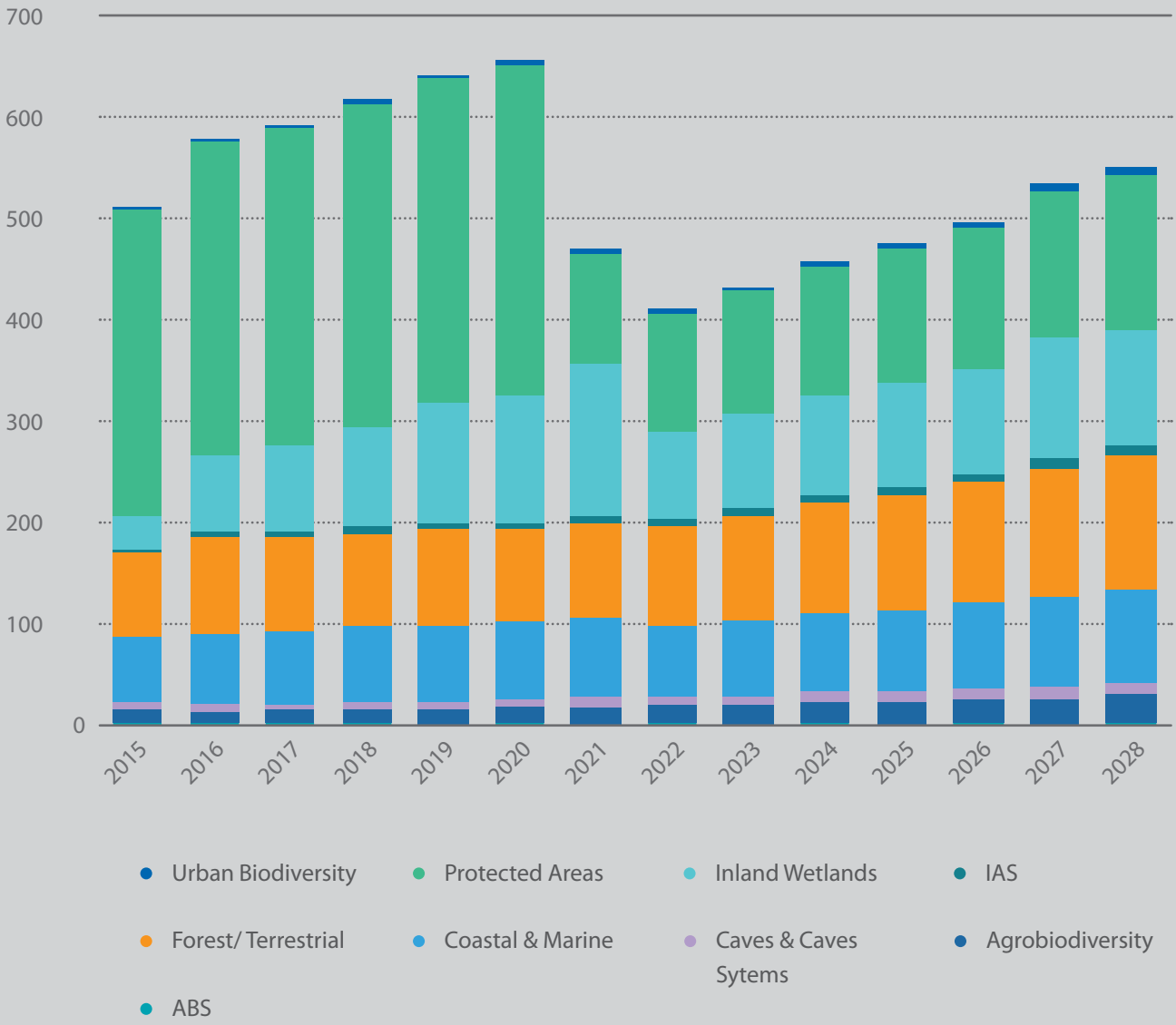
ANNEX 6.1: Examples of FNA Results

Philippines

The Philippines developed a detailed PBSAP costing using an iterative process involving the main stakeholders, key experts and government officials. Figure 6.6 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 6.6: TIMELINE OF COSTS FOR IMPLEMENTING THE PBSAP, 2015-2028 - THE PHILIPPINES

(Millions US$)



Ecuador

Ecuador costed the eight priority results in the Ecuador NBSAP, for a basic and optimal scenario. The basic management 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 of the programme if all necessary funding, personnel, equipment, and other resources were available. This would ensure achievement of short-, medium-, and long-term goals for the protected areas, in accordance with the highest environmental, social, and economic standards.[18] 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 6.7 and 6.8, respectively. For the optimal scenario, the data suggests Result 2 is already adequately funded. For the other seven results there are deficits.

FIGURE 6.7: BIODIVERSITY FINANCE GAP DISAGGREGATED BY RESULT IN A BASIC SCENARIO-ECUADOR

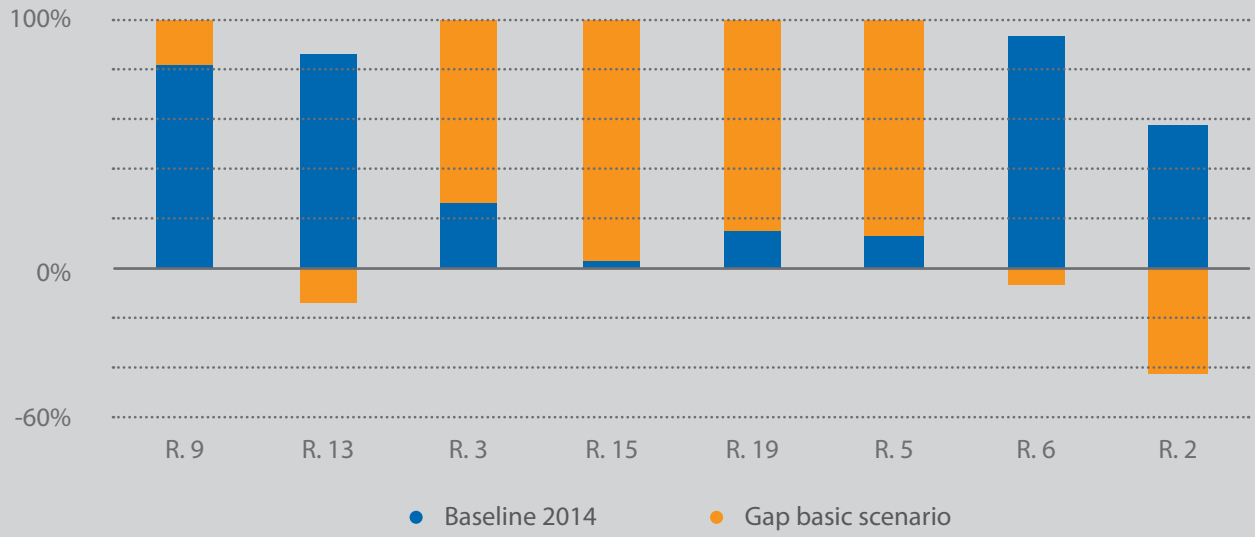
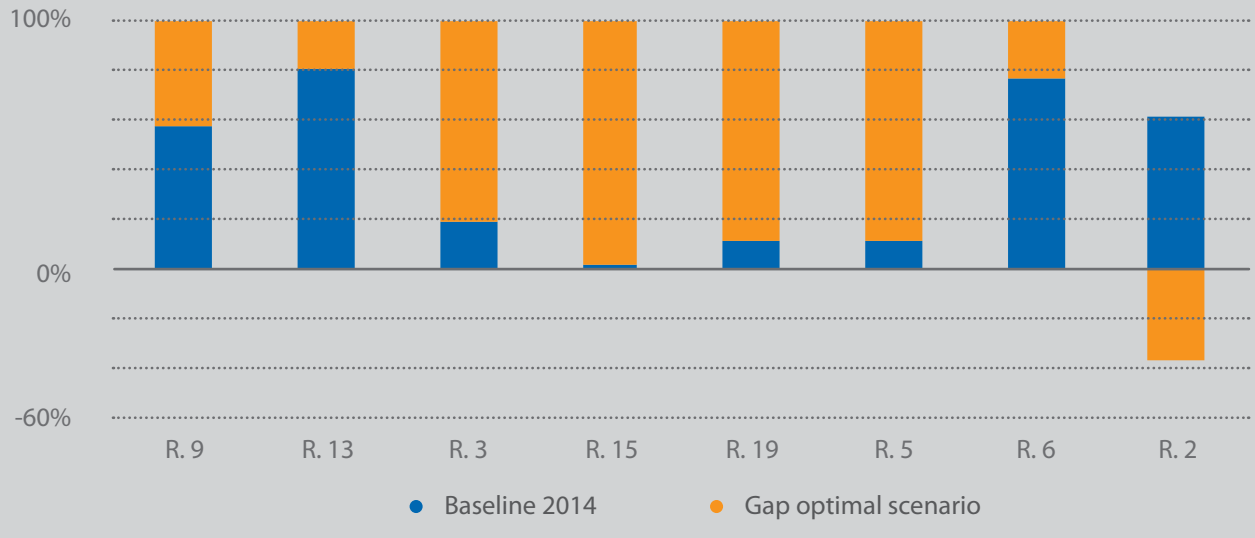


FIGURE 6.8: BIODIVERSITY FINANCE GAP DISAGGREGATED BY RESULT IN AN OPTIMAL SCENARIO-ECUADOR



Endnotes

1 Specified in national biodiversity strategy and planning documents.

2 In some countries results-based budgeting and similar techniques might already be a requirement (e.g. in Latin America); in others they present an opportunity.

3 Or the ministry responsible for budgeting and finance.

4 Cangiano, M. and others (2013). Public Financial Management (PFM) and Its Emerging Architecture. Washington: International Monetary Fund.

5 It can also be referred to as "zero-based" budgeting as the budget process starts from zero rather than last period's budget.

6 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.

7 Balmford, A., and others (2004). The worldwide costs of marine protected areas. PNAS vol.101, no. 26, June. Available from: http://www.pnas.org/content/101/26/9694.full.pdf.

8 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".

