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BIOFIN Malaysia

Integrated Report

Final Draft

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Acronyms

ABS	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity
APMM	<i>Agensi Penguatkuasaan Maritim Malaysia</i> Malaysian Maritime Enforcement Agency (MMEA)
BBP	<i>Bahagian Pengurusan Biodiversiti dan Perhutanan</i> Biodiversity and Forestry Management Division (of KATS)
BER	Biodiversity Expenditure Review
BFP	Biodiversity Finance Plan
BIOFIN	The Biodiversity Finance Initiative
BMG	<i>Bahagian Mineral & Geosains</i> Mineral and Geoscience Division (of KATS)
BPASPI	<i>Bahagian Pengurusan Alam Sekitar & Perubahan Iklim</i> Environmental Management and Climate Change Division (of MESTECC, previously KATS)
BSASH	<i>Bahagian Sumber Air, Saliran dan Hidrologi</i> Water Resources, Drainage and Hydrology Division (of KATS)
CBD	Convention on Biological Diversity
COP11	The eleventh meeting of the Conference of the Parties on biodiversity in Hyderabad, India 2012
CSR	Corporate Social Responsibility
DE	Development Expenditure
DOA	Department of Agriculture
DOF	Department of Fisheries
DOSM	Department of Statistics Malaysia
DVS	Department of Veterinary Services
EPU	Economic Planning Unit (of Ministry of Economic Affairs, previously Prime Minister's Department) since July 2019
FNA	Financial Needs Assessment
FRIM	Forest Research Institute Malaysia
IAS	Invasive Alien Species
JANM	<i>Jabatan Akauntan Negara Malaysia</i> Accountant General's Department of Malaysia
JAS	<i>Jabatan Alam Sekitar</i> Department of Environment

JBK	<i>Jabatan Biokeselamatan</i> Department of Biosafety
JLN	<i>Jabatan Landskap Negara</i> National Landscape Department
JMG	<i>Jabatan Mineral dan Geosains Malaysia</i> Department of Mineral and Geoscience Malaysia
JPS	<i>Jabatan Pengairan dan Saliran</i> Department of Irrigation and Drainage
JPSM	<i>Jabatan Perhutanan Semenanjung Malaysia</i> Forestry Department Peninsular Malaysia
JTLM	<i>Jabatan Taman Laut Malaysia</i> Department of Marine Park Malaysia
KATS	<i>Kementerian Air, Tanah dan Sumber Asli</i> Ministry of Water, Land and Natural Resources (since July 2019)
KLSE	Bursa Malaysia (formerly known as Kuala Lumpur Stock Exchange)
KPKT	<i>Kementerian Perumahan dan Kerajaan Tempatan</i> Ministry of Housing and Local Government
LGM	<i>Lembaga Getah Malaysia</i> Malaysian Rubber Board
LKM	<i>Lembaga Koko Malaysia</i> Malaysian Cocoa Board
LKTN	<i>Lembaga Kenaf dan Tembakau Negara</i> National Kenaf and Tobacco Board
MARDI	Malaysia Agricultural Research and Development Institute
MEA	Multilateral Environmental Agreement
MEME	Management and Ecology of Malaysian Elephants
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
MNS	Malaysia Nature Society
MOA	Ministry of Agriculture and Agro-based Industry
MOF	Ministry of Finance
MOTAC	Ministry of Tourism, Arts and Culture
MP	Five-Year Malaysia Plan
MPI	Ministry of Primary Industries
MPIC	Ministry of Plantation Industries and Commodities (now known as MPI)
MPOB	Malaysian Palm Oil Board
MWUHLG	Ministry of Urban Wellbeing, Housing and Local Government

NAHRIM	National Hydraulic Research Institute of Malaysia
NBSAP	National Biodiversity Strategies and Action Plans
NPBD	National Policy on Biological Diversity 2016-2025
NRE	Ministry of Natural Resources and Environment (now known as KATS)
OBB	Outcome-Based Budgeting
OE	Operating Expenditure
PERHILITAN	<i>Jabatan Perlindungan Hidupan Liar dan Taman Negara</i> Department of Wildlife and National Parks
PIR	Policy and Institutional Review
PLANMALAYSIA	<i>Jabatan Perancangan Bandar dan Desa</i> Federal Department of Town and Country Planning Peninsular Malaysia
RBB	Results-Based Budgeting
SD	Sime Darby
SDGs	Sustainable Development Goals
SGP	Small Grants Programme
TNB	Tenaga Nasional Berhad
UNDP	United Nations Development Programme
WWF-MALAYSIA	World Wide Fund for Nature – Malaysia

The Government of Malaysia (GOM) undertook a restructuring of ministries after the 14th General Elections in May 2018. The table below shows the names of the new and former Ministries, and it will be a useful reference for this Report.

Former Ministries	New Ministries
Ministry of Natural Resource and Environment (NRE)	Ministry of Water, Land and Natural Resources (KATS) – restructured to include potable water supply and wastewater management
Ministry of Science, Technology and Innovation (MOSTI)	Ministry of Environment, Science, Technology, Energy and Climate Change (MESTECC) – restructured to include green technology, environmental pollution and climate change.
Ministry of Agriculture and Agro-based Industries (MOA)	Ministry of Agriculture and Agro-Based Industries (MOA) – one of its agencies, the Department of Fisheries (DoF), has encapsulated the Department of Marine Parks formerly under the purview of NRE.
Ministry of Plantation Industries and Commodities (MPIC)	Ministry of Primary Industries (MPI) - renamed
Ministry of Urban Well-being, Housing and Local Government (MUWHLG)	Ministry of Housing and Local Government (KPKT) – renamed
Ministry of Rural and Regional Development (KKLW)	Ministry of Rural Development (KPLB) – renamed
Ministry of Energy, Green Technology and Water (KETTHA)	Disbanded and agencies reassigned to other Ministries, but mainly to MESTECC
Ministry of Federal Territories	Ministry of Federal Territories (expanded role) –includes the Department of Town and Country Planning (PLANMalaysia) and the Department of Landscape Planning formerly under the purview of the MUWHLG.

Executive Summary

What is BIOFIN?

In 2014, the Biodiversity Finance Initiative (BIOFIN) was launched during the Eleventh session of the Conference of the Parties (COP 11) meeting on biodiversity by the European Commission and the United Nations Development Programme (UNDP) in recognition of the challenges faced in financing biodiversity. The initiative aimed at developing a common methodology and the capacity of nations to conduct financial planning for biodiversity. In effect, nations are better at assessing the financing needs for their respective National Biodiversity Strategic Action Plans (NBSAP) as well as understanding their current sources of financing, the financing gap that remains and the opportunities available to close the gap.

The BIOFIN Methodology

There are four main components to the BIOFIN methodology. First, the Policy and Institutional Review (PIR) is a review of all policy, legal and institutional frameworks and stakeholders that are relevant to biodiversity. This, together with the Biodiversity Expenditure Review (BER), an analysis of biodiversity expenditures through financial inputs such as budgets, allocations and expenditures related to biodiversity, will provide the basis for the Financial Needs Assessment (FNA). The difference between the Projected Budget, calculated by projecting the BER, and the FNA is the biodiversity financing gap. Finally, the Biodiversity Finance Plan (BFP) will lay out a set of prioritised finance solutions that aims to address the biodiversity financing gap.

BIOFIN Malaysia

Malaysia was one of twelve countries selected to participate in BIOFIN and to pilot the methodology. The Economic Planning Unit (EPU)¹ of Malaysia is the national focal point, and the Project is supported by UNDP Malaysia. The BIOFIN methodology was used to develop a resource mobilisation plan for the National Policy on Biological Diversity (NPBD) 2016-2025 which was launched by the Ministry of Natural Resources and Environment (NRE)².

The BIOFIN Malaysia BER, FNA and BFP exercises were conducted from March 2017 until August 2018. Three workshops, one for each phase, were held in May and December 2017, and June 2018.

To help the organisations improve their understanding of the BIOFIN methodology, the study team prepared a set of guidebooks for BER and FNA. These were used in the BIOFIN capacity building and training exercises.

¹ Since mid-2018, EPU has been restructured into the Ministry of Economic Affairs. See page x above.

² The NRE has also been restructured and is known as the Ministry of Water, Land and Natural Resources.

Participating Organisations

Thirty six (36) organisations participated in the BIOFIN exercise. They were identified in the NPBD and were selected by the Core Team based on their biodiversity related core mandates, roles and responsibilities. However, some did not complete the entire exercise as it was on a voluntary basis: 30 organisations did the BER exercise and 25 did the FNA exercise. There were 11 organisations that only completed the BER and 6 organisations that completed only the FNA. Only 19 organisations completed both the BER and the FNA, and their results are discussed in this report.

List of Organisations	Completed BER only (11)	Completed BER and FNA (19)	Completed FNA only (6)
	GOV 1. MOTAC 2. MOF 3. KPKT	GOV 1. NRE (BBP, BSASH, BMG, BPASPI) 2. PERHILITAN + TRUST FUND 3. JTLM + TRUST FUND 4. JPSM 5. FRIM 6. NAHRIM 7. JPS 8. JMG 9. JAS 10. MOA 11. DOA 12. DOF 13. MARDI 14. MPIC (HQ, LGM, LKM, LKTN) 15. MPOB	GOV 1. JBK 2. DVS 3. JLN 4. PLANMALAYSIA 5. APMM
	SOURCES OF FUNDING 1. UNDP (BD, CC and ENV) 2. SGP 3. SIME DARBY FOUNDATION		
	NON-GOV 1. WETLANDS INTERNATIONAL 2. SIME DARBY PLANTATION 3. MAYBANK 4. PETRONAS 5. TNB	NON-GOV 1. WWF 2. MNS 3. MEME 4. SIME DARBY PROPERTY	NON-GOV 1. HARIMAU SELAMANYA, RIMBA

Results

The Biodiversity Expenditure Review (BER)

The BER reported the sum of all biodiversity expenditures for 19 organisations over 12 years (2006 – 2017). The estimated cumulative total biodiversity expenditure was RM 7,968.28 million or an annual average of RM 664 million. The 15 government organisations' spending comprised 96% of the total expenditure, followed by NGOs and private sector organisations.

The total expenditure covered all NPBD Targets, except Target 14. The highest amount of funds went to Target 7 – Vulnerable ecosystems, and Target 4 – Sustainable use. In contrast, the lowest amounts were spent in Target 17 – Increasing resources, Target 12 - Biosafety, Target 11 – Invasive alien species, and Target 8 – Ecological corridors.

As for BIOFIN Categories, Ecosystem management and restoration, Biodiversity knowledge and Sustainable use recorded the highest spending. Access and Benefit Sharing (ABS), Biosafety and Climate change mitigation and adaptation had low spending trends.

The Financial Needs Assessment (FNA)

The cumulative biodiversity financial needs were estimated at RM 17,300.67 million for 8 years (2018-2025) for 19 organisations or an annual average of RM 718 million. The 15 government organisations' financial needs amounted to 99% of the total financial needs, whereas the 3 NGOs and 1 private sector organisation's needs account for the remaining 1%.

Financial needs were identified for all 17 Targets and all BIOFIN Categories. Target 7 – Ecosystems, Target 10 - Poaching, Target 9 – Species, Target 3 – Mainstreaming, and Target 4 - Sustainable Use had the highest needs. The lowest needs were for Target 2 – Increasing engagement with non-government stakeholders, Target 11 – IAS, Target 12 - Biosafety, Target 13 – Genetic resources, Target 14 - ABS and Target 17 – Increasing resources.

According to BIOFIN Categories, the largest gaps were estimated to be in financing Biodiversity knowledge, Biodiversity planning, finance and management, Ecosystem management and restoration, Targeted species and genetic conservation, Resilient infrastructure and Sustainable use.

The Financial Gap Analysis

The BER (2006-2017) was then projected to determine the Projected Budget, which was RM 5,747.32 million for 2018-2025 or an annual average of RM 718 million.

The Gap was calculated by finding the difference between the FNA and the Projected Budget. The largest gaps were in Target 6 - Protected areas, Target 7 - Vulnerable ecosystems, Target 10 – Curbing illegal harvesting and poaching and Target 9 - Species conservation. According to BIOFIN Categories, the largest gaps were estimated in Biodiversity knowledge, Biodiversity planning, finance and management, Ecosystem management and restoration, Resilient infrastructure and Sustainable use.

Negative gaps, i.e., estimated Financial Needs were lower than the Projected Budget, were calculated in three (3) out of the 17 Targets, and one (1) of the BIOFIN Categories.

Using the BIOFIN methodology, the 19 organisations estimated that yearly they need three times more i.e. from RM 718 million (projected expenditure) to RM 2,162 million (financial needs) thus showing a gap of RM 1,447 million. If their budgets were not aligned with the goals/outcomes of the NPBD, they might only be getting 8% more, i.e., from RM 664 million to RM 718 million. The table below shows the details.

NPBD Target	BER (2006-2017)	Proj. Budget (2018-2025)	FNA (2018-2025)	GAP (2018-2025)
Target 1 – Biodiversity Awareness	395.19	247.21	365.10	117.90
Target 2 – Stakeholders Empowerment	101.20	88.08	30.49	(57.59)
Target 3 – Mainstreaming Biodiversity	432.50	315.73	1,282.35	966.63
Target 4 - Sustainable use	1,233.90	651.16	1,259.55	608.39
Target 5 - Sustainable Tourism	181.45	139.70	345.12	205.42
Target 6 - Protected areas	334.94	297.22	3,868.15	3,570.93
Target 7 - Vulnerable Ecosystems	2,463.72	1,858.76	4,731.70	2,872.95
Target 8 - Ecological connectivity	63.74	54.46	271.00	216.54
Target 9 – Endangered Species Conservation	436.99	387.08	1,474.32	1,087.24
Target 10 - Enforcement and Illegal Wildlife Trade	112.30	100.42	1,861.54	1,761.12
Target 11 - Invasive Alien Species	33.87	24.82	12.35	(12.47)
Target 12 - Biosafety	29.08	19.85	3.50	(16.35)
Target 13 – Agricultural Genetic diversity	525.12	364.95	90.06	(274.89)
Target 14 – Access and Benefit Sharing	-	-	17.58	17.58
Target 15 – Capacity on MEAs	397.59	300.45	947.56	647.11
Target 16 – Science Basis	521.22	407.66	712.67	305.01
Target 17 – Resource Mobilization	15.96	13.72	27.61	13.89
Misc. supporting expenses	642.12	443.00	-	(443.00)
N/A	47.39	33.06	-	(33.06)
Total for period (RM mil.)	7,968.28	5,747.32	17,300.67	11,553.35
Average per year (RM mil.)	664.02	718.42	2,162.58	1,444.17

BIOFIN Categories	BER (2006-2017)	Projected Budget (2018-2025)	FNA (2018-2025)	GAP (2018-2025)
Biodiversity Knowledge	1,658.22	1,168.34	2,973.18	1,804.84
Resilient Infrastructure	173.64	119.29	1,178.67	1,059.38
Sustainable Business	137.60	96.79	332.72	235.93
Sustainable Use	1,407.09	879.33	4,315.46	3,436.13
Targeted Species and Genetic Conservation	828.63	631.99	1,055.95	423.97
Climate Change Mitigation and Adaptation	65.16	39.79	54.12	14.33
Biosafety	64.26	45.62	4.68	(40.95)
Pollution control	269.22	161.42	330.01	168.59
Ecosystem Management and Restoration	1,783.55	1,379.43	4,012.04	2,632.61
Access and Benefit Sharing (ABS)	0.14	0.10	16.88	16.78
Conservation Areas	558.53	449.31	467.76	18.45
Biodiversity Planning, Finance and Management	380.12	332.91	2,559.19	2,226.28
Misc. supporting expenses	642.12	443.00	-	(443.00)
Total (RM mil.)	7,968.28	5,747.32	17,300.67	11,553.35

BIOFIN and the NPBD

These results provide valuable information on the financial aspects of the NPBD at the policy level, linking biodiversity goals with their financial expenditure and needs. This is probably the first time that financial resources have been mapped to these goals and targets, detailing patterns of spending that reveal current biodiversity-related priorities at the agency level. The data provides insights into the baseline situation that can enable policy planners and financial decision makers to better formulate their policy goals.

	BER (2006-2017)	Proj.Budget (2018-2025)	FNA (2018-2025)	GAP (2018-2025)
Goal 1 - Empowerment	6%	6%	2%	1%
Goal 2 - Reducing Pressures	24%	19%	17%	15%
Goal 3 - Biodiversity Resources	50%	54%	71%	80%
Goal 4 - Access Benefit Sharing	0%	0%	0%	0%
Goal 5 - Capacity Building, Resources	12%	13%	10%	8%
Supporting Expenses	9%	8%	0%	-4%
Total	100%	100%	100%	100%
Financial Resources RM billion	7.97	5.74	17.30	11.55

The results show that these 19 saw their main role as safeguarding biological resources in that 71% of the financial resources required are concentrated in Goal 3 but even then, the focus is in two of the six targets, i.e. protected areas and ecological corridors.

Conclusion and Recommendations

Several limitations of the study were highlighted in the course of the BIOFIN Malaysia exercise. These include the selective coverage of organisations – only 19 organisations participated (15 government, 4 non-government). Thus, there is a significant gap in financial data from state agencies, NGOs and private sector participants. Additionally, the level of commitment required and lack of awareness of their role in biodiversity conservation also hindered the continued participation of organisations. Awareness and in-depth translation of the NPBD 2016-2025 into operational and budgetary planning was weak, even for organisations that had been listed in the Policy itself. In addition, limited data at the organisation level and the lack of capacity to tag, attribute and make projections were also challenges faced during the BIOFIN exercise. These limitations resulted in a conservative estimate of biodiversity financing needs, using a bottom-up approach.

Notwithstanding these limitations, the participation of key Ministries and agencies and the quality of data collected have enabled us to make observations and recommendations. They include:

- the importance of mainstreaming the localised BIOFIN methodology and institutionalising the procedures, with the added benefit that agencies and ministries will know and understand their roles in biodiversity conservation in greater depth and engage in genuine mainstreaming;

- the need for more and better capacity building and training; in this respect it can be noted that relevant training materials and guidebooks were developed and successfully used in the training phase of this BIOFIN project;
- the need for a resource mobilisation plan, given that the financial needs for achieving the NPBD are three times higher than the scenario of projected expenditure without the NPBD. The plan could include the various options discussed in the biodiversity finance plan;
- the need for the government to take a leadership position in this effort; and
- Finally, greater outreach to the private sector, NGOs, local communities, and other stakeholders as we strive as a nation to reach the NPBD goals and objectives.

1 Introduction

1.1 The Macroeconomic Context

Malaysia was an agriculture and commodity-based economy in the 1960s but has successfully diversified its economy to one based on manufacturing and services by 2010. Malaysia's trade to GDP ratio averages over 130 percent since 2010, making Malaysia one of the most open economies in the world. This openness to trade and investment has been instrumental in income growth and employment creation – approximately 40 percent of jobs in Malaysia are linked to export activities. Since the 1997/1998 Asian financial crisis, Malaysia's economy has been on an upward trajectory, averaging growth of 5.4 percent (2010 onwards).

Malaysia's rapid economic development can be attributed to the utilisation of the country's rich natural resources and development of human capital, but it comes at a cost. Economic growth comes together with increased demand for food, agricultural products, goods and services, new markets for traditional and herbal remedies, exotic pets and plants trading and exotic meat consumption, etc. These, if not handled sustainably, can also threaten ecosystems and species, for example through land development, pollution, poaching, climate change and invasive alien species. Nonetheless, in Malaysia's 11th Malaysia Plan, sustainability and Green Growth features quite prominently, with links to the Sustainable Development Goals, the Convention on Biological Diversity's Aichi Targets and other environment and biodiversity related policies as well.

1.2 Malaysia's Biodiversity Financing Landscape

Malaysia is among the world's top 12 countries with mega-biodiversity. Biodiversity financing in Malaysia has traditionally been associated with resource needs for protected areas, forestry, wildlife and conservation. Viewed as a public good, biodiversity is mostly understood in terms of the natural resources provided, but its role in economic terms and social wellbeing is growing as biodiversity continues to be mainstreamed into policies and plans. The domain of biodiversity management today encompasses sustainable use, threat reduction, access and sharing the benefits from biological resources, among others.

Yet, biodiversity financing is still largely tied to the traditional viewpoint of protection and conservation. Government sector allocations are still the main source of funding and the use of innovative and sustainable funding mechanisms beyond government sources has not been fully explored and is still underdeveloped. This situation has resulted in an underfunded and underinvested biodiversity sector, which has serious implications for agencies tasked with the delivery of desired biodiversity outcomes.

With global biodiversity on the decline, and a further 10% loss expected between 2010 and 2050, urgent action is needed more than ever. As part of the global movement to conserve biodiversity, Malaysia ratified the United Nations Convention on Biological Diversity (CBD) in 1994. Malaysia has also made early commitments on biodiversity conservation and protection via bilateral (e.g. DANIDA, JICA) and multilateral technical assistance (e.g. UNDP) to build capacity in the biodiversity sector.

In February 2016, Malaysia formulated and endorsed the National Policy on Biological Diversity (NPBD) 2016-2025, building on its predecessor policy of 1998 to protect this valuable asset and achieve the CBD goals. The Policy functions as Malaysia's National Biodiversity Strategies and Action Plan (NBSAP). These biodiversity aspirations are also reflected in the 11th Malaysia Plan in consistency with other international commitments like the Aichi targets and Sustainable Development Goals (SDGs). The NPBD has 5 goals, 17 targets with 57 policy actions (See [Appendix III](#)).

Resource mobilisation was explicitly mentioned as a specific target (Target 17) within the Policy to ensure successful implementation by 2025. The target aims to significantly increase funds and resources mobilised for the conservation of biodiversity from both government and non-government sources through four accompanying policy actions.

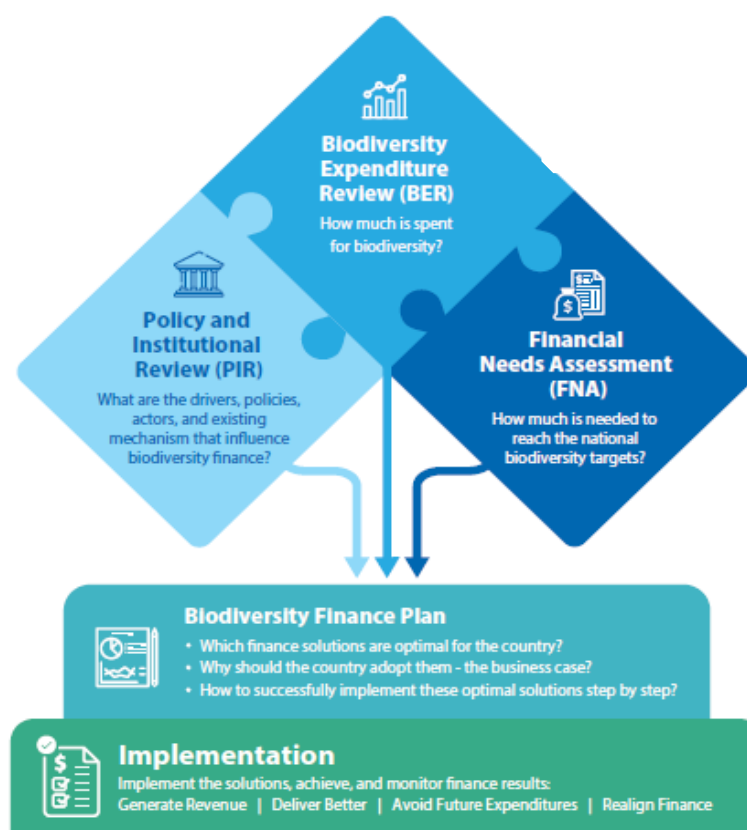
In moving forward, Malaysia realises that developing better financial plans, solutions and programmes is critical to achieve the targets set out in the Policy. In 2017 and 2018, Malaysia accelerated its work to complete the Biodiversity Expenditure Review (BER), the Financial Needs Assessment (FNA) and a Biodiversity Finance Plan (BFP) to estimate the total financial needs to achieve the biodiversity targets and actions planned in the NPBD.

1.3 BIOFIN – An Overview

1.3.1 The Global Biodiversity Finance Initiative

Financing biodiversity has been identified as a key factor that has disadvantaged effective management and sustainable use of biological resources worldwide. In 2012, the EU Commission and the United Nations Development Programme (UNDP), in recognition of the challenges faced in financing biodiversity, launched the Biodiversity Finance Initiative (BIOFIN) during the Eleventh session of the Conference of the Parties (COP 11) meeting on biodiversity. It is an innovative methodology developed by UNDP in 2010 in response to the need for a common 'language' in meeting the challenge of biodiversity financing, and to build the capacity of nations to conduct financial planning for biodiversity. BIOFIN has received funding from the European Union and the Governments of Germany, Switzerland, Norway and Flanders. Presently, there are 35 participating countries worldwide.

In applying and adapting the BIOFIN methodology to their own national context, countries would have better understanding of their biodiversity financing landscape, assess biodiversity financing needs and gaps, identify possible financial solutions and develop a biodiversity finance plan that aims to increase biodiversity financing, realign expenditure to priority areas, reduce future costs by investing in preventive actions and delivering better on funds spent.



Source: UNDP (2018) *The BIOFIN Workbook*

Figure 1.1: The BIOFIN Process

As shown in Figure 1.1, the BIOFIN process consists of four main components, namely:

- **Policy and Institutional Review (PIR)** - What are the drivers, policies, actors and existing mechanisms that influence biodiversity finance?
- **Biodiversity Expenditure Review (BER)** - How much is currently spent on biodiversity?
- **Financial Needs Assessment (FNA)** – How much is needed to achieve national biodiversity targets?
- **Biodiversity Financing Plan (BFP)** - What finance solutions are optimal for the country? Why should the country adopt them – the business case? How can these solutions be successfully implemented step by step?

1.3.2 BIOFIN in Malaysia

The BIOFIN Malaysia project is a five-year project that was conceived in 2013 with the national focal point being the Economic Planning Unit (and now in the Ministry of Economic Affairs), with the support of UNDP-Malaysia. The national focal point for the NPBD 2016-2025 was the Ministry of Natural Resources and Environment (NRE). Together, EPU, UNDP-Malaysia, NRE and the Ministry of Finance, constitute the project Core Team for BIOFIN Malaysia. The Core Team drives and serve as the primary advisor to the study team (consultants appointed to carry out the BIOFIN exercise in Malaysia). For Malaysia, BIOFIN presents an opportunity for building capacity in this aspect and for achieving its policy goals in this sector.

Malaysia is one of the original 12 pilot countries that joined a global effort in 2013 with the BIOFIN Malaysia project commencing in 2014. Between 2014 and 2015, two workshops were organised to raise awareness on BIOFIN and its methodology among stakeholders. This was followed by a stock taking exercise using the 4th and 5th Malaysia Reports to CBD in place of the PIR as well as preliminary data collection for the BER in 2016; the latter involved collection of Development Expenditure data from the 9th and 10th Malaysia Plan through the EPU Environment and Natural Resource Economics Section.

In 2017 and 2018, Phase 1 of BIOFIN Malaysia, namely key activities from the BER, FNA and BFP stages were undertaken with stakeholders from the government and non-government sectors (NGOs, MLOs, private sector). This phase of BIOFIN Malaysia will be completed in 2019 with the delivery of a BIOFIN Integrated Report, Policy Brief and Biodiversity Financing Plan (BFP).

