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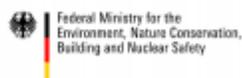
The Biodiversity Finance Initiative (BIOFIN)

RWANDA BIODIVERSITY FINANCIAL NEEDS ASSESSMENT

Revised Draft Report

Submitted by
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September 26, 2018



Nederlands Office for the Environment FIOEN

FOREWORD

On behalf of the BIOFIN Rwanda team, I am pleased to present this report of the Biodiversity Financial Needs Assessment. It is the third in a series of reports that have been prepared as part of the BIOFIN initiative. The BIOFIN initiative has the objective of supporting efforts to identify ways to fully fund the Government of Rwanda's biodiversity goals and targets and ensure that the country's natural capital is preserved and maintained. The first BIOFIN report identified the policy and institutional framework for biodiversity financing (the Finance Policy and Institutional Review), and a second report that examined current spending patterns and investments by the Rwandan government and other partners (the Biodiversity Expenditure Review).

This report turns to calculation of the costs associated with fully funding Rwanda's commitments to protect and restore the country's natural capital over the period 2018/19 to 2029/30, based on Rwanda's second National Biodiversity Strategy and Action Plan that was submitted to the U.N.-sponsored Convention on Biological Diversity in December 2016 and approved by the Government of Rwanda in February 2017. The report compares priority finance needs with the wider scope of projected biodiversity related expenditure between 2018/9 and 2029/30, based the past and projected financing for biodiversity as estimated in the earlier Biodiversity Expenditure Review.

It is hoped that this report will stimulate discussion and debate among Rwanda policy-makers and thought-leaders about the means for restoring and protecting Rwanda's biodiversity while achieving our country's long-term goal of sustainable and equitable economic and social development.

Coletha U. Ruhamyia
Director General
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ACRONYMS

| | |
|-----------|---|
| AZE | Alliance for Zero Extinction |
| BER | Biodiversity Expenditure Review |
| BFP | Biodiversity Finance Plan |
| BIOFIN | Biodiversity Finance Initiative |
| CBD | Convention on Biological Diversity |
| COEB | Centre for Excellence in Biodiversity Conservation and Natural Resources Management |
| COP | Conference of Parties |
| FNA | Biodiversity Financial Needs Assessment |
| FY | Fiscal Year |
| GEF | Global Environment Facility |
| GoR | Government of Rwanda |
| IAS | Invasive Alien Species |
| MINAGRI | Ministry of Agriculture and Animal Resources |
| MINECOFIN | Ministry of Finance and Economic Planning |
| MINILAF | Ministry of Lands and Forestry |
| MOE | Ministry of Environment |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NIRDA | National Industrial Research and Development Agency |
| NISR | National Institute of Statistics Rwanda |
| ODA | Official Development Assistance |
| PES | Payments for Ecosystem Services |
| PIR | Biodiversity Finance Policy and Institutional Review |
| RAB | Rwanda Agricultural Board |
| RDB | Rwanda Development Board |
| REMA | Rwanda Environment Management Authority |
| RLMUA | Rwanda Land Management and Utilisation Authority |
| RWF | Rwanda Francs |
| RWFA | Rwanda Forestry Authority |
| UNDP | United Nations Development Programme |
| UR | University of Rwanda |

EXECUTIVE SUMMARY

Background

This Financial Needs Assessment is the third in a series of reports undertaken as part of the Biodiversity Finance Initiative that is being carried out in Rwanda. The Biodiversity Finance Initiative (commonly known as BIOFIN) is a global programme that was initiated by the international community in response to the urgent global need to generate significantly more financing from all possible sources towards global and national biodiversity goals, as highlighted during the 2010 Biodiversity Convention of the Parties (COP 10) in Nagoya, Japan.

The BIOFIN methodology includes the following main steps that consist of four reports along with follow-up implementation activities:

- 1) ***Biodiversity Finance Policy and Institutional Review (PIR)***: Analysis of the policy and institutional architecture for biodiversity finance and existing finance mechanisms.
- 2) ***Biodiversity Expenditure Review (BER)***: Analysis of public and private expenditures towards sustainable biodiversity management.
- 3) ***Financial Needs Assessment (FNA)***: Estimates of the investments required to implement current national biodiversity plans and achieve national biodiversity targets and results.
- 4) ***Biodiversity Finance Plan (BFP)***: Analysis of options to optimize current and expand future investments (public, private, national, international, traditional and innovative) in biodiversity management.

The PIR and the BER were completed in late 2017. This Financial Needs Assessment builds on the two earlier studies by estimating what is needed to fully finance Rwanda's biodiversity goals and objectives, as found in Rwanda's second National Biodiversity Strategy and Action Plan (NBSAP II).

The FNA is meant to help policy-makers and senior managers to:

- (i) understand the total cost implications for implementing each NBSAP activity and aggregate the total cost for all strategies and actions within the NBSAP;
- (ii) be in a position to prioritise the set of costable actions that comprise the strategies and actions within the NBSAP; and
- (iii) recognise the need to manage annual fluctuations in biodiversity financing, and therefore anticipate the need for increased mobilisation of funds for biodiversity and conservation.

In this regard, the FNA is aligned with Rwanda's long-term development strategy Vision 2020 and Vision 2050, and the medium term strategy, the National Strategy for Transformation (NST 1). The scope also embraces the Sustainable Development Goals (SDGs), and the Paris Declaration on Climate Change (2030).

Biodiversity Financial Needs Estimates

The finance needs for implementing the NBSAP II were estimated over two timelines; 2018/19 to 2023/24 for NST 1 and 2018/19 to 2029/30 for the SDGs. The aggregate finance needs for the NST 1 and the SDG planning period were estimated at between RWF 37.5 and 41.0¹ billion (equivalent to \$44.3 and 48.4 million) and RWF 82.6 to 91.2 billion (equivalent to \$97.5 and 107.7 million), respectively. Goal 1 has the highest finance needs in the range of RWF 12.0 to 12.8 billion (equivalent to \$14.2 to 15.1 million) and 26.9 to 28.7 billion (equivalent to \$31.8 to 33.9 million), for the NST1 and the SDG timeline, followed in descending order by Goals 3, 4, 2 and 1, respectively. Nearly three quarters (73%) of the aggregate finance needs were estimated for Goals 4, 3 and 5. By contrast, Goals 1 and 2 collectively require 27% of the aggregate finance needs.

Summary of estimated financial needs for NBSAP II (Time periods: 2018/19 – 2029/30 and 2018/19 – 2023/24)

| Goals | | Total (2018/19 - 2029/30) million RWF | Average (2018/19 - 2029/30) million RWF | NST1 total (2018/19 - 2023/24) million RWF |
|--|------|--|--|--|
| 1. Mainstream biodiversity conservation in the decision making process across all governmental, private and civil society's development programmes | High | 10,270 | 856 | 4,824 |
| | Low | 9,116 | 760 | 4,283 |
| 2. Reduce multiple anthropogenic pressures on biodiversity and promote sustainable use of all renewable resources | High | 14,208 | 1,184 | 6,471 |
| | Low | 13,068 | 1,089 | 5,963 |
| 3. Improve the status of national biodiversity by expanding and safeguarding priority protected ecosystems and maintaining biological communities in equilibrium state | High | 19,069 | 1,589 | 8,562 |
| | Low | 17,638 | 1,470 | 7,926 |
| 4. Ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services | High | 28,651 | 2,388 | 12,791 |
| | Low | 26,933 | 2,244 | 12,013 |
| 5. Enhance NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building | High | 18,978 | 1,582 | 8,357 |
| | Low | 15,889 | 1,324 | 7,282 |
| Total | High | 91,175 | 7,598 | 41,004 |
| | Low | 82,644 | 6,887 | 37,468 |

The figure below shows the trends in financial needs in nominal figures over the 12-year time period for both the high and low projections.

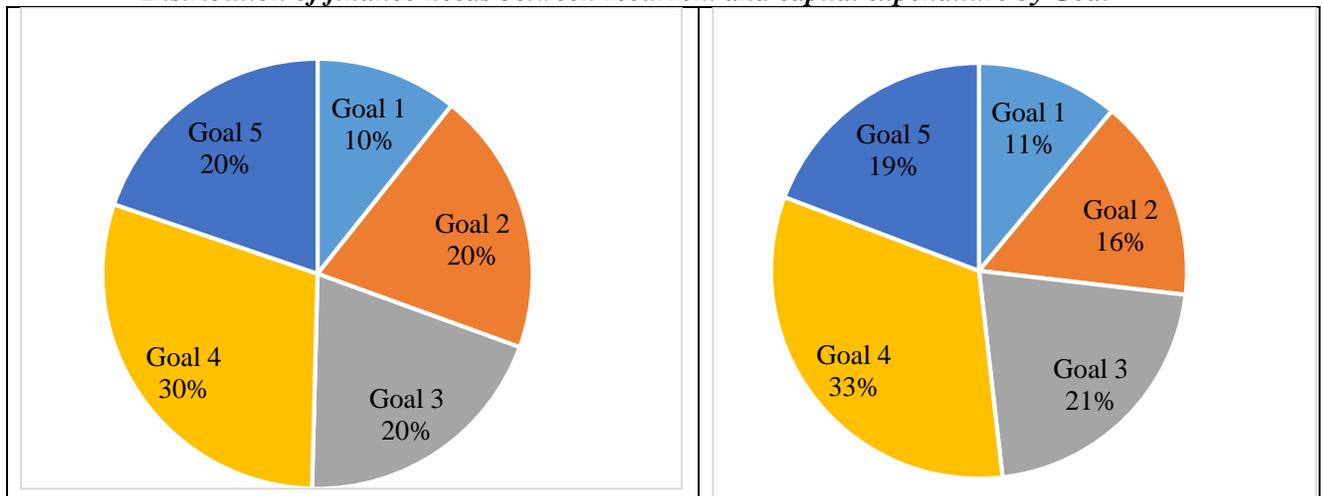
¹ Average exchange rate \$1 = RWF 847.1 (BNR 2018, Oct.)

Projected aggregate finance needs for all five NBSAP II Goals



Regarding capital (development or investment) versus recurrent expenditures, the distribution of aggregate finance needs was estimated to be 54% for capital expenditures and 46% for recurrent expenditures, which is in line with current MINECOFIN recommendations. The figures below shows the distribution by NBSAP Goal in the high and low range.

Distribution of finance needs between recurrent and capital expenditure by Goal



| | |
|------------------------------------|-----------------------------------|
| High Range of Finance Needs | Low Range of Finance Needs |
|------------------------------------|-----------------------------------|

As part of the financial needs estimation process, participants at the FNA consultation workshop undertook a budget prioritisation exercise using the total costed activities that were generated in the full Country Cost Tables. The full Country Cost Tables provided estimates for all the activities listed in NBSAP II. The exercise was meant to ask the workshop participants to rank all of the costed activities in terms of their direct impact and importance on biodiversity protection and mitigation, just as might commonly be done in any organisation’s budgeting cycle. The participants arrived at a total of 110 priority actions out of the original 168 costed actions

Conclusions and Recommendations

The process of undertaking the research and consultation for this report suggests a number of conclusions and recommendations for policy-makers and senior managers. These include:

- The prioritized FNA recommended is RWF 82.6 to 91.2 billion (equivalent to \$97.5 and 107.7 million) over the entire projection period of 2018/19 to 2029/30, the timeline for the SDGs and RWF 37.5 to 41.0 billion (equivalent to \$31.8 to 33.9 million) from 2018/19 to 2023/24 the timeline for NST1.
- The distribution that emerged from the prioritised finance needs showed that the capital expenditures were only 5% higher than the recurrent expenditures, with recurrent expenditures receiving 46% of the budget while capital expenditures received 54% of the budget. The capital expenditures were only marginally higher than recurrent expenditures, if the Government's strategy is to have higher capital investments over recurrent expenditure for biodiversity, the projects indicate closely matched medium term finance needs instead
- This report, and the earlier Biodiversity Expenditure Review, employed statistical methods to arrive at the projections used in the two reports. Such projections should obviously be treated with care, as they represent approximation of what could – but not necessarily will – happen over time. Needless to say, government spending priorities can shift over time from one budget cycle to the next, and as new biodiversity challenges are identified that had not previously been considered.
- Be that as it may, the budgeting projections do provide the basis for reaching one key conclusion: based on present trends, Rwanda faces increasing finance needs to protect and restore the country's biodiversity, a key underlying ingredient upon which the National Strategy for Transformation and the longer-term Vision 2050 are dependent. Any continuing deterioration of the country's natural capital risks undermining the major economic goals of NST 1 and Visions 2020 and 2050, namely becoming a middle-income country by sustainable economic – and green – economic growth and poverty eradication.
- The FNA process was nonetheless a useful and instructive exercise for stakeholders and participants in developing fully costed budget estimates for a key policy document such as NBSAP II, estimates extending over many years. Such a budgeting exercise has useful implications for many other sectors as well.
- The FNA analysis faced the same problem as the Biodiversity Expenditure Review in determining financing patterns for non-public sector actors – to include the private sector, environmental NGOs, and other civil society organisations. A wider scope in conducting assessments would have allowed for comprehensive consideration of NGOs and private sector expenditure and finance needs alongside government expenditure.
- As the earlier Biodiversity Expenditure Review first pointed out, there is need for improved tagging of public and non-government financing for biodiversity management. The FNA

analysis was an effort to start this tagging process by costing NBSAP II -- but only NBSAP II.

- During the consultation period, the FNA team found that many ministries and agencies had not used the NBSAP II as a key background document in developing their future work plans and budgets -- even for 2018-19 as part of the medium-term expenditure framework process. Therefore, the FNA provides an opportunity to integrate implementation of the NBSAP II into the programming and budgeting processes of ministries and agencies by matching their work plans with FNA targets, costable actions and budget projections.

1. INTRODUCTION

1.1 Overview

This Financial Needs Assessment is the third in a series of reports undertaken as part of the Biodiversity Finance Initiative that is being carried out in Rwanda. The Biodiversity Finance Initiative (commonly known as BIOFIN) is a global programme that was initiated by the international community in response to the urgent global need to generate significantly more financing from all possible sources towards global and national biodiversity goals, as highlighted during the 2010 Biodiversity Convention of the Parties (COP 10) in Nagoya, Japan.

