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Transforming Biodiversity Finance:

The Biodiversity Finance (BIOFIN) Workbook for assessing and mobilizing resources to achieve the Aichi Biodiversity Targets and to implement National Biodiversity Strategies and Action Plans

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Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

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EXECUTIVE SUMMARY

In recognition of immense biodiversity losses, and the immeasurable value of biodiversity and ecosystems in sustaining human life, 193 of the world's governments agreed in 2010 to an ambitious set of 20 "Aichi Biodiversity Targets" for biodiversity conservation, sustainable use and equitable benefits sharing. Target 17 calls for each country to revise their National Biodiversity Strategies and Action Plans (NBSAPs), the primary national planning instrument for implementing the Convention on Biological Diversity, to be aligned with the Aichi Biodiversity Targets. Target 20 calls for countries to assess the financial resource needs and mobilize financial resources for effectively implementing the Strategic Plan.

In October 2012, UNDP launched the Biodiversity Finance Initiative (BIOFIN) as a new global partnership seeking to address the global biodiversity finance challenge in a comprehensive and systematic manner (see www.biodiversityfinance.net). The aim of this partnership is to enable governments to construct a sound business case for increased investment in the sustainable and equitable management, protection and restoration of biodiversity and ecosystems. 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 Biodiversity Targets at a national level.

The BIOFIN Workbook is comprised of three parts:

Part 1 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 sustainable and unsustainable policies and practices, and analyze the 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, identifying different roles in biodiversity finance, impacts and dependencies on biodiversity, the degree of alignment with national biodiversity goals, and overall levels of capacity.
- **Workbook 1c: Public and private expenditure and effectiveness trends**: In this workbook, planners identify national budgetary and expenditures trends across several years to gain a baseline overview of expenditures by institution and by major biodiversity strategy, project a future baseline scenario, and identify key issues, including ineffective and environmentally harmful expenditures.

Part 2 focuses on calculating the costs of implementing each of the strategies within the revised NBSAP.

- **Workbook 2a: Strategies, actions and costs**: In this workbook, planners identify key strategies and actions from their revised NBSAPs, including mainstreaming and sustainable use, protection, restoration, ABS and implementation strategies, and assign realistic costs to these.
- **Workbook 2b: Identifying finance gaps**: In this workbook, planners summarize all costs, and identify finance gaps.

Part 3 focuses on developing a resource mobilization plan.

- **Workbook 3a: Potential biodiversity finance actors, opportunities, mechanisms and revenue**: In this workbook, planners identify a full suite of potential finance actors and opportunities; 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 resources required to implement the NBSAP. The goal of the BIOFIN Workbook is to enable partner countries to transform the trajectory of biodiversity, finance and development, and to chart a pathway to a sustainable future.

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List of boxes and supplementary guidance materials in this Workbook include:

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INTRODUCTION

Biodiversity loss, the Aichi Biodiversity Targets, NBSAPs, and resource mobilization

The world faces unprecedented and irreversible losses of biodiversity (MEA, 2005). Species extinction rates are approaching 1,000 times the evolutionary background rate (CBD, 2010a), and these rates may climb to over 10,000 times the background rate if present trends in species loss and climate change continue (May et al., 2002). As many as 70 percent of the world's known species are at risk of extinction by 2100 (Rosser and Mainka, 2002). These trends have profound implications for human welfare, particularly for the world's poorest communities, who depend disproportionately upon biodiversity and ecosystem services for the basic necessities of life (UNEP, 2010), and who also bear disproportionate vulnerability and risk from the impacts of climate change (IPCC, 2007).

In recognition of these losses, and the immeasurable value of biodiversity and ecosystems in sustaining human life, 193 of the world's governments agreed in 2010 to an ambitious set of 20 targets for biodiversity conservation, sustainable use and equitable benefits sharing, as part of the Strategic Plan for Biodiversity (CBD, 2010).[1] These targets, known as the Aichi Biodiversity Targets[2] cover a broad range of biodiversity-related issues that fall into five strategic goals: 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.

Target 17 calls for each country to revise their National Biodiversity Strategies and Action Plans (NBSAPs) in line with the Aichi Biodiversity Targets. NBSAPs are the primary national instrument for implementing the Convention on Biological Diversity, and are required by all signatories as part of the Convention itself (CBD, 1992). To date, 178 countries have completed their first NBSAP, and nearly all countries are in the process of updating their NBSAP to be in accordance with the Aichi Biodiversity Targets by 2015. One of the most important shortcomings of the first round of NBSAPs was that they did not clearly identify the costs required to implement the strategies and actions, and they nearly all lacked a robust resource mobilization plan (Prip et al., 2010).

Target 20 of the Aichi Biodiversity Targets calls for countries to assess the financial resource needs and to mobilize financial resources for effectively implementing the CBD Strategic Plan at a national level. In addition, Decision X/3 of the 10th Conference of Parties (CoP) of the CBD requests Parties to report on funding needs, gaps, and priorities related to national implementation of the resource mobilization strategy, and to prepare national financial plans for biodiversity. The BIOFIN Workbook provides tools and resources to help countries achieve Target 20 and associated CoP decisions.

The BIOFIN Initiative and BIOFIN Products

In October 2012, UNDP launched the Biodiversity Finance Initiative (BIOFIN) as a new global partnership seeking to address the global biodiversity finance challenge in a comprehensive and systematic manner (see also www.biodiversityfinance.net). The aim of this partnership is to enable governments to construct a sound business case for increased investment in the sustainable and equitable management, protection and restoration of biodiversity and ecosystems.

The BIOFIN Initiative is developing several print and online products. The first is the BIOFIN Workbook[3], aimed at promoting the consistent application of resource mobilization steps and key principles across participating BIOFIN partner countries. The second is the BIOFIN Quick Guide, which provides a shortened version of this methodology, and is intended to be widely distributed in print and online format. The third is a comprehensive BIOFIN User's Manual, aimed at providing illustrative examples and lessons learned from across participating BIOFIN partner countries, for the benefit of future countries wishing to implement the BIOFIN approach. This will be available in October, 2014. The fourth is an online guide that helps planners[4] walk through each step of the BIOFIN Workbook, and efficiently and consistently report on results. The aim of the BIOFIN Workbook and related products is to provide concrete guidance to countries on how to assess existing biodiversity-related expenditures, gauge costs for implementing their

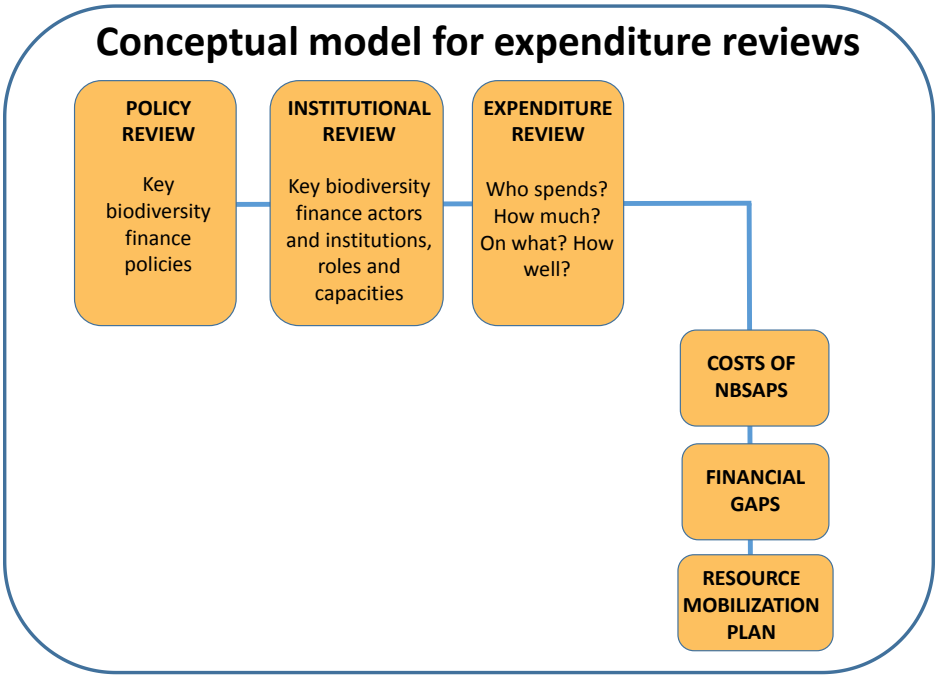
[1] The Strategic Plan for Biodiversity 2011-2020 applies not only to the Convention on Biological Diversity, but also to other United Nations conventions (see Appendix B for more details).
[2] See Appendix A for the full set of Aichi Biodiversity Targets, and Box 4 for a summary version.
[3] The BIOFIN methodology consists of a series of sub-workbooks, collectively called the BIOFIN Workbook.
[4] In the context of the BIOFIN Workbook, 'planner' is used broadly to mean any planner, whether from biodiversity, finance, land use planning, development, climate or any other sectors, who is engaged in completing the BIOFIN Workbook.

NBSAP, and understand how to mobilize the financial resources required to fully implement their revised NBSAPs. By doing so, countries can improve biodiversity and sectoral policies, and better align their national expenditures with their biodiversity and development goals and strategies.

The BIOFIN Workbook's Methodological Framework

The BIOFIN Workbook's methodological framework draws upon a substantial body of research and analysis related to public expenditure reviews and institutional analyses from across a variety of fields, including health, climate, education and environment, among others.[5] The prevailing norms for expenditure review processes include a) an analysis of existing expenditures and of the broader context behind these expenditures, including relevant institutions, policies, key actors and effectiveness of funding; b) an analysis of the costs and financial gaps of achieving key goals; and c) a plan to fill this financial gap, while also improving the effectiveness of expenditures, and aligning funding with core goals and objectives. This conceptual framework is illustrated in Box 1.

Box 1: Conceptual framework of national expenditure reviews



Because the BIOFIN Workbook is also intimately linked with the development and revision of NBSAPs, the BIOFIN Workbook's conceptual framework also builds on a well-established set of principles of conservation planning and assessment, based on a pressure-state-response model, where *pressure* includes human activities that have negative impacts on biodiversity and ecosystems; *state* includes environmental conditions, status and trends; and *response* includes societal actions taken in order to respond to environmental pressures and improve the environmental status (OECD, 1994). The pressure-state-response conceptual framework, as it applies to the BIOFIN Workbook, is illustrated in Box 2. The BIOFIN Workbook's conceptual framework assumes that the BIOFIN process is thoroughly integrated with the NBSAP revision process and resource mobilization process[6], and assumes in particular that the status and trends of biodiversity, as well as the many drivers of biodiversity change, have already been identified as part of the NBSAP revision process. This conceptual framework also includes a projected new state, based on the results of key strategies being implemented.

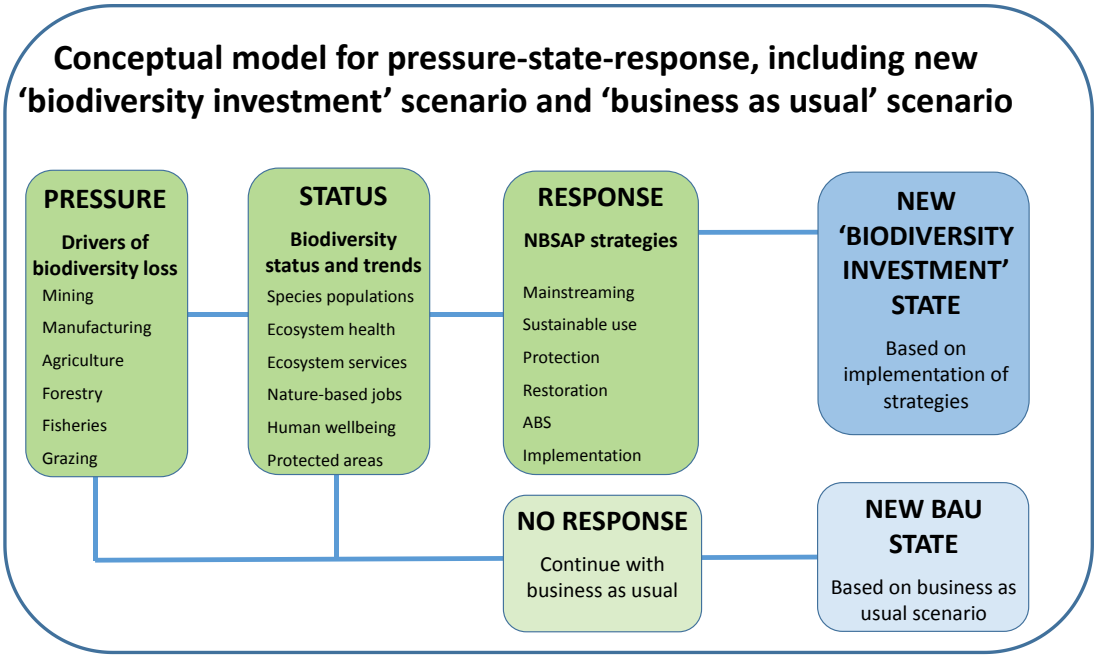
The BIOFIN Workbook takes the pressure-state-response model one step further by including the development of two scenarios – the first is a 'business-as-usual' scenario, in which the same pressures that exist on biodiversity persist into the future without intervention, and the second is a project new 'biodiversity investment' scenario, in which pressures are adequately addressed through biodiversity investments, leading improved status and trends in biodiversity, ecosystems and associated human wellbeing.

[5] See for example Bird et al., 2012; Pradhan, 1996; WHO, 2003; World Bank, 2009

[6] See Box 3 for parallels and linkages between the two processes

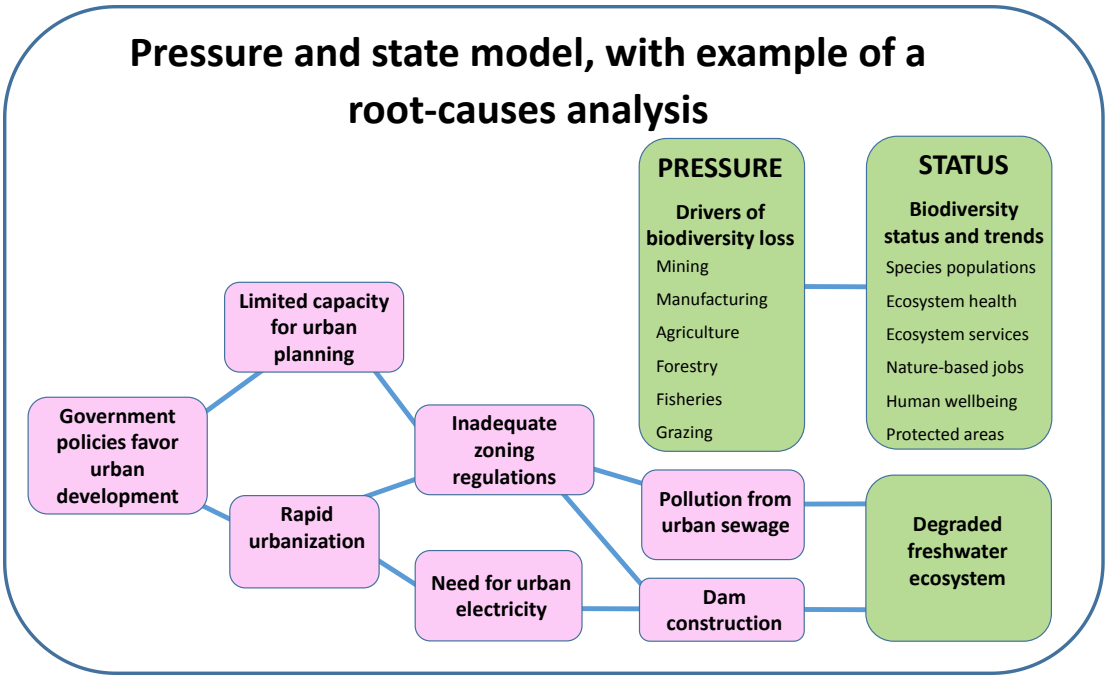
Developing these two scenarios allows planners to compare the costs and benefits between two alternative trajectories, and to make the social and economic case for increased biodiversity investments more effectively.[7]

Box 2: Pressure-state-response conceptual framework with two different scenarios



In addition, the BIOFIN Workbook incorporates an analysis of the underlying root causes that result in pressures, an approach known as a 'root causes analysis.' In this process, planners continue to probe the driving causes and contributing factors that lead to a pressure occurring. Box 3 shows an example of how many different underlying root causes can lead to pressures occurring to biodiversity and ecosystems.[8]

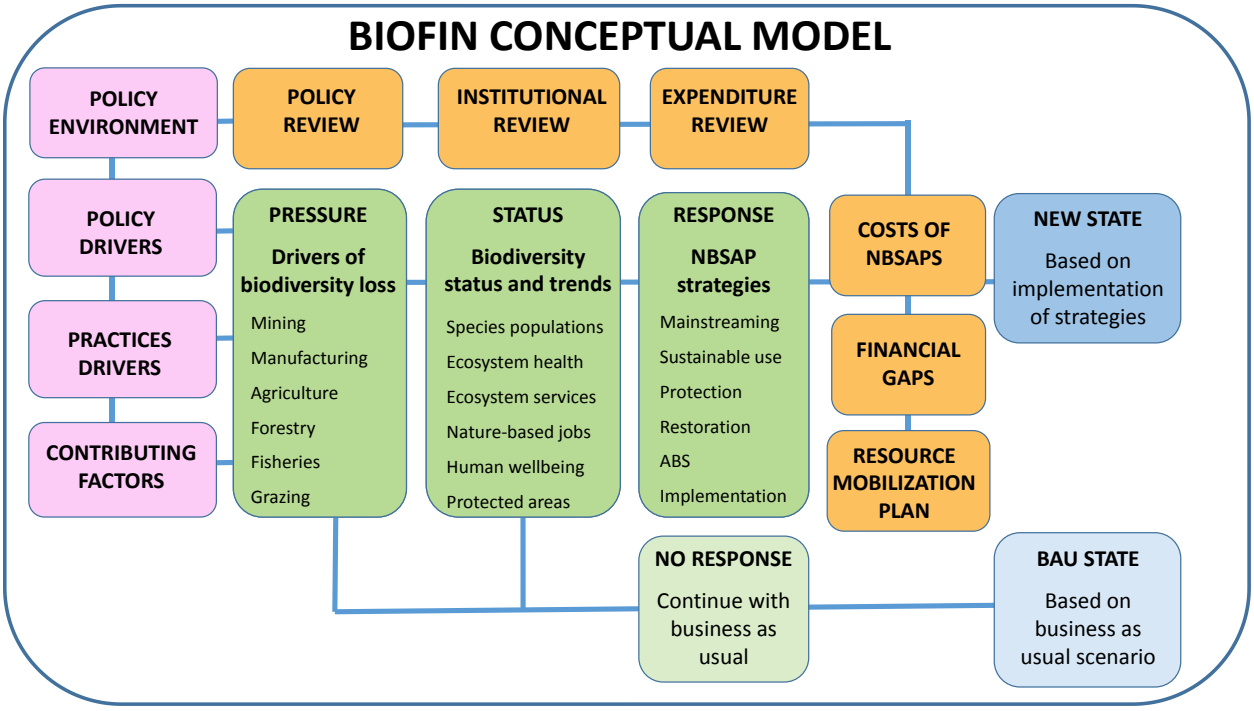
Box 3: Pressure and state conceptual framework, with example of a root causes analysis



[7] See Alpizar and Bovarnick, 2013; and Braat and ten Brink, 2008 for more about scenario development and comparisons.
[8] See also Supplementary Guidance Box 5 for more details on root causes analyses

Because it incorporates multiple conceptual frameworks, the BIOFIN Workbook entails more than a process of simply reviewing biodiversity-related expenditures; it is about ensuring that biodiversity-related expenditures are in alignment with biodiversity and development goals and objectives, and that these goals and objectives collectively address the leading drivers of biodiversity loss and degradation within a country. The BIOFIN Workbook combines these multiple conceptual frameworks – national expenditure reviews, pressure-state-response models, multiple scenario comparison, and root causes analysis– into a single conceptual framework, illustrated in Box 4.