9 Source: 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.

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

11 Flores, M., and Bovarnick, A. (2016). Guide to improving the budget and funding of national protected area systems. Lessons from Chile, Guatemala and Peru, July 2012 – April 2014. UNDP. Available from: https://www.cbd.int/financial/guides/undp-rblc-pabg.pdf.

12 OECD (2002). Evaluation and Aid Effectiveness No. 6 - Glossary of Key Terms in Evaluation and Results Based Management (in English, French and Spanish). Paris. Available from: http://www.oecd-ilibrary.org/development/evaluation-and-aid-effectiveness-no-6-glossary-of-key-terms-in-evaluation-and-results-based-management-in-english-french-and-spanish_9789264034921-en-fr.

13 Flores, M., and A. Bovarnick (2016). Guide to improving the budget and funding of national protected area systems. Lessons from Chile, Guatemala and Peru, July 2012 – April 2014. UNDP. Available from: https://www.cbd.int/financial/guides/undp-rblc-pabg.pdf.

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

15 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.

16 World Health Organization (2016). Cost effectiveness and strategic planning (WHO-CHOICE): OneHealth Tool. Available from: http://www.who.int/choice/onehealthtool/en/.

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

18 Flores, M., and Bovarnick, A. (2016). Guide to improving the budget and funding of national protected area systems. Lessons from Chile, Guatemala and Peru, July 2012 – April 2014. UNDP. Available from: https://www.cbd.int/financial/guides/undp-rblc-pabg.pdf.

7 THE BIODIVERSITY FINANCE PLAN

7.1 Introduction

This chapter provides guidance on compiling the Biodiversity Finance Plan (BFP, the "Finance Plan", or the "Plan"). The Finance Plan is the culmination of all work from the national BIOFIN process. It should make use of the evidence and understanding gathered on biodiversity finance throughout the BIOFIN process.

This introduction describes the aims and objectives of the Finance Plan and the distinction between finance mechanisms and solutions. Section 2 of this Chapter then describes the six Steps for developing the Finance Plan. Section 3 provides guidance on reporting the Biodiversity Finance Plan. A final section highlights the need to take BIOFIN's work forward to sustain the implementation of the solutions in the Finance Plan beyond the lifetime of the national BIOFIN process.

7.1.1. Aims and Objectives

The Biodiversity Finance Plan aims to present a coherent and comprehensive national approach to biodiversity finance that encompasses a full suite of finance solutions, well beyond the mobilization of new and additional resources, engaging the public sector, private sector, and civil society. The aim is to produce a nationally validated Biodiversity Finance Plan that proposes steps to implement a mix of finance solutions in order to expand and improve the country's biodiversity finance and achieve national biodiversity targets.

To deliver this aim, the objectives of the Plan are to develop:

- An analysis of existing and potential finance solutions to prioritize and optimize a final list of solutions for inclusion in the Finance Plan.
- A compelling presentation of financial needs, biodiversity targets and strategies that can be linked to the prioritized finance solutions.
- Detailed technical proposals to operationalize prioritized biodiversity finance solutions.
- A clear business case to foster the Plan's implementation. The business case would generally feature a high-level economic case for biodiversity expenditure and investment cases for prioritized finance solutions.
- A final Finance Plan with clear financial objectives, priorities, milestones, budget and responsibilities.

The analysis and preparation of the Biodiversity Finance Plan will require a range of technical capacities from a team of people, and will require a coordinated effort from a group of government, civil society, and private collaborators. The national BIOFIN team will probably need to be supported by other national or international consultants to explore different finance solutions once they have been identified. The timeline for the Finance Plan preparation could be as long as one year and the Plan should be considered a living document and a process more than a definitive report.

7.1.2. Finance Mechanisms and Solutions

The BIOFIN Workbook distinguishes between finance mechanisms (i.e. the individual financial, fiscal or regulatory instruments used) and finance solutions (multifaceted approach that includes one or more finance mechanisms, the financing source(s), lead agent or intermediary(ies), and the desired finance result, see Chapter 1). The Finance Plan will propose multiple finance solutions in order to support sustainable biodiversity management. This will be achieved through a combination of scaling-up and enhancement of existing finance solutions and the introduction of new and innovative solutions.

Different biodiversity finance solutions can, for example: rely on public revenues and/or private contributions; be built around voluntary or compulsory schemes; be guided by markets, or not; be available on a short or longer-term basis; be associated with particular conditions set by the finance provider(s); be procyclical or countercyclical; and be available in different currencies. Faced with this complexity, the BIOFIN process has carefully developed the evidence base required to select and develop effective finance solutions, from amongst the many possibilities, through the preceding chapters.

Country-wide Finance Plans have been applied across different sectors and particularly in infrastructure and energy (See Boxes 7.1 and 7.6, but they were rarely developed for biodiversity or conservation).

BOX 7.1: FINANCE PLANNING FOR IMMUNIZATION: WHO-UNICEF GUIDELINES FOR COMPREHENSIVE MULTI-YEAR PLANNING (CMYP) FOR IMMUNIZATION (2013)[1]

The World Health Organization (WHO) has developed detailed and interesting guidance to plan immunization programme. These programmes can be successful only when they have adequate and reliable funding for the long and short term, combined with efficient procurement and use of resources. WHO details the planning process in 7 steps:

STEP 1. Situation analysis: A review of strengths and weaknesses of the immunization system.
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 workplans with links to national planning and budgeting cycles at national and sub- national levels of the health system.

7.1.3. Private Investment in Biodiversity

Biodiversity conservation targets cannot be achieved by public finance alone and the mobilization of private finance via regulatory frameworks, smart incentives and awareness of inclusive and sustainable business models is needed. Between the periods of 2004-2008 and 2009-2013, private investment in conservation more than doubled, and private investors intend to deploy US$5.6 billion in conservation impact investments in the next five years.[2] Credit Suisse (2016b)[3] provide suggestions on what investors seek in conservation projects and how to develop an attractive business opportunity for financial and impact investors.

For example, Forest Steward Council certified wood products allow an increase in the financial return on investment of forestry thanks to the relatively higher price premium (15-25 per cent for tropical hardwoods, WWF 2015[4]). The FAO identifies that organic agriculture systems can significantly out-perform conventional methods in maize with net cash benefits, return on capital and return per family labour day (FAO, undated).[5] The Althelia Ecosphere impact report shows that the investments made by the Althelia fund should allow for an excess of revenue of US$20 million to be received by local stakeholders from the sale of carbon credits and US$11 million in the sale of sustainable goods and services production. Finding investment opportunities for the private sector that provide a return to the investor and biodiversity benefits will greatly increase private capital in conservation.

Biodiversity Finance Solution: Impact Investment

Impact investment is investment made into companies, organizations, and funds with the intention to generate measurable social and environmental impact alongside a financial return. Impact investors invest in innovative but commercially viable business in sectors like sustainable agriculture, affordable housing, affordable and accessible healthcare, clean technology, and financial services for the underserved communities. Along with health care finance, the protection of the environment is a core area of impact investment. The 2015 JP Morgan and Global Impact Investing Network (GIIN) survey of 146 impact investors revealed that they were collectively managing US$60 billion in impact investments.

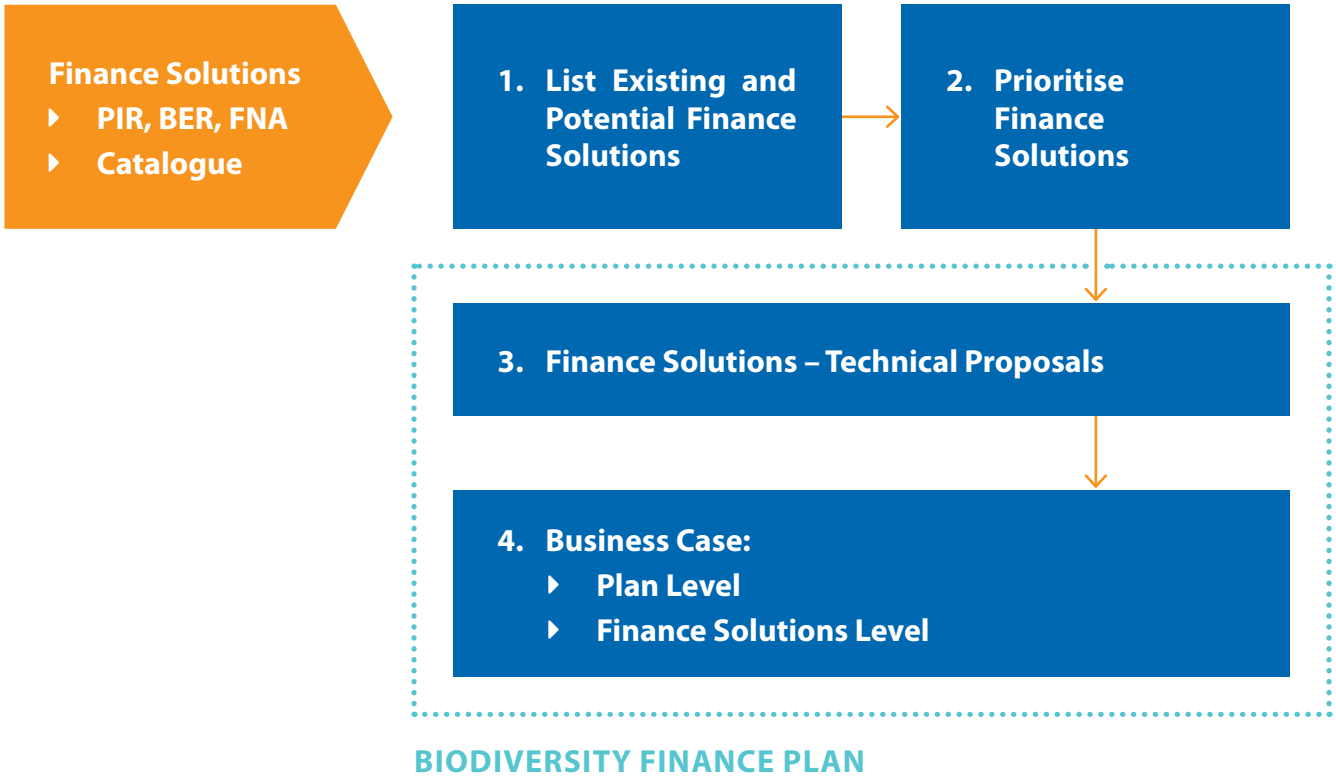
Example: The EcoEnterprises Fund (EcoE2) has invested US$5.5 million in three fair trade companies committed to habitat protection and restoration, responsible forest management, and community service in Latin America. Through these investments, EcoE2 has preserved over 800,000 hectares of land, maintained 300 full-time employees, and supported over 5,000 suppliers. The Acumen Investment Fund alone has created over 58,000 jobs worldwide with an investment portfolio of US$100 million.