Toward the goal of improving financing for biodiversity and conservation, BIOFIN has developed a robust methodology enabling countries to measure their current biodiversity expenditures, assess their financial needs in the medium term, and identify the most suitable finance solutions to bridge their identified national biodiversity financing gaps.² The BIOFIN methodology includes the following main steps that consist of four reports along with follow-up implementation activities:

- 5) ***Biodiversity Finance Policy and Institutional Review (PIR)***: Analysis of the policy and institutional architecture for biodiversity finance and existing finance mechanisms.
- 6) ***Biodiversity Expenditure Review (BER)***: Analysis of public and private expenditures towards sustainable biodiversity management.
- 7) ***Financial Needs Assessment (FNA)***: Estimates of the investments required to implement current national biodiversity plans and achieve national biodiversity targets and results.
- 8) ***Biodiversity Finance Plan (BFP)***: Analysis of options to optimize current and expand future investments (public, private, national, international, traditional and innovative) in biodiversity management.

The PIR and the BER were completed in late 2017. The FNA builds on the two earlier studies by estimating what is needed to fully finance Rwanda's biodiversity goals and objectives, as found in Rwanda's second National Biodiversity Strategy and Action Plan (NBSAP II)

1.2 Threats to biodiversity in Rwanda

At the outset, it is useful to recall some of the main threats to biodiversity in Rwanda. These range from population pressures, poaching in protected areas, forest encroachment, alien invasive species, uncontrolled fires, and a number of anthropogenic actions and natural disasters (Table 1). Poaching (the illegal hunting of wildlife in protected areas) is largely done by local people to support their livelihoods. Boundary encroachment on natural forests has resulted in major deforestation that resulted into a decline in natural forest cover of 65% between 1960 and 2007. Forest encroachment was exacerbated by illegal logging, charcoal production and bushfires. Alien invasive species on aquatic and terrestrial ecosystems includes water hyacinth (*Eichornia crassipes*) in lakes and rivers, *Protopterus aethiopicus* fish in Lake Muhazi and gastropods biomass in *Carias gariepinus* (predatory fish). Uncontrolled fires that usually occur during the

² For a full description of the Biodiversity Finance Initiative, see BIOFIN's website found at www.biodiversityfinance.net

long season (June-September). Most of the fires are started by people for example honey collectors and poachers, while some are also started by lightning (GOR 2016). Other threats to biodiversity include tree cutting and vegetation clearing, mining, human-wildlife conflict, poisoning of wildlife, illegal fishing, agricultural intensification, climate change, declining water levels and illegal grazing, among others. Table 1 shows the main underlying pressures and drivers affecting biodiversity loss in Rwanda, as identified in the NBSAP.

Table 1. Underlying pressures and drivers affecting biodiversity loss in Rwanda

| Pressures/Driver | Description |
|-------------------------------------|---|
| Population pressure | Rwanda's population density in 2012 was estimated at 415 inhabitants per square kilometer. Compared to neighboring countries: Burundi (333), Uganda (173) or Kenya (73), Rwanda is the highest densely populated county in the region. The majority of Rwandans depend on natural resources and agriculture, thus putting enormous pressure on natural resources and existing protected areas. |
| Habitat loss | Encroachment for human settlements and associated agricultural pursuits and forested landscapes fragmented by development and other competing land uses. |
| Invasive and exotic species | Example includes the water hyacinth, <i>Eichhornea crassipes</i> , which was introduced as an ornamental plant. It has since invaded lakes in Rwanda from Muhazi to Rweru from the River Nyabarongo and other water systems, and endangers the biodiversity in the inland water ecosystems of the Lake Victoria Basin. |
| Water and soil pollution | Contamination of water and soil weakens or eliminates many useful species, alters the flow of energy, and disrupts the chemical and physical constitution of the environment. |
| Poaching and illegal wildlife trade | In the last 15 years, elephants in Nyungwe National Park, lions in Akagera National Park; other species are regularly threatened with poaching inside and outside parks. |
| Civil conflict | Some of the major losses of protected area land and forest resources occurred in the early 1990s during the conflict and post-conflict resettlements. |
| Climate change | A potential threat of unknown magnitude, which may accentuate other direct threats, especially habitat loss, degradation and fragmentation, and the threat from invasive species. |

Source: NBSAP, 2016

1.3 Rwandan Policy Context

Over the past several years, Rwanda has enacted a number of well-articulated biodiversity and conservation policies that give high priority to protecting the country's natural capital. As outlined in the earlier Finance Policy and Institutional Review (PIR), these have included the National Biodiversity Policy (2011), the National Biodiversity Strategy and Action Plan (2003 and 2016), National Policy on Water Resources Management (2011), and the Protected Areas Concessions Policy (2013). The Government has also promulgated policies of close relevance: the Green Growth and Climate Resilience Strategy (2011) as well as the complementary National Strategy for Climate Change and Low Carbon Development (2011).

Of these, the NBSAP II represents a commitment made by the Government, as a member country to the Convention on Biological Diversity, to articulate the country's plan and strategy for protecting and mitigating threats to Rwanda's natural capital. The vision of the NBSAP II is to have, by 2040, all national biodiversity restored and conserved, contributing to economic prosperity and human well-being by delivering benefits essential for Rwandan society in general. (GOR, 2016). Rwanda's NBSAP II is composed of five goals and 19 targets that are listed in Box 1.

Box 1. NBSAP II Goals and Targets

Goal 1. Mainstream biodiversity conservation in the decision making process across all governmental, private and civil society's development programmes

Target 1: by 2020, at latest, Rwandan people in at least Districts that are adjacent to protected areas are aware of the values of biodiversity and ecosystem services and understand the steps for its sustainable use

Target 2: By 2020, the values of biodiversity and ecosystem services in the key natural ecosystems for at least two selected protected areas have been determined and integrated into planning processes, i.e. poverty reduction strategies and into national economy.

Target 3: By 2020, at the latest, positive incentives for biodiversity conservation and sustainability towards local communities' development are boosted and applied and harmful incentives are eliminated.

Target 4: By 2020, public and private sectors and civil society organizations have promoted and implemented plans that consider ecological limits.

Goal 2. Reduce multiple anthropogenic pressures on biodiversity and promote sustainable use of all renewable resources

Target 5: By 2020, at least 50 percent of natural ecosystems are safeguarded, their degradation and fragmentation significantly reduced.

Target 6: By 2020, fishing and aquaculture, agriculture and forestry are managed sustainably taking into consideration ecosystem specificities to ensure biodiversity conservation.

Target 7: By 2020, pollutants including those from excess nutrients are controlled and their harm has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 8: By 2020, invasive alien species, their pathways, are identified and prioritized invasive alien species controlled or eradicated, and related mitigation measures are put in place.

Goal 3. Improve the status of national biodiversity by expanding and safeguarding priority protected ecosystems and maintaining biological communities in equilibrium state

Target 9: By 2020, at least 10.3 percent of national territory holding particular biodiversity and ecosystem services is protected taking into account the landscape approach in order to maintain biological diversity.

Target 10: By 2020, the extinction of threatened species is prevented and their conservation status improved, particularly for identified as "Alliance for Zero Extinction (AZE)."

Target 11: By 2020, the genetic diversity of priority 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.

Target 12: By 2020, the potential risks resulting from biotechnology use and placement on the market of its products have been minimized and/or eliminated.

Goal 4. Ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services

Target 13: By 2020, all ecosystems that provide essential services to human well-being and contribute to health as well as livelihoods are restored and safeguarded, taking into account the needs of women, local communities especially the vulnerable groups.

Target 14: By 2020, the ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through increase of forest cover up to 30 percent of the country and restoration of other ecosystems thereby contributing to climate change adaptation and mitigation.

Target 15: By 2017, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is integrated in national legislation and administrative practices and enforced.

Goal 5. Enhance NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building

Target 16: By 2016, Rwanda has developed, adopted as a policy instrument, and has commenced implementing effective, participatory and updated National Biodiversity Strategy and Action Plan (NBSAP).

Target 17: By 2020, values of traditional knowledge, innovations and practices of 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 international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of local communities, at all relevant levels.

Target 18: 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 applied and reflected in the implementation of the NBSAP.

Target 19: By 2020, at the latest, the mobilization of financial resources for an effective implementation of NBSAP from all potential sources, and in accordance with agreed process in the strategy for resource mobilization, is reinforced and increased substantially from the current levels.

The BER indicated that funding for biodiversity management in Rwanda is derived from government subventions through government budget to ministries and agencies, non-government expenditures including funding from bilateral donors, Global Environment Facility (GEF) funded projects, non-governmental organisations (NGOs) and the private sector. Government biodiversity expenditures increased from RWF 10.17 billion in 2011/12 to RWF 11.5 billion in 2016/17, representing a cumulative growth rate of 2.5 percent annually. Similarly, expenditures by non-government implementing entities increased annually for 4.6 billion RWF to 5.7 billion RWF annually between 2011/12 and 2016/17 (REMA, UNDP and Global BIOFIN 2017). The current

Both the NBSAP II and BER indicated that biodiversity financing is mainly provided through government budget and development partners' financial support; however, the NBSAP II suggested several constraints to financing for biodiversity in the country. These include:

- 1) budgetary allocations to environment conservation, under which biodiversity management is funded, are too small to address all the programmed actions;
- 2) lack of long-term commitments to investment for biodiversity conservation;
- 3) limited considerations for the services biodiversity can provide in relation to poverty reduction, economic development, health, sanitation, infrastructure development, disaster management, etc.; and

- 4) in many cases, large biodiversity related expenditure are only allocated in response to a natural disaster or international commitments, without integrating national and local priorities.

As a result, overall levels of financial support for biodiversity is deemed to be inadequate (GOR, 2016).

In summary, NBSAP II serves as the framework policy document around which this Financial Needs Assessment has been conducted in order to arrive at the estimated biodiversity finance gap.

1.4 The challenge of financing biodiversity and conservation in Rwanda

The NBSAP II suggested multiple options for increasing biodiversity financing, including:

- 1) Official Development Assistance (ODA);
- 2) public sector funds;
- 3) payments for ecosystem services (PES);
- 4) carbon credit payments;
- 5) biodiversity utilization payments;
- 6) fines and levies;
- 7) fundraising through public revenue-raising effort;
- 8) voluntary (i.e. local fee) and mandatory (i.e. airport departure fees that fid protected areas) fees;
- 9) biodiversity offsets;
- 10) environmental-economic accord;
- 11) reduction of subsidies;
- 12) limits on trade of natural resources; and
- 13) legal mechanism for economic incentives to sustain use of biodiversity.

The budget for the NBSAP II resource mobilization plan was set at US\$7.91 million for a seven-year timeframe, but the NBSAP II did not articulate from what sources the required financing would come. The budgets were only indicative and did not consider a comprehensive costing of the natural capital challenge facing Rwanda. By comparison, the BER showed that by FY 2016/2017, the annual expenditure on biodiversity protection and mitigation in Rwanda was estimated at RWF 11.5 billion, equivalent to \$ 13.45 million (BIOFIN Rwanda, 2017). In addition, the BER further showed that the actual financing for biodiversity has fluctuated considerably from year to year, with a range of between RWF 6.0 billion to RWF 11.5 billion between 2011/12 and 2016/17. Therefore, indicative figures based on past, current and projected estimates may not be a fair reflection of the resources required for sustainable financing of biodiversity and conservation, as proposed by NBSAP II.

2. SCOPE AND METHODOLOGY

2.1 Scope of the FNA

As stated in Chapter 1, the overall scope of the FNA has been to calculate the detailed costs for implementing the prioritized strategies and actions based on NBSAP II. In this regard, the FNA is meant to help policy-makers and senior managers be able to:

- (iv) understand the total cost implications for implementing each activity, and therefore aggregate the total cost for all strategies and actions within the NBSAP;
- (v) be in a position to prioritise the set of cost-able actions that comprise the strategies and actions within the NBSAP; and
- (vi) recognise the need to manage annual fluctuations in biodiversity financing, and therefore anticipate the need for increased mobilization of funds for biodiversity and conservation.

The scope for the FNA was further defined based on national stakeholder consultations, in alignment with the earlier BIOIFN PIR and the BER processes. The FNA has been further aligned with Rwanda's long-term development strategy Vision 2020 and Vision 2050, and the medium term strategy, the National Strategy for Transformation (NST 1). The scope also embraces the Sustainable Development Goals (SDGs), and the Paris Declaration on Climate Change (2030).

Using these longer-term timeframes, the FNA employs a timeline from 2018/19 to 2029/30. Within this timeline, the findings of the FNA provide estimates on biodiversity finance needs for the period of NST 1, 2018/19 to 2024/25, and the reporting period for the SDGs up to 2029/30.

2.2 Overall approach

In line with the BIOFIN methodology, the FNA was designed as a descriptive and participatory ex-ante budgeting exercise. The FNA has calculated a comprehensive costing plan based on the goals, targets, actions and indicators found in the NBSAP II. This was done by estimating cost-able actions, cost categories and sub-categories, unit costs and calculations for costs for implementing NBSAP II. The participatory evaluation comprised a stakeholder workshop and meetings, as well as several bilateral meetings with key ministries and agencies, including the Ministry of Finance and Economic Planning (MINECOFIN), the Rwanda Environment Management Authority (REMA), Ministry of Environment (MOE), the Rwanda Agricultural Board (RAB), the Ministry of Agriculture and Animal Resources (MINAGRI) and the Rwanda Development Board (RDB).

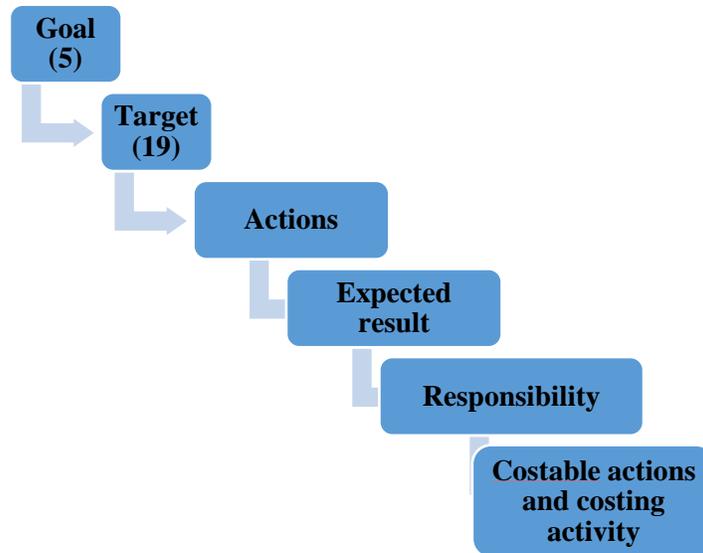
2.3 Steps in the FNA analysis

The assessment process follows the BIOFIN methodology, which consists of nine steps outlined below:

- 1) Preparation involving the inception activities and making relevant arrangements for secondary data collection and literature review. This phase entails background work

- covered related to the inception and post-inception activities.
- 2) Scoping and clarifying the NBSAP actions. Scoping was covered as part of the inception activities. Early engagement with stakeholders provides clarification on the NBSAP goals and action plans, the institutional arrangements and the resource mobilization plan.
 - 3) Desktop study and preparation of initial costing tables. This activity involved disaggregating the NBSAP II implementation and timeline into cost elements, i.e., costable actions or specific cost elements and units to be calculated.
 - 4) Stakeholder engagement during and after the costing activities through key informant meetings and a consultation workshop in the early stages as well as a validation workshop, at a later stage, to discuss the complete findings and final recommendations.
 - 5) Refinement of cost models with expert input. The initial basic model drawn from the NBSAP and other policies was further refined to the proposed timeline and improved understanding of relationships for implementation of the NBSAP.
 - 6) Analysis of costing results. The analysis aimed at providing a clear aggregation of actions, activities, targets and goals and ultimately the entire NBSAP over the proposed timeline (See Figure 1).
 - 7) Estimation of finance needs. The finance need was calculated as the final aggregation of the costing of the NBSAP actions, targets and goals.
 - 8) Completion of the report detailing the biodiversity finance needs and finance gap.