1.4 Scope of Review

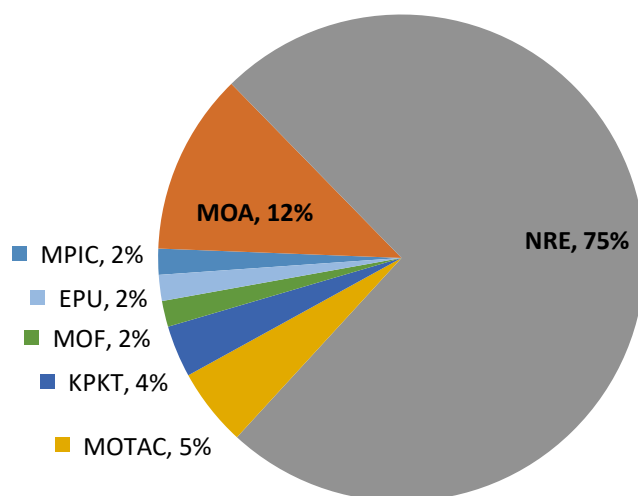
The scope of the BIOFIN Malaysia exercise was defined by a number of factors. Firstly, the scope is circumscribed by the National Policy on Biological Diversity (NPBD) 2016-2025. This is in line with the objectives of the Core Team to use the BIOFIN methodology to understand the biodiversity financing landscape in Malaysia, identify financing needs and develop a finance plan to support the implementation of the NPBD.

Secondly, the Core Team decided to limit the BER and FNA exercises to a selected sample of organisations, particularly the main biodiversity-related agencies, in anticipation that a voluntary-based exercise would not be able to cover all agencies within the timeline. In particular, the Core Team insisted that NRE and their related line agencies would need to be sampled.

The first point of reference was the NPBD document where lead agencies and key partners were identified for each policy target (Table 3-1 of NPBD, see [Appendix III](#)). Key points of the Policy are as follows:

- A total of 53 government agencies were identified, including state-level agencies;
- There are seven (7) lead agencies, viz. the Ministry of Natural Resources and Environment (NRE), which has responsibility for most of the targets, the Ministry of Urban Well-being, Housing & Local Government (KPKT), the Ministry of Agriculture and Agro-based Industries (MOA), the Ministry of Plantation Industries & Commodities (MPIC), the Ministry of Tourism & Culture (MOTAC), the Ministry of Finance (MOF) and the Economic Planning Unit (EPU);
- Key partners included the Ministry of Science Technology & Innovation (MOSTI), Ministry of Education (MOE), Attorney General Chambers of Malaysia (AG) and Public Services Department (PSD); and
- The private sector was mentioned in 8 targets and 14 actions.

Share of NPBD actions by lead agencies (n=53)



Source: National Policy on Biological Diversity 2016-2025, Table 3

Figure 1.2: Share of NPBD actions by lead agencies

Additionally, the study team also examined the 4th and 5th CBD National Report of Malaysia as well as the Eleventh Malaysia Plan (especially the Green Growth chapter). Desktop searches identified potential organisations from the private sector, multilateral and bilateral organisations, as well as the NGO and CSO sectors. Based on these reviews, the study team proposed a list of organisations to the Core Team.

1.4.1 List of Participants

The Core Team decided to include only federal level government organisations and a few organisations from the NGO, CSO and private sector, based on their willingness to participate. Participation was on a voluntary basis.

Nineteen (19) organisations took part in both the BER and the FNA. They were convinced of the usefulness of BIOFIN, of their relationship to biodiversity and remained committed to the process. Some of them had core functions that are directly biodiversity-related while for the others biodiversity was not among their core functions. These participants, shown in Table 1.1, represent the major players in biodiversity, especially those in government:

- **15 government organisations** – 3 main ministries mentioned in the NPBD and 12 line agencies mentioned in the NPBD;
- **3 NGOs** – one large, one medium sized and one small, both international and local NGOs provided insight into how differently sized and established NGOs spend on biodiversity; and
- **1 private sector organisation** – one example of how developers spend on biodiversity.

Table 1.1: List of Organisations that Participated fully in the BIOFIN Exercise (n=19)

Sector	Name
Government (15)	Ministry of Natural Resources & Environment (NRE – BBP, BSASH, BMG, BPASPI)
	Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN + Trust Fund)
	Department of Marine Parks (JTLM + Trust Fund)
	Forestry Department Peninsular Malaysia (JPSM)
	Forest Research Institute Malaysia (FRIM)
	National Hydraulic Research Institute of Malaysia (NAHRIM)
	Department of Irrigation and Drainage (JPS)
	Department of Mineral and Geoscience (JMG)
	Department of Environment (JAS)
	Ministry of Agriculture and Agro-based Industries (MOA)
	Department of Agriculture (DOA)
	Department of Fisheries (DOF)
	Malaysian Agricultural Research and Development Institute (MARDI)
	Ministry of Plantation Industries & Commodities (MPIC HQ, LGM, LKM, LKTN)
	Malaysian Palm Oil Board (MPOB)
Non-Government (NGO) (3)	WWF-Malaysia
	Malaysian Nature Society (MNS)
	Management & Ecology of Malaysian Elephants (MEME)
Non-Government (Private sector) (1)	Sime Darby Property Bhd

1.4.2 The BER

Initially, for the BER, 27 organisations provided primary data and the team sourced secondary data for 3 other organisations. But 11 did not participate in the FNA. The list of the remaining 11 organisations and their data can be found in [Appendix I](#) and [Appendix II](#).

With regards to the source of funds, the review was focussed on government allocations and trust funds for the government sector, which included development and operational expenditure. For non-governmental organisations (NGOs), the data included all biodiversity-related projects carried out in Malaysia regardless of the origin of funds.

For the period of data collection, expenditure data from 2006 till 2017 were requested and provided where possible. Most participants were only able to provide about 5-7 years of data and not necessarily in the same years as other participants. Secondary data sources, including annual reports, financial statements, sustainability reports and other relevant sources were used as supplementary material.

1.4.3 The FNA

The FNA process involved 25 organisations. Training and capacity building was provided. Six (6) of them joined only at the FNA stage and did not provide the primary BER data. The list of 6 organisations and their data can be found in [Appendix I](#) and [Appendix II](#). The FNA involves

planning and budgeting beginning in 2018 and ends in 2025 as the NPBD document that details the national biodiversity targets has been planned up to then.

List of Organisations	Completed BER only (11)	Completed BER and FNA (19)	Completed FNA only (6)
	GOV 1. MOTAC 2. MOF 3. KPKT	GOV 1. NRE (BBP, BSASH, BMG, BPASPI) 2. PERHILITAN + TRUST FUND 3. JTLM + TRUST FUND 4. JPSM 5. FRIM 6. NAHRIM 7. JPS 8. JMG 9. JAS 10. MOA 11. DOA 12. DOF 13. MARDI 14. MPIC (HQ, LGM, LKM, LKTN) 15. MPOB	GOV 1. JBK 2. DVS 3. JLN 4. PLANMALAYSIA 5. APMM
	SOURCES OF FUNDING 1. UNDP (BD, CC and ENV) 2. SGP 3. SIME DARBY FOUNDATION		
	NON-GOV 1. WETLANDS INTERNATIONAL 2. SIME DARBY PLANTATION 3. MAYBANK 4. PETRONAS 5. TNB	NON-GOV 1. WWF 2. MNS 3. MEME 4. SIME DARBY PROPERTY	NON-GOV 1. HARIMAU SELAMANYA, RIMBA

Figure 1.3: List of Participants Engaged in the BIOFIN exercise (n=36)

1.5 Structure of Report

This report consists of six (6) chapters. The first chapter introduces Malaysia's biodiversity financing landscape. It presents the global BIOFIN before going into more detail about the BIOFIN exercise in Malaysia. Chapters 2, 3 and 4 discuss the methodology, results and any observations, opportunities and limitations of the Biodiversity Expenditure Review (BER), Financial Needs Assessment (FNA) and Gap Analysis exercises in Malaysia respectively. Chapter 5 compares the BIOFIN Malaysia results to the Goals and Targets of the NPBD, while Chapter 6 concludes the report with conclusion, recommendations and limitations of this study.

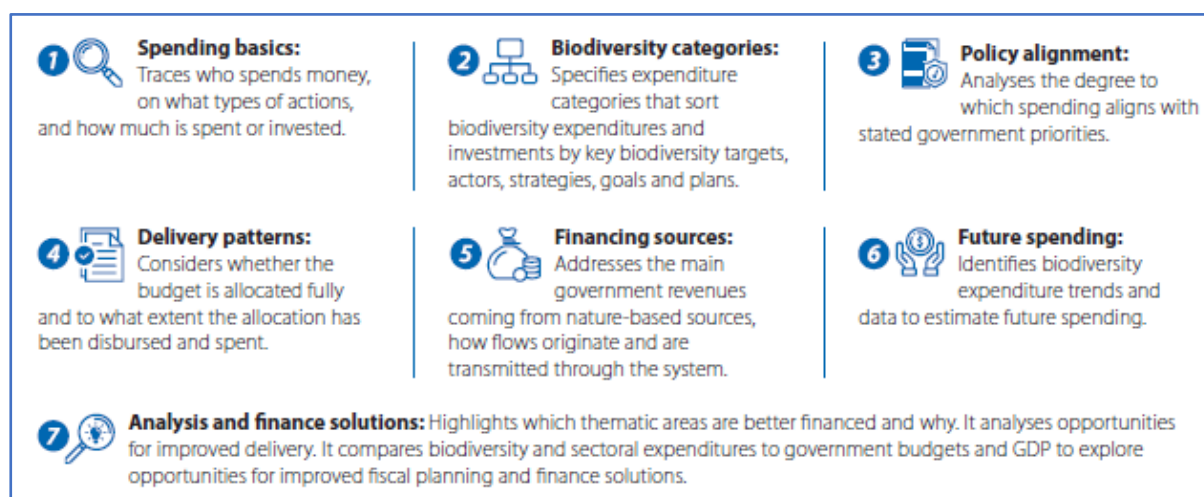
2 Biodiversity Expenditure Review (BER)

2.1 What is the Biodiversity Expenditure Review (BER)?

Biodiversity expenditure is any expenditure incurred with the purpose of impacting biodiversity positively, or reducing or eliminating pressures on biodiversity. They include direct and indirect expenditure. The BER is an analysis of the biodiversity expenditure of a country.

A review of biodiversity expenditure will provide information on how much is being spent within specific sectors or themes, whether budgets and expenditure are aligned with national biodiversity priorities, and the outcomes of the expenditures.

The BER exercise requires detailed data from all sectors, i.e. government (all levels and all types) and non-government (private sector, NGO and local communities) – their financial inputs, such as budgets, allocations and expenditures to inform and promote improved biodiversity policies, financing, and outcomes. The key elements of BER are:



Source: UNDP (2018) *The BIOFIN Workbook*

Figure 2.1: The BER Exercise

The difference between the Financial Needs Assessment (see next chapter) and the projected BER is the biodiversity financing gap. That gap could be addressed through the Biodiversity Financing Plan (BFP). The BER results will also inform the extent to which budgets and expenditures should be aligned to achieve national biodiversity priorities. The BFP will lay out the finance solutions to achieve national biodiversity targets and goals.

2.2 Malaysia's Budgetary Process

Malaysia's government budget comprises of development expenditures and operating expenditures. The former is decided at the Malaysia Plan process once every five years when Ministries and agencies get approval for development projects. The operating budget is decided annually.

Box 1: Malaysia's Development Plans and Development Expenditures

The Malaysia Plans are the blueprints for development covering all aspects of the national economy. Successive 5-Year Malaysia Plans formulate national development goals and the strategic means for achieving them. They set out the national policy directions and development priorities for five years. Planning and budgeting go hand in hand. Based on the five year plans, the annual allocations of the Ministries and agencies are determined, and they undergo through a budgetary process on an annual basis.

The budget year is from 1st January to 31st December. Figure 2.2 shows the budget process for government ministries and agencies in Malaysia (see [Appendix X](#) for more details).

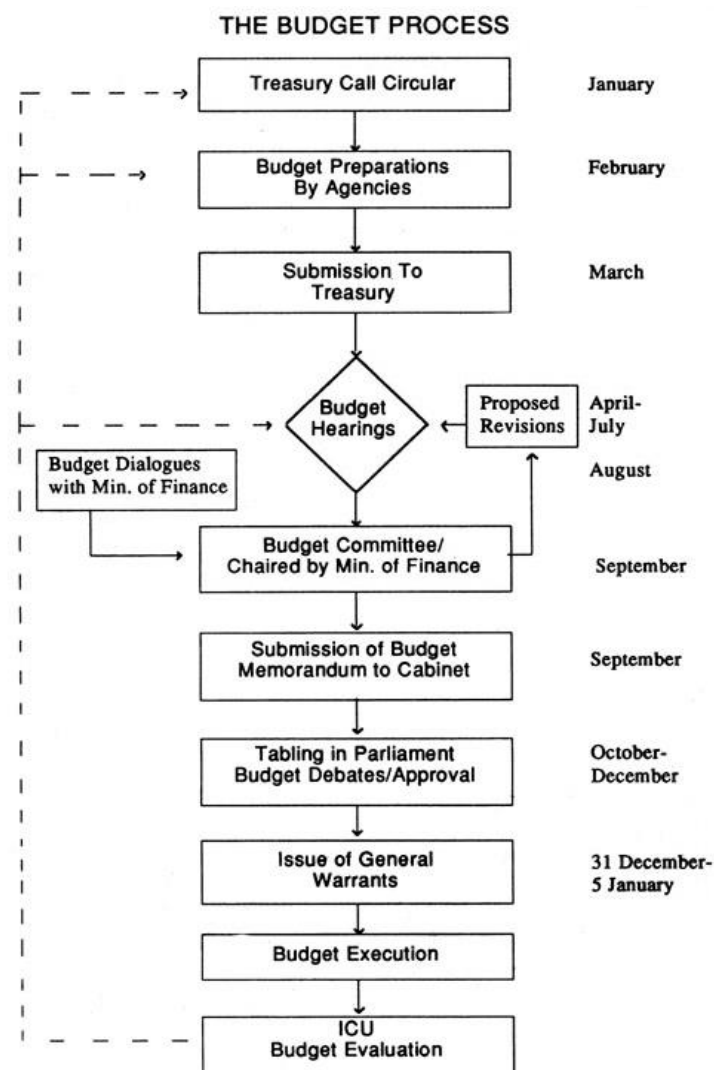


Figure 2.2: Summary of Malaysia's National Budgetary Process

2.2.1 Malaysia's Budgetary Process and biodiversity expenditure

2.2.1.1 OE versus DE

The expenditure budget has two major components which is the Operating (Supply and Charged) Expenditure (OE) and Development Expenditure (DE). Supply expenditure, which is provided for under the Supply Act, includes all charges to the budgetary appropriations for goods and services, and for transfer payments to statutory funds, state governments and public enterprises. Charged expenditure are related to expenditure such as statutory grants to state governments, pensions and debt charges are obligatory payments under the law and do not require to be appropriated annually.

On the other hand, Development Expenditure is met from the Development Fund. Sources of the Fund consist mainly of loans raised for development, contributions from the revenue account of the consolidated fund and from recoveries of loans from the development fund. Expenditure from the Fund is only for development purposes as specified in the Development Funds Act and includes grants, loans and investments for development purposes.

Operational expenditures (OE) consist of supply expenditures and charges expenditures. The OE takes up the bulk of the national budget. For years 2009-2012, OE constituted more than 70% of the national budget. This grew to be more than 80% between 2013 to 2016, implying that the Development Expenditure (DE) share is now less than a quarter of the national budget (Figure 2.3). Translating this into monetary figures, it shows that the OE had grown substantially between 2009 and 2014 (Table 2.1).

Table 2.1: Share of supply operational expenditures from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
% of OE that is supply expenditures	83.2	81.7	82.2	82.6	81.7	79.9	78.2	75.3
Supply OE (RM billion)	132.0	130.4	152	171.65	174.3	176	171	160
Note: Exchange rate is 1 USD = RM 4.10 (August 2018)								

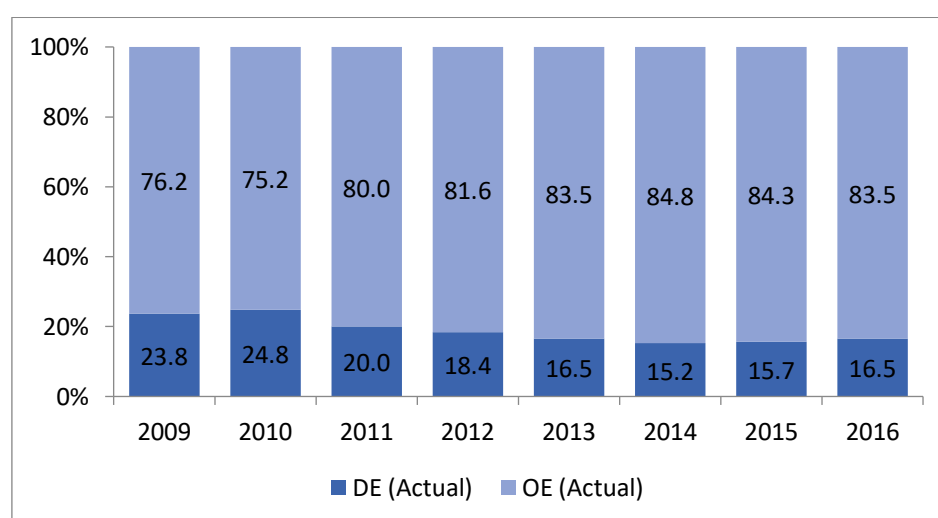


Figure 2.3: Share of development and operating expenditures from 2009 to 2016

2.2.1.2 Biodiversity Expenditure and the Government Budget

Table 2.2: NRE's share of national expenditures, DE and OE compared to other ministries

% Share of national expenditures	2009	2010	2011	2012	2013	2014	2015	2016
<i>NRE</i>	1.67	1.81	1.09	0.95	0.99	0.91	0.99	0.98
<i>MOA</i>	3.04	2.40	2.14	1.93	2.14	2.26	2.17	1.92
<i>MINDEF</i>	6.54	5.55	6.19	5.46	6.06	6.24	6.55	5.67
% Share in OE (supply expenditures)								
<i>NRE</i>	0.69	1.01	0.63	0.60	0.60	0.63	0.63	0.63
<i>MOA</i>	2.86	2.23	2.72	2.18	2.40	2.51	2.31	2.12
<i>MINDEF</i>	8.57	7.48	7.27	6.50	7.00	7.42	7.82	6.78
% Share in DE								
<i>NRE</i>	5.19	4.81	3.38	2.98	3.53	3.18	3.67	3.57
<i>MOA</i>	5.16	4.13	1.76	2.48	3.04	3.71	4.14	3.58
<i>MINDEF</i>	4.65	3.88	7.07	5.89	7.77	7.98	8.86	8.52

Note: Exchange rate is 1 USD = RM 4.10 (August 2018).

Note 2: MOA and MINDEF were chosen as comparisons because allocations to the Ministries of Agriculture and Defence tend to be highest.

Assuming NRE and its agencies are the only contributors to biodiversity, Malaysia would have spent **0.98% of national expenditures on biodiversity** (RM 2.5 billion) in 2016. The shares of NRE in national expenditures have been declining albeit within the context of a growing national budget. Looking at OE (supply expenditures), the share of NRE has largely stayed the same (~0.63%) while the share in DE has declined over time.

2.2.1.3 Biodiversity Expenditure by DE and OE

Further analysis shows more interesting results about NRE's budget. On average, NRE's budget is about RM 2.7 billion a year, with DE taking up about 60% of the budget, when the national average is only 20%. NRE receives about 4% of the total DE budget nationally. Hence, NRE's share of the total budget is weighted in favour of DE. Of the total budget, NRE's share is 1% (Table 2.3).

Table 2.3: Ministries' share of the national supply OE and DE between 2009 and 2016

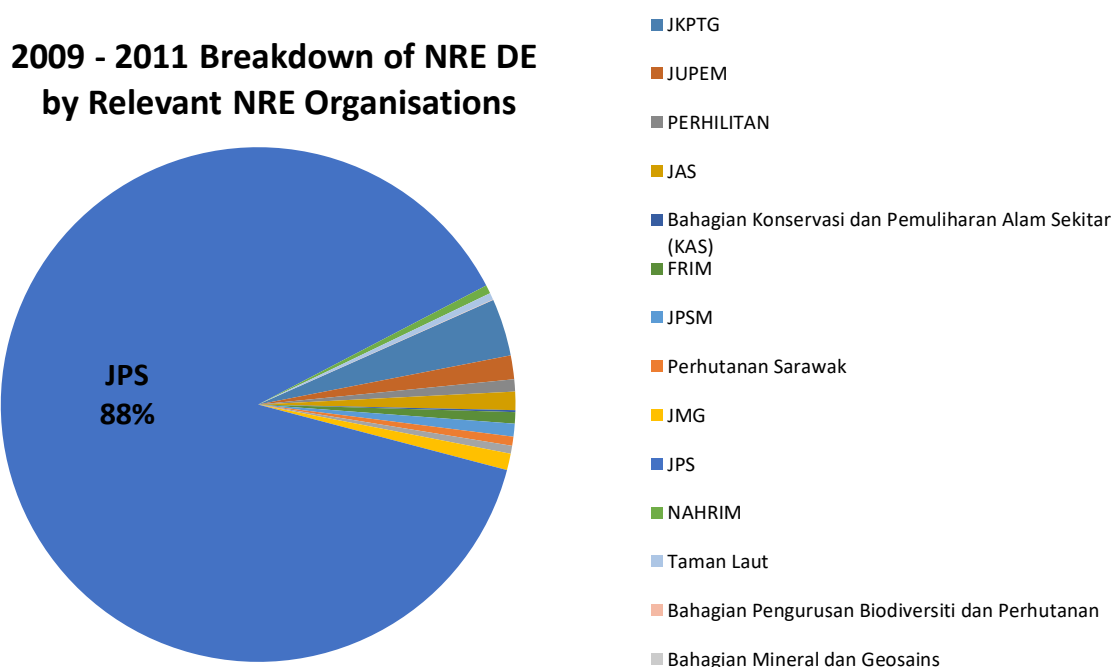
Ministry	% share
Prime Minister's Department	7%
Ministry of Plantation Industries and Commodities	1%
Ministry of Agriculture and Agro-Based Industry	3%
Ministry of Natural Resources and Environment	1%
Ministry of Tourism and Culture	1%
Ministry of Urban Wellbeing, Housing and Local Government	2%
Ministry of Health	9%
Ministry of Defence	7%
Ministry of Home Affairs	6%
Ministry of Education	20%

Source: JANM financial statements, 2009-2016

Looking closely at NRE's expenditures, the majority of its DE is concentrated in a single agency, i.e., the JPS, and those funds go to improve irrigation and flood mitigation via infrastructure projects.

The JPS can incorporate considerations of biodiversity into its projects and can enhance biodiversity positively. For example, managing river basins in an integrated manner and using natural ecosystems as soft infrastructure to mitigate floods could have positive impacts on biodiversity. On the other hand, straightening out and concreting rivers –could be detrimental to biodiversity, even though flood mitigation protects vulnerable areas from flooding.

However, the JPS budget overwhelms the NRE budget (see Figure 2.4). Even using the smallest attribution of 20% going to biodiversity, the JPS biodiversity budget is so much larger than all the others combined. Hence, the JPS share of biodiversity budget should be treated separately as it is an outlier when compared to the rest.



Source: JANM Financial Statements, 2009-2011

Figure 2.4: Breakdown of NRE DE by relevant agencies

2.3 Biodiversity Expenditure Review (BER) – Methodology

2.3.1 Adapted BER methodology

The BER methodology, i.e., the 2016 Global BIOFIN workbook³ was localised to Malaysia. Key aspects of the localisation include:

- Using the definition of 'biodiversity expenditure' as listed in the Global workbook;

³ BIOFIN Workbook can be found at: <https://www.biodiversityfinance.net/>

- Using the reference to the United Nations Convention of Biological Diversity (CBD) objectives in line with the OECD Rio Markers method of identifying biodiversity related expenditures;
- Using only two tagging systems: the NPBD targets and the BIOFIN categories (See [Appendix III](#) and [Appendix IV](#));
- Attributing expenditures to biodiversity based on programme detail rather than based on the organisation making the expenditures; and
- Using only 5 categories of attribution percentages (0%, 20%, 50%, 80% and 100%).

The methodology was simplified into three basic steps (see Figure 2.5).

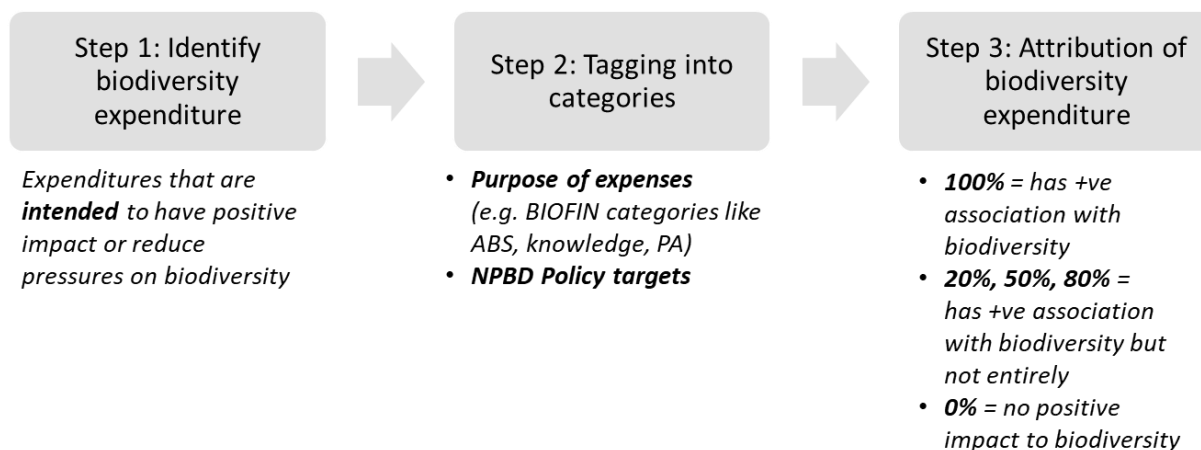


Figure 2.5: Key Steps in BER Exercise

Additional tweaking of the methodology was necessary in order to incorporate relevant elements; e.g., attributing to Operating Expenditure (OE) data using Personnel Time Involvement Surveys; and handling non-project expenditure of NGO and private sector participants whose data were structured differently from the government data. The complete adapted methodology can be found in the BER Guidebook (See [Appendix V](#)).

2.3.2 BER Data Analysis – Process and Sources

2.3.2.1 Data Collection Process

The data collection process at each agency involved four key steps (Figure 2.6):

- 1) A briefing meeting – Introduction to BIOFIN in Malaysia, the methodology, data sources, time commitments, next steps;
- 2) Training / capacity building sessions – Participants are trained in the basic steps of the BER and introduced to the data collection template. The practical aspect of the session begins with a hands-on BER exercise using examples, before using their own data;
- 3) Check-in sessions – To answer any remaining questions and offer further guidance. They also serve as introductions to the next step – the FNA; and
- 4) Submission of BER data sheets.