See more in www.undp.org/content/sdfinance/en/home/solutions/impact-investment.html.

7.2 Steps in Completing the Biodiversity Finance Plan

This chapter outlines the six steps required to complete the Biodiversity Finance Plan (see Figure 7.1). Firstly, current and potential finance solutions are examined, including those identified through the work in the PIR, BER and FNA (Chapters 4-6) and drawing on the BIOFIN Catalogue of Finance Solutions. Solutions are prioritized in a two-step structured approach. Technical proposals for the prioritized finance solutions are articulated, from which a business case is developed, both at a macro-level for the Finance Plan as a whole and in more detail for finance solutions.

FIGURE 7.1: BIODIVERSITY FINANCE PLAN PROCESS



The specific Steps for delivering the Biodiversity Finance Plan are the following:

- Step 7.1: **Preparation** involves defining the scope of the work, identifying key stakeholders, and reviewing the BIOFIN assessments under Chapters 4-6.

- Step 7.2: **Description of existing and potential finance solutions** – includes an initial listing and description of the finance solutions already implemented in the country, as well as "scanning the horizon" by using the finance solutions catalogue to start thinking about the design and introduction of new finance solutions and strategies.

- Step 7.3: **Assessment and prioritization of the finance solutions** – begins with a rapid screening process (7.3A) of all identified finance solutions, followed by a more detailed screening exercise (7.3B) to derive prioritized solutions. The selection should be based on evidence and participatory engagement of local experts and stakeholders.

- Step 7.4: **Formulation of technical proposals for priority solutions** – involves drafting technical documents that describe the core elements of the solutions including the justification and rationale, the expected financial results, sequencing, risks, etc. The technical proposals will be instrumental for making a solid business case for each solution and for the Plan.

- Step 7.5: **Formulation of a business case for the Plan and the finance solutions** – this is the most difficult section of the Plan, but also the most important. The purpose is to gather evidence to persuade the government, prospective investors and stakeholders on the opportunity of implementing the Plan and investing in biodiversity. As pointed out in Chapter 3, the phrase "making the business case" is broadly utilized as providing justification, whether financial, economic, social or otherwise, for the Plan and the finance solutions to a broad set of stakeholders, and is not confined to private sector interests.

Finally, the Finance Plan will be validated with stakeholders, and related communication materials developed. Actions here include drafting of summary reports, recommendations and policy briefs, and discussing the Finance Plan with decision makers and prospective investors. Ideally, the Finance Plan is formally adopted by government through an official decree.

Step 7.1: Preparations

The preparations for the drafting of the Finance Plan start from reviewing the outputs of the previous BIOFIN assessments (Chapters 4–6). The task here is to distil the key information and recommendations from the previous BIOFIN chapters that should be included in the Finance Plan. A list of key information is provided in Box 7.2. This list can be used to ensure all relevant information from the national BIOFIN process is being used in the Finance Plan.

BOX 7.2: DISTILLING KEY INFORMATION FROM ASSESSMENTS IN PREVIOUS BIOFIN CHAPTERS

Chapter 4: Policy and Institutional Review

- National entry points for biodiversity financing including description of the value of biodiversity to the country.
- Key sectors that are either largely dependent on biodiversity or have a major impact on biodiversity and their contribution to GDP and jobs.
- Specific policy recommendations that describe an opportunity for altering the financial and economic incentives for companies, households, and government actors influencing priority biodiversity trends.
- Opportunities to better integrate into the national and sub-national planning and budgeting process.
- Existing biodiversity finance solutions that are active or being piloted in the country.
- Main sources of financing from biodiversity dependent/impacting sectors – forestry, fisheries, nature-based tourism, agriculture, mining etc. as they contribute to national government treasury, state-owned agencies, local governments, and key private sector actors. This should include taxes and other regulations that are derived from or influence biodiversity management.
- Major subsidies that are considered biodiversity-harmful or "adverse" subsidies.
- Subsidies and other fiscal incentives that support sustainable biodiversity management
- Institutional capacity with regard to design and implementation of biodiversity finance solutions.

Chapter 5 Biodiversity Expenditure Review

- Current and projected expenditures of key government agencies.
- Current and potential expenditures of NGOs and the private sector including opportunities for expanded investments.

Chapter 6 Financial Needs Assessment

- Financing needs, current finance solutions, and financing gaps for prioritized biodiversity strategies, actions and results.
- Financing needs, available finance solutions, and financing gaps for key organizations.
- Potential finance solutions associated with each prioritized strategy, action, or organization that could be scaled, made more effective, or otherwise improved.

The final task in the preparation phase is to agree on the ownership and legal status of the Finance Plan. This requires a clear understanding of the roles and responsibilities of those involved, as initially established under Chapters 3 and 4. When deciding on the Finance Plan's ownership and governance, consideration can be given to the following questions:

- What will be the official/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 the approval? How long will the approval process take?
- Who will be the owner and implementer of 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 in order to retain and motivate a high level of interest amongst decision makers?[6]

Step 7.2: Description of existing and potential finance solutions

Existing biodiversity finance solutions and mechanisms should have been identified and listed during the various BIOFIN assessments, for example:

- Subsidies, finance mechanisms and solutions, and biodiversity revenues identified in the PIR;
- Spending mechanisms identified in the BER; and
- Solutions associated with priority results, organizations, and the most cost-effective biodiversity management expenditures from the FNA.

This list of existing solutions and mechanisms should be complemented with possible finance solutions that are new to the country, of which some will have been previously identified during the BIOFIN process.

A comprehensive list and description of more than one hundred finance solutions applicable to biodiversity is offered by the BIOFIN Catalogue of Finance Solutions.[7]

BIOFIN Data Tool

All finance solutions should be entered into the BIOFIN data tool. Table 7.1 shows the suggested headings for recording this information.

TABLE 7.1*: DESCRIPTION OF FIELDS TO COMPLETE FOR ALL EXISTING AND POTENTIAL FINANCE SOLUTIONS THAT HAVE BEEN IDENTIFIED IN THE PIR, BER, AND FNA AHEAD OF PRIORITIZATION

Heading	Description
Name	Actual name of the solution. Example: Mexico Environmental Services Program
Solution	BIOFIN catalogue solution name. Example: PES/Water
Result	Select: generate revenues, realign expenditures, avoid future expenditures, and better delivery
Description	Brief description of the solution and how it functions
Source (Category)	Finance Source category – see Appendix IV
Source (Name)	Actual name of the finance source(s). Example: UK National Lottery
Responsible Party	Organization(s) playing a major role. Example: trust fund manager
Recipients	Name of organization(s), group(s), company(s) to whom the resources are transferred/ benefit from increased income
Financial Data	Assets, income, expenditure, and savings. Estimate past/current/future financial resources that can be mobilized for biodiversity
Law	Legislative/regulatory acts upon which the solution is reliant
Gaps	Known gaps and/or challenges
Opportunity	Opportunity(s) for improvement and scale-up
Sector	Select a sector(s) – see Appendix IV
Notes	Information not captured elsewhere including information sources

*This is the same table that is used in the PIR for existing finance solutions and should be expanded to include those solutions identified in the BER and the FNA.

This initial table includes only descriptive information. The objective of Step 7.2 is to expand this list to capture the entire range of solutions in the country as well as new solutions that may have potential.

Biodiversity Finance Solution: Wildlife Impact Bond

A wildlife impact bond is a financial mechanism where investors frontload resources for a set of projects to improve the protection of wildlife and reduce the risks of extinctions and biodiversity loss. If the project succeeds, the investors are repaid by the government or an aid agency or other philanthropic funder with capital plus interest. If the project fails, the interest and part of the capital is lost.

Example: United for Wildlife (UfW) and its partners are creating long-term solutions that both reduce the imminent threat of rhino poaching, and build the capacity required for sustained recovery of livelihoods and biodiversity. They are beginning a three-year testing phase of sustainable funding for critical conservation areas using rhinos as an initial focus in the Rhino Impact Bond project. They aim to launch the first US$25-35 million Rhino Impact Bond by 2018.

See more in www.undp.org/content/sdfinance/en/home/solutions/social-development-impact-bonds.html.

Step 7.3: Screening and prioritization of the finance solutions

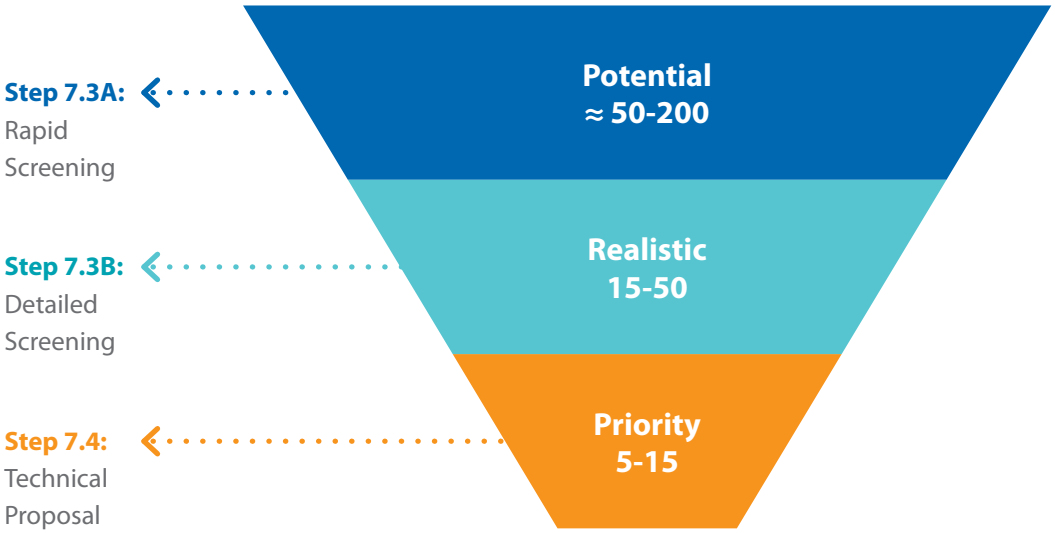
The purpose of Step 7.3 is to assess and prioritize finance solutions in order to select those solutions that will receive detailed technical proposals (Step 7.4) and be included in the Plan. It is key to ensure the prioritization process is accurate and credible. The priority given to each finance solution should be based on desk reviews and analysis, expert interviews and ideally a prioritization workshop. A two-step selection process is suggested, starting with a rapid screening (Step 7.3A), followed by a more detailed assessment (Step 7.3B).