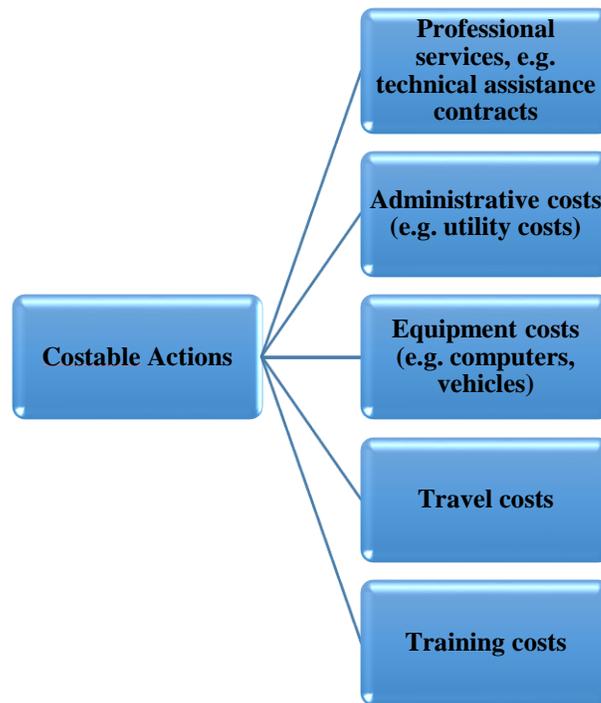
Figure 1: Structure for disaggregating the NBSAP



2.4. Data collection

Data collection was carried out using three primary sources: (i) official documents and reports, (ii) data estimates from discussions with ministry and agency staff members, and (iii) consultative and review meetings with a range of national biodiversity stakeholders (See Table 2.) The official documents consisted of the NBSAP II, the 2013 Biodiversity Policy, the BER report, Budget Framework Papers Medium Expenditure Frameworks, and annual budgets for 2018/19 for government ministries and agencies. Examples of other country FNA reports, such as the Philippines, were used for comparison in developing the Country Costing Tables.

Figure 2. Structure for translating cost-able actions into cost categories



Other sources of documentation came from Rwanda Development Board (RDB), REMA, the Ministry of Agriculture and Animal Resources (MINAGRI) and Rwanda Agricultural Board (RAB), Rwanda Water and Forestry Authority (RWFA), Ministry of Lands and Forestry (MINLAF), and the Rwanda Green Fund (FONERWA). The documents comprised the work plans and budgets for 2018/19. The documents provided a basis for the cost categories and sub-categories included in the initial Country Costing Tables. Whereas the Country Costing Tables were later revised to adopt standard categories and cost units, the initial data were used as guidance in the subsequent meetings with stakeholders. Data were collected through office visits and sharing of soft copies of work plans, current and previous ministry and agency budgets, and draft and current strategic plans.

Stakeholder consultations covered a wide scope of private sector, civil society, and public sector and development partners. The development partners were principally represented by UNDP and

the UN Poverty Environment Initiative (UNPEI). Environmental non-governmental organisations (NGOs) were represented by Albertine Rift Conservation Society (ARCOS), Dian Fossey Gorilla Fund International (DFGFI) and Wildlife Conservation Society (WCS). The private sector was represented by the AKAGERA Management Company and the Rwanda Private Sector Federation. Government stakeholders came from MoE, REMA, RDB, and the Centre for Excellence in Biodiversity Conservation and Natural Resources Management (CoEB) at the University of Rwanda, MINILAF, MINAGRI, RAB, MINECOFIN, FONERWA, National Agriculture Export Board (NAEB), National Industrial Research and Development Agency (NIRDA), Rwanda Land Management and Use Authority (RALMA), and the National Institute of Statistics Rwanda (NISR).

The stakeholders reviewed the templates of the Initial Country Costing Tables and suggested improvements. The stakeholders then reviewed the Initial Country Costing Tables and the Explanatory Notes at a stakeholder meeting held in March 2018. In May 2018, a national consultation workshop was held during which stakeholders made a comprehensive review of the Country Costing Tables, the Explanatory Notes, and the draft FNA report.

Table 2. Major stakeholders by goals of NBSAP II

| <i>Goal 1: Mainstream biodiversity conservation in decision making processes</i> | <i>Goal 2: Reduce anthropogenic pressure on biodiversity resources and promote their sustainable use.</i> | <i>Goal 3: Improve status of national biodiversity by expanding and safeguarding priority protected ecosystems and maintaining biological communities in equilibrium state</i> | <i>Goal 4: Ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services</i> | <i>Goal 5: Enhance NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building</i> |
|---|--|---|--|--|
| REMA | MOE | RDB, RWFA | FONERWA | MINECOFIN |
| University of Rwanda | MINAGRI, RAB | Ministry of Justice (MINIJUST) | NAEB, REMA | All biodiversity stakeholders in the country |
| CoEB | MINILAF | RDB | RWFA, MINILAF | REMA |
| Development partners | RDB | MINALOC | Private sector | Ministry of Education (MINEDUC) |
| All biodiversity stakeholders in the country | MINAGRI, RAB and Districts, commercial fisher men and women, and fishing communities | RDB, MINIJUST, REMA, MoE, MINILAF, RWFA, | REMA, MINILAF, RWFA, RDB, NIRDA, RAB, and Districts, | RAB, MINEDUC, UR, regional & International research Institutes, civil society |
| NISR, MINECOFIN | MoE, REMA, and Districts | RDB, MINIJUST, REMA, MoE, MINILAF, RWFA, | RDB, RWFA, and NIRDA | REMA, MINEDUC, CoEB, MoE, RDB, UR, RWFA and MINILAF |

2.5 Cost estimation methodology

The BIOFIN methodology lists options that can be used at the national level for conducting a financial needs assessment. In the case of Rwanda, a bottom-up costing approach was used for conducting the FNA, which – as explained above – entailed the converting of the NBSAP goals, actions and activities into cost elements and cost units (or cost-able units), and the establishment of cost rates and quantities of the different units of actions to be implemented. The data were entered into Excel spreadsheets and the calculations were elaborated including the relationships between values on the same sheet, different sheets and in different workbooks as well. The model linking different components and timelines of the FNA were elaborated on the first page of the Excel Workbook.

The BIOFIN Rwanda team also drew from lessons reached by global BIOFIN team and other BIOFIN implementing countries in building the costing tables and the calculation of financial needs and gaps for those countries' own NBSAPs.

The Initial Country Costing Tables were designed to collect data on both the estimated finance needs for the initial year as well as the estimated effort for biodiversity activities, programmes and projects over the course of the 12-year projection period. Therefore, with data on the expected effort per year over the course of the projection period, an estimate could be made on the finance needs for each year of the projection, based on the following formula.

$$FN_{yt} = \sum AL_{yt} * UC * F * (1.05)^{yt-1}$$

Where FN_{yt} stands for the year of finance needs for year of projection, AL_{yt} stands for the activity level for the year of projection, UC stands for unit cost, F for frequency of activity in the year of projection. The starting year of the projection 2018/19 was counted as year zero, with an annual inflation rate of 5 %.

During the course of analysis, three different cost estimates were generated, each of which includes both a high and low calculation of costable actions. The first estimate, using the formula above, is simply the average of costable actions per year over the 12-year period. The second estimate uses the statistical tool of ordinary least squares as a way of “smoothing out” the data over the time period in order to more closely fit the estimates into likely budget cycles that change incrementally. The decision to run a least squares estimate was taken based on discussions with MINICOFIN and REMA staff about the best way to make cost projections, given the many “unknowns” in budgeting over a 12-year period. These least squares projections are used in chapters 3 and 4. Both estimates address the problem encountered from the Country Cost Tables, in which the duration of the costable actions varied from one year to all 12 years, resulting in highly variable costs from any one year to the next (See Annex 4).

The third estimate uses the least squares calculation but derives a prioritised list of costable actions, in other words, what costable actions would have the most direct and significant impacts on protecting and restoring biodiversity. This prioritisation exercise was done at the stakeholder consultation workshop held in May 2018 in Musanze. The exercise was used as a way of ranking

programmes and projects so that the workshop participants could understand the trade-offs in selecting among multiple potential activities, an issue that is commonly encountered in virtually every budgeting exercise.

2.6 Finance needs prioritisation exercise

The scope of the FNA is to cost the NBSAP and is used for engagement conducted with stakeholders showed that virtually no ministry or agency can expect to receive a *carte blanche* for all funding desired. Therefore, the FNA process in Rwanda included two step process of prioritizing finance needs for integration into the priorities of NST1 and the Agenda 2030.

The first prioritization exercise was conducted in Musanze, and it included stakeholders from Government, Non-Governmental Organisations (NGOs) and the private sector. During the Musanze workshop in May 2018, the participants undertook a budget prioritization exercise using the total costed activities that were generated in the full Country Cost Tables. The full Country Cost Tables provided estimates for all the activities listed in NBSAP II. The participants ranked the costed actions using four criteria:

- Directly improves biodiversity management;
- Creates strong incentives for biodiversity management
- Responsible actors have capacity for implementation; and
- Leads to fast action on biodiversity management

The second level of prioritisation was conducted by ministries and agencies of the Government of Rwanda. The ministries and agencies who carried out the second prioritisation step were: REMA, MINECOFIN, RDB, MINAGRI and FONERWA. The second prioritisation exercise was conducted to establish the size and scope of finance needs that can be integrated into the National Budget in line with the obligations of implementation by Government and non-Government actors. The second prioritisation step relied on the results of the stakeholder prioritisation to and expert knowledge of planners in the NBSAP II implementing agencies, as well as the finance ministry. The results of the two exercises are presented below.

3. BIODIVERSITY FINANCE NEEDS CALCULATION

3.1 Finance needs for biodiversity protection and mitigation

The finance needs for implementing the NBSAP II were estimated over two timelines; 2018/19 to 2023/24 for the National Strategy for Transformation (NST 1) and 2018/19 to 2029/30 for the Sustainable Development Goals (SDGs). The FNA is aligned with Rwanda’s long-term development strategy Vision 2020 and Vision 2050, and NST 1. Whereas only a blue print the Vision 2050 was published by the Government with the final version expected at the end of the Vision 2020 (Gatete 2016), NST 1 identified six priorities: agriculture, manufacturing, energy, mining, urbanisation, MICE (meetings, incentives, conventions and exhibitions), and transport and logistics (MINECOFIN 2017). NST1 also emphasizes the dependence of Rwanda’s growth on the sustainable use of natural resources, among other factors.

The aggregate finance needs for implementing the NBSAP for the NST 1 and the SDG planning periods were estimated at between RWF 37.5 and 41.0 billion and RWF 82.6 to 91.2 billion, respectively (Table 3). Goal 4 has the highest finance needs in the range of RWF 12.0 to 12.79 and 26.93 to 28.65 billion, for the NST1 and the SDG timeline followed in descending order by Goals 3, 5, 2 and 1, respectively.

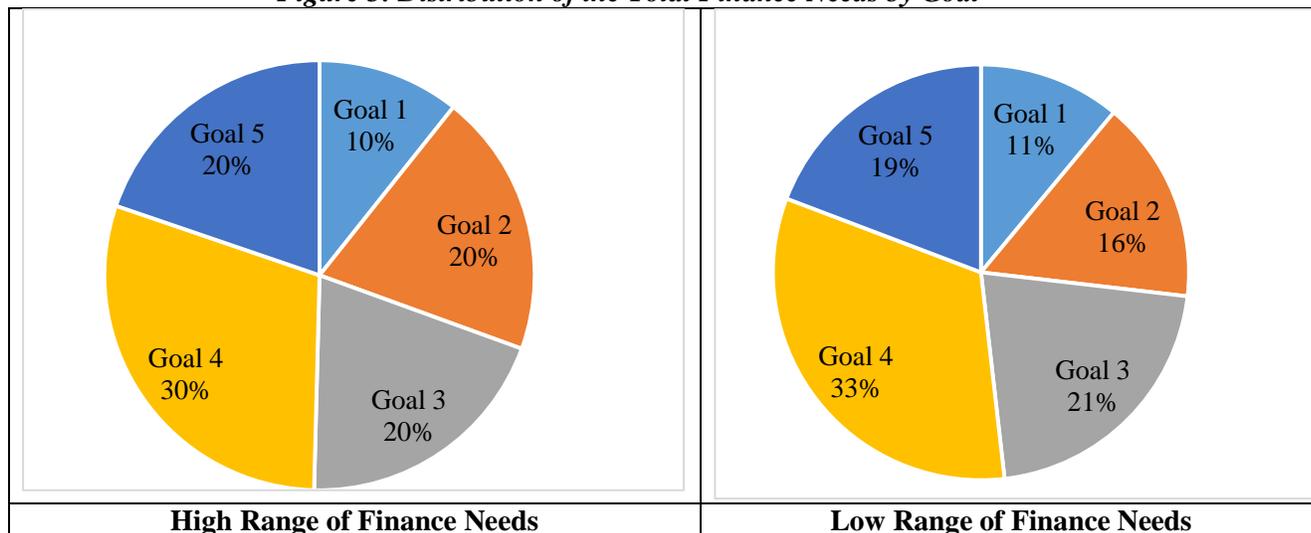
Table 3. Summary of estimated financial needs for NBSAP II
(Time periods: 2018/19 – 2029/30 and 2018/19 – 2023/24)

| Goals | | Total (2018/19 - 2029/30) million RWF | Average (2018/19 - 2029/30) million RWF | NST1 total (2018/19 - 2023/24) million RWF |
|--|------|---------------------------------------|---|--|
| 1. Mainstream biodiversity conservation in the decision making process across all governmental, private and civil society’s development programmes | High | 10,270 | 856 | 4,824 |
| | Low | 9,116 | 760 | 4,283 |
| 2. Reduce multiple anthropogenic pressures on biodiversity and promote sustainable use of all renewable resources | High | 14,208 | 1,184 | 6,471 |
| | Low | 13,068 | 1,089 | 5,963 |
| 3. Improve the status of national biodiversity by expanding and safeguarding priority protected ecosystems and maintaining biological communities in equilibrium state | High | 19,069 | 1,589 | 8,562 |
| | Low | 17,638 | 1,470 | 7,926 |
| 4. Ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services | High | 28,651 | 2,388 | 12,791 |
| | Low | 26,933 | 2,244 | 12,013 |
| 5. Enhance NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building | High | 18,978 | 1,582 | 8,357 |
| | Low | 15,889 | 1,324 | 7,282 |
| Total | High | 91,175 | 7,598 | 41,004 |
| | Low | 82,644 | 6,887 | 37,468 |

Seventy three percent of the aggregate finance needs were concentrated in Goals 4, 3 and 5 (Figure 3). The projected expenditure on Goal 4 to ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services was one third of all finance needs. Goals 3 and 5 on improving the status of national biodiversity by expanding and safeguarding priority protected

ecosystems and maintaining biological communities in equilibrium state, and enhancing NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building had nearly matched finance needs, one-fifth of the total budget for each Goal. By contrast, Goals 1 and 2 had finance needs of 16% and 11% of the total budget for 2018/19 to 2029/30.

