



Transforming Biodiversity Finance:

The Biodiversity Finance (BIOFIN)

Workbook for assessing and mobilizing financial resources to achieve the Aichi Targets and to implement National Biodiversity Strategies and Action Plans

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EXECUTIVE SUMMARY

In October, 2010, the world's governments agreed to an ambitious global strategic plan, comprised of 20 'Aichi Targets.' Of these, Target 17 calls for each country to revise their National Biodiversity Strategies and Action Plans (NBSAPs) in line with the Aichi Targets; and Target 20 calls for countries to assess the financial resource needs and mobilize financial resources for effectively implementing the Strategic Plan. The BIOFIN Workbook provides guidance to countries on how to assess financial needs and how to mobilize the financial resources required to fully implement their revised NBSAPs, and thereby achieve the Aichi Targets at a national level. The process of assessing financial needs and mobilizing financial resources is closely tied to the development of an NBSAP; the BIOFIN Workbook provides a structured way to systematically understand the cost implications for implementing the strategies within the revised NBSAP.

The BIOFIN Workbook includes 3 parts:

Part I focuses on reviewing biodiversity-related policies, institutions and expenditures.

- **Workbook 1a: Policy and practice drivers of biodiversity and ecosystem change:** In this workbook, planners identify the suite of sustainable and unsustainable policies and practices, and their contributing factors that drive biodiversity and ecosystem change across a suite of different sectors.
- **Workbook 1b: Institutional review:** In this workbook, planners analyze a wide range of institutions across multiple sectors, to identify for each the specific role in biodiversity planning and finance, the impacts and dependencies on biodiversity, the degree of alignment with national biodiversity goals, and the overall institutional capacity.
- **Workbook 1c: Public and private expenditure and effectiveness trends:** In this workbook, planners identify national budgetary and expenditures trends, and identify specific biodiversity-related budgets and expenditures across several years to gain a baseline overview of expenditures by institution and by major biodiversity strategy.

Part II focuses on calculating the full costs of implementing each of the biodiversity strategies within the revised NBSAP.

- **Workbook 2a: Biodiversity mainstreaming strategies, actions and costs:** In this workbook, planners identify strategies, actions and costs from Aichi Targets 1 through 10, including, for example, policy reform, the creation of positive incentives for sustainable agriculture and forestry, and public-private partnerships, among many others.
- **Workbook 2b: Protection strategies, actions and costs:** In this workbook, planners identify strategies, actions and costs from Aichi Targets 11 through 13, including, for example, the creation of protected areas and corridors, improvements in management effectiveness, control of illegal trade, and gene banks, among others.
- **Workbook 2c: Restoration strategies, actions and costs:** In this workbook, planners identify strategies, actions and costs from Aichi Targets 14 and 15, including, for example, the restoration of coral reefs, and ex situ species restoration efforts.
- **Workbook 2d: Access and benefits sharing strategies, actions and costs:** In this workbook, planners identify strategies, actions and costs from Aichi Target 16, including, for example INSERT.
- **Workbook 2e: Enhancing implementation strategies, actions and costs:** In this workbook, planners identify strategies, actions and costs from Aichi Targets 17 through 20, including, for example, the development of

Part III focuses on developing a resource mobilization plan.

- **Workbook 3a: Potential biodiversity finance actors, mechanisms and revenue:** In this workbook, planners identify a full suite of potential finance actors; identify, screen and prioritize specific biodiversity finance mechanisms; and calculate how much revenue each mechanism might generate.
- **Workbook 3b: Resource mobilization strategy and action plan:** In this workbook, planners develop an operational plan for taking the necessary steps in implementing key financial mechanisms, and develop a timeframe and budget.

By completing the BIOFIN Workbook, countries will not only have a clear idea of how much it will cost to implement the NBSAP, they will also understand how to mobilize the required resources. The goal of the BIOFIN Workbook is to assist countries in transforming national biodiversity finance, and thereby enabling them to implement their NBSAP and achieve the Aichi Targets. NBSAPs are more than a set of plans; they are a pathway to national and global sustainable development, and they are one of the best ways to transform the unsustainable trajectory of development.

LIST OF BOXES

Boxes included in this Workbook include:

- Box 1: Global biodiversity conventions that contribute to NBSAP strategies
- Box 2: The contribution of NBSAPs to national sustainable development goals
- Box 3: The Aichi Targets, and their relationship to the BIOFIN Methodology
- Box 4: The BIOFIN approach, and relationship with NBSAP Development steps
- Box 5: Safeguards in Biodiversity Finance Mechanisms
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INTRODUCTION

About the Aichi Targets, NBSAPs, and resource mobilization

In October, 2010, the world's governments agreed to an ambitious set of 20 targets for biodiversity conservation, sustainable use and equitable benefits sharing, as part of the Convention on Biological Diversity's 2020 Strategic Plan. These targets, known as the Aichi Targets (see Appendix A), cover a broad range of strategies which fall into five categories: a) addressing the underlying causes of biodiversity loss by mainstreaming biodiversity across governments and society; b) reducing the direct pressures on biodiversity and promoting sustainable use; c) improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity; d) enhancing the benefits to all from biodiversity and ecosystem services; and e) enhancing implementation.

Of these targets, Target 17 calls for each country to revise their National Biodiversity Strategies and Action Plans (NBSAPs) in line with the Aichi Targets; and Target 20 calls for countries to assess the financial resource needs and mobilize financial resources for effectively implementing the Strategic Plan. Specifically, decision X/3 requests Parties to report on funding needs, gaps, and priorities related to national implementation of the resource mobilization strategy; assess the values of biodiversity; and prepare national financial plans for biodiversity.

The aim of this Biodiversity Finance (BIOFIN) Workbook is to provide concrete guidance to countries on how to assess financial needs and how to mobilize the financial resources required to fully implement their revised NBSAPs, and thereby achieve the Aichi Targets at a national level.

Relationship of resource mobilization to other biodiversity planning processes

The BIOFIN Workbook is related to other processes beyond the Convention on Biological Diversity. However, the strategies included in an NBSAP may also include strategies that are derived from other conventions (see Box 1).

Box 1: Global biodiversity conventions that contribute to NBSAP strategies

There are seven biodiversity-related international conventions that may contribute to specific strategies within an NBSAP, described below. See also www.temateea.org for an overview of the elements of all seven conventions.

Convention on Biological Diversity (CBD): The goal of the CBD is the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The CBD is the primary driver for the development of NBSAPs, and Article 6 of the Convention states that each Party shall "Develop national strategies, plans or programs for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programs which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned." See www.cbd.int.

Convention on Migratory Species (CMS): The mission of CMS is to conserve terrestrial, aquatic and avian migratory species throughout their range. Nearly all countries will need to address the needs of migratory species in their NBSAPs. See www.cms.int.

Convention on International Trade of Endangered Species (CITES): The mission of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Many countries will need to include strategies involving trade in endangered species in their NBSAPs if they are to safeguard key species and avoid species extinctions. See www.cites.org.

Ramsar Convention on Wetlands: The mission of the Ramsar Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The conservation and sustainable use of many of these wetlands may

contribute to, and be an integral part of, a country's NBSAP. See www.ramsar.org.

United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Convention: The mission of UNESCO's World Heritage Convention is to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. Many of these World Heritage sites may contribute to, and be an integral component of, a country's NBSAP. See www.wch.unesco.org.

United Nations Convention to Combat Desertification (UNCCD): The mission of the UNCCD is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability. Strategies aimed at combating desertification, and at strengthening climate resilience in drought-prone areas, are likely to be key features in many NBSAPs in arid countries. See www.unccd.int.

United Nations Framework Convention on Climate Change (UNFCCC): The mission of the UNFCCC is to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. Many NBSAPs will likely contain strategies for mitigating greenhouse gases through the management of natural ecosystems. See www.unfccc.int.

In addition to national assessments of the economic benefits of biodiversity, there are also ongoing processes regarding national sustainable development goals (SDGs). These goals, which will replace the Millennium Development Goals (MDGs) in 2015, include a set of global development goals related to health, education, poverty and natural resources, among other issues. The NBSAP can play a key role in informing the SDGs, since there are inextricable linkages between biodiversity and ecosystems on one hand, and human wellbeing on the other, particularly for the world's poorest and most vulnerable societies. See Box 2 for more information on how NBSAPs can contribute to SDGs.

Box 2: The contribution of NBSAPs to national sustainable development goals

NBSAPs are far more than simply a set of national biodiversity strategies and actions; they help countries articulate the future that they want in relation to sustainable development goals. Below are some examples of ways that biodiversity-related strategies can help in achieving national development goals in an effective, cost-efficient manner:

- Well-managed, restored and protected forests can help to provide long-term water security, especially during times of drought;
- Protected and restored wetland ecosystems can buffer against the impacts of floods;
- 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 provide 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;
- Efforts at identifying, preventing and eradicating invasive alien species will save millions of dollars and increase productivity in natural ecosystems;
- Ecosystem protection and restoration efforts can help to buffer societies, especially coastal societies, from the impacts of climate change, such as more frequent and more severe coastal storms;
- Well-managed ecosystems can provide a storehouse of medicinal resources critical for health in rural areas;
- The protection and restoration of coral reefs, and the prevention of key threats, can ensure the long-term health of fisheries, providing both food and livelihoods to millions.

The BIOFIN approach includes 3 parts. Part I is a review of biodiversity-related policies, institutions and expenditures. This information, described in Workbooks 1a, 1b and 1c, provides the basis for understanding a) the underlying drivers of biodiversity and ecosystem change; b) the key institutions, their role in biodiversity finance and planning and their capacities; and c) the baseline of existing biodiversity-related expenditures, including both positive and negative expenditures, and the effectiveness of expenditures. Part II is an estimation of the full costs of implementing each of the biodiversity strategies within the revised NBSAP. These strategies are grouped into 5 main categories: a) biodiversity mainstreaming strategies (Targets 1 – 10); b) protection strategies (Targets 11-13); c) restoration strategies (Targets 14 and 15); d) access and benefits sharing (ABS) strategies (Target 16); and e) enabling implementation strategies (Targets 17 – 20) – see Box 3 and Appendix A. This grouping allows a more streamlined and synergistic approach to costing strategies and actions, while still following the basic structure and logic of the Aichi Targets. Part II also includes an assessment of finance gaps, based on a comparison of the ‘business as usual’ finance scenarios versus the total estimated costs of implementing new biodiversity strategies. Part III includes the identification and prioritization of potential finance actors and mechanisms, and the development of specific resource mobilization strategies and actions to fill the finance gap.

The BIOFIN approach is closely tied to the development of an NBSAP (see Box 4 for a summary of the steps involved in developing an NBSAP, and the steps involved in resource mobilization – the BIOFIN approach). The overall aim of the BIOFIN Workbook is to provide planners with a systematic but flexible approach to assessing the costs of implementing their NBSAPs, and to mobilizing financial resources in order to fill financial gaps. This workbook provides a structured way to integrate the results of these steps, and to systematically understand the cost implications for implementing the strategies within the revised NBSAP. This workbook is not a substitute for the rigorous discussions, tradeoffs and decisions among key stakeholder groups that frequently go into the development of biodiversity goals, strategies and plans. Instead, it provides a mechanism for capturing the results of these discussions, and a systematic way to transform previously negotiated biodiversity strategies into a viable resource mobilization plan. At the same time, the BIOFIN Workbook provides a structured mechanism for a national dialogue about the alignment of policies and practices with national biodiversity and development objectives, and about the effectiveness and appropriateness of a wide range of existing and potential expenditures, both public and private.

The BIOFIN Workbook assumes that planners have already completed, or are at near final stages, steps 1 through 4 in the NBSAP development process. One of most fundamental of these early steps is a review of biodiversity status and trends within the country. National biodiversity status and trends form the core of the NBSAP itself, and guide all subsequent strategies and actions, and therefore ultimately determine costs. A supplementary workbook is offered in Appendix B on assessing biodiversity status and trends. This workbook allows planners to consolidate the results of their biodiversity status and trends assessment, and to ensure that there are clear linkages between these results and Parts I, II and III of this methodology. In addition, a supplementary workbook is offered in Appendix C on biodiversity values and benefits, to help planners consolidate the findings of existing studies on the value and benefits of biodiversity and ecosystems. Planners who have a clear idea of the status and trends in biodiversity, and of the economic value and benefits of biodiversity, prior to beginning the BIOFIN Workbook, are likely to have an easier time in identifying potential finance actors and mechanisms and in estimating the potential amounts of finance that these mechanisms might generate (Workbook 3a), as well as in developing a resource mobilization plan (Workbook 3b).

Box 3: The Aichi Targets, and their relationship to the BIOFIN Methodology

This text box shows the relationship between the Aichi Targets of the CBD Strategic Plan and the cluster of strategies and actions as defined in the BIOFIN Workbook. Note that because of space considerations, this represents a shortened list of the Aichi Targets; the full list is available in Appendix A.

Biodiversity mainstreaming strategies	<p>Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</p> <p>Target 1: Awareness of the values of biodiversity</p> <p>Target 2: Integration of biodiversity values into development and poverty reduction strategies, and into national accounting and reporting systems</p> <p>Target 3: Removal or reform of harmful incentives and subsidies and application of positive incentives</p> <p>Target 4: Implementation of plans for sustainable production and consumption</p> <p>Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use</p> <p>Target 5: At least halve the rate of loss of all natural habitats, including forests and reduce degradation and fragmentation</p> <p>Target 6: Sustainably harvest and manage fish and invertebrate stocks and aquatic plants</p> <p>Target 7: Sustainably manage agriculture, aquaculture and forestry and ensure conservation of biodiversity.</p> <p>Target 8: Reduce pollution, including from excess nutrients</p> <p>Target 9: Prevent, and control or eradicate, prioritized invasive alien species</p> <p>Target 10: Minimize the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems</p>
Protection strategies	<p>Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</p> <p>Target 11: Protect at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, and create well-connected systems of protected areas and other effective area-based measures</p> <p>Target 12: Prevent the extinction of known threatened species and improve their conservation status</p> <p>Target 13: Maintain the genetic diversity of cultivated plants and domesticated animals and of wild relatives, and develop and implement strategies for minimizing genetic erosion and safeguarding their genetic diversity</p>
Restoration strategies	<p>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services</p> <p>Target 14: Restore and safeguard ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being</p> <p>Target 15: Enhance ecosystem resilience and the contribution of biodiversity to carbon stocks through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems</p>
ABS strategies	<p>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.</p>
Enhancing implementation strategies	<p>Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building</p> <p>Target 17: Parties develop, adopt and begin implementation of updated NBSAPs</p> <p>Target 18: Integrate traditional knowledge of indigenous and local communities with the full and effective participation of indigenous and local communities</p> <p>Target 19: Improve and share knowledge relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss</p> <p>Target 20: Mobilize financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020</p>

Box 4: The BIOFIN approach, and relationship with NBSAP Development steps

The BIOFIN Approach: The BIOFIN approach has three parts:

Part 1: Review Context – Review biodiversity-related policies (Workbook 1a), key institutions (Workbook 1b) and biodiversity-related expenditures (Workbook 1c).

Part 2: Assess Costs – Assess the costs associated with the strategies within the NBSAP, including costs of implementing biodiversity mainstreaming strategies (Workbook 2a); protection strategies (Workbook 2b); restoration strategies (Workbook 2c); ABS strategies (Workbook 2d); and enabling implementation strategies (Workbook 2e). This section also includes an assessment of finance gaps (Workbook 2f).

Part 3: Mobilize Resources – Develop resource mobilization plan, including key finance actors and mechanisms (Workbook 3a) and specific resource mobilization strategies (Workbook 3b).

Relationship with NBSAP development process: The basic steps in the NBSAP development process, shown below, correspond closely with the steps in assessing financial needs and mobilizing financial resources. The purpose of the BIOFIN Workbook is to provide step-by-step guidance in undertaking those steps that are directly related to assessing financial needs and mobilizing financial resources required to implement the NBSAP.

Steps in developing an NBSAP	Steps in assessing financial needs and mobilizing financial resources (the BIOFIN Workbook)
1. Get organized – organize logistics and take stock of past NBSAPs	1. Get organized – organize the logistics of the BIOFIN assessment process
2. Engage and communicate with stakeholders – identify relevant stakeholders and develop a communication and outreach plan	2. Engage and communicate with stakeholders – identify relevant finance stakeholders and engage them in the BIOFIN assessment process
3. Gather key information – including status and trends of biodiversity; linkages between society and biodiversity; legal, institutional and policy environment; biodiversity finance; status of public awareness; and knowledge gaps	3. Gather key information -- gather information on status and trends in biodiversity (supplementary Workbook A); linkages between society and biodiversity (supplementary Workbook B and Workbook 1b); legal, institutional and policy environment (Workbooks 1a, 1b); biodiversity finance (Workbook 1c)
4. Develop strategies and actions – establish a national vision; set national targets; identify specific strategies and actions	4. Develop strategies and actions – Ensure that all related strategies within the NBSAP are accounted for in the costing exercise (Workbooks 2a – 2f)
5. Develop implementation and resource mobilization plans – identify specific actors, timelines and costs for each action; develop resource mobilization plan; ensure strategies are incorporated into national frameworks; finalize indicators and implement clearinghouse mechanism	5. Develop implementation and resource mobilization plans – identify costs for specific actions (Workbooks 2a – 2e); identify financial gap between business as usual finance and full annual and recurring costs of NBSAP strategies and actions; develop resource mobilization plan (Workbooks 3a and 3b)
6. Implement the NBSAP – Engage stakeholders; implement key strategies and actions; and mobilize financial resources	6. Implement the NBSAP – implement the resource mobilization plan; mobilize financial resources
7. Monitor and report – Develop national reports; communicate the results of the NBSAP implementation; and review and adapt priorities based on implementation results	7. Monitor and report – review the effectiveness of resource mobilization strategies and adapt the approach accordingly

Issues in implementing the BIOFIN Workbook

The Convention on Biological Diversity recommends that countries establish multi-sectoral advisory groups when developing their NBSAPs. In most cases, this will be the same advisory group, or steering committee, that completes the BIOFIN Workbook. However, countries will likely find that in addition to this group, they may also require additional finance specialists, and they are likely to require the involvement of relevant ministries, such as ministries of finance.

The BIOFIN Workbook is structured such that each question in each of the workbooks can be answered with different levels of depth and resolution, depending on the availability of resources; the existing national capacity; the complexity of the country's institutions, finance and budgeting procedures; available data; and the relevancy of the issue to the specific country case, among other issues. As national planners scope out how to implement the BIOFIN Workbook, they should identify which level of resolution is appropriate for each question. The level of resolution may relate both to the level of effort and resources required to answer each question (e.g., through an informal, peer review discussion process with a steering committee vs. a formal and comprehensive feasibility study) as well as to the level of detail and rigor with which the question is answered (e.g., a sentence or two regarding overall feasibility, versus the results of a full feasibility assessment).

As planners complete the BIOFIN Workbook, they should keep in mind that not all cells need to be completed in order to complete the workbook, and that planners may need to add new cells to suit their national needs. For example, Workbooks 2a-2e include an indicative number of 5 strategies and 3 sub-strategies for each strategy – planners may need to add or subtract the total number of cells to adjust for their national circumstances.

Rather than requiring a set of prescriptive lists in the workbook itself, the BIOFIN Workbook offers a flexible approach that allows planners to identify the most relevant fields themselves (e.g., sectors, institutions, strategies, etc.). At the same time, the various text boxes provide additional guidance, should they be required.

The aim of the BIOFIN Workbook is to allow planners to calculate the full and true costs of implementing their NBSAPs and to identify and mobilize resources. However, any exercise that aims to calculate the costs of an endeavor of this magnitude will entail many estimations. In order to help planners think systematically about these estimates, some parts of the workbook suggest that planners identify a low, medium and high estimation range. This range allows planners to capture some of the uncertainties in estimating costs, to make tradeoffs between strategies and actions, and to understand the implications of different finance scenarios. Planners may choose to pick only one level of estimation, or may apply these three levels to all calculations, depending on their circumstances and needs.

In all cases, planners should strive to avoid double counting, both for biodiversity expenditures in Workbook 1, and in cost calculations in Workbook 2. Because some biodiversity strategies can be assigned to more than one category (e.g., restoration of protected areas; mainstreaming agriculture in order to maintain key ecosystem services, etc.), planners should clearly identify and avoid areas of potential overlaps, and therefore of potential double counting. To do so will require a series of conscious decisions on whether a cost or expenditure 'counts' in one strategy versus another.

In completing the BIOFIN Workbook, planners will invariably make assumptions, and will have limitations in the sources and reliability of their data. In order to make this information as transparent as possible, and in order to understand the level of effort and rigor behind each answer, planners should include information regarding the 'assumptions and data sources' that accompany all sections of each workbook.

This is the pilot version of the BIOFIN Workbook; it is still under testing and development. The individual workbooks themselves are intended to provide a structured approach; they are not meant to be the data management system for capturing the answers. A data management system (including an excel spreadsheet and a web-based tool) is also under development, and will be released in the fall of 2013, when this workbook will be finalized. In the meantime, data sheets that allow for data to be captured in Word format will be forwarded to all countries who are participating in the BIOFIN assessment process.

One important issue to keep in mind when implementing the BIOFIN Workbook is the issue of safeguards. Safeguards are important because of the inherent risk that monetizing biodiversity and ecosystems could potentially lead to negative, rather than positive trends. Planners are strongly urged to consider safeguards as they develop their biodiversity finance plans. See Box 5 for more details on safeguards when identifying biodiversity finance mechanisms.