Recommendations for sound prioritization of finance solutions based on lessons learnt from BIOFIN work to date include:

- Careful selection of experts and participants invited for workshops and detailed interviews;
- Availability of sufficiently detailed descriptions and explanatory information when rating the different solutions;
- Cross-checking the scoring made by experts with international literature and comparable countries.

Figure 7.2 visualizes the main steps of the selection process and the expected output, i.e. the identification of a sub-set of priority finance solutions for which detailed technical proposals will be prepared.

FIGURE 7.2: PRIORITIZATION OF FINANCE SOLUTIONS



Several support tools are available to assist with the identification and prioritization of the finance solutions:

The **BIOFIN Finance Solutions Catalogue** (the "Catalogue") is a simplified listing of more than one hundred finance solutions. The purpose is to offer a comprehensive, landscape view of possible solutions. Solutions are characterized by source, the type of solution,[8] instrument and sector.

The **Financing Solutions for Sustainable Development Platform**[9] (the "Platform") is an additional tool to help users navigate through a number of 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 on biodiversity only, it provides a detailed review of the different solutions, including several related to biodiversity, with references to e-learning and detailed technical guidance.

The Catalogue and the Platform use the same tagging system and are fully compatible.

> The BIOFIN data tool provides automated templates for the screening and assessment processes, reproducing in a spreadsheet format the tables and exercises included in this section of the workbook.

Step 7.3A: Rapid screening

The rapid screening process is meant to focus analysis on the finance solutions that are most promising and realistic. From a potentially long list (e.g. up to 200) of existing and potential finance solutions, this review needs to identify ones that bear the highest potential for successful implementation. A rapid screening can be implemented during a workshop or through a questionnaire to be compiled by the national BIOFIN team and other experts. The input to the screening is the list of finance solutions (existing and potential) from Step 7.2. Each solution can be scored on a scale of 0 to 4 (0 being worst, 4 being best as shown in Table 7.2) against three criteria:

- Potential for achieving a biodiversity impact – the amount and significance of the biodiversity that can be impacted. The significance of the biodiversity outcome can be judged in different ways, e.g. its conservation urgency, the presence of endangered species, and/or people's values assessed through economic valuation techniques.[10]

- The potential scale and sustainability of financial impact – the resources that can be leveraged in the context of the biodiversity finance gap being addressed. Sustainable financial impact can be considered as a combination of: how much? for how long? and how stable?

- The likelihood of success – a general assessment of the technical, social, and political feasibility of the proposed solution.

TABLE 7.2 RAPID SCREENING CRITERIA AND SCORING GUIDANCE

Criteria	Scoring Guidance
Impact on biodiversity	(4) Very high impact on threatened/endangered species and habitats and critical[11] 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. Indicatively 15 per cent of current expenditures or needs. (2) Potential to mobilize or save a moderate amount of resources compared to existing expenditures or needs. Indicatively between 5-15 per cent of current expenditures or needs. (1) Potential to mobilize or save a low amount of resources compared to existing expenditures or needs. Indicatively under 5 per cent of current expenditures or needs. (0) Minimal scale of resources mobilized or saved if compared to current expenditures or needs.
Likelihood of success	(4) Very high likelihood of success. Broad based political and social support and/or sound commercial viability (if relevant). No major operational challenges known. Good records or expectations 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 records of success, replicability or scalability in comparable contexts. (2) Moderate likelihood of success due to limited political or social support or known operational or technical barriers. Limited commercial viability (if relevant). Limited records of success, replicability, or scalability in comparable contexts. (1) Low likelihood of success due to high political or 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).

The criteria used for the screening can be simplified or expanded to suit the country context. For example, the likelihood of success could be expanded by scoring technical, social, and political feasibility separately. Assuming that all the potential finance solutions have been selected because they make a contribution to sustainable biodiversity management, a minimum screening is to use the financial impact and the likelihood of success as a core part of the criteria. If there is uncertainty about whether a solution should be retained, then it is usually best to retain it for further analysis than risk losing a potentially viable solution. The cut-off score can be adjusted to produce a desired number of solutions for the next level of screening (see Figures 7.2 and 7.3).

Figure 7.3 shows analysis from the BIOFIN data tool capturing the application of screening criteria in South Africa.

FIGURE 7.3: EXAMPLE OF SCREENING CRITERIA IN THE BIOFIN DATA TOOL

Nr	Broad solution category	Name of solution	Description	Potential for Biodiversity Impact	Scale of Financial opportunity	Political feasibility 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
31	Biodiversity offsets	Finalisation of biodiversity offsets policy with agreement from Treasury	The national biodiversity offsets policy is intended to provide clarity and outline the basic rules for offsets thereby facilitating implementation. It will be important to ensure that the finalisation of the policy takes Treasury requirements into account in order to it to be implementable.	3	4	2	9	Yes	No
32	Biodiversity 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
49	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
48	Climate change finance	Use of Green Climate Fund (GCF), Adaptation Fund, Blue Carbon Fund and others to fund projects with biodiversity benefit (e.g. restoration)	The Green Climate Fund and other funds present the opportunity to generate substantially funding for restoration projects. In order to stand a chance of success, high levels of government support and land owner buy-in and effort are required.	3	4	3	10	Yes	Yes
54	Tourism levy/tax	Introduction of a new voluntary tourism levy initially focused on raising anti-poaching funds	A new tourism levy is being developed by a group of NGOs including the PeaceParks Foundation, EWT and Wilderness Foundation. Details to follow...	3	3	3	9	Yes	No
04	Fines	Increasing fines for environmental transgression/crime	Fine amounts are generally low, not commensurate with damages caused and not set at levels that would discourage potential transgressors. Reform thus has the potential to lead to greater behaviour change and to raise revenue.	3	4	3	10	Yes	Yes
65	Certification standards	Introduction of a certification scheme for game farming	Certification schemes are currently relatively widely used and include the Biodiversity and Wine Initiative (BWI), the South African Sustainable Seafood Initiative (SASSI), predator/wildlife friendly lamb, Green Choice labelling, Badger Friendly honey, etc. Game farming has also been identified as a key sector where certification should provide those wanting to pursue biodiversity friendly practices with an incentive to do so.	3	3	3	9	Yes	No

Step 7.3B: Detailed screening

The rapid screening process (Step 7.3A) will produce a list of finance solutions that are deemed "realistic". These solutions will need to be reviewed more thoroughly to be prioritized and chosen for the Finance Plan. The detailed screening is based on a range of guiding questions that can be scored from 1 to 5 (with 1 as the lowest and 5 as the highest scores), using the suggested criteria in Table 7.3. Note different criteria may be considered more or less relevant to different finance solutions.

The detailed screening needs to be undertaken by those with a good knowledge of the potential finance solutions. Individuals with appropriate expertise should be drawn from members of the BIOFIN country team, Steering Committee or technical advisory group (see Chapter 3), and other organizations where useful. These experts are expected to have existing knowledge, but also need to be given relevant information to check and interpret during the detailed screening process. This information should present an adequate description of each finance solution and be specific enough to inform expert judgements. For example, a generic description of a Payment for Ecosystem Service (PES) scheme is inadequate: the buyers and sellers; monitoring arrangement; and impact, etc., of a PES should be described.

The responses or scoring can be compiled through self-administered questionnaires, workshops or both. Once solutions are scored and averaged as needed, a rank order can be drafted with the highest scoring solutions becoming the "priority". A cut off can be set to divide those solutions that will be included in the Finance Plan from those that can be retained for later study (all solutions that passed the first cut off should be included in an annex to the Finance Plan). The scoring should be cross-checked by an expert panel and publicly validated.