Box 4: Overall conceptual model for BIOFIN Workbook



The BIOFIN Workbook includes three main parts, each of which has two or three separate workbooks:

- **Part I -- Review of context**: The three workbooks in Part I explore the broader context that will help shape the resource mobilization plan, including a) a review of the policy and practice drivers of biodiversity and ecosystem change; b) an analysis of the actors and institutions responsible for and dependent upon existing and future policies and practices and a review of institutional capacities; and c) a review of the amount, trends and effectiveness of public and private expenditures in biodiversity.

- **Part II: Review of costs**: The two workbooks in Part II explore the costs of implementing a country's NBSAP, and include a) an analysis of the costs for each set of strategies and actions; and b) a summary analysis and prioritization of all existing and future costs through 2020.

- **Part III: Development of a finance plan**: The two workbooks in Part III provide guidance on how to develop a resource mobilization plan, and include a) an analysis of potential finance mechanisms, actors and opportunities; and b) a guide to synthesizing all of the results into a comprehensive resource mobilization plan.

The BIOFIN Workbook and the NBSAP development and revision process

The process of completing the BIOFIN Workbook is closely tied to the development and revision of an NBSAP. 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 the financial gaps between existing baseline funding and the cost of implementing an NBSAP. The BIOFIN Workbook provides a structured way to integrate the results of these two interconnected

processes, and to systematically understand the cost implications for implementing the strategies identified within the revised NBSAP (see Box 5 and Appendix B).

However, the BIOFIN Workbook is *not* a substitute for the rigorous discussions, tradeoffs and decisions among key stakeholder groups that frequently accompany the development of biodiversity goals, strategies and plans, as well as the allocation of financial resources. Instead, it provides a mechanism for capturing the results of these discussions, and provides a systematic way to transform previously negotiated biodiversity strategies into a robust, prioritized and realistic resource mobilization plan. At the same time, the BIOFIN Workbook provides a structured mechanism that can foster 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. It is likely, therefore, that the NBSAP process, and the BIOFIN Workbook process will be iterative, each contributing to and influencing the other throughout the development of both.

Box 5: Relationship between the steps in revising an NBSAP and steps in the resource mobilization 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 revising an NBSAP		Steps in developing a resource mobilization plan
1. **Get organized** – organize logistics and take stock of past NBSAPs	↔	1. **Get organized** – organize the logistics of the team that will work on resource mobilization
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 discussions about the resource mobilization 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** -- based on information on status and trends in biodiversity; gather information about the policy and practice drivers of change (Workbook 1A); the key actors and institutions (Workbook 1B); and the biodiversity-related expenditures (Workbook 1C)
4. **Develop strategies and actions** – establish a national vision; set national targets; identify specific strategies and actions	↔	4. **Develop costs for strategies and actions** – Based on the strategies identified by the NBSAP team, the resource mobilization team then develops a comprehensive view of total costs (Workbooks 2A and 2B)
5. **Develop implementation 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 resource mobilization plans** – based on the NBSAP implementation plan, and the results of Workbooks I and II, develop robust, realistic 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 resource mobilization plan** – 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

The BIOFIN Workbook assumes that planners have already completed, or are at near final stages of completing, steps 1 through 4 in the NBSAP development process. Perhaps the most fundamental of these early steps is a review of status and trends of biodiversity, ecosystems, ecosystem services and their values 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 complete methodology for assessing status and trends is beyond the scope of the BIOFIN Workbook. However, a checklist of key issues that should be

included is offered in Appendix C to enable planners to gauge the comprehensiveness of their progress in assessing status and trends, and to ensure that there are clear linkages between these results, and Parts I, II and III of the BIOFIN Workbook.

Similarly, a key element of assessing status and trends is assessing the value of the goods and services provided by biodiversity and ecosystems. The results of valuation studies can be critically important at different stages within both the BIOFIN Workbook and the NBSAP revision process. A complete methodology for assessing the value of biodiversity and ecosystems is also beyond the scope of the BIOFIN Workbook (see Appendix F). However, a supplementary workbook is offered in Appendix D to enable planners to consolidate the findings of existing studies on the value and benefits of biodiversity and ecosystems.

It is important to note that no matter where planners are in the NBSAP revision process, they should seek ways to begin incorporating and integrating the resource mobilization process into the resource mobilization process as soon as possible. Some early steps that planners can consider in order to foster better integration include: a) ensuring that Ministry of Finance and other finance experts are members of the NBSAP revision team; b) identifying and engaging other potential key finance and sectoral actors, especially those sectors that might pay for biodiversity conservation and sustainable use, as early in the NBSAP revision process as possible; c) identifying and assessing the feasibility of finance mechanisms; d) preparing institutions for the idea of an expenditure review; and e) developing systems for aggregating financial data in preparation for the biodiversity expenditure review. In addition, countries should not wait until after the resource mobilization plan is completed to begin NBSAP implementation. Many strategies can be implemented now with existing resources, and countries should identify urgent priorities that must be undertaken quickly to prevent further and irreplaceable losses in biodiversity and ecosystems.

The BIOFIN Workbook and the Aichi Biodiversity Targets

In order to have a more streamlined approach in calculating the costs of NBSAP strategies, the BIOFIN Workbook groups the 20 Aichi Biodiversity Targets into five categories: a) biodiversity mainstreaming and sustainable use; b) protection; c) restoration; d) access and benefits; and e) enabling strategies. Box 6 shows the relationship between the Aichi Biodiversity Targets of the CBD's Strategic Plan and the cluster of strategies and actions as defined in the BIOFIN Workbook.[9]

Box 6: Relationship between the Aichi Biodiversity Targets and the strategy groups included in the BIOFIN Workbook

Biodiversity mainstreaming and sustainable use strategies	**Strategic Goal A:** Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society **Target 1**: Awareness of the values of biodiversity **Target 2**: Integration of biodiversity values into development and poverty reduction strategies, and into national accounting and reporting systems **Target 3**: Removal or reform of harmful incentives and subsidies and application of positive incentives **Target 4**: Implementation of plans for sustainable production and consumption **Strategic Goal B:** Reduce the direct pressures on biodiversity and promote sustainable use **Target 5**: At least halve the rate of loss of all natural habitats, including forests and reduce degradation and fragmentation **Target 6**: Sustainably harvest and manage fish and invertebrate stocks and aquatic plants **Target 7**: Sustainably manage agriculture, aquaculture and forestry and ensure conservation of biodiversity. **Target 8:** Reduce pollution, including from excess nutrients **Target 9**: Prevent, and control or eradicate, prioritized invasive alien species **Target 10**: Minimize the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems
Protection strategies	**Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity** **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 **Target 12**: Prevent the extinction of known threatened species and improve their conservation status **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

[9] Note that because of space considerations, Box 5 shows only abbreviated text of the Aichi Biodiversity Targets; the full text is available in Appendix A.

Restoration strategies	**Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services** **Target 14**: Restore and safeguard ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being **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
ABS strategies	**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.
Enhancing implementation strategies	**Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building** **Target 17**: Parties develop, adopt and begin implementation of updated NBSAPs **Target 18**: Integrate traditional knowledge of indigenous and local communities with the full and effective participation of indigenous and local communities **Target 19**: Improve and share knowledge relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss **Target 20**; Mobilize financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020

Relationship of the BIOFIN Workbook and resource mobilization to other national and international 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, including the Convention on Migratory Species, the Convention on International Trade of Endangered Species; the RAMSAR Convention on Wetlands; the United Nations Educational, Scientific and Cultural Organization World Heritage Convention; the United Nations Convention to Combat Desertification; and the United Nations Framework Convention on Climate Change.[10]

Similarly, the BIOFIN Workbook is closely related to a number of processes associated with the process of assessing the economic and other societal values of biodiversity and ecosystems. In particular, four methodologies and initiatives have a direct bearing on the BIOFIN Workbook, including a) The United Nation's Environment Programme's "The Economics of Ecosystems and Biodiversity" program[11]; b) the World Bank's "Wealth Accounting and Valuation of Ecosystems" program[12]; and c) The United Nations Development Programme's "Targeted Scenario Analysis" methodology.[13] See Appendix F for more details on the relationship of these programs and methodologies to the BIOFIN Workbook.

In addition, the NBSAP revision process coincides with global efforts to redefine goals for sustainable development. The Sustainable Development Goals, which are the successor to the Millennium Development Goals that expire in 2015, will provide the basis for countries to revise their national sustainable development plans. There is a great deal of convergence between the emerging Sustainable Development Goals and the goals of the Aichi Biodiversity Targets, including goals related to the sustainable management of natural resources; the maintenance of food security; the provision of adequate water and sanitation services; the reduction of risks and impacts from climate change; the security of employment, livelihoods and inclusive economic development; and the promotion of health and wellbeing (Ervin, 2013). Clearly there are inextricable linkages between healthy biodiversity and ecosystems on one hand, and human wellbeing on the other, particularly for the world's poorest and most vulnerable societies. If implemented with an eye toward the synergies between national biodiversity trends and national development issues, NBSAPs can become a roadmap for both biodiversity conservation and sustainable development. Box 6 identifies some of the specific contributions NBSAPs can contribute to national sustainable development goals. Identifying and building on synergies between biodiversity goals and national sustainable development goals will help planners identify key entry points for making the case for investments in biodiversity, as well build long-term political commitment and support.

[10] See Appendix E for more details.
[11] See www.teebweb.org
[12] See www.waves.org
[13] See Alpizar and Bovarnick, 2013.

Box 7: The contribution of NBSAP strategies to national sustainable development goals and plans

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

Planners may wish to consider the following national development and sectoral plans as a starting point, identifying potential synergies between these plans, biodiversity plans in the NBSAP, and resource mobilization plans:

- National and regional development plans and economic development plans
- National climate-related plans
- Food security and water security plans
- Invasive species plans
- Tourism and ecotourism plans
- Land-use plans and spatial plans
- Integrated coastal development plans
- Energy and mining plans
- Waste management plans
- Manufacturing plans
- Water management plans
- Fisheries management plans
- Grazing and rangeland management plans
- Wildlife management, wildlife trade and species recovery plans
- Forestry plans
- Agricultural plans
- National protected area plans (expansion, management effectiveness)
- National restoration plans

Source: Adapted from Ervin, 2013

Issues in implementing the BIOFIN Workbook

Recommended structures and governance

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. In most countries, the NBSAP revision process is led by the Ministry of Environment. However, in most BIOFIN pilot countries, the BIOFIN

process is led by the Ministry of Finance, or a combination of Ministry of Finance and Environment. This ensures that there is adequate dialogue and interplay between biodiversity strategies on the one hand, and the realities of national budgeting and accounting on the other. Each country must decide which governance structure will best achieve the desired outcomes of the BIOFIN process.

Key principles

There are some basic over-arching principles that planners should keep in mind when using the BIOFIN Workbook. The first is the principle of cost-effectiveness – the aim is to achieve the most important biodiversity goals and objectives in the most efficient manner possible, including simultaneous delivery of both biodiversity goals and national sustainable development goals. The second is the principle of user-orientation. The final results should be focused on helping the key users – the planners who will be responsible for implementation – actually understand, interpret and implement the results. The third principle is inclusiveness; NBSAPs are intended to be developed in a multi-sectoral, inclusive fashion, involving many interest groups, and the resource mobilization plan should also be developed in such a manner. The fourth principle is pro-poor; in weighing the pros and cons of different scenarios, finance mechanisms, actors and priorities, planners should carefully consider impacts on the poorest and most vulnerable members of their society, and find solutions that help to alleviate poverty. The fifth is openness and transparency – while not all information may be appropriate for full public disclosure, the majority of the results, including on the biodiversity expenditure review, key priorities, recommended finance mechanisms and potential consequences of and safeguards for these mechanisms, should be made publicly available.

Pre-requisites for implementation

In order for the BIOFIN Workbook to be used effectively, there are several pre-requisites that must exist. The first is the political will that is required to drive the BIOFIN assessment process forward – the process will not be successful without clear leadership and support from the highest governmental levels. The second is a willingness to collaborate across agencies, ministries and other jurisdictional government boundaries. It is very likely that the implementation of the BIOFIN Workbook will catalyze meetings between ministries that rarely if ever occur. This also implies a willingness to make budgetary and financial expenditure data fully accessible to national BIOFIN planners. The third is a willingness to take an open look at long-held expenditure priorities, and a willingness to expose and change ineffective expenditures and financial management processes. The fourth is a willingness to have difficult and possibly contentious discussions with powerful interest groups, who may have a strong interests in *not* exploring issues such as environmentally harmful incentives and ineffective expenditures. The BIOFIN Workbook provide tools and guidance for having these discussions, but the hard work of holding national dialogues is the only process whereby change can occur. The fifth is a commitment to work collaboratively across a wide range of different sectors and key actors. The sixth is a basic level of capacity required to undertake each step in the BIOFIN Workbook, including the capacity to develop a robust NBSAP, to undertake key assessments and analyses, and to manage a complex project in parallel with the NBSAP process, which itself can be very complex. The seventh is the commitment to fully utilizing the BIOFIN Workbook results; the results are only as robust as the changes that occur as a result of the BIOFIN Workbook exercise. The BIOFIN Workbook is a means to an end – to transform biodiversity finance – not an end itself.

Flexibility and varying levels of resolution and confidence

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 available resources; existing national capacity; 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, given their national context. 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). Also, 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 (many cells may indeed be blank), and that they may need to add new cells to suit their national needs. In addition, the accompanying excel spreadsheet and online tool will provide the drop-down menus and spaces needed to capture information that are difficult to provide in a printed document. 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 boxes provide additional guidance, should they be required.

Accuracy, ranges and estimates in the expenditure review and the costing exercise

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 adequate resources. However, any exercise that aims to calculate the costs of an endeavor of this magnitude will necessarily 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. Ultimately, the goal is not necessarily to determine the precise cost of implementing an NBSAP, but rather to identify a realistic range of costs required to cover key priorities.

At the same time, one potential danger in both the expenditure review and the costing exercise is the issue of double-counting – of calculating an expenditure or cost more than once in the assessment. In all cases, planners should strive to avoid double counting, both for biodiversity expenditures in Workbook 1C, and for cost calculations in Workbook 2A. 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 and well-documented decisions on whether expenditures and costs 'count' in one strategy versus another.

Data sources and assumptions

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 section on 'assumptions and data sources' that accompanies all sections of each workbook. The online BIOFIN tool has ample space to capture these details.

Finalizing the BIOFIN Workbook

This is an early version of the BIOFIN Workbook; it is still under testing and development by partner countries. The individual sub-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 mid-2014, when this workbook will also be finalized. In the meantime, an excel spreadsheet that allows for data to be captured is available to all countries who are participating in the BIOFIN assessment process.

Using the results of the BIOFIN Workbook – Transforming the Trajectory of Development

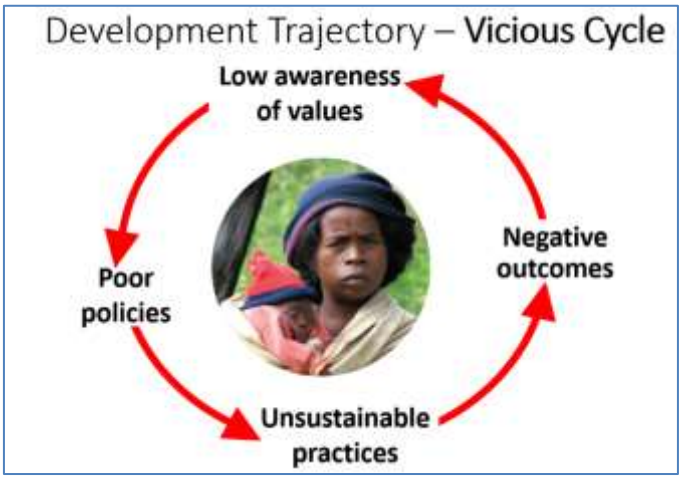
The goal of the BIOFIN Workbook is to assist countries in transforming national biodiversity finance, and thereby enabling them to fully implement their NBSAP and achieve the Aichi Biodiversity Targets. NBSAPs are more than a set of biodiversity plans; if developed and implemented fully, they can be a pathway to national and global sustainable development, and a mechanism that can help transform the unsustainable trajectory of development (see Box 8).

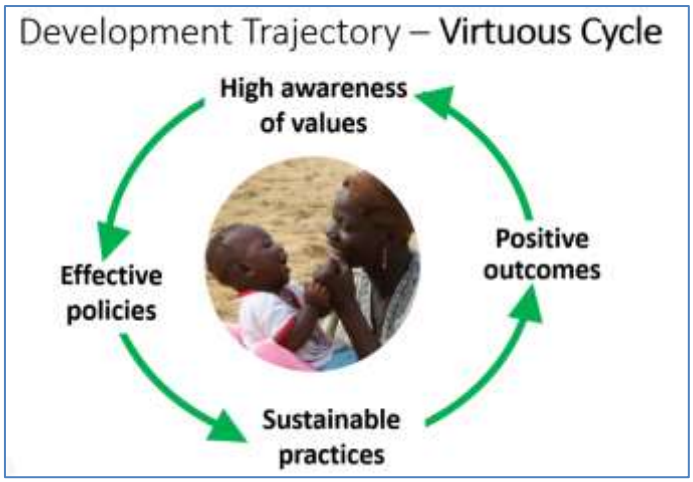
Box 8: Transforming the development trajectory: vicious and virtuous cycles

In the figure below, the development trajectory begins with a low awareness of the value of biodiversity and ecosystems. This leads to policies which undermine the value of biodiversity and ecosystems, and favor short-term, unsustainable exploitation over long-term conservation and sustainable management. These policies in turn lead to unsustainable practices, such as clear-cutting forests, over-fishing, and unplanned coastal development, for example. As a result, there are negative outcomes for both human and natural communities, as well as for the long-term economic health of nations, which leads to further devaluation of nature. This scenario can be described as a vicious cycle.