Box 5: Safeguards in Biodiversity Finance Mechanisms

A recent publication (Ituarte-Lima et al., 2012) explores some of the many potential issues related to safeguards for scaling up biodiversity finance, and offers some general guiding principles, including:

- When designing and implementing biodiversity finance mechanisms, planners should consider the fundamental role of biodiversity and ecosystems in providing societal insurance, enabling climate resilience and sustaining local livelihoods.
- When designing and implementing biodiversity finance mechanisms and designing measures to allocate rights and responsibilities, planners should ensure fair and equitable distribution of access to resources and benefits sharing, with free and prior informed consent of indigenous and local communities, to any intervention that has consequences for access, benefits and livelihoods.
- Any safeguards developed must to be grounded in local realities, supported by national processes, and be consistent with international legal and policy frameworks.
- All safeguards should ensure appropriate institutional frameworks and accountability mechanisms, including means of addressing drivers of biodiversity loss, and of removing perverse incentives.

Using the results of the BIOFIN Workbook – Transforming Biodiversity Finance

The goal of the BIOFIN Workbook is to assist countries in transforming national biodiversity finance, and thereby enabling them to fully implement their NBSAP and achieve the Aichi Targets. NBSAPs are more than a set of plans; they are a pathway to national and global sustainable development, and they are our best hope for fully integrating biodiversity into sectoral development and poverty alleviation efforts, and for transforming the unsustainable trajectory of development. NBSAPs are the national articulation of the future vision that each country desires, and the BIOFIN Workbook provides the tools to help countries achieve this vision.

PART I: Reviewing biodiversity policies, institutions and expenditures

The purpose of Part I of the BIOFIN methodology is to allow planners to: a) understand the sectoral policies and practices that drive biodiversity and ecosystem change; b) identify and assess the specific institutions that both affect and depend upon biodiversity and ecosystems; and c) calculate the scope and effectiveness of existing biodiversity-related expenditures. There are three related workbooks in Part I:

- Workbook 1a: Policy and Practice Drivers of Biodiversity and Ecosystem Change
- Workbook 1b: Institutional Review
- Workbook 1c: Public and Private Biodiversity Expenditure Trends and Effectiveness

This guidance document includes detailed instructions, a glossary and additional guidance for completing each workbook. A table accompanying each workbook shows the different levels of resolution – coarse, medium and fine – that planners can apply when completing the workbook. The level of detail with which planners complete this workbook will depend on the information available in the country and the resources available to supplement existing data and analysis.

Workbook 1a: Policy and practice drivers of biodiversity and ecosystem change

INTRODUCTION TO WORKBOOK 1A

This workbook includes 5 sections, each focusing on a different area of policy and practice:

- **Biodiversity mainstreaming:** an analysis of the practices of key economic sectors, and the market forces and policy factors that contribute to both positive and negative biodiversity and ecosystem trends;
- **Protection:** an analysis of the social, economic and policy factors that contribute to both ineffective and effective protection of ecosystems, species and genetic diversity, including *in situ* and *ex situ* protection;
- **Restoration:** an analysis of the factors that contribute to both ineffective and effective restoration of ecosystems and habitats;
- **Access and benefits sharing:** an analysis of the factors that contribute to ineffective and effective access to and sharing of benefits arising from the use of genetic resources; and
- **Overall policy analysis:** an overall analysis of broader biodiversity-related policies and the policy environment.

How is this information used?

The purpose of this workbook is to allow planners to articulate clearly the specific practices and policies that contribute to both positive and negative biodiversity trends and to assess the broader policy environment that either promotes or inhibits environmentally sustainable policies and practices. The data in this workbook provide the basis for defining key sectoral and biodiversity policies and practices, which in turn provide the basis for identifying key institutions in Workbook 1b, for identifying the biodiversity expenditure for those institutions in Workbook 1c, and also for determining the costs of transitioning from unsustainable to sustainable policies and practices in Workbook 2. The 5th section of this workbook also helps planners identify some of the broader policy issues that should be addressed in order to enable effective implementation of an NBSAP, and therefore may also have cost implications for Workbook 2.

SECTION 1: BIODIVERSITY MAINSTREAMING

What does this section look like?

SECTION 1: BIODIVERSITY MAINSTREAMING	Sectoral practices, market forces and policy factors that contribute to NEGATIVE biodiversity and ecosystem trends			Sectoral practices, market forces and policy factors that contribute to POSITIVE biodiversity and ecosystem trends		
	Unsustainable sectoral practices	Negative impacts on biodiversity and ecosystems	Contributing market forces and policy factors	Sustainable sectoral practices	Positive impacts on biodiversity and ecosystems	Contributing market forces and policy factors
Sector 1						
Sector 2						
Sector 3						
Sector 4						
Sector 5						
Sector 6						
Sector 7						
Data sources and assumptions						

Questions included in Section 1 (Questions correspond to each cell):

- **Question 1:** Which economic sectors are the most important in driving changes in biodiversity and ecosystem status and trends?
- **Question 2:** What are the most important unsustainable practices within these sectors that result in negative biodiversity and ecosystem trends?
- **Question 3:** What are the specific negative biodiversity and ecosystem trends that result from these unsustainable practices?
- **Question 4:** What are the market forces and policy factors that contribute to these unsustainable sectoral practices?
- **Question 5:** What are the most important sustainable practices within these sectors that result in positive biodiversity and ecosystem trends?
- **Question 6:** What are the specific positive biodiversity and ecosystem trends that result from these sustainable practices?
- **Question 7:** What are the market forces and policy factors that contribute to these sustainable sectoral practices?

Key definitions for Section 1:

- **Economic development sectors:** Economic development sectors include those sectors that are related to economic growth, utilization of natural resources or human development, and which either have an impact on, or depend upon, biodiversity. Examples include energy, infrastructure, tourism, water, sanitation, manufacturing, forestry, agriculture, fisheries, grazing and protected areas, among others. See Box 6 for a checklist of economic development sectors.
- **Negative biodiversity and ecosystem trends:** Negative biodiversity and ecosystem trends include those changes in biodiversity and ecosystems that are generally acknowledged as damaging to the overall health and functioning of a species, population or ecosystem. Examples include forest fragmentation, expansion of invasive alien species, declines in the flow of ecosystem services, or the decline of a population of threatened species.
- **Unsustainable sectoral practices:** Unsustainable sectoral practices include any actions that are regularly practiced within a development sector that are likely to lead to sustained negative biodiversity and ecosystem trends. Examples include intensive clear-cutting of forests, manufacturing processes that pollute rivers, and fishing practices with large by-catch. Unsustainable sectoral practices are often also referred to as “business-as-usual” practices.

- **Contributing market forces:** Contributing market forces include any aspect of open markets that have an influence on how biodiversity and ecosystems are managed. Examples include market prices, market access, market share, market supply and market demand for biodiversity products.
- **Contributing policy factors:** Contributing policy factors are the range of factors within specific policies that influence how biodiversity is managed. Examples include trade tariffs, subsidies, incentives and regulations regarding specific biodiversity products and sectoral practices. See also Box 6 for more on contributing policy factors. See Box 6 for a checklist of policy factors.
- **Positive biodiversity and ecosystem trends:** Positive biodiversity and ecosystem trends include those changes in biodiversity and ecosystems that are generally acknowledged as contributing to the overall health and functioning of a species, population or ecosystem. Examples include increases in threatened species populations, improvements in the flow of ecosystem services, and maintenance of key ecosystem functions, such as pollination.
- **Sustainable sectoral practices:** Sustainable sectoral practices include those actions that are regularly practiced within a sector that are likely to lead to sustained positive or at least neutral biodiversity and ecosystem trends. Examples include manufacturing processes that do not pollute waterways, forestry practices that improve or maintain overall forest health and integrity; grazing practices that maintain the overall health of a grassland; and tourism practices that do not undermine the health of the ecosystem. See Box 8 for a list of examples of sustainable practices.
- **Sectoral impact assessment:** A sectoral impact assessment is an assessment of the degree to which the practices and policies of one or more development sectors result in negative biodiversity and ecosystem trends, and a review of the overall sustainability of these practices and policies. See also Box 9 for a list of potential elements of a sectoral impact assessment.
- **Root cause analysis framework:** A root cause analysis is a method of problem solving in which the planner identifies a conceptual model that maps the underlying root causes of conditions or problems that lead to negative biodiversity or ecosystem trends. See Box 10 for a framework for a root causes analysis.

Additional guidance for completing Section 1:

The following supplementary materials provide additional guidance for completing Section 1:

- Box 6: Checklist of development sectors to consider
- Box 7: Checklist of contributing social, economic and policy factors (for all sections of Workbook 1a)
- Box 8: List of sustainable and unsustainable practices by sector
- Box 9: Elements of a sectoral impact assessment
- Box 10: Root causes analysis framework

Box 6: Checklist of development sectors to consider

This box provides an indicative list of key economic and development sectors that should be considered in the BIOFIN assessment process for Workbook 1a. Based on the results of Workbook 1a, planners will then work with a smaller subset of key sectors. Planners should consider this list as a starting point, and tailor according to the realities of their own national context. Planners should also be as specific as possible when identifying key sectors. For example, in identifying agriculture, planners might focus in on the key crops that cause the most negative trends in biodiversity, or have the largest dependencies on ecosystem services, such as water or pollination.

Industrial manufacturing and processing <ul style="list-style-type: none"> ○ Manufacturing that uses and/or impacts water ○ Manufacturing that results in air pollution 	Forestry and forest-related activities (including industrial, subsistence, small-scale) <ul style="list-style-type: none"> ○ Timber ○ Non-timber forest products ○ Charcoal ○ Plantations ○ Bushmeat 	Agriculture (including small scale, subsistence and commodity) <ul style="list-style-type: none"> ○ Cattle and grazing (intensive and extensive) ○ Irrigated agriculture ○ Non-irrigated agriculture ○ Conversion of natural habitats to agriculture 	Tourism and recreation <ul style="list-style-type: none"> ○ Nature-based tourism and ecotourism ○ Non nature-based tourism ○ Motorized recreation
Energy (including exploration, transportation, extraction practices) <ul style="list-style-type: none"> ○ Hydropower ○ Solar infrastructure ○ Oil, gas and natural gas ○ Coal 	Transportation and infrastructure <ul style="list-style-type: none"> ○ Shipping, shipping lanes ○ Railroads ○ Highways ○ Buildings, expansion of urban, suburban and exurban centers ○ Dams 	Water management <ul style="list-style-type: none"> ○ Management of rivers ○ Management of dam releases ○ Management of groundwater 	Fisheries (including artisanal, subsistence and commercial) <ul style="list-style-type: none"> ○ Aquaculture ○ Open seas fisheries ○ Freshwater fisheries ○ Coastal fisheries
Mining and extraction of materials (including commercial and small-scale operations) <ul style="list-style-type: none"> ○ Diamond/gems/gold/silver ○ Bauxite ○ Coastal sand ○ Other materials 	Waste management (includes temporary and permanent places and practices, both legal and illegal) <ul style="list-style-type: none"> ○ Terrestrial landfills ○ Permitted releases of effluent ○ Dumping in river ways 	Climate resilience, adaptation, mitigation (includes national and sub-national efforts and plans) <ul style="list-style-type: none"> ○ Management of terrestrial ecosystems ○ Management of freshwater ecosystems ○ Management of coastal and marine ecosystems 	Invasive species (includes national and sub-national efforts to identify, control and prevent invasive species) <ul style="list-style-type: none"> ○ Terrestrial, marine and freshwater invasive alien species efforts ○ National invasive alien species plans

Box 7: Checklist of contributing social, economic and policy factors for biodiversity mainstreaming, protection, restoration and ABS

There are numerous social, economic and policy factors that can either inhibit or promote effective biodiversity mainstreaming, protection, restoration, and access and benefits sharing. Planners can use the indicative list below when completing Workbook 1a, and when considering how each of these factors, as well as other relevant factors, affect key practices.

	Contributing factors for biodiversity mainstreaming	Contributing factors for protection	Contributing factors for restoration	Contributing factors for access and benefits sharing
Legal environment	<ul style="list-style-type: none"> ○ Laws related to each economic sector ○ Enforcement and prosecution of illegal sectoral practices 	<ul style="list-style-type: none"> ○ Laws and decrees related to establishment and management of protected areas ○ Enforcement and prosecution of illegal activities within protected areas ○ Laws related to trade of endangered species 	<ul style="list-style-type: none"> ○ Laws related to restoration requirements and practices ○ Enforcement of restoration requirements 	<ul style="list-style-type: none"> ○ Laws related to access and benefits sharing ○ Enforcement of existing ABS agreements
Subsidies and incentives	<ul style="list-style-type: none"> ○ Subsidies and incentives for sectoral practices that both benefit and/or harm biodiversity 	<ul style="list-style-type: none"> ○ Incentives for the creation of new private protected areas, corridors ○ Fees, taxes, fines and other policy instruments that can fund protection activities 	<ul style="list-style-type: none"> ○ Subsidies and incentives for restoration activities ○ Fees, taxes, fines and other policy instruments that can fund restoration activities 	<ul style="list-style-type: none"> ○ Incentives for activities related to access and benefits sharing
Policy and planning environment	<ul style="list-style-type: none"> ○ Quality and use of existing land use plans ○ Sectoral policies and plans that promote sustainable sectoral practices 	<ul style="list-style-type: none"> ○ Degree of existing protection ○ System- and site-level protection policies (e.g., protected area plans, illegal trade policies, etc.) ○ Extent to which protected area priorities are identified; status of key protected area assessments 	<ul style="list-style-type: none"> ○ Degree of existing restoration plans, the identification of priorities ○ Extent to which key ecosystem services and climate resilience sites are identified 	<ul style="list-style-type: none"> ○ National policies and plans related to ABS
Social and economic conditions	<ul style="list-style-type: none"> ○ Poverty, inequity and socio-economic conditions ○ Awareness of key sectors of value of biodiversity to their sector 	<ul style="list-style-type: none"> ○ Poverty, inequity and socio-economic conditions ○ Awareness of key sectors of value of protection ○ Dependence on protected areas for livelihoods, subsistence (legal and illegal) 	<ul style="list-style-type: none"> ○ Poverty, inequity and socio-economic conditions that drive ecosystem degradation ○ Awareness of key sectors of the value of restoration 	<ul style="list-style-type: none"> ○ Awareness of key sectors of importance of ABS
Market forces	<ul style="list-style-type: none"> ○ Independent certification and markets for sustainably produced products ○ Market competition ○ International trade ○ Market prices, stability and volatility 	<ul style="list-style-type: none"> ○ Market demand, both legal and illegal, for products within protected areas ○ Market demand for ecosystem services generated within protected areas (e.g., water, pollination) ○ Market demand for other services flowing from protected areas 	<ul style="list-style-type: none"> ○ Market demand for ecosystem services provided through restoration ○ Degree of existing degradation and need for restoration to provide services 	<ul style="list-style-type: none"> ○ Market demand for products falling under ABS agreements

Box 8: Checklist of sustainable practices by sector

This text box provides a summary snapshot of indicative lists of practices considered to be sustainable within each major economic sector. Planners should consider whether and how these and other practices might apply in their national context, and should consider identifying sector-specific practices against which business as usual practices can be compared.

<p>Sustainable forestry and forest-related practices</p> <ul style="list-style-type: none"> • Clear forest management unit boundaries; • A legal framework that protects forest resources and access, and application of all relevant laws • The maintenance of biodiversity in managed forests, including the maintenance of landscape patterns, community guild structures, richness and diversity of species, decomposition and nutrient cycling • Use of native species in enrichment planting and avoidance of genetically modified organisms; • Maintenance of ecosystem functioning, including protection of sensitive areas, rare or endangered species. • Conservation of forest genetic diversity; • Maintenance of soil productivity, and avoidance of erosion and soil degradation; • Limit of annual allowable harvest levels that are sustainable over time; • Protection of water resources through riparian buffer zones; • Use of a clear and rational forest management plan; • Landscape-level management to maintain connectivity • Avoidance of conversion of natural forests to plantations, and avoidance of damage to high conservation value forests. <p>(FSC, 2012; Prabhu et al., 1998)</p>	<p>Sustainable agricultural practices</p> <ul style="list-style-type: none"> • Avoid the creation of agricultural systems through the conversion of natural habitat, such as forests and grasslands; • Effective and sustainable management of water, including the selection of crops and species that are well-adapted to local weather extremes, the use of efficient water management, storage and irrigation systems that avoid salinization, and the use of mulch and cover crops, and the reduction of runoff of pesticides, fertilizers • Physical removal of weeds, including effective timing of weed removal, early detection and prevention, especially of invasive alien species; • Maintain soil fertility and productivity by following best tillage practices, rotating crops, leaving crop residues, adding organic matter and targeted amounts of fertilizers, and periodically growing legume crops and to fix nitrogen; • Where possible, grow perennial crop plants with low or no-till • Avoid erosion by using wind breaks to hold soil and by protecting soil from water runoff; • Attract beneficial predators, including bats, birds and insects by maintaining or creating predator habitat; • Avoid genetically modified organisms • Integrated pest management to control pests, including crop rotation, pest-resistant crops, use of beneficial insects, crop rotation aimed at reducing disease, and limited use of targeted pesticides; • Measures to promote energy efficiency and renewable energy in all stages of cultivation, harvest, storage and distribution <p>(Glover et al., 2007; Gold, 2009)</p>
<p>Sustainable fisheries practices</p> <ul style="list-style-type: none"> • Fish catch levels maintain high productivity of target populations, and fishing practices do not alter trophic structures to the degree of impairing productivity; • Maintenance of structure, productivity, function and diversity of ecosystem upon which fisheries depend • By-catch is greatly reduced or eliminated, including through use of fishing gear and practices; • Fishing methods minimize adverse impacts on habitat, especially in critical spawning and nursing areas; • All local and national laws and international standards are followed, including the provision of incentives, licenses and agreements, monitoring of biological status of target species, setting of catch levels; • The establishment of no-take zones and marine protected areas, in particular in ecologically and biologically significant areas; • Avoid destructive fishing methods, such as use of poisons or explosives; • Avoid pollution through careful control of wastes, fuels • Adequate monitoring and research, especially of species of key interest • Use of precautionary principle when dealing with scientific uncertainty • Use of incentives to promote sustainable practices <p>(MSC, 2012; CBD, 2013)</p>	<p>Sustainable grazing and rangeland practices</p> <ul style="list-style-type: none"> • Conserve and maintain soil and water resources, including maintenance of high organic matter, soil productivity functioning of groundwater systems and water quality; and reduction of extent of bare ground, erosion and channelization of streams; • Conserve and maintain biodiversity and key ecological processes, including maintenance of natural fire regimes, riparian systems, number and distribution of key species and communities; and reduction of fragmentation, road density, and invasive alien species; • Maintain productive capacity, including maintenance of biomass, annual rangeland productivity, optimal density of livestock and wildlife functional groups; and sustainable annual removal of non-forage plant materials, such as edible and medicinal plants; • Maintain and enhance multiple economic and social benefits, including maintenance of the value of forage, recreation and tourism, employment and educational value; the reduction of threats to cultural resource values; and the presence of permanent conservation easements; • Ensure legal, institutional and economic frameworks for rangeland conservation and sustainable management, including frameworks that promote clear, rational laws and property rights, effective institutions and organizations, effective landowner education and assistance, rational land-use planning, and effective monitoring and research programs; <p>(Mitchell, 2010; Beetz and Rinehart, 2006).</p>

Box 8: Checklist of sustainable practices by sector -- continued

<p>Sustainable aquacultural practices</p> <ul style="list-style-type: none"> • Use of plant-based feeds that originate from sustainable agriculture practices; • The reduction or elimination of fishmeal or fish-oil-based feeds from unsustainable fisheries; • Ensuring that there is no net loss in fish protein yield in the life cycle of the fisheries; • Avoidance of the use of wild-caught juveniles; • Prevention of negative environmental impacts from discharges and effluents to the surrounding areas; • Prevention of negative effects to local wildlife (plants as well as animals), including avoiding risks to local wild populations; • Avoidance of the use of genetically engineered fish or feed; • Minimizing the risk of disease outbreaks and transmission (e.g., by controlling stock densities); • Avoiding the depletion of local water resources (e.g., drinking water supplies); and • Safeguarding the health of wild fish populations (USAID, 2012) 	<p>Sustainable water management practices</p> <ul style="list-style-type: none"> • Develop a comprehensive plan that integrates water use and management, and watershed management; • Create cross-jurisdictional partnerships as required to manage water systems equitably across political boundaries; • Integrate land use planning with water management plans; • Promote widespread efficiency and conservation in water use across all sectors; • Incorporate storm water management throughout urban environments; • Minimize or eliminate non-point source pollutants; • Discourage the use of water of drinking quality for non-potable uses, such as industrial or agricultural uses; • Reduce unintended losses in municipal water distribution systems, such as through leakages and evaporation; • Use water treatment technologies that limit environmental impacts, such as the use of bio-treatments and ozonation; • Limit wastewater production by promoting practices that reduce the amount of pollutants entering the wastewater system • Apply standards to ensure the removal of pollutants and pathogens from wastewater treatment by-products. (Sustainable Cities Institute, 2013)
<p>Sustainable waste management practices</p> <ul style="list-style-type: none"> • Waste is sorted into compostable and non-compostable streams • Toxic waste is separated and stored safely • Illegal dumping is prevented, including in coastal areas, illegal landfills and waterways; • Municipal septic systems prevent solid septic wastes from contaminating waters or soils; • Gases produced from decomposition (e.g., methane) are prevented from entering the atmosphere; • Heavy metals and contaminants are prevented from entering aquifers and ground water; • Waste streams are minimized through product life cycle analysis, and excessive packaging, use of toxic materials, use of non-biodegradable materials and use of materials with excessive environmental footprints are discouraged; • Comprehensive waste policies and enforcement prevent the establishment of illegal dumping sites and practices. (Unnisa and Rav, 2013) 	<p>Sustainable industrial, manufacturing and processing</p> <ul style="list-style-type: none"> • Avoid the use of environmentally harmful materials by replacing with less damaging alternatives; • Replace unsustainably produced products with sustainably produced products, and increase use of renewable and recycled products; • Reduce all unnecessary waste, including packaging, inefficient energy use, inefficient water use; inefficient processing; • Minimize, avoid and eliminate sources of air and water pollution • Establish comprehensive recycling program to recycle all materials that can be recycled, including the creation of repurposing and reprocessing waste material; • Improve on-site biodiversity and habitat management; • Reduce greenhouse gases through use of renewable energy; • Ensure proper disposal of waste generated through processing and manufacturing; • Conduct comprehensive life-cycle analyses and 'cradle-to-grave' analyses to reduce impacts across all aspects of product manufacturing, including the assessment of broader environmental, water and carbon footprints. (OECD, 2009).