TABLE 7.3: DETAILED SCREENING CRITERIA AND SCORING GUIDANCE

Questions	Indicative marks for scoring (1-5)
Is there a positive record of implementation?	1= no, or limited records of success 3= successful pilots 5= yes, high potential of scalability
Will it generate, leverage, save, or realign a large volume of financial resources?	1= minimal scale 2= <5 per cent of current expenditures/needs 3= 5-15 per cent of current expenditures/needs 4= >20 per cent of current expenditures/needs 5= game changer
Will financing sources be mobilized in a compatible timeline with needs?	1 = no, the mobilization is not aligned with needs 3 = likelihood of being mobilized in alignment with needs 5 = yes, forthcoming and compatible schedules
Will financing sources be stable and predictable?	1 = no, the source of revenue may be highly unstable and vulnerable to external factors 3 = likelihood of being reasonably stable and predictable source 5 = yes, very stable and predictable
Do the persons or entities paying have a willingness and ability to pay or invest?	1 = no 3 = possibly 5 = yes
Are the financial risks adequately managed (e.g. exchange rate, lack of investors, etc.)?	1 = no, high risks remain 3 = moderate risks 5 = yes, low residual risks
Are start-up costs onerous in comparison to the expected financial returns?	1 = very costly (compared to returns) 3 = moderate (compared to returns) 5 = very low/minimal (compared to returns)
Does the solution improve incentives to manage biodiversity and ecosystems sustainably? (see Chapter 1).	1 = not clear 3 = likely 5 = most certainly

Questions	Indicative marks for scoring (1-5)
Will the financial resources remain targeted to biodiversity over time?	1 = not clear, high risk of misallocation 3 = likely, administrative provisions 5 = yes, strong legal provisions
Are risks to biodiversity (e.g. disrespect of mitigation hierarchy) low or easily mitigated? How challenging would it be to develop safeguards?	1 = high risks, no easy mitigation 3 = reasonable risks, mitigation possible 5 = low risks, easy safeguards
Will there be a positive social and economic impact (e.g. jobs, poverty reduction and cultural and gender equality)?	1 = no 3 = moderate 5 = strong positive impact
Have risks of significant unintended negative social consequences been anticipated and managed?	1 = no, high risks remain 3 = moderate and manageable 5 = yes, minimal residual risks
Will it be viewed as equitable and will there be fair access to the financial and biodiversity/ecosystem resources?	1 = no, risk of inequitable outcome 3 = maybe 5 = yes
Is it backed by political will?	1 = no, resistance from key stakeholders 3 = maybe 5 = yes, with public statements in support
Have political risks been anticipated and managed?	1 = no, high risks remain 3 = moderate and manageable 5 = yes, minimal residual risks
Is buy-in among stakeholders (i.e. potential investors/ decision makers, implementers, and beneficiaries) sufficiently strong to counter potential opposition?	1 = no 3 = partial buy-in 5 = yes, strong buy-in
Do the managing actor(s) have sufficient capacity? Can they rapidly acquire it?	1 = no, severe capacity gap 3 = moderate capacity gap 5 = yes, strong capacity
Is it legally feasible? How challenging will any legal requirements be?	1 = no, new law is required 3 = new regulations required 5 = yes, new regulations are not needed
Is it coherent with the institutional architecture, can synergies be achieved?	1 = no, limited or no synergies/coherence 3 = potential synergies 5 = yes, fully coherent/large synergies
Total Score	**19-95**

Once the scoring in the detailed screening is completed and collated, a list of 5-15 priority solutions should be identified. The exact number could be higher and will depend on national factors (such as the size, diversity of ecosystems and biodiversity management issues, institutional capacity etc., in the country) and the complexity and comprehensiveness of the solutions proposed.[12]

This mix of the priority solutions should then be assessed as a package of solutions for the country. Box 7.3 provides a set of criteria for such an assessment. If the basic criteria are not met by the mix of priority solutions proposed or if the mix does not produce a Finance Plan that will deliver progress on national biodiversity objectives, there might be a need to revisit the identification and screening process or other parts of the national BIOFIN process to bring forward further options for finance solutions. If the mix of proposed solutions is assessed to perform adequately as a group, then they can each be developed further in Step 7.4.

BOX 7.3: APPROPRIATENESS OF THE MIX OF SOLUTIONS PROPOSED – SUGGESTED CRITERIA

- *Financial adequacy (finance):* the sum of the resources expected to be mobilized through the solutions listed is adequate to significantly reduce the gap previously identified.
- *Diversity of solutions (risk management)*: focusing on a single solution might put at risk the future of a country's biodiversity should it fail for any reason. A country's Biodiversity Finance Plan should contain a diverse set of solutions in order to be more resilient to shocks.
- *Appropriate sequencing (planning):* some solutions might require several years before they can be implemented/achieve biodiversity results. The Finance Plan should take into consideration biodiversity priorities and time constraints, a mix of short-and long-term solutions may be useful.
- *Contribution to sustainable development (integration):* the Finance Plan needs to be framed in a wide understanding of sustainable development and promote social and economic development. Sub criteria include: acceptability of trade-offs, contribution to reducing gender and income inequality and poverty, and fairness.

Step 7.4: Formulation of technical proposals for priority solutions

During this Step, the priority solutions identified through the screening in Step 7.3 will undergo a full technical analysis and initial design phase. The information used in the screening process and the evidence from the BIOFIN assessments in Chapters 4-6 can be drawn on as a starting point for the analysis. The analysis should be carried out for each priority solution.

Sometimes a lack of information and knowledge about a solution will require additional research to be conducted. For some of these solutions, this research may continue after the initial drafting of the Plan – in this case the solutions should be described in as great as detail is possible to complete the Plan. Then the Plan can be updated as more information is acquired over time. As such, the Plan should be seen as a working document rather than a final one-off report.

The goals of the technical proposals include:

- Building information that supports the business case for the solution, for example key financial and performance indicators;
- Providing an analytical structure for initial solution design, identify gaps in knowledge and a process to fill these gaps;
- Identifying requirements for further feasibility assessments (e.g. budget for start-up phase or detailed feasibility assessments);
- Identifying major risks affecting the success of the solution; and
- Ensuring the solutions respond to national priorities and identify the right entry point for promoting and implementing the solution.

Each technical proposal will be included as an annex in the Plan and main points will be presented in a one-page summary in the Plan body. The one-page summaries should emphasize the business case and can be presented as marketing documents for decision makers. The one-page summary of the technical proposal should include:

1. A description of the finance solution
2. A clear economic and/or policy rationale
3. Key biodiversity strategies targeted and expected outcomes
4. Expected financial or economic results including ROI if possible (see below)
5. Responsible parties and their respective roles
6. A clear timeline and milestones for implementation.

The technical analysis can be divided into the following five sections. Each of these sections supports an aspect of the business case, described in Section 7.5. The main questions to be answered under each section are grouped in five categories, and described in Annex 7.1.

1. Strategic Positioning
2. Economic Considerations
3. Financial Considerations
4. Management Considerations
5. Commercial Viability [for market instruments only]

Step 7.5: Formulation of a Business Case

The biodiversity finance business case sets out the rationale for prioritizing biodiversity finance in policy, legislation, plans and projects in a language that the investors and financers of those activities can understand. It should convince decision makers to take action by highlighting the benefits of taking biodiversity into account in decision-making and recognizing the associated costs and risks of business as usual. The business case for the Plan and the cases for different finance solutions may need to adapt to the different perspectives and interests of their target audiences (see Box 7.4).

BOX 7.4: ADAPT THE BUSINESS CASE TO DIFFERENT PERSPECTIVES AND INTERESTS

Depending on the key stakeholders and decision makers for the Plan and its finance solutions, the business case will need to 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, wellbeing, and other companies, in operational risks (e.g. supply chain disruption) and in 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 if targeted to foundations, high-net worth individuals or the general public.

As stated above, the business case for the Finance Plan should be a combination of two approaches – one that examines the economic benefits of sustainable biodiversity management in the country – why implement the Finance Plan at all? The other approach is aimed at elaborating an investment case for each finance solution:

- At the Plan level, the business case should address both the benefits of investing in biodiversity in general, and the benefits of investing in and implementing the Biodiversity Finance Plan 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 programme like TEEB (2016)[13] and PEI.[14] This analysis will be presented in the early part of the Plan and will build on the information compiled in the assessments in BIOFIN chapters 4-6. 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.

- At the solution level the investment case will include more technical and financial justifications to explain the selection and design of the prioritized finance solutions. This information will have been elaborated in the technical proposals. These business cases will be presented as part of the one-page summary of each solution in the main body of the BFP. The full technical proposals will have additional supporting information presented in the annexes.

Each of these types of business case is described further below. Both business case types can be subdivided into five elements that mirror the sections of the technical proposal, as described in Box 7.5, with different emphasis on these elements at the Plan or solution level and at different points in the business case process.

BOX 7.5: FIVE ELEMENTS OF A BUSINESS CASE

This approach, most commonly used in the UK, New Zealand and Australia, distinguishes five elements of the business case. Generally, 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[15] – 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 business case not only as an economic argument but also as a social and emotional argument. Table 7.4 from South Africa provides some talking points for building buy-in for biodiversity in decision makers and the public.

TABLE 7.4: SOUTH AFRICA'S EIGHT VALUE PROPOSITIONS FOR BIODIVERSITY

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 per cent of our population.
Humanity	As humans, we are part of the web of life. Nature's ubuntu is all around.

Source: DEA and SANBI, 2011.[16]

Plan Level Business Case

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, and include ecosystem services arguments. However, these benefits are often not well 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 cost-benefit analysis (see Appendix III). Initial data was identified in the PIR and can be summarized here. If there are inadequate data, additional (social) cost-benefit analysis 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 5 and 6). The business case for the Plan as a whole will make reference to the criteria for an appropriate mix of solutions, described in Box 7.3: financial adequacy (finance); diversity of solutions (risk management); appropriate sequencing (planning); and contribution to sustainable development (integration). Making the Plan level business case can also draw on good practice in other sectors (see Box 7.6).

BOX 7.6: LEARNING FROM OTHER SECTORS: THE AUSTRALIA NATIONAL INFRASTRUCTURE PLAN

An example of a structure of a plan level level business case can be seen in Australia's national infrastructure plan. The plan aims to extract the greatest value from existing infrastructure, while sustainably funding new investments, to deliver better services. Its recommendations reflect the strategic thinking needed to build the business case for the Plan:

1. Productivity: objectives for productive infrastructure.
2. Population: the population the infrastructure will serve.
3. Connectivity: how the infrastructure enables connectivity.
4. Regional: actions needed by sub-national government bodies.
5. Funding: how to channel finance.
6. Competitive Markets: the role of market mechanisms.
7. Sustainability and Resilience: links to environmental objectives and whole-life operation.
8. Remote and Indigenous Communities: specifically considering these social objectives.
9. Governance: for the ongoing operation of infrastructure.
10. Best Practice: that should be used in implementation of the plan.

Solution Level Business Case

In general, each finance solution will have its own business case that will be summarized as part of its one page technical description in the main body of the BFP, and presented in greater detail as part of the technical proposal. These solution level business cases are derived entirely from the technical analysis described in detail in Step 7.4. 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 7.7).