In a virtuous cycle, there is a high awareness of the value of biodiversity and ecosystems, which leads directly to effective policies that reflect the value of nature. These effective policies lead to sustainable practices, such as effective networks of well-managed protected areas that maintain key ecosystem services, sustainable management practices that ensure long-term benefits, and biodiversity mainstreaming that mitigates the impact from economic development sectors. These practices in turn lead to positive outcomes for both biodiversity and for human wellbeing, which lead to a higher awareness of the values of biodiversity and ecosystems.

The NBSAP is the key junction at which societal awareness and planning can be transformed into national biodiversity and sectoral practices and policies which in turn initiate, maintain or reverse either a vicious or virtuous cycle. An effective NBSAP can help transform a vicious cycle by raising the level of societal awareness, improving policies and practices, and improving outcomes for people and for biodiversity. Biodiversity finance is the engine behind the NBSAP – a well-financed NBSAP stands a far greater chance of success than one that does not have a robust, realistic resource mobilization plan. The aim of the BIOFIN Initiative is to give NBSAPs the greatest chance of success possible to ensure a virtuous cycle of development.





Whether through phasing out or eliminating environmentally harmful incentives; creating new positive incentives; establishing market-based mechanisms; tapping new sources of private finance; reducing the costs of strategies; reallocating government expenditures away from ineffective expenditures to more cost-effective ones; or simply prioritizing, accessing and utilizing official development assistance more effectively, the goal of the BIOFIN Workbook is the same – to enable partner countries to transform the trajectory of biodiversity, finance and development and to achieve a sustainable path to the future.

PART I: Reviewing biodiversity policies, institutions and expenditures

Part I of the BIOFIN Workbook focuses on the broader context of the drivers of biodiversity change. The three workbooks in Part I 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**
    - Biodiversity mainstreaming and natural resource use policies and practices that contribute to positive and negative trends in biodiversity
    - Protection policies and practices that contribute to positive and negative trends in biodiversity
    - Restoration policies and practices that contribute to positive and negative trends in biodiversity
    - Access and benefits sharing policies and practices that contribute to positive and negative trends in biodiversity
    - Overall policy environment factors that inhibit and promote biodiversity conservation, sustainable use and equitable benefits sharing

- **Workbook 1b: Institutional Review**
    - Contributions to, and responsibilities for, both a BAU scenario and a biodiversity investment scenario
    - Existing and potential future distribution of the benefits of biodiversity and biodiversity investments
    - Existing and potential future distribution of the costs of biodiversity and biodiversity investments
    - Existing and potential future capacities related to finance resource management
    - Institutional roles and responsibilities for financial resource management

- **Workbook 1c: Public and Private Biodiversity Expenditure Trends and Effectiveness**
    - Overall national budgetary and expenditure snapshot
    - Baseline biodiversity-related expenditures and expenditure effectiveness review
    - Baseline biodiversity expenditure review by major strategy group

Workbook 1A: Policy and Practice Drivers of Biodiversity and Ecosystem Change

INTRODUCTION TO WORKBOOK 1A

Workbook 1A identifies the specific practices that result in both positive and negative trends in biodiversity and ecosystems, identifies the broader forces, policies and policy factors that drive these practices, and examines the broader overall policy environment within which these practices and policies exist.

In completing Workbook 1A, planners should begin by keeping in mind the most important status and trends in biodiversity and ecosystems and associated human wellbeing. Based on these, they can then articulate the specific practices and policies that contribute to both positive and negative biodiversity trends, and identify the key factors within the broader policy environment that either promote or inhibit sustainable policies and practices related to biodiversity. As a result, planners will be well equipped to identify the specific actors and institutions responsible for these practices and policies as part of Workbook 1B.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 1A

Workbook 1A includes 5 sections, each focusing on a different area of biodiversity policy and practice:

SECTION 1: Biodiversity mainstreaming and sustainable use: an analysis of the positive and negative practices of key economic sectors; and the market forces, policies and policy factors that contribute to these practices.

Key questions in section 1 include:

- Which economic sectors are the most important in driving both positive and negative changes in biodiversity and ecosystem status and trends?
- What are the most important practices within these sectors that result in both positive and negative biodiversity and ecosystem trends?
- What are the market forces, policies and policy factors that contribute to each of these sectoral practices?

Key terms[14] included in Section 1 include: *biodiversity mainstreaming; sustainable use*; e*conomic development sectors*; *positive and* n*egative biodiversity and ecosystem trends; sustainable and unsustainable sectoral practices; contributing market forces; contributing policy factors.*

Additional guidance for Section 1 includes:

- Supplementary Guidance Box 1: Checklist of development sectors to consider
- Supplementary Guidance Box 2: Checklist of contributing social, economic and policy factors
- Supplementary Guidance Box 3: List of sustainable practices by sector[15]
- Supplementary Guidance Box 4: Elements of a sectoral impact assessment
- Supplementary Guidance Box 5: Root causes analysis framework

SECTION 2: Protection: an analysis of the policies and policy factors that contribute to both ineffective and effective protection of ecosystems, species and genetic diversity, including *in situ* and *ex situ* protection.

Key questions in Section 2 include:

[14] Note that Appendices G through M include definitions for each of the key terms identified, as well as supplementary guidance
[15] Note that Supplementary Guidance Box 3 includes a series of checklists for best practices; planners may find these helpful in identifying both best practices, as well as through extension practices considered unsustainable.

- Which site-level and system-level protection practices are the most important in driving both positive and negative biodiversity and ecosystem trends?
- What are the most important policies and policy factors that contribute to these protection practices?

Key terms included in Section 2 include: p*rotection; protected area; ex-situ protection; ineffective protection practices*; *effective protection practices*; g*overnment-managed protected areas; co-managed protected areas; private protected areas*; c*ommunity protected areas; other conserved areas*; c*orridors and buffers*; c*ontributing social, economic and policy factors*

Additional guidance for Section 2:

- Supplementary Guidance Box 6: Checklist of effective protection practices

SECTION 3: Restoration: an analysis of the policies and policy factors that contribute to both ineffective and effective restoration of ecosystems and habitats.

Key questions in Section 3 include:

- Which restoration practices on government, private and community-owned lands and waters are the most important in driving both positive and negative trends in biodiversity and ecosystems?
- What are the most important policies and policy factors that contribute to these restoration practices?

Key terms included in Section 3 include: r*estoration*; *ineffective restoration practices; government-owned lands and waters; privately-owned lands and waters*: *community-owned lands and waters; effective restoration practices*; r*estoration assessment*

Additional guidance for Section 3:

- Supplementary Guidance Box 7: Checklist of restoration best practices

SECTION 4: Access and benefits sharing: an analysis of the policies and policy factors that contribute to ineffective and effective access to and sharing of benefits arising from the use of genetic resources.

Key questions in Section 4 include:

- Which ABS practices are most important in driving both positive and negative biodiversity and ecosystem trends and/or in driving inequitable sharing of benefits?
- What are the most important policies and policy factors that contribute to these ABS practices?

Key terms included in Section 4 include: a*ccess and benefits sharing (ABS); ineffective ABS practices*; e*ffective ABS practices.*

Additional guidance for Section 4:

- Supplementary Guidance Box 8: Checklist of ABS best practices

SECTION 5: Overall policy analysis: a broad analysis of biodiversity-related policies and the policy environment.

Key questions in Section 5 include:

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

Key terms included in Section 5 include*: broader policy environment; policy environment review*
Additional guidance for Section 5:

- Supplementary Guidance Box 9: Checklist for broader policy environment review

WORKBOOK 1A: Policy and Practice Drivers of Biodiversity and Ecosystem Change				
SECTION 1: BIODIVERSITY MAINSTREAMING AND SUSTAINABLE USE	Sectoral practices, market forces, policies and policy factors that contribute to **NEGATIVE** biodiversity and ecosystem status and trends		Sectoral practices, market forces, policies and policy factors that contribute to **POSITIVE** biodiversity and ecosystem status and trends	
	Sectoral practices that result in *negative* biodiversity and ecosystem status	Contributing market forces, policies and policy factors	Sectoral practices that result in *positive* biodiversity and ecosystem status	Contributing market forces, policies and policy factors
Sector 1				
Sector 2				
Sector 3				
Sector 4				
Sector 5				
Sector 6				
Sector 7				
Data sources and assumptions				
SECTION 2: PROTECTION	Policies and policy factors that contribute to **INEFFECTIVE** species and ecosystem protection		Policies and policy factors that contribute to **EFFECTIVE** species and ecosystem protection	
	Ineffective system- and site-level protection practices	Contributing policies and policy factors	*Effective* system-level and site-level protection practices	Contributing policies 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 and policy factors that promote **INEFFECTIVE** species and ecosystem restoration		Policies and policy factors that promote **EFFECTIVE** species and ecosystem restoration	
	Ineffective restoration practices	Contributing policies and policy factors	*Effective* restoration practices	Contributing policies and policy factors
On government lands				
On private lands				
On community lands				
Data sources and assumptions				
SECTION 4: ACCESS AND BENEFITS SHARING (ABS)	Policies and policy factors that promote **INEFFECTIVE** ABS practices		Policies and policy factors that promote **EFFECTIVE** ABS practices	
	Ineffective ABS practices	Contributing policies and policy factors	*Effective* ABS practices	Contributing policies and 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				

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: Mainstreaming and sustainable use policy and practice drivers of change	• Identify key sectors, sectoral practices, and impacts on biodiversity and contributing factors through peer review discussions within steering committee	• 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[16] and some root causal analysis data.[17]	• 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: Protection policy and practice drivers of change	• Identify key protection practices and contributing factors through peer review discussions within steering committee	• 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	• 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: Restoration policy and practice drivers of change	• Identify key restoration practices and contributing factors through peer review discussions within steering committee	• 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.	• Identify restoration practices by conducting a spatially-explicit restoration assessment, and identify contributing factors by conducting a root cause analysis. Reach consensus through peer review discussion within steering committee
SECTION 4: Access and benefits-sharing policy and practice drivers of change	• Identify key ABS practices and contributing factors through peer review discussions within steering committee	• Identify ABS-related practices and contributing factors through peer review discussions of steering committee, based on some previous ABS assessment data	• Identify ABS-related practices and contributing factors through a detailed ABS review. Reach consensus through peer review discussion within steering committee
SECTION 5: Overall policy environment	• Identify key policy environment factors through peer review discussions within steering committee	• Identify key policy environment factors through peer review discussions within steering committee, based on some previous reviews of the policy environment	• Identify key policy environment factors through a detailed policy environment review. Reach consensus through peer review discussion within steering committee

[16] See supplementary guidance Box 4 for more information about a sectoral impact assessment.
[17] See supplementary guidance Box 5 for more information about a root cause analysis.

USING THE RESULTS OF WORKBOOK 1A

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 actors and institutions in Workbook 1B, and for identifying the biodiversity expenditure for those actors and institutions in Workbook 1C. 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 biodiversity strategies within an NBSAP and resource mobilization plan. These issues may also have cost implications for Workbook 2A.

Upon completing Workbook 1A, planners will be able to identify a set of recommendations for improving biodiversity-related practices and policies. These practices and policies may well be one of the most cost-effective ways to reduce biodiversity loss. Planners will also be able to succinctly summarize the key drivers of biodiversity change in their country. These drivers are the starting point for Workbook 1B.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 1A

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Biodiversity status and trends**: Planners are strongly encouraged to include a section in the BIOFIN report that summarizes key biodiversity status and trends, based on the revised NBSAP, or on the 4th or 5th National Report. The estimated length of this section is approximately 3-5 pages.

- **Biodiversity mainstreaming and sustainable use drivers of change**: This section should include a description of the *specific* sectoral practices that result in both negative and positive biodiversity status and trends, ideally accompanied by a description of the specific trends in biodiversity and ecosystems that are caused by these practices. This section should also describe the market forces, policies and policy factors that contribute to each mainstreaming and sustainable use practice. The estimated length of this section is approximately 3-5 pages.

- **Protection drivers of change**: This section should include a description of the specific site-level and system-level protection practices that result in both negative and positive biodiversity and ecosystem status, ideally accompanied by a description of the specific trends that are caused by these protection practices. This section should also describe the policies and policy factors that contribute to each protection practice. The estimated length of this section is approximately 3-5 pages.

- **Restoration drivers of change**: This section should include a description of the restoration practices that result in both negative and positive biodiversity status, ideally accompanied by a description of the specific biodiversity trends that are caused by these restoration practices. This section should also describe the policies and policy factors that contribute to each restoration practice. The estimated length of this section is approximately 3-5 pages.

- **Access and benefits sharing drivers of change**: This section should include a description of the specific ABS practices that result in both negative and positive biodiversity, ideally accompanied by a description of the specific trends in biodiversity and ecosystems that are caused by these ABS practices. This section should also describe the policies and policy factors that contribute to each ABS practice. The estimated length of this section is approximately 3-5 pages.

- **Summary of drivers of change and key recommendations**: This section should summarize the key drivers of change across all of the practices and policies above into a brief phrase or term with a summary description, as well as summarize key recommendations. The estimated length of this section is approximately 3-5 pages.

- **Overall policy analysis**: This section should include a description of the strengths and weaknesses of the broader policy environment, including political will, interest group lobbying, governance, inter-sectoral coordination, public participation, understanding of the value of nature, inter-agency alignment with national goals, and the utilization of available biodiversity funding opportunities, among others. The estimated length of this section is approximately 3-5 pages.

Workbook 1B: Institutional review

INTRODUCTION TO WORKBOOK 1B

Workbook 1B assesses the relationships between a) the status quo of existing drivers of change; b) the projected new strategies that flow from these drivers of change; and b) the actors and institutions that are responsible for, affected by and dependent upon, these drivers and their related strategies. This workbook allows planners to systematically gauge who is responsible for key drivers of biodiversity and ecosystem change, how the distribution of benefits and costs will likely change from the existing status quo to the projected new state in which the new strategies are implemented, and what the capacities and institutional arrangements are of the key actors and institutions responsible for financial implementing these new strategies.

This assessment allows planners to deepen their understanding of the relationships between key actors and the drivers of change identified in Workbook 1A, and to identify the key financial actors and institutions in Workbook 1C. Because biodiversity expenditures, unlike health or education expenditures, are often diffuse across a wide variety of institutions, and are not typically maintained in a single set of financial records or budgets, this step can help planners cast a wide net in identifying potential finance actors and institutions. A review of capacities is critical in helping planners to pinpoint key areas for capacity development in order to improve the overall effectiveness of financial planning and execution of biodiversity expenditures. An understanding of the role of different institutions can help clarify where there are financial problems and additional capacity gaps. Finally, by identifying the distribution of costs and benefits of strategies, this workbook can help planners identify the potential feasibility of different financial mechanisms in Workbooks 3A and 3B.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 1B

Workbook 1B includes 5 sections, each focusing on a different aspect of key actors and institutions:

SECTION 1: **Impacts and Dependencies on Biodiversity and Ecosystems**: an analysis of how actors and institutions influence, and are dependent upon, both key drivers and new biodiversity strategies to address these drivers

> ***Key questions*** in Section 1 include:
>
> - Based on each key driver identified in Workbook 1A, which actors and institutions are currently responsible for key drivers of change, and/or are dependent upon the status of biodiversity and ecosystems under the projected status quo?
> - Based on each key driver identified in Workbook 1A, which actors and institutions are currently responsible for key drivers of change, and/or are dependent upon the status of biodiversity and ecosystems under the projected biodiversity investment state?
>
> ***Key terms*** included in Section 1 include: *actors and institutions; key drivers of change; status quo*

SECTION 2: Existing and Potential Distribution of Benefits: an analysis of the beneficiaries of the existing status quo, and potential beneficiaries of new strategies.

> ***Key questions*** in Section 2 include:
>
> - Which actors and institutions currently benefit from the status of biodiversity and ecosystems under the status quo?
> - Which actors and institutions are likely to benefit from the biodiversity and ecosystem changes that would take place as a result of the new strategy?
>
> ***Key terms*** used in Section 2 include: *distribution of benefits; benefits of status quo; benefits of new strategy*

SECTION 3: Existing and Potential Distribution of Costs: an analysis of who pays the current costs of the existing status quo, and who could or would potentially pay the costs of the new strategy.

Key questions in Section 3 include:

- Which actors and institutions currently pay for the costs of the status of biodiversity and ecosystems under the status quo?
- Which actors and institutions could potentially pay for the costs of the new biodiversity strategies?

Key terms used in Section 3 include: *costs of status quo; costs of strategy; distribution of costs;*

SECTION 4: Roles and responsibilities of key finance actors and institutions: an analysis of the roles and responsibilities of each set of actors and institutions as they relate to biodiversity finance.

Key questions in Section 4 include:

- For each set of actors and institutions, what is the role and what are the key issues in determining costs and budgets, disbursing financial resources and executing financial resources?

Key terms used in Section 4 include: *roles in determining costs and budgets; roles in disbursing financial resources; roles in executing financial resources*

Additional guidance for Section 4:

- Supplementary Guidance Box 10: Types and examples of finance actors
- Supplementary Guidance Box 11: Example of institutional arrangements

SECTION 5: Identifying capacities for implementation: an analysis of the financial capacities of actors and institutions responsible for implementing key strategies that address drivers of change, and an assessment of the required capacities of actors and institutions to financially implement related new strategies.

Key questions in Section 5 include:

- What is the existing finance capacity of the key actors and institutions related to the existing drivers of change?
- What is the required capacity of responsible actors and institutions for financially implementing each new strategy?