Box 8: Checklist of sustainable practices by sector -- continued

<p>Sustainable transportation and infrastructure practices</p> <ul style="list-style-type: none"> • Integrate landscape-scale conservation planning into transportation planning • Coordinate with multiple agencies when developing transportation plans • Use conservation banking and offsets to mitigate the impacts of transportation • Avoid fragmentation of large natural ecosystems, and areas important for seasonal migration • Minimize transportation infrastructure through existing protected areas except as part of the protected area plan, including shipping lanes through marine protected areas • Avoid sensitive biodiversity areas, such as wetlands • Avoid areas of key biodiversity importance, especially key areas of breeding, feeding, migration • Build wildlife crossings to restore and maintain habitat connectivity. • Use native species in roadside vegetation management. • Avoid alterations to hydrological regimes, including changes in groundwater, stream flows and flooding regimes. • Take measures to avoid the introduction of invasive alien species. • Minimize secondary impacts, such as light pollution, and manage stream runoff from roads to reduce soil erosion and water pollution. • Minimize use of chemical pesticides for roadside vegetation control. <p>(Byron, H. 2000, NBW, 2011; White and Ernst, 2007)</p>	<p>Sustainable tourism and recreation</p> <ul style="list-style-type: none"> • Interactions with wildlife are carefully controlled and do not produce adverse effects on the viability of key species • Areas for recreation (e.g., hiking, camping) are clearly delineated, and are sited to avoid sensitive areas, such as nesting areas • Motorized recreational activities are carefully controlled and monitored, and do not negatively affect species populations, soil quality or water quality • Levels of visitation are monitored, and kept well within the ecological carrying capacity of the area • Siting of permanent tourism infrastructure avoids key sensitive areas • Impacts from lighting, sound, travel are carefully monitored, and do not adversely affect key species • Waste water and sanitation, including of coastal hotels, does not adversely affect water quality • Management practices for sport fishing (e.g., fish stocking practices) do not endanger native species • Tourism and recreation within protected areas is in full accordance with the protected area management plan • There is a national tourism plan that is aligned with biodiversity goals, and aligned with the national protected area plan • Measures are taken to minimize use of scarce resources (e.g., fuel wood, water) in sensitive areas • The introduction of invasive alien species is prevented • There is ongoing monitoring and adaptive management of tourism and recreation impacts <p>(Drumm et al, 2011; Global Sustainable Tourism Council, 2013)</p>
<p>Sustainable energy and mining practices</p> <ul style="list-style-type: none"> • During exploration, construction and operations, impacts to biodiversity are minimized, including contamination of soil or water, introduction of invasive alien species, road infrastructure, sedimentation, soil erosion, noise impacts, habitat fragmentation and disturbance (particularly of sensitive areas and during key periods, such as migration, nesting and mating); • Comprehensive environmental impact assessments are conducted and adhered to fully; • Full commissioning and restoration plans are in place and fully executed, including replacement of top soil, revegetation with native species, remediation measures, restabilization of slopes, removal of all non-native material; • Transportation of gas and oil, including ocean freights and terrestrial pipelines are managed to prevent spills; • Significant mining, exploration, extraction of energy, minerals or other abiotic materials from key biodiversity areas, including protected areas, is avoided; • Illegal mining operations are rapidly detected and removed, and prevented where possible. <p>(Energy and Biodiversity Initiative, 2013; ICMM, 2012);</p>	<p>Sustainable land use planning practices</p> <ul style="list-style-type: none"> • Clearly establish, and give priority funding and incentives, to established growth areas; • Include specific goals for sustainability in the areas of concentrated urban growth centers, and provide guidance on the development of urban and ex-urban areas; • Incorporate a strategic environmental assessment at the earliest stages of project planning, permitting and approval; • Incorporate protected areas, connectivity corridors and buffer zones as a core component of land use plans; • Include natural climate change resilience and adaptation plans in land use planning (e.g., natural buffer areas against storm surges); • Account for the maintenance of key ecosystem services in land use plans, including water provisioning, agricultural productivity and other services; • Ensure long-term maintenance of water quality by establishing riparian buffers; • Avoid development in sensitive areas, such as areas prone to soil erosion, flooding, natural disasters, storm surges; and promote instead natural infrastructure to strengthen climate resilience <p>(Salkin, 2009; Stein 2012).</p>

Box 9: Elements of a sectoral impact assessment

Four methodological approaches – environmental impact assessment (EIA), strategic environmental assessment (SEA), national ecosystem assessments, and region-wide threat assessments – together provide a framework for undertaking a national, sector-wide impact assessment on biodiversity and ecosystems. The table below shows the steps involved in a sector-wide impact assessment on biodiversity, and offers some key questions to ask for each. The objective is a sectoral impact assessment is to identify those sectors that are most important in driving both positive and negative trends in biodiversity and ecosystems. Although most environmental assessments focus on biodiversity loss and the drivers of loss, in the context of costing strategies for NBSAPs, it is also useful to understand the drivers of positive trends in biodiversity and ecosystems.

Steps	Key questions to ask regarding both positive and negative trends in biodiversity and ecosystems
1. Identify, screen and prioritize potential key sectors for the assessment	<ul style="list-style-type: none"> • Which sectors are the most economically important? • Which sectors are most often associated with illegal activities? • Which sectors are most critical to achieving national development goals? • Which sectors are most dependent upon biodiversity? • Which sectors are experiencing the highest growth rates? • Which sectors are most frequently associated with negative and positive impacts on biodiversity and ecosystems (e.g., through site-level assessments)
2. Identify the specific drivers of biodiversity and ecosystem change for each selected sector	<ul style="list-style-type: none"> • Which sectors are driving changes in land use and land cover? • Which sectors are driving changes in habitat fragmentation and isolation? • Which sectors are driving changes through extraction, harvest or removal of species? • Which sectors create external inputs, including emissions, effluents and chemicals? • Which sectors create disturbance and alterations, including in ecological processes? • Which sectors introduce invasive alien species or genetically modified organisms? • Which sectors are driving the restoration, protection and/or sustainable use of species or ecosystems?
3. Identify the scope, magnitude and distribution of the drivers of change for selected sectors	<ul style="list-style-type: none"> • Which drivers are most widespread across the landscape or seascape? • How are these drivers distributed – what are the specific patterns of occurrence? • Where are the most severe impacts occurring in the landscape or seascape? • Where are the least severe impacts occurring in the landscape or seascape? • Where do sectoral impacts overlap spatially with key biodiversity areas?
4. Identify the specific impacts on biodiversity and ecosystems from each of the drivers of change	<ul style="list-style-type: none"> • Which drivers result in changes to the ecological health, functioning and viability of species and populations? • Which drivers result in changes in ecological processes? • Which drivers result in changes in the flow of ecosystem services? • Which drivers result in changes in the resiliency and vulnerability of biodiversity and ecosystems to climate change?
5. Rank and prioritize sectors based on their degree of impact on biodiversity and ecosystems	<ul style="list-style-type: none"> • Which sectors have the most widespread impacts on biodiversity and ecosystems? • Which sectors have the most severe impacts on biodiversity and ecosystems? • Which sectors are most important overall to address in order to reverse negative biodiversity trends and to reinforce positive trends?

Based on the results of this assessment, planners can identify which sectors are most important for developing strategies, actions and costs, which sectors may be potential finance actors, and which sectors may have the largest costs for transitioning from a 'business-as-usual' scenario to a sustainable basis.

(Adapted from Schill, 2012; Sloomweg et al., 2006; Partidário, 2012; Ash et al., 2010)

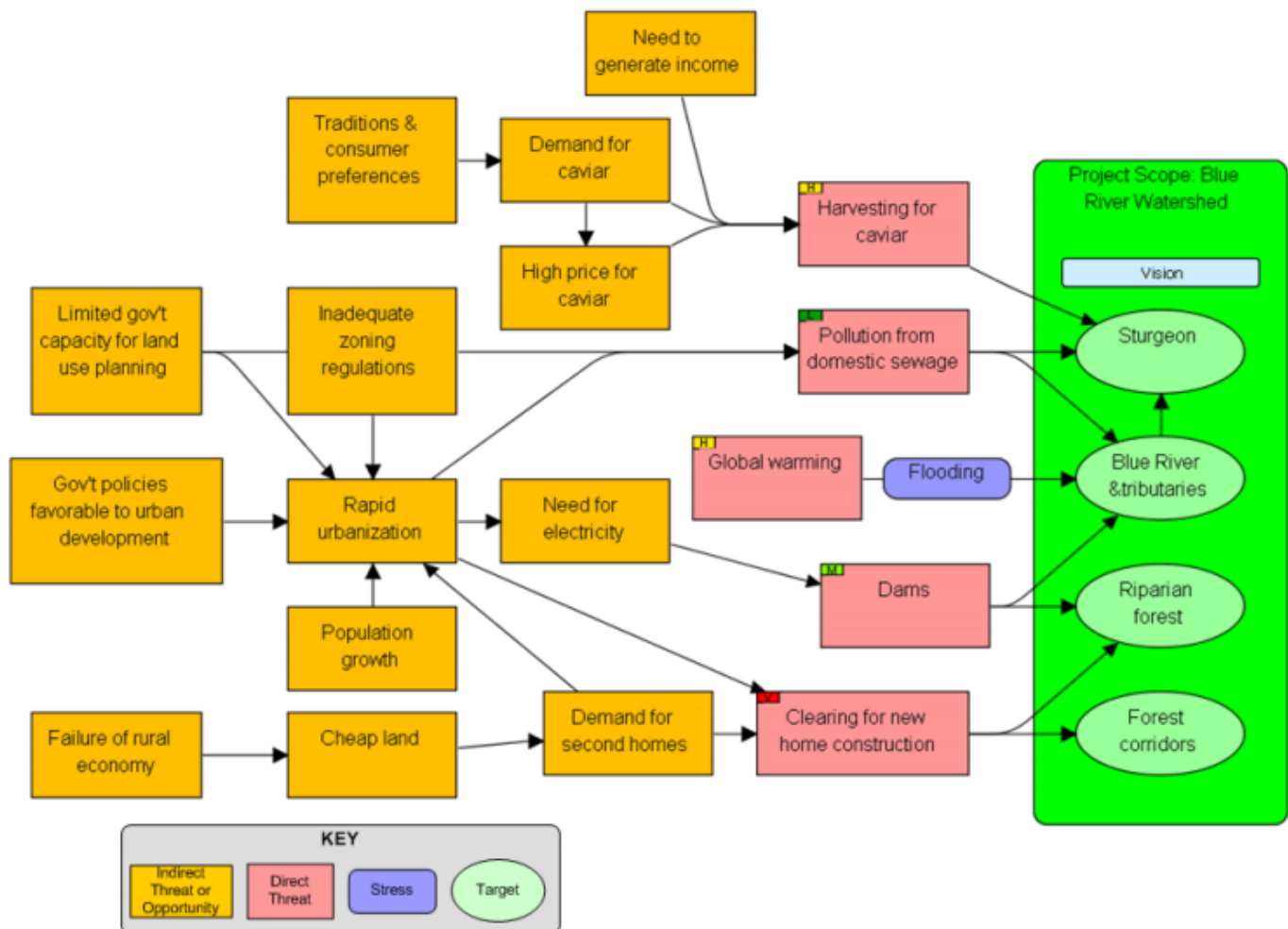
Box 10: Root causes analysis framework

Two similar approaches – a root causes analysis and a situation analysis – can help planners identify the underlying causes of drivers of biodiversity and ecosystem change, and identify key factors and enabling conditions. In essence, a root cause analysis requires that a planner continue to ask ‘why’ until the basic underlying factors are revealed.

The main components of a root causes analysis or situational analysis include:

- **Biodiversity element:** These are the species, natural communities, ecosystems and ecosystem services that are affected by key sectors.
- **Threats, pressures and drivers:** These are the range of direct and indirect forces that drive negative biodiversity and ecosystem trends, including, for example, habitat conversion,
- **Underlying factors:** These are the contributing factors, including demographics, poverty, inequity, public policies, markets, politics, and institutional capacities at micro and macro scales.
- **A conceptual model:** A conceptual model shows the relationship between biodiversity elements, direct threats, pressures and drivers, and underlying factors that contribute to these.

Below is an example of a simple root cause analysis exploring the factors affecting fish species, river systems and riparian forests in a particular watershed (FOS, 2009):



When conducting a root causes analysis in the context of the BIOFIN Workbook, planners will likely focus on a) the key sectoral impacts on biodiversity; b) the sectoral drivers of change in trends in biodiversity and ecosystems, including the specific sectoral practices; and c) the contributing factors to these practices as outlined in Box 6.

(WWF, 2006; Stedman-Edwards, 1997; FOS, 2009)

SECTION 2: PROTECTION

What does this section look like?

SECTION 2: PROTECTION	Social, economic and policy factors that contribute to INEFFECTIVE protection practices		Social, economic and policy factors that contribute to EFFECTIVE protection practices	
	Ineffective system- and site-level protection practices	Contributing social, economic and policy factors	Effective system-level and site-level protection practices	Contributing social, economic and policy factors
Government and co-managed protected areas				
Private protected areas				
Community protected areas and other conserved areas				
Corridors and buffers				
Ex-situ protection				
Other protection				
Data sources and assumptions				

Questions included in Section 2 (Questions correspond to each cell):

- **Question 8:** Which site-level and system-level protection practices are the most important in driving positive biodiversity and ecosystem trends?
- **Question 9:** What are the most important social, economic and policy factors that contribute to these effective protection practices?
- **Question 10:** Which site-level and system-level protection practices are the most important in driving negative biodiversity and ecosystem trends?
- **Question 11:** What are the most important social, economic and policy factors that contribute to these ineffective protection practices?

Key definitions for Section 2

- **Protection:** Protection is an umbrella term for any action that secures the long-term health and security of species and ecosystems. While protected areas form the overwhelming preponderance of protection strategies, *ex situ* strategies, such as gene bank conservation and wildlife trade control, are also important.
- **Protected area:** A protected area is “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.” (IUCN, 2008)
- **Ex-situ protection:** *Ex situ* protection is the process of protecting a species outside of its natural habitat. Examples include relocation of a species to a new and less threatened habitat, and genetic warehouses, such as gene banks and seed banks. *Ex situ* protection can also include specific efforts to reduce illegal trade in protected species.
- **Ineffective protection practices:** Ineffective protection practices include the range of protection practices that lead to negative biodiversity and ecosystem trends. These may include practices at the site level, such as inadequate threat prevention, unsustainable and/or illegal harvesting, and inappropriate management practices such as introducing invasive fish species, as well as at the system level, such as inadequate representation of threatened species or ecosystems within a protected area network. See also Box 11 for a list of effective protection practices.
- **Effective protection practices:** Effective protection practices include the range of site-level and system-level practices that lead to positive biodiversity and ecosystem trends. These include, for example, management practices that maintain key

ecological processes such as fire and floods, that effectively prevent key threats, and that adequately represent key species and ecosystems within the protected area network. See also Box 11.

- **Government-managed protected areas:** Government-managed protected areas include lands and water that are owned and managed by a local, sub-national or national government.
- **Co-managed protected areas:** Co-managed protected areas include lands and waters that are owned or managed both by a local, sub-national or national government partner and another entity, such as an indigenous group or non-profit non-governmental organization.
- **Private protected areas:** Private protected areas include lands and water that are managed for biodiversity but are owned by individuals, families, businesses or non-profit organizations. Examples include private game reserves and private parks.
- **Community protected areas:** Community protected areas include lands and water that are owned and managed by a community. Examples include indigenous community areas, locally managed marine areas, community forests and extractive reserves.
- **Other conserved areas:** Other conserved areas include all other areas that are managed for the biodiversity of conservation, as well as for other goals, but are not considered a protected area. Examples include riparian forest set asides in a managed forest, and temporary restrictions on hunting and other activities in key bird migration and stopover sites.
- **Corridors and buffers:** Corridors are landscape linkages that allow species to move across the landscape and seascape. Buffers are areas around protected areas and corridors that provide limited biodiversity protection as well as some restriction of human uses, in order to reduce impacts from human activities within the protected area or corridor.
- **Contributing social, economic and policy factors:** Contributing social, economic and policy factors include the range of factors that contribute to effective or ineffective protection practices. These factors can be considered the underlying root causes for why certain actions are practiced. Examples include the presence or absence of a separate park agency, the degree to which wildlife laws are enforced, the extent of illegal wildlife trade, and the socio-economic conditions within a community. See also Box 7 for a list of contributing social, economic and policy factors for protection.

Additional guidance for completing Section 2:

The following provide additional guidance for completing this section:

- Box 11: Checklist of effective protection practices

Box 11: Checklist of effective protection practices

Key protection theme	Key assessment of protection practices	Effective system-wide protection practices
Ecologically representative	Ecological gap assessment: An assessment of the degree to which the protected area system adequately captures the range of biodiversity within a country (see Dudley and Parish, 2006; Corrigan et al., 2008)	<ul style="list-style-type: none"> ○ The protected area system fully represents key biodiversity and ecosystems across multiple spatial and biological scales and across multiple biomes and realms ○ The protected area system ensures the full functioning of species and key ecological processes by optimizing the layout and distribution of protected areas and connectivity corridors ○ The protected area system is designed to maximize climate resiliency and adaptation
Diverse and effective governance and equitable benefits sharing	Governance and benefits sharing assessment: An assessment of the type and category of protected areas, and of the effectiveness of governance within a given protected area system (see Borrini Feyerabend et al., 2007; Laird et al., 2003; , Gonzalez and Martin, 2006; Dudley et al., 2010)	<ul style="list-style-type: none"> ○ The protected area system includes diverse types of protected areas (including government, co-managed, private and community), and diverse categories of protected areas (ranging from IUCN Category I through VI). ○ Effective principles of protected area governance are followed (e.g., transparency, fairness, inclusiveness, accountability, performance) ○ There is equitable distribution of benefits, including fair compensation from economic uses of traditional knowledge, and access to benefits from genetic resources, from economic enterprises and from ecosystem services
Landscape and seascape connectivity	Connectivity assessment: An assessment of the landscape and seascape linkages and corridors, and the degree of connectivity between protected areas (see Dudley et al. 2008)	<ul style="list-style-type: none"> ○ There are adequate corridors and stepping stones to allow for the movement of key species across landscapes and seascapes, and to ensure that ecological processes occur ○ There is a network of buffer zones that ensures effective protection within protected areas ○ Ecological processes are managed at landscape and seascape scales.
Protected area integration and benefits	Protected area integration assessment: An assessment of the value of protected areas to key economic and development sectors, and an assessment of the degree of sectoral integration (see Ervin et al., 2009)	<ul style="list-style-type: none"> ○ The goals of key economic and development sectors, such as forestry, agriculture, fisheries, grazing, mining, energy and tourism are aligned with the goals of the protected areas system ○ The benefits of protected areas are well known, and used in sectoral decision making ○ Land use planning efforts are compatible and aligned with protected area plans
Management effectiveness	Management effectiveness assessment: An assessment of the degree to which protected area management achieves the goals and objectives of the protected areas (see Hockings et al., 2009; Ervin, 2003; Stolton et al., 2009)	<ul style="list-style-type: none"> ○ Protected areas have adequate threat prevention and mitigation ○ Protected areas have adequate boundary demarcation and legal status ○ Protected areas have adequate management planning ○ Protected areas have adequate staffing and skills to conduct key actions ○ Protected areas have adequate local communication efforts ○ Protected areas have effective monitoring and research programs ○ Protected areas have effective local communication programs ○ Protected areas have clear legal status
Capacity	Capacity needs assessment: An assessment of the capacities required to address critical protected area management issues (see Ervin et al., 2007)	<ul style="list-style-type: none"> ○ Capacities to deal with key threats are identified and prioritized ○ Capacities to deal with key management actions, such as threat mitigation, visitor management, monitoring and species management are adequate ○ Capacity efforts focus on both individuals and the broader institutions
Sustainable finance	Sustainable finance assessment of protected areas: An assessment of the degree to which existing finances cover the range of required activities (Flores, 2009)	<ul style="list-style-type: none"> ○ The finance needs of the protected areas are clearly identified ○ Finance mechanisms are in place to ensure long-term financial sustainability ○ There is a clear business plan for major protected areas, and a strategy for mobilizing protected area resources
Protected area policy	Policy assessment: An assessment of protected area policies	<ul style="list-style-type: none"> ○ Protected area policies promote a robust protected area network, ensure effective management, reduce threats and secure long-term finance
Trade	An assessment of non-detrimental status for key species and wildlife trade policies (CITES, 2013)	<ul style="list-style-type: none"> ○ Species in Appendices I, II and III are not traded except in accordance with CITES ○ Illegal trade in species is closely monitored and effective
Genetic diversity	National genetic diversity assessment (Smith, 2012)	<ul style="list-style-type: none"> ○ Centers of wild crop relatives are protected ○ Gene banks, seed banks and other ex situ are established ○ Gene management zones are created within key sectors

SECTION 3: RESTORATION

What does this section look like?

SECTION 3: RESTORATION	Policies, policy factors and practices that promote INEFFECTIVE restoration practices		Policies, policy factors and practices that promote EFFECTIVE restoration	
	Ineffective restoration practices	Contributing social, economic and policy factors	Effective restoration practices	Contributing social, economic, policy factors
On government lands				
On private lands				
On community lands				
Data sources and assumptions				

Questions included in Section 3 (Questions correspond to each cell):

- **Question 12:** Which restoration practices on government, private and community-owned lands and waters are the most important in driving negative trends in biodiversity and ecosystems?
- **Question 13:** What are the most important social, economic and policy factors that contribute to these ineffective restoration practices?
- **Question 14:** Which restoration practices on government, private and community-owned lands and waters are the most important in driving positive trends in biodiversity and ecosystems?
- **Question 15:** What are the most important social, economic and policy factors that contribute to these effective restoration practices?