Some countries might want to organize the business 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 "once in a life-time" 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 7.7: CALCULATING THE RETURN ON INVESTMENT IN BIODIVERSITY FINANCE

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

There is a range of financial indicators that fall under the term ROI including internal rate of return (IRR), net present value (NPV) or return on equity (ROE) that are used depending on the type of solution, the underlying projects, financial instruments and the target investors. Also, for issues of sustainable development, including biodiversity, it is possible to distinguish financial returns, economic and social returns, and a conservation-based return. For example, the emerging category of "Impact investors"[17] will be more interested in measuring extra-financial implications of their investments and will thus combine financial with other types of returns. Some options for ROI for biodiversity finance include:

- **The Financial Return on Investment** or ROI is the total growth in value, expressed as a percentage of an investment during a particular time period.[18]

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

- **The Social Return on Investment (SROI):**[19] SROI measures extra-financial values (i.e. environmental and social value not currently 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, sustainable development impact.

- **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 socio-political and economic measures such as the Ibrahim Index of African Governance.[20] 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 by Klein and others (2010)[21] 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 sixteen ecoregions.

Some of the gains from sustainable biodiversity management can be given monetary values, and this supports economic appraisal methods such as cost-benefit analysis (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 timeframe. This includes an increase in agricultural yields, an increase in the annual revenue of Kenya Electricity Generating Company (increased power, avoided shutdown and filtration costs), improved water quality, and reduction of diseases.[22]

7.3 Reporting 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 the preparation, validation and endorsement. The Plan should not be framed as a UNDP document but as a national strategy. Formal endorsement, if possible, may require the pursuit of lengthy national approval processes, the timing of which should be planned in advance. Any approval process should not block the implementation of priority actions and the piloting of certain finance solutions. The finalization of the Plan also entails a transfer of implementation responsibilities from the BIOFIN national team (if separate from government) to a permanent body. 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.

The format of the Plan should be adapted to the country context. The outline below is meant to provide indicative guidance on the structure of the report and on the suggested length of the respective sections.

1. Vision (suggested length: 3-4 pages)

- Frame a vision for financing Biodiversity and highlight its contribution to the country, the economy, people, and nature.
- Explain how the Plan is linked to the country's priorities and national strategies, i.e. NBSAP, green growth, climate change, Sustainable Development Goals, etc.
- Present the business case for the Plan as a whole

2. Goals and targets (suggested length: 2-3 pages)

- Summarize what the Plan intends to do and what are the goals it intends to achieve or contribute to.
- Describe the Plan's targets including the resource mobilization targets based on the costing and expenditure review.
- Introduce the prioritized solutions
- Link the prioritized finance solutions to the goals and the targets.
- Review the appropriateness of the mix of solutions

3. Finance Solutions (suggested length: 10-15 pages)

- This section is the core of the Plan. Describe the different solutions (half to one page each)
- Include the business case for each solution.
- Present solutions in a marketing sense – selling them to those who can finance them.
- Describe the role of the different actors and the Plan's governance and implementation.

4. Summary Action Plan (suggested length: 1-2 pages – table)

- 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.

5. Annexes

I. Detailed action plan and budget (suggested length: as needed)

- Provide a detailed description of the actions contained in the Plan, including responsibilities and timeframe. Describe for each action 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.

II. Resource mobilization strategy for the implementation of the Plan

- If the Plan itself requires significant financing or if there are major gaps in the funding of the Plan's activities, a short resource mobilization strategy is required – the implementation of which will be one of the first steps of the Plan.

III. Detailed technical proposals for each prioritized solution (5-15 pages each)

- Draft sound technical proposals for the prioritized finance solutions along the suggested headings described in Step 7.4. The quality and level of details might vary depending on the existence of studies, the implementation of feasibility studies with BIOFIN support, etc.

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.

7.4 Institutionalization of the BIOFIN methodology and Finance Plan

As mentioned earlier in Chapter 3, to successfully implement the BIOFIN methodology in the long run and ensure the BFP implementation, it is necessary to focus on the institutionalization process of the Plan from the beginning. To reach this objective, the Plan should contain an important and detailed political road map in order to tend to an institutionalization of the BFP.

As explained earlier in the chapter it is necessary to decide of the ownership of the Plan during the BIOFIN process. However, since some of the solutions will be implemented by different stakeholders such as private or public sector, there should be a solution level plan and business case to transmit to the stakeholders related to its implementation. It is nevertheless necessary to have an overarching institution accepting the global ownership of the BFP in the long run. The Ministry of Finance is often the most suitable institution to play this important role but it could also be led by the ministry responsible for the environment.

Finally, establishing an adequate M&E framework and ensuring sufficient human and financial resources are in place for implementation are further essential steps and the Plan needs a specific implementation plan and budget. The Finance Plan needs to specify for every individual solution the lead/responsible agency within government, who should be made formally responsible to follow up. Within such agencies, terms of reference of specific staff and units also need to be amended to reflect any additional tasks.

ANNEX 7.1: Checklist of questions for technical proposals[23]

Heading	Questions
	Section 1: Strategic positioning
Problem Statement	What challenges will the finance solution contribute to solving?
	On what inefficiencies, unmet market opportunities, under-performing markets and/or technical and operational challenges will it impact?
Justification	Why has the solution been prioritized (describe and complement the screening process)?
	How is it linked to national biodiversity and sustainable development priority targets and strategies (e.g. NBSAP, etc.)?
	How can it strengthen the Biodiversity Finance Plan (refer to the criteria in Box 7.3)?
Opportunities	What opportunities will it take advantage of (e.g. availability of capital, ease to implement technical solution, etc.)?
	Why is this solution especially appropriate now?
Relevance: Biodiversity	What biodiversity outcomes can be linked (refer to the FNA)?
	Does it address a powerful lever of change for biodiversity (e.g. phasing out of a harmful incentive)? If so, describe why.
	Does the solution benefit directly from biodiversity? For example, is the solution based on a user pays principle and if so, describe how this will function.
Relevance: Social	What social outcomes can be expected?
	How can social outcomes be improved (or safeguards established) to reduce negative impacts?
	What are the gender benefits, or gender risks that can be mitigated?
Relevance: Political	Why is the solution important to the country?
	Is there political will for implementation?
	What are the entry points that will encourage decision makers to support this solution?
	What is the political and social acceptability of this solution?
	How can political and social acceptability be enhanced with improved design or advocacy?

Heading	Questions
Section 2: Economic considerations	
Economic concept	What is the underlining economic concept? E.g. tax for a public good, polluter pays principle, internalizing an externality, addressing economic efficiency
	Does it result in a change in behaviour, prices, consumption patterns, etc.?
	What are the possible economic unintended systemic consequences?
Economic impact	How are principal actors and stakeholders affected by the solution? (Where possible, conduct a rapid stakeholder analysis to identify winners and losers)
	What are the motivations behind different participants and how can they be leveraged and managed?
	What are the expected economic benefits (e.g. GDP, jobs, and poverty reduction)?
Cost-benefit analysis	What are the opportunity costs? (Or what are the economic costs of inaction?)
	Will a cost-benefit analysis result in a positive net present value?
	What are the alternative approaches that may have a better cost-benefit (e.g. tax versus regulatory ban)? Should they be considered?
Section 3: Financial considerations	
Financial result	Does the solution help to mobilize new revenues, realign expenditure, reduce future costs or achieve cost-savings by delivering better and how will this work?
	What is the expected monetary value of the above? [estimations will be required, but the bottom line is the provision of realistic financial figures]
	Which financial indicator should be used (e.g. ROI, ROE, NPV, IRR, etc.) to best measure the financial results (see Box 7.ROI)?
Financial source	What are the principal financing sources?
	Are there financial assets already committed or available (e.g. start-up capital, guarantees, commitments for co-financing)?
	How are or how might potential investors/financiers be involved in the design and implementation?
	How will the solution respond to the target investor/financier priorities or requirements (e.g. minimum ROI)?
Financial structure	What financial instrument or instruments will it rely upon?
	How would the resources flow? [describe the financial structure]
	What are the additional/specific financial needs or requirements (e.g. credit enhancement)?
	What will be the initial start-up costs, grants or other initial investments required?
	What will be the estimated annual operational costs (versus expected returns when relevant)?

Heading	Questions
Financial intermediation	Is there a need for an intermediary such as a trust fund, bank, special vehicle, etc.?
	If yes, what is the most efficient option for financial intermediation?
	Are other/specific financial service providers required?
Use of proceeds	What will the financing be allocated for (if relevant)?
	Who will be determining the use of proceeds and how?
	How will the disbursement will be monitored?
	What safeguards are needed to assure appropriate, equitable, and effective use of funds?
Section 4: Management considerations	
Design features	Can a sound theory of change (or logical framework) be drawn by connecting the strategic positioning, economic and financial considerations?
	What unique design features must be included for successful implementation?
Implementation arrangements	What are the envisioned implementation arrangements?
	What institutional structures (e.g. governance, advisory, etc.) will be required?
	What are the strengths and weaknesses of proposed implementation arrangements?
	How can arrangements be improved to reduce risks?
Managerial and technical capacity	Who is the leading agency or sponsor and capacity?
	Does the leading agency or sponsor have sufficient leadership and technical capacity?
	What kind of external support will be required?
Stakeholders engagement	How are stakeholders being involved and how will they continue to be involved in implementation?
	What are the mechanisms to assure continued engagement and safeguards for all stakeholders?
Operational considerations	What are the critical technical/operational issues to be considered (e.g. hiring of qualified staff, etc.)?
	Has there been adequate consideration of the timing and administration of financial flows?
	Has there been adequate consideration of internal controls and safeguards?
Legal and regulatory	What are the necessary legal or regulatory requirements?
	Are other legal structures more cost-effective?
	Are changes in laws or regulations necessary?

Heading	Questions
Risk management	What are the major risks (endogenous, exogenous, financial, operational, social, biodiversity-specific, gender, etc.)?
	What is the likelihood and impact of each major risk?
	What is the response or mitigation strategy for each major risk?
	How risks will be monitored?
Section 5: Commercial Viability (for market driven solutions only)	
Business model	Is the model for-profit?
	How is the model different from other similar offerings?
	How scalable and/or replicable is the model?
Product and customer	Is the product/service dependent on behaviour change?
	What core value do you deliver to the customer?
	Is the market segmented and understood? And what is the profile of target customer(s)?
	What is your relationship with your customers?
	How satisfied are customers with the products?
	Is the business/ product/ service able to compete effectively? (building on many of the considerations above)
Factors of production and distribution	What are the key factors in producing the good/service (e.g. labour, skills and material inputs)?
	How effective are the entrepreneur(s) and their team?
	Who are your key partners/suppliers? Why? What risks can you foresee?
	What are your distribution channels and how effective are they?
	Are relationships with the financiers, supply chain intermediaries and retailers in place or feasible to implement?
Risk and measurement	See Risk management above.
	What risks are associated with the key factors required to produce the good/service (e.g. relating to costs and availability)?