Figure 3: Distribution of the Total Finance Needs by Goal



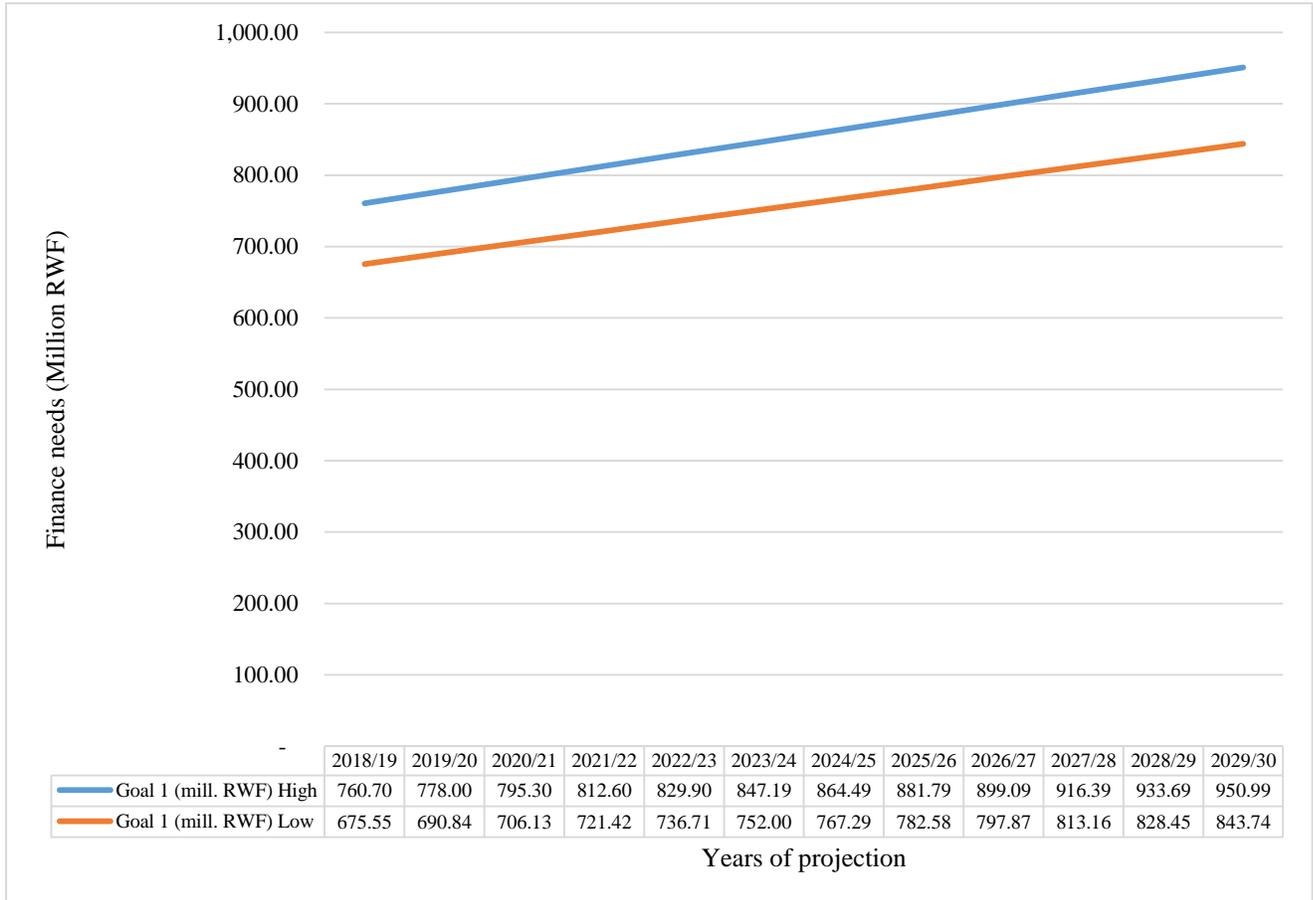
The concentration of finance needs lies in Goals 4, 3, and 5. This may be due to their primary role in supporting maintenance of biodiversity and ecosystems in the country, ensuring sustainable use and management, and implementation of the NBSAP II, respectively. Goal 3 seeks an improvement in the status of national biodiversity by expanding and safeguarding protected ecosystems and maintaining biological communities in equilibrium state, while Goal 4 aims to ensure equitable distribution of benefits arising from the use of biodiversity in eco-systems. Goal 5 aims to enhance NBSAP implementation through participatory planning and capacity building. Goals 1 and 2 deal with management actions, including legislation and enforcement, and incentives to change direct and indirect drivers of biodiversity and ecosystem degradation. Goals 1 and 2 are thus associated with actions on indirect drivers that influence capital investment and resource management including policy and legislation, awareness creation and technical capacity, among others. Therefore, a lower expenditure would be expected for Goals 1 and 2.

3.2 Trends for finance needs by Goal

3.2.1 Finance trends for Goal 1

The estimates of finance needs for Goal 1 of the NBSAP II show a projected gradual increase of funding from the starting year of 2018/19 to 2029/30 (Figure 4). The annual finance needs for Goal 1 increased from RWF 675.6 to 843.7 million in the high range and from RWF 1.9 to 2.5 billion in the low range, over the 12-year project. Similarly, the annual finance needs increased from RWF 2.0 to 2.6 billion and from 1.9 to 2.2 billion in the high and low range over the NST 1 implementation period.

Figure 4. Projected trend in finance needs for Goal 1

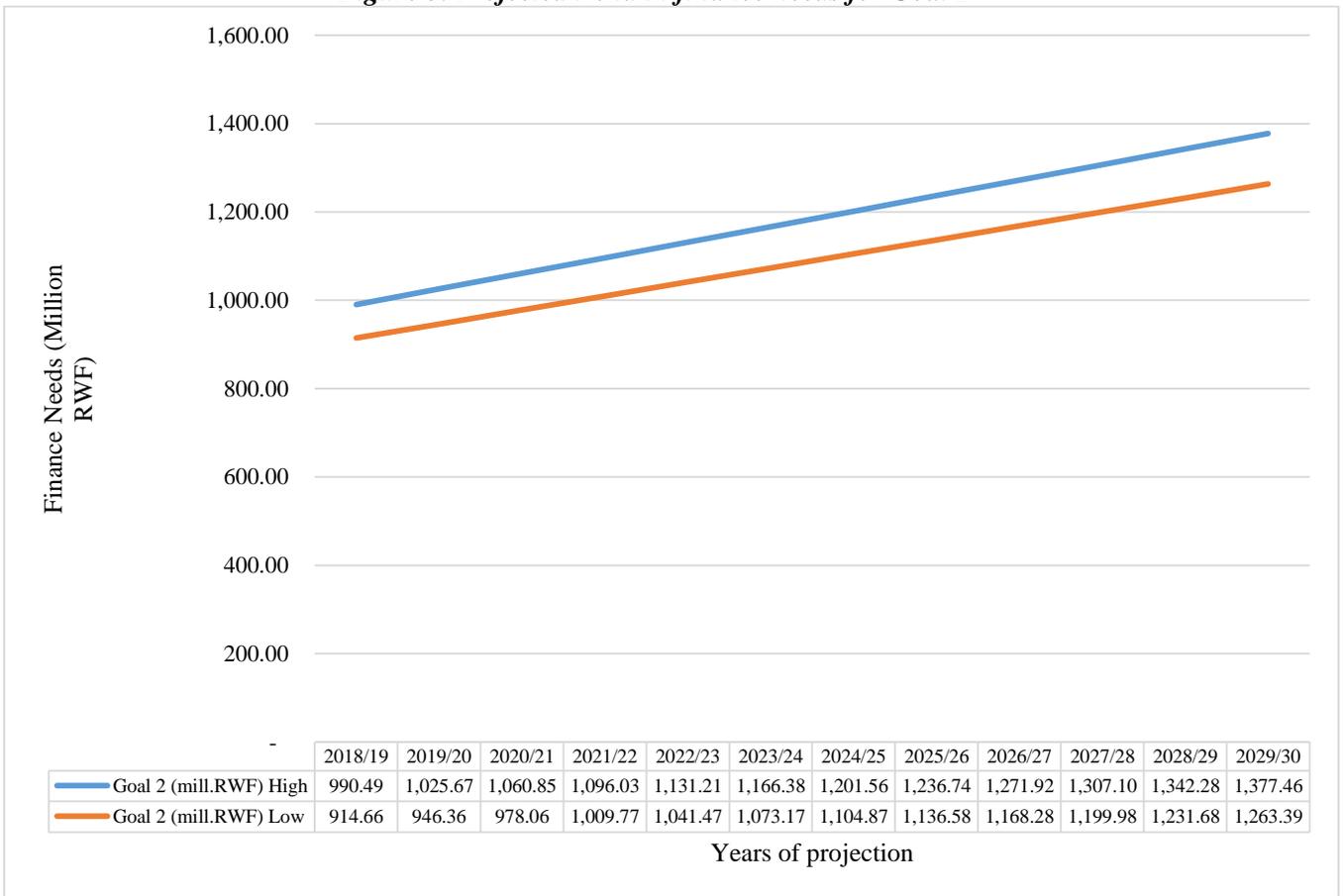


Goal one deals with mainstreaming biodiversity management and conservation in national processes. The similar trends suggest that under a prioritized assessment finance needs for coordination will likely only be differentiated by prices attributed to finance needs and/or quantities of resources needed to achieve coordinating biodiversity management in the country.

3.2.2 Finance trends for Goal 2

Figure 5 shows the least squares estimates made for Goal 2. The graph indicates much more rapid increase under the high range of finance needs as compared to the gradual increase in finance needs compared to Goal 1. However, the high and low range run parallel to each as in the same way as Goal 1. In the high range, the finance needs increase from RWF 990 to 1,377 million over the from 2018/19 to 2029/30 while in the low range, the finance needs increase from RWF 914 to 1,263 million between 2029/30 (Figure 5).

Figure 5. Projected trend in finance needs for Goal 2

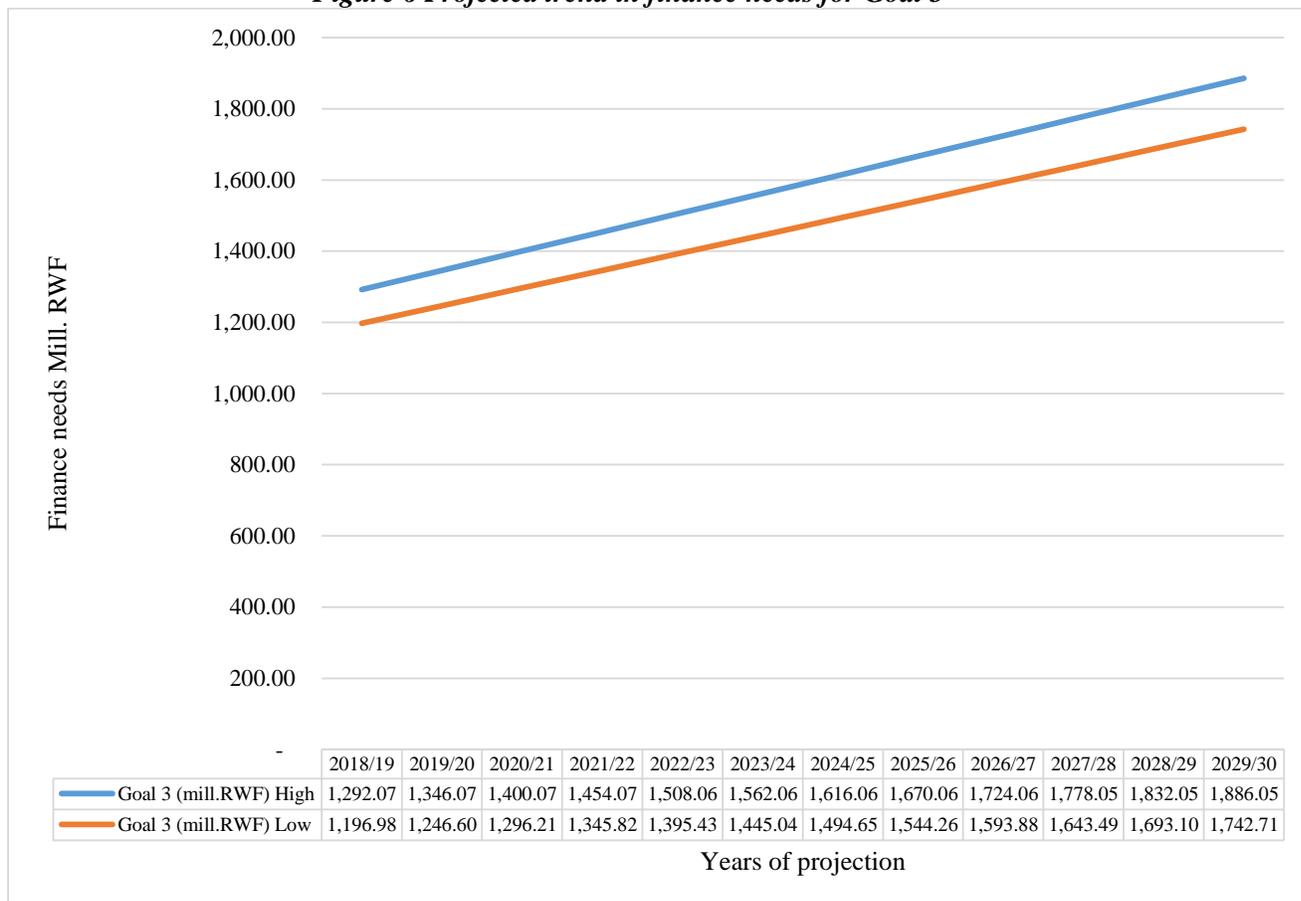


Goal 2 deals with the trends of Figure 5 indicate projections for increased focus on efforts to manage anthropogenic pressures on biodiversity and ecosystems over the period of NBSAPII and beyond. Management of indirect and direct drivers through regulatory instruments and incentive-based mechanisms are considered to be a growing focus particularly from a lower initial base in 2018/19.