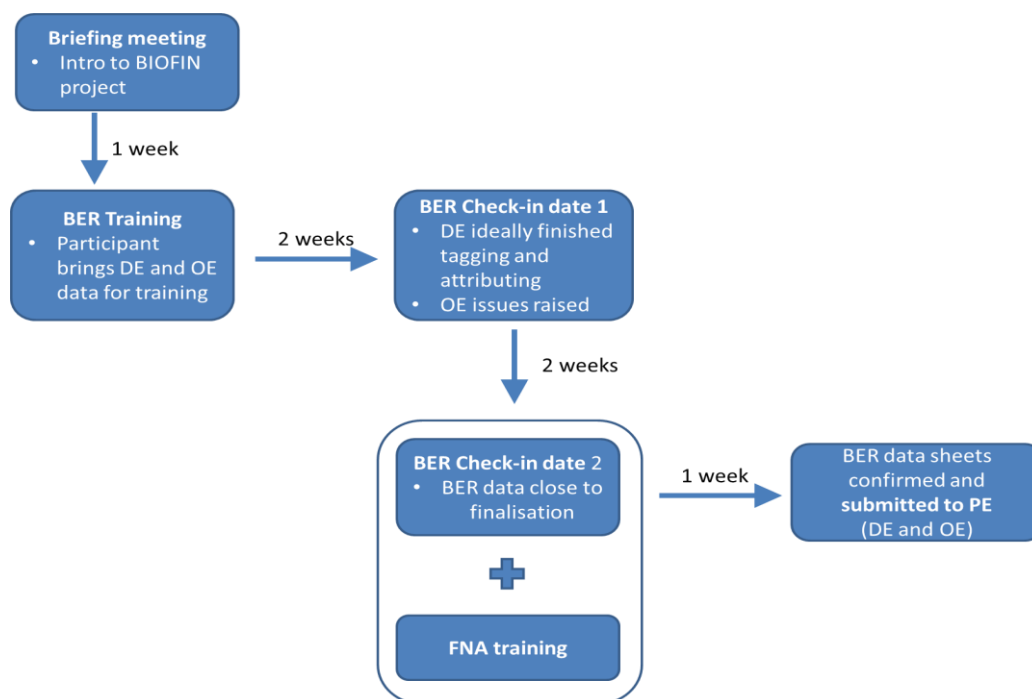


Figure 2.6: Steps of engagement with participants to carry out the BER process

2.3.2.2 Data Sources and Analysis

Three categories of participants were identified: the government sector, private sector and the NGOs. Since they had differing sources of data, the BER analysis was adjusted accordingly.

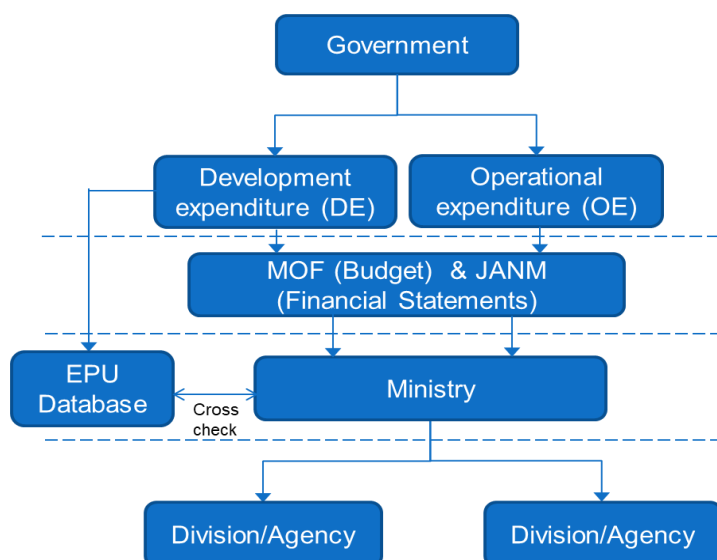


Figure 2.7: Different types of government sector data

Data analysis of biodiversity expenditure of each organisation was made by sector and cross tabulating them with the NPBD Targets and BIOFIN categories. For the government sector, the data is then compared to the National Budget and Ministry-level Budgets.

2.4 Biodiversity Expenditure Review (BER) – Results

This section presents the results of the BER process for 19 organisations⁴. First, the pooled findings from all sectors, government and non-government (NGO and private) sectors are presented by year, NPBD Target and BIOFIN Categories. Next, findings from the government sector are presented, starting with trends and estimations of biodiversity share at national levels. This is supplemented by data from secondary sources, where available. A breakdown of biodiversity expenditure by ministry, organisation, year, NPBD Targets and BIOFIN categories are then provided. The chapter presents the findings for the non-government sector (private sector, NGO) by year, NPBD Target and BIOFIN Categories.

2.4.1 BER – Pooled Analysis

2.4.1.1 Biodiversity Expenditure by Sector

The cumulative biodiversity expenditure for 19 participating organisations is estimated to be RM 7,968.28 million for the years 2006 – 2017 (see Table 2.4). The government sector is the primary source of biodiversity expenditure, with 15 main organisations contributing RM 7,632.80 million (95.8%) followed by the NGO sector with RM 331.82 million (4.2%) and private sector with RM 3.66 million (0.05%). This analysis is based only on data from the participating organisations, only a sub-set of all organisations with biodiversity expenditures.

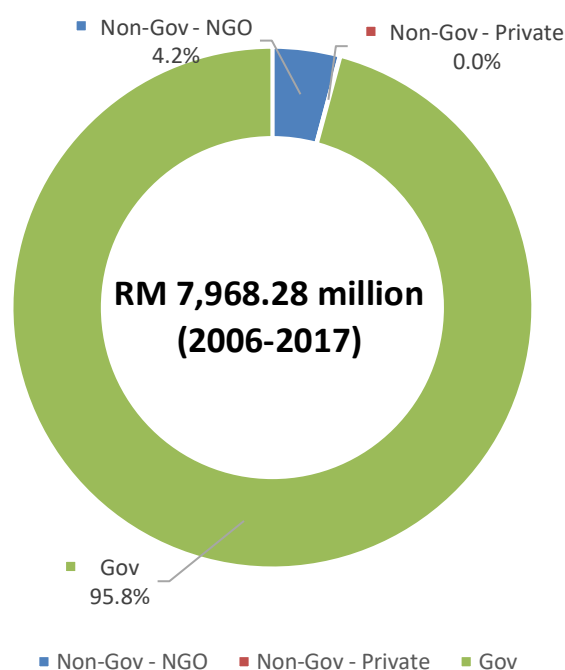


Figure 2.8: Total Biodiversity Expenditure by Sector (2006-2017)

⁴ See Section 1.4.3 for a discussion of how these 19 were selected.

Table 2.4: Biodiversity Expenditure by Sector (2006-2017)

Sector	No. of Organisations	Biodiversity Expenditure (RM million)
Government	15	7,632.80
Non-Government – NGO	3	331.82
Non-Government - Private	1	3.66
Grand Total	19	7,968.28

2.4.1.2 Biodiversity Expenditure by Year

On average, the government sector (15 organisations) spent about RM 500 million to RM 850 million on biodiversity expenditure per year. In comparison, the 3 NGOs spent about RM 20 million – RM 36 million per year. The one private sector organisation spends only RM 0.01 million – RM 0.54 million per year. The next three tables show the biodiversity expenditures for the 9MP, 10MP and 11MP by sector.

Table 2.5: Biodiversity Expenditure by Sector (9MP - 2006-2010) (RM million)

Sector	2006	2007	2008	2009	2010	Total
Gov (15)	547.99	526.42	542.94	560.53	602.18	2780.06
Non-Gov – NGO (3)	22.97	23.61	24.27	20.05	24.13	115.03
Non-Gov – Private (1)	0.01	0.01	-	-	-	0.02
Grand Total	570.96	550.03	567.21	580.57	626.31	2895.08

Table 2.6: Biodiversity Expenditure by Sector (10MP - 2011-2015) (RM million)

Sector	2011	2012	2013	2014	2015	Total
Gov (15)	494.51	653.75	744.46	846.82	703.19	3442.73
Non-Gov – NGO (3)	33.59	32.42	36.22	28.60	26.89	157.72
Non-Gov – Private (1)	0.50	0.50	0.54	0.54	0.54	2.62
Grand Total	528.60	686.67	781.21	875.96	730.62	3603.06

Table 2.7: Biodiversity Expenditure by Sector (11MP – 2016-2017) (RM million)

Sector	2016	2017	Total
Gov (15)	734.99	675.02	1410.01
Non-Gov – NGO (3)	28.91	30.18	59.09
Non-Gov – Private (1)	0.54	0.49	1.03
Grand Total	764.44	705.69	1470.13

2.4.1.3 Biodiversity Expenditure by NPBD Target

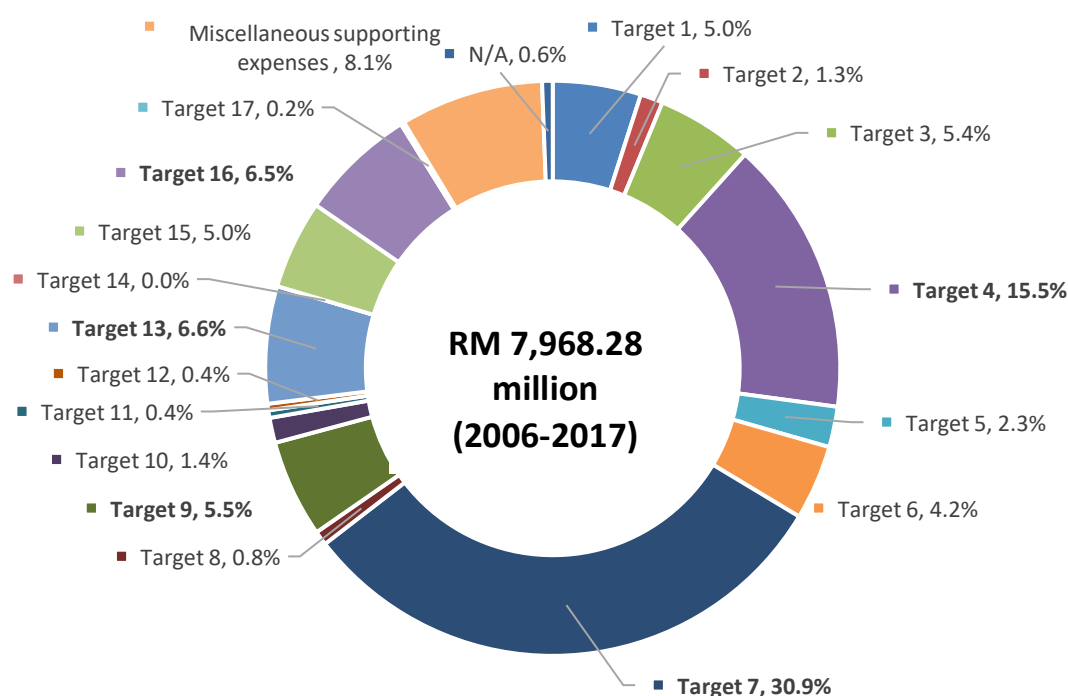


Figure 2.9: Biodiversity Expenditure by NPBD Target (2006-2017)

All NPBD Targets are covered by the 19 organisations except Target 14. Five Targets made up the majority of expenditures (65%):

- **Target 7**, protecting and restoring vulnerable ecosystems, RM 2,463.72 million (30.9%)
- **Target 4**, sustainable production forests, agriculture and fisheries, RM 1,233.90 million (15.5%)
- **Target 13**, conserving genetic diversity of cultivated plants, animals and wild relatives, RM 525.12 million (6.6%)
- **Target 16**, improving and applying knowledge and science base relating to biodiversity, RM 521.22 million (6.5%)
- **Target 9**, preventing the extinction of known threatened species, RM 436.99 million (5.5%)

On the other hand, 5 Targets have expenditures of less than 1% of the total biodiversity expenditure, including Target 14 that recorded near-zero spending:

- **Target 14**, fair access to genetic resources, RM 0 million (0.0%)
- **Target 17**, mobilisation of resources for biodiversity, RM 15.96 million (0.2%)
- **Target 11** on invasive alien species, RM 33.87 million (0.4%)
- **Target 12**, biosafety, RM 29.08 million (0.4%)
- **Target 8**, ecological corridors, RM 63.74 million (0.8%)

Miscellaneous supporting expenses make up RM 642.12 million (8.1%) of the expenditures and programs and actions that cannot be categorised (N/A) consist RM 47.39 million (0.6%) of the expenditure. The expenditures include general supplies, utility bills, general meeting expenses, security guards, etc.

Table 2.8: Biodiversity Expenditure by NPBD Target (2006-2017) (RM million)

Target	Grand Total
Target 1 - Biodiversity Awareness	395.19
Target 2 - Stakeholders Empowerment	101.20
Target 3 - Mainstreaming Biodiversity	432.50
Target 4 - Sustainable use	1,233.90
Target 5 - Sustainable Tourism	181.45
Target 6 - Protected areas	334.94
Target 7 - Vulnerable Ecosystems	2,463.72
Target 8 - Ecological connectivity	63.74
Target 9 - Endangered Species Conservation	436.99
Target 10 - Enforcement and Illegal Wildlife Trade	112.30
Target 11 - Invasive Alien Species	33.87
Target 12 - Biosafety	29.08
Target 13 - Agricultural Genetic diversity	525.12
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	397.59
Target 16 - Science Basis	521.22
Target 17 - Resource Mobilization	15.96
Misc. supporting expenses	642.12
N/A	47.39
Grand Total	7,968.28

2.4.1.4 Biodiversity Expenditure by BIOFIN Categories

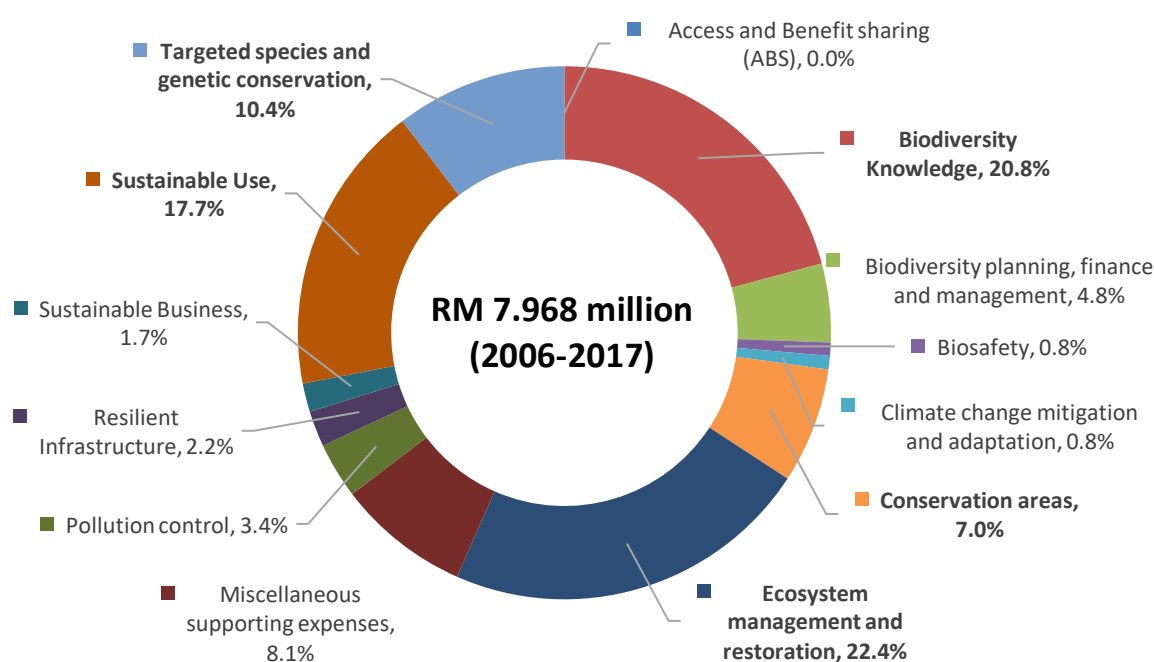
**Figure 2.10: Biodiversity Expenditure by BIOFIN Categories (2006-2017)**

Table 2.9: Biodiversity Expenditure by BIOFIN Categories (2006-2017)

BIOFIN Categories	Expenditure 2006 – 2017 (RM million)
Access and Benefit sharing (ABS)	0.14
Biodiversity Knowledge	1,658.22
Biodiversity planning, finance and management	380.12
Biosafety	64.26
Climate change mitigation and adaptation	65.16
Conservation areas	558.53
Ecosystem management and restoration	1,783.55
Pollution control	269.22
Resilient Infrastructure	173.64
Sustainable Business	137.60
Sustainable Use	1,407.09
Targeted species and genetic conservation	828.63
Miscellaneous supporting expenses	642.12
Grand Total	7,968.28

The biodiversity expenditure was tagged to all BIOFIN Categories. The five BIOFIN Categories with the highest expenditure were (Table 2.10):

- **Ecosystem management and restoration**, RM 1,783.55 million (22.4%)
- **Biodiversity knowledge**, RM 1,658.22 million (20.8%)
- **Sustainable Use**, RM 1,407.09 million (17.7%)
- **Targeted species and genetic conservation**, RM 828.63 million (10.4%)
- **Conservation areas**, RM 558.53 million (7.0%)

The 5 categories with the least expenditures are:

- **Access and Benefit Sharing**, RM 0.14 million (0.0%)
- **Biosafety**, RM 64.26 million (0.8%)
- **Climate change mitigation and adaptation**, RM 65.16 million (0.8%)
- **Sustainable business**, RM 137.60 million (1.7%)
- **Resilient Infrastructure**, RM 173.64 million (2.2%)

Miscellaneous supporting expenses consisted of RM 642.12 million (8.1%) of the expenditures.

2.4.2 BER – Government Sector

This subsection presents the results of the BER process at the agency or ministry level. Data used for this analysis were drawn from participating organisations, the EPU database and the Accountant General's (JANM) Financial Statements.

The NPBD list 7 main organisations but three of them participated in the BER exercise. They are NRE, MOA and MPIC. The others that did not participate are KPKT, MOTAC, MOF and EPU, as shown in Table 2.10 below.

Table 2.10: List of Main Government Organisations by Ministry (prior to ministry reshuffling in 2018)

NRE	MOA	MPIC
<ul style="list-style-type: none"> • NRE (BBP, BSASH, BBP, BMG) • PERHILITAN + Trust Fund • JTLM + Trust Fund • JPSM • FRIM • JAS • JPS • NAHRIM • JMG 	<ul style="list-style-type: none"> • MOA • DOA • DOF • MARDI 	<ul style="list-style-type: none"> • MPIC (HQ, LGM, LKM, LKTN) • MPOB

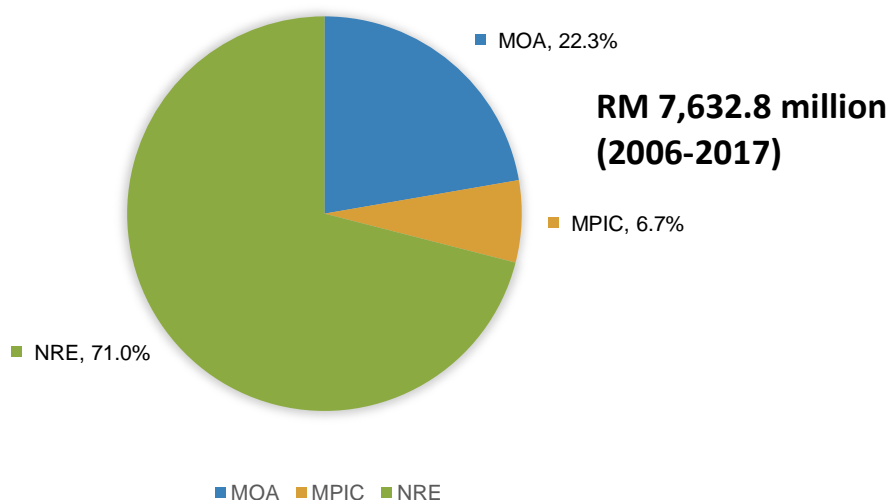
2.4.2.1 Biodiversity Expenditure by Ministries and Organisations

The bulk of the biodiversity expenditure were spent by three Ministries, namely the Ministry of Natural Resources and Environment (NRE, 71%) followed by the Ministry of Agriculture and Agro-based Industry (MOA, 22%) and the Ministry of Plantation Industries and Commodities (MPIC, 7%) as shown in Figure 2.11 and Table 2.11.

This pattern parallels the share of NPBD actions as these Ministries are the Lead Implementing Agencies of the NPBD.

Table 2.11: Biodiversity Expenditure by Ministry - Government (2006-2017)

Ministry	Total (RM million)
MOA	1,700.24
MPIC	512.97
NRE	5,419.59
Grand Total	7,632.80

**Figure 2.11: Share of Biodiversity Expenditure by Ministry - Government (2006-2017)**

To derive the BER of 15 government agencies, 1,264 public sector projects in the JANM list were scanned to determine if they had biodiversity functions. Their total nominal value between years 2006-2016 was RM 57,300 million. Using the tagging and attribution process of the BER, the review showed that only 13% of the expenditures or RM 7,632.8 million was related to biodiversity conservation. This estimate comprised government allocations disbursed through the five-year national development plans (development expenditure, DE) and annual operating budgets (operating expenditure, OE).

Table 2.12 shows the biodiversity expenditures for all 15 government organisations in the BER exercise. JPSM has the highest percentage share of biodiversity expenditure (19%), followed by JPS (18%). Both had yearly expenditures of more than RM 100 million. Other organisations spent much less. For instance, MOA (10%), PERHILITAN (10%) and DOF (9%) all had annual biodiversity expenditure of less than RM 100 million (Table 2.13). The variability of average yearly biodiversity expenditure is due to the DE funds for projects managed by the agencies.

Based on initial analysis, the NRE spent only RM 98 million on biodiversity in comparison to RM 781.5 million by MOA and RM 387.7 million by MPIC. As the NRE is the principal organisation in charge of the NPBD, their share of the expenditure for biodiversity (1%) is very low compared to MOA (10%), DOF (9%) or even MPIC (5%). Even research institutes, NAHRIM and MARDI, account for 1% of the share of total biodiversity expenditures. Our assessment is that the NRE budget on biodiversity is under-estimated, and almost certainly is on the low side (given their mandate with respect to the NPBD).

Table 2.12: Total Biodiversity Expenditure by Ministry and line agencies involved in the BIOFIN study - Government (2006-2017)

Organisation	Biodiversity Expenditure 2006-2017 (RM million)	% share of Ministry's Budget	% share of Govt's Budget
NRE HQ	98.20	1.8%	1%
PERHILITAN	775.50	14.3%	10%
JTLM	213.30	3.9%	3%
JPSM	1,468.32	27.1%	19%
FRIM	603.78	11.1%	8%
JAS	581.87	10.7%	8%
JPS	1,382.84	25.5%	18%
NAHRIM	90.30	1.7%	1%
JMG	205.49	3.8%	3%
MOA	781.50	46.0%	10%
DOA	134.08	7.9%	2%
DOF	684.42	40.3%	9%
MARDI	100.23	5.9%	1%
MPIC	387.47	75.5%	5%
MPOB	125.50	24.5%	2%
Grand Total	7,632.80	-	100%

As shown in Table 2.15, 27.1% of the NRE's expenditure on biodiversity is attributed to projects in JPSM (27.1%), followed by JPS (25.5%). PERHILITAN (14.3%), FRIM (11.1%) and JAS (10.7%). The lowest expenditure is from NAHRIM (1.7%) and NRE HQ (1.8%).

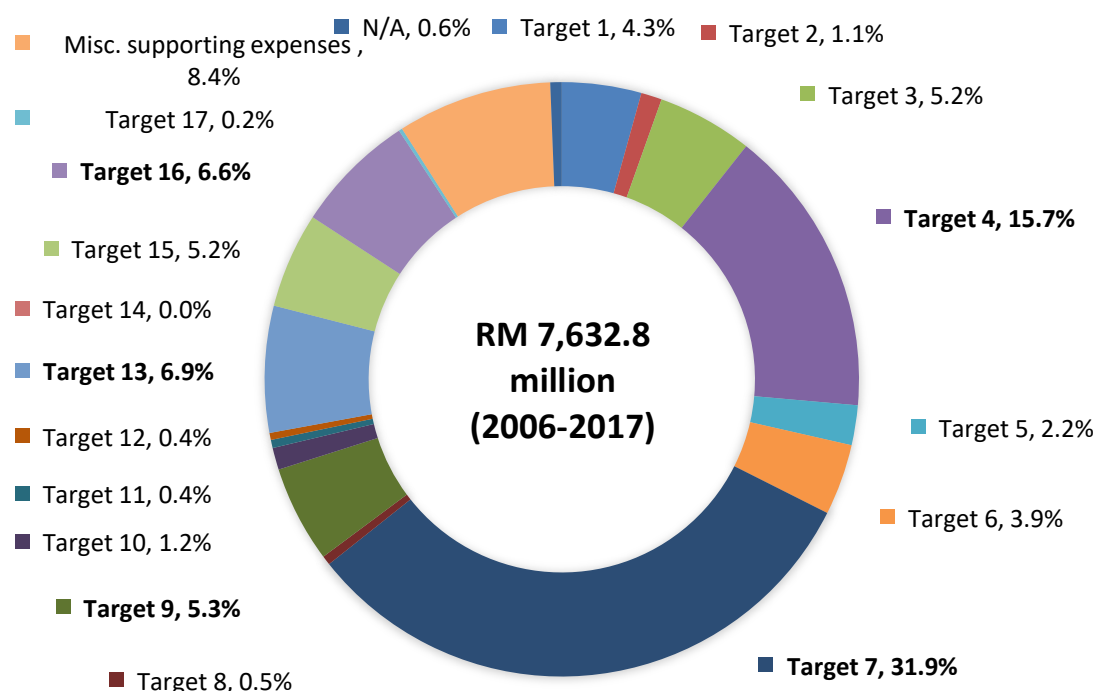
For MOA, almost half of the biodiversity expenditure is from MOA HQ (46%), followed by DOF (40.3%). The remaining is spent by DOA (7.9%) and MARDI (5.9%). For MPIC (where the sample consists of MPIC HQ, LGM, LKM, LKTN), 75.5% is spent by MPIC and 24.5% by MPOB.

Note that these expenditures are only for participating organisations in the BER exercise, and hence, the estimate made here is still an under-estimate of the total spent in Malaysia.

Table 2.13: Biodiversity Expenditure by Year - Government (2006-2017) (RM million)

Organisation	9MP					10MP					11MP		Total
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
NRE HQ	5.37	6.04	6.71	6.35	8.24	8.63	11.66	7.63	10.45	9.40	9.64	8.08	98.20
PERHILITAN	39.77	51.06	57.63	57.96	64.25	55.50	68.16	101.53	67.02	76.81	66.58	69.23	775.50
JTLM	10.17	8.15	10.58	13.39	18.26	20.26	24.33	16.38	18.21	19.92	27.06	26.59	213.30
JPSM	93.26	103.65	118.60	120.30	116.39	111.53	127.25	139.40	155.65	113.52	125.03	143.74	1,468.32
FRIM	36.47	41.32	40.34	41.31	46.27	45.89	51.37	61.46	64.98	57.96	57.02	59.39	603.78
JAS	35.16	48.36	42.82	43.16	44.01	45.59	52.38	47.53	46.37	53.11	54.95	68.43	581.87
JPS	108.58	154.78	131.40	136.89	160.55	60.73	81.62	54.39	136.42	124.72	127.50	105.26	1,382.84
NAHRIM	3.26	4.09	4.83	5.17	6.02	5.78	7.90	6.92	17.12	9.11	9.90	10.20	90.30
JMG	7.78	15.12	22.72	19.63	13.53	9.93	13.68	10.58	30.64	17.96	18.28	25.64	205.49
MOA	38.83	37.13	37.05	42.31	46.10	46.84	108.90	95.98	93.57	69.41	115.20	50.18	781.50
DOA	11.19	11.31	11.43	12.77	14.53	7.53	9.65	11.07	10.67	12.37	11.03	10.53	134.08
DOF	133.13	32.73	34.62	36.89	38.83	45.77	49.57	60.07	65.44	61.32	69.30	56.75	684.42
MARDI	11.86	1.39	12.50	12.85	11.52	2.95	3.24	16.32	13.27	7.13	5.93	1.27	100.23
MPIC	6.04	3.86	3.95	2.75	5.31	16.56	34.53	100.05	103.19	58.36	24.63	28.24	387.47
MPOB	7.12	7.43	7.75	8.78	8.37	11.02	9.53	15.15	13.83	12.07	12.96	11.49	125.50
Grand Total	547.99	526.42	542.94	560.53	602.18	494.51	653.75	744.46	846.82	703.19	734.99	675.02	7,632.80

2.4.2.2 Biodiversity Expenditure by NPBD Target



Note: Exchange rate is 1 USD = RM 4.10 (August 2018)

Figure 2.12: Biodiversity expenditure by NPBD Target – Government (2006-2017)

This subsection presents the distribution of the biodiversity expenditure by NPBD targets for 15 government organisations. Almost all NPBD targets were covered except one⁵. Figure 2.12 shows the distribution of biodiversity expenditure. About 67% of the biodiversity expenditure is spent on five targets, viz.:

- **Target 7**, protecting and restoring vulnerable ecosystems, RM 2,434.07 million (31.9%);
- **Target 4**, sustainable production forests, agriculture and fisheries, RM 1,201.51 million (15.7%);
- **Target 13**, conserving genetic diversity of cultivated plants, animals and wild relatives, RM 525.12 million (6.9%);
- **Target 16**, improving and applying knowledge and science base relating to biodiversity, RM 503.31 million (6.6%); and
- **Target 9**, preventing the extinction of known threatened species, RM 401.99 (5.3%).