Heading	Questions
Profitability	How secure is your revenue stream (see Product and customer above as well)
	What is your cost structure? Including, what are your most important costs?
	What is the expected profitability compared to the risk profile?
Market analysis	How easy is it to enter the market?
	How much purchasing power do buyers/consumers have?
	What threats are there from competitors' products?
	What power do the suppliers have?
	How large is the market? How fast will it grow?
	What is the scale of current or potential demand for the product?
	What is the expected volume to be supplied to the market?
	What are the marketing tools needed for successful penetration into the market?

Country Solutions

Chiribiquete National Park: Financing Solutions for the Territorial Sustainable Land Use Plan - Colombia

The Global Canopy Programme supported the Chiribiquete National Park in Southern Colombia (the country's largest National Park) to draft a paper on "Financing Solutions for the Territorial Sustainable Land Use Plan".[24] This is an early example of a document making a strategic case for finance solutions. It describes how the Chiribiquete National Park and surrounding buffer zones are strategically important areas for conservation and sustainable land use, and highlights how deforestation is a risk for business activities in the area.

The paper provides a rapid scan of (1) existing finance solutions and their potential, and (2) potential new finance solutions. Among existing solutions, it highlights private sector investments in green produce, redistributing royalties (and the need for local level capacity development to access these funds). It also identifies a need to:

- Reform the Colombian property tax system. Local governments with protected areas receive less revenue as these are exempt from land tax, but local government is not compensated for this "revenue loss" – suggesting a type of ecological fiscal transfer system is needed, and

- Establish a PES-type of water payment system, for example with 1 per cent of water revenues re-invested in watershed management.

Other new finance solutions that are suggested include biodiversity offsetting, carbon offsetting, upscaling ecotourism and accessing climate finance.

Forever Costa Rica

In 2010, the Costa Rican government embarked a groundbreaking initiative aiming to establish Costa Rica as the first developing country in the world to meet the protected area targets and management standards of the CBD. A total of 1.3 million hectares of sensitive terrestrial habitat and 1 million hectares of critical marine habitat was identified for permanent protection.

The initiative involved a US$57 million funding package from outside funders and new conservation commitment resolutions by the government including a framework to conserve critical habitats. Forever Costa Rica aimed to secure adequate and long-term financing, and to prepare for climate change adaptation. The deal included a high level partnership between the Government of Costa Rica and private partners who agreed to support the government in planning and costing finance needs, raising external finance, and establishing an independent trust fund to finance Costa Rica's Protected Area (PA) system.

Disbursements from the trust fund have been made according to work plans agreed upon with The National System of Conservation Areas (SINAC), which were subject to terms set out by the donors in the trust's legal documents. Most of the funds are managed as an endowment in perpetuity to fund recurring costs (e.g. management planning and patrolling of PAs), while some funds were spent in the first few years on one-off start-up costs and infrastructure.

Sources: SSIR (2012)[25] and The Nature Conservancy and Forever Costa Rica (2009).[26]

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_systes/financing/tools/cmyp/en/.

2 NatureVest and EKO (2014). Investing in Conservation, a landscape assessment of an emerging market. Available from: http://www.naturevesttnc.org/pdf/InvestingInConservation_Report.pdf.

3 Credit Suisse (2016b) Conservation Finance From Niche to Mainstream: The Building of an Institutional Asset Class. https://www.credit-suisse.com/media/assets/corporate/docs/about-us/responsibility/banking/conservation-finance-en.pdf.

4 WWF – World Wildlife Fund (2015) Profitability and sustainability in responsible forestry. Economic impacts of FSC certification on forest operators http://d2ouvy59p0dg6k.cloudfront.net/downloads/profitability_and_sustainability_in_responsible_forestry_main_report_final.pdf.

5 Food and Agriculture Organization (n.d.). General concepts and issues in organic agriculture. Available from: http://www.fao.org/docrep/005/y4137e/y4137e01.htm.

6 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.

7 See: http://www.undp.org/content/sdfinance/en/home.html.

8 Four broad results of finance solutions are described in Chapter 2: Realign expenditures; Avoid future expenditures; Deliver better; Generate revenue.

9 http://www.undp.org/content/sdfinance/en/home.html.

10 Economic valuation evidence is defined and identified in the PIR (Chapter 4).

11 "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).

12 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.

13 TEEB (2016) The Economics of Ecosystems and Biodiversity. Available from: http://www.teebweb.org/.

14 The Poverty-Environment Initiative.

15 Sources include: New Zealand Government (2014). Better Business Cases: Guidance on using the Five Case Model: An overview. Available from: http://www.infrastructure.govt.nz/publications/betterbusinesscases/files/bbc-oview-gd.pdf; Smith, C and J. Flanagan (2001) Making Sense of Public Sector investment; The Five Case Model in Decision Making. Radcliffe Publishing: London. HM Treasury (2016). The Green Book: appraisal and evaluation in central government. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf . The State of Victoria Department of Treasury and Finance Investment Management Standard provides a set of tools, including the Investment Logic Map (ILM). See www.dtf.vic.gov.au/investmentmanagement; HM Government (n.d). Public Sector Business Cases Using the Five Case Model': Green Book Supplementary Guidance on Delivering Public Value from Spending Proposals. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/469317/green_book_guidance_public_sector_business_cases_2015_update.pdf.

16 DEA and SANBI (2011) Making the case for biodiversity: phase 1. Final draft project summary report. A short explanation about the project can be found here: http://www.stapgef.org/stap/wp-content/uploads/2013/09/STAP-Workshop-Document_layout-version.pdf.

17 J.P. Morgan and others (2010) Impact Investments: An Emerging Asset Class. Available from: https://thegiin.org/knowledge/publication/impact-investments-an-emerging-asset-class.

18 Credit Suisse (2016). Glossary. Available from: https://perspectives.credit-suisse.com/ch/private-clients/investments/en/glossary.jsp.

19 See: http://www.socialvalueuk.org/.

20 Tear, T.H., and others (2014). A return-on-investment framework to identify conservation priorities in Africa. Biological Conservation. 173, 42–52. Available from: https://www.researchgate.net/publication/261475655_A_return-on-investment_framework_to_identify_conservation_priorities_in_Africa.

21 Klein, C.J. and others (2010). Prioritizing Land and Sea Conservation Investments to Protect Coral Reefs. PLoS ONE, 5(8), e12431. Available from: http://doi.org/10.1371/journal.pone.0012431.

22 Droogers, P. and others (2015). Upper Tana-Nairobi Water Fund: A business case. The Nature Conservancy. Available from: http://www.nature.org/ourinitiatives/regions/africa/upper-tana-nairobi-water-fund-business-case.pdf.

23 Note: this list is generic and may need to be adapted to the specific solution – for example, the technical proposal for a tax is very different from one for a venture capital fund. For existing solutions consider questions in present tense.

24 Pinzon, A. and others (2015). Think PINC Chiribiquete: Financing Solution for the Territorial Sustainable Land Use Plan. Global Canopy Programme (GCP) Available from: http://globalcanopy.org/publications/think-pinc-chiribiquete-financing-solutions-for-territorial-sustainable-land-use-plan.

25 Stanford Social Innovation Review (SSIR) (2012). A big deal for conservation. Available from: https://ssir.org/articles/entry/a_big_deal_for_conservation.

26 The Nature Conservancy and Forever Costa Rica (n.d.) How Costa Rica will become the first developing country to permanently meet global protected-area goals. Available from: http://www.nature.org/ourinitiatives/regions/centralamerica/costarica/explore/fcr-map-feb-09.pdf.

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 which 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 groundbreaking agreement, the Addis Ababa Action Agenda, 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 both on 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. It is at this point that the parameters of the budget are set and decisions are made about revenues that will be generated 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 out or distributed for free according specific criteria. Polluters that reduce their emissions/activity more than they otherwise are obliged to can earn "credits" that they sell to others who need them to comply with regulations they are subject to.		OECD (n.d)[8]
Capital Cost	The acquisition of fixed capital assets, for example, 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, and enhancing sinks of greenhouse gases and aims at 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.		
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]

Term	Definition	Acronym	Reference
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 (i.e., 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, including through 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
Eco-tourism	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 which are not compensated or internalized in decision-making; they can be either positive or negative.		
Fiscal Policy	Government financial actions and norms including both revenues, such as taxes, and expenditures.		

Glossary

Term	Definition	Acronym	Reference
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	Geographic Information Systems is 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	Green infrastructure is 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]
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]

Term	Definition	Acronym	Reference
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 wellbeing. 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	Impact investments are investments made into companies, organizations, and funds with the intention 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 that are 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	InVEST is 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, e.g. would include agriculture, social security, but exclude finance, planning.		IIEP Learning Portal undated[36]
Macroeconomics	The economics sub-discipline 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.)
Mitigation Hierarchy	A set of prioritized steps to alleviate environmental harm as far as possible through avoidance, minimisation (or reduction) and restoration of detrimental impacts to biodiversity.		FFI (n.d.)[37]

Glossary

Term	Definition	Acronym	Reference
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 which are: • provided by official agencies, including state and local governments, or by their executive agencies; and • each transaction of which: a) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and b) is concessional in character and conveys a grant element of at least 25 per cent (calculated at a rate of discount of 10 per cent).	**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 development and sub-national 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 the achievement of 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]
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**	

Term	Definition	Acronym	Reference
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," are 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, peace and justice, among other priorities. The goals are interconnected; often the key to success on one will involve 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 the 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.

Glossary

6 http://www.unep.org/delc/portals/119/Glossary_terms%20_for_Negotiators_MEAs.pdf.

7 http://www.internationalbudget.org/why-budget-work/.