Key terms used in Section 5 include: *responsible for implementation; capacities*

Additional guidance for Section 5:

- Supplementary Guidance Box 12: Checklist of capacities to consider for key actors and institutions
- Supplementary Guidance Box 13: Checklist of capacities to consider when conducting an institutional capacity review

WORKBOOK 1B: Institutional Review					
SECTION 1: EXISTING AND POTENTIAL RESPONSIBILITIES OF KEY ACTORS AND INSTITUTIONS					
Key drivers of change	Actors and institutions currently contributing to, having an impact on, responsible for or dependent upon the existing status quo	Explanation and assumptions	New strategies related to key drivers of change	Actors and institutions likely to contribute to, have an impact on, be responsible for or be dependent upon, the projected biodiversity investment state	Explanation and assumptions
SECTION 2: EXISTING AND POTENTIAL DISTRIBUTION OF BENEFITS					
Key drivers of change	Actors and institutions who currently benefit from status quo	Explanation and assumptions	New strategies to address key drivers of change	Actors and institutions likely to benefit from new strategies	Explanation and assumptions
SECTION 3: EXISTING AND POTENTIAL FUTURE DISTRIBUTION OF COSTS					
Key drivers of change	Actors and institutions who currently pay costs of status quo	Explanation and assumptions	New strategies to address key drivers of change	Actors and institutions who could pay costs of new strategies	Explanation and assumptions
SECTION 4: INSTITUTIONAL ROLES AND RESPONSIBILITIES, AND KEY ISSUES[18]					
Key actors and institutions involved in biodiversity-related financial resources		Role and key issues in setting national priorities and broad budgetary allocations	Role and key issues in determining costs and annual budgets	Role and key issues in accessing and disbursing financial resources	Role and key issues in financial spending and reporting
Explanations and assumptions:					
SECTION 5: EXISTING AND FUTURE FINANCE CAPACITIES FOR IMPLEMENTATION					
Key actors and insitutions	Existing finance capacity needs of responsible actors and institutions	Explanation and assumptions	New strategies to address key drivers of change	Financial capacity of responsible actors and institutions to implement new strategies	Explanation and assumptions

[18] Section 4 should be accompanied by a graphic illustration and description of institutional arrangements in key finance flows.

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
SECTION 1: Existing and potential future contributions to, responsibilities for, impacts and dependencies of key actors	• Identify a limited, focused list of key actors and institutions, and assess responsibilities, dependencies and contributions toward new strategies based on steering committee discussions	• Identify a list of institutions and actors based on steering committee discussions, supplemented by additional institutional reviews; estimate responsibilities, dependencies and contributions toward new strategies based on best available information	• Conduct or update an institutional review that identifies a comprehensive list of key institutions in all major sectors; conduct a thorough analysis of responsibilities, dependencies and contributions toward potential new strategies
SECTIONS 2 & 3: Existing and potential future distribution of benefits and costs	• Identify actors and institutions who benefit from status quo based on steering committee discussions • Identify actors and institutions who currently and who would pay direct costs under the status quo and future scenario based on steering committee discussions	• Identify actors and institutions who benefit from status quo based on steering committee discussions, supplemented by existing studies on the distribution of costs and benefits • Identify actors and institutions who pay and who would pay direct and a selected set of indirect costs (e.g., increased insurance costs, increase risk and vulnerability, erosion) based on steering committee discussions and supplemented by best available data	• Conduct or update a thorough review of the distribution of benefits, both for the existing status quo, as well as for future biodiversity scenarios • Conduct or update a thorough review of existing and potential costs, including the full suite of direct and indirect costs associated with policy changes and with policy inaction • Conduct a thorough assessment of the ecological costs and benefits[19] of the existing status quo and future scenario.
SECTION 4: Institutional roles and responsibilities, and key issues in budgeting, disbursing and spending funds	• Identify roles, responsibilities and key issues through steering committee discussions	• Identify roles, responsibilities and key issues through steering committee discussions, supplemented by existing data and assessments on institutional arrangements and key finance issues	• Conduct a thorough assessment of key issues related to institutional roles and responsibilities
SECTION 5: Existing and potential future capacities for implementation	• Identify finance capacity and capacity needs of responsible actors and institutions through steering committee discussions	• Identify finance capacity and capacity needs of responsible actors and institutions through steering committee discussions and informal discussions with stakeholders, and supplemented by existing capacity assessment findings	• Conduct a thorough capacity and capacity needs assessment[20]

[19] See Appendix F for an explanation of the relationship between valuation methodologies and BIOFIN.

[20] A checklist of key capacities required to implement the BIOFIN Workbook is included in Supplementary Guidance Box 12, and a checklist of capacities to include in an institutional capacity review is included in Supplementary Guidance Box 13.

USING THE RESULTS OF WORKBOOK 1B

The data in Workbook 1B provide the basis for identifying key actors and institutions who are responsible for, who benefit from, and who pay the costs of, biodiversity and ecosystem services. Workbook 1B includes a time dimension, looking both at the existing status quo, as well as the projected future scenario under new NBSAP strategies. Through the lens of both the status quo and the projected future scenario, this workbook explores the responsibilities, costs, benefits and capacities for each set of actors and institutions, an analysis that can help planners identify potential finance actors in Workbooks 3A and 3B, identify additional costs of strengthening capacities, and identify potential strategies and target audiences for making the case for increased biodiversity investments.

Upon completing Workbook 1B, planners can identify a set of institutional issues and recommendations based on the results of the Workbook exercise. In particular, planners can identify a) which actors and institutions that are most critical for biodiversity finance; b) which capacities are most critical to address; and c) which institutional issues and arrangements need to be addressed.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 1B

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Relation between drivers of change and related key actors and institutions:** This section should include a summary description of the actors and institutions who are related to and/or responsible for each of the drivers of change identified in Workbook 1A. This section should also include a description of the actors and institutions who contribute to and are responsible for the status quo and future strategies. The estimated length of this section is approximately 2-3 pages.

- **Existing and potential distribution of benefits:** This section should include a description of the actors and institutions who currently benefit from the drivers of change that determine the existing status quo. This analysis should be followed by a description of relevant, prioritized NBSAP strategies, and a description of the actors and institutions likely to benefit from each of these strategies. The estimated length of this section is approximately 3-5 pages.

- **Existing and potential distribution of costs**: This section should include a description of the actors and institutions who currently pay the costs, direct and indirect, of the current status quo, as well as a projection of the distribution of costs under the future scenario of implemented NBSAP strategies. The estimated length of this section is approximately 3-5 pages.

- **Institutional roles and arrangements**: This section should include a description of the institutional roles and responsibilities for determining national priorities, setting annual budgets, and disbursing and spending financial resources. This section should also include a graphic and description of institutional arrangements between and among the institutions responsible for biodiversity-related finance and expenditure. The estimated length of this section is approximately 3-4 pages.

- **Capacities and capacity needs**: This section should include a summary of key capacities needed for each of the key actors, as well as financial implications. The estimated length of this section is 2-3 pages.

- **Key issues and recommendations**: This section should include a summary of the major issues affecting financial resource management of key actors and institutions, both in the existing status quo, as well as under future scenarios with proposed NBSAP strategies and actions. Each of these issues should be accompanied by a brief set of recommendations, such as priorities for improving institutional arrangements, and priority financial capacities required for new strategies. The estimated length of this section is approximately 2-3 pages.

Workbook 1C: Public and private biodiversity expenditure review

INTRODUCTION TO WORKBOOK 1C

Workbook 1C provides an overview of finance flows for biodiversity-related expenditures by examining the level of national expenditures, both public and private, on biodiversity-related issues. Workbook 1C allows planners to not only understand the scope of biodiversity expenditures, and to create both a past and projected future baseline of funding, but also to gauge the effectiveness of key expenditures, and to understand the impact of environmentally harmful expenditures and overall cost effectiveness and efficiency.

By completing Workbook 1C, planners create a baseline against which they can determine the financial gap, based on the costs of NBSAPs determined in Workbooks 2A and 2B. This gap in turn determines the scope of resource mobilization efforts required in Workbooks 3A and 3B.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 1C

SECTION 1: **Overall national budgetary and expenditure snapshot**: an analysis of the total government budget, budget expenditure, foreign loans and grants, and gross domestic product, beginning from at least 2006.

Key questions in Section 1 include:

- What has been the annual total government budget since 2006[21]?
- What has been the annual total government expenditure since 2006?
- What has been the annual gross domestic product since 2006?

Key terms included in Section 1 include: *total government budget, government expenditure, gross domestic product*

SECTION 2: **Baseline Biodiversity-Related Expenditures and Expenditure Review**: an analysis of the full range of public and private agencies, actors, institutions and investors that fund biodiversity-related actions (taken in part from Workbook 1B), and an analysis of budgets, expenditures, effectiveness and environmentally harmful expenditures.

Key questions in Section 2 include:

- Who are the key biodiversity finance actors, agents, institutions and investors (based on the results of Workbook 1B)?
- What are the specific divisions, departments or companies within each finance actor?
- What is the total biodiversity-related budget since 2006 for each finance actor?
- What is the total actual expenditure since 2006 for each finance actor?
- What is the total actual biodiversity expenditure since 2006 for each finance actor?
- What is the effectiveness of biodiversity-related expenditures since 2006?
- What have been the most significant environmentally harmful biodiversity expenditures since 2006 for each actor?

Key terms included in Section 2 include: *Biodiversity-related actions; finance actors, agents and investors; cost codes, cost centers and line items; effectiveness of biodiversity-related expenditures*; *environmentally harmful biodiversity expenditures*

[21] Note that the CBD framework for reporting on resource mobilization (CBD 2012a) requires an analysis from 2006 to 2010. Planners involved in the BIOFIN Initiative are encouraged to extend these dates further in order to have the most robust data set possible.

Additional guidance for Section 2:

- Supplementary Guidance Box 14: Guidance on identifying relevancy and effectiveness of biodiversity-related expenditures
- Supplementary Guidance Box 15: Examples of ranked relevance for climate expenditures
- Supplementary Guidance Box 16: Example of environmentally harmful biodiversity expenditures
- Supplementary Guidance Box 17: Examples of biodiversity-related expenditures
- Supplementary Guidance Box 18: Steps involved in a national expenditure review
- Supplementary Guidance Box 19: Issues involved in currency conversion

SECTION 3: **Baseline Biodiversity Expenditure Review by Major Strategy Groups**: an analysis of total biodiversity-related expenditures filtered by major strategy group.

Key questions in Section 3 include:

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

Key terms included in Section 3 include: s*ource of funding; total biodiversity expenditure*

SECTION 4: **Estimated future funding baseline under a "Business-As-Usual Scenario**: an analysis of projected estimated funding in the future, based on a set of "business-as-usual" assumptions about future funding flows.

Key questions in Section 4 include:

- What are the likely annual budgets and expenditures, grouped by major biodiversity strategies, through 2020, under a business-as-usual baseline finance scenario?

Key terms included in Section 4 include: *business-as-usual baseline finance scenario*

WORKBOOK 1C: Public and Private Biodiversity Expenditures and Effectiveness Status and Trends								
SECTION 1: OVERALL NATIONAL BUDGETARY AND EXPENDITURE SNAPSHOT								
	2006	2007	2008	2009	2010	2011	2012	2013
Total government budget								
Total government expenditure								
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)	General sector or agency	Specific division, department or company	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	Environmentally harmful 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								
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	Source of funding	Total biodiversity expenditure	Biodiversity mainstreaming and sustainable use 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								
Data sources and assumptions								
TOTALS								
SECTION 4: ESTIMATED FUTURE FUNDING BASELINE UNDER A 'BUSINESS AS USUAL' SCENARIO								
	2014	2015	2016	2017	2018	2019	2020	**TOTALS**
Mainstreaming strategies								
Protection strategies								
Restoration strategies								
ABS strategies								
Implementation strategies								
All other related strategies								
TOTALS								
Data sources and assumptions								

COMPLETING WORKBOOK 1C

In completing Workbook 1C, 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
SECTION 1: Overall national budgetary and expenditure snapshot	• Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing figures, or based on best estimates	• Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing government figures (same as for coarse resolution)	• Calculate the total government budget, expenditure, foreign loans and grants, and gross domestic product based on existing government figures (same as for coarse resolution)
SECTION 2: Baseline biodiversity-related expenditure and expenditure effectiveness review	• 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 • 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. Expenditures may be estimated through sampling. • Identify categorical effectiveness of biodiversity-related expenditures (e.g., high, medium and low) • Identify general areas of environmentally harmful biodiversity expenditures from a select subset of finance actors, through peer review discussion within steering committee	• 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 • 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 • Identify categorical effectiveness of biodiversity-related expenditures (e.g., high, medium and low), with some qualitative estimates of total amounts for key institutions • Identify general areas of environmentally harmful biodiversity expenditures and identify rough estimates of amounts of potential savings from a select subset of key finance actors	• 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 • 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 • 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) • Identify environmentally harmful biodiversity expenditures, and calculate the amount of potential savings if these expenditures are eliminated
SECTION 3: Expenditure review by major strategy group	• Identify the estimated breakdown of biodiversity expenditures by a small subset of key actors	• Identify the breakdown of biodiversity expenditures by a moderate number of key financial actors	• Identify the breakdown of biodiversity expenditures for most or all financial actors
SECTION 4: Estimated future funding baseline under "business-as-usual" scenario	• Identify the projected future baseline scenario based solely on past expenditures	• Identify the projected future baseline scenario based on past expenditures and some analysis of likely future trends or conditions	• Identify the projected future baseline scenario based on past expenditures, and a full analysis of likely future trends, conditions, contingencies

USING THE RESULTS OF WORKBOOK 1C

The data collected in the first section of the workbook provide 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 Workbooks 3A and 3B. Although the finance institutions, actors, agents and investments identified in Workbook 1C will most likely be the same, or a subset, as those in Workbook 1B, the focus of Workbook 1C is on identifying the full set of existing finance actors.

Upon completing Workbook 1C, planners can identify a set of issues related to biodiversity expenditures, which can in turn help planners identify strategies for filling finance gaps, improve the effectiveness of biodiversity expenditures, realign budgeting priorities, and reduce environmentally harmful expenditures.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 1C

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Overall national budgetary and expenditure snapshot**: This section should include a description of the overall national government budgets and expenditure from at least 2006 to 2010. The estimated length of this section is approximately 2-3 pages. However, this section should also be accompanied by an appendix that provides more detail about the process for gathering data, the individual agencies that were included in the review, and any additional information, as well as detailed data sheets. The estimated length of this appendix will vary according to the national context.

- **Baseline expenditures and expenditure effectiveness review:** This section should include a summary description of the key actors and institutions included in the review, and the total expenditures for biodiversity-related activities from 2006 to 2010 for each actor. In addition, this section should identify key issues related to the effectiveness of biodiversity expenditures for each actor or institution, as well as identify key environmentally harmful expenditures, including an analysis of the economic, social and ecological impacts of environmentally harmful expenditures. The estimated length of this section is approximately 3-4 pages. An additional appendix should include summaries of the data sheets and results of the expenditure reviews for major institutions, with an estimated length dependent on the number and complexity of finance actors. This section should include graphs, pie charts and/or other types of easily accessible visual summaries of biodiversity expenditures.

- **Expenditure review by major strategy group**: This section should include a summary sheet of the total expenditures organized under groups of strategies. Countries may choose to use a different classification than the one presented in this methodology. The estimated length of this section is approximately 1-2 pages.

- **Estimated future funding baseline under a 'business-as-usual' scenario**: This section should include a summary of projected expenditures under a 'business-as-usual' scenario, along with a description of key assumptions used in the projection of this scenario. The estimated length of this section is approximately 1-2 pages.

- **Key recommendations**: This section should include a summary of the key issues, along with a set of recommendations, emerging from the results of Workbook 1C. Issues could include, for example, recommendations to eliminate environmentally harmful biodiversity expenditures, and measures for improving the effectiveness of biodiversity-related expenditures. The estimated length of this section is approximately 2-3 pages.

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

Part II of the BIOFIN Workbook focuses on the projected costs of implementing the NBSAP strategies. The two workbooks in Part II allow planners to a) understand the full range of costs associated with each of the major NBSAP strategies; b) prioritize and synthesize the overall costs of implementing new NBSAP strategies; and c) determine the overall financial gap based on a comparison with the figures obtained in Workbook 1C.

There are two related workbooks in Part II:

- **Workbook 2A: Biodiversity strategies, actions and costs**
    - One-time and recurring costs of implementing biodiversity mainstreaming and sustainable use strategies
    - One-time and recurring costs of implementing protection strategies
    - One-time and recurring costs of implementing restoration strategies
    - One-time and recurring costs of implementing ABS strategies
    - One-time and recurring costs of implementing all other implementation strategies

- **Workbook 2B: Summary analysis of biodiversity strategies, actions and costs, and projected finance gaps and surpluses**
    - Summary of annual one-time costs of implementing all strategies through 2020
    - Summary of annual recurring costs of implementing all strategies through 2020
    - Summary of projected annual business-as-usual finance through 2020
    - Summary of projected annual financial gaps and surpluses through 2020

Workbook 2A: Biodiversity Strategies, Actions and Costs

INTRODUCTION TO WORKBOOK 2A

Workbook 2A provides a summary of all of the costs involved in implementing the biodiversity strategies within the NBSAP. The purpose of these related workbooks is to allow planners to clearly understand the full range of strategies, actions and costs involved in implementing NBSAPs and achieving the Aichi Biodiversity Targets.

Workbook 2A includes 5 sections, each focusing on the one-time and recurring costs of different categories of strategies within the NBSAPs, including:

- ***Cost of biodiversity mainstreaming and sustainable use strategies***: A summary of the one-time costs and recurring costs for 2015-2016; 2017-2018; and 2019-2020 for biodiversity mainstreaming and sustainable use strategies, including strategies related to the integration of biodiversity into sectoral, development and poverty alleviation and into sustainable use, production and consumption of biodiversity resources
- ***Cost of protection strategies***: A summary of the one-time costs and recurring costs for 2015-2016; 2017-2018; and 2019-2020 for protection strategies, including *in situ* and *ex situ* strategies.
- ***Cost of restoration strategies***: A summary of the one-time costs and recurring costs for 2015-2016; 2017-2018; and 2019-2020 for restoration strategies, including the maintenance of essential ecosystem services, strengthening climate resilience, and promoting adaptation and mitigation.
- ***Cost of access and benefits sharing strategies***: A summary of the one-time costs and recurring costs for 2015-2016; 2017-2018; and 2019-2020 for access and benefits-sharing strategies, including strategies related to securing prior informed consent, mutually agreed terms, benefits sharing arrangements, traditional knowledge, conservation and sustainable use of key ABS species, and legal enforcement of agreements, among others.
- ***Cost of implementation strategies:*** A summary of the one-time costs and recurring costs for 2015-2016; 2017-2018; and 2019-2020, for implementation strategies, including strategies related to public outreach and communication, and strategies related to knowledge, research, data and data management, among others.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 2A

SECTIONS 1-5: **Estimated costs of strategies**: an analysis of the estimated costs for each set of strategies within the NBSAP.