3.2.3 Finance trends for Goal 3

The trends for Goal 3 show that the finance needs will grow more rapidly than for both Goal 1 and Goal 2 (Figure 6). The annual finance needs for Goal 3 are projected to increase from RWF 1.2 to 1.3 billion to 1.7 to 1.9 billion, in the low and high range, respectively, from 2018/19 to 2029/30. The investments required for Goal 3 to safeguard national biodiversity and protected areas are likely to be capital intensive requiring increased human, technology and institutional capacity.

Figure 6 Projected trend in finance needs for Goal 3

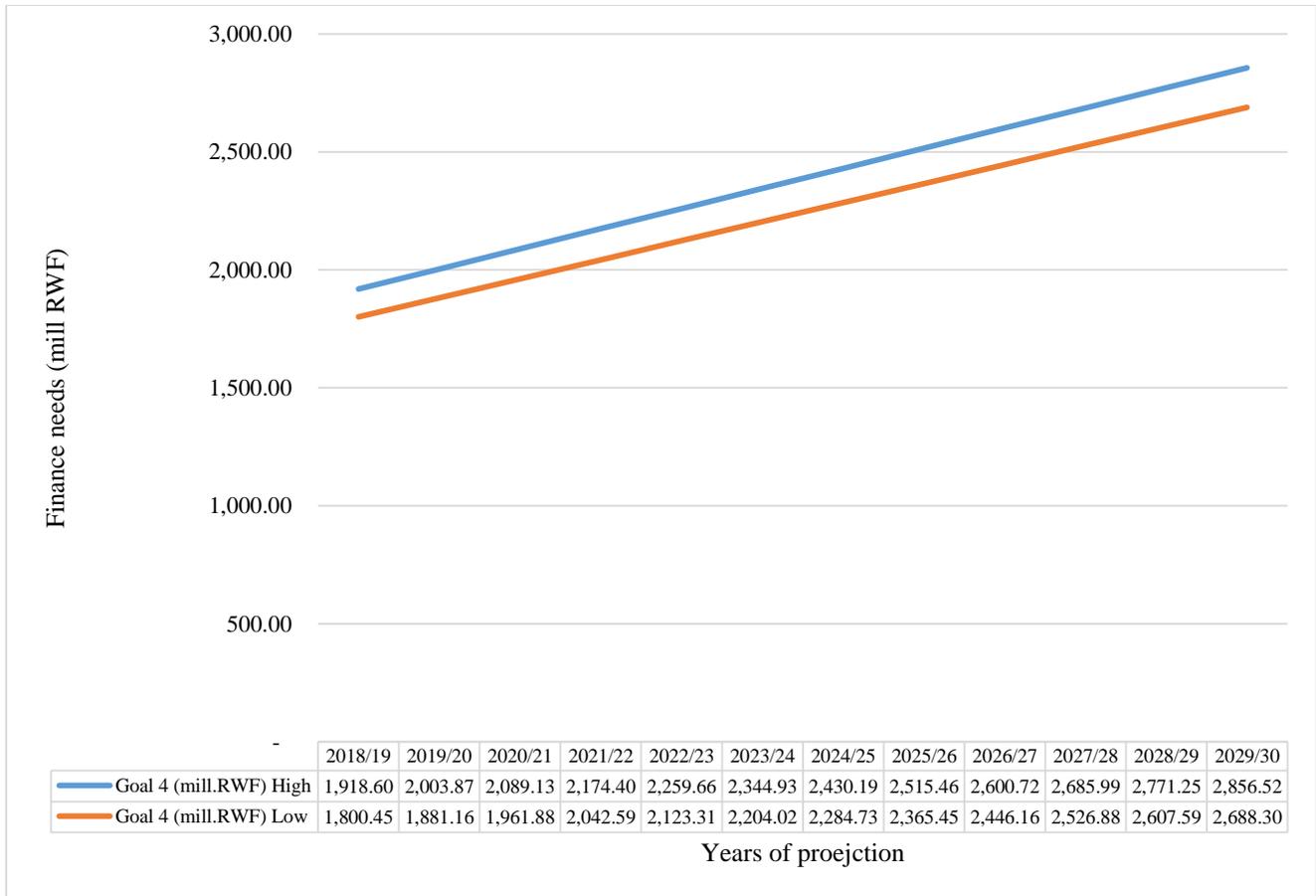


In contrast to both Goals 1 and 2, the finance needs base for Goal 3 was already above RWF 1.0 billion in 2018/19. Therefore, improving the status of national biodiversity and safeguarding priority protected areas is already a priority for biodiversity expenditure. Nonetheless, a high priority seems to be placed on safeguarding national biodiversity compared to mainstreaming biodiversity management into national processes in Goal 1.

3.2.4 Finance trends for Goal 4

Figure 7 shows the estimates made for Goal 4. The trend of finance needs were similar to those for Goal 3, however, the gap between the low and high range is much narrower. The biodiversity finance needs for Goal 4 increased uniformly under the low range and the high range of the projections from RWF1.8 to 1.9 billion in 2018/19 to RWF 2.7 to 2.9 billion in 2029/30.

Figure 7. Projected trend in finance needs for Goal 4

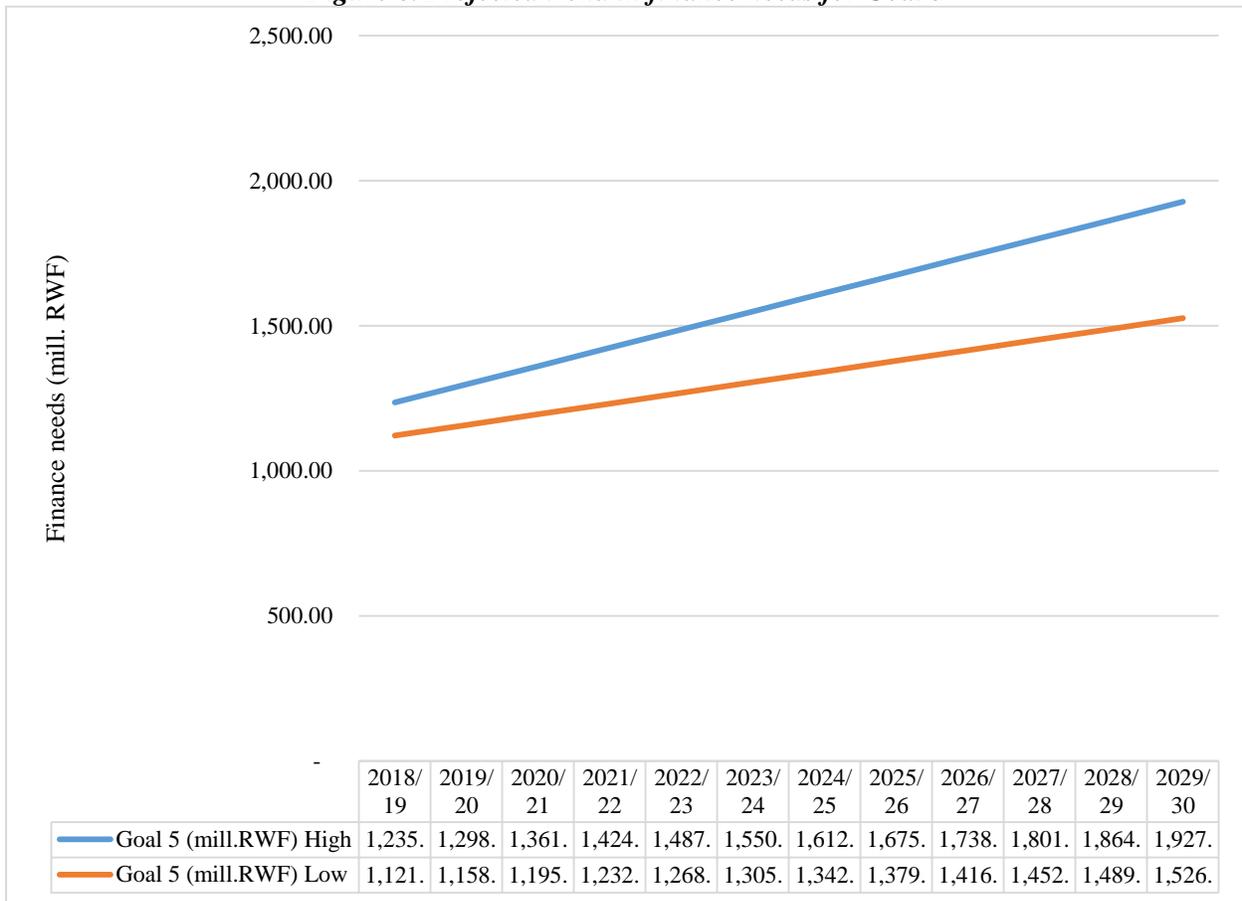


The trends for Goal 4 similar to Goal 3 showed a projected increase in appreciation for equitable sharing of benefits from biodiversity and ecosystem management. The management interventions expected include revenue sharing and access and benefit sharing from genetic diversity of the country. The interventions may involve specifically designed projects implemented in short-term, medium term and long-term arrangements. The differences between the ranges may be principally attributed to prices.

3.2.5 Finance trends for Goal 5

The estimates made for Goal 5 show divergence in the trajectories for finance needs under the high and the low range. While in the high range the finance needs are expected to increase rapidly from RWF 1.2 to 1.9 billion, the increase for the low range will only be from RWF 1.1 billion to 1.5 billion, from 2018/19 to 2029/30 (Figure 8).

Figure 8. Projected trend in finance needs for Goal 5



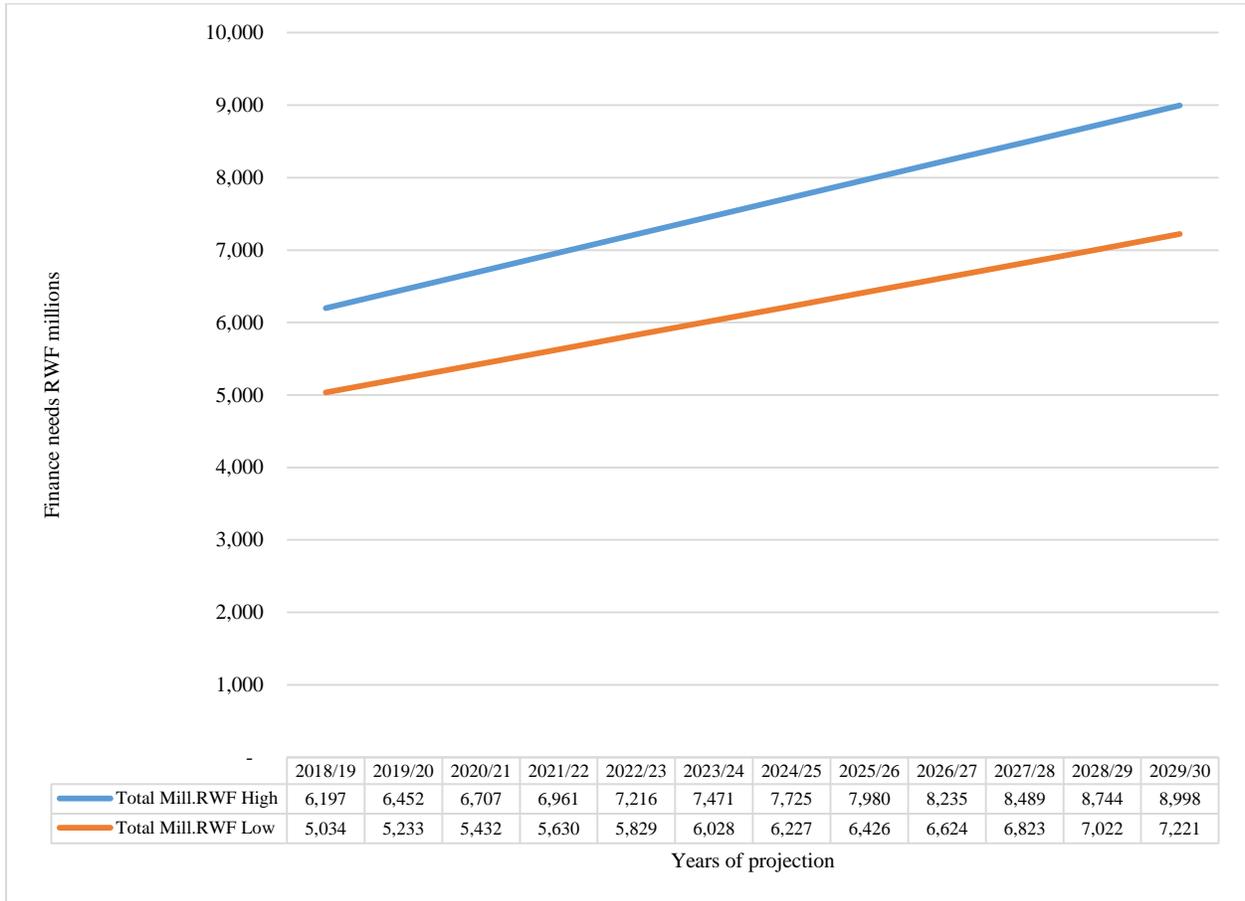
In addition to the influenced by price differences for cost-able actions, the difference between the ranges was also likely associated with differences in approaches for enhancing NBSAP implementation through biodiversity knowledge management, participatory planning and capacity building. Differences in capital costs and recurrent costs may increase divergences. Capital intensive actions would likely be more expensive than recurrent actions. Alternatively, the high range may considered an increase in recurrent costs, while the low range proposes a reduction in recurrent costs, without substantial changes in the capital costs.