8 http://www.oecd.org/env/tools-evaluation/emissiontradingsystems.htm.

9 http://unfccc.int/focus/climate_finance/items/7001.php.

10 http://www.iso.org/iso/home/standards/iso26000.htm.

11 https://www.cbd.int/doc/nbsap/finance/Guide_Debt_Nov2001.pdf.

12 https://www.unisdr.org/we/inform/terminology.

13 http://www.millenniumassessment.org/en/index.html.

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.

21 https://www.oecd.org/greengrowth/48012345.pdf.

22 http://ec.europa.eu/environment/nature/ecosystems/index_en.htm.

23 https://stats.oecd.org/glossary/detail.asp?ID=6437.

24 https://www.ipcc.ch/ipccreports/tar/wg1/518.htm.

25 https://stats.oecd.org/glossary/detail.asp?ID=1163.

26 http://www.bhutanstudies.org.bt/.

27 Eftec and others (2010). The use of market-based instruments for biodiversity protection – The case of habitat banking – Summary Report. Available from: http://ec.europa.eu/environment/enveco/index.htm.

28 https://www.cbd.int/incentives/perverse.shtml.

29 https://thegiin.org/impact-investing.

30 https://www.efinancemanagement.com/budgeting/incremental-budgeting-meaning-advantages-and-disadvantages.

31 http://www.accountingtools.com/questions-and-answers/what-is-a-cost-object.html.

32 https://data.oecd.org/price/inflation-cpi.htm.

33 www.naturalcapitalproject.org/invest.

34 http://www.imf.org/external/about.htm.

35 http://www.unep.org/delc/portals/119/Glossary_terms%20_for_Negotiators_MEAs.pdf.

36 http://learningportal.iiep.unesco.org/en/glossary/Line%2520Ministry.

37 www.fauna-flora.org/wp-content/uploads/The-Mitigation-Hierarchy.pdf.

38 http://ec.europa.eu/environment/nature/capital_accounting/index_en.htm.

39 http://naturalcapitalcoalition.org/protocol/.

40 http://www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm.

41 www.omafra.gov.on.ca/english/crops/facts/09-077.htm.

42 http://www.oecd.org/env/resources/44903483.pdf.

43 www.unpei.org.

44 https://www.cbd.int/protected.

45 https://data.oecd.org/gga/general-government-spending.htm.

46 http://www.teebweb.org/wp-content/uploads/2013/04/D0-Chapter-5-The-economics-of-valuing-ecosystem-services-and-biodiversity.pdf.

47 https://undg.org/wp-content/uploads/2015/01/UNDG-RBM-Handbook-2012.pdf.

48 https://stats.oecd.org/glossary/detail.asp?ID=2588.

49 www.undp.org/content/undp/en/home/sustainable-development-goals.html.

50 www.fao.org/docrep/003/X9371e/x9371e22.htm.

51 http://unstats.un.org/unsd/envaccounting/seea.asp.

52 http://www.undp.org/content/undp/en/home/librarypage/environment-energy/environmental_finance/targeted-scenario-analysis.html.

53 www.unwater.org.

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: I
mprove the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent 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 per cent 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
Budget Attribution Categories

N.	Classification Level 1	Definition	Classification	Indicative Coefficients
1	**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	50
			Financial compensation	50
			ABS Clearing House Mechanism	75
			Nagoya Protocol (ratified/enforced)	100
			Bioprospecting	25
2	**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	50-100
			Formal biodiversity education	75-100
			Non-formal biodiversity education, including technical training	75
			Biodiversity awareness (e.g. public awareness campaigns, park visitor education etc.)	25-100
			Biodiversity communication	100
			Biodiversity scientific research	100
			Technology innovation for biodiversity	75
			Valuation of biodiversity and ecosystems	50-75
			Indigenous and local communities knowledge	100
			CBD Clearing House Mechanism	100
3	**Biosafety**	Prevention, containment, and eradication of invasive alien species (AIS) 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, taking also into account risks to human health.	Genetically modified organisms (GMOs), including living modified organisms (LMOs)	100
			Invasive alien species	100

N.	Classification Level 1	Definition	Classification	Indicative Coefficients
4	**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)	0
			Environmental Impact Assessment (EIA)	25
			GHG mitigation	0
			Green supply chain	0-5
			Sustainable extractive industries	0-5
			Sustainable consumption	0
			Sustainable energy	0
			Sustainable investing	0
			Sustainable tourism	25
			Sustainable transportation	0-5
			Sustainable urban areas	0-5
5	**Biodiversity and development planning**	National, state or local level 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	100
			Other relevant laws, policies, plans	25-50
			Biodiversity coordination and management	50-100
			Biodiversity finance	100
			Strategic Environmental Assessment (SEA) frameworks	100
			Spatial planning	25
			Multilateral Environment Agreement (MEA)	100
6	**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 will included here, or if it is to improve biodiversity in production systems it should be in "sustainable use".	Protection and remediation of soil, groundwater and surface water	0-25
			Protection of ambient air and climate	0
			Other pollution reduction measures	0-25
			Waste management	0
			Wastewater management	0

N.	Classification Level 1	Definition	Classification	Indicative Coefficients
7	**Protected areas and other conservation measures**	In situ measures and ex situ measures to protect and safeguard biodiversity at genetic, species and ecosystem levels.	Protected areas management, including indigenous and communities conserved areas	100
			Expansion of protected areas	100
			Landscape/seascape conservation, including valuable ecosystem services	25-100
			Poaching, wildlife trade and CITES	100
			Loss of valuable habitats, including targeted conservation of species outside PAs	25-50
			Ecosystem connectivity	50
			Ex-situ conservation of species (botanical gardens and gene banks)	100
			Other effective area-based conservation measures (OECMs), including buffer zones	50-100
8	**Restoration**	The restoration or the rehabilitation of degraded ecosystems for biodiversity and ecosystem services objectives.	Reintroduction of species	25
			Site re-development and engineering	25
			Site-management	25
			Post-disaster relief	50
9	**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	100
			Sustainable agriculture	50
			Sustainable aquaculture	5-50
			Sustainable fisheries	5-100
			Sustainable forestry	25-50
			Sustainable land management (UNCCD and multiple uses)	5-50
			Sustainable marine and coastal management	25-100
			Sustainable rangelands	5-50
			Sustainable wildlife	25-50
			Watershed management	0-50

Appendix III
Economic Appraisal

The BIOFIN process prioritizes finance needs and biodiversity results in the FNA (Chapter 6) and finance solutions in Chapter 7 (e.g. screening in Steps 7.3A and 7.3B) 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 (see Box 1.7), 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

Cost-effectiveness analysis (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 to be prioritized by finance solutions.

The cost-effectiveness of different ways of achieving biodiversity results may have already been considered in the NBSAP (and see Section 6.2A). If required, CEA can be developed by building on that work, and/or the biodiversity cost/priority comparisons described in Step 6.5. It should be noted 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 prioritisation in Step 6.5.

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 to other socioeconomic 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 (see Step 7.4) for specific biodiversity finance solutions.

Using Cost-Benefit Analysis and Monetary Valuation

Cost-benefit analysis (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 challenge for CBA is to attribute monetary values to natural environment impacts. This is because many environmental goods and services are not bought and sold, at least not directly, and so there are no market prices to value them with (see Chapter 1). As well, complex ecological interactions weaken the effectiveness of direct cause – effect models. However, non-marketed environmental goods and services can be just as important as, 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 a study estimated that the total annual economic value of the National Parks in the United States to the American public is US$92 billion.[4]

When some environmental costs and/or benefits are unknown, different kinds of evidence for decision-making is used; for example subtracting "known" (i.e monetized) benefits from costs, and then assessing whether the non-monetized benefits might influence the decision.

As evidence on the value of ecosystem services improves, more CBA of biodiversity actions is becoming possible. For example, Switzerland conducts a cost- benefit analysis for all proposed actions in their NBSAP as stated in the Swiss Biodiversity Strategy.[5]

Appendix IV
Sector and Organization Lists

Recommended List of Sectors

Agriculture and Hunting	Transport
Forests	Tourism and Recreation
Fishing	ICT
Aquaculture	Finance
Mining and Extractives	Defence
Manufacturing	Education, Science, and Research
Energy	Health
Water	Public Administration (General Governance / Finance / Planning)
Infrastructure and Real Estate	Environmental Protection
Trade	Other

Organization Types and Finance Source Category

Federal Government	Private Foundations international
State Government	Private Foundations national
Local Government	Bilateral Donor
Private Company national	Multilateral Donor
Private Company international	Community Based Organizations (CBO)
National/Local NGO	Households
International NGO	Other Public
National Financial Institutions	Other
International Financial Institutions	

Endnotes

1 FEEM and others (2015). The social dimensions of biodiversity policy. Available from: http://ec.europa.eu/environment/enveco/biodiversity/pdf/Social%20Dimension%20of%20Biodiversity.pdf.

2 Ozdemiroglu, E. and R. Hails (eds.) (2016). Demystifying Economic Valuation. Valuing Nature Paper VNP04. Available from: http://assets.worldwildlife.org/publications/921/files/original/VNN-Demystifying_Economic_Valuation-Paper.pdf?1470335837.

3 Ozdemiroglu and Hails (2016).

4 Haefele, M. and others (2016). Total Economic Valuation of the National Park Service Lands and Programs: Results of a Survey of the American Public. Available from: https://www.nationalparks.org/sites/default/files/NPS-TEV-Report-2016.pdf.

5 Swiss Confederation (2012). Swiss Biodiversity Strategy. Available from: https://www.cbd.int/doc/world/ch/ch-nbsap-v2-en.pdf.

This project is co-funded by
the European Union

Flanders
State of the Art

Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

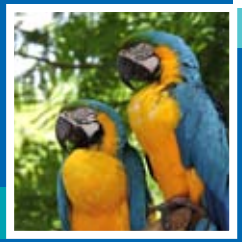
NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Office for the Environment FOEN

UNDP
Empowered lives.
Resilient nations.



United Nations Development Programme
Bureau for Policy and Program
Support One United Nations Plaza

New York, NY, 10017 USA
Tel: +1 212 906 5081

For more information
www.biodiversityfinance.net