Key definitions for Section 3:

- **Restoration:** Restoration is the process of intentionally returning a damaged species or ecological system to a stable, healthy, and sustainable state, either through active or passive management techniques.
- **Ineffective restoration practices:** Ineffective restoration practices are those practices which do not result in the intended restoration outcome, or otherwise fail to meet the restoration objective. Examples include failed replanting efforts, inappropriate techniques for restoring hydrological flows, poor data management and monitoring, and insufficient efforts at halting degradation in time, resulting in higher restoration costs.
- **Government-owned lands and waters:** These include the lands and waters owned by a local, sub-national or national government. An example is a national forest.
- **Privately-owned lands and waters:** These include the lands and waters owned by individuals, families, businesses and/or non-profit organizations. An example is a large tract of privately forest owned by a family.
- **Community-owned lands and waters:** These include the lands and waters owned by a community or group of people. An example is a coastal area owned and managed by a local community.
- **Effective restoration practices:** Effective restoration practices are those restoration practices that result in their intended outcomes, or otherwise succeed in achieving the restoration objectives. See also Box 12 for a checklist of best practices.
- **Restoration assessment:** A restoration assessment typically includes a map of the extent of degradation of key ecosystems, and a summary of priority areas of restoration based on the extent of ecosystem degradation, the feasibility of restoration, and the role of the ecosystem in providing key ecosystem services, including climate resilience, adaptation and mitigation.

Additional guidance for completing Section 3:

The following provide additional guidance for completing this section:

- Box 12: Checklist of restoration best practices

Restoration of natural disturbances

- Restoration efforts aim to mimic the frequency and intensity of natural disturbances, such as fires, floods, saltwater inundations
- Restoration efforts promote re-establishment of natural nutrient cycling
- Restoration efforts maintain or reinstate cultural practices that contribute to ecological integrity (e.g., grazing to restore grasslands or habitat)

Control of harmful invasive species

- Restoration efforts related to invasive species are consistent with national invasive alien species plans and policies
- Restoration efforts aim at removing invasive plant and animal species that threaten ecological integrity
- Restoration efforts identify native species as potential competitors with invasive species
- Restoration efforts focus on avoiding the introduction of invasive species

Management of over-abundant populations

- Restoration efforts aim at identifying and rectifying the cause of over-abundant populations (e.g., altered food web)
- Restoration efforts duplicate the role of natural processes

Recreation of native communities or habitats

- Restoration efforts allow areas to recover naturally where degradation is minor
- Restoration efforts stabilize soil surfaces, stream banks and shorelines through re-initiation of natural processes, and through use of natural materials
- Restoration efforts choose a mix of species and genotypes that will facilitate establishment of other native species
- Restoration efforts use native genetic material
- Restoration efforts create natural vegetation patterns at appropriate scales

Species reintroductions

- Restoration efforts focus on restoring components of food webs that will foster resilience
- Restoration efforts use native species in re-introduction programs
- Restoration efforts are consistent with individual species recovery plans
- Restoration efforts aim at sufficient genetic diversity to maintain viable populations

Improvements in abiotic environment

- Restoration efforts remove constructed features (e.g., roads, buildings)
- Restoration efforts amend soil with local, natural organic material

Hydrology

- Restoration efforts maintain or restore natural hydrologic flow regimes
- Restoration efforts restore habitat features, such as floodplains, riparian systems, woody debris, gravel bars, pools
- Restoration efforts remove structures such as dams and artificial channels, and restore natural processes, such as flooding
- Restoration efforts restore stream connectivity

Water and soil quality

- Restoration efforts use in-situ techniques (e.g., phytoremediation) where practical
- Restoration efforts restore quality of surface waters, groundwater and soil

Landscapes and seascapes

- Restoration efforts foster ecosystem connectivity and reduce fragmentation
- Restoration efforts ensure redundancy at all trophic levels to foster resilience and stability

Source: Wong, M. 2009

SECTION 4: ACCESS AND BENEFITS SHARING

What does this section look like?

SECTION 4: ABS	Policies, policy factors and practices that promote INEFFECTIVE ABS practices		Policies, policy factors and practices that promote EFFECTIVE ABS practices	
	Ineffective ABS practices	Contributing social, economic and policy factors	Effective ABS practices	Contributing social, economic, policy factors
Access and benefits sharing				
Data sources and assumptions				

Questions included in Section 4 (Questions correspond to each cell):

- **Question 16:** Which ABS practices are most important in driving negative biodiversity and ecosystem trends and/or in driving inequitable sharing of benefits?
- **Question 17:** What are the most important contributing social, economic and policy factors that contribute to these ineffective ABS practices?
- **Question 18:** Which ABS practices are most important in driving positive biodiversity and ecosystem trends and/or in driving equitable sharing of benefits?
- **Question 19:** What are the most important contributing social, economic and policy factors that contribute to these effective ABS practices?

Key definitions for Section 4:

- **Access and benefits sharing (ABS):** Access and benefits sharing refers to the fair and equitable sharing of the benefits arising from the utilization of genetic resources.
- **Ineffective ABS practices:** Ineffective ABS practices are those practices which fail to achieve the overall national ABS goals and objectives. Examples include inadequate trans-boundary cooperation, insufficient national legislation, and poor enforcement of ABS-related laws.
- **Effective ABS practices:** Effective ABS practices are those practices which achieve the overall national ABS goals and objectives. Examples include the effective monitoring of genetic resource utilization, the existence of clear and rational legislation on access and benefit sharing, and adequate awareness raising and capacity building to ensure effective ABS practices in the future. See also Box 13 for a checklist of best ABS practices.

Additional guidance for completing Section 4:

The following provide additional guidance for completing this section:

- Box 13: Checklist of ABS best practices

Prior Informed Consent

- Obtain and comply with all applicable laws and regulations regarding prior informed consent
- Identify the national competent authority, indigenous and local communities and determine ownership of genetic resources
- Establish effective consultation processes and information exchanges with key stakeholder groups
- Ensure that genetic resources are only used for the purposes outlined in the prior informed consent agreement
- For *ex situ* collections, obtain prior informed consent from the competent national authority and/or the organization governing the *ex situ* collection

Mutually Agreed Terms

- Comply with all applicable laws and regulations regarding benefit-sharing in the country
- Ensure mutually agreed terms are established in a written agreement
- Include any conditions, procedures, types, timing and mechanisms to be shared
- Include in the mutually agreed terms the source of material, country of origin and provider of genetic resources, along with associated traditional knowledge

Benefit sharing

- Use a comprehensive and open menu from possible monetary and non-monetary benefits when negotiating benefit-sharing agreements
- Determine benefit-sharing mechanisms jointly between user and provider organizations
- To the extent possible, provide appropriate monetary benefits to research and conservation groups
- Identify opportunities in the source country and collection location for participation in commercialization and value-added processes
- Seek the original provider of the genetic resource for re-supplying material
- Establish appropriate monitoring, tracking and reporting mechanisms in the legal arrangements

Traditional knowledge

- Establish a process during the prior informed consent phase to obtain traditional knowledge and promote participation of indigenous and local communities
- Identify all holders of traditional knowledge, local competent authorities and other groups that provide approval
- Consider benefit-sharing mechanisms for traditional knowledge stakeholders not participating in access negotiations
- Suspend collection if traditional knowledge holders decide that the research is not acceptable
- Demonstrate respect for the traditional knowledge of indigenous communities by applying a) integrity (by ensuring that research activities and collection do not violate customary law and practices; by respecting sacred values and places of traditional knowledge holders; by negotiating and providing fair compensation for genuine grievances); b) protection (by supporting documentation and registration requirements and by properly acknowledging the contribution of traditional knowledge holders in all publications and applications); and c) compensation (by establishing appropriate contractual mechanisms that take into account freely-expressed desires of traditional knowledge holders).

Conservation and sustainable use

- Assess the current conservation status of the species and populations to be sampled or collected, according to the IUCN Red List
- Assess current habitat status and any critical environmental concerns, using a combination of scientific methods and local/traditional knowledge
- Assess genetic diversity of species of interest for domestication and cultivation
- Monitor the status of the resources to ensure harvest does not exceed sustainable yield levels

Source: IISD, 2012

SECTION 5: OVERALL POLICY ANALYSIS

What does this section look like?

SECTION 5: OVERALL POLICY ANALYSIS	Factors of the broader policy environment that INHIBIT biodiversity conservation, sustainable use and equitable benefits sharing	Factors of the broader policy environment that PROMOTE biodiversity conservation, sustainable use and equitable benefits sharing
Broader policy environment factors		
Data sources and assumptions		

Questions included in Section 5 (Questions correspond to each cell):

- **Question 20:** What factors of the broader policy environment inhibit biodiversity conservation, sustainable use and equitable benefits sharing?
- **Question 21:** What factors of the broader policy environment promote biodiversity conservation, sustainable use and equitable benefits sharing?

Key definitions for Section 5:

- **Broader policy environment:** The broader policy environment includes those factors, beyond policies themselves, which influence how biodiversity and economic development policies are created and enforced, and how biodiversity is ultimately managed. Examples of elements of the broader policy environment include leadership, political will, governance, policy cohesion and inter-governmental coordination.
- **Policy environment review:** A review of the broader policy environment within a country around a specific theme or set of themes, in this case biodiversity conservation, sustainable use and equitable benefits sharing. A policy environment review typically identifies the range of policies involved, how they are related, the range of policy actors, and the way in which policy is determined and applied. See also Box 14 for a framework on policy environment review.

Additional guidance for completing Section 5:

The following provide additional guidance for completing this section:

- Box 14: Checklist for broader policy environment review

Making recommendations

Upon completing Workbook 1a, planners can identify a set of policy and practice recommendations based on the results. In particular, planners can identify which practices and policies may help reduce biodiversity costs if they are modified. Planners working toward a finer resolution of data should also identify a set of policies and practices that if changed would reduce the cost of biodiversity-related expenditures. These will be further fleshed out and quantified in Workbook 1c.

Box 14: Checklist for broader policy environment review

In addition to specific social, economic and policy factors identified in previous workbooks, there are also factors in the broader policy environment which may inhibit or promote effective and sustainable practices.

Planners can use the table below as a checklist to determine whether specific factors in the broader policy environment are either an opportunity or a challenge.

ENABLING FACTOR	DEFINITION	EXAMPLES OF CHALLENGES	EXAMPLES OF OPPORTUNITIES
Political will, political leadership	<ul style="list-style-type: none"> The extent to which there are strong national biodiversity goals, and the political will at all levels to achieve these goals 	<ul style="list-style-type: none"> A government lacks political will to integrate and mainstream biodiversity, and does not consider biodiversity high on its agenda 	<ul style="list-style-type: none"> A new government is elected, and wants to implement a biodiversity agenda A high-level official announces ambitious goals at influential meetings
Financial and economic lobbying by powerful interest groups	<ul style="list-style-type: none"> The degree to which special interests influence biodiversity decisions, including finance decisions 	<ul style="list-style-type: none"> Powerful interests (e.g., mining) do not acknowledge the importance of biodiversity, and lobby against it 	<ul style="list-style-type: none"> Powerful interests (e.g., tourism) recognize and promote the value of biodiversity to their industry
Public media, communication, perception and attitudes	<ul style="list-style-type: none"> The degree to which the public is supportive of the benefits of biodiversity, and supports national goals 	<ul style="list-style-type: none"> The public is not aware of biodiversity issues, and biodiversity issues are not routinely covered in national media 	<ul style="list-style-type: none"> The public mostly understands, and is supportive of, the importance of biodiversity conservation and mainstreaming
Principles of good governance	<ul style="list-style-type: none"> The degree to which the government is transparent, fair, accountable, reliable, efficient and effective 	<ul style="list-style-type: none"> Corruption within government agencies and/or economic sectors prevents effective decisions from being made regarding safeguarding and integrating biodiversity 	<ul style="list-style-type: none"> Biodiversity-related laws (e.g., environmental impact assessments) are routinely upheld The government clearly identifies tradeoffs between biodiversity and development
Inter-sectoral coordination, steering group, communication	<ul style="list-style-type: none"> The extent to which various economic, development and natural resource sectors engage with one another 	<ul style="list-style-type: none"> There is competition between government agencies, and poor coordination and communication 	<ul style="list-style-type: none"> There is an effective inter-sectoral advisory group that coordinates the development of the NBSAP
Public participation in decision making	<ul style="list-style-type: none"> The degree to which effective and equitable participation mechanisms exist 	<ul style="list-style-type: none"> There are no effective means of engaging the public in decision making 	<ul style="list-style-type: none"> Public decision making procedures and mechanisms are well established
Information about biodiversity values, threats	<ul style="list-style-type: none"> The degree to which information on the benefits of biodiversity is available 	<ul style="list-style-type: none"> Studies on the economic benefits of biodiversity have not been completed 	<ul style="list-style-type: none"> There is clear and compelling information about the value of biodiversity to a wide range of social and economic sectors
Inter-agency alignment	<ul style="list-style-type: none"> The degree to which decisions within agencies are aligned with national goals, and are vertically integrated 	<ul style="list-style-type: none"> Top-level agency officials support national biodiversity goals but do not implement them 	<ul style="list-style-type: none"> Biodiversity goals are embraced throughout and across agencies
Utilization of available biodiversity funding opportunities	<ul style="list-style-type: none"> The degree to which a government avails funding in a logical, consistent and coherent manner 	<ul style="list-style-type: none"> Governments do not take full advantage of available funding, and their proposals are not aligned with national priorities 	<ul style="list-style-type: none"> Governments understand the range of funding available, and align their strategies to take advantage of this funding to achieve national goals

COMPLETING WORKBOOK 1A

In completing Workbook 1a, planners may consider different levels of depth and resolution, each of which may require different levels of staff time, financial resources, data availability and completion of previous assessments. The table below offers some suggestions for coarse, medium and fine resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Section 1: Questions 1 - 7	<ul style="list-style-type: none"> Identify key sectors, sectoral practices, and impacts on biodiversity and contributing factors through peer review discussions within steering committee 	<ul style="list-style-type: none"> Identify key sectors, sectoral practices, and impacts on biodiversity and contributing factors through peer review discussions within steering committee, supplemented by some sectoral impact assessment data and some root causal analysis data 	<ul style="list-style-type: none"> Identify key sectors, sectoral practices, and impacts on biodiversity through a sectoral impact assessment, and identify contributing factors through a root causes analysis. Reach consensus through peer review discussions within steering committee
Section 2: Questions 8 - 11	<ul style="list-style-type: none"> Identify key protection practices and contributing factors through peer review discussions within steering committee 	<ul style="list-style-type: none"> Identify key protection practices and contributing factors through peer review discussions within steering committee, based on some previous protection assessment data and root causes analysis data 	<ul style="list-style-type: none"> Identify key protection practices by conducting (or updating existing) protected area management effectiveness, capacity and gap assessments, and identify contributing factors by conducting a root causes analysis. Reach consensus through peer review discussion within steering committee
Section 3: Questions 12 - 15	<ul style="list-style-type: none"> Identify key restoration practices and contributing factors through peer review discussions within steering committee 	<ul style="list-style-type: none"> Identify key restoration practices and contributing factors through peer review discussions within steering committee, based on some previous restoration assessment data and data from root causes analyses 	<ul style="list-style-type: none"> Identify restoration practices by conducting a spatially-explicit restoration assessment, and identify contributing factors by conducting a root causes analysis. Reach consensus through peer review discussion within steering committee
Section 4: Questions 16 - 19	<ul style="list-style-type: none"> Identify key ABS practices and contributing factors through peer review discussions within steering committee 	<ul style="list-style-type: none"> Identify ABS-related practices and contributing factors through peer review discussions of steering committee, based on some previous ABS assessment data 	<ul style="list-style-type: none"> Identify ABS-related practices and contributing factors through a detailed review. Reach consensus through peer review discussion within steering committee
Section 5: Questions 20 - 21	<ul style="list-style-type: none"> Identify key policy environment factors through peer review discussions within steering committee 	<ul style="list-style-type: none"> Identify key policy environment factors through peer review discussions within steering committee, based on some previous reviews of the policy environment 	<ul style="list-style-type: none"> Identify key policy environment factors through a detailed policy environment review. Reach consensus through peer review discussion within steering committee

WORKBOOK 1a: Policy and Practice Drivers of Biodiversity and Ecosystem Change						
SECTION 1: BIODIVERSITY MAINSTREAMING	Sectoral practices, market forces and policy factors that contribute to NEGATIVE biodiversity and ecosystem trends			Sectoral practices, market forces and policy factors that contribute to POSITIVE biodiversity and ecosystem trends		
	Unsustainable sectoral practices	Negative impacts on biodiversity and ecosystems	Contributing market forces and policy factors	Sustainable sectoral practices	Positive impacts on biodiversity and ecosystems	Contributing market forces and policy factors
Sector 1						
Sector 2						
Sector 3						
Sector 4						
Sector 5						
Sector 6						
Sector 7						
Data sources and assumptions						
SECTION 2: PROTECTION	Social, economic and policy factors that contribute to INEFFECTIVE protection practices		Social, economic and policy factors that contribute to EFFECTIVE protection practices			
	Ineffective system- and site-level protection practices	Contributing social, economic and policy factors	Effective system-level and site-level protection practices	Contributing social, economic and policy factors		
Government and co-managed protected areas						
Private protected areas						
Community protected areas and other conserved areas						
Corridors and buffers						
Ex-situ protection						
Other protection						
Data sources and assumptions						
SECTION 3: RESTORATION	Policies, policy factors and practices that promote INEFFECTIVE restoration practices		Policies, policy factors and practices that promote EFFECTIVE restoration			
	Ineffective restoration practices	Contributing social, economic and policy factors	Effective restoration practices	Contributing social, economic, policy factors		
On government lands						
On private lands						
On community lands						
Data sources and assumptions						
SECTION 4: ABS	Policies, policy factors and practices that promote INEFFECTIVE ABS practices		Policies, policy factors and practices that promote EFFECTIVE ABS practices			
	Ineffective ABS practices	Contributing social, economic and policy factors	Effective ABS practices	Contributing social, economic, policy factors		
Access and benefits sharing						
Data sources and assumptions						
SECTION 5: OVERALL POLICY ANALYSIS	Factors of the broader policy environment that INHIBIT biodiversity conservation, sustainable use and equitable benefits sharing		Factors of the broader policy environment that PROMOTE biodiversity conservation, sustainable use and equitable benefits sharing			
Broader policy environment factors						
Data sources and assumptions						

Workbook 1b: Institutional review

INTRODUCTION TO WORKBOOK 1B

This workbook includes 5 sections:

- **Biodiversity mainstreaming:** an analysis of the specific roles that economic development and planning institutions play in biodiversity planning and decision making; their specific role in biodiversity expenditures; their alignment with national biodiversity objectives; and their overall capacity and effectiveness;
- **Protection:** an analysis of the specific roles that protection-related institutions play in biodiversity planning and decision making; their specific role in biodiversity expenditures; their alignment with national biodiversity objectives; and their overall capacity and effectiveness;
- **Restoration:** an analysis of the specific roles that restoration-related institutions play in biodiversity planning and decision making; their specific role in biodiversity expenditures; their alignment with national biodiversity objectives; and their overall capacity and effectiveness; and
- **Access and benefits sharing:** an analysis of the specific roles that ABS-related institutions play in biodiversity planning and decision making; their specific role in biodiversity expenditures; their alignment with national biodiversity objectives; and their overall capacity and effectiveness.
- **Other key institutions:** an analysis of the specific roles that other key institutions may play in biodiversity planning and decision making.

How is this information used?

The purpose of this workbook is to allow planners to clearly identify the specific institutions involved in strategies related to biodiversity mainstreaming, protection, restoration and access and benefits sharing. By specifically identifying how institutions play a role in biodiversity decision making and expenditure, planners can identify the key actors across all sectors for the expenditure review in Workbook 1c. By analyzing biodiversity impacts and dependencies, planners can better identify the key institutions that have a direct relationship with biodiversity benefits – information that will help inform biodiversity strategies in Workbook 2 and resource mobilization strategies in Workbook 3. By analyzing the institutional alignment with national biodiversity objectives and overall institutional capacity and effectiveness, planners can identify which institutions may need to be targeted for additional resources and capacity building efforts, and this in turn has cost implications for Workbook 2. Note that specific capacity questions related to each strategy are included in Workbook 2 and Workbook 3, and note also that while this workbook touches on the role of institutions in biodiversity expenditure, this issue is more fully expanded in Workbook 1c. This two-step process allows planners to first identify the subset of institutions that have the most important role in biodiversity planning and expenditure, and the most significant impacts and/or dependencies, and allows planners to further focus on those institutions in Workbook 1c.

What does this workbook look like?

All 5 sections of this workbook look like this:

SECTIONS 1 – 5 (Biodiversity mainstreaming, protection, restoration, ABS, other key institutions)				
Key sectoral institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

Questions included in Workbook 1b (Questions correspond to each cell):

- **Question 1:** What are the key economic development, protection, restoration and ABS institutions involved in biodiversity-related finance?
- **Question 2:** What is the role in biodiversity planning and biodiversity expenditure for each of these institutions?
- **Question 3:** What are the biodiversity impacts and dependencies for each of these institutions?
- **Question 4:** What is the level of alignment with biodiversity-related objectives within each institution?
- **Question 5:** What is the overall institutional capacity of each institution to address biodiversity and finance issues?