3.2.5 Trends for aggregate finance needs for biodiversity

The projection trends for the total finance needs are shown in Figure 8 below. The projected finance needs will increase from RWF 5.0 to 6.2 billion/year in 2018/19 to RWF 7.2 to 9.0 billion/year in 2029/30. The finance needs show a marginal faster increase in the high range of finance needs compared to the lower range of finance needs.

The marginal differences between the high and low range of trends indicate that in general the choice of effort level, in terms of action undertaken and prices were the major considerations in the range between the low and high projection. On the other hand, the finance needs increase fairly rapidly and over the course of the 11 years of the projection increased by just over 50% from the baseline estimated.

Figure 9. Projected aggregate finance needs for all five NBSAP Goals



4. PROJECTED FINANCE NEEDS AND BIODIVERSITY EXPENDITURE

4.1 Current expenditure on biodiversity management

The completed BER examined the biodiversity-related expenditure of eight budget agencies, including MINAGRI, the then Ministry of Natural Resources (now MOE), RDB, Ministry of Trade and Industry, and the University of Rwanda. The findings of the BER indicated that current real (2014 prices) biodiversity expenditures fluctuated from a low of RWF 7.5 billion in 2012/13 to RWF 16.4 billion in 2014/15 (Table 4). In other terms, expenditures varied quite significantly from year-to-year, declining by one-quarter from 2011/12 to 2012/13, followed by doubling from 2013/14 to 2014/15 (BIOFIN Rwanda, 2017).

Table 4. Current biodiversity expenditure patterns (RWF billion)

| Category of expenditure | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | Average |
|--|---------|---------|---------|---------|---------|---------|---------|
| GoR Biodiversity Budget | 10.17 | 7.50 | 8.56 | 16.42 | 10.60 | 11.53 | 10.8 |
| GoR Biodiversity Budget (% of Budget) | 0.74 % | 0.45 % | 0.50 % | 0.93 % | 0.59 % | 0.62 % | 0.64 % |
| GoR Biodiversity Budget Growth Rate | | -26 % | 14 % | 92 % | -35 % | 9 % | 2.5 % |
| Non-GoR Biodiversity Budget | 4.61 | 5.33 | 5.76 | 5.24 | 5.62 | 5.07 | 5.3 |
| Non-GoR Biodiversity Budget Growth Rate | | 16 % | 8 % | -9 % | 7 % | -10 % | 1.9 % |
| Total Rwanda Biodiversity Expenditures | 14.78 | 12.82 | 14.33 | 21.66 | 16.22 | 16.60 | 16.1 |
| Total Biodiversity Expenditure Growth Rate | | -13 % | 12 % | 51 % | -25 % | 2 % | 2.4 % |

Source: BIOFIN Rwanda 2017

The BER estimated total biodiversity expenditures account for, on average 0.3% of the national economy, and government biodiversity expenditures represent on average 0.64% of the national budget, ranging from RWF 12.82 billion in 2012/13 to RWF 21.66 billion in 2014/15. Over the time period assessed (2011/12 to 2016/17), total biodiversity expenditures nonetheless grew by 12.4%, or 2.4% annually, below the growth of both the economy and national budget. This may indicate that as the government prioritises other development objectives, biodiversity is not gaining a correspondingly increasing share of its budget.

Thus, a key finding of the BER is that biodiversity budgets have fluctuated year-over-year for many budget agencies, signalling a lack of consistent financial commitment to biodiversity objectives within government budget agencies. These fluctuations have been partly due to the fact that for many budget agencies, the majority of biodiversity-related activities are embedded within

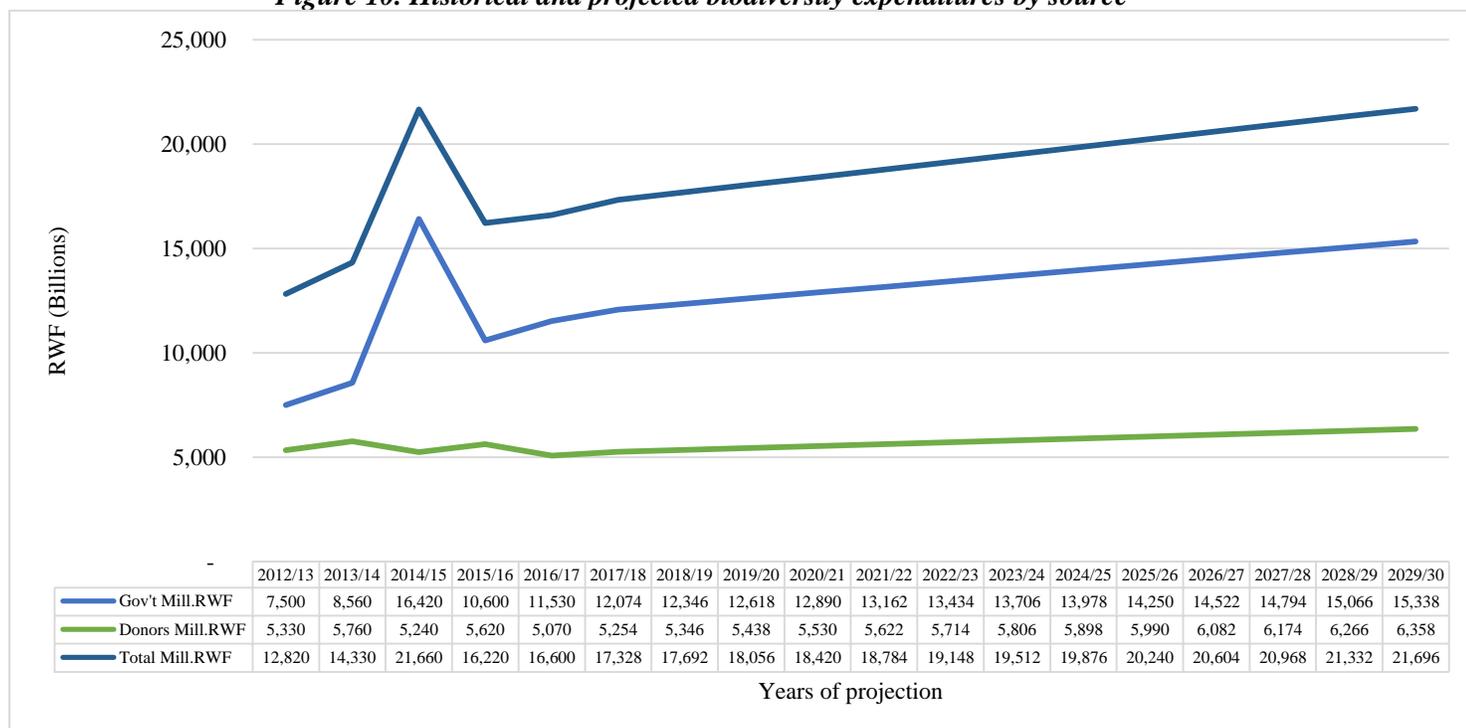
development projects that stop and start over the years, rather than integrated into recurrent programmes.

4.2 Projections on biodiversity expenditure by source

Between 2011/12 and 2015/16, considerable volatility was experienced in the financing of biodiversity and ecosystem management in Rwanda. A peak financing of RWF 22 billion was achieved in 2014/15 from a low of RWF 14 billion in 2013/14 (Rwanda BIOFIN 2017). Between 2015/16 and 2017/18, the financing stabilised and a gradually increasing trend emerged (Figure 11). The Government was the leading source of revenue for biodiversity management. However, the donor community also contributed about 30% of the expenditure towards biodiversity management. Projections based on the least squares analysis showed that, in the long-term, financing from donors would be expected to grow at a much lower rate while that from Government would grow exponentially to meet the finance needs for biodiversity management (Figure 10). By 2029/30, annual public expenditures on biodiversity by the Government are estimated to reach RWF 21.7 billion from about RW 17.69 billion in 2018/19. At the same time, donor contributions are projected to increase from only RWF 5.35 billion in 2018/19 to RWF 6.36 billion in 2029/30.

The BER analysis suggests the potential financing risks incurred for biodiversity spending over the long term as Rwanda is presently heavily reliant on foreign aid, with external grants and loans accounting for between 40-60% of development budgets (BIOFIN Rwanda 2017). The combined aid dependency, fluctuations in biodiversity expenditures, and low biodiversity mainstreaming in the natural resource sector create high uncertainty in future biodiversity spending.

Figure 10. Historical and projected biodiversity expenditures by source



Source: adapted from BIOFIN Rwanda 2017

5. SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Conclusions and Recommendations

As elaborated in earlier chapters, this report had provided estimates of both the financing needs for implementing Rwanda's biodiversity goals and targets over a 12-year time period. While projections going out for 12 years should be treated with caution, they represent approximations of what could – but not necessarily will – happen over time. Needless to say, government spending priorities can shift over time from one budget cycle to the next, and as new biodiversity challenges are identified that had not been previously considered.

Be that as it may, the budgeting projections do provide the basis for reaching one key conclusion: based on present trends, Rwanda faces a financing gap to protect and restore the country's biodiversity, a key underlying ingredient upon which the National Strategy for Transformation and the longer-term Vision2050 are dependent. Any continuing deterioration of the country's natural capital risks undermining the major economic goals of NST 1 and Visions 2020 and 2050, namely becoming a middle-income country by sustainable economic – and green – economic growth and poverty eradication.

And it should be further noted that the analysis was based only on costing the NBSAP II, not any other biodiversity-related policy documents. Had they been included, the result would most likely have been a higher financing gap.

Whereas the high and low finance needs for implementing the NBSAP were estimated as RWF 82.6 to 91.2 billion over the entire projection period of 2018/19 to 2029/30, the timeline for the SDGs and RWF 37.5 to 41.0 billion from 2018/19 to 2023/24 the timeline for NST1.

The finance needs distribution showed that the aggregate prioritised finance needs were 54% for capital expenditures and 46% for recurrent expenditure. The relatively small margin suggests that in the medium term recurrent expenditures are nearly closely matched with capital investments.

The BIOFIN team is fully aware that the national budgeting process entails balancing competing demands and trade-offs among multiple national priorities, and, for this reason, this analysis certainly does not suggest that closing the financing gap should come by re-allocating funding from other competing national priorities. Instead, as will be shown in the forthcoming fourth BIOFIN report, the Biodiversity Finance Plan, priority is placed on identifying new finance mechanisms or in improving the effectiveness and efficiency of existing mechanism, in order to close the funding gap. This approach represents a “win-win” for Rwanda's biodiversity as well as the country's other national priorities.

Beyond this broad conclusion, the process of undertaking the research and consultation for of this report suggests a number of other conclusions and recommendations for policy-makers and senior managers. These include:

- The FNA process was a useful and instructive exercise for stakeholders and participants in developing fully costed budget estimates for a key policy document such as NBSAP II,

estimates extending over many years. Such a budgeting exercise has useful implications for many other sectors as well.

- The FNA analysis faced the same problem as the Biodiversity Expenditure Review in determining financing patterns for non-public sector actors – to include the private sector, environmental NGOs, and other civil society organisations. In future engagements similar to BIOFIN, it will be important to wide outlook early on so that comprehensive expenditure review and finance needs of private sector and NGOs can be integrated alongside the public sector assessment.
- As the earlier Biodiversity Expenditure Review first pointed out, there is need for improved tagging of public and non-government financing for biodiversity management. The FNA analysis was an effort to start this tagging process by costing NBSAP II, -- but only NBSAP II.
- During the consultation period, the FNA team found that many ministries and agencies had not used the NBSAP II as a key background document in developing their future work plans and budgets -- even for 2018-19 as part of the medium-term expenditure framework process. This would suggest a possible shortfall in the way key policy documents are actually integrated into the national programming and budgeting process.

ANNEXES

Annex 1. Works Cited

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Annex 2. Note on Methodology

The FNA was conducted using the nine-step process adapted from the BIOFIN Workbook (UNDP 2016). Following recruitment of the FNA consultant team, preliminary discussions were held with the BIOFIN core team and the National Technical Advisory Committee (NTAC), and an Inception Report was written and approved.

The inception report was followed by discussions on data collection instruments for developing the initial draft Country Costing Tables. These discussions were held with members of the BIOFIN core team, NTAC, REMA, RDB, MINAGRIC, and MINECOFIN. Following these meetings, the FNA team began collecting data from the stakeholders mentioned above as well as other sources and then compiled the first draft the Country Costing Tables.

The cost-able actions were segregated based on the guidance of the BIOFIN Workbook into cost elements. The cost elements were composed of cost categories and sub-categories. The cost categories and sub-categories were based on the review of the national and ministerial budgets and accounting systems and the different codes for national budgeting. The cost categories and sub-categories adopted were generally aligned to the BIOFIN Workbook with minor revisions in the description of categories to match the national budget coding system. The costs were further subdivided by recurrent and development costs. Data type also included data on activity level for each of the cost-able actions, unit costs for the cost sub-categories based on national standard unit costs provided by MINECOFIN. The data on timelines and priorities were obtained from consultations with REMA and other national stakeholders.

These initial Costing Tables and an explanatory report were prepared and discussed at a first stakeholder meeting. The initial Costing Tables were revised into second revised Costing Tables as well as a draft FNA report that was reviewed at the stakeholder consultation workshop held in Musanze in May 2018. The participants at the consultation workshop reviewed and refined the findings by examining the cost-able actions for the NBSAP goals and targets. Likewise, the estimation models were also reviewed and refined during the consultation workshop.