Four targets had 1% or less of the total:

- **Target 8**, ecological corridors, RM 38.41 million (0.5%);
- **Target 11**, invasive alien species, RM 33.87 million (0.4%);
- **Target 12**, biosafety (0.4%), RM 29.08 million; and
- **Target 17**, mobilisation of resources for biodiversity, RM 14.65 million (0.2%).

Unexpectedly, there were biodiversity related expenditures that did not fit into any of the NPBD targets (N/A, 0.6%). There were also expenditures that could not be tagged to a specific target but were important for supporting the biodiversity-related operations in overall

⁵ Note that for Target 14, the budget is very, very small.

(Miscellaneous supporting expenses, 8.4%). Examples of such expenses include utility bills, general supplies, office security guards, and general meeting expenses.

Target 7 is the largest biodiversity expenditure category for both JPS and JPSM (see Table 2.14). Target 7 is concerned with protecting and restoring vulnerable ecosystems, and their respective share to JPSM (42.4%) and JPS (41.9%) are shown there. Both JPS and JPSM spent more than RM 1000 million each on this target only once over 11 years.

For JPS, Target 7 expenditures were largely DE in projects such as studies on river maintenance, integrated river basin management, integrated coastal zone management as well as river restoration programmes (1 state, 1 river), riverbank stabilisation and coastal erosion control operations, river and estuary restoration works and urban storm water management works. For JPSM, Target 7 expenditures were largely OE and covered mangrove replanting for coastal restoration and forest restoration for the Central Forest Spine. The remainder 15% of Target 7 expenditures were contributed by six other organisations, namely PERHILITAN, JAS, NAHRIM, JMG and DOF (Table 2.15).

In second rank, Target 4's expenditure on sustainable forestry, agriculture and fisheries was contributed largely by FRIM (35.1%), MPIC (29.6%) and DOF (15%) that jointly account for 80% of the target's total. The remainder of the expenditures were spent by PERHILITAN, JPSM, JAS, MOA, DOA, MARDI and MPOB (Table 2.15).

Low expenditures were found in Targets 11, 12 and 17 possibly because they are emerging topics in biodiversity. It is interesting to note that only DOA and DOF spent on Target 11 (invasive alien species) while only DOA and JPSM had expenditures for Target 12 (biosafety). Only FRIM and MPOB had invested in Target 17 (resource mobilisation⁶). There was negligible expenditure for Target 14 (access and benefit sharing) as the Agency was set up much later.

⁶ The BER report did not give details for Target 17. For FRIM, it could be due to REDD+ and for MPOB it could be due to the oil palm cess. Both of these deal with resource mobilization.

Table 2.14: Biodiversity expenditure by NPBD Target – Government (2006-2017) (RM million)

Target	NRE HQ	PERHI- LITAN	JTLM	JPSM	FRIM	JAS	JMG	JPS	NAHRIM	MOA	DOA	DOF	MARDI	MPIC	MPOB	Total
Target 1 - Biodiversity Awareness	0.65	29.25	11.77	3.73	2.58	245.96	2.17	16.18	0.08					17.33		329.72
Target 2 - Stakeholders Empowerment		56.61	3.71	1.17	0.87	1.00							1.54	21.36		86.27
Target 3 - Mainstreaming Biodiversity		99.91		3.55	4.47	17.62	96.08	124.17	5.52		4.33	16.78		24.79		397.23
Target 4 - Sustainable use		5.67		5.45	422.23	1.42				82.07	71.36	179.65	44.69	355.72	33.26	1,201.51
Target 5 - Sustainable Tourism		72.49		23.34	6.80					62.18	0.57					165.39
Target 6 - Protected areas		32.94	180.89	46.71				34.19	0.30							295.04
Target 7 - Vulnerable Ecosystems		18.62	0.40	1,032.05		150.47	63.84	1,019.66	12.86			136.16				2,434.07
Target 8 - Ecological connectivity		0.33		29.31				8.77								38.41
Target 9 - Endangered Species Conservation	2.38	337.60	0.35	39.84	0.66							21.15				401.99
Target 10 - Enforcement and Illegal Wildlife Trade		83.37	0.79									7.15				91.31
Target 11 - Invasive Alien Species											21.01	12.86				33.87
Target 12 - Biosafety				5.52							23.56					29.08
Target 13 - Agricultural Genetic diversity		10.70			19.71					464.45			30.26			525.12
Target 14 - Access and Benefit Sharing																0
Target 15 - Capacity on MEAs	22.12		0.31	18.36	20.03	111.11	10.50	6.60	6.84		13.24	166.00	2.69	18.51		396.32
Target 16 - Science Basis	45.90	24.28	3.11	68.64	7.64		27.17	91.61	60.64			144.67	20.99	8.67		503.31
Target 17 - Resource Mobilization			11.95		1.72									0.98		14.65
Misc. supporting expenses	27.13		0.01	190.65	115.21	54.29	5.70	39.90	4.07	172.81				31.75	0.59	642.12
N/A		3.73			1.85			41.74					0.07			47.39
Grand Total	98.19	775.50	213.30	1,468.33	603.77	581.87	205.48	1,382.83	90.30	781.50	134.08	684.42	100.24	387.47	125.50	7,632.80

2.4.2.3 Biodiversity Expenditure by BIOFIN Categories

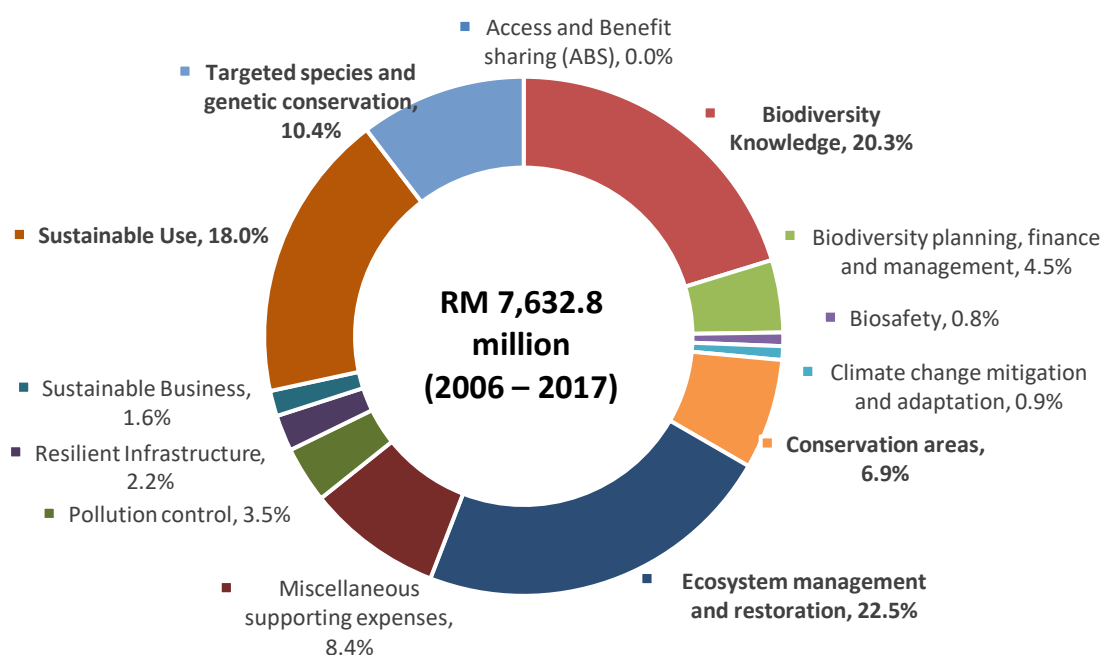


Figure 2.13: Biodiversity expenditure by BIOFIN Categories – Government (2006-2017)

As shown in Figure 2.14 and Table 2.18, the main BIOFIN Categories that account for the highest spending are:

- **Ecosystem management and restoration** (22.5%) – JPSM (RM 802.02 million) and JPS (RM 621.35 million) contributed the majority of the expenditures;
- **Biodiversity knowledge** (20.3%) – FRIM (RM 443.86 million), DOF (RM 296.06 million) were the biggest contributors;
- **Sustainable use** (18%) – especially by MPIC (RM 343.02 million) and JPSM (RM 265.33 million);
- **Targeted species and genetic conservation** (10.4%) – MOA (RM 464.45 million) and PERHILITAN (RM 210.94 million) dominated; and
- **Conservation areas** (6.9%) – JPS (RM 262.77 million), PERHILITAN (RM 178.03 million)

The BIOFIN Categories that have the least spending are:

- **Access and Benefit sharing (ABS)** (0.0%) – only spent by MARDI (RM 0.14 million);
- **Biosafety** (0.8%) – only JPSM (RM 5.52 million) from NRE, and 3 MOA line agencies – DOA (RM 44.57 million), DOF (RM 12.86 million) and MARDI (RM 1.31 million)
- **Climate change mitigation and adaptation** (0.9%) – only 2 NRE organisations, NAHRIM, JMG, and 4 agriculture and commodities organisations – DOF, MARDI, MPIC, MPOB;
- **Sustainable business** (1.6%) – majority was from MOA (RM 62.18 million), and 4 NRE organisations (PERHILITAN, JPSM, FRIM, JAS, NAHRIM), and MPOB;
- **Resilient infrastructure** (2.2%) – JPS (RM 167.65 million) contributed the most, and also by JPSM, NAHRIM and DOA.

8.4% of the biodiversity expenditure went to miscellaneous supporting expenses (see above).

Table 2.15: Biodiversity expenditure by BIOFIN Categories – Government (2006-2017) (RM million)

BIOFIN Categories	NRE HQ	PERHI- LITAN	JTLM	JPSM	FRIM	JAS	JPS	NAHRIM	JMG	MOA	DOA	DOF	MARDI	MPIC	MPOB	Grand Total
Access and Benefit sharing (ABS)													0.14	-	-	0.14
Biodiversity Knowledge	48.46	95.57	18.95	75.20	443.86	254.24	127.58	20.81	100.36	-	6.13	296.06	9.31	0.83	48.39	1,545.76
Biodiversity planning, finance and management	20.21	183.26	15.17	18.14	3.34	11.05	-	4.55	-	-	-	37.82	1.90	3.79	45.27	344.50
Biosafety	-	-	-	5.52	-	-	-	-	-	-	44.57	12.86	1.31	-	-	64.26
Climate change mitigation and adaptation	-	-	-	-	-	-	-	41.85	1.57	-	-	0.66	10.41	2.01	8.67	65.16
Conservation areas	-	33.53	178.03	46.71	-	-	262.77	-	-	-	-	-	3.58	-	-	524.62
Ecosystem management and restoration	-	18.95	-	802.02	-	120.87	621.35	11.92	1.76	-	-	136.16	3.72	-	2.07	1,718.83
Pollution control	-	-	-	-	-	118.23	108.15	1.11	34.71	-	-	-	-	6.07	-	268.26
Resilient Infrastructure	-	-	-	1.83	-	-	167.69	1.96	-	-	0.19	-	-	-	-	171.68
Sustainable Business	-	17.16	-	23.08	10.27	5.43	-	1.34	-	62.18	-	-	-	-	1.54	121.01
Sustainable Use	-	216.08	-	265.33	10.72	17.77	55.39	2.70	61.38	82.07	83.19	179.65	39.70	343.02	18.97	1,375.97
Targeted species and genetic conservation	2.38	210.94	1.15	39.84	20.37	-	-	-	-	464.45	-	21.20	30.16	-	-	790.50
Miscellaneous supporting expenses	27.13	-	0.01	190.65	115.21	54.29	39.90	4.07	5.70	172.81	-	-	-	31.75	0.59	642.12
Grand Total	98.19	775.50	213.30	1,468.33	603.77	581.87	1,382.83	90.30	205.48	781.50	134.08	684.42	100.24	387.47	125.50	7,632.80

2.4.3 BER – Non-Government (NGO)

This subsection presents the biodiversity expenditure for 2006-2017 of three NGOs – one large-, one medium- and one small-sized organisation. This is reflected in their yearly expenditures – below RM 1 million for the small organisation, above RM 5 million for the medium sized organisation and above RM 20 million for the large one. It must be noted that the small organisation was only set up in 2011 thus the data provided begins in 2011.

The results here are reported in aggregated form (Table 2.18). All three examples provide an interesting mix of organisational characteristics of NGO's BER. These findings presented are not meant to be representative of the entire NGO and CSO sector involved in biodiversity, but is a fair reflection of their size characteristics.

2.4.3.1 Biodiversity Expenditure by Year

The total biodiversity expenditure for NGOs over 12 years (2006 – 2017) is RM 331.82 million, with RM 20 million to RM 36 million spent annually over that period. The first 5 years had a lower yearly average because it did not include one NGO that was established in 2011. The next three tables show the biodiversity expenditures estimated for the 9th, 10th and 11th Malaysia Plans. Tables 2.16-2.18 show the NGO biodiversity expenditures over the three Plan periods.

Table 2.16: Biodiversity Expenditure by Year – Non-Government (NGO) (9MP - 2006-2010) (RM million)

Organisation	2006	2007	2008	2009	2010
Grand Total	22.97	23.61	24.27	20.05	24.13

Table 2.17: Biodiversity Expenditure by Year – Non-Government (NGO) (10MP - 2011-2015) (RM million)

Organisation	2011	2012	2013	2014	2015
Grand Total	33.59	32.42	36.22	28.60	26.89

Table 2.18: Biodiversity Expenditure by Year – Non-Government (NGO) (11MP – 2016-2017) (RM million)

Organisation	2016	2017	Total
Grand Total	28.91	30.18	331.82

2.4.3.2 Biodiversity Expenditure by NPBD Target

The 3 NGOs jointly identified their contributions to 13 NPBD targets. As illustrated in Figure 2.14, the spread of expenditures is balanced across nine targets while the remainder 4 have smaller shares. The nine targets constituted 91% of the total expenditures and are as follows:

- **Target 1**, increasing awareness of the values of biodiversity and the steps to conserve and use it sustainably (19.7%);
- **Target 6**, protected areas and other area-based conservation measures (11.0%);
- **Target 3**, mainstreaming biodiversity in national development planning and sectoral policies and plans (10.6%);
- **Target 9**, preventing the extinction of known threatened species and improving and sustaining their conservation status (10.5%);
- **Target 4**, sustainable forestry, agriculture and fisheries (9.8%);
- **Target 7**, protecting and restoring vulnerable ecosystems and habitats (8.9%);
- **Target 8**, terrestrial and marine ecological corridors (7.6%);
- **Target 10**, reducing illegal poaching, harvest and trade of biodiversity (6.3%);
- **Target 16**, improving and applying knowledge and the science base relating to biodiversity (5.4%);

No biodiversity expenditure was tagged for Targets 11, 12, 13 and 14 by the NGOs.

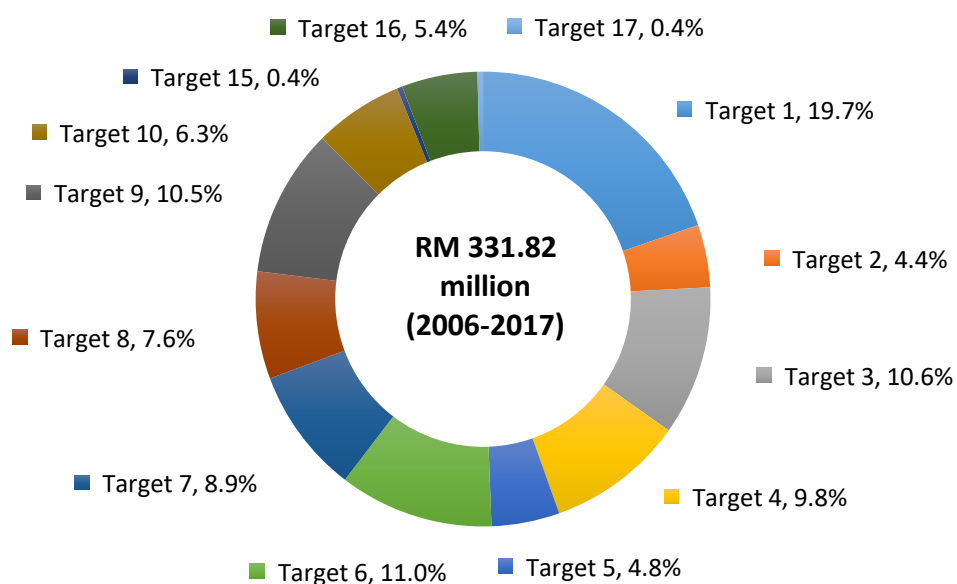


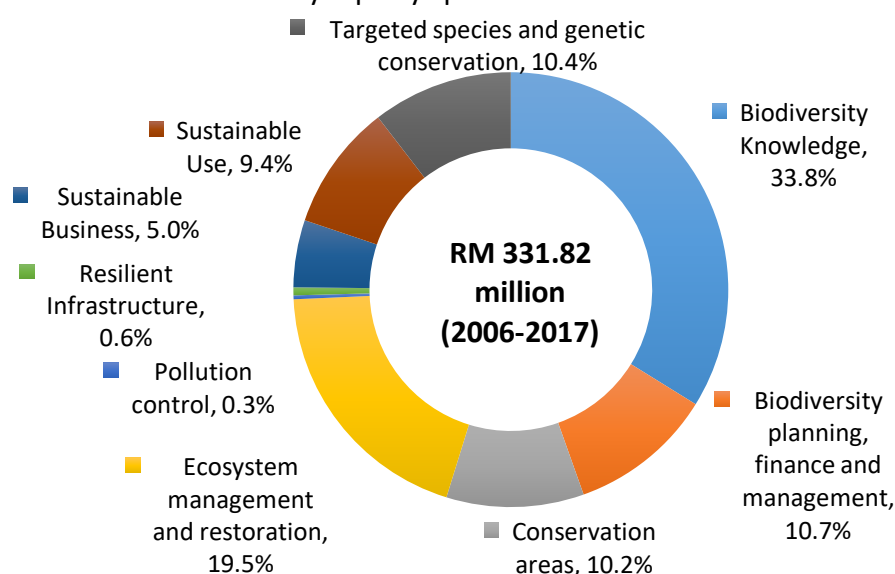
Figure 2.14: Biodiversity expenditure by NPBD Targets – Non-Government (NGO) (2006-2017)

Table 2.19: Biodiversity Expenditure by NPBD Target –NGO (2006-2017) (RM million)

Target	Total
Target 1 - Biodiversity Awareness	65.47
Target 2 - Stakeholders Empowerment	14.75
Target 3 - Mainstreaming Biodiversity	35.27
Target 4 - Sustainable use	32.39
Target 5 - Sustainable Tourism	16.07
Target 6 - Protected areas	36.43
Target 7 - Vulnerable Ecosystems	29.64
Target 8 - Ecological connectivity	25.33
Target 9 - Endangered Species Conservation	34.99
Target 10 - Enforcement and Illegal Wildlife Trade	21.00
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	1.26
Target 16 - Science Basis	17.90
Target 17 - Resource Mobilization	1.31
Misc. supporting expenses	
N/A	
Grand Total	331.82

2.4.3.3 Biodiversity Expenditure by BIOFIN Categories

In total, the three NGOs reported biodiversity expenditures in 9 BIOFIN categories and 39 BIOFIN sub-categories. The top six BIOFIN categories account for 96% of total expenditures with 'Biodiversity knowledge' and 'Ecosystem management and restoration' making up half of the total expenditures. This was followed by 'Biodiversity planning, finance and management', 'Conservation areas', 'Targeted species and genetic conservation' and 'Sustainable use' that were relatively equally spread around 10% each.

**Figure 2.15: Biodiversity Expenditure by BIOFIN Categories – Non-Government (NGO) (2006-2017)**

From the four NGO organisations, the following points were observed:

- **‘Biodiversity knowledge’** is related to ‘Biodiversity education’ which constitute about half of the expenditures of this category. This included environmental education activities, camps, workshops, publications and public awareness campaigns. In comparison, about 29% of this category’s expenditures had been used to improve, share and apply biodiversity knowledge. This included baseline studies or assessments for strategic planning, restoration efforts or management plans;
- **‘Ecosystem management and restoration’** expenditures were well balanced between curative and preventive measures with spending on restoration works and activities to reduce or stop the loss of valuable habitats receiving similar levels of financing;
- For **‘Biodiversity planning, finance and management’**, about 60% of expenditures were spent on strategic planning and that there were expenditures for enforcement, finance planning and laws and regulations being identified by NGOs albeit at much smaller amounts;
- For **‘Conservation Areas’**, more than 95% of the expenditures were for improving the management of protected areas and landscape conservation efforts while the remainder was aimed at expanding areas for conservation;
- **‘Targeted species and genetic conservation’** were largely contributed by expenditures for species threat reduction; and
- A larger share of **‘Sustainable use’** expenditures were made on terrestrial environments compared to marine and coastal environments.

Table 2.20: Biodiversity Expenditure by BIOFIN Categories – Non-Government (NGO) (2006-2017) (RM million)

BIOFIN Categories	NGO
Access and Benefit sharing (ABS)	-
Biodiversity Knowledge	112.07
Biodiversity planning, finance and management	35.62
Biosafety	-
Climate change mitigation and adaptation	-
Conservation areas	33.91
Ecosystem management and restoration	64.72
Pollution control	0.95
Resilient Infrastructure	1.96
Sustainable Business	16.59
Sustainable Use	31.12
Targeted species and genetic conservation	31.21
Miscellaneous supporting expenses	-
Grand Total	331.82

2.4.4 BER – Non-Government (Private Sector)

This subsection reports the total biodiversity expenditure for one private sector organisation – Sime Darby Property. The figures are based on only one tagged biodiversity expenditure.

2.4.4.1 Biodiversity Expenditure by Year

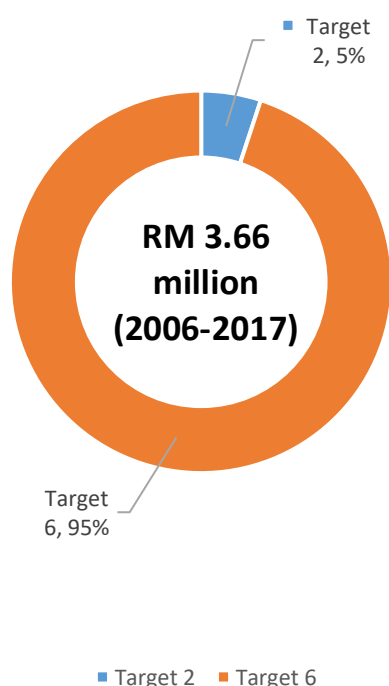
The biodiversity expenditure averaged at RM 0.50 million from 2011 to 2017. Prior to that, they spent RM 0.01 million in years 2006 and 2007.

Table 2.21: Biodiversity Expenditure by Year – Non-Government (Private) (9MP - 2006-2010) (RM million)

Organisation	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
SD Property	0.01	0.01	-	-	-	0.50	0.50	0.54	0.54	0.54	0.54	0.49	3.66

2.4.4.2 Biodiversity Expenditure by NPBD Target

Sime Darby Property's total biodiversity spending of RM 3.66 million for years 2006-2017 mainly covered two NPBD Targets, **Target 2** (RM 0.18 million) that focuses on increasing contributions of non-government stakeholders and **Target 6** (RM 3.47 million) on protected areas and other area-based conservation measures.



Target	Total (RM million)
Target 1 - Biodiversity Awareness	-
Target 2 - Stakeholders Empowerment	0.18
Target 3 - Mainstreaming Biodiversity	-
Target 4 - Sustainable use	-
Target 5 - Sustainable Tourism	-
Target 6 - Protected areas	3.47
Target 7 - Vulnerable Ecosystems	-
Target 8 - Ecological connectivity	-
Target 9 - Endangered Species	-
Target 10 - Enforcement and Illegal Wildlife Trade	-
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	-
Target 16 - Science Basis	-
Target 17 - Resource Mobilization	-
Misc. supporting expenses	-
N/A	-
Grand Total	3.66

Figure 2.16, Table 2.22: Biodiversity Expenditure by NPBD Target – Non-Government (Private) (2006-2017)

2.4.4.3 Biodiversity Expenditure by BIOFIN Categories

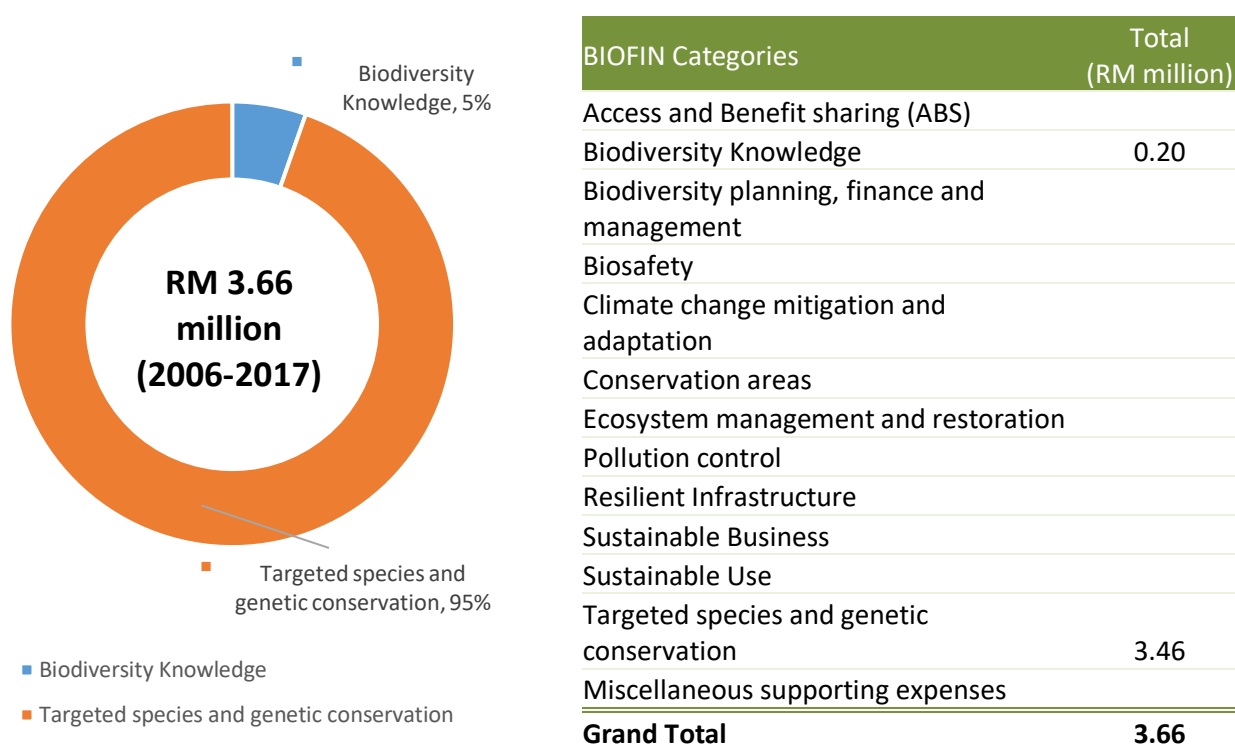


Figure 2.17, Table 2.23: Biodiversity expenditure by BIOFIN Categories – Non-Government (Private) (2006 to 2017)

Sime Darby Property also only covered two BIOFIN Categories namely **Biodiversity knowledge** (RM 0.20 million) and **Target species and genetic conservation** (RM 3.46 million). These Categories are in line with their NPBD Targets 2 and 6.