Key definitions for Workbook 1b:

- **Key economic development institutions:** These include the broad array of institutions within each economic development sector that are directly and indirectly related to biodiversity, such as forestry, agriculture, energy, fisheries, tourism and infrastructure. See Box 15 for some examples of key institutions for biodiversity finance.
- **Key protection institutions:** These include the institutions involved in implementing protection strategies and actions, including protected area planning and management, law enforcement, international trade, indigenous and community organizations and non-governmental organizations.
- **Key restoration institutions:** These include the institutions involved in restoration strategies and actions, including monitoring and research groups, government agencies such as forestry and fisheries, and non-governmental organizations.
- **Key ABS institutions:** These include the institutions involved in ABS strategies and actions, including groups with traditional knowledge, genetic research companies, legal institutions, and various sectors.
- **Other key institutions:** These include all other institutions that may have a role in biodiversity planning and finance, but that do not fit neatly into the categories above, including research, monitoring and communication institutions, among others.
- **Biodiversity planning:** Biodiversity planning includes the full suite of planning activities associated with biodiversity, ecosystems, ecosystem services, land use and natural resources.
- **Biodiversity-related finance:** Biodiversity-related finance includes all financial expenditures that are related to improving the conservation, sustainable use or equitable benefits sharing of biodiversity. It also includes expenditures that have a negative impact on biodiversity, such as perverse subsidies that encourage land clearing.
- **Biodiversity impacts and dependencies:** Biodiversity impacts are the overall impacts that a specific institution has on key biodiversity, whether directly (e.g., through negative impacts) or indirectly (e.g., through policies). Biodiversity dependencies are the degree to which an institution is dependent upon the benefits of biodiversity (e.g., ecotourism companies are frequently dependent upon biodiversity found within protected areas; agricultural producers are frequently dependent upon water supplies from intact, protected forests).

- **National biodiversity-related objectives:** National biodiversity-related objectives include the broad aims and specific objectives for biodiversity-related goals within a country. Planners generally begin their review and updating of NBSAPs by identifying national biodiversity-related objectives. Alignment is the degree to which the stated objectives, the existing policies, and/or the operating practices of an institution either support or conflict with these objectives.
- **Institutional capacity:** Institutional capacity is the degree to which an institution has the staff, skills and resources required to achieve its goals and objectives. In this context, planners should assess the extent to which key institutions and actors are potentially capable of executing key NBSAP strategies and/or of mobilizing and implementing finance mechanisms.
- **Institutional review:** An institutional review is a review of key institutions related to a given theme, such as biodiversity, climate, health or education. This type of review typically includes a comprehensive list of all related institutions, an analysis of their interactions and their specific relationship to the theme, and an overall summary of institutional strengths and weaknesses, including capacity. See also Box 16 for key questions for institutional and capacity review.

Additional guidance for completing Workbook 1b:

The following provide additional guidance for completing this workbook:

- Box 15: Examples of key institutions for biodiversity finance and their role in biodiversity planning and expenditure

Making recommendations

Upon completing Workbook 1b, planners can identify a set of institutional issues and recommendations based on the results. In particular, planners can identify institutions that are most critical for biodiversity planning and finance, and can identify areas for improvement in capacity and in alignment with national biodiversity objectives.

Box 15: Finance actors, examples and their role in national biodiversity-related finance

The potential field of biodiversity-relevant sectors is large, and therefore so is the list of potential public and private finance actors. They may be structured along these main categories and may contain, (but are not limited) to the following:

FINANCE ACTOR	EXAMPLE	ROLE IN FINANCE
Public actors: <ul style="list-style-type: none"> Central government & ministries District/local government Governmental institutions Public research institutions and academia 		
Private sector/business actors: <ul style="list-style-type: none"> Business Industry Private research institutions and academia Private sector foundations 		
Private actors: <ul style="list-style-type: none"> Households Private foundations Private communities Private associations 		
Implementing agencies and donors: <ul style="list-style-type: none"> Multilateral institutions (e.g. World Bank, UNDP, FAO) Bilateral donors 		

(TYPE OUT AND POPULATE)

Subsectores o inversiones	Fuente consultada
01. Ecosistemas terrestres. Conservación	Canon de aprovechamiento de agua Compra de tierras en PN y RB Presupuesto ordinario SINAC (menos compra de tierras)
02. Ecosistemas terrestres. Bienes y servicios	Canon de aprovechamiento de agua PSA-FONAFIFO GRUAS II
03. Ecosistemas marino-costeros. Conservación	Consolidación de las Áreas Marinas Protegidas de Costa Rica (Project Preparation Grant -PPG-) Paz con la Naturaleza Mejoramiento de las prácticas de manejo y conservación para el Área de Conservación Marina Isla del Coco Protección de la biodiversidad del Área de Conservación Marina Isla del Coco
03. Ecosistemas marino-costeros. Bienes y servicios	Gestión Integrada de los Recursos Marinos y Costeros en Puntarenas, Costa Rica Incopesca. Servicio de apoyo técnico al sector pesquero y acuícola Sistema de Gestión Regional para el Uso Sostenible de los Recursos Pesqueros del Corredor Marino del Pacífico Este Tropical (CMAR)
04. Ecosistemas acuáticos continentales. Bienes y servicios	Gestión integrada de ecosistemas de la cuenca binacional del Río Sixaola Ordenamiento territorial en el marco del Proyecto "Desarrollo Sostenible de la Cuenca del Río Frio" COMCURE-Implementación de las acciones prioritizadas en el Plan de Manejo Integrado de la Cuenca del Río Reventazón Parímina, hacia la Vertiente Caribe en la Provincias de Cartago y Limón GRUAS II
05. Turismo. Conservación	ICT, Red de reservas privadas ⁹
05. Turismo. Bienes y servicios	Presupuesto INBIO
06. Generación de conocimiento a partir de la biodiversidad	Presupuesto-Hidrometeorología aplicada-MINAET Presupuesto universidades estatales en investigaciones relacionadas al cambio climático
07. Incendios forestales	CONIFOR

Box 16: Key questions for a biodiversity institutional and capacity review

The aim of the institutional review is to understand the institutions involved in biodiversity finance within a country, and to understand some of the key institutional dynamics.

When filling in Workbook 1a, planners may find the following questions helpful:

Topic in Workbook	Key questions to consider
Role in biodiversity planning and finance	<ul style="list-style-type: none"> ○ What specific role does the institution play in biodiversity-related finance? ○ In what ways does the institution influence biodiversity finance decisions? ○ How stable is this role? ○ How clear are roles and responsibilities for biodiversity conservation, sustainable use and equitable benefits sharing between different government departments and within and between ministries?
Biodiversity impacts and dependencies	<ul style="list-style-type: none"> ○ To what extent does the institution have a negative and positive impact on biodiversity? ○ How dependent is this sector on healthy and functioning biodiversity and ecosystem services?
Alignment with national biodiversity-related objectives	<ul style="list-style-type: none"> ○ Does institutional collaboration and coordination on biodiversity need to be strengthened? If so, how? ○ Are the organizational structures compatible with biodiversity policies and strategies, as well as their legal mandates? ○ How consistent are the institution's policies with national biodiversity policies? Are there areas of conflict?
Overall institutional capacity	<ul style="list-style-type: none"> ○ What is the capacity of local government to fulfil any service delivery role related to biodiversity?

Adapted from Bird et al., 2012.

COMPLETING WORKBOOK 1B

In completing this section, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Question 1	<ul style="list-style-type: none"> Identify a limited, focused list of institutions based on steering committee discussions 	<ul style="list-style-type: none"> Identify a list of institutions based on steering committee discussions, and supplemented by additional institutional reviews 	<ul style="list-style-type: none"> Conduct or update institutional review that identifies comprehensive list of key institutions in all major sectors
Questions 2 -5	<ul style="list-style-type: none"> Identify institutional role in biodiversity planning, and biodiversity expenditure, biodiversity impacts and dependencies, alignment with national biodiversity objectives and institutional capacity through steering committee discussions 	<ul style="list-style-type: none"> Identify institutional role in biodiversity planning and biodiversity expenditure, biodiversity impacts and dependencies, alignment with national biodiversity objectives and institutional capacity through steering committee discussions, supplemented by additional institutional and institutional capacity reviews 	<ul style="list-style-type: none"> Conduct or update a comprehensive institutional review that identifies the institutional role in biodiversity planning and expenditure, biodiversity impacts and dependencies, alignment with national biodiversity objectives and institutional capacity

WORKBOOK 1b: Institutional Review

SECTION 1: BIODIVERSITY MAINSTREAMING AND SUSTAINABLE PRODUCTION

Key sectoral institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

SECTION 2: PROTECTION

Key protection institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

SECTION 3: RESTORATION

Key restoration institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

SECTION 4: ABS

Key ABS institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

SECTION 5: OTHER KEY INSTITUTIONS

Other key institutions	Role in biodiversity planning and finance	Biodiversity impacts and dependencies	Alignment with national biodiversity-related objectives	Overall institutional capacity
Institution 1				
Institution 2				
Institution 3				
Institution 4				
Institution 5				
Data sources and assumptions				

Workbook 1c: Public and private biodiversity expenditure review

INTRODUCTION TO WORKBOOK 1C

This workbook includes 3 sections:

- **Overall national budgetary and expenditure snapshot:** an analysis of the total government budget, expenditure, foreign loans and grants;
- **Baseline biodiversity expenditure and expenditure effectiveness review by institutions:** an analysis of the key biodiversity-related expenditures (including negative biodiversity expenditures) by public and private financial actors, agencies and investors, and a review of the effectiveness of biodiversity expenditures; and
- **Baseline biodiversity expenditure review by major strategy group:** an analysis of the breakdown of biodiversity expenditures into major strategies (sectoral mainstreaming, protection, restoration, ABS, implementation and all other strategies) by each institution.

How is this information used?

The purpose of this workbook is to provide an overview of biodiversity-related expenditures and investment flows from both public and private sectors. The data collected in the first section of the workbook provides an overall financial context within which finance flows can be better understood for both the national government and specific economic development sectors. The data collected in the second and third sections of the workbook provide a financial baseline in biodiversity spending against which finance needs and gaps will be assessed in Workbook 3. The finance institutions, actors, agents and investments identified in Workbook 1c will most likely be the same as in Workbook 1b. Estimating the full extent of national budgets and expenditures allows planners to understand the overall financial context in which the NBSAP strategies occur.

What does Section 1 of Workbook 1c look like?

SECTION 1: OVERALL NATIONAL BUDGETARY AND EXPENDITURE SNAPSHOT								
	1 year ago	2 years ago	3 years ago	4 years ago	5 years ago	6 years ago	7 years ago	8 years ago
Total government budget								
Total government expenditure								
Foreign loans and grants								
Gross domestic product								

Questions included in Section 1 of Workbook 1c (Questions correspond to each cell):

Section 1

- **Question 1:** What is the total government budget for the past 4-8 years?
- **Question 2:** What is the total government expenditure for the past 4-8 years?
- **Question 3:** What is the total amount of foreign loans and grants for the past 4-8 years?
- **Question 4:** What has the gross domestic product been for the past 4-8 years?

What does Section 2 of Workbook 1c look like?

SECTION 2: BASELINE BIODIVERSITY EXPENDITURE AND EXPENDITURE EFFECTIVENESS REVIEW								
PUBLIC AND PRIVATE AGENCIES, ACTORS, INSTITUTIONS AND INVESTORS THAT FUND BIODIVERSITY-RELATED ACTIONS (From Workbook 1b)	Specific division, department or company	Cost codes, cost centers or line items	Total budget in years 1-4	Total biodiversity-related budget in years 1-4	Total actual expenditures in years 1-4	Total actual expenditures on biodiversity in years 1-4	Effectiveness of biodiversity-related expenditures	Negative biodiversity expenditures
• Institution/actor 1								
• Institution/actor 2								
• Institution/actor 3								
• Institution/actor 4								
• Institution/actor 5								
• Institution/actor 6								
• Institution/actor 7								
• Institution/actor 8								
• Institution/actor 9								
• Institution/actor 10								
Data sources and assumptions								
TOTALS								

Questions included in Section 2 of Workbook 1c (Questions correspond to each cell):

- **Question 5:** What are the key biodiversity finance actors, agents, institutions and investors?
- **Question 6:** What are the specific divisions, departments or companies within each finance actor?
- **Question 7:** What are the cost codes or cost centers that can be used to determine total biodiversity expenditure?
- **Question 8:** What is the total annual budget for the past 4 years for each finance actor?
- **Question 9:** What is the total biodiversity-related budget for the past 4 years for each finance actor?
- **Question 10:** What is the total actual expenditure for the past 4 years for each finance actor?
- **Question 11:** What is the total actual biodiversity expenditure for the past 4 years for each finance actor?
- **Question 12:** What is the effectiveness of biodiversity-related expenditures for each finance actor over the past 4 years?
- **Question 13:** What have been the most significant negative biodiversity expenditures in the past 4 years for each actor?

What does Section 3 of Workbook 1c look like?

SECTION 3: BASELINE BIODIVERSITY EXPENDITURE REVIEW BY MAJOR STRATEGY GROUP								
PUBLIC AND PRIVATE AGENCIES, ACTORS, INSTITUTIONS AND INVESTORS THAT FUND BIODIVERSITY-RELATED ACTIONS (From Workbook 1b)	Source of funding	Total biodiversity expenditure	Biodiversity mainstreaming strategies	Protection strategies	Restoration strategies	ABS strategies	Implementation strategies	All other biodiversity strategies
• Institution/actor 1								
• Institution/actor 2								
• Institution/actor 3								
• Institution/actor 4								
• Institution/actor 5								
• Institution/actor 6								
• Institution/actor 7								
• Institution/actor 8								
• Institution/actor 9								
• Institution/actor 10								
Data sources and assumptions								
TOTALS								

Questions included in Section 3 of Workbook 1c (Questions correspond to each cell):

Section 3

- **Question 14:** What is the source of funding for each finance actor, and the breakdown of biodiversity expenditures into each major NBSAP strategy?

Key definitions for Workbook 1c:

- **Public and private finance:** Public finance are funds that are collected through taxes, fees, fines and other public finance instruments, and disbursed through governmental budgetary procedures. Private finance are any funds that are raised and distributed through any means not considered public, including through businesses, trade associations, non-governmental organizations, community groups and private citizens, among others.
- **Biodiversity-related actions:** These are any actions that support the biodiversity conservation, sustainable use, and/or equitable benefit sharing, and that achieve national biodiversity goals and objectives. Examples include agricultural subsidies for sustainable agriculture, forestry set asides within forest concessions, funding of protected area management, monitoring of illegal wildlife trade, and research on endangered species. The degree to which an action or line item is related to biodiversity can be differentiated into high, medium and low. See Box 17 for an example of biodiversity-related expenditures.
- **Finance actors, agents and investors:** These include any entity, either public or private, that provides financial revenue or support for biodiversity-related activities.
- **Cost codes, cost centers and line items:** These are the units by which expenditures are generally tracked within an organization or entity. For example, a country might have a Ministry of Forests and Soil Conservation, Ministry of Physical Planning and Works, Ministry of Environment, Ministry of Energy and Ministry of Agriculture, all of which fund some biodiversity-related activities. Within these departments, there may be separate line items, such as a community forestry program, a district land protection program, a rural drinking water and sanitation program and a community watershed protection program.
- **Effectiveness of biodiversity-related expenditures:** The effectiveness of a biodiversity-related expenditure is the degree to which the expenditure achieves the specific intended results. This may be measured through a cost-benefits analysis, or

efficiency of expenditure, or simply by whether or not the objectives were achieved. Examples of ineffective biodiversity-related expenditures include expenditures on tree planting efforts where seedlings did not survive, invasive species removal projects where the invasive species returned, wildlife bridges located in inappropriate areas, and other unsuccessful projects. See Box 18 for guidance on identifying relevancy and effectiveness of biodiversity-related expenditures.

- **Negative biodiversity expenditures:** Negative biodiversity expenditures include those activities that are, either directly or indirectly, in opposition to the national biodiversity objectives, and/or to biodiversity conservation, sustainable use and equitable benefits sharing. Examples of negative biodiversity expenditures include perverse incentives that favor land clearing, policies that promote planting of invasive alien species, and agricultural subsidies for pesticides. The policy review in Workbook 1a will help identify potential areas to explore for negative biodiversity expenditures. See Box 19 for examples of negative biodiversity expenditures.
- **Source of funding:** Funding sources include both private funds (domestic private funding, including equity, bonds and loans, foreign direct investment, foreign loans and private foreign aid), as well as government funds (domestic budgetary funds, foreign loans, and bilateral and multilateral overseas development assistance).

Additional guidance for completing Workbook 1c:

The following provide additional guidance for completing this workbook:

- Box 17: Examples of biodiversity-related expenditures
- Box 18: Guidance on identifying relevancy and effectiveness of biodiversity-related expenditures
- Box 19: Example of negative biodiversity expenditures
- Box 20: Steps involved in a national expenditure review
- Box 21: Issues related to currency conversions

Box 17: Examples of biodiversity-related expenditures

Between 2008 and 2010 an Inter-Ministerial Committee conducted an assessment of Investment and Financial Flows to analyzed biodiversity-related expenditures in Costa Rica with regards to climate change. A tracking of expenditures for 2005 showed the following results:

Investment information for biodiversity in 2005, by investment type, investment entity and source (millions US\$ 2005)

(NOTE: Need to type out, translate and format)

Investment entity	Source	1. Terrestrial ecosystems, conservation (2006)	2. Terrestrial ecosystems, goods and services	3. Marine-coastal ecosystems	4. Inland aquatic ecosystems (2007)	5. Tourism	6. Awareness raising on biodiversity	7. Forest fires
Households	Savings and debt							
Total Households								
Private sector	National savings		0.07				5.35	0.09
	Domestic loans							
	Total national funds		0.07				5.35	0.09
	External Funds. Direct foreign investment							
	External funds, Credits		8.93					
	External Funds. External Aid			0.16				
Total Private sector	Total external funds		8.93	0.16				
			9.00	0.16			5.35	0.09
Government	National funds	19.63	3.82	0.68			1.09	0.22
	Total government national funds	19.63	3.82	0.68			1.09	0.22
	External Funds. Foreign loans						1.65	
	External Funds. Bilateral foreign Aid			0.26	0.20			
	External Funds, Multilateral							
	External funds							
Total Government	Total government external funds			0.26	0.20		1.65	
		19.63	3.82	0.93	0.20		2.74	0.22
Total		19.63	12.82	1.10	0.20	*	8.09	0.31

Source: Elaborated by national I&FF team (* no information)

Results of the Assessment of Investment and Financial Flows for Biodiversity for adaptation to climate change conclude that from 2010-2030 in the biodiversity sector a total amount of US\$ 1.35 billion (discount rate 0.1% investment flows will be necessary to avoid and alleviate the impacts of climate change, and that the subsector that requires most of the investments is conservation of terrestrial ecosystems, because of the acquisition of land.

Incremental cumulative (2005-2030) discounted Investment and Financial Flows for all investments in biodiversity, by investment entity and funding source (million 2005 US\$).

Category of Investment Entity	Category of Investment Entity and Source of I&FF Funds	Biodiversity			
		Investment Flows	Financial Flows	Operation & Maintenance	Total
Households	Savings and debt				
Corporations	Corporations. National Funds. National savings	121.53	1.96		123.48
	Corporations. National Funds. Domestic loans				
	Total national funds	121.53	1.96		123.48
	Corporations. External Funds. Direct foreign investment		247.06		247.06
	Corporations. External Funds. External Aid		247.06		247.06
	Total external funds		247.06		247.06
	Total funds of Corporations	121.53	249.02		370.55
Government	Government. National Funds	2.30	204.56		206.85
	Total national funds	2.30	204.56		206.85
	Government. External Funds. Foreign loans	119.88			119.88
	Government. External Funds. Bilateral foreign Aid	119.88	533.93		653.81
	External financing	1594.82			
	Total external funds	239.76	533.93		773.69
	Total governmental funds	242.06	738.49		980.55
	Total of all types of entities and sources	363.59	987.51	0.00	1,351.09

Source: Elaborated by national I&FF team

Box 18: Guidance on identifying relevancy and effectiveness of biodiversity-related expenditures

When identifying biodiversity-related expenditures, planners will need to ascertain whether any given national budget line item and expenditure is relevant to biodiversity, and will need to determine the effectiveness of expenditures in achieving biodiversity-related goals. Planners should keep the following guidance in mind when determining relevancy and effectiveness:

Relevance to biodiversity

- *Is the expenditure relevant to biodiversity goals:* the budget or expenditure aims to conserve, protect, restore, manage and/or sustainably use elements of biodiversity and ecosystems;
- *Is the expenditure relevant to biodiversity policies:* the budget or expenditure focuses on policies related to biodiversity and ecosystems;
- *Is the expenditure relevant to social aspects of biodiversity:* the budget or expenditure focuses on biodiversity or ecosystems relevant for socially-important species, such as medicinal plants;
- *Is the expenditure relevant to economic aspects:* the budget or expenditure focuses on biodiversity or ecosystems relevant for tourism?

The following table can help planners who are assigning relevancy to biodiversity-related expenditures

High relevance	Expenditures for activities where the primary intended outcome or objective aims at biodiversity conservation, sustainable use or equitable benefits sharing <ul style="list-style-type: none"> ○ Expenditures for sustainable sectoral practices with the aim of conserving biodiversity ○ The establishment, management or expansion of protected areas, connectivity corridors and buffer zones ○ Public awareness programs on biodiversity and associated benefits of conservation
Medium relevance	Expenditures for activities where either the secondary intended outcome or objective is biodiversity conservation, sustainable use or equitable benefits sharing; or there is a mixed range of activities, some of which include primary or secondary intended outcomes for biodiversity objectives <ul style="list-style-type: none"> ○ Climate resilience efforts that result in habitat restoration ○
Low relevance	Expenditures for activities where indirect biodiversity benefits may arise, but not as a direct or indirect objective of the expenditure or activity <ul style="list-style-type: none"> ○ General water quality improvement efforts that lead to some water conservation actions ○ General institutional capacity strengthening, including for minor components of biodiversity management capacity
Marginal relevance	Expenditures that have only very indirect or theoretical linkages to biodiversity conservation, sustainable use or equitable benefits sharing <ul style="list-style-type: none"> ○ Education efforts that have only marginal relevance to biodiversity ○ Efforts to promote general tourism, with only a minor relevance to nature-based tourism

Adapted from Bird et al., 2012

Effectiveness of expenditures

Planners will also need to determine the overall effectiveness of expenditures. Effective expenditures are defined by the degree to which the expenditure achieved the desired results with a minimum of waste.