Annex 3: Prioritised Finance Needs by Goal, Targets, Recurrent costs and Capital costs

| Goal | Targets | Recurrent costs RWF | | Capital costs RWF | |
|--|---|---------------------|-------------|-------------------|-------------|
| | | High | Low | High | Low |
| GOAL 1: To address the main causes of national biodiversity loss by mainstreaming biodiversity conservation in decision making processes, across all Government, Private Sector and Civil Society's Development Programs | 1: By 2020, at latest, Rwandan people in at least Districts that are adjacent to protected areas are aware of the values of biodiversity and ecosystem services and understand the steps for its sustainable use | 3.02 | 2.79 | 1.73 | 1.65 |
| | 2: By 2020, the values of biodiversity and ecosystem services in the key natural ecosystems for at least two selected protected areas have been determined and integrated into planning processes, i.e. poverty reduction strategies and into national economy. | 0.00 | 0.00 | 2.21 | 1.93 |
| | 3: By 2020, at the latest, positive incentives for biodiversity conservation and sustainability towards local communities “development are boosted and applied and harmful incentives are eliminated.” | 0.32 | 0.25 | 1.32 | 1.12 |
| | 4: By 2020, public and private sectors and civil society organisations have promoted and implemented plans that consider ecological limits. | 0.00 | 0.00 | 1.23 | 1.05 |
| Sub-total (Bill. RWF) | | 3.33 | 3.05 | 6.49 | 5.75 |
| Sub-total (%) | | 34% | 35% | 66% | 65% |
| GOAL 2: To reduce anthropogenic pressure on biodiversity resources and promote their sustainable use. | 5: By 2020, at least 50 percent of natural ecosystems are safeguarded, their degradation and fragmentation significantly reduced. | 1.52 | 1.34 | 1.67 | 1.48 |
| | 6: By 2020, fishing and aquaculture, agriculture and forestry are managed sustainably taking into consideration ecosystem specificities to ensure biodiversity conservation. | 6.54 | 5.99 | 5.93 | 5.45 |
| | 7: By 2020, pollutants including those from excess nutrients are controlled and their harm has been brought to levels that are not detrimental to ecosystem function and biodiversity. | 0.56 | 0.49 | 0.23 | 0.21 |
| | 8: By 2020, invasive alien species, their pathways, are identified and prioritized invasive alien species controlled or eradicated, and related mitigation measures are put in place | 0.90 | 0.78 | 1.09 | 1.01 |
| Sub-total (Bill. RWF) | | 9.51 | 8.59 | 8.91 | 8.16 |
| Sub-total (%) | | 53% | 47% | 52% | 48% |

| Goal | Targets | Recurrent costs RWF | | Capital costs RWF | |
|--|--|---------------------|--------------|-------------------|--------------|
| | | High | Low | High | Low |
| GOAL 3: To improve the status of national biodiversity by expanding and safeguarding priority protected ecosystems and maintaining biological communities in equilibrium state | 9: By 2020, at least 10.3 percent of national territory holding particular biodiversity and ecosystem services is protected taking into account the landscape approach in order to maintain biological diversity. | 5.83 | 5.35 | 5.23 | 4.79 |
| | 10: By 2020, the extinction of threatened species is prevented and their conservation status improved, particularly for identified as “Alliance for Zero Extinction (AZE).” | 7.10 | 6.53 | 5.34 | 4.94 |
| | 11: By 2020, the genetic diversity of priority 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. | 1.29 | 2.10 | 0.80 | 0.77 |
| | 12: By 2020, the potential risks resulting from biotechnology use and placement on the market of its products have been minimized and/or eliminated. | 0.54 | 0.54 | 1.57 | 1.47 |
| Sub-total (Bill. RWF) | | 14.76 | 14.52 | 12.94 | 11.98 |
| Sub-total (%) | | 53% | 55% | 47% | 45% |
| GOAL 4: To ensure equitable sharing of benefits arising from the use of biodiversity and ecosystem services | 13: By 2020, all ecosystems that provide essential services to human well-being and contribute to health as well as livelihoods are restored and safeguarded, taking into account the needs of women, local communities especially the vulnerable groups. | 1.69 | 1.54 | 1.39 | 1.28 |
| | 14: By 2020, the ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through increase of forest cover up to 30 percent of the country and restoration of other ecosystems thereby contributing to climate change adaptation and mitigation | 3.56 | 3.13 | 3.23 | 2.85 |
| | 15: By 2017, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation is integrated in national legislation and administrative practices and enforced | 8.05 | 7.55 | 20.87 | 19.92 |
| Sub-total (Bill. RWF) | | 13.30 | 12.22 | 25.50 | 24.05 |
| Sub-total (%) | | 34% | 34% | 66% | 66% |

| Goal | Targets | Recurrent costs RWF | | Capital costs RWF | |
|--|---|---------------------|--------------|-------------------|--------------|
| | | High | Low | High | Low |
| GOAL 5: To enhance NBSAP implementations through biodiversity knowledge management, participatory planning and capacity building | 16: By 2020, Rwanda has developed, adopted as a policy instrument, and has commenced implementing effective, participatory and updated National Biodiversity Strategy and Action Plan (NBSAP). | 1.21 | 0.78 | 0.63 | 0.22 |
| | 17: By 2020, values of traditional knowledge, innovations and practices of 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 international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of local communities, at all relevant levels. | 2.40 | 2.06 | 4.65 | 4.18 |
| | 18: 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 applied and reflected in the implementation of the NBSAP | 9.69 | 8.74 | 5.13 | 4.52 |
| | 19: By 2020, at the latest, the mobilization of financial resources for an effective implementation of NBSAP from all potential sources, and in accordance with agreed process in the strategy for resource mobilization, is reinforced and increased substantially from the current levels. | 1.68 | 1.51 | 1.14 | 1.01 |
| Sub-total (Bill. RWF) | | 14.98 | 13.09 | 11.54 | 9.93 |
| Sub-total (%) | | 56% | 57% | 44% | 43% |
| Overall total (Bill. RWF) | | 55.89 | 51.46 | 65.38 | 59.87 |
| Overall total (%) | | 46% | 46% | 54% | 54% |

Annex 4: Results of prioritisation ranking of cost-able actions

Goal 1

Target 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/76) |
|--|---|---|---|---|---------------------------|
| | Score out of 19 | | | | |
| 1. To upgrade and operationalize national biodiversity information system | 16 | 14 | 10 | 14 | 54 |
| 2. To develop awareness materials | 15 | 11 | 13 | 12 | 51 |
| 3. To strengthen national biodiversity database and make it accessible | 12 | 8 | 9 | 8 | 37 |
| 4. Build capacity for a biosafety and national clearing house mechanisms | 12 | 9 | 5 | 10 | 36 |
| 5. Formulate key communication guidelines relevant to all people | 6 | 12 | 12 | 10 | 40 |
| 6. Prepare short easy to read versions of the NBSAP in three official languages and circulate widely | 8 | 4 | 4 | 9 | 25 |
| 7. Empower communication network on biodiversity conservation | 10 | 8 | 8 | 10 | 36 |

Target 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/76) |
|---|---|---|---|---|---------------------------|
| | Score out of 19 | | | | |
| 1. Conduct capacity and training needs assessment and implement strategies to close the knowledge gap | 11 | 11 | 13 | 13 | 48 |
| 2. Develop training manuals and training programmes | 11 | 6 | 11 | 11 | 39 |
| 3. Review national and sub-national system of accounts to establish the gap on biodiversity and ecosystem services | 6 | 6 | 8 | 7 | 27 |
| 4. Conduct policy analysis especially economy wide analysis of impacts of biodiversity management | 5 | 8 | 12 | 8 | 33 |
| 5. Develop and pilot environmental economic accounts for Rwanda integrating biodiversity and ecosystem services | 11 | 8 | 12 | 11 | 42 |
| 6. Conduct training of trainers | 10 | 10 | 12 | 12 | 44 |
| 7. Conduct sectoral training on strategic action plans of integrated accounting and ecosystem services | 9 | 12 | 12 | 12 | 44 |
| 8. Conduct training for focal persons in institutions to maintain system of national accounts and biodiversity and ecosystem service values | 10 | 13 | 15 | 14 | 42 |

Target 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/76) |
|--|--|--|--|--|----------------------------------|
| | Score out of 19 | | | | |
| 1. Situation analysis of incentives for biodiversity conservation and management | 15 | 13 | 14 | 10 | 52 |
| 2. Implement appropriate regulatory instruments and seek adoption of new and innovative instruments | 13 | 10 | 14 | 10 | 47 |
| 3. Review and reinforce design of sustainable investment opportunities | 7 | 11 | 12 | 9 | 39 |
| 4. Develop proposals for reinforcing sustainable investments and promote the proposals to investors | 6 | 13 | 13 | 7 | 39 |
| 5. Implement revised sustainable investments adding poverty reducing among communities living around protected areas | 14 | 14 | 14 | 7 | 49 |

Target 4

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/76) |
|--|--|--|--|--|----------------------------------|
| | Score out of 19 | | | | |
| 1. Undertake regular EIA and reinforce the regulatory process based on results of EIA, environmental audit and monitoring | 17 | 12 | 16 | 13 | 58 |
| 2. Support strategic environment assessments for all sectors, private sector and civil society works | 14 | 12 | 14 | 10 | 50 |
| 3. Conduct research on biological thresholds and maximum sustainable yields of biodiversity and ecosystems. | 13 | 14 | 13 | 7 | 47 |
| 4. Develop resource use plans and integrate biological resource thresholds | 13 | 12 | 14 | 8 | 47 |
| 5. Review and update laws, regulations, instruments, policies or ordinances with strict provisions for biological thresholds | 13 | 12 | 15 | 10 | 50 |
| | | | | | |

Goal 2

Target 5

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|--|---|---|---|---|---------------------------|
| | Score out of 11 | | | | |
| | a | b | c | d | (a+b+c+d) |
| 1.To conduct a study to identify degraded and fragmented natural ecosystems and set priorities to begin with for restoration | 9 | 6 | 10 | 4 | 29 |
| 2.Develop a road map for ecosystem restoration of the identified areas including stakeholder consultations | 6 | 5 | 11 | 8 | 29 |
| 3.Mobilise resources and hire staff to implement restoration plan | 6 | 5 | 9 | 8 | 28 |
| 4.Conduct feasibility studies and determine the most viable options for restoration of degraded and fragmented ecosystems | 4 | 7 | 8 | 4 | 23 |
| 5.Implement all appropriate feasible programmes and projects for restoration | 8 | 9 | 10 | 6 | 33 |

Target 6 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|--|---|---|---|---|---------------------------|
| | Score out of 11 | | | | |
| | a | b | c | d | (a+b+c+d) |
| 1. Train staff on stock assessments, evaluation and monitoring | 6 | 10 | 8 | 11 | 35 |
| 2. Conduct pilot stock assessments | 7 | 7 | 7 | 6 | 27 |
| 3. Conduct bench marking assessments for all freshwater systems in the country | 7 | 8 | 8 | 7 | 30 |
| 4. Establish and set maximum sustainable yield limits for all freshwater systems | 8 | 7 | 8 | 6 | 29 |
| 5. Identify suitable areas for cage fish farming | 10 | 10 | 9 | 6 | 35 |
| | | | | | |

Target 6 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|--|---|---|---|---|---------------------------|
| | Score out of 11 | | | | |
| | a | b | c | d | (a+b+c+d) |
| 6. Conduct EIAs to project potential impact of re-introduction of native species | 10 | 9 | 8 | 7 | 34 |
| 7. Conduct situation analyses and needs assessment for implementing a breeding programme and conduct appropriate capacity building | 8 | 8 | 10 | 5 | 31 |
| 8. Carry out breeding for the feasible native species to be re-introduced | 11 | 8 | 10 | 6 | 35 |

| | | | | | | |
|-----|---|----|---|----|----|----|
| 9. | Re-introduce the native species, monitor and evaluate re-introduction process and outputs, outcomes | 10 | 9 | 10 | 10 | 39 |
| 10. | Conduct mass sensitization of local communities for biodiversity conservation of the freshwater ecosystem, and reintroduced species | 10 | 8 | 10 | 10 | 38 |

Target 6 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) | |
|-------------------|---|---|---|---|---------------------------|----|
| | Score out of 11 | | | | | |
| 11. | Conduct baseline assessment to establish status of lakes, and swamps in the country | 5 | 8 | 8 | 6 | 27 |
| 12. | Develop guidelines for integrated watershed management for swamps and lakes | 8 | 6 | 10 | 8 | 29 |
| 13. | Conduct training for institutions charges with managing swamps and lakes on IWM and monitoring and evaluation of guidelines | 8 | 5 | 11 | 9 | 33 |
| 14. | Training communities on application of IWM guidelines | 9 | 9 | 11 | 9 | 38 |
| | | | | | | |

Target 7 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) | |
|-------------------|---|---|---|---|---------------------------|----|
| | Score out of 11 | | | | | |
| 1. | Organize awareness campaigns on improving management of wastes and pollutants | 7 | 8 | 11 | 10 | 36 |
| 2. | Develop sensitization and awareness manuals for practitioners for improving management of wastes and pollutants | 7 | 10 | 11 | 8 | 36 |
| 3. | Put in place a documented compliance monitoring framework for industrial and agricultural developers reference | 5 | 7 | 11 | 5 | 38 |
| | | | | | | |

Target 7 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) | |
|-------------------|---|---|---|---|---------------------------|----|
| | Score out of 11 | | | | | |
| 4. | Carry out monitoring and evaluation of water quality in streams, rivers, lakes and swamps | 7 | 6 | 8 | 6 | 27 |
| | | | | | | |

Target 8 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|--|--|--|--|--|----------------------------------|
| | Score out of 11 | | | | |
| 1. To review and update existing documents on alien invasive species (IAS) | 6 | 5 | 10 | 6 | 27 |
| 2. Situation analysis and mapping current measures and legislation to manage IAS | 5 | 7 | 8 | 3 | 23 |
| 3. Enforcement of existing laws and review to strengthen weaknesses in legislation | 9 | 8 | 10 | 6 | 33 |
| 4. | | | | | |

Target 8 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|---|--|--|--|--|----------------------------------|
| | Score out of 11 | | | | |
| 5. Conduct capacity needs assessment on IAS | 7 | 4 | 10 | 4 | 25 |
| 6. Carry out awareness campaigns to disseminate knowledge and information to communities on IAS | 9 | 6 | 11 | 8 | 34 |
| 7. Develop knowledge and materials on IAS that can be disseminated easily | 7 | 6 | 11 | 7 | 31 |
| 8. Conduct field monitoring and evaluation of status of IAS in the country | 7 | 7 | 11 | 7 | 32 |

GOAL 3

Target 9 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|---|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 1. Conduct scientific biodiversity and ecosystem studies to establish integrity of protected areas (current and proposed) | 18 | 17 | 17 | 10 | 62 |
| 2. Conduct spatial analysis to establish the boundaries of adequate habitat of the protected areas | 15 | 7 | 13 | 9 | 44 |
| 3. Conduct feasibility assessments to establish viability of proposed PAs | 15 | 14 | 16 | 11 | 56 |
| 4. Develop and support enactment of appropriate legislation for the new PAs | 10 | 10 | 13 | 12 | 45 |
| 5. Mobilise funds to start establishment of the PAs | 16 | 13 | 15 | 11 | 55 |
| 6. Conduct capacity building for skills transfer to existing staff on PA management | 12 | 8 | 12 | 13 | 45 |
| 7. Undertake population resettlement and compensation for affected persons | 13 | 11 | 11 | 15 | 50 |

| | | | | | |
|---|----|---|----|----|----|
| 8. Set up management structures for the proposed PAs | 11 | 7 | 12 | 14 | 44 |
| 9. Establish appropriate infrastructure for the PA and planned activities | 8 | 7 | 10 | 11 | 36 |