Key questions in Sections 1-5 include:

- What are the key strategies within the NBSAP?
- For each strategy, what are the one-time and recurring costs, with a range of low, medium and high estimates?

Key terms included in Sections 1-5 include: *one-time costs; recurring costs; biodiversity mainstreaming strategies; sustainable use strategies; protection strategies; restoration strategies; ABS strategies; implementation strategies*

Additional guidance for Sections 1-5:

- Supplementary Guidance Box 20: Checklist of biodiversity mainstreaming strategies
- Supplementary Guidance Box 21: Examples of mainstreaming strategies
- Supplementary Guidance Box 22: Checklist of protection strategies
- Supplementary Guidance Box 23: Checklist of restoration strategies
- Supplementary Guidance Box 24: Checklist of ABS strategies
- Supplementary Guidance Box 25: Checklist of implementation strategies
- Supplementary Guidance Box 26: Calculating the costs of specific actions related to NBSAP strategies and actions

WORKBOOK 2A: Estimated Costs of Biodiversity Strategies and Actions														
Strategies	**Estimated one-time costs Year:**			**Estimated recurring costs (2015-2016)**			**Estimated recurring costs (2017-2018)**			**Estimated recurring costs (2019-2020)**			**Totals (low and high ranges**	
	Low	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**High**
SECTION 1: Estimated Costs of Biodiversity Mainstreaming and Sustainable Use Strategies														
• Strategy 1														
• Strategy 2														
• Strategy 3														
• Strategy 4														
• Strategy 5														
• Strategy 6														
Sub-total														
SECTION 2: Estimated Costs of Protection Strategies														
• Strategy 1														
• Strategy 2														
• Strategy 3														
• Strategy 4														
• Strategy 5														
• Strategy 6														
Sub-total														
SECTION 3: Estimated Costs of Restoration Strategies														
• Strategy 1														
• Strategy 2														
• Strategy 3														
• Strategy 4														
• Strategy 5														
• Strategy 6														
Sub-total														
SECTION 4: Estimated Costs of ABS Strategies														
• Strategy 1														
• Strategy 2														
• Strategy 3														
• Strategy 4														
• Strategy 5														
• Strategy 6														
Sub-total														
SECTION 5: Estimated Costs of Implementation Strategies and all other Strategies														
• Strategy 1														
• Strategy 2														
• Strategy 3														
• Strategy 4														
• Strategy 5														
• Strategy 6														
Sub-total														
TOTALS														

Note that Workbook 2A enables planners to summarize estimated costs. A more detailed worksheet for calculating the costs of specific actions for each strategy is provided in Supplementary Guidance Box 26, or governments can use their own approach to calculating the costs of implementing their NBSAPs.

COMPLETING WORKBOOK 2A

In completing Workbook 2A, 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 calculating estimated one-time and recurring costs, and determining low, medium and high resolution when completing Workbook 2A.

	Level 1: Coarse resolution	Level 2: Medium resolution	Level 3: Fine resolution
SECTIONS 1-5: Calculating estimated one-time costs, ranges and recurring costs	• Identify the estimated one-time costs for each strategy based on steering committee discussions, with input from finance specialists • Estimate high, medium and low ranges with a simple variance (e.g., + or – 15%) • Estimate recurring costs for each strategy based on steering committee discussions, with input from finance specialists	• Identify the estimated one-time costs for each strategy based on an in-depth calculation for the costs of each action; based on steering committee discussions and with input from finance specialists and best available information • Estimate high, medium and low ranges based on simple variances, and adjusted according to best available information • Estimate recurring costs for each strategy based on an in-depth calculation for the recurring costs of each action, based on steering committee discussions, and with input from finance specialists	• Conduct a thorough costing analysis for the one-time costs of all strategies and actions, based on realistic budgetary information, previous expenditures and detailed cost assessments • Estimate high, medium and low ranges based on accurate scenarios required to achieve minimum effective versus optimally effective goals • Conduct a thorough costing analysis for the recurring costs of all strategies and actions, based on realistic budgetary information on operations and management, on previous expenditures, and on detailed cost assessments, factoring in key assumptions about future costs

USING THE RESULTS OF WORKBOOK 2A

How is this information used?

This workbook encourages planners to delve into the specific sub-strategies and actions required to achieve each of their NBSAP strategies, and to assign specific costs to each action. This workbook also encourages planners to identify low, medium and high estimates of these costs in order to consider potential tradeoffs between strategies, to develop multiple cost and revenue scenarios, and to allow for uncertainties in creating cost estimates. Upon completing Workbook 2A, planners will have a holistic estimation of the total costs, both one-time and recurring, of implementing the NBSAP. These estimated costs form the basis of the financial gap identified in Workbook 2B. In addition, Workbook 3A returns to the issue of costs for each strategy, and identifies potential finance actors and mechanisms for each set of strategies and actions.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 2A

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Summary of all strategies included in the NBSAP**: This section should summarize all of the key strategies included within the NBSAP. The details of specific costs of each action may be in simple tabular format, and may be included as an appendix to the overall BIOFIN report. The estimated length of this section will vary depending on the complexity of the NBSAP, but will likely run upwards of 15-20 pages. Data sources are assumed to be the results of the national group working on the NBSAP revision, and if not, the sources and assumptions should be included.

- **Summary of costs for all strategies within each of the major categories**: This section should include a table that shows the estimated one-time, recurring and total costs for all major strategies. The format of this could include Workbook 2A itself, or some iteration (e.g., adding additional rows as required; supplemented by graphs, charts and/or tables). This section should also include a description of the methods, data used, and assumptions made in calculating costs. The estimated length of this section is approximately 1-2 pages, accompanied by any relevant charts and tables. Although the supplementary worksheets on the costing for each individual action would be too much detail to provide in the BIOFIN report, planners may consider providing a summary of these, along with a link for further information. Data and assumptions for all costing should be described fully.

- **Summary of timeline of costs**: Planners may also consider showing a timeline for when strategies will be implemented, and therefore a timeline for financial resource requirements. Planners may also consider sequencing strategies and costs – sequencing is the process of determining which strategy must occur first and is most time-sensitive, and can be a helpful way of prioritizing among many priority strategies. The estimated length of this section is approximately 1-2 pages.

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

INTRODUCTION TO WORKBOOK 2B

Workbook 2B consolidates information on the 'business-as-usual' finance scenario and all one-time and recurring annual costs for all strategies. By looking at the differences between these figures on an annual basis, planners can calculate the total financial gap for implementing the NBSAP within their country, and gain a deeper understanding of how to sequence certain actions. This step should be taken simultaneously with the development of a timeline for NBSAP strategies and actions, since it is likely that costs will need to be distributed strategically across a multi-year timeline.

Workbook 2B includes 4 sections, each focusing on a different area of cost analysis:

- ***Cost of implementing new strategies – one-time costs***: a summary of the one-time cost of implementing new biodiversity strategies, based on the results of Workbook 2A;
- ***Cost of implementing new strategies – recurring costs***: a summary of the recurring costs of implementing new biodiversity strategies, based on the results of Workbook 2A;
- ***Projected "business as Usual" Finance Scenario***: a summary of the projected "business as usual" finance scenario through 2020, based on the results of Workbook 1C;
- ***Financial gap and surplus by strategy***: a summary of the total difference between a) the combined one-time and recurring costs; and b) the projected "business-as-usual" finance scenario.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 1C

SECTIONS 1-4: **Overall costs, future expenditures and finance gaps**

Key questions in Sections 1-4 include

- What are the projected one-time costs of implementing new biodiversity mainstreaming and sustainable use, protection, restoration, ABS and enabling implementation strategies?
- What are the projected recurring costs of implementing new biodiversity mainstreaming and sustainable use, protection, restoration, ABS and enabling implementation strategies?
- What is the annual projected expenditure in the 'business as usual' finance scenario for existing biodiversity mainstreaming and sustainable use, protection, restoration, ABS and enabling implementation strategies?
- 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 terms included in Sections 1-4 have already been defined in previous workbooks.

Additional guidance for Sections 1-4:

- Supplementary Guidance Box 27: Example of 'business as usual' finance scenario for protected areas in Belize, and projected costs of new protection strategies

WORKBOOK 2B: Overall Costs, Expenditures and Finance Gaps								
SECTION 1: COST OF IMPLEMENTING NEW NBSAP STRATEGIES – ONE-TIME COSTS								
	2014	2015	2016	2017	2018	2019	2020	Total
Biodiversity mainstreaming and sustainable use strategies								
Protection strategies								
Restoration strategies								
ABS strategies								
Enabling implementation strategies								
TOTAL OF ONE-TIME COSTS OF IMPLEMENTING STRATEGIES								
SECTION 2: COST OF IMPLEMENTING NEW NBSAP STRATEGIES – RECURRING COSTS								
	2014	2015	2016	2017	2018	2019	2020	Total
Biodiversity mainstreaming and sustainable use strategies								
Protection strategies								
Restoration strategies								
ABS strategies								
Enabling implementation strategies								
TOTAL OF RECURRING COSTS OF IMPLEMENTATION								
SECTION 3: PROJECTED "BUSINESS AS USUAL" FINANCE SCENARIO FOR BIODIVERSITY[22]								
	2014	2015	2016	2017	2018	2019	2020	Total
Biodiversity mainstreaming and sustainable use strategies								
Protection expenditures								
Restoration expenditures								
ABS expenditures								
Enabling implementation expenditures								
TOTAL PROTECTED BAU FINANCE SCENARIO								
SECTION 4: FINANCIAL GAP OR SURPLUS BY STRATEGY[23]								
	2014	2015	2016	2017	2018	2019	2020	Total
Financial gap in mainstreaming and sustainable use 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 OR SURPLUS FOR ALL COSTS								

[22] This figure will come from Workbook 1C, Section 4.

[23] Although in most cases there will be a financial gap (the costs outweigh the projected future business-as-usual scenario), in some cases there may be a surplus (the costs are expected to decline, while the baseline scenario is expected to stay steady or rise).

COMPLETING WORKBOOK 2B:

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
SECTIONS 1 - 2: Calculate the one-time and recurring costs of combined strategies	• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2B, using the same level of resolution in that workbook)	• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2B, using the same level of resolution in that workbook)	• Calculate the overall one-time and recurring costs of implementing new strategies (based on Workbook 2B, using the same level of resolution in that workbook)
SECTION 3: Calculate the projected 'business-as-usual' finance scenario through 2020	• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (based on Workbook 1C, using the same level of resolution in that workbook)	• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (based on Workbook 1C, using the same level of resolution in that workbook)	• Calculate the estimated projection of the 'business as usual' finance scenario based on past expenditures (based on Workbook 1C, using the same level of resolution in that workbook)
SECTION 4: Calculate the financial gap or surplus	• Calculate the overall financial difference (gap or surplus) for each set of strategies	• Calculate the overall financial difference (gap or surplus) for each set of strategies (Same as Level 1)	• Calculate the overall financial difference (gap or surplus) for each set of strategies (Same as Level 1)

USING THE RESULTS OF WORKBOOK 2B

The data collected in Workbook 2B are critical in helping planners understand the magnitude of the financial gap or surplus. The overall total gap, as well as projected annual finance gaps, can enable planners to outline the scope of the resource mobilization plan in Workbooks 3A and 3B, which is designed to fill these gaps. Planners can also use the results of this workbook to help sequence and prioritize key strategies.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 2B

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Total snapshot of the projected annual differences between projected costs, and projected 'business-as-usual' finance scenario**: This section should include a summary of the annual changes in the difference between projected one-time and recurring costs, and the projected 'business-as-usual' finance scenario. The estimated length of this section is approximately 2-3 pages. Planners may find that Workbook 2A provides a convenient template for the data, but should also show graphs and/or charts as appropriate to help explain key issues. Because data sources and assumptions will have already been clearly articulated in previous sections, this section does not require an explanation of these.

PART III: Mobilizing resources

Part III of the BIOFIN Workbook focuses on the development of a resource mobilization plan, based on the results of Workbooks 1A-1C and 2A-2B. In addition, Part III enables planners to identify relevant finance actors and mechanisms, assess relevancy and feasibility of key finance mechanisms, identify national finance opportunities and entry points, and prioritize and sequence finance actors and mechanisms.

There are two related workbooks in Part III:

- Workbook 3A: Potential finance opportunities, actors, mechanisms and revenue for each finance gap
- Workbook 3B: Resource mobilization strategy and action plan
    - Total expected revenues and timeline for key strategies
    - Implications of financial mechanisms and key recommendations

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

INTRODUCTION TO WORKBOOK 3A

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 in filling the finance gaps identified in Workbook 2B.

Workbook 3A includes 1 section:

- ***Estimated revenue from potential finance mechanisms***: an analysis of the potential finance opportunities, financial actors and feasible finance mechanisms that may unlock new sources of revenue for each strategy.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 3A

Key questions include:

- What is the financial gap for each strategy (from Workbook 2B)?
- What are the political and financial opportunities for filling these gaps?
- Who are the potential finance actors who could help expand existing, or generate new, sources of revenue?
- What is the feasibility of each finance mechanism?
- How much annual revenue or cost savings could potentially be generated through each finance mechanisms?

Key terms included in this workbook include: *political and financial opportunities; potential finance actors; feasible finance mechanisms; potential revenue*

Additional guidance for this workbook:

- Supplementary Guidance Box 28: Checklist and examples of finance mechanisms
- Supplementary Guidance Box 29: Feasibility screening criteria

WORKBOOK 3A: Biodiversity finance opportunities, actors, mechanisms and revenue potential						
STRATEGIES	Total financial gap	Potential political and finance opportunities	Potential finance actor/s	Potentially feasibile finance mechanism/s	Potential annual revenue and/or cost savings for each mechanism	Data sources, assumptions
Mainstreaming and sustainable use strategies						
• Strategy 1						
• Strategy 2						
• Strategy 3						
• Strategy 4						
• Strategy 5						
• Strategy 6						
Protection strategies						
• Strategy 1						
• Strategy 2						
• Strategy 3						
• Strategy 4						
• Strategy 5						
• Strategy 6						
Restoration strategies						
• Strategy 1						
• Strategy 2						
• Strategy 3						
• Strategy 4						
• Strategy 5						
• Strategy 6						
ABS strategies						
• Strategy 1						
• Strategy 2						
• Strategy 3						
• Strategy 4						
• Strategy 5						
• Strategy 6						
Implementation and other strategies						
• Strategy 1						
• Strategy 2						
• Strategy 3						
• Strategy 4						
• Strategy 5						
• Strategy 6						

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
Potential biodiversity finance actors, mechanisms, feasibility and revenue potential	• Identify political and financial opportunities through a discussion of the steering committee, with input from key financial and political advisors • Identify potential finance actors and mechanisms through discussions with the steering committee, with input from key finance advisors • Estimate annual potential revenue based on best available information from finance advisors	• Identify political and financial opportunities through a discussion of the steering committee, with input from key financial and political advisors, combined with best available information related to key national strategies, such as climate resilience plans, national sustainable development plans, and disaster risk reduction plans • Identify potential finance actors and mechanisms through discussions with the steering committee, with input from key finance advisors, and combined with best available information regarding existing and potential finance actors and mechanisms • Estimate annual potential revenue based on a literature review of existing national and international mechanisms combined with input from financial advisors and experts	• Conduct a thorough analysis of political and financial opportunities by systematically examining major related planning processes for synergies, and actively involving major stakeholder groups involved with these planning processes, including, for example, climate resilience plans, national sustainable development plans, and disaster risk reduction plans • Conduct a thorough analysis of potential finance actors and mechanisms, including a systematic analysis of existing national and international finance actors for related strategies, and involve a wide range of related stakeholders and experts in the assessment in the feasibility screening process for finance mechanisms • Conduct a thorough feasibility analysis of the potential revenue based on feasibility studies, combined with a literature review and/or expert opinion

USING THE RESULTS OF WORKBOOK 3A

The data collected in Workbook 3A provide planners with the tools with which to analyze key political and financial opportunities, and to understand the potential scope and limitations of finance actors and mechanisms. Based on the results of Workbook 3A, planners are then equipped to synthesize the findings, and, combined with the results from all previous workbooks, to develop a comprehensive resource mobilization strategy and plan in Workbook 3B.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 3A

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Potential political and finance opportunities**: This section should describe the potential political and finance opportunities that exist or are likely to exist in the near future. The estimated length of this section is approximately 2-3 pages.

- **Potential finance actors**: This section should describe the potential finance actors associated with each strategy, based on the analysis conducted in Workbooks 1A and 1B, as well as on the potential finance mechanisms. The estimated length of this section is approximately 3-4 pages. However, planners may also find that a more detailed analysis of potential finance actors and mechanism *for each action* within strategies may help them develop a more realistic and nuanced resource mobilization plan.

- **Potential finance mechanisms**: This section should describe the potential finance mechanisms that could be used to help fill key gaps, including an analysis of the feasibility of each mechanism and the potential annual revenue and/or cost savings from each. This section should also include key data sources and assumptions. The estimated length of this section is approximately 4-7 pages.

Workbook 3b: Integrated and operational resource mobilization plan

INTRODUCTION TO WORKBOOK 3B

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 Biodiversity Targets. Workbook 3B is based on the cumulative results of all previous workbooks.

QUESTIONS AND KEY TERMS INCLUDED IN WORKBOOK 3B

SECTION 1: **Total expected revenues and timeline for key strategies**: an analysis of the total expected revenue of the most feasible finance mechanisms for each strategy, along with a timeline for deployment

Key questions in Section 1 include:

- What is the total financial gap for each strategy?
- What is the total expected revenue from prioritized finance mechanisms for each strategy?
- What is the timeline for deployment?
- Who are the responsible actors or institutions involved in deployment?

Key terms included in Section 1 include: *prioritized financial mechanisms*

SECTION 2: **Implications of financial mechanisms and key recommendations:** an analysis of the social, economic and political implications of implementing key financial mechanisms and undertaking key decisions, and an exploration of the key operational implications, including start-up costs, staffing, capacity and safeguards required.

Key questions in Section 2 include:

- What are the social implications of implementation, and what are the arguments for making the social case for implementing each major finance mechanism?
- What are the economic implications of implementation, and what are the arguments for making the economic case for implementing each major finance mechanism?
- What are the political implications of implementation, and what are the arguments for making the political case for implementing each major finance mechanism?