The following table can help planners who are assigning relevancy to biodiversity-related expenditures:

High	The expenditure fully met the intended objectives, with little or not waste (e.g., funds were spent to create a new protected area, which was successfully established)
Medium	The expenditure partially or mostly met the intended objectives, with some acceptable levels of waste and inefficiency (e.g., funds were spent to eliminate invasive alien species, with partial success)
Low	The expenditure mostly did not meet the intended objective; and/or there were moderate to high levels of waste and inefficiency (e.g., funds were spent to plant trees, with high levels of mortality)
Very low	The expenditure did not meet, or only marginally met, the intended objectives; and/or there were excessive amounts of waste (e.g., funds were spent on training with high staff turnover)

Box 19: Example of negative biodiversity expenditures

Expenditures that can have a negative impact on biodiversity can be considered negative biodiversity expenditures. Unlike expenditures with low levels of effectiveness, negative biodiversity expenditures are funds that are spent counter to biodiversity goals. Examples of negative biodiversity expenditures include:

- Subsidies on polluting industries and activities, e.g. on fossil fuels, both due to production as well as consumption of fossil fuels
- Production practices that are not resource efficient
- Wasteful use of agricultural land, e.g. based on perverse incentives
- Expenditures directly connected to the destruction of biodiversity, e.g. logging, over-harvesting of species etc.

For example, a hypothetical country might have a coastline with mangrove forests that are rich in biodiversity. In attempting to boost the local economy, the government, in collaboration with an international donor, might create incentive grants on coastal aquaculture, particularly shrimp breeding. These incentives encourage the conversion of natural coastlines of mangrove forests to artificial shrimp farms. The negative expenditure can be measured both in the amount of funds spent toward these perverse incentives, as well as in the loss of natural capital.

The following steps are typically involved when undertaking a national expenditure review:

Step 1: Screen public and private entities relevant for the biodiversity expenditure review

To track biodiversity expenditures in national, private sector and household budgets, planners must first identify national ministries, local government departments, environmental trust funds, institutions, businesses, agencies, NGOs and donor activities. Planners should also look beyond those entities that deal directly with biodiversity, including for example entities that focus on agriculture, forestry, fisheries, coastal zones, REDD, LULUCF, food security and other sectors. When screening potentially relevant entities, planners should also keep in mind that not all biodiversity-related expenditures are necessarily clearly earmarked as such. Some expenditures with biodiversity implications may have been allocated for other purposes. For example, solar cook stoves may have been introduced in an area with the objective to improve people's health and to prevent respiratory diseases from previous wood-fired stoves, but an effect may also be less pressure on biodiversity due to reduced fuelwood harvest.

Step 2: Extract disaggregated data from entities

Planners will then need to extract relevant information from the various entities, and will need to keep figures at a disaggregated level suitable for identifying different activities, sources and timing of expenditures. Sources mainly include budgets (state budget, district/local budget, business budget, household budget, donor budget) and annual reports (prepared by most governmental and non-governmental institutions). Expenditures can also occur in the form of taxes, environmental compensation payments and governmental fees. Information should be collected on at least 4 subsequent years.

When reviewing public budgets, planners should identify the specific expenditure codes in order to better track the various streams of expenditures. This phase of close engagement with relevant institutions will also provide insights into the dynamics of various actors that are useful for the later parts of the BIOFIN Workbook, particularly the development of policies and resource mobilization.

Access to data will often not be straightforward, and planners will need to build trust with the data provider. Some entities may be concerned about disclosing internal information to potential competitors, or may fear taxation increases based on information provided. It is crucial to ensure broad ownership of the process by engaging with relevant entities and stakeholders throughout the process, and communicating clearly the objectives of the BIOFIN approach.

Step 3: Process expenditure information into a coherent system

The extracted information will need to be processed to be coherent and comparable in terms of currency, sources, timing of expenditures and data format. Planners should take into account not only positive but also negative biodiversity expenditures, including for example subsidies on fossil fuels, bonuses for cultivating previously uncultivated land or fishing quotas that favor the catch of one species with high by-catch levels.

Box 21: Issues involved in currency conversion

One of the key tasks of planners will be to convert currency to a standard constant unit, mostly likely US dollars. Below are some key issues to consider in this process.

Costing considerations: Planners should not only disaggregate costs by year, but also by 'investment' vs. 'operations and management' costs to be able to detect negative trade-offs. Often unsustainable alternatives have low investment costs and high operation and management costs, while sustainable options require some upfront investment costs, but save on operation and management costs later.

Currency considerations: Important points on currency questions and discount rate to consider include:

- The time horizon of 2020 is large enough that one unit of national currency spent today does not necessarily have the same value in 2020. Therefore financial values in the assessment should be discounted (see example below);
- Currency rates are subject to fluctuations, so planners should convert current currency into constant currency (see example below);
- It is possible that not all expenditures and investments are made in a country's national currency (some activities may be donor-funded, for example), so national teams need to decide what currency conversion rate to use, and make this clear in their assessment. Different options are possible, including a) using the conversion rate of the baseline year; b) using the conversion rate of the year of investment; c) using an averaged conversion rate; and d) using a floating rate.
- As the assessment figures will have implications at the global level, it may be worth considering whether to convert all values to a common currency, e.g. US\$.

Below is an example from Costa Rica how to convert current national currency into constant 2005 US\$

Case study: Planners first converted current Colones into constant Colones. If the assessment values are given in current Colones, they are corrected to 'deflation', that is deflating value in current Colones of a given year determined by the CPI (2005=100) corresponding to that year. For example, if in 2006 an expenditure had a value in current Colones of 1500, it has to be divided by the CPI (2005=100) of the year 2006 (i.e. 109.4, see table below) and then multiplied by 100. The result is that the 1500 current Colones correspond to 1370.7 constant Colones.

Planners then converted the constant Colones into US\$. Once all amounts are converted to constant 2005 Colones (in this example 1370.7), the values were divided by the currency exchange rate of the date 31 December 2005 (i.e. to be divided by 497.7 colones per US\$) to have constant 2005 US\$. In our example, the result would be 2.75US\$.

Table: Consumer Price Indexes (CPI) for Costa Rica and the United States as well as exchange rate, 1997-2009

Datos al 31 de Diciembre de cada año para el periodo 1997-2008													
Indicadores Económicos	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Índice de Precios al Consumidor (IPC), Costa Rica	42.5	47.7	52.6	58.0	64.3	70.5	77.5	87.7	100.0	109.4	121.3	138.1	142.5
Índice de Precios al Consumidor (IPC), Estados Unidos	82.0	83.3	85.5	88.4	89.8	91.9	93.6	96.7	100.0	102.5	106.7	106.8	109.7
Tipo de cambio de referencia del BCCR, promedio venta (Colones/US\$)	244.5	271.7	298.4	318.3	341.9	379.1	419.0	459.6	497.7	519.9	500.9	560.8	586.3

Fuente: Banco Central de Costa Rica, INEC y Bureau of Labor Statistics (Estados Unidos).

Nota: Los datos del IPC de Costa Rica y el tipo de cambio de referencia para el 2009 son al mes de Octubre. El IPC de Estados Unidos para el 2009 es a Setiembre.

How to convert current US\$ into constant 2005 US\$: Converting current US\$ into constant US\$. If the assessment values are given in current US\$, the correction required to express them in constant 2005 US\$ will be to deflate the value in current dollars by the US CPI (2005=100). For example, if the assessment value in 2006 is 1000 current dollars, this would be divided by 102.5 (see table) and then multiplied by 100: The 1000 current US\$ correspond to 975.22 constant 2005 US\$.

How to discount: Discounting assessment values in constant 2005 US\$ in the base year. A discount rate of 12% was used (this is the rate used by public entities in Costa Rica). This discount rate was applied to the assessment values in constant 2005 US\$ and 2005 was used as the base year for the discounting.

Making recommendations

Upon completing Workbook 1C, planners can identify a set of biodiversity expenditure issues and recommendations based on the results. In particular, planners can identify trends in public and private expenditure that may, if addressed, help to fill the financial gaps identified in Workbook 3.

COMPLETING WORKBOOK 1C

In completing this workbook, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Questions 1 - 4	<ul style="list-style-type: none"> Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing government figures 	<ul style="list-style-type: none"> Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing government figures (same as for coarse resolution) 	<ul style="list-style-type: none"> Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing government figures (same as for coarse resolution)
Question 5	<ul style="list-style-type: none"> Identify a relatively small subset of the most significant biodiversity-related biodiversity finance actors, agents and investors through peer review discussions within the steering committee 	<ul style="list-style-type: none"> Identify a medium-sized subset of the most significant biodiversity-related public and private biodiversity finance actors, agents and investors through peer review discussions within the steering committee 	<ul style="list-style-type: none"> Conduct a thorough review of most or all public and private biodiversity finance actors, agents and investors and reach consensus through peer review discussions within the steering committee
Questions 6 - 11	<ul style="list-style-type: none"> Identify the specific division; the relevant cost codes, cost centers or line items; and the total budget, biodiversity-related budget, total actual expenditures and total actual biodiversity expenditures for a small subset of key institutions 	<ul style="list-style-type: none"> Identify the specific division; the relevant cost codes, cost centers or line items; and the total budget, biodiversity-related budget, total actual expenditures and total actual biodiversity expenditures for a moderate number of key finance actors 	<ul style="list-style-type: none"> Identify the specific division; the relevant cost codes, cost centers or line items; and the total budget, biodiversity-related budget, total actual expenditures and total actual biodiversity expenditures for each selected finance actor
Question 12	<ul style="list-style-type: none"> Identify categorical effectiveness of biodiversity-related expenditures (e.g., high, medium and low) 	<ul style="list-style-type: none"> Identify categorical effectiveness of biodiversity-related expenditures (e.g., high, medium and low), with some qualitative estimates of total amounts for key institutions 	<ul style="list-style-type: none"> For significant finance actors, assess effectiveness through an effectiveness review, including a calculation of the amount of ineffective expenditures, and for the remaining actors, identify categorical effectiveness of biodiversity-related expenditures (e.g., high, medium and low)
Question 13	<ul style="list-style-type: none"> Identify general areas of negative biodiversity expenditures from a select subset of finance actors, through peer review discussion within steering committee 	<ul style="list-style-type: none"> Identify general areas of negative biodiversity expenditures and identify rough estimates of amounts of potential savings from a select subset of key finance actors 	<ul style="list-style-type: none"> Identify negative biodiversity expenditures, and calculate the amount of potential savings if these expenditures are eliminated through the expenditure review process
Question 14	<ul style="list-style-type: none"> Identify the estimated breakdown of biodiversity expenditures by a small subset of key financial actors 	<ul style="list-style-type: none"> Identify the breakdown of biodiversity expenditures by a moderate number of key financial actors 	<ul style="list-style-type: none"> Identify the breakdown of biodiversity expenditures for most or all financial actors

WORKBOOK 1c: Public and Private Biodiversity Expenditures and Effectiveness Trends

SECTION 1: OVERALL NATIONAL BUDGETARY AND EXPENDITURE SNAPSHOT

	1 year ago	2 years ago	3 years ago	4 years ago	5 years ago	6 years ago	7 years ago	8 years ago
Total government budget								
Total government expenditure								
Foreign loans and grants								
Gross domestic product								

SECTION 2: BASELINE BIODIVERSITY-RELATED EXPENDITURE AND EXPENDITURE EFFECTIVENESS REVIEW

PUBLIC AND PRIVATE AGENCIES, ACTORS, INSTITUTIONS AND INVESTORS THAT FUND BIODIVERSITY-RELATED ACTIONS (From Workbook 1b)	Specific division, department or company	Cost codes, cost centers or line items	Total budget in years 1-6	Total biodiversity-related budget in years 1-6	Total actual expenditures in years 1-6	Total actual expenditures on biodiversity in years 1-6	Effectiveness of biodiversity-related expenditures	Negative biodiversity expenditures
• Institution/actor 1								
• Institution/actor 2								
• Institution/actor 3								
• Institution/actor 4								
• Institution/actor 5								
• Institution/actor 6								
• Institution/actor 7								
• Institution/actor 8								
• Institution/actor 9								
• Institution/actor 10								
Data sources and assumptions								
TOTALS								

SECTION 3: BASELINE BIODIVERSITY EXPENDITURE REVIEW BY MAJOR STRATEGY GROUP

PUBLIC AND PRIVATE AGENCIES, ACTORS, INSTITUTIONS AND INVESTORS THAT FUND BIODIVERSITY-RELATED ACTIONS (From Workbook 1b)	Source of funding	Total biodiversity expenditure	Biodiversity mainstreaming strategies	Protection strategies	Restoration strategies	ABS strategies	Implementation strategies	All other biodiversity strategies
• Institution/actor 1								
• Institution/actor 2								
• Institution/actor 3								
• Institution/actor 4								
• Institution/actor 5								
• Institution/actor 6								
• Institution/actor 7								
• Institution/actor 8								
• Institution/actor 9								
• Institution/actor 10								
Data sources and assumptions								
TOTALS								

PART II: Defining the costs of implementing National Biodiversity Strategies and Action Plans

The purpose of Part II of the BIOFIN methodology is to allow planners to understand the full cost of implementing each of the strategies identified in the NBSAP. There are 6 related workbooks in Part II:

- Workbook 2a: Biodiversity Mainstreaming Strategies, Actions and Costs
- Workbook 2b: Protection Strategies, Actions and Costs
- Workbook 2c: Restoration Strategies, Actions and Costs
- Workbook 2d: ABS Strategies, Actions and Costs
- Workbook 2e: Enabling Strategies, Actions and Costs
- Workbook 2f: Summary of Costs for Implementing all National Biodiversity Strategies and Actions

This guidance document includes detailed instructions, a glossary and additional guidance for completing each workbook. A table at the end of each workbook shows the different levels of resolution – low, medium and high – that planners can apply when completing the workbook.

Workbooks 2a-2e: Biodiversity Strategies, Actions and Costs

There are 5 separate workbooks that cover the full suite of strategies, actions and costs related to implementing NBSAPs, including:

- ***Biodiversity mainstreaming strategies, actions and costs:*** A summary of the strategies, sub-strategies, specific actions and their associated costs for strategies related to the integration of biodiversity into economic, development and poverty alleviation and into sustainable use, production and consumption of biodiversity resources.
- ***Protection strategies, actions and costs:*** A summary of the strategies, sub-strategies, specific actions and their associated costs for strategies related to the biodiversity protection, including *in situ* and *ex situ* strategies.
- ***Restoration strategies, actions and costs:*** A summary of the strategies, sub-strategies, specific actions and their associated costs for strategies related to restoration, with an emphasis on the maintenance of essential ecosystem services, and on strengthening climate resilience, adaptation and mitigation.
- ***Access and benefits sharing strategies, actions and costs:*** A summary of the strategies, sub-strategies, specific actions and their associated costs for strategies related to the integration of biodiversity into sectoral, development and poverty alleviation and into sustainable use, production and consumption of biodiversity resources.
- ***Implementation strategies, actions and costs:*** A summary of the strategies, sub-strategies, specific actions and their associated costs for strategies related to the implementation of NBSAPs, including strategies related to public outreach and communication costs, and strategies related to knowledge, research, data and data management, among other costs.

How is this information used?

The purpose of these related workbooks is to allow planners to clearly understand the full range of strategies, actions and related costs involved in implementing NBSAPs and achieving the Aichi Targets. This workbook encourages planners to delve into the specific sub-strategies and actions required to achieve their strategies, and to assign as specific costs as possible to these actions. This workbook also encourages planners to identify low, medium and high estimates of these costs in order to enable planners to consider potential tradeoffs between strategies, to develop multiple cost and revenue scenarios, and to allow for uncertainties in creating cost estimates.

What do Workbooks 2a through 2e look like?

WORKBOOK 2a- 2e: Strategies, Actions and Costs						
Specific strategies and actions (biodiversity mainstreaming, protection, restoration, ABS and enhancing implementation)	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Sub-total for sub-strategy 1						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						

Questions included in Workbooks 2a – 2e (Questions correspond to each cell):

- **Question 1:** What are the main strategies and sub-strategies for biodiversity mainstreaming, protection, restoration, ABS and enabling implementation?
- **Question 2:** What are the specific actions within each sub-strategy?
- **Question 3:** What are the capacities required to undertake each action?
- **Question 4:** What are the specific cost elements for each action?
- **Question 5:** What is the distribution of these costs to different actors?
- **Question 6:** What are the low, medium and high ranges of the total estimated costs of implementing each action?

Key definitions for Workbooks 2a- 2e:

- **Biodiversity mainstreaming strategies:** Biodiversity mainstreaming is the integration of biodiversity into key economic development sectors, including into development planning, into land use planning, into sustainable management and use of natural resources, into poverty alleviation plans, and into climate resilience, using specific mainstreaming instruments, in order to achieve specific objectives. See Box 22 for a framework and checklist of biodiversity mainstreaming strategies and Box 23 for examples of mainstreaming strategies.
- **Biodiversity mainstreaming instruments:** These include a broad array of financial and policy tools, or mechanisms, which help achieve specific goals and objectives. Examples of financial mainstreaming instruments include fees, fines, levies, taxes, payments for ecosystem services, incentives and subsidies, among others. Examples of policy mainstreaming instruments include policies, laws, ordinances, management plans, environmental impact assessments, voluntary best practices and public/private partnerships, among others.
- **Protection strategies:** These include all strategies related to the establishment and effective management of a comprehensive protected area network, as well as *ex situ* strategies to ensure the long-term protection of biodiversity and ecosystems. See Box 24 for a checklist of protection strategies.
- **Restoration strategies:** These include all strategies related to the restoration of the structure, functions and/or key ecological processes of degraded ecosystems. See Box 25 for a checklist of restoration strategies.
- **ABS strategies:** These include all strategies related to the development and implementation of an effective access and benefits sharing framework within the country. See Box 26 for a checklist of ABS strategies.

- **Enabling implementation strategies:** These include all strategies related to the broader enabling environment of NBSAPs, including communication, research, data and data management strategies. See Box 26 for a checklist of enabling implementation strategies.
- **Strategies and sub-strategies:** A strategy is an overall plan or action designed to achieve a specific goal. A sub-strategy is a specific plan designed to achieve a specific component of an overall strategy. For example, a strategy might be to implement a payment for ecosystem services scheme, and a sub-strategy could be to identify the potential willingness to pay for an ecosystem service (PES).
- **Overall goals for 2020:** In the context of this methodology, the overall goals are relative to the specific goals of each main strategy. For example, a mainstreaming goal related to the establishment of a PES scheme could be to have an operational system in place for 50% of private forest lands.
- **Specific actions:** These include the specific actions required to undertake a sub-strategy. For example, actions required to assess potential willingness to pay for an ecosystem service could include the development Terms of Reference, the establishment of a small task force, the scoping of the study, the implementation of the study, and communicating the results.
- **Specific capacities:** Specific capacities include the skills and staffing required to undertake specific actions. Planners should consider the cost implications for increasing required capacities, as well as for undertaking specific actions.
- **Specific cost elements:** These include the specific line items that would be required to undertake specific actions and increase capacity. For example, the cost elements of undertaking a feasibility study could include staff time, travel, printing and communications. Each of these cost elements should be as specific as possible, indicating the units of measurement (e.g., number of days) and the estimated cost for each unit.
- **Specific cost estimates:** Cost estimates include the estimated cost calculations for each cost element. For example, the cost estimate for a consultant to undertake a feasibility assessment to create a PES scheme would include the total number of days and the estimated range of costs per day (e.g., \$250/day to \$400/day), to provide a total estimated range for each cost element. Ideally, all sub-strategies will have specific actions, all actions will have specific cost elements, and all cost elements will have some estimated calculation of the range of costs. In assessing low, medium and high costs, planners should assume that 'low' means the barest minimum required to be effective, with multiple gaps, 'medium' means that the most of the goal is met, but not optimally and with gaps, and 'high' means that all goals are fully met.
- **Distribution of costs:** The distribution of costs includes an estimation of who will bear the specific costs of implementing a each action. In some cases the answer is clear – the government will bear the cost of a national protected area system, for example, In other cases, the answer is less clear – transitioning from an unsustainable agricultural model to a sustainable model may have many costs, and some of these may be borne by private farmers, some by consumers, and some by a government.

Additional guidance for completing Workbook 2a:

The following provide additional guidance for completing this section:

- Box 22: Biodiversity mainstreaming framework and checklist of biodiversity mainstreaming strategies
- Box 23: Examples of mainstreaming strategies
- Box 24: Checklist of protection strategies
- Box 25: Checklist of restoration strategies
- Box 26: Checklist of ABS strategies
- Box 27: Checklist of enabling implementation strategies

Box 22: Biodiversity mainstreaming framework and checklist of biodiversity mainstreaming strategies

Biodiversity mainstreaming is defined as the integration of biodiversity components and goals into key sectoral plans and policies, using specific mainstreaming instruments. This definition includes a specific three-part equation, illustrated below:

Integrating biodiversity...		...into sectoral plans and policies...		...through a variety of approaches	
Biodiversity goal	Components of biodiversity	Natural resource sectoral plans	Development plans, cross-sectoral plans	Policy and planning	Economic approaches and education
<ul style="list-style-type: none"> Minimize or mitigate threats Restore, improve or maintain ecological integrity Improve protection status Ensure ecological resilience and adaptation 	<ul style="list-style-type: none"> Genetic diversity Species and species habitats Populations Ecological processes, functions Landscapes Ecosystems 	<ul style="list-style-type: none"> Agriculture Forestry Fisheries Freshwater management Grazing, grassland management Wildlife management 	<ul style="list-style-type: none"> Transportation Poverty alleviation Tourism and recreation Energy Climate adaptation Manufacturing Infrastructure Mining and minerals 	<ul style="list-style-type: none"> Policy and legal reform Protected areas, corridors, buffer zones Management practices and policies Strategic environmental assessments (SEA/EIA) Spatial planning and land use planning 	<ul style="list-style-type: none"> Public-private partnerships Market-based certification Voluntary best practices Economic valuation Payment for ecosystem services Technical support Biodiversity offsets

Based on this approach, there is a wide array of potential biodiversity mainstreaming approaches, ranging for example from market-based-certification of forest products to agricultural offsets, to payments for ecosystem services for water.