2.5 Biodiversity Expenditure Review (BER) – Observations

Comparing the two main sectors – government and non-government (NGO, MLO and private), the following may be noted:

- Of all the NPBD targets, Target 2 (increase in non-government engagement) and Target 6 (protected areas) were present across all sectors. All Targets, except Targets 11, 12, 13 and 14 were present in both the government and NGO sectors. Target 14 did not appear in either the private or public sector's expenditure.
- Both private and public sectors spent on biodiversity knowledge. The NGOs invested in environmental education while the government sector's priority was biodiversity communication followed by developing methods and knowledge for better application purposes.
- Targeted species and genetic conservation also appeared in both sectors. However, only the government sector seems to be spending on ABS and Biosafety (NPBD target). As for the BIOFIN categories, climate change mitigation and adaptation expenditures are only found in the government sector.

Caution is advised when interpreting these patterns. It is difficult to fathom whether targets with lower expenditures are a reflection of the sample or have lower financing needs. Currently no weights are assigned to adjust for this phenomenon. This issue is examined further in the next chapter on Financial Needs Assessment.

2.6 Opportunities and limitations of the BER

- **Sample size and representativeness**

The 19 organisations in the BER exercise cover a wide range of stakeholder types. The main ones that are responsible for the NPBD include NRE, MOA and MPIC, and their line agencies. The sample also included non-government organisations that were among the largest players in the environment sector in Malaysia such as WWF, MNS, MEME, UNDP and Sime Darby Property. Consequently, one can be relatively confident that the findings of this BER exercise have covered a significant part of the biodiversity financing landscape in Malaysia.

Nonetheless, the absence of agencies such as the Department of Biosafety, National Landscape Department, PLANMalaysia, Malaysia Maritime Enforcement Agency, MOSTI, KeTTHA as well as the state governments is significant and including them in the future would make the findings more robust.

The participation of only 3 NGOs and 1 private sector is also far from representative of their respective sectors.

- **Tagging to NPBD targets and BIOFIN Categories**

Tagging expenditures to NPBD Targets and BIOFIN Categories enables alignment to the NPBD outcomes and to biodiversity functions (BIOFIN Categories). It is also a useful way of monitoring and evaluating the extent to which outcomes are aligned with the NPBD Targets.

Nonetheless, this process was a subjective one, as projects can be tagged to multiple Targets or BIOFIN Categories. This process required additional time, and adequate capacity building on the part of the participant(s), especially in terms of familiarising themselves with the definitions of the Targets and Categories.

Similarly, there was some degree of confusion as to whether to pick the tags based on topics or functions. Some of the BIOFIN tags are topical such as 'Climate change', 'Biosafety', 'Pollution control' and 'Conservation Areas', whereas some are functional such as 'Biodiversity planning, finance and management', 'Environmental law enforcement'. For this exercise, participants were advised to choose based on the main purpose of the expenditure.

- **Dealing with large infrastructure projects**

Another area of caution is with large infrastructure projects such as waste management, flood mitigation and pollution control measures. The study team found that even the lowest attribution scale of 20% would skew the expenditure estimates when extrapolating to the national level, especially for JPS. The scale of infrastructure projects gives the impression that funds are available when in fact the opposite may be true, i.e. funds are lacking for key biodiversity functions such as improving biodiversity knowledge or communications.

Hence, smaller attribution percentages may be considered to counter this inherent weakness. At the same time, a closer understanding of large infrastructure expenditures is needed to explore different management approaches that could lead to positive biodiversity outcomes. As raised by some participants, there is concern that such large expenditures could have the opposite effect of essentially negating their conservation efforts. It is recommended that a review of the attribution percentages be undertaken.

- **Double counting and underestimations**

Of the two issues, underestimation is the more serious problem in this BER exercise. First, the absence of some federal government and state government participation means that the government sector's expenditures are underestimated. Second, in the private sector, there are many corporations involved in CSR biodiversity type programmes, e.g. a bank investing in tiger conservation, oil and gas companies in environmental education or many firms investing in pollution abatement and prevention.

Similarly, underestimations may occur because certain initiatives that benefit biodiversity are embedded in day-to-day operations and cannot be easily extracted or estimated. For example, environmental clauses are included in private sector's service contracts, e.g. requiring their landscape contractors to use Endangered, Rare and Threatened (ERT) local tree species for landscaping on their property developments and setting aside plots of forested land as a park in township projects. These initiatives would benefit biodiversity and should be included in the BER.

However, the private sector organisation could not estimate the biodiversity share in these expenditures as they were merely additional requirements that could be fulfilled by their staff or contractor's daily operations. Consequently, the submitted BER data were limited to the obvious biodiversity-related initiatives with specific allocations such as the development of an ERT guide for landscaping (Sime Darby Property). This matter may need to be considered further in future applications of the BIOFIN methodology.

Participants from the NGO sector also mentioned that financial expenditures alone may not fully reflect the cost of their operations because they receive a sizeable amount of in-kind contributions or discounted charges from members, donors and partners by virtue of their organisation type. For example, NGOs may use office space at no cost or heavily discounted compared to market rates. Volunteers' time is another area for further consideration. NGOs tend to operate with skeletal staff, supplemented by assistance from volunteers. These amounts have been noted or could not be estimated in this BER exercise.

Double counting is an issue that may need attention as NGOs tend to receive funding from various sources, e.g. government and also from international, multilateral and private sector organisations for their activities. For this BER exercise, minimal data was provided by such organisations and double counting was not an issue. Also, our NGO participants indicated that their organisations pooled their funds (unless specified by donor) before allocating to their projects, thus making tagging quite difficult. Participants' feedback was that tracing back historical data and estimating how much is spent from each funding source is time-consuming.

- **Level of participation and clarity of future plans for BIOFIN methodology**

Private sector participants also mentioned that clarity is needed on how the findings would be used and the intended impact. It is important to specify the estimated amount of time and effort required for the exercise, especially as profit-making entities are concerned about the use of scarce resources. Common queries included whether this information would be used to improve policies relating to biodiversity and its financing, the government's future plans for using the results, whether such information will be required in future reporting and who else would be subject to such reporting—in essence, participants wanted to know if this were a one-off exercise. These sentiments were also raised by government and the non-government organisations. Hence, it is recommended that MOEA (EPU), MOF and NRE provide such information as part of their communication messages in order to secure more participation in the BIOFIN methodology.

Additionally, participation would be more easily secured if the organisation's mandates, core activities, divisions, key policies and plans and their relations to biodiversity were linked to the government's policies and plans. A customised communication of BIOFIN programmes to the respective sectors would provide justification for their participation in the exercise.

All organisations said that timing of the BIOFIN project could increase future participation and commitment levels. Incorporating BIOFIN into planning, reporting cycles and annual work plans. The five-year development planning process (Malaysia Plans) could align all sectors' timelines, private sector, NGO, CSO and multilateral sectors can achieve this important objective. This will require the government to mainstream and then institutionalise the BIOFIN methodology in the development planning process.

- **Capacity building and mainstreaming of the NPBD**

This BIOFIN project has a strong capacity building component. The exercise provided the participants with opportunity to learn attribution, tagging, and broad estimation procedures in deriving the biodiversity expenditure estimates. In the process, several workbooks and training manuals have been developed, showing the procedure to make financial estimates of various institutions (government and non-government (private and NGO)). These can be used if the project is extended to other organisations. Wider participation of the institutions will improve and increase the confidence of the BER data and estimates.

The study team also found that the BIOFIN process was a good platform to promote the NPBD and to encourage participants to associate their plans and policies to that platform, and to biodiversity. In view of these observations, the BIOFIN process can be a good means to mainstream the NPBD.

Box 2: Biodiversity Conservation Trust Fund (PERHILITAN)

The Department of Wildlife and National Park (PERHILITAN)'s **Biodiversity Conservation Trust Fund** was set up under Section 9, Financial Procedure Act 1959.

This allows the Trust Fund to receive donations from sources of funding that are beyond the government such as the private sector, multilateral organisations, members of the public, etc.

The funds are managed wholly by PERHILITAN, but the projects using these funds must still be approved by the Ministry of Water, Land and Natural Resources (KATS). KATS also plays a role in monitoring the performance of the Trust Fund.

Source: Interview with PERHILITAN BIOFIN participant (2019)

Box 3: Marine Park and Marine Reserve Trust Fund (JTLM)

The Marine Park and Marine Reserve Trust Fund was established under Section 10, Financial Procedure Act 1959. The provision to impose fees is in accordance with the Fee Order (Marine Park Malaysia) 2003 gazetted under the Fee Act 1951.

All visitors to the Marine Parks of Malaysia are required to pay a Conservation Fee, except those living on islands or near the parks.

Malaysian adults are charged RM 5.00 and foreigners RM 30.00. Malaysian students and senior citizens are required to pay RM 2.00, and foreigners RM 15.00.

All Conservation Charge collections are credited into the Marine Park and Marine Reserve Trust Fund. These funds go towards management costs of the Marine Park Centres, including for research, enforcement, as well as educational and awareness programs. These funds are also be used to provide basic facilities for tourists at the Marine Park Centres.

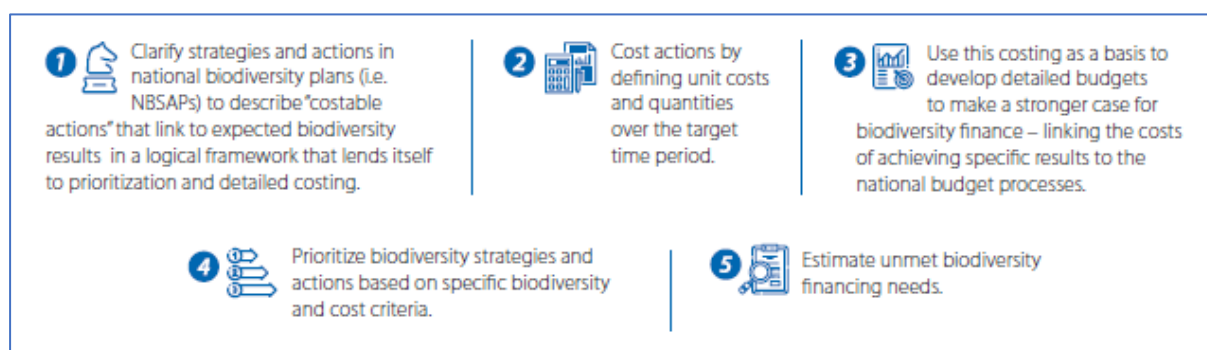
Source: Terumbu Vol. 2 (2009), Department of Marine Park Malaysia.

3 Financial Needs Assessment (FNA)

This section presents the methodology and findings of the Financial Needs Assessment (FNA) that was carried out from July 2017 through to March 2018. The FNA is a systematic process of estimating the financial resources needed to implement the biodiversity strategies and actions of the national biodiversity strategy and action plan (NBSAP). In Malaysia, the NBSAP is the National Policy on Biological Diversity (NPBD). The main outcome is a prioritised, well-documented and fully-costed budget that will help to build a strong business case for resource mobilisation.

3.1 What is the FNA?

The Financial Needs Assessment (FNA) is a comprehensive estimate and analysis of the human resources, capital investments and financial resources needed in order to fund biodiversity-related activities in Malaysia to achieve national and sub-national biodiversity targets as articulated in the NPBD and other key national, ministry and agency-level strategic plans. It is aspirational given that the estimated budget is intended to achieve the NPBD goals and targets. The FNA process starts at the organisational level, similar to the BER. The FNA is thus the cumulative planned expenditures for biodiversity activities of all organisation's plans and programmes. The key elements of the FNA are:



Source: UNDP (2018) *The BIOFIN Workbook*

Figure 3.1: The FNA exercise

In Malaysia's context, the FNA estimates the financial needs for the full implementation of the National Policy on Biological Diversity 2016-2025 (NPBD). In comparison, the BER results provide a picture of the 'business as usual' scenario for biodiversity funding, based on existing past biodiversity expenditure and projections. The difference between the Projected Budget from the BER findings and the FNA findings is the financial gap. In this Malaysian study, the gap is estimated for organisations that completed both the FNA and BER. These outputs together guide the development of the Biodiversity Finance Plan, or BFP.

3.2 Financial Needs Assessment (FNA) - Methodology

3.2.1 Adapted Methodology

With reference to the Global BIOFIN workbook 2016, the FNA methodology is used to produce a detailed and realistic costing of the targets in the country's NBSAP. In essence, the FNA aims to answer the question, "How much financing is needed for the country to achieve its stated biodiversity targets?", especially in the medium to long term. The process involves building up a budget for the NBSAP from scratch by estimating the full set of human resources, capital investments and financial resources needed. In doing so, the FNA findings can then be compared against the BER findings to estimate the financing gap needed for the effective management of biodiversity in the country. In this sense, the FNA is primarily a strategic planning and costing exercise.

Financial needs can be costed and estimated using various approaches. The **Results-based costing (RBC) or Results-based budgeting (RBB) approach** is used because it ties performance to proposed outcomes and invested resources. This approach requires the identification of specific objectives, and the building of detailed and outcome-focused budgets using programmes and costs associated with achieving those objectives. This is fully in line with the outcome-based budgeting (OBB) approach by the Malaysian government and the strong push for this approach at the international level. Thus, using the approach, FNA proposals would be more closely aligned to national and international budgetary processes.

This approach uses a logical framework methodology where the desired impact is first defined before detailing out the expected outcomes, outputs, and specific actions to achieve it. The resources needed to deliver specific actions are then identified and their costs estimated. Summing the costs of these actions then produces the total financial needs, i.e. the budget for implementing the plan of action.

The study team modified the FNA methodology using the results-based budgeting approach (RBB). The key steps of the adapted FNA methodology are shown in Figure 3.2 and the localised methodology is in [Appendix VI](#).

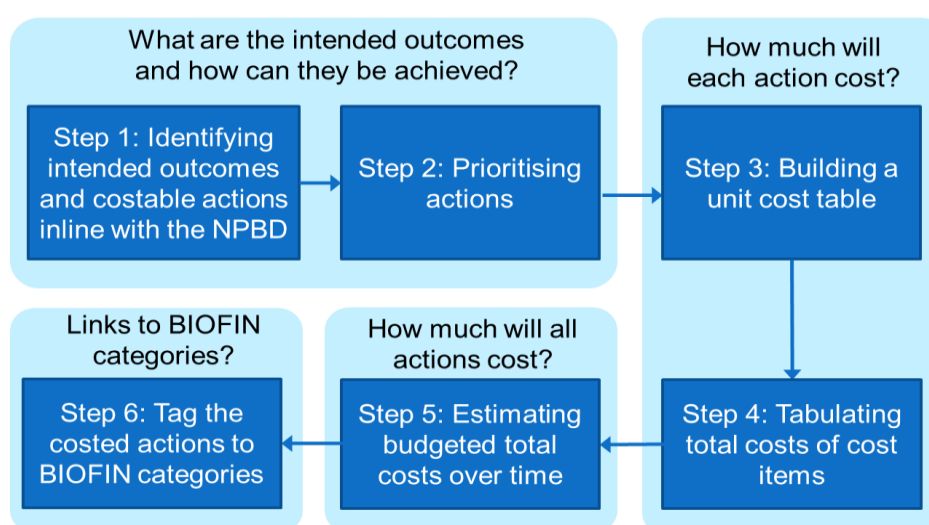


Figure 3.2: FNA Steps

3.2.2 Data Analysis – Process and Analysis

3.2.2.1 Data Collection Process

The process involved training and facilitating participants to use the FNA methodology and to assemble their own data. The five key steps of the data collection process are shown in Figure 3.3:

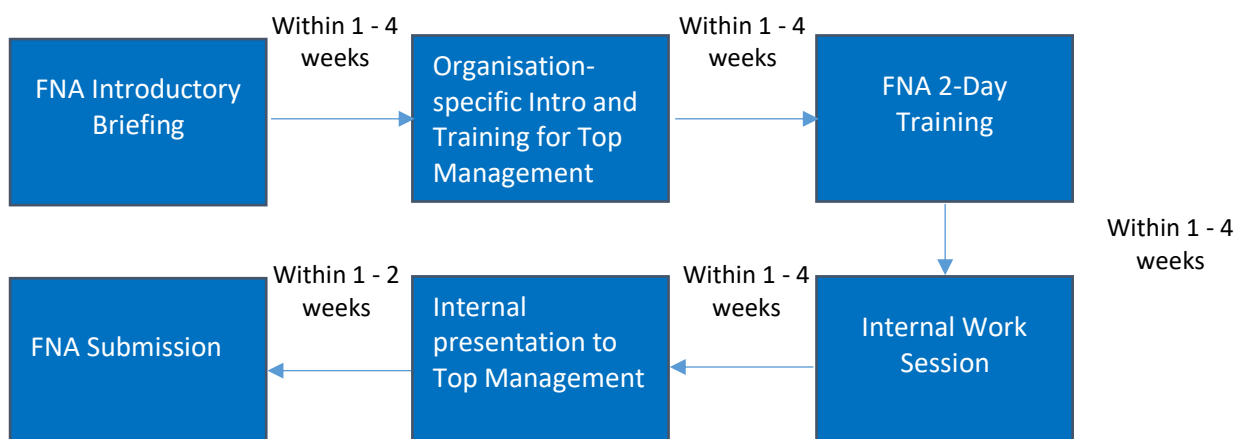


Figure 3.3: Data collection process for FNA

1. Briefing and Introduction to the FNA
2. Organisation-specific intro to BIOFIN and why they are related to biodiversity
3. FNA training session, either held on the same or separate day
4. Internal FNA work session to finalise the FNA, according to their 5- or 10-year strategic plans
5. Presentation to top management

After the data has been collected, it is submitted to the study team for quality checking.

3.2.2.2 Data Analysis

General Analysis – NPBD and BIOFIN focus areas and action type

The data is first consolidated at the organisational level and a pivot table analysis is carried out to generate a totals summary. Financial needs of the NPBD targets and BIOFIN categories are tabulated. For the type of action, a new tagging category is used and expenditures are tagged accordingly. The process is repeated for the BIOFIN categories.

Additional Attribution

For organisations whose total costs were exceptionally high, costable actions and cost items are checked for their tags and biodiversity related attribution. For instance, the Department of Irrigation and Drainage (JPS), particularly the Flood Mitigation Division, they indicated that only 10% of their flood mitigation efforts involve soft infrastructure and are thus biodiversity related. Of the remaining 90%, hard infrastructural flood mitigation takes up 70% of the total cost, while 20% goes towards land acquisition. Thus, for the FNA analysis, only 10% of the flood mitigation outcomes and projects were attributed to biodiversity.

Adding of OE – Emoluments Data

The 19 organisations' data was examined to ensure that the cost items include DE and OE data. However, 5 organisations were found to not have budgeted for their organisational emoluments in their OE. These limitations are noted but the results are not adjusted, mainly because imputation would require organisational inputs. (See [Appendix VII](#) for a list detailing the types and sources of data provided by participants). As imputation was not carried out, the financial gaps showed negative results (to be discussed in Chapter 4).

3.3 Financial Needs Assessment (FNA) – Results

3.3.1 FNA – Pooled Analysis

3.3.1.1 Financial Needs by Sector

The total financial needs of 19 participating organisations for years 2018-2025 is estimated at RM 17,300.67 million. The government sector is the primary source of biodiversity expenditure, with 15 main organisations contributing a total of RM 17,060.52 million (98.61%) followed by the non-government NGO sector with RM 235.04 million (1.36%) and private sector with RM 5.11 million (0.03%) (see Figure 3.4 and Table 3.1).

It must be reiterated that this analysis is not a complete representation of the national biodiversity financing needs, as only 15 government organisations, 3 NGO organisations and 1 private sector organisation contributed data to this BIOFIN FNA Phase 1 exercise.

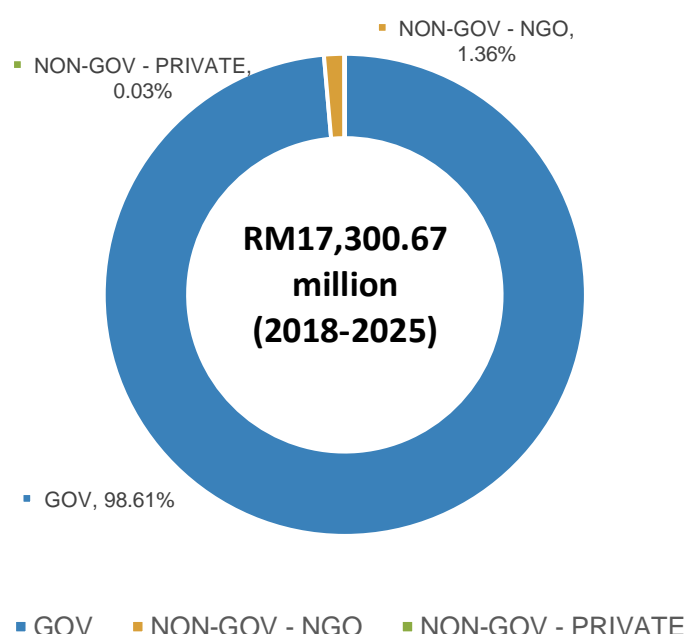


Figure 3.4: Financial Needs by Sector (2018-2025)

Table 3.1: Financial Needs by Sector (2018-2025)

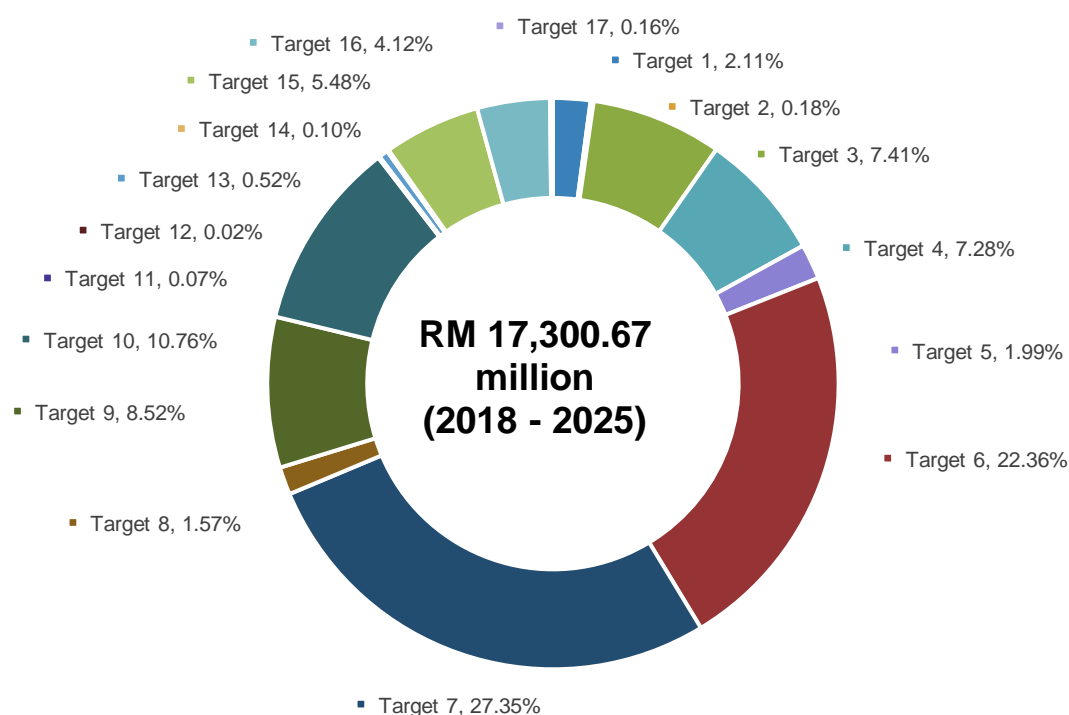
Sector	No. of Organisations	Financial Needs (RM million)
Gov	15	17,060.52
Non-Gov – NGO	3	235.04
Non-Gov - Private	1	5.11
Grand Total	19	17,300.67

3.3.1.2 Financial Needs by Year

The average financial needs identified for each year is around RM 2,000 million to RM 2,400 million as shown in Table 3.2.

Table 3.2: Financial Needs by Sector (11MP, 12MP - 2018-2025) (RM million)

Sector	2018	2019	2020	2021	2022	2023	2024	2025	Total
Gov	2,340.69	2,348.16	2,074.34	2,027.85	2,026.69	2,126.63	2,016.25	2,099.93	17,060.52
Non-Gov - NGO	29.03	31.78	30.13	28.17	28.57	28.98	29.23	29.15	235.04
Non-Gov - Private	0.20	0.98	1.08	1.15	1.25	0.15	0.15	0.15	5.11
Grand Total	2,369.91	2,380.92	2,105.55	2,057.17	2,056.51	2,155.75	2,045.63	2,129.23	17,300.67

3.3.1.3 Financial Needs by NPBD Target**Figure 3.5: Financial Needs by NPBD Target (2018-2025)**

As shown in Table 3.3 and Figure 3.5, every Target is costed, with some Targets showing greater financial needs than others. In particular:

- **Target 7**, on protection and restoration of vulnerable ecosystems and habitats had the largest needs at RM 4,731.70 million (27.35%).
- **Target 6**, which relates to protected areas and other effective area-based conservation measures, had the second largest needs at RM 3,868.15 million (22.36%); and
- **Target 10**, on controlling and significantly reduce poaching, illegal harvesting and illegal trade of biodiversity at RM 1,861.54 million (10.76%).

There were also a number of targets that require financing of RM 1,000 million and above. They included:

- **Target 3** on mainstreaming biodiversity into national planning and sectoral policies and plans;
- **Target 4** on sustainable production and harvesting; and
- **Target 9** on preventing the extinction of known threatened species and improving and sustaining their conservation status.