Key terms included in Section 2 include: *social implications; economic implications; political implications; operational implications; prioritized financial mechanisms; key biodiversity finance recommendations*

Additional guidance for Workbook 3B includes:

- Supplementary Guidance Box 26: Safeguards

SECTION 3: **Putting it all together:** This section of the Workbook provides an outline for developing a comprehensive, robust but realistic resource mobilization plan.

WORKBOOK 3B: Framework for developing a resource mobilization plan					
SECTION 1: Total expected revenues and timeline for key strategies					
STRATEGIES	Financial gap	Total expected revenue from prioritized financial mechanisms	Timeline for deployment	Responsible actors or institutions	
Mainstreaming and sustainable use strategies					
• Prioritized strategy 1[24]					
• Prioritized strategy 2					
• Prioritized strategy 3					
Protection strategies					
• Prioritized strategy 1					
• Prioritized strategy 2					
• Prioritized strategy 3					
Restoration strategies					
• Prioritized strategy 1					
• Prioritized strategy 2					
• Prioritized strategy 3					
ABS strategies					
• Prioritized strategy 1					
• Prioritized strategy 2					
• Prioritized strategy 3					
Implementation and other strategies					
• Prioritized strategy 1					
• Prioritized strategy 2					
• Prioritized strategy 3					
SECTION 2: Implications of financial mechanisms and key recommendations					
	Justifications and making the case			**Operational implications**	
	Social implications and arguments for making the social case	Economic implications and arguments for making the economic case	Political implications and arguments for making the political case	Start-up and ongoing costs and implications, including opportunity costs	Staffing and capacity implications	Safeguards required
Prioritized financial mechanisms						
• Financial mechanism 1						
• Financial mechanism 2						
• Financial mechanism 3						
• Financial mechanism 4						
• Financial mechanism 5						
Key biodiversity finance recommendations						
• Recommendation 1						
• Recommendation 2						
• Recommendation 3						
• Recommendation 4						
• Recommendation 5						

[24] This table is not intended to be construed that only two strategies should be included per category, but rather to show that a more limited and focused number of prioritized strategies will help in developing a realistic, prioritized and implementable resource mobilization strategy and action plan.

SECTION 3: Proposed outline of a national resource mobilization plan

Background and overview

- Developed by:
- Institution:
- Email contact address:
- Date completed:
- Members of the resource mobilization committee:
- Description of the status of NBSAP revision process:
- Description of the BIOFIN stakeholder engagement process:

Policy and institutional analysis

- Key biodiversity status and trends, and drivers of biodiversity change
- Policy analysis
- Key actors and institutions
- Distribution of benefits and costs of current status quo
- Institutional roles and arrangements

Expenditure review

- Overall national budgetary and expenditure snapshot
- Review of baseline expenditures and expenditure effectiveness
- Expenditure review by major strategies
- Estimated future funding baseline under a business as usual scenario

Strategies, actions and costs

- Summary of all strategies included in the NBSAP
- Summary of costs for all strategies within each major category
- Summary of key priorities
- Summary of timeline and sequencing of strategies
- Total snapshot of the financial gap

Projected business as usual scenario and projected biodiversity investment scenario

- Description of different scenarios
- Projected costs and benefits, including their distribution, of the projected BAN scenario
- Projected costs and benefits, including their distribution, of the projected biodiversity investment scenario
- Making the case to key constituencies – justifications, and social, economic and political arguments for investments in biodiversity and ecosystems

Opportunities for mobilizing resources

- Potential political and finance opportunities
- Potential finance actors
- Potential finance mechanisms

Consolidated resource mobilization plan

- Prioritized list of financial mechanisms for each strategy
- Timeline for deploying each mechanism
- List of major recommendations for improving finance

Section 3 summarize all of the different components of the BIOFIN Workbook. This should be considered as a voluntary template for planners, and as a starting point for customizing a national resource mobilization plan to national circumstances.

COMPLETING WORKBOOK 3B

In completing Workbook 3B, 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
SECTION 1: Total expected revenues and timeline for key strategies	• Prioritize key finance mechanisms based on steering committee discussions and informed by input of finance experts • Estimate annual potential revenue based on best available information from finance experts and advisors	• Prioritize key finance mechanisms based on steering committee discussions and input of finance experts, along with best available information from existing studies and literature • Estimate annual potential revenue based on a literature review of existing national and international mechanisms combined with input from financial advisors and experts	• Conduct a thorough prioritization exercise based on a full review of the feasibility, costs, benefits and consequences of potential finance mechanisms • Estimate annual potential revenue through a thorough feasibility analysis of the potential revenue based on feasibility studies, combined with a literature review and/or expert opinion
SECTION 2: Implications of financial mechanisms and key recommendations	• Identify social, economic and political implications through discussions of the steering committee and other key stakeholders • Identify operational implications through discussions with the steering committee and other key stakeholders, including key financial and operational experts	• Identify social, economic and political implications through discussions of the steering committee and other key stakeholders • Identify operational implications through discussions with the steering committee and other key stakeholders, including key financial and operational experts	• Conduct a thorough review with public input on the social, economic and political implications of each of the key finance mechanisms • Conduct a thorough review of the operational implications of each of the finance mechanisms and key decisions, and assess potential tradeoffs resulting from these implications
SECTION 3: Resource mobilization plan	• Develop a resource mobilization plan consistent with the level of resolution and detail with which the BIOFIN Workbook was applied	• Develop a resource mobilization plan consistent with the level of resolution and detail with which the BIOFIN Workbook was applied	• Develop a resource mobilization plan consistent with the level of resolution and detail with which the BIOFIN Workbook was applied

USING THE RESULTS OF WORKBOOK 3B

By completing Workbook 3B, planners are equipped to develop a robust, prioritized and realistic resource mobilization plan for implementing the NBSAP.

RECOMMENDATIONS FOR REPORTING ON RESULTS OF WORKBOOK 2B

Below are reporting recommendations for planners implementing the BIOFIN Workbook as part of the BIOFIN Initiative:

- **Prioritized list of financial mechanisms for each strategy:** In Workbook 2A, planners identified a suite of potential finance mechanisms and actors, and assessed their overall feasibility. This section should include the final list of selected and prioritized financial mechanisms for each strategy, along with projected revenues from each, as well as possible safeguards required. The estimated length of this section is approximately 5-7 pages.

- **Timeline for deployment**: This section should show, in a holistic way, the overall timeline for strategies, the expected financial gaps, and the deployment of finance mechanisms. The estimated length of this section is approximately 2-3 pages.

- **Responsible actors for deployment**: This section should list all responsible parties and specific actors for implementing each financial mechanism.

- **List of major recommendations:** This section should list all of the major recommendations that flow from each of the workbooks, such as eliminating harmful subsidies, or creating payment for ecosystem services schemes. The estimated length of this section is approximately 4-7 pages.

- **Justifications and arguments for financial mechanisms and major recommendations**: This section should describe the social, economic and political justifications and implications for implementing each of the financial mechanisms and key recommendations (e.g., issues pertaining to equity, access to resources, unintended consequences of removing subsidies, costs of inaction and counterfactual analyses, long-term vs. short-term benefits analyses, new policies required, and the political synergies created from key strategies and recommendations). This section should also include a description of operational implications, including the likely start-up and ongoing costs of implementation, potential staffing and capacity implications, and potential safeguards required in order to avoid unintended harm to biodiversity.

- **Resource mobilization plan**: The final reporting requirement is a robust, comprehensive resource mobilization plan that is widely available to the public.

APPENDIX A: Aichi Biodiversity Targets

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

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9:By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: 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: 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 environmentally harmful 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 C: Supplementary Checklist for Status and Trends

An NBSAP will typically include a summary of key status and trends for biodiversity and ecosystems, and for their linkages to human wellbeing. The following list can be used as a checklist when reviewing status and trends as part of the BIOFIN Workbook assessment process:

Status and trends in:

- Extent of area and/or production under sustainable forestry, fisheries, grazing, agriculture and water management
- Extent of economic sectors engaged in sustainable practices, including waste management, energy, tourism, mining, transportation, manufacturing
- The degree to which consumption of resources harms biodiversity, including harvest, production, distribution and/or consumption
- The degree to which land use planning and spatial plans identify specific areas for economic growth, sustainable use and conservation of biodiversity
- The extent, spatial distribution and severity of key pressures, including invasive species, climate change and pollution, among others
- Key species, including population and spatial distribution changes, extinction risks, protection status and key threats;
- Key ecosystems, including changes in extent, ecological integrity, protection status and key threats;
- Key ecosystems vulnerable to climate change impacts, including coral reefs, coastal areas, grasslands, and montane areas, among others
- Key biodiversity areas, including changes in extent, ecological integrity, protection status and key threats;
- Protected area extent, spatial distribution, governance types and categories, and representativeness, including for terrestrial, freshwater and marine areas
- Protected area management effectiveness, including for a range of protected area governance types and categories
- Key connectivity areas (including corridors, buffers, stepping stones), and changes in their extent, ecological integrity, protection status and threats
- Key ecosystem services, including changes in stocks and flows, and their linkages to human wellbeing
- Distribution, conservation, and sustainable use of genetic diversity, including of cultivated plants and farmed and domesticated animals and of wild relatives

APPENDIX D: Supplementary Workbook on Biodiversity Benefits and Values

There is growing support for, and interest in, assessments of the economic values of biodiversity and ecosystems, and of their contribution to national goals. Planners should take stock of the status of such assessments within their country. The results of valuation studies are useful for a number of reasons: a) they help decision makers understand the hidden costs of biodiversity loss; b) they drive better decisions when making tradeoffs between biodiversity and development, particular decisions with longer time horizons; c) they help make a compelling economic argument for great investment in biodiversity and ecosystems.

There are many different approaches to assessing the value of biodiversity and ecosystems (see Pagiola et al., 2004; TEEB, 2010). Planners should be sure to identify the full range of existing valuation studies, including those that assess non-economic values.

Key Ecosystem	Key Ecosystem Services	Key beneficiaries and key payers	Relationship to national development goals	Status of valuation assessment	Key findings regarding ecosystem values and benefits
Forest ecosystems					
○ Ecosystem 1					
○ Ecosystem 2					
○ Ecosystem 3					
Grassland ecosystems					
○ Ecosystem 1					
○ Ecosystem 2					
○ Ecosystem 3					
Wetland and freshwater ecosystems					
○ Ecosystem 1					
○ Ecosystem 2					
○ Ecosystem 3					
Marine and coastal ecosystems					
○ Ecosystem 1					
○ Ecosystem 2					
○ Ecosystem 3					
Desert and dryland ecosystems					
○ Ecosystem 1					
○ Ecosystem 2					
○ Ecosystem 3					

APPENDIX E: 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.tematea.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.

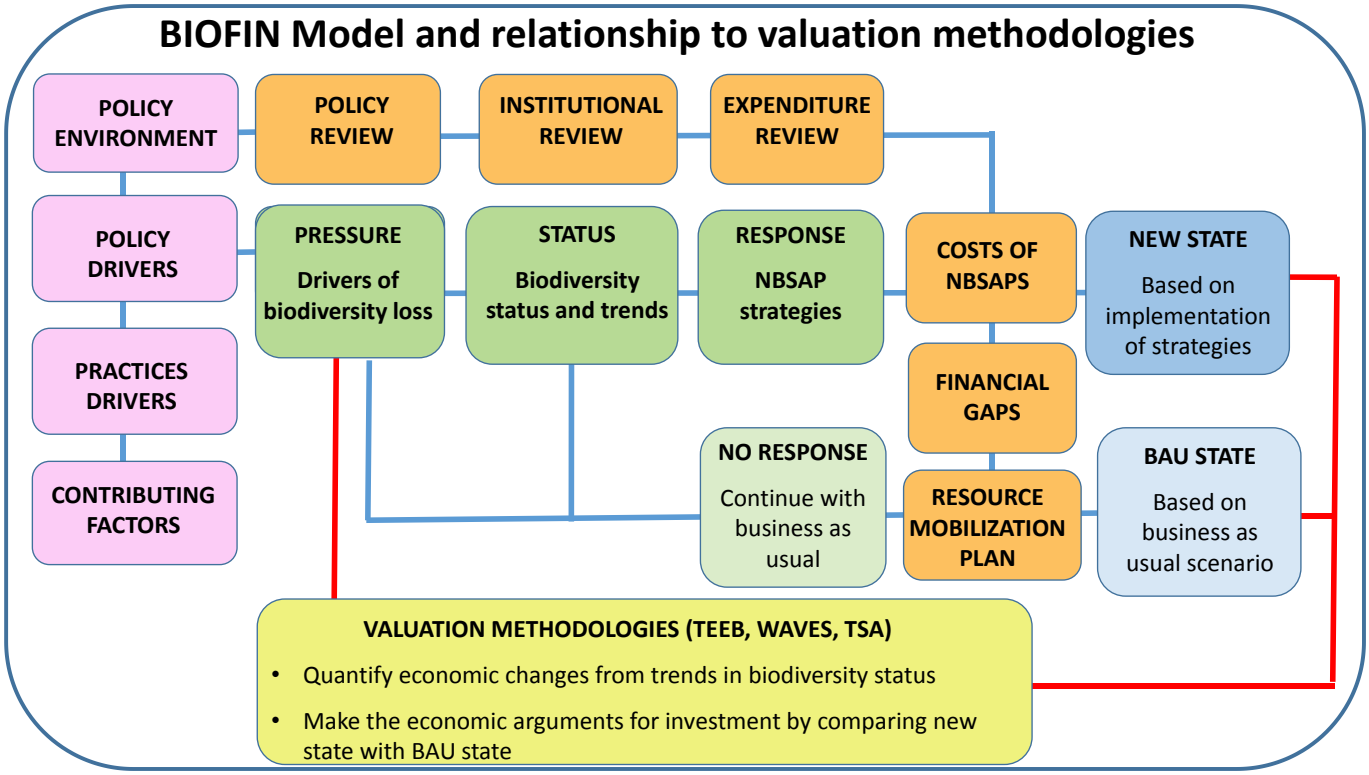
United Nations Framework Convention on Climate Change (UNFCCC): The mission of the UNFCCC is to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. Many NBSAPs will likely contain strategies for mitigating greenhouse gases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

APPENDIX F: Relationship between TEEB, WAVES, TSA and BIOFIN

There are several related methodologies for assessing ecosystems. These include:

- WAVES (Wealth Accounting and Valuation of Ecosystem Services: WAVES is a global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts. The WAVES approach helps planners track stocks and flows of key ecosystem services, such as water.
- TSA (Targeted Scenario Assessment): TSA combines traditional cost benefit analysis and economic valuation methods, but takes a sector-specific approach to valuation. Rather than determining the general value of a particular resource or ecosystem service, TSA looks at ecosystem services from a stakeholder point of view.
- TEEB (The Economics of Ecosystems and Biodiversity – recently renamed to Natural Capital Coalition): The Natural Capital Coalition is a global, multi stakeholder open source platform for supporting the development of methods for natural and social capital valuation in business.

These and other methodologies help planners to take stock of the status and trends of the value of biodiversity and ecosystems, to make economic and other arguments for biodiversity investments, and to compare a status quo scenario with a sustainable scenario.



APPENDIX G: Supplementary guidance for Workbook 1A – Policy and Practice Drivers

Supplementary Guidance Box 1: 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.

One key sector that bears mentioning as an overarching sector is that of overall planning, including national development planning, land use planning, and spatial planning, among others. Planners should consider whether existing planning practices and policies lead to positive or negative trends in biodiversity and ecosystems.

In addition, planners should consider the extent to which each of the development and natural resource sectors below contribute to positive and negative trends in biodiversity and ecosystems.

Industrial manufacturing and processing ○ Manufacturing that uses and/or impacts water ○ Manufacturing that results in air pollution	**Forestry and forest-related activities (including industrial, subsistence, small-scale)** ○ Timber ○ Non-timber forest products ○ Charcoal ○ Plantations ○ Bushmeat	**Agriculture (including small scale, subsistence and commodity)** ○ Cattle and grazing (intensive and extensive) ○ Irrigated agriculture ○ Non-irrigated agriculture ○ Conversion of natural habitats to agriculture	**Tourism and recreation** ○ Nature-based tourism and ecotourism ○ Non nature-based tourism ○ Motorized recreation
Energy (including exploration, transportation, extraction practices) ○ Hydropower ○ Solar infrastructure ○ Oil, gas and natural gas ○ Coal	**Transportation and infrastructure** ○ Shipping, shipping lanes ○ Railroads ○ Highways ○ Buildings, expansion of urban, suburban and exurban centers ○ Dams	**Water management** ○ Management of rivers ○ Management of dam releases ○ Management of groundwater	**Fisheries (including artisanal, subsistence and commercial)** ○ Aquaculture ○ Open seas fisheries ○ Freshwater fisheries ○ Coastal fisheries
Mining and extraction of materials (including commercial and small-scale operations) ○ Diamond/gems/gold/silver ○ Bauxite ○ Coastal sand ○ Other materials	**Waste management (includes temporary and permanent places and practices, both legal and illegal)** ○ Terrestrial landfills ○ Permitted releases of effluent ○ Dumping in river ways	**Climate resilience, adaptation, mitigation (includes national and sub-national efforts and plans)** ○ 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)** ○ Terrestrial, marine and freshwater invasive alien species efforts ○ National invasive alien species plans

Supplementary Guidance Box 2: Checklist of contributing policies 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	○ Laws related to each economic sector ○ Enforcement and prosecution of illegal sectoral practices	○ 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	○ Laws related to restoration requirements and practices ○ Enforcement of restoration requirements	○ Laws related to access and benefits sharing ○ Enforcement of existing ABS agreements
Subsidies and incentives	○ Subsidies and incentives for sectoral practices that both benefit and/or harm biodiversity	○ Incentives for the creation of new private protected areas, corridors ○ Fees, taxes, fines and other policy instruments that can fund protection activities	○ Subsidies and incentives for restoration activities ○ Fees, taxes, fines and other policy instruments that can fund restoration activities	○ Incentives for activities related to access and benefits sharing
Policy and planning environment	○ Quality and use of existing land use plans ○ Sectoral policies and plans that promote sustainable sectoral practices	○ 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	○ Degree of existing restoration plans, the identification of priorities ○ Extent to which key ecosystem services and climate resilience sites are identified	○ National policies and plans related to ABS
Social and economic conditions	○ Poverty, inequity and socio-economic conditions ○ Awareness of key sectors of value of biodiversity to their sector	○ Poverty, inequity and socio-economic conditions ○ Awareness of key sectors of value of protection ○ Dependence on protected areas for livelihoods, subsistence (legal and illegal)	○ Poverty, inequity and socio-economic conditions that drive ecosystem degradation ○ Awareness of key sectors of the value of restoration	○ Awareness of key sectors of importance of ABS
Market forces	○ Independent certification and markets for sustainably produced products ○ Market competition ○ International trade ○ Market prices, stability and volatility	○ 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	○ Market demand for ecosystem services provided through restoration ○ Degree of existing degradation and need for restoration to provide services	○ Market demand for products falling under ABS agreements

Supplementary Guidance Box 3: 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 practices can be compared.