Target 9 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|---|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 10. Establish gaps in existing integrated conservation plans for critical ecosystems | 12 | 10 | 13 | 12 | 47 |
| 11. Develop and/or update integrated conservation plans for critical terrestrial ecosystems | 12 | 12 | 9 | 11 | 44 |
| 12. Develop and/or update integrated conservation plans for critical aquatic ecosystems | 12 | 12 | 11 | 10 | 45 |

Target 9 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|---|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 13. Benchmark status of wildlife legislation and undertake necessary completion actions | 14 | 11 | 15 | 10 | 50 |
| 14. Develop guidelines for integrating wildlife management into other sectoral legislation | 16 | 13 | 14 | 9 | 52 |
| 15. Pilot new wildlife management and enforcement legislation and mainstreaming guidelines | 10 | 11 | 13 | 10 | 44 |
| 16. Create awareness and build capacity for other sectors and stakeholders on the wildlife legislation and mainstreaming guidelines | 13 | 15 | 16 | 16 | 60 |

Target 10 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 30/44) |
|--|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 1. Scoping and collating information on species diversity in Rwanda | 11 | 12 | 15 | 15 | 53 |
| 2. Conduct inventories, analyze data, develop technical reports and policy reports | 8 | 13 | 13 | 11 | 45 |
| 3. Establish wildlife rescue policy | 15 | 14 | 15 | 12 | 56 |

Target 10 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|---|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 4. Conduct habitat study to determine potential for reintroduction of agricultural germplasm | 14 | 12 | 13 | 11 | 50 |
| 5. Determine the feasibility and most viable options for re-introduction of agricultural germ plasm | 12 | 9 | 16 | 12 | 49 |
| 6. Develop a plan for re-introduction of germ plasm and mobilise adequate resources | 10 | 13 | 13 | 7 | 43 |
| 7. Undertake capacity building for institutions and communities | 10 | 11 | 11 | 11 | 43 |
| 8. Re-introduction agricultural germ plasm, conduct appropriate monitoring and evaluation | 15 | 11 | 11 | 7 | 44 |

Target 10 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|---|--|--|--|--|----------------------------------|
| | Score out of 11 | | | | |
| 9. Mobilise technical teams to evaluate inventory of information and propose AZE sites | 13 | 12 | 11 | 12 | 48 |
| 10. Pilot establishment of conservation easements to protect biodiversity on community land | 14 | 10 | 12 | 8 | 44 |
| 11. Undertake awareness creation for communities | 14 | 13 | 14 | 10 | 51 |
| 12. Conduct capacity building for journalists and media | 9 | 11 | 16 | 10 | 46 |

Target 10 Action 4

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 55/88) |
|--|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 13. Develop management plans | 16 | 12 | 13 | 11 | 52 |
| 14. Mobilize technical and financial resources and implement plans | 15 | 12 | 15 | 14 | 56 |

Target 11 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 48/58) |
|---|--|--|--|--|----------------------------------|
| | Score out of 22 | | | | |
| 1. Scoping and collating information on species biodiversity | 11 | 12 | 15 | 15 | 52 |
| 2. Conduct inventory, analyse data and develop technical reports and policy options | 8 | 13 | 13 | 15 | 49 |

| | | | | | |
|-------------------------------------|----|----|----|----|----|
| 3. Establish wildlife rescue policy | 15 | 14 | 15 | 11 | 45 |
|-------------------------------------|----|----|----|----|----|

Target 11 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 48/88) |
|--|---|---|---|---|---------------------------|
| | Score out of 22 | | | | |
| 4. Conduct habitat study and CBA on re-introduction | 14 | 12 | 13 | 11 | 50 |
| 5. Conduct CBA on potential for agricultural productivity | 12 | 9 | 16 | 12 | 49 |
| 6. Develop plan for re-introduction and mobilise resources | 10 | 13 | 13 | 7 | 44 |
| 7. Capacity building | 10 | 11 | 11 | 11 | 43 |
| 8. Re-introduction in phases and monitoring and evaluation | 15 | 11 | 11 | 7 | 45 |

Target 11 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 48/88) |
|---|---|---|---|---|---------------------------|
| | Score out of 22 | | | | |
| 9. Mobilise technical teams to evaluate inventory information and propose AZE sites | 12 | 12 | 11 | 12 | 47 |
| 10. Pilot conservation easements to protect areas in communities | 14 | 10 | 12 | 8 | 44 |
| 11. Awareness raising for communities | 14 | 13 | 14 | 10 | 51 |
| 12. Capacity building for journalists | 9 | 11 | 16 | 10 | 46 |

Target 11 Action 4

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 48/88) |
|--|---|---|---|---|---------------------------|
| | Score out of 22 | | | | |
| 13. Develop management plans | 16 | 12 | 13 | 11 | 52 |
| 14. Mobilise technical and financial resources | 15 | 12 | 15 | 14 | 56 |

Target 12 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 48/88) |
|---|---|---|---|---|---------------------------|
| | Score out of 22 | | | | |
| 1. Develop a plan for plant and animal genetic diversity management | 15 | 11 | 15 | 11 | 52 |
| 2. Enhance capacity of plant and animal genetic resource centers | 14 | 13 | 11 | 7 | 45 |
| 3. Implement plan and conduct regular monitoring and evaluation | 15 | 11 | 14 | 11 | 51 |
| 4. Support capacity building for agronomists to raise awareness among farmers to contribute to conservation | 15 | 14 | 13 | 12 | 54 |

| | | | | | |
|---|----|----|----|----|----|
| of genetic resources and other biodiversity | | | | | |
| 5. Establish botanical gardens of indigenous species and medicinal plants | 14 | 16 | 15 | 10 | 55 |
| 6. Establish gene banks for plants and animals | 12 | 12 | 14 | 8 | 46 |

Goal 4

Target 13

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|--|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 1. Co-management of natural resources between local communities and management of PAs | 6 | 7 | 5 | 6 | 24 |
| 2. Develop nature based community projects e.g. integrated conservation and development projects | 5 | 3 | 4 | 3 | 15 |
| 3. Develop programme for livelihoods enhancing enterprises and biodiversity management | 4 | 4 | 5 | 3 | 16 |
| 4. Implement a programme for livelihoods enhancing enterprises and biodiversity management | 5 | 5 | 6 | 6 | 22 |

Target 14 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|---|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 1. Feasibility assessment of afforestation/ reforestation potential | 5 | 2 | 6 | 1 | 14 |
| 2. Promotion of community based forest management | 5 | 6 | 6 | 4 | 21 |
| 3. Increase forest cover through afforestation/reforestation | 7 | 4 | 5 | 1 | 17 |
| 4. Rehabilitate and restore degraded areas | 7 | 6 | 5 | 5 | 23 |
| 5. Produce seeds and seedlings available at community level | 7 | 7 | 5 | 3 | 22 |
| 6. Promote alternative sources of energy | 6 | 4 | 5 | 5 | 20 |
| 7. Promote the use of energy saving cooking stoves and cooking alternatives | 4 | 4 | 5 | 4 | 17 |

Target 14 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|---|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 8. Review, consolidate and develop revised guidelines | 4 | 5 | 5 | 5 | 19 |

| | | | | | |
|--|---|---|---|---|----|
| 9. Capacity building for existing enforcement officers | 6 | 4 | 5 | 5 | 20 |
| 10. Awareness raising of policy and forest laws to communities | 5 | 5 | 5 | 5 | 20 |
| 11. Involvement of all stakeholders in designing and developing forest laws and policies | 4 | 6 | 5 | 5 | 20 |
| 12. Cross-sectoral collaboration of forest laws and policies with other ENR policies in designing and implementation | 3 | 5 | 7 | 4 | 19 |

Target 14 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|---|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 13. Conduct institutional capacity for technology transfer in the forestry sector | 3 | 5 | 6 | 4 | 18 |
| 14. Conduct technology needs assessment in forestry development | 4 | 6 | 5 | 4 | 19 |
| 15. Forest management technology outsourcing | 2 | 3 | 5 | 2 | 12 |
| 16. Capacity building of local personnel in forest development technologies | 7 | 5 | 5 | 4 | 21 |

Target 15 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|---|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 1. Develop a national implementation plan | 6 | 5 | 7 | 4 | 22 |

Target 15 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|--|---|---|---|---|---------------------------|
| | Score out of 7 | | | | |
| 2. Access to PA for educational and research purposes | 3 | 5 | 5 | 4 | 17 |
| 3. Increase access to PA for sustainable access to livelihoods enhancing resources (medicinal plants, water, firewood) | 5 | 4 | 5 | 3 | 17 |
| 4. Enhance share of PA revenues for communities | 5 | 5 | 6 | 4 | 20 |
| 5. Compensate communities for crop raids and animal attacks | 5 | 5 | 6 | 6 | 22 |
| 6. Construct needed socioeconomic infrastructure | 5 | 5 | 7 | 6 | 23 |

Target 15 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 14/28) |
|--|--|--|--|--|----------------------------------|
| | Score out of 7 | | | | |
| 7. Conduct stakeholder trainings for communities and resource managers | 5 | 5 | 6 | 6 | 22 |
| 8. Support instrument development for contracts and MOUs | 5 | 5 | 6 | 2 | 18 |
| 9. Capacity building for prosecutors, judges and customs officials | 5 | 4 | 5 | 4 | 18 |
| | | | | | |

Goal 5

Target 16 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 1. Review and update NBSAP and develop implementation plan | 12 | 11 | 10 | 13 | 46 |
| 2. Validate the reviewed and updated NBSAP | 13 | 9 | 14 | 13 | 48 |

Target 16 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 3. Develop capacity for measuring indicators and maintaining a database through regular collection/ collation of data | 13 | 11 | 13 | 15 | 52 |
| 4. Undertake regular monitoring and evaluation | 13 | 11 | 11 | 8 | 43 |

Target 17 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 1. Undertake situation analyses and valuation studies | 10 | 12 | 14 | 11 | 47 |
| 2. Undertake baseline studies and benchmark the value of traditional knowledge and practices | 10 | 11 | 14 | 10 | 45 |
| 3. Design a plan for optimizing benefits from traditional knowledge and practice | 9 | 9 | 11 | 11 | 40 |
| 4. Implement plan and outputs programme/ project for research, evaluation of traditional knowledge and practices | 9 | 10 | 14 | 9 | 42 |
| 5. Conduct public research on traditional knowledge and practice | 8 | 9 | 12 | 12 | 41 |

Target 17 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 6. Design programmes for integrating traditional knowledge into education curriculum and research | 9 | 10 | 12 | 7 | 38 |
| 7. Implement programmes for integrating traditional knowledge into education curriculum and research | 11 | 13 | 16 | 12 | 52 |

Target 17 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 8. Conduct reviews of national policies and legislation and propose how to incorporate traditional knowledge | 7 | 10 | 12 | 9 | 38 |
| 9. Conduct feasibility assessments for integrating traditional knowledge and cultural heritage into national plans and propose an implementation plan | 11 | 8 | 14 | 9 | 42 |
| 10. Incorporate traditional knowledge and practice into national plans and legislation | 12 | 12 | 15 | 9 | 48 |

Target 18 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 1. Assess status of biodiversity and causes of biodiversity loss | 10 | 14 | 14 | 11 | 45 |

Target 18 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 2. Establish platform for capacity building on developing research projects for biological technology and its management | 12 | 12 | 16 | 13 | 53 |
| 3. Undertake regular research on biological technology and biodiversity in the country | 12 | 8 | 12 | 8 | 40 |
| 4. Create a database on research conducted on conservation, sustainable use, access and benefit sharing and biotechnology | 12 | 6 | 14 | 10 | 42 |
| 5. Mobilise funds for research projects linked to biodiversity conservation and biotechnology | 14 | 14 | 13 | 13 | 50 |

Target 18 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|---|---|---|---|---------------------------|
| | Score out of 17 | | | | |
| 6. Identify current capacity and gaps and design actions to close gaps | 2 | 8 | 12 | 10 | 32 |
| 7. Design and implement programme for capacity building | 1 | 11 | 11 | 12 | 35 |
| 8. Publish research | 2 | 10 | 13 | 9 | 34 |

Target 18 Action 4

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|----------------------------------|---|---|---|---|---------------------------|
| | Score out of 17 | | | | |
| 9. Design research programme | 8 | 6 | 11 | 7 | 33 |
| 10. Implement research programme | 13 | 8 | 14 | 9 | 44 |

Target 18 Action 5

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|---|---|---|---|---------------------------|
| | Score out of 17 | | | | |
| 11. Carry out capacity needs assessment | 9 | 7 | 13 | 9 | 38 |
| 12. Implement training programme | 11 | 8 | 12 | 10 | 41 |

Target 18 Action 6

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|---|---|---|---|---------------------------|
| | Score out of 17 | | | | |
| 13. Undertake content development and dissemination | 11 | 12 | 14 | 13 | 50 |

Target 19 Action 1

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|---|---|---|---|---------------------------|
| | Score out of 17 | | | | |
| 1. Enhance capacity to lobby for additional funding for biodiversity management | 10 | 9 | 11 | 12 | 42 |
| 2. Enhance capacity to write proposals for external financing of biodiversity management | 9 | 9 | 12 | 12 | 42 |

Target 19 Action 2

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|--|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 3. Develop a national resource mobilization plan | 10 | 12 | 12 | 9 | 43 |
| 4. Establish partnership for financing | 14 | 11 | 10 | 8 | 43 |

Target 19 Action 3

| Cost-able actions | Directly improves biodiversity management | Creates strong incentives for biodiversity management | Responsible actors have capacity for implementation | Leads to fast action on biodiversity management | Aggregate (cut off 40/68) |
|---|--|--|--|--|----------------------------------|
| | Score out of 17 | | | | |
| 5. Continually develop the most feasible innovative financing mechanisms | 11 | 12 | 10 | 10 | 43 |
| 6. Set up an extensive process for and validate and implement new innovative financial mechanisms | 9 | 11 | 13 | 9 | 42 |
| 7. Conduct monitoring and evaluation on new and emerging innovations for resource mobilisation | 11 | 10 | 12 | 6 | 39 |