No organisation involved in the study had any plans for:

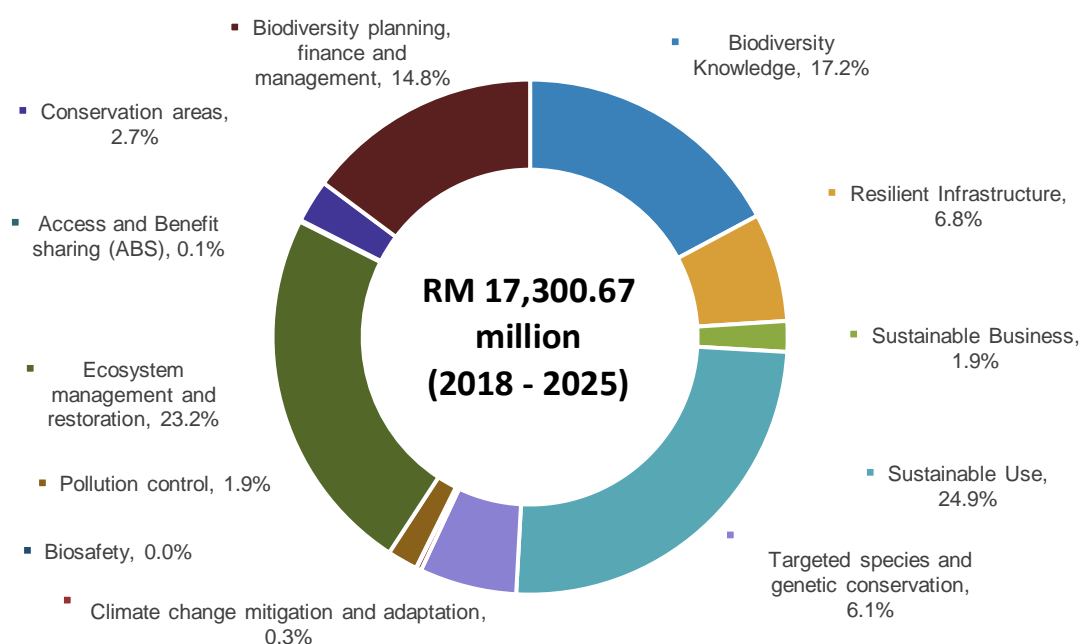
- **Policy Action 4.4** (Rationalise incentives that are harmful to biodiversity); and
- **Policy Action 5.2** (promoting green guide certification) even though nature-based tourism is in the portfolio of several organisations.

At the lower end of the financing needs range, there were five targets that jointly accounted for 0.6% of total needs:

- **Target 12** on biosafety recorded the least financial needs at RM 3.5 million (0.02%) across the whole 8-year period (2018-2015). Two out of its three policy actions were not identified in the FNA – Policy Action 12.2 (Assess LMO impacts on biodiversity and human health) and Policy Action 12.3 (Develop response to biosafety emergencies);
- **Target 11** on invasive alien species had a small financial need of RM 12.35 million (0.07%);
- **Target 14** on Access Benefit Sharing also recorded a small need of RM 17.58 million (0.10%). Two out of three policy actions were not identified in the FNA – Policy Action 14.1 (Develop and enforce ABS legislation) and Policy Action 14.3 (Protect and document the traditional knowledge, innovations and practices).
- Three out of four policy actions relating to **Target 17** on increasing resource mobilisation (RM 27.61 million) were not identified in the FNA, namely Policy Actions 17.1, 17.2, and 17.3. This observation suggests that planning for resource mobilisation is in much need of attention. None of the 19 organisations had any plans to raise the amount of resources to aid in implementing the NPBD; and
- **Target 2** focused on increasing non-government stakeholder contributions to biodiversity (RM 30.49 million, 0.18%).

Table 3.3: Financial Needs by NPBD Target (2018-2025)

Target	Financial Needs (RM million)
Target 1 - Biodiversity Awareness	365.10
Target 2 - Stakeholders Empowerment	30.49
Target 3 - Mainstreaming Biodiversity	1,282.35
Target 4 - Sustainable use	1,259.55
Target 5 - Sustainable Tourism	345.12
Target 6 - Protected areas	3,868.15
Target 7 - Vulnerable Ecosystems	4,731.70
Target 8 - Ecological connectivity	271.00
Target 9 - Endangered Species Conservation	1,474.32
Target 10 - Enforcement and Illegal Wildlife Trade	1,861.54
Target 11 - Invasive Alien Species	12.35
Target 12 - Biosafety	3.50
Target 13 - Agricultural Genetic diversity	90.06
Target 14 - Access and Benefit Sharing	17.58
Target 15 - Capacity on MEAs	947.56
Target 16 - Science Basis	712.67
Target 17 - Resource Mobilization	27.61
Misc. supporting expenses	-
N/A	-
Total	17,300.67

3.3.1.4 Financial Needs by BIOFIN Categories**Figure 3.6: Financial Needs by BIOFIN Categories (2018-2025)**

In terms of biodiversity functions, all 12 BIOFIN categories were identified by the 19 organisations (see Table 3.4).

- **Sustainable use (RM 4,315.46 million)** had the largest financing need, mainly in terms of watershed management and sustainable agriculture;
- **Ecosystem management and restoration (RM 4,012.04 million)** was largely geared to reducing and stopping the loss of valuable habitats, which is preventive in nature. However, improving connectivity of ecosystems was relatively underplayed, possibility due to conflicts of interest and jurisdictional limitations involved when attempting to connect ecosystems across multiple land and sea uses;
- **Biodiversity knowledge (RM 2,973.1 million)** is geared towards increasing managerial and technical capacities as well as to improve, share and apply the knowledge; and
- **Biodiversity planning, finance and management (RM 2,559.19 million)** mainly in terms of environmental law enforcement.

The biodiversity functions with the smallest financial needs are:

- Biosafety with only RM 4.68 million estimated as a need;
- Access Benefit Sharing (ABS) with RM 16.88 million; and
- Climate change mitigation and adaptation at RM 54.12 million.

This corresponds with the patterns observed when using the NPBD Targets where funding for biosafety and ABS had the lowest shares. There appears to be a significant gap in climate change actions and biodiversity conservation in the FNA data. As Malaysia is accelerating its action plans on climate change, the level of financing needs seems miniscule compared to the FNA results. Even so, it could be due to an issue with how the matter is reported or classified, and lack of coverage of the organisations that are more closely involved the two target areas.

Table 3.4: Financial Needs by BIOFIN Categories (2018-2025)

BIOFIN Categories	Financial Needs (RM million)
Access and Benefit sharing (ABS)	16.88
Biodiversity Knowledge	2,973.18
Biodiversity planning, finance and management	2,559.19
Biosafety	4.68
Climate change mitigation and adaptation	54.12
Conservation areas	467.76
Ecosystem management and restoration	4,012.04
Pollution control	330.01
Resilient Infrastructure	1,178.67
Sustainable Business	332.72
Sustainable Use	4,315.46
Targeted species and genetic conservation	1,055.95
Miscellaneous supporting expenses	-
Total	17,300.67

3.3.2 FNA – Government Sector

This subsection presents the results of the FNA process conducted with **15 government organisations**. Primary data from participating organisations were used for this analysis and they are from three of the six lead agencies of the National Policy on Biological Diversity 2016-2025 as shown in Table 3.5.

Table 3.5: List of Government Organisations by Ministry (prior to ministry reshuffling in 2018)

NRE	MOA	MPIC
<ul style="list-style-type: none"> • NRE (BBP, BSASH, BBP, BMG) • PERHILITAN • JTLM • JPSM • FRIM • JAS • JPS • NAHRIM • JMG 	<ul style="list-style-type: none"> • MOA • DOA • DOF • MARDI 	<ul style="list-style-type: none"> • MPIC (HQ, LGM, LKM, LKTN) • MPOB

3.3.2.1 Financial Needs by Ministry

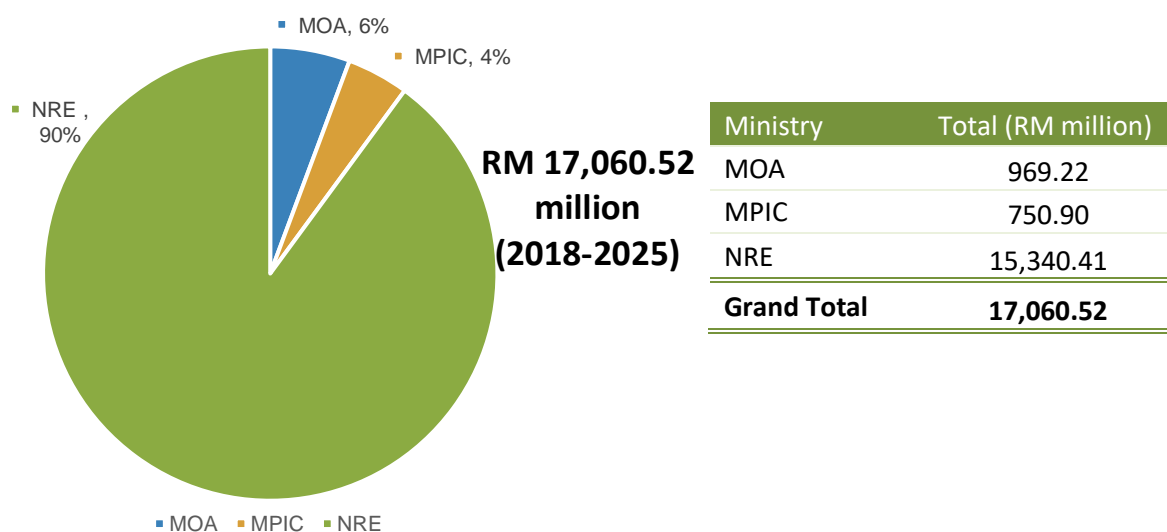


Figure 3.7, Table 3.6: Financial Needs by Ministry - Government (2018-2025)

The bulk of the biodiversity financial needs (Figure 8.4, Table 8.6) belong to the Ministry of Natural Resources and Environment (NRE, 90%) followed by the Ministry of Agriculture and Agro-based Industry (MOA, 6%) and the Ministry of Plantation Industries and Commodities (MPIC, 4%). This pattern resembles the share of NPBD actions that these Ministries are responsible for as Lead Implementing Agencies for the NPBD.

3.3.2.2 Financial Needs by Organisation

According to Table 3.7, the highest percentage share for financial needs for all government participants is JPS (47%, RM 7,985.58 million), followed by PERHILITAN (17%, RM 2,893.37 million) and JAS (8%, RM 1,421.51 million).

Eleven organisations had a percentage share lower than 5%, 4 of which are NRE line agencies (JPSM, JMG, and two research institutes, NAHRIM and FRIM). The remaining 4 are MOA and its line agencies, and MPIC and MPOB.

Within each ministry, the patterns are similar with JPS having the highest financial needs (52%) and PERHILITAN second (19%), followed by JAS (9%) and JTLM (8%). The remaining all have a percentage share of less than 5%, with NRE HQ having the lowest financial needs (1%, RM 145.36 million, followed by FRIM (1%, RM 215.26 million).

For MOA, DOF has the highest biodiversity financial needs (64%, RM 620.1 million), followed by DOA (14%, RM 136.95 million), MOA (12%, RM 115.44 million) and MARDI (10%, RM 96.73 million). For MPIC (RM 387.64 million), it has a higher biodiversity financial need than MPOB (48%, RM 363.26 million), but MPIC's financial needs include those from LGM, LKM and LKTN. At a glance, all the research institutes in this sample have low biodiversity financing needs.

Table 3.7: Financial Needs by Ministry - Government (2006-2017)

Organisation	Financial Needs 2018-2025 (RM million)	% share of Ministry Participants	% share of Gov Participants
NRE HQ	145.36	1%	1%
PERHILITAN	2,893.37	19%	17%
JTLM	1,187.39	8%	7%
JPSM	635.7	4%	4%
FRIM	215.26	1%	1%
JAS	1,421.51	9%	8%
JPS	7,985.58	52%	47%
NAHRIM	416.46	3%	2%
JMG	439.77	3%	3%
MOA	115.44	12%	1%
DOA	136.95	14%	1%
DOF	620.1	64%	4%
MARDI	96.73	10%	1%
MPIC	387.64	52%	2%
MPOB	363.26	48%	2%
Grand Total	17,060.52	-	100%

Table 3.8: Financial Needs by Year - Government (2018-2025) (RM million)

Organisation	2018	2019	2020	2021	2022	2023	2024	2025	Total
NRE	19.06	22.59	23.12	18.26	18.58	14.07	14.51	15.16	145.36
PERHILITAN	483.88	316.66	309.63	314.08	336.87	407.28	355.95	369.03	2,893.37
JTLM	147.17	155.19	141.25	143.11	145.56	148.95	151.38	154.78	1,187.39
JPSM	50.14	43.64	53.44	73.72	80.04	80.46	69.64	184.62	635.70
FRIM	25.42	25.61	29.23	32.95	24.84	25.68	25.19	26.34	215.26
JAS	154.59	184.84	233.96	173.65	171.18	175.91	163.59	163.80	1,421.51
JPS	1,125.05	1,299.31	1,003.84	913.48	912.41	910.46	910.47	910.55	7,985.58
NAHRIM	44.85	47.30	48.75	51.73	55.50	59.77	62.07	46.51	416.46
JMG	60.62	61.31	48.85	61.89	57.42	57.17	52.60	39.90	439.77
MOA	22.15	14.38	13.15	13.15	13.15	13.15	13.15	13.15	115.44
DOA	20.98	18.53	18.48	15.90	15.74	15.65	15.89	15.76	136.95
DOF	100.48	67.11	68.12	69.86	69.81	98.62	73.13	72.97	620.10
MARDI	18.18	10.12	15.05	11.01	13.75	9.46	9.70	9.46	96.73
MPIC	22.72	36.16	22.06	89.65	66.42	64.59	53.57	32.48	387.64
MPOB	45.41	45.41	45.41	45.41	45.41	45.41	45.41	45.41	363.26
Grand Total	2,340.69	2,348.16	2,074.34	2,027.85	2,026.69	2,126.63	2,016.25	2,099.93	17,060.52

3.3.2.3 Financial Needs by NPBD Target

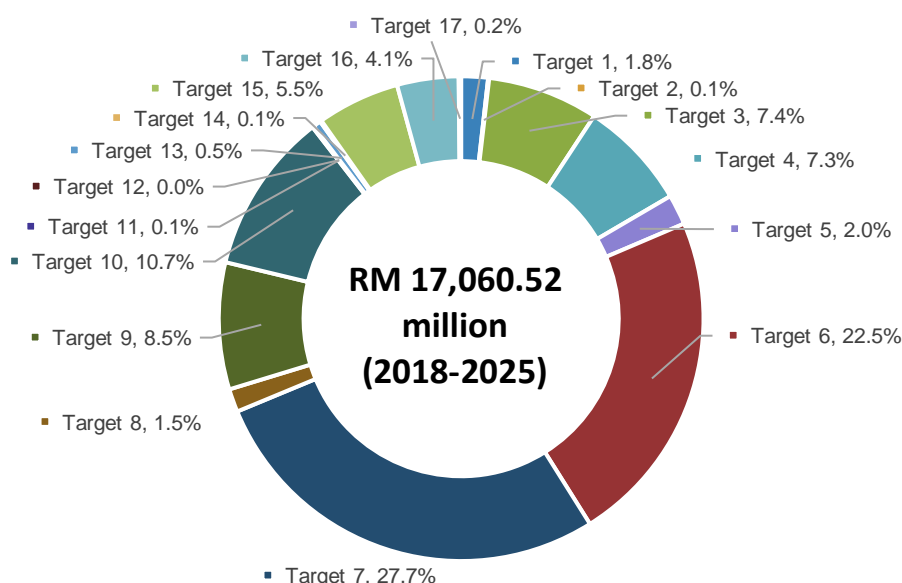


Figure 3.8: Financial Needs by NPBD Targets - Government (2018-2025)

As shown in Figure 3.8 and Table 3.9, the financial needs patterns by NPBD Targets for the 15 government organisations comprise 99% (RM 17,060.52 million) of the total financial needs⁷:

- **Target 7 (protecting and restoring vulnerable ecosystems and habitats)** had the highest financial needs (22.5%, RM 4,719.86) – JPS (RM 4,047.64 million), JMG (RM 351.04 million) and FRIM (RM 162.09 million). The rest of the organisations averaged below RM 100 million;
- **Target 6 (protected areas and other area-based conservation measures)** (27.7%, RM 3,837.55) – again dominated by JPS (RM 3,531.77 million), PERHILITAN (RM 177.67 million). JTLM, FRIM and DOF all contribute approximately RM 130 million;
- **Target 10 (control and significantly reduce poaching, illegal harvesting and illegal trade of biodiversity)** (10.7%, RM 1,834.00 million) – JTLM and PERHILITAN both contribute above RM 500 million to the needs of Target 10 (RM 976.09 million and RM 598.91 million respectively), with JPSM, FRIM and DOF contributing the remaining RM 250 million; and
- **Target 9 (preventing the extinction of known threatened species)** (8.5%, RM 1,443.05 million) – mainly PERHILITAN (RM 1,356.59 million).

The Targets with the lowest financial needs (below RM 100 million for each Target):

- **Target 2 (Non-government Contributions to Biodiversity)** (0.1%) – mainly contributed to by PERHILITAN, JTLM and NAHRIM;
- **Target 11 (Invasive Alien Species)** (0.1%) – only contributed by JPSM, DOA and DOF;
- **Target 12 (Biosafety)** (0.0%) – only identified by MPIC;
- **Target 13 (Conserving genetic diversity of cultivated plants, animals and wild relatives)** (0.5%) – budgeted for by JPSM and MARDI;
- **Target 14 (Access Benefit Sharing)** (0.1%) – budgeted by two non-NRE agencies - DOF and MARDI; and
- **Target 17 (Increasing resource mobilisation)** (0.2%) – needs only identified by JTLM.

⁷ This is not surprising given the size of government spending in this sector and the under-coverage of the private sector and the NGOs.

Table 3.9: Financial Needs by NPBD Target – Government Sector (2018-2025) (RM million)

Target	NRE HQ	PERHI-LITAN	JTLM	JPSM	FRIM	JAS	JMG	JPS	NAHRIM	MOA	DOA	DOF	MARDI	MPIC	MPOB	Total
Target 1 - Biodiversity Awareness	0.53	243.42	6.04		18.87	35.08										303.95
Target 2 - Stakeholders Empowerment		4.87	4.40						2.98							12.26
Target 3 - Mainstreaming Biodiversity	0.37	1.56	0.13	71.41	6.68	696.63	46.53	370.28	67.86							1,261.44
Target 4 - Sustainable use				16.24	38.07					40.31	97.52	311.41	1.61	380.27	363.26	1,248.69
Target 5 - Sustainable Tourism		188.99	4.29		76.16					75.13						344.56
Target 6 - Protected areas		177.67	73.52		48.36			3,531.77	-			6.23				3,837.55
Target 7 - Vulnerable Ecosystems	9.30		12.69	8.52	162.09	85.12	351.04	4,047.64	-		33.02	9.67		0.77		4,719.86
Target 8 - Ecological connectivity		0.63	21.40	19.43	221.92											263.38
Target 9 - Endangered Species Conservation		1,356.59	5.20	17.80	18.53							39.92	5.00			1,443.05
Target 10 - Enforcement and Illegal Wildlife Trade		598.91	976.09	7.22	36.65							215.13				1,834.00
Target 11 - Invasive Alien Species				2.02							6.40	3.93				12.35
Target 12 - Biosafety														3.50		3.50
Target 13 - Agricultural Genetic diversity				6.98									83.08			90.06
Target 14 - Access and Benefit Sharing												17.47	0.11			17.58
Target 15 - Capacity on MEAs	118.22	213.96			5.45	600.59							0.21	3.10		941.54
Target 16 - Science Basis		106.78	63.07	65.64	2.92	4.08	42.20	35.89	345.62			16.34	6.72			699.16
Target 17 - Resource Mobilization			20.56													27.61
Misc. supporting expenses																
N/A																
Grand Total	145.36	2,893.37	1,187.39	215.26	635.70	1,421.51	439.77	7,985.58	416.46	115.44	136.95	620.10	96.73	387.64	363.26	17,060.52

3.3.2.4 Financial Needs by BIOFIN Categories

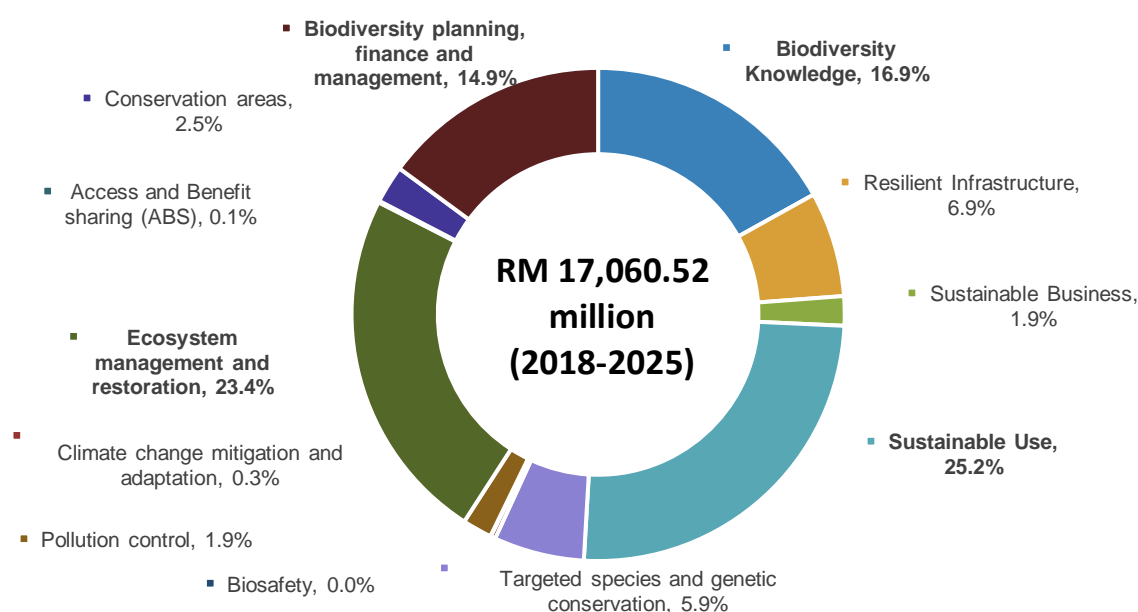


Figure 3.9: Financial Needs by BIOFIN Categories - Government (2018-2025)

The top 4 financial needs according to BIOFIN Categories are (see Figure 3.9 and Table 3.10):

- **Sustainable use (25.2%, RM 4,298.32 million)** – all 15 organisations contributed except NRE, JTLM, JPSM and JAS. JPS contributes (RM 3,282.30 million);
- **Ecosystem management and restoration (23.4%, RM 3,990.01 million)** – all 15 organisations contributed except NRE, JAS, JMG and MOA. Again, JPS contributes the bulk of the financial needs (RM 3,480.01 million)
- **Biodiversity planning, finance and management (14.9%, RM 2,543.66 million)** – JTLM main contributor (RM 1,041.68 million) followed by PERHILITAN (RM 626.71 million); and
- **Biodiversity knowledge (16.9%, RM 2,886.25 million)** – all 15 organisations.

The BIOFIN Categories with the least financial needs, below RM 1,000 million, are:

- **Biosafety (0.0%, RM 4.68 million)** – only DOA;
- **Access and Benefit Sharing (ABS, RM 16.88 million) (0.1%)** – FRIM, DOF, MARDI;
- **Climate change mitigation and adaptation (0.3%, RM 52.70 million)** – FRIM, DOF, MARDI, MPIC;
- **Sustainable business (1.9%, RM 238.56 million)** – mainly PERHILITAN (RM 180.71 million) and JPSM (RM 85.65 million);
- **Pollution control (1.9%, RM 330.01 million)** – contributed mainly by JAS (RM 273.83 million) and JMG (RM 48.7 million); and
- **Conservation areas (2.5%, RM 421.47 million)** – JPSM (RM 189.46 million), followed by PERHILITAN (RM 118.42 million) and JTLM (RM 97.32 million).

Table 3.10: Financial Needs by BIOFIN Categories – Government Sector (2018-2025) (RM million)

BIOFIN Categories	NRE	PERHI-LITAN	JTLM	FRIM	JPSM	JAS	JMG	JPS	NAHRIM	MOA	DOA	DOF	MARDI	MPIC	MPOB	Total
Access and Benefit sharing (ABS)				3.00								13.78	0.11			16.88
Biodiversity Knowledge	14.32	916.16	22.88	103.17	60.05	755.05	209.64	40.43	214.28	35.71	38.20	180.46	14.20	35.93	245.76	2,886.25
Biodiversity planning, finance and management	124.24	626.71	1,041.68	4.99	17.76	392.62		16.00	58.82		69.20	190.96	0.69			2,543.66
Biosafety											4.68					4.68
Climate change mitigation and adaptation				51.44								0.06	0.80	0.40		52.70
Conservation areas		118.42	97.32	12.89	189.46		0.22					3.17				421.47
Ecosystem management and restoration		43.42	18.38	6.30	261.55			3,480.01	139.88		1.74	37.01	1.60	0.12		3,990.01
Pollution control	6.80		0.21			273.83	48.70							0.46		330.01
Resilient Infrastructure					5.52			1,166.84	2.85							1,175.21
Sustainable Business		180.71	5.00		85.65		47.10				10.11					328.56
Sustainable Use		100.23		25.86			134.12	3,282.30	0.63	79.73	13.02	190.59	7.93	346.42	117.50	4,298.32
Targeted species and genetic conservation		907.74	1.92	7.61	15.72							4.07	71.40	4.30		1,012.76
Misc. Supporting Expenses																
Total	145.36	2,893.37	1,187.39	215.26	635.70	1,421.51	439.77	7,985.58	416.46	115.44	136.95	620.10	96.73	387.64	363.26	17,060.52

3.3.3 FNA – Non-Government (NGO)

This subsection presents the results of the financial needs for the non-government sector. Two of the NGOs signed NDAs with UNDP, thus the analysis for all 3 NGOs is aggregated.

3.3.3.1 Financial Needs by Year

According to Table 3.11, the average yearly financial needs for all 3 NGOs is RM 30 million.

Table 3.11: Financial Needs – Non-Government (NGO) (2018-2025) (RM million)

NGO	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total	29.03	31.78	30.13	28.17	28.57	28.98	29.23	29.15	235.04

3.3.3.2 Financial Needs by NPBD Target

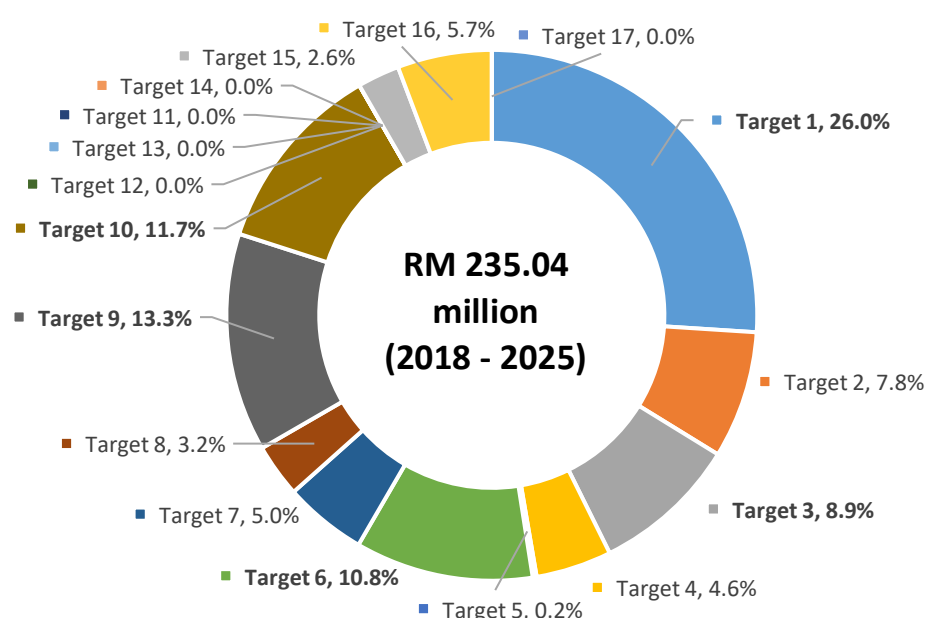


Figure 3.10: Financial Needs by NPBD Targets – Non-Government (NGO) (2018-2025)

Figure 3.10 and Table 3.12 show that the biggest financial needs belong to:

- **Target 1** (awareness raising) (26.0%, RM 61.16 million);
- **Target 9** (preventing the extinction of known threatened species) (13.3%, RM 31.27 million);
- **Target 10** (control and significantly reduce poaching, illegal harvesting and illegal trade of biodiversity) (11.7%, RM 27.55 million);
- **Target 6** (increase protected areas and other effective area-based conservation measures), (10.8%, RM 25.49 million); and
- **Target 3** (mainstreaming biodiversity in national development planning and sectoral policies and plans) (8.9%, RM 20.91 million).