Sustainable forestry and forest-related practices

- 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.

(FSC, 2012; Prabhu et al., 1998)

Sustainable agricultural practices

- 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

(Glover et al., 2007; Gold, 2009)

Sustainable fisheries practices

- 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

(MSC, 2012; CBD, 2013; OECD, 2013)

Sustainable grazing and rangeland practices

- 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;

(Mitchell, 2010; Beetz and Rinehart, 2006).

Supplementary Guidance Box 3: Checklist of sustainable practices by sector -- continued

Sustainable aquacultural practices	**Sustainable water management practices**
• 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 (OECD, 2010; USAID, 2012)	• 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)
Sustainable waste management practices	**Sustainable industrial, manufacturing and processing**
• 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)	• 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).

Supplementary Guidance Box 3: Checklist of sustainable practices by sector -- continued

Sustainable transportation and infrastructure practices	**Sustainable tourism and recreation**
• 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. (Byron, H. 2000, NBW, 2011; White and Ernst, 2007)	• 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 (Drumm et al, 2011; Global Sustainable Tourism Council, 2013)
Sustainable energy and mining practices	**Sustainable land use planning practices**
• 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. (Energy and Biodiversity Initiative, 2013; ICMM, 2012);	• 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 (Salkin, 2009; Stein 2012).

Supplementary Guidance Box 4: 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	• 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	• 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 us of species or ecosystems?
3. Identify the scope, magnitude and distribution of the drivers of change for selected sectors	• 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	• 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	• 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; Slootweg et al., 2006; Partidário, 2012; Ash et al.,2010)

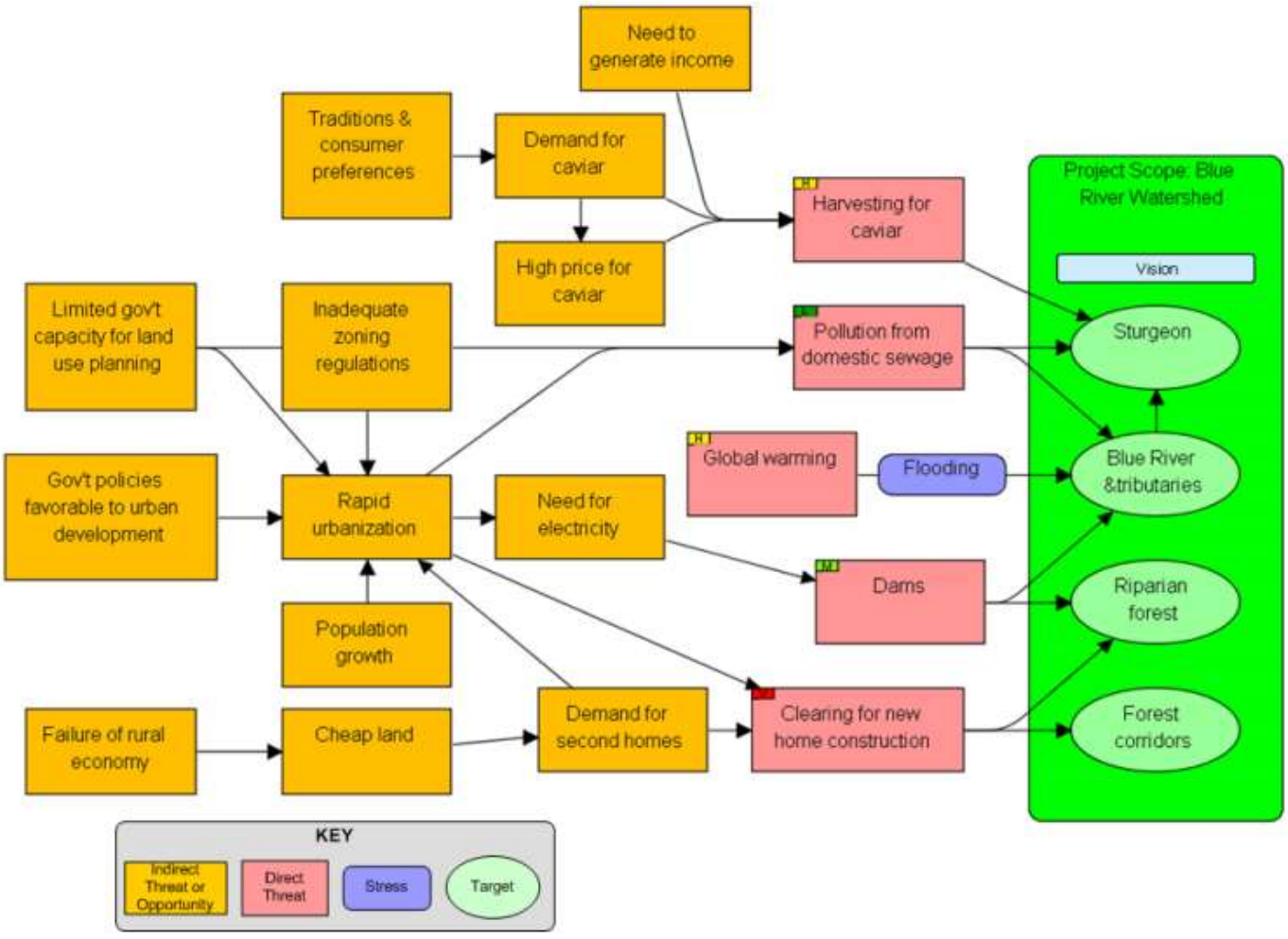
Supplementary Guidance Box 5: Root causes analysis framework

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)

Supplementary Guidance Box 6: 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)	○ 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)	○ 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)	○ 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)	○ 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)	○ 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)	○ 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)	○ 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	○ 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)	○ 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)	○ 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

Supplementary Guidance Box 7*: Checklist of restoration best practices*

Restoration of natural disturbances

- Restoration efforts aims 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 a 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

Supplementary Guidance Box 8*: 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 provide 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 phrase 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

Supplementary Guidance Box 9*:* 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	• The extent to which there are strong national biodiversity goals, and the political will at all levels to achieve these goals	• A government lacks political will to integrate and mainstream biodiversity, and does not consider biodiversity high on its agenda	• 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	• The degree to which special interests influence biodiversity decisions, including finance decisions	• Powerful interests (e.g., mining) do not acknowledge the importance of biodiversity, and lobby against it	• Powerful interests (e.g., tourism) recognize and promote the value of biodiversity to their industry
Public media, free press, communication, perception and attitudes	• The degree to which the public is supportive of the benefits of biodiversity, and supports national goals	• The public is not aware of biodiversity issues, and biodiversity issues are not routinely covered in national media	• The public mostly understands, and is supportive of, the importance of biodiversity conservation and mainstreaming
Principles of good governance	• The degree to which the government is transparent, fair, accountable, reliable, efficient and effective	• Corruption within government agencies and/or economic sectors prevents effective decisions from being made regarding safeguarding and integrating biodiversity	• 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	• The extent to which various economic, development and natural resource sectors engage with one another	• There is competition between government agencies, and poor coordination and communication	• There is an effective inter-sectoral advisory group that coordinates the development of the NBSAP
Public participation in decision making	• The degree to which effective and equitable participation mechanisms exist	• There are no effective means of engaging the public in decision making	• Public decision making procedures and mechanisms are well established
Development of local and national non-governmental organizations	• The degree to which environmental and social NGOs can help fill capacity gaps in government, and help promote accountability	• Few NGOs exist, or have limited capacity to provide key supplementary services	• Governments can create tax incentives that favor the creation of strong NGOs
Information and understanding about biodiversity values, threats	• The degree to which information on the benefits of biodiversity is available and widely understood	• Studies on the economic benefits of biodiversity have not been completed	• There is clear and compelling information about the value of biodiversity to a wide range of social and economic sectors
Inter-agency alignment	• The degree to which decisions within agencies are aligned with national goals, and are vertically integrated	• Top-level agency officials support national biodiversity goals but do not implement them	• Biodiversity goals are embraced throughout and across agencies
Utilization of available biodiversity funding opportunities	• The degree to which a government avails funding in a logical, consistent and coherent manner	• Governments do not take full advantage of available funding, and their proposals are not aligned with national priorities	• Governments understand the range of funding available, and align their strategies to take advantage of this funding to achieve national goals

KEY DEFINITIONS FOR WORKBOOK 1A:

Section 1

- ***Biodiversity mainstreaming:*** Biodiversity mainstreaming is the process of incorporating biodiversity into key sectors, such that impacts on biodiversity and ecosystems is kept within sustainable levels;
- ***Sustainable use:*** Sustainable use is the use and management of biodiversity products in such a way that does not affect their long-term productivity
- ***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.

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.

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.

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.

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.

APPENDIX H: Supplementary guidance for Workbook 1B – Institutional Review

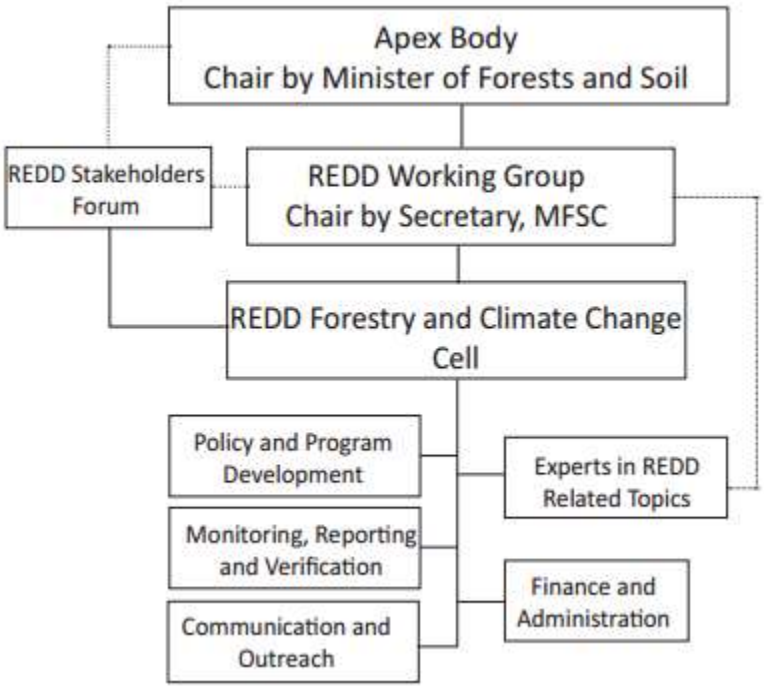
Supplementary Guidance Box 10: Types and examples of finance actors

The potential field of biodiversity-relevant sectors is vast, and therefore so is the list of potential public and private finance actors. The table below shows a few indicative types and examples of potential finance actors in the field of biodiversity.

FINANCE ACTOR	EXAMPLE
PUBLIC ACTORS	
○ Central government, agencies, ministries and departments	○ Ministries of Environment; Ministries of Fisheries; Department of Fisheries; Uganda Wildlife Authority
○ District, state, local government	○ District planning offices, municipalities
○ Governmental and quasi-governmental institutions	○ Humboldt Institute
○ Public research institutions	○ CATIE, SANBI
○ Multilateral institutions	○ World Bank, UNDP, FAO
○ Bi-lateral agencies	○ GIZ, USAID, SIDA, JICA, etc.
○ Development banks	○ ADB, IDB
PRIVATE ACTORS	
○ Individual consumers for a wide range of products and services	○ Tourists, water users
○ Community associations	○ Community tourism boards
○ Corporate and business consumers	○ Concession holders, procurement agents
○ Individual companies	○ Cell phone companies, paper companies, manufacturing companies, agricultural companies, forestry companies
○ Business associations, trade associations, lobby associations, trade unions	○ Corporate responsibility associations
○ Private research institutions	○ Thailand Development Research Institute
○ Schools, Colleges, Universities	○ Centre for Biodiversity Conservation, Cambodia
○ Private sector foundations and private donors	○ Global Private Donor Forum
○ Private investment companies	○ The Xander Group, Helix Investments
○ Zoos, gene banks, botanical gardens	○ National Biodiversity Data Bank in Uganda, Pew Gardens, Smithsonian,
○ National and international banks, credit unions, lending agencies	○ OPIC – Overseas Private Investment Corporation (OPIC)

Supplementary Guidance Box 11: Example of institutional arrangements

Example of institutional arrangements for REDD and REDD finance in Nepal. Source: CPEIR (2011). Nepal Climate Public Expenditure and Institutional Review (CPEIR), Published by Government of Nepal, National Planning Commission with support from UNDP/UNEP/CDDE in Kathmandu, Nepal.



Supplementary Guidance Box 12: Checklist of capacities to consider for key actors and institutions

Fully implementing the BIOFIN Workbook, and more importantly, taking actions that result from the BIOFIN analyses, will require competency in a broad set of skills. The following checklist can serve as an indicative checklist of capacities for key actors and institutions, and can help both NBSAP and BIOFIN planners to prioritize key areas for strengthening capacity, particularly in regards to finance-related issues:

- The ability to develop effective strategies that will effectively address drivers of biodiversity loss
- The ability to prioritize across a range of NBSAP strategies, identifying those that are the most efficient and cost effective in achieving national biodiversity and development goals
- The ability to gauge the potential effectiveness of strategies and actions in achieving multiple goals, including both biodiversity and national development goals
- The ability to understand and analyze the difference between one-time and recurrent investments
- The ability to effectively manage the flow of financial resources across agencies, and ensure effective disbursement and execution of funds
- The ability to clarify financial roles and responsibilities across key agencies, as well as across public and private actors
- The ability to develop agendas, budgets and plans across multiple agencies, divisions and departments, as well as across public and private actors
- The ability to develop a wide range of innovative partnerships across a range of actors, including public-private finance partnerships
- The ability to gauge long-term tradeoffs between multiple scenarios, and to understand inter-sectoral policy tradeoffs
- The ability to develop multiple scenarios for ecosystems and biodiversity, including business as usual scenarios, as well as low, medium and high-investment scenarios, and to be able to articulate the outcomes of these scenarios in terms of national development goals
- The ability to link national development goals to the integrity of natural ecosystems, and to the flow of ecosystem services and natural capital stocks
- The ability to counteract powerful interest groups that wish to maintain the status quo for natural resource depletion by making equally powerful economic arguments
- The ability to clearly communicate the benefits of shifting policies and practices toward a sustainable trajectory
- The ability to calculate the impacts of perverse incentives, and to be able to show counterfactual arguments for phasing out and eliminating these perverse incentives
- The ability to influence the highest levels of government to invest in biodiversity and ecosystems as a means for achieving national development goals
- The ability of line ministries to align their plans and policies to over-arching national goals and objectives
- The ability to mobilize private investment finance for public goods, such as natural capital infrastructure and biodiversity conservation
- The ability to provide transparent and accountable frameworks and systems for how funds are budgeted and allocated, disbursed and executed

Supplementary Guidance Box 13: 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. In addition to the basic questions identified in Workbook 1B, planners may also consider an analysis of the following issues.

Topic	Key questions to consider
Role in biodiversity planning and finance	○ What specific role does the institution play in biodiversity-related finance? ○ In what ways does each institution influence biodiversity finance decisions, both directly and indirectly? ○ How stable is each institution's formal role in influencing biodiversity finance? ○ How clear are roles and responsibilities for biodiversity conservation, sustainable use and equitable benefits sharing between different government departments and within and between ministries? ○ What key issues associated with the existing institutional arrangements are facilitating and inhibiting effective biodiversity finance?
Biodiversity responsibilities, costs and benefits	○ To what extent does each institution have a negative and positive impact on biodiversity, both directly and indirectly? ○ What is society's view toward these impacts? ○ What are the barriers to changing society's view of these impacts? ○ How dependent is each sector on healthy and functioning biodiversity and ecosystem services? ○ To what extent does each sector understand these dependencies and linkages? ○ How are the costs and benefits of biodiversity distributed *within* individual sectors? ○ What tensions are there about the distribution of biodiversity costs and benefits?
Alignment with national biodiversity-related objectives	○ How might institutional collaboration and coordination on biodiversity-related issues be strengthened? ○ What impact do organizational structures have on biodiversity policies and strategies? ○ How consistent are the institution's policies with national biodiversity policies? ○ Are there any inconsistencies between an institution's legal mandate, their practices and policies, and their impacts on biodiversity, that provide societal tensions or conflict, either locally or nationally?
Overall institutional capacity	○ What is the capacity of the government's basic service delivery role for biodiversity-related actions? ○ How vulnerable is the institution to changes in funding, political leadership and/or popular support? ○ How adaptable and innovative is the institution? ○ How accountable is an institution to annual results?

Adapted from Bird et al., 2012; UNDP, 2010

Key Terms used in Workbook 1B

Section 1:

- ***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.

APPENDIX I: Supplementary guidance for Workbook 1C – Expenditure Review

Supplementary Guidance Box 14: 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 ○ 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 ○ Climate resilience efforts that result in habitat restoration ○ Creation of protected areas that have only moderate benefits for biodiversity
Low relevance	Expenditures for activities where indirect biodiversity benefits may arise, but not as a direct or indirect objective of the expenditure or activity ○ General water quality improvement efforts that lead to some water conservation actions ○ General institutional capacity strengthening
Very low relevance	Expenditures that have only very indirect or theoretical linkages to biodiversity conservation, sustainable use or equitable benefits sharing ○ 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)

Supplementary Guidance Box 15: Examples of ranked relevance for climate expenditures

The materials below show examples of weighted relevance markers, along with the rationale for each, for a variety of climate-related expenditures.