ECONOMIC AND DEVELOPMENT SECTORS	Financial mainstreaming instruments										Policy and planning mainstreaming instruments				
	Market-based certification	Offsets	Fines, levies fees	Easements	Voluntary fees	Incentives (tax, tax credits, etc.)	Dedicated funds	Subsidies	Trade caps, limits	PES	Planning and practices	Policies, laws, ordinances	Strategic environmental assessment, EIA	Public private partnerships	Voluntary best practices
Agriculture															
Fisheries															
Forestry															
Infrastructure															
Energy															
Tourism															
Mining															
Water															
Waste															
Transportation															
Industry, manufacturing															

Box 23 Examples of mainstreaming strategies

A number of countries have taken steps towards mainstreaming biodiversity into national policies, which comprise activities that would be included into the national BIOFIN assessments as well.

Cuba

In Cuba, the complex Sabana Camagüey Ecosystem faces threats from tourism, fishery and agriculture, as well as infrastructure, nutrient loading and deforestation. In the fishery sector, the country decided to promote operational changes to protect biodiversity, such as the reduced use – and in future ban - of bottom trawlers. The country also demarcated large areas as legally designated no take areas. In the waste sector, regulatory measures for the construction of solid waste and waste water treatment plants were developed for all hotels. In the agriculture sector, the government fostered practices that converted “business as usual” agriculture to sustainable and biodiversity-friendly agriculture, livestock and forestry by using live fences, which increase soil fertility, by focusing on water retention, and by reducing fertilizer and pesticide use. The activities were carried out under a UNDP-supported GEF-funded project, which contributed to lowering pressures from economic sectors on the sensitive ecosystems of Sabana Camagüey.

Croatia

Croatia decided to improve the conservation of globally significant biodiversity in the Dalmatian coastal region, which is under tourism and industrial development, and which faces threats from over-harvesting of species, degradation of landscapes and pollution. The government took the approach of integrating biodiversity considerations into business development. For example, traditional agricultural practices were revived, and organic farming was promoted in Dalmatia. To guide tourism development, the government developed eco-labels for hotels and rural tourism companies, which allowed for product differentiation in the tourism industry and market diversification. Another pillar of the approach was the Green Business Support Program, with 83 businesses developing biodiversity-compatible ventures, including organic agriculture, shellfish farming and eco-tourism, while also many banks incorporated the developed biodiversity criteria within their financing processes, and provided loans to biodiversity-friendly businesses. All measures led to a significant increase in biodiversity-related private sector investment. The activities were carried out under a UNDP-supported GEF-funded project, demonstrating that biodiversity-friendly businesses can contribute to lowering pressures on sensitive ecosystems, and demonstrating that over time, such measures can be scaled up to a sea/landscape level and have a meaningful conservation impact.

Botswana

With water extraction, invasive species, changes to riparian woodlands and open access endangering the wetlands of the Okavango Delta, Botswana took a proactive path in mainstreaming biodiversity. They focused on the main production sectors of the Okavango Delta: water, tourism and fisheries, in order to ensure that development takes a sustainable trajectory. Regulations and guidelines governing production were applied (e.g. aquaculture policy), and the Okavango Delta Management Plan was approved at a district level. Based on this plan, further sector-specific plans were developed (e.g. wetland conservation plan). The government established an ecotourism certification system with standards – among the most rigorous in the world. The water sector is under increased pollution monitoring, while the creation of fishing-free zones guides the fishing industry, along with a Code of Conduct, which is respected by all stakeholders. Overall, the systematic growth in Botswana of improved environmental management policies, instruments and strategies, including those initiated by the UNDP-supported GEF-funded project, is part of a general momentum towards enhancing the environmental sustainability of development across economic sectors.

Box 24: Checklist of protection strategies

Note that protected area strategies can be applied to all categories and governance types (e.g., National Parks, locally managed marine areas, community forests, etc.)

Improve protected area network:

- Revise protected area designations
- Create protected area zonation
- Create alternative governance models
- Create new protected areas
- Expand existing protected areas
- Create ecological corridors
- Restore protected areas

Improve protected area management:

- Develop management plans
- Increase staff numbers
- Demarcate boundaries
- Develop and implement staff capacity-strengthening program
- Improve visitor management
- Address invasive alien species within protected areas
- Strengthen anti-poaching efforts
- Implement education and outreach efforts
- Address human-wildlife conflicts
- Improve protected area monitoring
- Improve law enforcement

Improve protected area policies, administration and legal environment:

- Improve protected area administration
- Develop new protected area laws and policies
- Strengthen legal status of protected areas
- Improve protected area financial management systems and processes

Ex situ protection:

- Create gene banks
- Reintroduction programs of captive-bred species
- Comply with 'non-detriment findings' required by CITES
- Prevent illegal trade outside of protected areas

CITES, 2008; 2013; Ervin, 2008 and 2003;

Box 25: Checklist of restoration strategies

There is a wide range of restoration strategies, and a wide range of biomes in which these strategies can be applied. The matrix below shows the broad scope of potential restoration strategies.

	Restore natural disturbance regimes	Control invasive species	Manage over-abundant populations	Recreate native communities and habitats	Reintroduce extirpated species	Improve abiotic environment	Restore connectivity	Improve ecological integrity
Forest (temperate, tropical, boreal)								
Grassland								
Desert and drylands								
Wetlands and freshwater bodies								
Coastal, nearshore and marine (coral reef, sea grass beds)								
Montane								
Other								

As with mainstreaming, there is a simple three-part equation that can describe most restoration strategies; the table below shows the three-part equation, along with indicative elements

Restoration action	Restoration subject	Restoration goal
<ul style="list-style-type: none"> • Introduce • Plant • Remove • Limit • Manage • Install • Use • Release 	<ul style="list-style-type: none"> • Plant and animal species (e.g., tree seedlings, seagrass seedlings, invasive species, animal groups) • Abiotic structures (e.g., dams, concrete, boulders, fences) • Biotic structures (e.g., large trees) • Fire, floods • Mechanical devices 	<ul style="list-style-type: none"> • Maintain genetic viability • Maintain connectivity • Mimic natural disturbance • Increase habitat • Recreate habitat • Eradicate or control invasive species • Restore connectivity • Improve ecological integrity

Below is an indicative sample of specific restoration strategies:

- Creation of coral reef habitat by installing prefabricated concrete modules designed to mimic natural reefs
- Expansion of habitat connectivity bottlenecks by reestablishing forest cover in degraded areas
- Removal of Ponderosa pine and Douglas fir plantations and reestablishment of native tree species
- Mimic natural disturbance from grazing through mechanical disturbance using specially designed machinery
- Re-establish native forest on retired bauxite mines to increase habitat
- Culture and planting of seagrass bed seedlings on degraded seagrass bed
- Tree planting on old agricultural fields using native species to reconnect isolated forest fragments
- Using termites and mulch to restore soil fertility and quality
- Reintroduction of prescribed flooding to restore regeneration of riparian flood-dependent species
- Anchoring of coarse woody debris and placement of gravel in streams to recreate spawning habitat in rivers
- Re-vegetation of native tree species on steep slopes to reduce erosion
- Reintroduce fire regimes to reestablish fire-dependent species and native communities
- Reintroduction of wolves to maintain predator-prey relationships and restore the trophic balance
- Translocate extirpated species to a protected area to maintain genetic viability of an elephant population
- Create artificial nesting boxes for wetland bird species in decline
- Enclose forest area to keep out grazers and promote regeneration

Source for examples, and detailed case studies, available at www.globalrestorationnetwork.org

Based on the best practices identified earlier, the list below outlines some potential ABS strategies.

Strategies related to Prior Informed Consent

- Identify the national competent authority, indigenous and local communities
- Determine ownership of genetic resources
- Establish consultation processes and information exchanges with key stakeholder groups
- Obtain prior informed consent

Mutually Agreed Terms

- Gather information about all applicable laws and regulations regarding benefit-sharing in the country
- Establish mutually agreed terms

Benefit sharing

- Develop a comprehensive menu from possible monetary and non-monetary benefits
- Determine benefit-sharing mechanisms
- Provide appropriate monetary benefits to research and conservation groups
- Identify opportunities for participation in commercialization and value-added processes
- Establish appropriate monitoring, tracking and reporting mechanisms
- Implement benefit sharing mechanism

Traditional knowledge

- Establish a process to obtain traditional knowledge and promote participation of indigenous and local communities
- Ensuring that research activities and collection do not violate customary law and practices;
- Support documentation and registration requirements
- Establish appropriate contractual mechanisms regarding traditional knowledge

Conservation and sustainable use

- Assess the current conservation status of the species and populations to be sampled or collected
- Assess current habitat status and any critical environmental concerns
- Assess genetic diversity of species of interest for domestication and cultivation
- Monitor the status of the resources to ensure harvest does not exceed sustainable yield levels

Source: Adapted from IISD, 2012

Box 27: Checklist of enabling implementation strategies

The following is an indicative list of enabling implementation strategies:

Communication, education and public awareness strategies

- Develop targeted communication strategy for each key stakeholder group
- Develop communication materials and messages (e.g., brochures, billboards, radio and television materials, posters, bookmarks, comics, exhibits, videos, newspapers, facebook and social media, among many others)
- Broadcast materials and messages through a variety of public awareness venues
- Develop and implement lobbying strategy for key stakeholder groups

Develop individual capacity

- Assess key capacity gaps
- Develop core competencies and standards
- Develop training materials to address key capacity gaps (including education and teaching, biodiversity planning, project management, management effectiveness assessment, facilitation, financial resources management, human resources management, protected area policy and planning, recreation and tourism management, site management, enforcement, ecosystem assessment, gender sensitization, sustainable land management, among many others).
- Conduct key trainings

Develop institutional and systemic capacity

- Identify and map biodiversity-related responsibilities across all institutions
- Form and strengthen inter-agency groups and committees

Research, science and knowledge

- Assess key research needs
- Establish and strengthen key research institutions (biodiversity center, ecotourism center, biodiversity training and livelihood center, botanical gardens, gene banks, refuge centers, information centers)

Government of Timor Leste. 2013. The National Biodiversity Strategy and Action Plan of Timor-Leste (2011-2020). Available at www.cbd.int/reports

COMPLETING WORKBOOKS 2A – 2E

In completing workbooks 2a through 2e, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Question 1	<ul style="list-style-type: none"> Identify the primary strategies and sub-strategies for sectoral mainstreaming, protection, restoration, ABS and NBSAP implementation 	<ul style="list-style-type: none"> Identify the primary strategies and sub-strategies for sectoral mainstreaming, protection, restoration, ABS and NBSAP implementation 	<ul style="list-style-type: none"> Identify the primary strategies and sub-strategies for sectoral mainstreaming, protection, restoration, ABS and NBSAP implementation
Question 2	<ul style="list-style-type: none"> Identify the specific goal for each strategy 	<ul style="list-style-type: none"> Identify the specific goal for each strategy 	<ul style="list-style-type: none"> Identify the specific goal for each strategy
Question 3	<ul style="list-style-type: none"> Identify the specific actions and capacities required to implement each strategy and sub-strategy 	<ul style="list-style-type: none"> Identify the specific actions and capacities required to implement each strategy and sub-strategy 	<ul style="list-style-type: none"> Identify the specific actions and capacities required to implement each strategy and sub-strategy
Question 4	<ul style="list-style-type: none"> Identify cost elements and estimates for each action based on best available information 	<ul style="list-style-type: none"> Identify cost elements and estimates for each action based on best available information, supplemented by data from in-depth cost analyses where available 	<ul style="list-style-type: none"> Identify cost elements and estimates for each action based on in-depth and accurate cost analyses
Question 5	<ul style="list-style-type: none"> Identify the general groups who will bear the costs of each action 	<ul style="list-style-type: none"> Identify the groups who will bear the costs of each action, and provide estimated ranges of who will pay for each 	<ul style="list-style-type: none"> Identify the groups who will bear the costs of each action, and provide estimated ranges of who will pay for each
Question 6	<ul style="list-style-type: none"> Identify low, medium and high cost ranges based on estimates from best available data 	<ul style="list-style-type: none"> Identify low, medium and high cost ranges based on estimates from best available data, supplemented by data from in-depth cost analyses where available 	<ul style="list-style-type: none"> Identify low, medium and high cost ranges based on in-depth and accurate cost analyses

WORKBOOK 2a: Biodiversity Mainstreaming Strategies, Actions and Costs						
Biodiversity mainstreaming strategies and actions	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
Biodiversity Mainstreaming Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						
Biodiversity Mainstreaming Strategy 2						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 2						
Biodiversity Mainstreaming Strategy 3						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 3						

WORKBOOK 2b: Protection Strategies, Actions and Costs

Protection strategies and actions	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
Protection Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						
Protection Strategy 2						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 2						
Protection Strategy 3						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 3						

WORKBOOK 2c: Restoration Strategies, Actions and Costs

Restoration strategies and actions	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
Restoration Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						
Restoration Strategy 2						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 2						
Restoration Strategy 3						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 3						

WORKBOOK 2d: Access and Benefits Sharing Strategies, Actions and Costs						
Access and benefits sharing strategies and actions	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
ABS Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						
ABS Strategy 2						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 2						
ABS Strategy 3						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 3						

WORKBOOK 2e: Enhancing Implementation Strategies, Actions and Costs

Enhancing Implementation strategies and actions	Specific cost elements	Additional capacities required to implement	Distribution of costs	Estimated costs of implementing strategy		
				Low	Mid	High
Enhancing Implementation Strategy 1						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 1						
Enhancing Implementation Strategy 2						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 2						
Enhancing Implementation Strategy 3						
• Sub-strategy 1:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 1						
• Sub-strategy 2:						
• Action 1						
• Action 2						
• Action 3						
• Action 4						
• Sub-total for sub-strategy 2						
Data sources and assumptions						
TOTAL ESTIMATED COST FOR STRATEGY 3						

Workbook 2f: Overall costs, projected expenditures and finance gaps

INTRODUCTION TO WORKBOOK 2f

This workbook includes 4 sections:

- **Projected “Business as Usual” Finance Scenario:** a summary of the projected “business as usual” finance scenario through 2020, based on the past 4-year baseline as determined in Workbook 1c.
- **Cost of implementing new strategies – one-time costs:** a summary of the one-time cost of implementing new biodiversity strategies, based on the suite of actions identified in Workbooks 2a through 2e.
- **Cost of implementing new strategies – recurring costs:** a summary of the recurring costs of implementing new biodiversity strategies, based on the suite of actions identified in Workbooks 2a through 2e; and
- **Financial gap by strategy:** a summary of the total annual financial gap between “business as usual” finance scenario and the combined one-time and recurring annual costs of implementing each new set of biodiversity strategy.

How is this information used?

The purpose is to consolidate information on the ‘business as usual’ finance scenario and the total one-time and recurring annual costs, and thereby calculate the total financial gap for implementing the NBSAP and achieving the Aichi Targets. The total financial gap is critical understanding how to develop the resource mobilization plan in Workbook 3.

What does Workbook 2f look like?

SECTIONS 1 – 4: (NBSAP RECURRING AND ANNUAL COSTS, BAU SCENARIO AND FINANCE GAP)									
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Total
Biodiversity mainstreaming strategies									
Protection strategies									
Restoration strategies									
ABS strategies									
Enabling implementation strategies									
TOTAL RECURRING COSTS OF IMPLEMENTING STRATEGIES									
Data sources and assumptions									

Questions included in Workbooks 2f (Questions correspond to each cell):

- **Question 1:** What are the projected recurring costs of implementing new biodiversity mainstreaming, protection, restoration, ABS and enabling implementation strategies?
- **Question 2:** What are the projected one-time costs of implementing new biodiversity mainstreaming, protection, restoration, ABS and enabling implementation strategies?
- **Question 3:** What is the annual projected expenditure in the ‘business as usual’ finance scenario for existing biodiversity mainstreaming, protection, restoration, ABS and enabling implementation strategies?
- **Question 4:** What is the total financial gap between the business as usual finance scenario, and the combined one-time and recurring costs for each strategy?

Key definitions for Workbook 2f:

- **One-time costs:** One-time costs are those expenditures which will only occur once, such as acquisition of land when establishing a protected areas or the construction of infrastructure such as a building or road.
- **Recurring costs:** Recurring costs are those expenditures which occur regularly (typically annually, although not always). Examples include operational costs (staff, travel, fees) and maintenance (equipment replacement, software, vehicle repair, road maintenance).
- **Business as usual finance scenario:** A “business as usual” finance scenario is the projected level of public and private expenditure based on estimates of past funding (Workbook 1c includes the past 4 years of biodiversity expenditures), and based on any additional information, such as political commitments to increase funding, or likely budget shortfalls. See Box 27 for an example of a ‘business as usual’ finance scenario, and the resulting finance gap.

Additional guidance for completing Workbook 2f:

The following provide additional guidance for completing this section:

- Box 27: Example of ‘business as usual’ finance scenario for protected areas in Belize, and projected cost of new protection strategies

Making recommendations

Upon completing Workbook 2f, planners can identify a set of issues and recommendations related to financial gaps based on the results. In particular, planners can identify which strategies have the most significant projected financial gaps over the next 6 to 8 years.

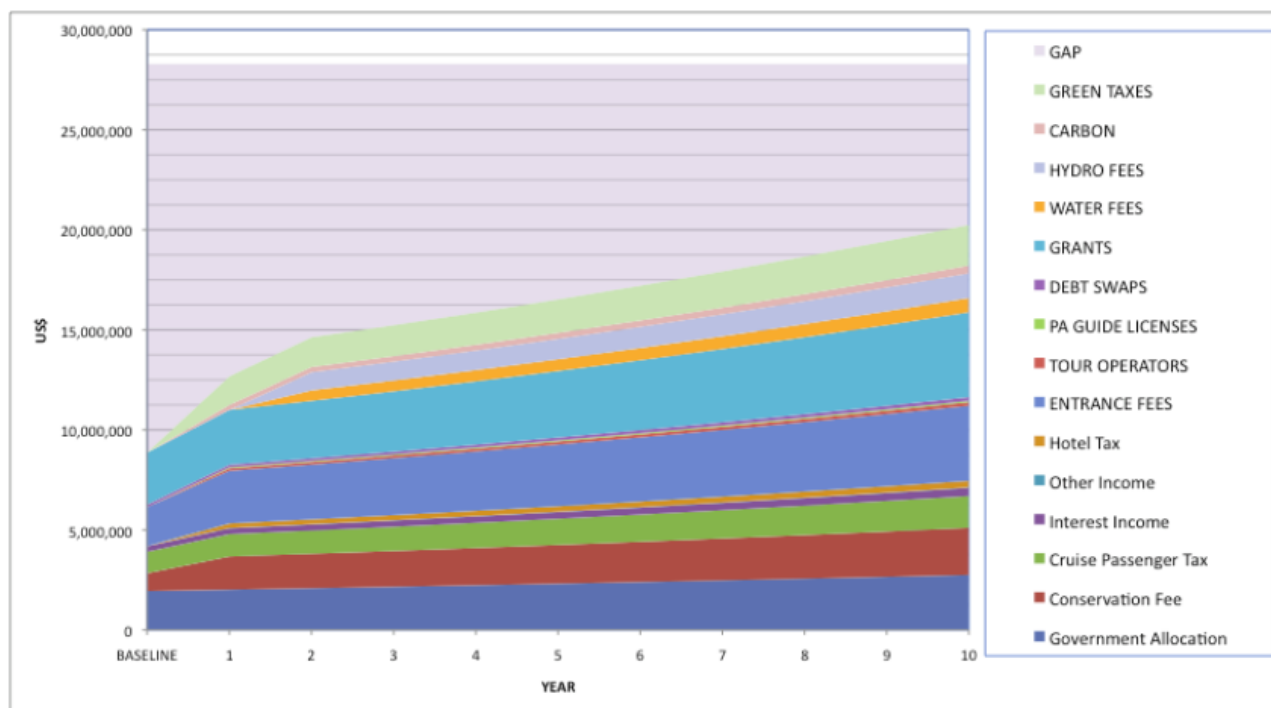
Box 28: Example of 'business as usual' finance scenario for protected areas in Belize, and projected cost of new protection strategies

Belize recently concluded a project that assessed the existing 'business as usual' scenario for protected areas. The total annual protected area system revenue for 2010 was \$10,670,812 (see below). But the total financing need for the protected area system ranged from \$18.5 to \$28.3 million. The study showed a variety of potential finance mechanisms for closing this financial gap.

Table 4. Annual Protected Area System Revenues 2010 (US\$)

REVENUES		Total
Total central government allocation		1,879,265
Forestry	843,460	
Fisheries	1,035,805	
Archaeology	0	
Extra budgetary funding (PACT)		2,375,437
Conservation Fee (airport departure tax)	887,770	
Commissions (20%) Cruise Passenger Tax	1,073,229	
Interest income	276,238	
Other Income	13,200	
Debt swap	125,000	
Total self-generated at site level		3,816,111
<i>Entrance fees</i>		
	1,422,265	
Archaeology Reserves		
Forestry PAs (ave.=\$10)	656,300	
Marine PAs (ave.=\$10)	1,046,320	
Rental Concessions at Archaeology Reserves	58,226	
Logging Concessions	633,000*	
Other (includes grants)		2,600,000
Grand Total		10,670,812

Notes: excludes private PAs. Figures in US\$; * Includes both private and public PAs
Source: Government budgets, PACT, UNDP, others.