Targets 11 – 14 are not financial needs covered by the NGOs, neither is Target 17, which include mobilising resources for biodiversity funding. Target 5 on sustainable tourism at RM 0.56 million, account for only 0.2% of the financial needs of NGOs.

Table 3.12: Financial Needs by NPBD Target – Non-Government (NGO) (2018-2025)

Target	Financial Needs (RM million)
Target 1 - Biodiversity Awareness	61.16
Target 2 - Stakeholders Empowerment	18.24
Target 3 - Mainstreaming Biodiversity	20.91
Target 4 - Sustainable use	10.86
Target 5 - Sustainable Tourism	0.56
Target 6 - Protected areas	25.49
Target 7 - Vulnerable Ecosystems	11.84
Target 8 - Ecological connectivity	7.62
Target 9 - Endangered Species Conservation	31.27
Target 10 - Enforcement and Illegal Wildlife Trade	27.55
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	6.03
Target 16 - Science Basis	13.51
Target 17 - Resource Mobilization	-
Misc. supporting expenses	-
N/A	-
Grand Total	235.04

3.3.3.3 Financial Needs by BIOFIN Categories

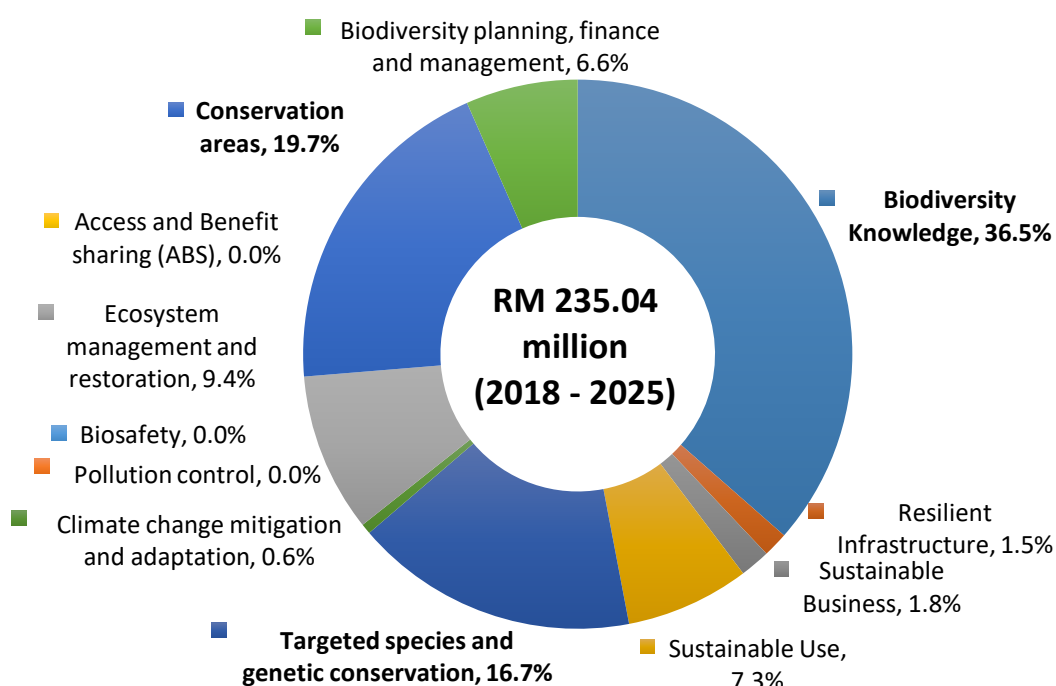


Figure 3.11: Financial Needs by BIOFIN Categories – Non-Government (NGO) (2018-2025)

When tagged to BIOFIN Categories, the financial needs of NGOs (Figure 3.11 and Table 3.13) show that a majority of the needs lie in Biodiversity knowledge (36.5%, RM 85.72 million), followed by targeted species and genetic conservation (16.7%, RM 39.29 million) and conservation areas (19.7%, RM 46.29 million). These are in line with the NPBD Targets with the highest financial needs. However, financial needs for biosafety, ABS and pollution control are not planned for.

Table 3.13: Financial Needs by BIOFIN Categories – Non-Government (NGO) (2018-2025)

BIOFIN Categories	Financial Needs (RM million)
Access and Benefit sharing (ABS)	-
Biodiversity Knowledge	85.72
Biodiversity planning, finance and management	15.53
Biosafety	-
Climate change mitigation and adaptation	1.42
Conservation areas	46.29
Ecosystem management and restoration	22.03
Pollution control	-
Resilient Infrastructure	3.46
Sustainable Business	4.16
Sustainable Use	17.14
Targeted species and genetic conservation	39.29
Miscellaneous supporting expenses	-
Total	235.04

3.3.4 FNA – Non-Government (Private Sector)

Malaysia's private sector corporations have funded various biodiversity related activities and this project reached out to them. However, several organisations did not follow through. This subsection shows the financial needs estimate for only one private sector entity, namely Sime Darby Property. Their needs are for a project on planting of local threatened, endangered species of trees in their properties and it is the only project for which data is available. This programme was privately funded. The CSR section of private corporations have both the capacity and inclination to fund biodiversity related projects and even programmes.

3.3.4.1 Financial Needs by Year

The needs range from RM 0.15 million to RM 1.25 million per year as shown in Table 3.17.

Table 3.14: Financial Needs by Organisation – Non-Government (Private) (2018-2025) (RM million)

Organisation	2018	2019	2020	2021	2022	2023	2024	2025	Total
SD Property	0.20	0.98	1.08	1.15	1.25	0.15	0.15	0.15	5.11

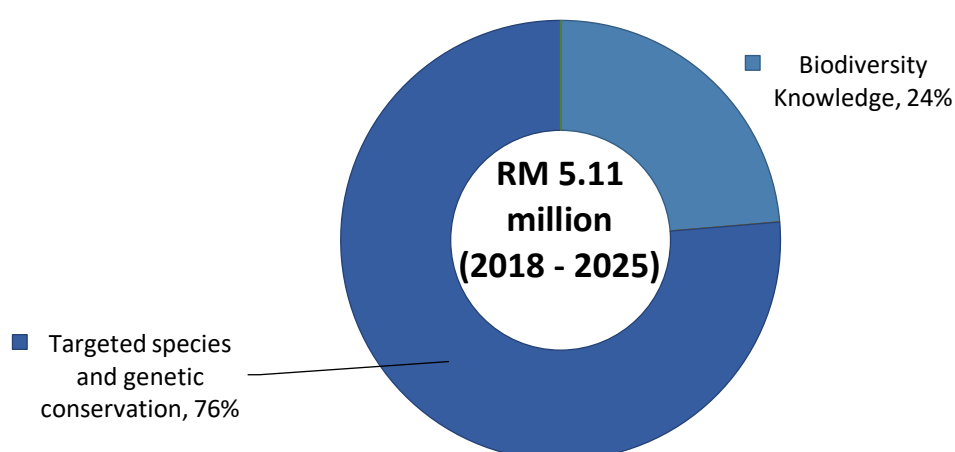
3.3.4.2 Financial Needs by NPBD Target

Table 3.18 shows that the financial needs are tagged to Target 6 – increase protected areas⁸, with a total of RM 5.11 million estimated over the period 2018 and 2025.

Table 3.15: Financial Needs by NPBD Target – Non-Government (Private sector) (2018-2025)

Target	Financial Needs (RM million)
Target 1 - Biodiversity Awareness	-
Target 2 - Stakeholders Empowerment	-
Target 3 - Mainstreaming Biodiversity	-
Target 4 - Sustainable use	-
Target 5 - Sustainable Tourism	-
Target 6 - Protected areas	5.11
Target 7 - Vulnerable Ecosystems	-
Target 8 - Ecological connectivity	-
Target 9 - Endangered Species Conservation	-
Target 10 - Enforcement and Illegal Wildlife Trade	-
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	-
Target 16 - Science Basis	-
Target 17 - Resource Mobilization	-
Misc. supporting expenses	-
N/A	-
Grand Total	5.11

3.3.4.3 Financial Needs by BIOFIN Categories



⁸ Note: this activity could be classified as species conservation (Target 9), instead of protected areas (Target 6) but no change has been made because it was the classification given by the organization.

Figure 3.12: Financial Needs by BIOFIN Categories – Non-Government (Private sector) (2018-2025)

The financial needs for Sime Darby Property can be tagged to two main BIOFIN Categories – Biodiversity knowledge (RM 1.21 million) and Targeted species and genetic conservation (RM 3.90 million).

Table 3.16: Financial Needs by BIOFIN Categories – Non-Government (Private sector) (2018-2025)

BIOFIN Categories	Financial Needs (RM million)
Access and Benefit sharing (ABS)	-
Biodiversity Knowledge	1.21
Biodiversity planning, finance and management	-
Biosafety	-
Climate change mitigation and adaptation	-
Conservation areas	-
Ecosystem management and restoration	-
Resilient Infrastructure	-
Sustainable Business	-
Sustainable Use	-
Pollution control	-
Targeted species and genetic conservation	3.90
Miscellaneous supporting expenses	-
Total	5.11

3.4 Financial Needs Assessment (FNA) – Observations

From the analyses, the 19 organisations have estimated their financial needs to achieve the NPBD targets and BIOFIN categories, and all the targets and categories were included in this exercise. This is encouraging from a mainstreaming perspective because it indicates that organisations had considered biodiversity from their operation's perspectives and took on a wider interpretation of their roles in improving biodiversity or reducing threats towards it. In other words, biodiversity conservation efforts had gone beyond just protection and conservation. The government organisations had a more encompassing portfolio reflecting their mandates while the non-government organisations had more selective interests, but also funded activities that were within their respective interest. It is important to note that the findings reflect the priorities of the participating organisations.

Nonetheless, the needs pattern show that biodiversity functions and policy targets receive varying attention. In the BER exercise, it was originally assumed that the low expenditures recorded were due to agencies being relatively new. However, the same patterns of very low needs were also observed in the FNA. This suggests that biodiversity may be relatively new to some organisations, and biodiversity objectives may not yet be embedded in their plans. Targets 11, 12, 13, 14, 2 and 17, which relate to biosafety, access and benefit sharing, invasive alien species, building functional partnerships with non-government organisations and resource mobilisation respectively, all of them had small financial needs. Targets 11, 12 and 14 are crucial to maintaining the biodiversity asset base, while Targets 2 and 17 reflect areas that are needed by all organisations to more effectively implement their planned actions. The low financial needs for Targets 2 and 17 are an issue that would require more awareness raising amongst organisations, whether government or non-government.

For BIOFIN Categories, the patterns in the FNA are mirrored in the BER, with targeted species and genetic conservation and Biodiversity knowledge appearing in all sectors. Biosafety, ABS are needs only identified by government. Also, in the BER, only the government sector had expenditure on climate change mitigation and adaptation, while in the FNA, this and pollution control are the categories that only government organisations have included in their BIOFIN portfolios.

3.5 Opportunities and limitations of the FNA

Voluntary participation and awareness of the NPBD

Unlike the BER, which were estimated by a few officers or supplemented by secondary data, the FNA required participation from all levels, sections or divisions of the organisation. Thus, the FNA process involved not only convincing top management of their organisation's relevance to biodiversity, but also commitment of top management to participate in the FNA – the budgeting and planning for the organisation's future activities.

For organisations whose core mission is not biodiversity, the study team prepared a profile linking the organisation's core mandate, policies and plans to the NPBD for each of these organisations. These profiles aided the organisations in identifying the NPBD Targets and related outcomes that is relevant to their organisational strategies and plans. Examples of profiles can be found in [Appendix IX](#).

The FNA exercise, like the BER, also served to raise awareness about the NPBD and also about the organisation's relevance to biodiversity. The process challenged participants to review the roles played by their organisations to either improve biodiversity outcomes or reduce negative threats to biodiversity. Nonetheless, a quick look through the list of organisations shows that there is potential for more collaboration and coordination to make it a more comprehensive exercise. It is important to recognise that this exercise is not a one-off exercise and was completely voluntary. It is suggested that for particular Targets such as 11 and 14 that have low financial needs, further effort may be needed to engage with specific stakeholders in order to obtain more accurate estimates of the expenditures.

With the 12th Malaysia Plan planning process expected to begin in 2019, this is an opportune time to make BIOFIN an integral part of this next five-year Plan. Such a move would accelerate the process of communicating BIOFIN and biodiversity to organisations and increase buy-in and participation. It would also be more efficient to integrate the FNA process within the budgeting and planning cycles of various organisations to avoid the need for additional sessions.

Comprehensiveness of the FNA data

For some organisations, their financial needs were circumscribed by their existing capacities. Although the organisations were advised to estimate the FNA based on their long-term policy objectives or mandates, it was apparent that some organisations took a narrow view and based the FNA on available or current resources. Hence, the FNA for some organisations do not include plans and budgets for all divisions / departments, and only include the sections that are directly related to biodiversity, even though indirectly related divisions may also contribute to biodiversity conservation.

Thus, some organisations took different approaches to estimate their FNA. Some cited limited time, lack of management commitment or took a conservative approach based on the existing capacity instead of using the FNA to fully reflect the resources to achieve their policy goals. In some organisations, emoluments were excluded from the FNA estimates. Such under-estimation of the FNA will be clearly seen in the Financial Gap analysis, which will be discussed and elaborated in Chapter 4.

In part, this reflects the need for change management, i.e. to get organisations to change the way of estimating budgets and needs in a subject matter that is different from their mandate. Addressing this challenge means getting organisations to embed the biodiversity objective into their organisational operations which will then truly mainstream biodiversity.

The FNA estimated in this project does not fully reflect the total resources required to achieve the biodiversity policy goal and targets. The project FNA estimate is thus a partial estimate. A more comprehensive exercise is needed to estimate the full resource needs of the policy target. For the organisation, more capacity building and mentoring will help but a mandatory instruction from top management will be necessary to get the intended effect, which is an explicit outcome-based budget and planning mechanism. The BIOFIN tool is available to assist organisations to move in this direction.

The issue of coverage

The issue of coverage was highlighted earlier. As this exercise is voluntary in nature, only 19 organisations out of 52 identified in the NPBD participated in this exercise. The full suite of federal agencies with biodiversity functions is not yet included. Data from the state and local governments, the private sector and NGOs were not included thus far. A more inclusive picture of biodiversity needs (and expenditures) could emerge if the coverage extended to include them.

Data recording, monitoring and evaluation

Some participants also noted that planning their organisation's future needs using the FNA methodology also provides a systematic method of recording, monitoring and evaluation the achievement of organisational and project progress and outcomes. The FNA also maps the organisation's spending to national or global Goals, Targets or biodiversity conservation areas. For example, the FNA generates data for measuring the performance and delivery of quantified outcomes, baselines and targets of the National Policy for Biodiversity 2016 – 2025, and to estimate gaps needed to achieve of the policy goals and objectives.

Capacity building

The FNA methodology has helped organisations to increase their planning and budgeting capacity as it forces their subject matter planners and financial officers to plan together, consider outcomes and develop a budget. The majority of them noted that the process of estimating the cost of their plans would give them information for evaluating their plans and budgets, especially if there are budget limitations in the future. Additionally, the FNA process of gathering together relevant stakeholders for training, discussions and collaboration generated information in various sections and divisions led to better teamwork and a focus on their organisational objectives.

However, some felt that detailed costing necessitated by the FNA can also limit their flexibility in terms of allocating resources within each outcome or project as it may require them to commit the planned expenditure items instead of having the flexibility to adjust their expenses as and when required. This was also the main concern about putting down quantifiable outcomes.

4 Financial Gap Analysis

4.1 What is the Financial Gap Analysis?

Financial gap is the difference between the estimated biodiversity financing needs (FNA) and the Projected Budget⁹. The time frame for the exercise is 2018-2025.

The financial gap, identified by year, organisation, NPBD Target and BIOFIN Categories will be inputs for the biodiversity finance plan and suitable solutions. It should help identify areas where there is need for increasing resources, reduction of needs, more efficient spending and preventive actions and sources of collaboration within and between organisations.

It must be noted that the BER and FNA are not fully comparable. The BER seeks to capture the status quo, while the FNA seeks to estimate additional work and effort needed to change the status quo. In linking the two to the NPBD, the BER was carried out as a retrospective tagging exercise that links biodiversity expenditure to the NPBD, whereas the FNA is an exercise in planning and budgeting to fulfil the NPBD Targets and goals. These differing priorities must be taken into consideration to have a meaningful comparison.

4.2 Financial Gap Analysis - Methodology

4.2.1 Data Analysis – Process and Analysis

Figure 4.1 below shows the steps taken to estimate the financial gap:

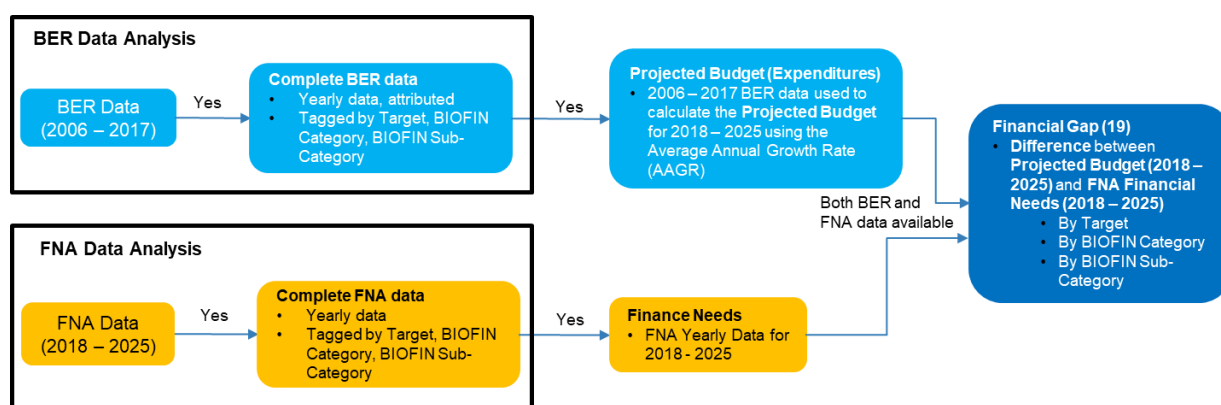


Figure 4.1: Illustration of the steps taken to estimate the financial gap

1. The attributed BER Data for 2006 – 2017 is used to calculate the Projected Budget for 2018 – 2025 – the Average Annual Growth Rate (AAGR) for each 5-year Malaysia Plan in the BER is used to calculate the projected budget;
2. The financial needs are identified from the FNA exercise;
3. The financial gap is calculated as the difference between the FNA Financial Needs (2018 -2025) and the Projected Budget (2018 - 2025); and
4. The gap can also be identified for NPBD Targets and BIOFIN Categories.

⁹ The Projected BER (2018-2025) is extrapolated from the biodiversity expenditure (BER) for 2006-2017.

4.3 Financial Gap Analysis – Results

This section presents the gap analysis for 19 organisations that submitted both BER and FNA data. To obtain the figures for this analysis, the Projected Budget for 2018-2025 was first extrapolated based on expenditure data (2006-2016) for each organisation. This was then compared to the financing needs to determine the financial gap.

4.3.1 Financial Gap – Pooled Analysis

4.3.1.1 Financial Gap by Sector

The financial gap for the government sector and non-government private sector is RM 11,585.34 million and RM 2.62 million respectively whereas the financial gap for the non-government sector is a surplus (RM 34.61 million); the reasons for the surplus is provided later. Thus, the financial gap for the government sector (RM 11,585.34 million) is higher than the total financial gap for all sectors (RM 11,553.35 million) (see Table 4.1).

Table 4.1: Financial Gap by Sector (2018-2025) (RM million)

	2018	2019	2020	2021	2022	2023	2024	2025	Total
GOV	1,705.05	1,711.17	1,435.93	1,318.39	1,315.64	1,413.89	1,301.73	1,383.53	11,585.34
NGO	(1.82)	0.22	(2.19)	(4.97)	(5.44)	(5.95)	(6.67)	(7.78)	(34.61)
PRIVATE	(0.24)	0.59	0.73	0.83	0.96	(0.11)	(0.08)	(0.06)	2.62
Grand Total	1,702.99	1,711.98	1,434.46	1,314.26	1,311.16	1,407.83	1,294.98	1,375.69	11,553.35

4.3.1.2 Financial Gap by Year

Table 4.2 shows that the financing needs of 19 organisations amounted to RM 17,300.67 million between years 2018 and 2025 or an annual average of RM 2,162 million over the period. In comparison, the Projected Budget amounted to RM 5,747.32 million, with an average of RM 718 million each year. With NPBD in mind, the needs are three times the BER.

This leaves a financing gap of RM 11,553.35 million to be filled over the entire planning period. On average, this translated to an average gap of RM 1,300 million to RM 1,700 million to be filled each year between 2018 and 2025. Note that the gap is double the projected expenditures.

Table 4.2: Projected Budget, FNA and Financial Gap by Year (2018-2025) (RM million)

	2018	2019	2020	2021	2022	2023	2024	2025	Total
Projected Budget	666.92	668.94	671.09	742.91	745.34	747.92	750.65	753.54	5,747.32
FNA	2,369.91	2,380.92	2,105.55	2,057.17	2,056.51	2,155.75	2,045.63	2,129.23	17,300.67
Gap	1,702.99	1,711.98	1,434.46	1,314.26	1,311.16	1,407.83	1,294.98	1,375.69	11,553.35
Grand Total	666.92	668.94	671.09	742.91	745.34	747.92	750.65	753.54	5,747.32

4.3.1.3 Financial Gap by NPBD Target

Table 4.3 shows that the NPBD Targets with the largest financial gaps are **Target 6** (RM 3,570.93 million), **Target 7** (RM 2,872.95 million), **Target 10** (RM 1,761.12 million) and **Target 9** (RM 1,087.24 million).

Table 4.3: Financial Gap by NPBD Target (2018-2025) (RM million)

Target	BER	Projected Budget	FNA	GAP
Target 1 - Biodiversity Awareness	395.19	247.21	365.10	117.90
Target 2 - Stakeholders Empowerment	101.20	88.08	30.49	(57.59)
Target 3 - Mainstreaming Biodiversity	432.50	315.73	1,282.35	966.63
Target 4 - Sustainable use	1,233.90	651.16	1,259.55	608.39
Target 5 - Sustainable Tourism	181.45	139.70	345.12	205.42
Target 6 - Protected areas	334.94	297.22	3,868.15	3,570.93
Target 7 - Vulnerable Ecosystems	2,463.72	1,858.76	4,731.70	2,872.95
Target 8 - Ecological connectivity	63.74	54.46	271.00	216.54
Target 9 - Endangered Species Conservation	436.99	387.08	1,474.32	1,087.24
Target 10 - Enforcement and Illegal Wildlife Trade	112.30	100.42	1,861.54	1,761.12
Target 11 - Invasive Alien Species	33.87	24.82	12.35	(12.47)
Target 12 - Biosafety	29.08	19.85	3.50	(16.35)
Target 13 - Agricultural Genetic diversity	525.12	364.95	90.06	(274.89)
Target 14 - Access and Benefit Sharing	-	-	17.58	17.58
Target 15 - Capacity on MEAs	397.59	300.45	947.56	647.11
Target 16 - Science Basis	521.22	407.66	712.67	305.01
Target 17 - Resource Mobilization	15.96	13.72	27.61	13.89
Misc. supporting expenses	642.12	443.00	-	(443.00)
N/A	47.39	33.06	-	(33.06)
Total	7,968.28	5,747.32	17,300.67	11,553.35
Average per year (RM mil.)	664.02	718.42	2,162.58	1,444.17

Four Targets have a surplus, namely Target 2 (RM 57.59 million), Target 11 (RM 12.47 million), Target 12 (RM 16.35 million) and Target 13 (RM 274.89 million). These four targets are also had the least biodiversity expenditure in the BER and the least financial needs in the FNA.

Additionally, miscellaneous supporting expenses and outcomes tagged under N/A also had a surplus because there were no financial needs under these categories in the FNA.

Discussions with the organisations yielded some reasons for the surplus or 'negative' gap. For some of the government agencies, this gap is due to an under-estimate of the financial needs (some organisations did not have plans beyond 2020), and hence no needs were estimated after 2020. In those cases, the FNA would be much smaller than the projected BER after 2020, thus accounting for the gap. For the NGOs, the gap is due to unallocated programmes or actions for which financial allocations have already been secured, i.e., their projected expenditures did not have associated cost items. There are also cases where the financial needs are considerably higher than the projected expenditures. For five such organisations, some of them did not provide estimates for emoluments and other items. Imputing the

emoluments of the five organisations, accounted for about 13% of the FNA, which is not insignificant. Hence, it is important that good data be collected in the first place, as planning could be otherwise affected.

4.3.1.4 Financial Gap by BIOFIN Categories

According to Table 4.4, the BIOFIN Categories with the highest gaps are **Sustainable use** (RM 3,436.13 million), **Ecosystem management and restoration** (RM 2,632.61 million), **Biodiversity planning, finance and management** (RM 2,226.28 million), **Biodiversity knowledge** (RM 1,804.84 million) and **Resilient infrastructure** (RM 1,059.38 million).

Table 4.4: Financial Gap by BIOFIN Categories (2018-2025) (RM million)

BIOFIN Categories	BER	Projected Budget	FNA	GAP
Biodiversity Knowledge	1,658.22	1,168.34	2,973.18	1,804.84
Resilient Infrastructure	173.64	119.29	1,178.67	1,059.38
Sustainable Business	137.60	96.79	332.72	235.93
Sustainable Use	1,407.09	879.33	4,315.46	3,436.13
Targeted species and genetic conservation	828.63	631.99	1,055.95	423.97
Climate change mitigation and adaptation	65.16	39.79	54.12	14.33
Biosafety	64.26	45.62	4.68	(40.95)
Pollution control	269.22	161.42	330.01	168.59
Ecosystem management and restoration	1,783.55	1,379.43	4,012.04	2,632.61
Access and Benefit sharing (ABS)	0.14	0.10	16.88	16.78
Conservation areas	558.53	449.31	467.76	18.45
Biodiversity planning, finance and management	380.12	332.91	2,559.19	2,226.28
Miscellaneous supporting expenses	642.12	443.00	-	(443.00)
Total	7,968.28	5,747.32	17,300.67	11,553.35

Only one BIOFIN Category had a surplus – Biosafety (RM 40.95 million), but three others, namely Climate change mitigation and adaptation (RM 14.33 million), Access and Benefit Sharing (RM 16.78 million) and Conservation areas (RM 18.45 million) had financial gaps of less than RM 20 million, indicating that they are either well planned for, or their complete needs have not been fully accounted for.

As mentioned earlier, the issue of climate change could be one of under-coverage because there is a comprehensive climate change programme in Malaysia, but the key organisations did not participate in this BIOFIN exercise.

4.3.2 Financial Gap – Government Sector

4.3.2.1 Financial Gap by Ministry and Organisation

The government sector had an overall financial gap of RM 11,585.34, which included some targets that had a surplus (see Table 4.5). **For the NRE divisions**, the divisional gaps are: JPS (RM 7,038.99 million), PERHILITAN (RM 2,201.86 million) and JAS (RM 1,089.89 million). FRIM and JPSM both have surplus funds (RM 147.89 million and RM 604.19 million).