High relevance	Rationale	Clear primary objective of delivering specific outcomes that improve climate resilience of contribute to mitigation.
Weighting more than 75%	Examples	○ Energy mitigation (e.g., renewables, energy efficiency) ○ Disaster risk reduction and disaster management capacity ○ Additional costs of changing the design of a program to improve climate resilience (e.g., extra costs of climate proofing infrastructure, beyond routine maintenance of rehabilitation) ○ Anything that responds to recent drought, cyclone or flooding, because it will have added benefits for future extreme events ○ Relocating villages to give protection against cyclones, rising sea levels ○ Healthcare for climate-sensitive diseases ○ Building institutional capacity to plan and manage climate change, including early warning systems ○ Raising awareness about climate change ○ Anything meeting donor criteria for climate change (e.g., GEF, PPCR)
Medium relevance	Rationale	Either a) secondary objectives related to building climate resilience or contributing to mitigation, or b) mixed programs with a range of activities that are not easily separated but include at least some activities that promote climate resilience or mitigation
Weighting between 50% and 74%	Examples	○ Forestry and agroforestry that is motivated primarily by economic or conservation objectives, because this will have some mitigation effect ○ Water storage, water efficiency and irrigation that is motivated primarily by improved livelihoods because this will provide some protection against drought ○ Biodiversity and conservation measures, unless explicitly aimed at increasing resilience of ecosystems to climate change ○ Ecotourism, because it encourages communities to put a value on ecosystems and raises awareness of the impacts of climate change ○ Livelihood and social protection programs, motivated by poverty reduction because this builds household reserves and assets, and contributes to social resilience
Low relevance	Rationale	Activities that display attributes where only indirect adaptation and mitigation benefits may arise
Weighting between 25% - 49%	Examples	○ Water quality, unless the improvements in water quality aim to reduce problems from extreme rainfall events, in which case relevance would be high ○ General livelihoods, motivated by poverty reduction, by building household reserves and assets in areas of low climate vulnerability ○ General planning capacity, either at national or local levels, unless it is explicitly linked to climate change, in which case relevancy would be high
Marginal relevance	Rationale	Activities that have only very indirect and theoretical links to climate resilience
Weighting less than 25%	Examples	○ .Short term programs (including humanitarian relief) ○ The replacement element of any reconstruction investment ○ Education and health efforts that do not explicitly have a climate change element

Source: CPEIR, 20011.

Supplementary Guidance Box 16: Example of environmentally harmful biodiversity expenditures

Expenditures that can have a negative impact on biodiversity can be considered environmentally harmful biodiversity expenditures. Unlike expenditures with low levels of effectiveness, environmentally harmful biodiversity expenditures are funds that result directly or indirectly to biodiversity loss and degradation. Examples of environmentally harmful biodiversity expenditures include:

- Subsidies for services and products that have direct negative impacts on biodiversity, such as subsidies for agricultural pesticides and fertilizers;
- Policy incentives such as eased permitting, reduced fees and relaxed procedures for polluting industries, such as mining, manufacturing and waste management;
- Direct and indirect investments in production practices that are inefficient with natural resources, and/or harmful to biodiversity;
- Perverse incentives that lead to wasteful uses of natural resources, such as land-intensive development and water-intensive processing practices;
- Expenditures directly or indirectly associated with the loss and degradation of biodiversity, including logging, fishing, plantation establishment, intensive agriculture;
- Bonuses and tax incentives for cultivating previously uncultivated land and/or for clearing forested land;
- Fishing quotas that favor the catch of a single species, with high levels of waste and by-catch.

For example, a 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 small grants to promote coastal aquaculture, particularly shrimp farming. These incentives encourage the conversion of natural coastlines of natural mangrove forests to artificial shrimp farms. The environmentally harmful expenditure can be measured both in terms of the amount of funds spent toward these perverse incentives, as well as in the loss of natural capital.

Supplementary Guidance 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)

Investment entity	Source	1.Etemestrial ecosystems, conservation (2006)	2.Terrestrial ecosystems, goods and services	3.Marine-coastal ecosystems	4. Inland aquatic ecosystems (2007)	5. Tunism	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 external funds		**8.93**	**0.16**				
Total Private sector			**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 governent external funds			0.26	0.20		1.65	
Total Government		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**

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

Supplementary Guidance Box 18: Steps involved in a national expenditure review

The following steps are typical when undertaking a national expenditure review:

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

To track biodiversity expenditures across a wide range of public and private sectors, planners must first identify the full range of finance actors (see Supplementary Guidance Box 13). 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, land use, food security and other sectors. When screening potentially relevant entities, planners should also keep in mind that not all biodiversity-related expenditures are necessary 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 wood-fired stoves, but a side effect may also be less pressure on biodiversity due to reduced harvest of fuel wood from local forests.

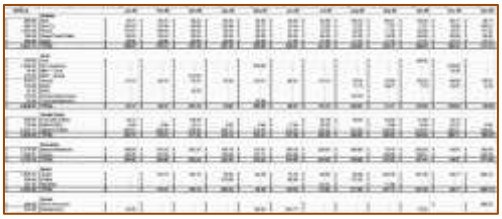
Step 2: Extract disaggregated data from entities

Once they have identified the full range of finance actors, planners will then need to extract relevant information from the various entities, and will need to keep figures disaggregated in order to distinguish different activities, sources and timing of expenditures. Sources mainly include budgets (state budget, district/local budget, business budget, household budget, donor budget) annual reports (prepared by most governmental and non-governmental institutions) and agency spreadsheets and records. Expenditures can also occur in the form of taxes, environmental compensation payments and governmental fees.

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.

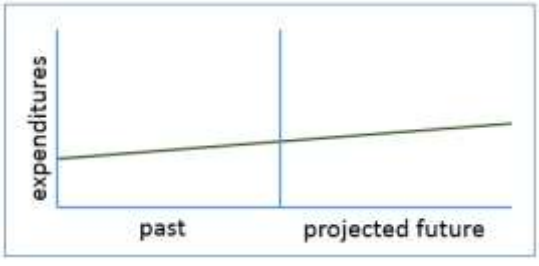
Access to data will often not be straightforward, and planners will need to build trust with the data provider. Some entities may be concerned about disclosing internal information to potential competitors, or may fear taxation increases based on information provided. It is crucial to ensure broad ownership 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 into a coherent and comparable system in terms of currency, sources, expenditure categories, timing of expenditures and data format. Planners should take into account not only positive but also environmentally harmful biodiversity expenditures when constructing this system.

Step 4: Create past baseline and projected future business-as-usual baseline



Once planners have gathered and synthesized the various expenditures across multiple finance actors, they can begin to create an overall baseline for past expenditures on biodiversity-related activities. Based on these past figures, planners can then use these to project a future expenditure baseline, based on a business-as-usual scenario.

Supplementary Guidance Box 19: 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. Unsustainable alternatives often 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.

Key Terms used in Workbook 1B

Section 1:

- ***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.

Section 2:

- ***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.
- ***Environmentally harmful biodiversity expenditures:*** Environmentally harmful 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 environmentally harmful 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 environmentally harmful biodiversity expenditures. See Box 19 for examples of environmentally harmful biodiversity expenditures.

Section 3:

- ***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).

APPENDIX J: Supplementary guidance for Workbook 2A – Costs of Strategies and Actions

Supplementary Guidance Box 20: 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
• Minimize or mitigate threats • Restore, improve or maintain ecological integrity • Improve protection status • Ensure ecological resilience and adaptation	• Genetic diversity • Species and species habitats • Populations • Ecological processes, functions Landscapes • Ecosystems	• Agriculture • Forestry • Fisheries • Freshwater management • Grazing, grassland management • Wildlife management	• Transportation • Poverty alleviation • Tourism and recreation • Energy • Climate adaptation • Manufacturing • Infrastructure • Mining and minerals	• Policy and legal reform • Protected areas, corridors, buffer zones • Management practices and policies • Strategic environmental assessments (SEA/EIA) • Spatial planning and land use planning	• 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	MAINSTREAMING INSTRUMENTS AND MECHANISMS														
	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															

Supplementary Guidance Box 21: Examples of mainstreaming strategies

A number of countries have taken steps towards mainstreaming biodiversity into national plans and policies. A few examples include:

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.

Supplementary Guidance Box 22: 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, and many other types).

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
- Control illegal poaching

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

Supplementary Guidance Box 23: 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. When identifying strategies, planners may want to consider the co-benefits for desertification and drought for UNCCD.

	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
Forests								
Grassland								
Desert and drylands								
Wetlands and freshwater bodies								
Coastal, nearshore and marine (coral reef, sea grass beds)								
Montane								
Other								

The table below shows a three-part equation and some indicative elements that can be used to describe virtually any restoration strategy:

Restoration action	Restoration subject	Restoration goal
• Introduce • Plant • Remove • Limit • Manage • Install • Use • Release	• 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	• 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 course 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

Supplementary Guidance Box 24: Checklist of ABS strategies

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

Supplementary Guidance Box 25: 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

Supplementary Guidance Box 26: Calculating the costs of specific actions related to NBSAP strategies and actions

The vast majority of strategies will have several sub-strategies, each of which will have numerous actions. This table is intended to be used for each action within each strategy or sub-strategy.

CALCULATING THE COST OF SPECIFIC ACTIONS									
Strategy:					**Intended result of strategy:**				
Action 1:					**Intended result of action:**				
Information on estimated costs for this action			Human resources	Equipment, materials	Fees and services	Travel	Other costs	Total	Data and assumptions
One-time costs/investment Year:	Description of cost element								
	Unit of cost element								
	Estimated units required	High							
		Medium							
		Low							
	Estimated cost per unit	High							
		Medium							
		Low							
	Total estimated range of cost	High							
		Medium							
		Low							
Information on estimated costs for this action			Human resources	Equipment, materials	Fees and services	Travel	Other costs	**Total**	Data and assumptions
On-going operations and management: 2015-2016	Description of cost element								
	Unit of cost element								
	Estimated units required	High							
		Medium							
		Low							
	Estimated cost per unit	High							
		Medium							
		Low							
	Total estimated range of cost	High							
		Medium							
		Low							
Information on estimated costs for this action			Human resources	Equipment, materials	Fees and services	Travel	Other costs	**Total**	Data and assumptions
On-going operations and management: 2017-2018	Description of cost element								
	Unit of cost element								
	Estimated units required	High							
		Medium							
		Low							
	Estimated cost per unit	High							
		Medium							
		Low							
	Total estimated range of cost	High							
		Medium							
		Low							
Information on estimated costs for this action			Human resources	Equipment, materials	Fees and services	Travel	Other costs	**Total**	Data and assumptions
On-going operations and management: 2019-2020	Description of cost element								
	Unit of cost element								
	Estimated units required	High							
		Medium							
		Low							
	Estimated cost per unit	High							
		Medium							
		Low							
	Total estimated range of cost	High							
		Medium							
		Low							

Workbook 2A is intended to be used as a reporting worksheet, not as a data management system for calculating costs. This approach, as well as Supplementary Worksheet 26 on "Calculating the Costs of Specific Actions," are based on a model of cost accounting. Cost accounting is a process of collecting, analyzing, summarizing and evaluating alternative courses of financial investment in order to allow managers and policy makers to make informed decisions about the most cost-effective course of action. The particular approach used in the BIOFIN Methodology is called "Activity-Based Cost Accounting." This type of cost accounting, which was developed in the manufacturing sector in the 1970s and 1980s, is a methodology that allows planners to identify key activities required to achieve a certain objective, assign the direct and indirect costs of undertaking each activity, and develop budgets.

This approach to budgeting and accounting contrasts with the budgeting process used by many governments. While actual budgeting approaches very between governments, many use a simple "line-item budgeting" approach, where a budget is determined largely as the result of a political negotiations, or is a percentage of previous annual budgets, with minimal linkages to the explicit goals or objectives to be accomplished.

Most governments use a more sophisticated approach than activity-based cost accounting, involving algorithms and models to factor in the costs of alternative courses of action (including the costs and benefits of inaction), the intended results of the expenditures, and the estimated return and cost effectiveness of the investment, among other elements. The simple activity-based cost accounting model presented in the BIOFIN Methodology is simply a tool to gauge the actual investments required to complete the Strategies and Actions within the NBSAP. Governments participating in the BIOFIN Initiative can choose to use their own systems to calculate costs and benefits, and simply report on the overall cost of implementing the NBSAP when they complete the BIOFIN national report. If governments do not have complex modeling systems to determine the tradeoffs between costs and benefits, they can still use the costs identified through Workbook 2A and Supplementary Workbook 26, to compare different investment scenarios and to effectively make the case for investments in biodiversity to key decision makers within their countries. The Targeted Scenario Analysis can be particularly helpful in that step.

Key Terms used in Workbook 2A

Workbook 2A:

- ***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 also Boxes 21 and 22).
- ***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 management strategies (wee also Box 25).
- ***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.
- ***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 of a Terms of Reference, the establishment of a small task force, the scoping of the study, and the implementation and communication of 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.

APPENDIX K: Supplementary guidance for Workbook 2B – Total Costs and Financial Gaps

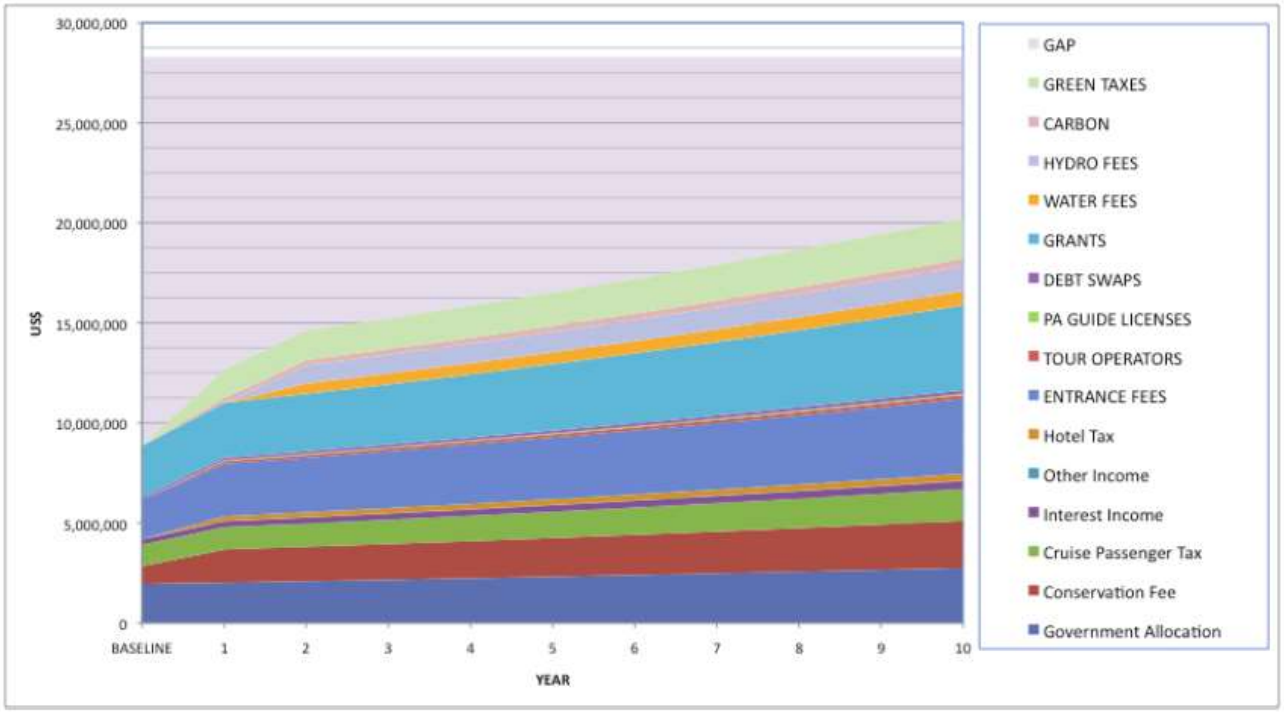
Supplementary Guidance Box 27: Example of 'business as usual' finance scenario for protected areas in Belize, and projected cost of new protection strategies

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**
Entrance fees		
	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	**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.

Key Terms used in Workbook 2B:

- ***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.

APPENDIX L: Supplementary guidance for Workbook 3A – Finance actors, mechanisms and revenue

Supplementary guidance Box 28: Checklist of financial mechanisms and sources of funding

There is a wide number of potential sources and mechanisms for finance, including both public and private mechanisms. The table below shows a small sample of some of these.

Official Development Assistance (ODA) ○ Bilateral ODA ○ Multilateral ODA	Government funding ○ Annual budget ○ Conservation trust fund	Other types of funding ○ E.g., South-south cooperation ○ NGOs, foundations, academia
Positive tax incentives ○ Tax credits ○ Tax deductions	Environmentally harmful tax incentives ○ Taxes on products, services that harm biodiversity	Fiscal reform ○ Reduction of subsidies that harm biodiversity
Procurement policies ○ Government and business procurement	Cap and Trade ○ Limit on goods or services and traded in the marketplace	PES schemes ○ Beneficiaries pay for the cost of maintaining ecosystems
Market certification ○ Market premium, access for sustainably produced products	Biodiversity offsets ○ Exchanges of biodiversity protection by business	Fines and fees ○ Fees that discourage unsustainable practices
Conservation easement ○ Compensation for long-term conservation	Voluntary fees ○ Fees donated, such as contribution box, hotel fee	Mandatory fees ○ Fees required by law, such as airport departure fees

Supplementary guidance Box 29: Feasibility screening criteria

In assessing the feasibility of each finance mechanism, planners can ask a series of questions. Below are some indicator examples of questions that can be used as feasibility screening criteria:

Financial considerations

- How much revenue will it generate?
- How stable and predictable is the revenue?
- What are the initial start-up costs?
- What is the return on investment both in terms of investment to revenue, as well as investment to natural capital increases?

Legal considerations

- Is the mechanism legally feasible within the current system?
- Does it require new legislation, administrative rules, procedures or other types of legal changes?
- Is it possible to simply use an executive order to implement the mechanism?
- What kinds of legal liability might the mechanism create?

Administrative considerations

- How difficult will it be to administer, enforce, collect and distribute revenue from the mechanism?
- Are there enough trained staff to implement the mechanism?
- What kind of initial and ongoing training and support is required to implement the mechanism?
- What kinds of new technology might be required, and what are the training, investment and upgrade requirements of this technology?

Social considerations

- What will be the intended and unintended social impacts?
- Who will pay for the mechanism?
- Who will benefit from the mechanism, including directly and indirectly?
- How will the benefits be distributed across key groups?
- Will the mechanism be viewed as equitable and will there be fair access to the mechanism?

Political considerations

- Is there political will to create and implement the finance mechanism?
- Will the funds generated be redirected to the correct purpose?
- Is monitoring of the mechanisms politically and practically feasible?
- Are there any unintended political risks?

Environmental considerations

- What are the intended and unintended environmental impacts involved in implementation?
- Can safeguards easily be put in place to predict and mitigate environmental risks?

Key Terms used in 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.

APPENDIX M: Supplementary guidance for Workbook 3B – Resource Mobilization Plan

Supplementary Guidance Box 30: Safeguards in Biodiversity Finance Mechanisms

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.
Recent work (Ituarte-Lima et al., 2012; OECD, 2013) explores environmental and social safeguards for scaling up biodiversity finance. Some general guiding principles include:

- 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.

Key Terms used in 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.

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