Source: Drumm, Echeverría and Almendarez, 2012.

COMPLETING WORKBOOK 2F:

In completing this workbook, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Questions 1-2	<ul style="list-style-type: none">• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2f)	<ul style="list-style-type: none">• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2f)	<ul style="list-style-type: none">• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2f)
Question 3	<ul style="list-style-type: none">• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (Workbook 1c)	<ul style="list-style-type: none">• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (Workbook 1c)	<ul style="list-style-type: none">• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (Workbook 1c)
Question 4	<ul style="list-style-type: none">• Calculate the overall financial gap for each set of strategies	<ul style="list-style-type: none">• Calculate the overall financial gap for each set of strategies	<ul style="list-style-type: none">• Calculate the overall financial gap for each strategy

WORKBOOK 2f: Overall Costs, Expenditures and Finance Gaps									
SECTION 1: COST OF IMPLEMENTING NEW NBSAP STRATEGIES – RECURRING COSTS									
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Total
Biodiversity mainstreaming strategies									
Protection strategies									
Restoration strategies									
ABS strategies									
Enabling implementation strategies									
TOTAL RECURRING COSTS OF IMPLEMENTING STRATEGIES									
Data sources and assumptions									
SECTION 2: COST OF IMPLEMENTING NEW NBSAP STRATEGIES – ONE-TIME COSTS									
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Total
Biodiversity mainstreaming strategies									
Protection strategies									
Restoration strategies									
ABS strategies									
Enabling implementation strategies									
TOTAL ONE-TIME COSTS OF IMPLEMENTING STRATEGIES									
Data sources and assumptions									
SECTION 3: PROJECTED “BUSINESS AS USUAL” FINANCE SCENARIO FOR BIODIVERSITY									
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Total
Biodiversity mainstreaming expenditures									
Protection expenditures									
Restoration expenditures									
ABS expenditures									
Enabling implementation expenditures									
TOTAL PROTECTED BAU FINANCE SCENARIO									
Data sources and assumptions									
SECTION 4: FINANCIAL GAP BY STRATEGY									
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Total
Financial gap in sectoral mainstreaming costs									
Financial gap in protection costs									
Financial gap in restoration costs									
Financial gap in ABS costs									
Financial gap in NBSAP implementation costs									
TOTAL FINANCIAL GAP FOR ALL COSTS									
Data sources and assumptions									

PART III: Mobilizing resources

The purpose of Part III of the BIOFIN methodology is to enable planners to a) identify specific finance actors and mechanisms, and determine revenue potential and feasibility; and b) to develop a detailed strategy and action plan for mobilizing financial resources. There are 2 related workbooks in Part III:

- Workbook 3a: Potential finance actors, mechanisms, revenue and feasibility
- Workbook 3b: Resource mobilization strategy and action plan

This guidance document includes detailed instructions, a glossary and additional guidance for completing each workbook. A table at the end of each workbook shows the different levels of resolution – low, medium and high – that planners can apply when completing the workbook.

Workbook 3a: Potential finance actors, mechanisms, revenue and feasibility

INTRODUCTION TO WORKBOOK 3A

This workbook includes 2 sections:

- **Estimated revenue, feasibility and finance strategy by financial actor:** an analysis of the potential finance mechanisms that may unlock new sources of funding and revenue, an estimate of the total potential revenue from each mechanism, the targeted NBSAP strategy to which funding could apply, the feasibility of each mechanism, and the changes required to implement the finance mechanism; and
- **Estimated total new revenue, by NBSAP strategy:** a summary of the estimated annual revenue, differentiated by each NBSAP strategy.

How is this information used?

The purpose of this workbook is to allow planners to clearly identify potential finance mechanisms, and to understand the scope and feasibility of these mechanisms to fill the finance gaps identified in Workbook 2f. The data in this workbook provide the basis for developing the resource mobilization strategy in Workbook 3b.

What does Workbook 3a look like?

Section 1: Estimated revenue, feasibility and financial mechanism by financial actor

SECTION 1: ESTIMATED REVENUE, FEASIBILITY AND FINANCIAL MECHANISM BY FINANCIAL ACTOR					
Finance actors, agents, investors and institutions	Biodiversity finance mechanism	Estimated annual amount of potential revenue	Targeted NBSAP strategy or strategies	Feasibility of the finance mechanism	Changes required to implement the finance mechanism
• Finance actor or institution 1					
• Finance actor or institution 2					

Questions included in Section 1 of Workbook 3a (Questions correspond with cells in the workbook)

- **Question 1:** Who are the potential finance actors, agents, investors and/or institutions?
- **Question 2:** What are the potential biodiversity finance mechanisms?

- **Question 3:** What is the total estimated revenue potential from each finance mechanism?
- **Question 4:** Which NBSAP strategy or strategies would this finance mechanism target?
- **Question 5:** What is the feasibility of the finance mechanism?
- **Question 6:** What are the changes that would be required to implement the finance mechanism?

Section 2: Estimated Total Revenue, analyzed by NBSAP Strategy

SECTION 2: ESTIMATED TOTAL NEW REVENUE, ORGANIZED BY NBSAP STRATEGY	
STRATEGIES	Total revenue from all sources
Mainstreaming strategies <ul style="list-style-type: none"> • Strategy 1 • Strategy 2 	
TOTAL	
Protection strategies <ul style="list-style-type: none"> • Strategy 1 • Strategy 2 	
TOTAL	
Restoration strategies <ul style="list-style-type: none"> • Strategy 1 • Strategy 2 	
TOTAL	
ABS strategies <ul style="list-style-type: none"> • Strategy 1 • Strategy 2 	
TOTAL	
Implementation strategies <ul style="list-style-type: none"> • Strategy 1 • Strategy 2 	
TOTAL	
Data sources and assumptions	

- **Question 7:** What is the total estimated new revenue for each NBSAP strategy?

Key definitions for Workbook 3a:

- **Financial actor, agent, investor or institution:** A financial actor, agent, investor or institution is any individual, group or entity that could potentially provide funding for biodiversity objectives through a financial mechanism.
- **Biodiversity finance mechanism:** A biodiversity finance mechanism is any instrument or tool that enables potential revenue to be captured. Examples include fees, fines, taxes, incentives and payments, among many others. See Box 28 for a checklist and description of finance mechanisms.
- **Total amount of potential revenue:** The amount of potential revenue of a finance mechanism is a factor of the general amount the mechanism can generate per unit, and the total units likely to occur within a given year. For example, a biodiversity offset could generate biodiversity finance by creating funds to establish new protected areas in exchange for areas that are converted into buildings and infrastructure. The total potential biodiversity revenue would include the likely value of land acquisition on a per hectare basis, and the total likely number of hectares that would be included in biodiversity offsets each year.
- **Feasibility of the finance mechanism:** Feasibility of the finance mechanism is defined by numerous factors, including how easy it will be to establish, implement and maintain the mechanism, the extent of changes required, the alignment with other related policies, and the fit with the overall policy environment, among other factors. See Box 30 for feasibility screening criteria.

- **Changes required:** Changes required to implement the new finance mechanism could include, for example, specific changes in policies, laws, ordinances and decrees; changes in organizational structures and relationships; changes in management practices; and changes in public awareness and attitude, among many others. See Box 29 for examples of changes required to implement different strategies.

Additional guidance for completing Workbook 3a:

The following provide additional guidance for completing this section:

- Box 28: Checklist and description of finance mechanisms
- Box 30: Feasibility screening criteria

Box 29: Checklist and description of finance mechanisms

The following is an indicative list of financial mechanisms for biodiversity conservation:

FINANCIAL MECHANISMS	DESCRIPTION
Positive tax incentives	Develop tax credits and tax deductions for behaviors, products and services that cause positive changes in ecosystem management
Negative tax incentives	Develop taxes on behaviors, products and services that cause positive changes in ecosystem management
Dedicated funds	Develop funds to pay for sustainable management of ecosystems
Reduction of subsidies	Reduce or remove harmful subsidies, such as on fertilizers, and increase subsidies that have beneficial impacts on ecosystems
Policies that place caps and limits on trade	Set limits on certain ecosystem goods and services, such as water use
Procurement policies	Design procurement policies for public and private entities to promote the purchase of goods and services that promote sustainable ecosystem management
Payments for ecosystem services	Develop schemes that allow a group of beneficiaries to pay for the costs of maintaining ecosystem services (e.g., water payments for ecosystem services that allow downstream users to pay for forest protection upstream)
Independent certification	Promote market-based certification systems for sustainably produced goods and services using agreed upon standards and verifiable chain-of-custody
Biodiversity offsets and wetlands banking schemes	Biodiversity offsets promote a framework for reducing biodiversity loss by allowing companies from different sectors (e.g., mining) to protect equivalent areas of land and biodiversity using agreed upon standards
Fines and levies	Establish punitive fees and fines that discourage environmentally harmful behavior, such as bottom trawling practices
Conservation easements	Establish long-term agreements between landowners and third-party organizations, such as land trusts, to foster conservation on private lands
Voluntary and mandatory fees	Develop voluntary fees (such as a hotel or tourism fee) that allows individuals to contribute to sustainable management, and develop mandatory fees (such as airport departure fees) that can be directed toward sustainable management

Add more, and cite references

Financial considerations

- How much money will actually be needed each year to support the particular wildlife conservation programs and activities that are envisaged?
- How much revenue is likely to be generated each year by the new financing mechanisms?
- Will the revenues generated be worth the cost of setting up the new financing mechanism?
- Could the revenues vary substantially from year to year depending on global and national economic, political, and natural conditions?
- How will a highly variable revenue flow affect the conservation programs that the financial mechanism is intended to pay for?
- What other sources of funds might be available, either on a long-term or a one-time basis?

Legal considerations

- Can the proposed financing mechanisms be established under the country's current legal system? Some legal systems do not recognize concepts such as easements or development rights. In other legal systems, there may be a constitutional prohibition against earmarking tax revenues or fees for specific purposes.
- Will new legislation be required in order to establish the proposed financing mechanism?
- How difficult and time-consuming will it be to pass such legislation?
- Could the new financing mechanism be established under current legislation, by simply issuing an administrative or executive order?

Administrative

- In the particular country, how difficult will it be to administer, enforce, collect, or implement a particular type of financing mechanism?
- Will it be too complicated or costly to administer?
- Are there enough trained people (or how difficult will it be to train enough people) to administer and enforce the system?
- Will implementing the particular financing mechanism depend too much on the discretion of individual officials and therefore present too many opportunities for corruption?
- Can safeguards be devised to limit potential problems?
- How difficult will it be to collect, verify, and maintain the data upon which a particular financing mechanism is based?

Social

- What will be the social impacts of implementing a particular system of generating revenues for conservation?
- Who will pay, and what is their willingness and capacity to pay?
- Will the new financing mechanism be perceived as equitable and legitimate?

Political

- Is there government support for introducing the new financing mechanism?
- Can the government be relied upon to spend the new revenues only for the purposes intended, or is there a strong likelihood that the money may end up being used for other purposes?
- Can this be monitored and ensured by the courts or the media or NGO "watchdog" groups or particular user groups or an independent board of directors or an international agency?

Environmental

- What will be the environmental impact of implementing the new financing mechanism? For example, for tourism-based mechanisms, will the desire to increase revenues from tourism compromise conservation objectives or exceed the carrying capacity of a protected area?

Source: Spergel and Moye 2004

COMPLETING WORKBOOK 3A

In completing this section, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Question 1	<ul style="list-style-type: none"> Identify the most important public and private finance actors and institutions within a limited number of key sectors 	<ul style="list-style-type: none"> Identify the most important public and private finance actors and institutions within a somewhat broad range of key sectors 	<ul style="list-style-type: none"> Identify a wide range of public and private finance actors and institutions within a broad range of most sectors
Question 2	<ul style="list-style-type: none"> Identify a small subset of the most important finance mechanisms 	<ul style="list-style-type: none"> Identify a subset of the most important finance mechanisms 	<ul style="list-style-type: none"> Identify a full suite of potential finance mechanisms
Question 3	<ul style="list-style-type: none"> Estimate the annual potential revenue of each finance mechanism based on best available information 	<ul style="list-style-type: none"> Estimate the annual potential revenue of each finance mechanism based on best available information, and supplemented by limited additional research 	<ul style="list-style-type: none"> Calculate the annual potential revenue of each finance mechanism based on best available information, and supplemented by additional revenue studies
Question 4	<ul style="list-style-type: none"> Identify the NBSAP strategies that each finance mechanism would target 	<ul style="list-style-type: none"> Identify the NBSAP strategies that each finance mechanism would target 	<ul style="list-style-type: none"> Identify the NBSAP strategies that each finance mechanism would target
Question 5	<ul style="list-style-type: none"> Assess the feasibility of each finance mechanism through peer review discussion of the steering committee 	<ul style="list-style-type: none"> Assess the feasibility of each finance mechanism through peer review discussion of the steering committee, supplemented with additional information as available 	<ul style="list-style-type: none"> Assess the feasibility of each finance mechanism through a comprehensive feasibility assessment
Question 6	<ul style="list-style-type: none"> Identify the most significant changes that would be required to implement the finance mechanism through peer review discussions of steering committee 	<ul style="list-style-type: none"> Identify most changes that would be required to implement each finance mechanism through peer review discussions, supplemented by additional information as available 	<ul style="list-style-type: none"> Identify the changes required to implement each finance mechanism through a comprehensive feasibility assessment
Question 7	<ul style="list-style-type: none"> Calculate the estimated total new revenue from all sources for each NBSAP strategy 	<ul style="list-style-type: none"> Calculate the estimated total new revenue from all sources for each NBSAP strategy 	<ul style="list-style-type: none"> Calculate the estimated total new revenue from all sources for each NBSAP strategy

WORKBOOK 3a: Potential biodiversity finance actors, mechanisms and revenue					
SECTION 1: ESTIMATED REVENUE, FEASIBILITY AND FINANCIAL MECHANISM BY FINANCIAL ACTOR					
Finance actors, agents, investors and institutions	Biodiversity finance mechanism	Estimated annual amount of potential revenue	Targeted NBSAP strategy or strategies	Feasibility of the finance mechanism	Changes required to implement the finance mechanism
• Finance actor or institution 1					
• Finance actor or institution 2					
• Finance actor or institution 3					
• Finance actor or institution 4					
• Finance actor or institution 5					
• Finance actor or institution 6					
• Finance actor or institution 7					
• Finance actor or institution 8					
• Finance actor or institution 9					
• Finance actor or institution 10					
• Finance actor or institution 11					
• Finance actor or institution 12					
• Finance actor or institution 13					
• Finance actor or institution 14					
Data sources and assumptions					
TOTALS					
SECTION 2: ESTIMATED TOTAL NEW REVENUE, ORGANIZED BY NBSAP STRATEGY					
STRATEGIES	Total revenue from all sources				
Mainstreaming strategies					
• Strategy 1					
• Strategy 2					
• Strategy 3					
TOTAL					
Protection strategies					
• Strategy 1					
• Strategy 2					
• Strategy 3					
TOTAL					
Restoration strategies					
• Strategy 1					
• Strategy 2					
• Strategy 3					
TOTAL					
ABS strategies					
• Strategy 1					
• Strategy 2					
• Strategy 3					
TOTAL					
Implementation strategies					
• Strategy 1					
• Strategy 2					
• Strategy 3					
TOTAL					
Data sources and assumptions					

Workbook 3b: Integrated and operational resource mobilization plan

INTRODUCTION TO WORKBOOK 3B

This workbook includes 1 section:

- **Resource mobilization strategy and action plan:** a detailed set of strategies and actions required in order to fill finance gaps required to implement the NBSAP and achieve the Aichi Targets.

The purpose of this workbook is to enable planners to develop a concrete set of strategies and actions to mobilize the financial resources required to implement the full suite of strategies within the NBSAP, and therefore to achieve the Aichi Targets. Workbook 3b is based on the cumulative results of Workbooks 1 and 2.

What does Workbook 3b look like?

Finance mechanisms	Key steps in implementing financial mechanism	Lead agency, staff, individuals	Key budget considerations in implementing financial strategy or mechanism	Timeframe	Monitoring indicators
• Finance mechanism 1	• Step 1 • Step 2 • Step 3				
• Finance mechanism 2	• Step 1 • Step 2 • Step 3				
Data sources and assumptions					

Questions included in Workbook 3b (Questions correspond to cells in the workbook):

- **Question 1:** What are the primary finance mechanisms that will constitute the main resource mobilization plan?
- **Question 2:** What are the key actions and steps for implementing each mechanism?
- **Question 3:** Who are the lead agencies, institutions and individuals responsible for taking each action?
- **Question 4:** What are the key budget considerations involved in taking each action?
- **Question 5:** What is the timeframe by which each action will be completed?
- **Question 6:** What are the monitoring indicators that will help determine success in implementing the strategies and actions?

Key definitions for Workbook 3b:

- **Lead agency, staff or individual:** The agency, staff position and individual who is responsible for taking each step.
- **Key budget considerations:** The cost items and estimated range of costs likely to be incurred in undertaking each step.
- **Timeframe:** The timeframe, by month and year, when each step is targeted to be completed.

COMPLETING WORKBOOK 3B

In completing this workbook, planners may consider different levels of resolution, each of which may depend upon different levels of staff time, financial resources, data availability and level of completion of previous assessments. The table below offers some suggestions for low, medium and high resolution when answering each question.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
Question 1	<ul style="list-style-type: none"> Identify the most feasible finance mechanisms as identified in Workbook 3a 	<ul style="list-style-type: none"> Identify the most feasible finance mechanisms as identified in Workbook 3a 	<ul style="list-style-type: none"> Identify the most feasible finance mechanisms as identified in Workbook 3a
Question 2 - 6	<ul style="list-style-type: none"> Identify key steps for implementing each financial mechanism, lead agency and individual, budget considerations, timeframe and monitoring indicators through peer review discussions with steering committee 	<ul style="list-style-type: none"> Identify key steps for implementing each financial mechanism, lead agency and individual, budget considerations, timeframe and monitoring indicators through peer review discussions with steering committee, supplemented with additional information as available 	<ul style="list-style-type: none"> Identify key steps for implementing each financial mechanism, lead agency and individual, budget considerations, timeframe and monitoring indicators through in-depth feasibility assessment

WORKBOOK 3b: Resource Mobilization Strategy and Action Plan

Finance mechanisms	Key steps in implementing financial mechanism	Lead agency, staff, individuals	Key budget considerations in implementing financial strategy or mechanism	Timeframe	Monitoring indicators
• Finance mechanism 1	• Step 1 • Step 2 • Step 3				
• Finance mechanism 2	• Step 1 • Step 2 • Step 3				
• Finance mechanism 3	• Step 1 • Step 2 • Step 3				
• Finance mechanism 4	• Step 1 • Step 2 • Step 3				
• Finance mechanism 5	• Step 1 • Step 2 • Step 3				
• Finance mechanism 6	• Step 1 • Step 2 • Step 3				
• Finance mechanism 7	• Step 1 • Step 2 • Step 3				
• Finance mechanism 8	• Step 1 • Step 2 • Step 3				
• Finance mechanism 9	• Step 1 • Step 2 • Step 3				
• Finance mechanism 10	• Step 1 • Step 2 • Step 3				
Data sources and assumptions					

APPENDIX A: Aichi 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: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and

equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes 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 for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

APPENDIX B: Supplementary Workbook 1 on Biodiversity Status and Trends

To be developed

APPENDIX C: Supplementary Workbook 2 on Biodiversity Benefits

To be developed

APPENDIX D: Sample cost co-efficients for selected strategies and actions

To be developed

APPENDIX E: Steps in the development of an NBSAP

1. *Get organized*

- a. Organize logistics: schedule, resources for revision process, NBSAP coordinator and team, multi-sectoral advisory committee, team information and data management
- b. Take stock: review existing/previous NBSAP, identify guidelines for biodiversity assessment

2. *Engage and communicate with stakeholders*

- a. Identify relevant stakeholders and rights holders: conduct stakeholder analysis and mapping , engagement of stakeholders throughout the process
- b. Develop a tailored communication and outreach plan: develop communication and outreach plan for the different steps of the NBSAP process

3. *Gather key information*

- Status and trends of biodiversity and ecosystem services (spatial data on ecological status, threat status, protection and conservation management status, drivers of loss)
- Linkages between biodiversity and society (poverty, development and human wellbeing; key ecosystem services, societal benefits of biodiversity)
- Legal, institutional and policy environment (relevant biodiversity laws, policies, management practices; existing organizations, institutions and capacities; ongoing initiatives; and opportunities for mainstreaming)
- Biodiversity finance (amounts and sources of existing biodiversity expenditures, relevant positive and negative/perverse incentives and subsidies)
- Status of public awareness (of biodiversity and its values)
- Identify knowledge gaps

4. *Develop strategies and actions*

- Establish national vision, principles, and priorities for biodiversity
- Set national targets (and potential indicators)
- Identify specific strategies (to achieve national targets and the Strategic Plan for Biodiversity)

5. *Develop implementation and resource mobilization plans*

- Outline and prioritize specific actions: identify specific implementation actions, actors, timelines, resources
- Develop resource mobilization plan: Develop a plan to mobilize resources to fill finance gaps
- Ensure strategies and actions are fully incorporated into national policies, frameworks, laws and budgets
- Finalize indicator set and develop monitoring plan for all targets and associated actions
- Develop plan for Clearinghouse Mechanism

6. *Implement the NBSAP*

- Engage stakeholders in the implementation of agreed strategies and actions
- Implement specific NBSAP strategies and actions
- Mobilize domestic and international financial resources

7. *Monitor and report*

- Develop 5th National Report
- Communicate results of implementation broadly
- Review and adapt priorities within the NBSAP periodically, based on monitoring indicators

APPENDIX F: Recommended BIOFIN process and national outputs

To be developed

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