For MOA, DOA had the biggest gap (RM 50.52 million), followed by MARDI (23.72 million) and DOF (RM 20.05 million). The MOA ministry itself had surplus of RM 425.55 million, which is most likely due to underreporting (MOA only reported 2 DE projects in their FNA). **For MPIC**, both MPIC and MPOB had financial surpluses, i.e., RM 351.53 million and RM 246.23 million respectively.

Overall, the organisations with the largest gaps are JPS (RM 7,038.99 million), PERHILITAN (RM 2,201.86 million), JAS (RM 1,089.89 million). The organisations with surplus funds are FRIM (RM 147.89 million), JPSM (RM 604.19 million) and MOA (RM 425.55 million).

Table 4.5: Financial Gap by Year - Government (2018-2025) (RM million)

ORG	2018	2019	2020	2021	2022	2023	2024	2025	Total
NRE	8.68	12.21	12.74	5.55	5.87	1.36	1.80	2.45	50.66
PERHILITAN	405.09	237.88	230.87	223.02	245.82	316.24	264.92	278.01	2,201.86
JTLM	125.36	132.56	117.75	118.90	120.40	122.77	124.14	126.42	988.28
JPSM	(94.51)	(101.00)	(91.21)	(87.47)	(81.16)	(80.73)	(91.55)	23.43	(604.19)
FRIM	(21.81)	(21.61)	(18.00)	(11.34)	(19.45)	(18.62)	(19.11)	(17.95)	(147.89)
JAS	112.29	142.54	191.66	132.71	130.23	134.97	122.64	122.86	1,089.89
JPS	1,015.16	1,189.42	893.95	790.10	789.03	787.08	787.08	787.17	7,038.99
NAHRIM	38.66	41.09	42.52	45.76	49.51	53.77	56.04	40.46	367.81
JMG	47.67	48.36	35.90	48.39	43.93	43.67	39.10	26.40	333.43
MOA	(36.54)	(44.20)	(45.32)	(60.11)	(60.00)	(59.90)	(59.80)	(59.70)	(425.55)
DOA	10.77	8.32	8.27	4.75	4.58	4.49	4.74	4.61	50.52
DOF	33.85	0.49	1.50	(10.18)	(10.22)	18.58	(6.91)	(7.07)	20.05
MARDI	8.94	0.88	5.81	1.95	4.69	0.40	0.64	0.41	23.72
MPIC	18.76	32.07	17.83	85.26	61.86	59.84	48.62	27.30	351.53
MPOB	32.66	32.17	31.65	31.11	30.55	29.97	29.37	28.74	246.23
Grand Total	1,705.05	1,711.17	1,435.93	1,318.39	1,315.64	1,413.89	1,301.73	1,383.53	11,585.34

4.3.2.2 Financial Gap by NPBD Target

The Targets with the biggest gaps are (see Table 4.6):

- **Target 6**, protected areas and other area-based conservation measures (**RM 3,576.31 million**) – JPS contributes to the large gap;
- **Target 7**, protecting and restoring vulnerable ecosystems and habitats) (**RM 2,888.30 million**) - similar to Target 6, JPS contributes to the large gap;
- **Target 10**, reducing illegal poaching, harvest and trade of biodiversity (**RM 1,752.65 million**) – PERHILITAN and JTLM are the biggest contributors to the gap;
- **Target 9**, preventing the extinction of known threatened species (**RM 1,086.79 million**) – PERHILITAN is the main contributor; and
- **Target 3**, mainstreaming biodiversity in national development planning and sectoral policies and plans (**RM 978.29 million**) – JAS has the biggest gap.

Meanwhile, the following Targets recorded surpluses:

- **Target 2**, increasing non-government Contributions to Biodiversity (**-RM 64.81 million**) – 6 out of 8 organisations had surpluses;
- **Target 11**, Invasive Alien Species (**-RM 12.47 million**) – DOA and DOF showed surpluses;
- **Target 12**, Biosafety (**-RM 16.35 million**) – JPSM and DOA had surpluses while MPIC did not; and
- **Target 13**, Conserving genetic diversity (**-RM 274.89 million**) – PERHILITAN, FRIM and MOA had surpluses while MARDI did not.

4.3.2.3 Financial Gap by BIOFIN Categories

The BIOFIN Categories with the highest gaps are **Sustainable use** (RM 3,447.36 million), **Ecosystem management and restoration** (RM 2,670.30 million), **Biodiversity planning, finance and management** (RM 2,243.41 million), **Biodiversity knowledge** (RM 1,795.26 million) and **Resilient infrastructure** (RM 1,057.69 million). Table 4.7 shows the detailed numbers.

Biosafety has a financial surplus (RM 40.95 million) while three other BIOFIN Categories, namely Climate change mitigation and adaptation (RM 12.91 million), Access and Benefit Sharing (RM 16.78 million) and Conservation areas (RM 3.47 million) had financial gaps of less than RM 17 million, indicating that they are either well planned for, or their needs were not comprehensively estimated. The reason for the financial surplus is due to under-coverage of emoluments in the cost but in terms of needs they were fully costed. In terms of climate change, the low estimates were likely due to coverage problems, where the key organisations are not in the BIOFIN sample.

Table 4.6: Financial Gap by NPBD Target - Government (2018-2025) (RM million)

Target	NRE	PERHI-LITAN	JTLM	FRIM	JPSM	JAS	JMG	JPS	NAHRIM	MOA	DOA	DOF	MARDI	MPIC	MPOB	Total
Target 1 - Biodiversity Awareness	(0.10)	217.34	(4.95)	(1.55)	15.72	(105.09)	(1.13)	(11.08)	(0.04)	-	-	-	-	-	(16.16)	92.96
Target 2 - Stakeholders Empowerment	-	(45.61)	0.93	(0.53)	(0.99)	(0.57)	-	-	2.98	-	-	-	(1.12)	-	(19.92)	(64.81)
Target 3 - Mainstreaming Biodiversity	0.37	(87.53)	0.13	68.72	3.67	686.59	(3.20)	285.28	64.89	-	(2.79)	(14.71)	-	-	(23.12)	978.29
Target 4 - Sustainable use	-	(5.05)	-	(237.72)	33.46	(0.81)	-	-	-	(16.50)	51.52	153.91	(30.94)	347.12	332.25	627.24
Target 5 - Sustainable Tourism	-	124.35	4.29	(4.09)	56.45	-	-	-	-	32.09	(0.37)	-	-	-	-	212.71
Target 6 - Protected areas	-	148.29	(95.33)	-	8.92	-	-	3,508.37	(0.16)	-	-	6.23	-	-	-	3,576.31
Target 7 - Vulnerable Ecosystems	9.30	(16.61)	12.31	8.52	(709.39)	(0.63)	318.00	3,349.65	(6.93)	-	33.02	(109.71)	-	0.77	-	2,888.30
Target 8 - Ecological connectivity	-	0.34	21.40	19.43	197.17	-	-	(6.01)	-	-	-	-	-	-	-	232.33
Target 9 - Endangered Species Conservation	(2.30)	1,055.55	4.87	17.41	(15.11)	-	-	-	-	-	-	21.38	5.00	-	-	1,086.79
Target 10 - Enforcement and Illegal Wildlife Trade	-	524.57	975.35	7.22	36.65	-	-	-	-	-	-	208.86	-	-	-	1,752.65
Target 11 - Invasive Alien Species	-	-	-	2.02	-	-	-	-	-	-	(7.14)	(7.34)	-	-	-	(12.47)
Target 12 - Biosafety	-	-	-	-	(4.67)	-	-	-	-	-	(15.18)	-	-	3.50	-	(16.35)
Target 13 - Agricultural Genetic diversity	-	(9.54)	-	(4.87)	-	-	-	-	-	(321.51)	-	-	61.03	-	-	(274.89)
Target 14 - Access and Benefit Sharing	-	-	-	-	-	-	-	-	-	-	-	17.47	0.11	-	-	17.58
Target 15 - Capacity on MEAs	96.89	213.96	(0.29)	(12.05)	(10.05)	537.27	(5.44)	(4.52)	(3.68)	-	(8.54)	(145.54)	(1.75)	3.10	(17.26)	642.10
Target 16 - Science Basis	(34.37)	85.14	60.16	61.05	(55.04)	4.08	28.14	(26.82)	312.95	-	-	(110.49)	(8.57)	-	(8.08)	308.14
Target 17 - Resource Mobilization	7.05	-	9.41	(1.03)	-	-	-	-	-	-	-	-	-	-	(0.92)	14.50
Misc. supporting expenses	(26.17)	-	(0.01)	(69.30)	(160.99)	(30.94)	(2.95)	(27.31)	(2.19)	(119.63)	-	-	-	(2.96)	(0.55)	(443.00)
N/A	-	(3.33)	-	(1.11)	-	-	-	(28.57)	-	-	-	-	(0.05)	-	-	(33.06)
Total	50.66	2,201.86	988.28	(147.89)	(604.19)	1,089.89	333.43	7,038.99	367.81	(425.55)	50.52	20.05	23.72	351.53	246.23	11,585.34

Table 4.7: Financial Gap by BIOFIN Categories - Government (2018-2025) (RM million)

BIOFIN Categories	NRE	PERHI-LITAN	JTLM	FRIM	JPSM	JAS	JMG	JPS	NAHRIM	MOA	DOA	DOF	MARDI	MPIC	MPOB	Total
Biodiversity Knowledge	(32.42)	830.94	5.19	(163.80)	(3.45)	610.16	157.70	(46.90)	203.07	35.71	34.24	(79.10)	7.42	35.85	200.64	1,795.26
Resilient Infrastructure	-	-	-	-	3.97	-	-	1,052.05	1.80	-	(0.12)	-	-	-	-	1,057.69
Sustainable Business	-	165.40	5.00	(6.18)	66.16	(3.09)	47.10	-	(0.72)	(43.04)	10.11	-	-	-	(1.44)	239.29
Sustainable Use	-	(92.46)	-	19.41	(224.05)	(10.13)	102.35	3,244.38	(0.83)	22.92	(40.60)	33.08	(20.98)	314.46	99.81	3,447.36
Targeted species and genetic conservation	(2.30)	719.64	0.85	(4.64)	(17.92)	-	-	-	-	(321.51)	-	(14.52)	49.43	4.30	-	413.32
Climate change mitigation and adaptation	-	-	-	51.44	-	-	(0.81)	-	(22.54)	-	-	(0.52)	(6.79)	0.21	(8.08)	12.91
Biosafety	-	-	-	-	(4.67)	-	-	-	-	-	(24.05)	(11.27)	(0.96)	-	-	(40.95)
Pollution control	6.80	-	0.21	-	-	206.45	30.74	(74.03)	(0.60)	-	-	-	-	(0.10)	-	169.47
Ecosystem management and restoration	-	26.52	18.38	6.30	(415.69)	(68.88)	(0.91)	3,054.68	133.46	-	1.74	(82.37)	(1.11)	0.12	(1.93)	2,670.30
Access and Benefit sharing (ABS)	-	-	-	3.00	-	-	-	-	-	-	-	13.78	0.01	-	-	16.78
Conservation areas	-	88.52	(68.86)	12.89	150.01	-	0.22	(179.87)	-	-	-	3.17	(2.61)	-	-	3.47
Biodiversity planning, finance and management	104.75	463.29	1,027.52	2.98	2.44	386.33	-	16.00	56.37	-	69.20	157.80	(0.69)	(0.35)	(42.21)	2,243.41
Misc. supporting expenses	(26.17)	-	(0.01)	(69.30)	(160.99)	(30.94)	(2.95)	(27.31)	(2.19)	(119.63)	-	-	-	(2.96)	(0.55)	(443.00)
Total	50.66	2,201.86	988.28	(147.89)	(604.19)	1,089.89	333.43	7,038.99	367.81	(425.55)	50.52	20.05	23.72	351.53	246.23	11,585.34

4.3.3 Financial Gap – Non-Government (NGO)

4.3.3.1 Financial Gap by Year

Table 4.8: Financial Gap by Year – Non-Government (NGO) (2018-2025) (RM million)

	2018	2019	2020	2021	2022	2023	2024	2025	Total
NGO	(1.82)	0.22	(2.19)	(4.97)	(5.44)	(5.95)	(6.67)	(7.78)	(34.61)

As seen in Table 4.8, the total financial gap is –RM 34.61 million, indicating that biodiversity needs are less than projected expenditures. Yearly, the financial gap is negative for every year except 2019, RM 0.22 million.

4.3.3.2 Financial Gap by NPBD Target

Table 4.9 shows that Targets 3, 4, 5, 6, 7, 8, 16 and 17 all have a negative gap. Target 1 has the biggest gap at RM 24.94 million, while the lowest gap that is positive is for Target 9, RM 0.45 million. For the NGO sector, Targets 11, 12, 13 and 14 have no expenditure or needs.

Table 4.9: Financial Gap by NPBD Target – Non-Government (NGO) (2018-2025) (RM million)

Target	NGO
Target 1 - Biodiversity Awareness	24.94
Target 2 - Stakeholders Empowerment	7.35
Target 3 - Mainstreaming Biodiversity	(11.67)
Target 4 - Sustainable use	(18.84)
Target 5 - Sustainable Tourism	(7.29)
Target 6 - Protected areas	(8.13)
Target 7 - Vulnerable Ecosystems	(15.36)
Target 8 - Ecological connectivity	(15.79)
Target 9 - Endangered Species Conservation	0.45
Target 10 - Enforcement and Illegal Wildlife Trade	8.47
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	5.01
Target 16 - Science Basis	(3.13)
Target 17 - Resource Mobilization	(0.61)
Misc. supporting expenses	-
N/A	-
Grand Total	(34.61)

4.3.3.3 Financial Gap by BIOFIN Categories

The largest financial gap for the NGO sector is in Conservation areas (RM 14.98 million), as shown in Table 4.10 below. This is followed by Targeted species and genetic conservation (RM 9.10 million) and Biodiversity knowledge (RM 8.51 million).

Biosafety and ABS both do not have a financial gap as they do not have any previous expenditure or future needs. Ecosystem management and restoration, Biodiversity planning, finance and management, Sustainable use, Sustainable business and Pollution control all have a surplus.

Table 4.10: Financial Gap by BIOFIN Categories – Non-Government (NGO) (2018-2025) (RM million)

BIOFIN Categories	NGO
Access and Benefit sharing (ABS)	-
Biodiversity Knowledge	8.51
Biodiversity planning, finance and management	(17.14)
Biosafety	-
Climate change mitigation and adaptation	1.42
Conservation areas	14.98
Ecosystem management and restoration	(37.69)
Pollution control	(0.88)
Resilient Infrastructure	1.69
Sustainable Business	(3.36)
Sustainable Use	(11.23)
Targeted species and genetic conservation	9.10
Miscellaneous supporting expenses	-
Total	(34.61)

4.3.4 Financial Gap – Non-Government (Private Sector)

4.3.4.1 Financial Gap by Year

As shown in Table 4.14, Sime Darby Property's total financial gap for 2018 to 2025 is RM 2.62 million, with an annual financial gap ranging from -RM 0.24 million to RM 0.96 million.

Table 4.11: Financial Gap by Year – Non-Government (Private sector) (2018-2025)

	2018	2019	2020	2021	2022	2023	2024	2025	Total
Private Sector (SD Property)	(0.24)	0.59	0.73	0.83	0.96	(0.11)	(0.08)	(0.06)	2.62

4.3.4.2 Financial Gap by NPBD Target

As shown in Table 4.15, the financial gap for Sime Darby Property can be tagged to a financial gap for Target 6 (RM 2.74 million) and Target 2 (-RM 0.13 million).

Table 4.12: Financial Gap by NPBD Target – (Private sector) (2018-2025) (RM million)

Target	Private Sector
Target 1 - Biodiversity Awareness	-
Target 2 - Stakeholders Empowerment	(0.13)
Target 3 - Mainstreaming Biodiversity	-
Target 4 - Sustainable use	-
Target 5 - Sustainable Tourism	-
Target 6 - Protected areas	2.74
Target 7 - Vulnerable Ecosystems	-
Target 8 - Ecological connectivity	-
Target 9 - Endangered Species Conservation	-
Target 10 - Enforcement and Illegal Wildlife Trade	-
Target 11 - Invasive Alien Species	-
Target 12 - Biosafety	-
Target 13 - Agricultural Genetic diversity	-
Target 14 - Access and Benefit Sharing	-
Target 15 - Capacity on MEAs	-
Target 16 - Science Basis	-
Target 17 - Resource Mobilization	-
Misc. supporting expenses	-
N/A	-
Grand Total	2.62

4.3.4.3 Financial Gap by BIOFIN Categories

The financial gap by BIOFIN Categories is RM 1.54 million for Targeted species and genetic conservation, and RM 1.08 million for Biodiversity knowledge (see Table 4.16).

Table 4.13: Financial Gap by BIOFIN Categories – (Private sector) (2018-2025) (RM million)

BIOFIN Categories	Private Sector
Access and Benefit sharing (ABS)	-
Biodiversity Knowledge	1.08
Biodiversity planning, finance and management	
Biosafety	
Climate change mitigation and adaptation	
Conservation areas	
Ecosystem management and restoration	
Pollution control	-
Resilient Infrastructure	-
Sustainable Business	-
Sustainable Use	-
Targeted species and genetic conservation	1.54
Miscellaneous supporting expenses	-
Total	2.62

4.4 Opportunities and limitations of the Gap Analysis

Linking the BER and FNA to the BFP

The gap analysis provides a suitable starting point to link the BER and FNA processes to the Biodiversity Finance Plan. Areas that are in need of more resources, efficient spending, reduction or realignment of needs, or preventive measures can be identified. This in turn will encourage BFP solutions that are tailored towards the biodiversity expenditure and needs of Malaysia.

Since the gap analysis can also be done at the NPBD Target and BIOFIN Categories level, the results of the gap analysis can also be linked to the specific targets and goals in the NPBD, and also specific biodiversity functions through the BIOFIN categories. Ideally, the latter can also be compared to the gaps of other countries that also carry out the BIOFIN process.

Data availability

Data availability is a main concern in the gap analysis, in terms of the comprehensiveness of the FNA and the BER data on which projected expenditures are made. Much of the BER data was sourced from the JANM accounts. Some agencies provided their own data, but overall the 9MP and the 10MP expenditures were incomplete due to difficulties accessing past data. Where data is available, the gap analysis is more accurate. However, when poor quality data is used, adjustments and assumptions had to be made (see [Appendix VII](#) on Data Availability for all organisations).

For government agencies, the gap is due to an under-estimate of the financial needs (five organisations did not have complete data). In those cases, the FNA is much smaller than the projected BER after 2020, thus accounting for the gap. For the NGOs, the gap is due to unallocated programmes or actions for which financial allocations have already been secured, i.e., their projected expenditures did not any financial needs.

There are also cases where the financial needs are considerably higher than the projected expenditures. Imputing the emoluments of the five organisations, accounted for about 13% of the FNA, which is not insignificant. Hence, it is important that good data be collected in the first place, as planning could be otherwise affected.

Comprehensiveness of results

Caution must be applied in interpreting the gap analysis data, especially when the gap is negative or financial surpluses.

For the BER data, the issues mentioned in the Data availability section are relevant. With regards to the FNA data, the assumptions made about the biodiversity financial needs of the organisation are relative to their interpretation of the importance of the exercise, the importance of biodiversity to the organisation's mandate, their time commitments and willingness to participate, the ability to plan forward until 2025 as an organisation, the inclusion of all cost items and their own views of their organisational capacity, among others.

It must also be noted that expenditures in the BER were not assigned to achieve the NPBD Targets, but were tagged retrospectively to align with the NPBD. Thus, a direct comparison between the BER and the FNA as carried out in this BIOFIN exercise is a good start, but it would not be an entirely complete exercise. Since the FNA is now aligned with NPBD, and the FNA will become the BER of the future, and thus the future financial gap can be calculated more accurately. For NGOs and the Private Sector, the needs and expenditures are often determined by their donors. As future priorities and plans are still being discussed, or future funding is still pending, the financial surpluses reflect unspent funds of their programmes.

5 BIOFIN Malaysia and the NPBD

From BIOFIN Malaysia Phase 1, it was apparent that biodiversity has been mainstreamed into various policies and plans in Malaysia but a gap still exists between being on a document and being in operations and budgets. At the BIOFIN workshops, 83% of workshop participants had previously heard of the NPBD but most did not know its contents or their role in it, even though their organisations were listed as key partners. This was further observed among other participants who attended smaller training sessions held at respective organisations. Most participants had associated biodiversity to NRE, more specifically, only the Biodiversity and Forestry Division at the time. This perception held true even for other divisions in NRE.

It was observed that biodiversity had been communicated in a very traditional manner such as protected areas, threatened species, vulnerable ecosystems, which had little relevance to other agencies and ministries whose main mandates were not traditionally associated to biodiversity. This was evident from the difficulties in initial recruitment and continued participation of various organisations. Hence, only 19 organisations out of 36 stayed on in the project.

Through the BIOFIN exercise, however, more than 90% of participants agreed that the methodology had helped their organisation relate better to biodiversity and it was a good way to communicate and promote the NPBD. For those not traditionally associated to biodiversity such as APM, JAS, JMG, JPS, MOA, DVS, DOA, the NPBD mapping within the BIOFIN exercise also enabled their organisations to see how biodiversity is actually part of their operations, plans and policies. Their interest, however, only got raised at the FNA stage. These observations suggest that biodiversity is still not fully mainstreamed in action and is not part of implementation plans and budgets, especially to the wider group of organisations whose main mandate is not biodiversity.

5.1 BIOFIN Malaysia results at NPBD Goal Level

Table 5.1 shows the NPBD Goals and their associated Targets and descriptions. The financial results of the BIOFIN exercise in terms of past and projected expenditures at the NPBD goal level as well as financial needs (FNA) that are biodiversity related are shown in Table 5.2. In relation to the NPBD goals, the financial results are grouped into the current situation (BER) as well as what is planned ahead (Projected BER) and financial needs.

Table 5.1: NPBD Goals, Targets and Descriptions

Goal	Target	Description
Goal 1	Target 1	Biodiversity Awareness
	Target 2	Stakeholders Empowerment
Goal 2	Target 3	Mainstreaming Biodiversity
	Target 4	Sustainable use
	Target 5	Sustainable Tourism
Goal 3	Target 6	Protected areas
	Target 7	Vulnerable Ecosystems
	Target 8	Ecological connectivity
	Target 9	Endangered Species Conservation

Goal	Target	Description
	Target 10	Enforcement and Illegal Wildlife Trade
	Target 11	Invasive Alien Species
	Target 12	Biosafety
	Target 13	Agricultural Genetic diversity
Goal 4	Target 14	Access and Benefit Sharing
Goal 5	Target 15	Capacity on MEAs
	Target 16	Science Basis
	Target 17	Resource Mobilization

Table 5.2: Financial Results by NPBD Goals (percentage)

	BER (2006-2017)	Proj.Budget (2018-2025)	FNA (2018-2025)	GAP (2018-2025)
Goal 1 - Empowerment	6%	6%	2%	1%
Goal 2 - Reducing Pressures	24%	19%	17%	15%
Goal 3 - Biodiversity Resources	50%	54%	71%	80%
Goal 4 - Access Benefit Sharing	0%	0%	0%	0%
Goal 5 - Capacity Building, Resources	12%	13%	10%	8%
Supporting Expenses	9%	8%	0%	-4% ¹⁰
Total	100%	100%	100%	100%
Financial Resources RM billion	7.97	5.74	17.30	11.55

Note: "0" means insignificant at the 1-digit level, and not zero amount.

It is obvious that the 19 organisations saw their main role as safeguarding biological resources in that 71% of the financial resources required are concentrated in Goal 3 but even then, the focus is in two of the six targets, i.e. protected areas and ecological corridors, accounting for 50% of the FNA. In three of the targets (11, 12 and 13), the combined financial needs did not even reach 1% of the FNA requirements. Target 13 in particular is relevant in sustainable production as it is about biodiversity of farmed animals and cultivated plants.

The social or people aspect of the NPBD goals, i.e. Goals 1 and 4 received very little attention in financial terms. The financial needs were estimated at slightly over 2% of the FNA budget.

The financial gaps were mainly found in two of the five goals, i.e. Goal 2 on reducing pressures on biodiversity and Goal 3 on safeguarding biodiversity resources, and they account for 95% of the financial gaps.

These results provide valuable information on the financial evaluation of the NPBD at the policy level and show the link between the goals and the financial expenditures and needs. This is probably the first time that financial resources have been linked to their goals and targets. The policy planners and financial decision makers can undertake a thorough investigation of the data in order to understand how to better achieve their policy goals, taking into account the baseline situation.

¹⁰ See footnote 3 for detailed explanation of the negative surplus results.

5.2 BIOFIN Malaysia results at Target Levels

The financial results of the BIOFIN exercise, i.e. the financial gap nett of the projected budget are shown in **Table 5.3**. The BER data is a sum of 12 years data (2006-2017) whereas the Projected Budget, FNA and GAP are for 8 years (2018-2025), as reported by 19 organisations.

In terms of BER expenditure, a cumulative total of RM 7.97 billion was spent for twelve years or an average of about RM 664 million for BER¹¹. For the (2018-2025) period, the projected budget for Biodiversity is estimated at RM 5.75 billion or an average of RM 718 million per year. An estimated amount of RM 2,162 million per annum in terms of financial needs was derived from the organisations or a total of RM 17.3 billion. Based on the methodology, a financial gap of RM 11.55 billion or RM 1,444 million per annum was estimated.

Table 5.3: Financial Results by NPBD Targets, RM million (constant 2010 prices)

Target	BER (2006-2017)	Projected Budget (2018-2025)	FNA (2018-2025)	GAP (2018-2025)
Target 1 - Biodiversity Awareness	395.19	247.21	365.10	117.90
Target 2 - Stakeholders Empowerment	101.20	88.08	30.49	(57.59) ¹²
Target 3 - Mainstreaming Biodiversity	432.50	315.73	1,282.35	966.63
Target 4 - Sustainable use	1,233.90	651.16	1,259.55	608.39
Target 5 - Sustainable Tourism	181.45	139.70	345.12	205.42
Target 6 - Protected areas	334.94	297.22	3,868.15	3,570.93
Target 7 - Vulnerable Ecosystems	2,463.72	1,858.76	4,731.70	2,872.95
Target 8 - Ecological connectivity	63.74	54.46	271.00	216.54
Target 9 - Endangered Species Conservation	436.98	387.08	1,474.32	1,087.24
Target 10 - Enforcement and Illegal Wildlife Trade	112.30	100.42	1,861.54	1,761.12
Target 11 - Invasive Alien Species	33.87	24.82	12.35	(12.47)
Target 12 - Biosafety	29.08	19.85	3.50	(16.35)
Target 13 - Agricultural Genetic diversity	525.12	364.95	90.06	(274.89)
Target 14 - Access and Benefit Sharing	-	-	17.58	17.58
Target 15 - Capacity on MEAs	397.59	300.45	947.56	647.11
Target 16 - Science Basis	521.22	407.66	712.67	305.01
Target 17 - Resource Mobilization	15.96	13.72	27.61	13.89
Misc. supporting expenses	642.12	443.00	-	(443.00)
N/A	47.39	33.06	-	(33.06)
Total for period (RM mil.)	7,968.28	5,747.32	17,300.67	11,553.35
Average per year (RM mil.)	664.02	718.42	2,162.58	1,444.17

¹¹ Note that the BER figures were collected in real prices. The BER nominal expenditures was estimated at RM8.22 billion for the period 2006 to 2017. GDP deflators were used to convert all prices to 2010 price levels. For the projected BER and FNA, they were estimated without any inflation imputation.

¹² There appears to be some anomalies in the results as there should not be negative financial needs, which mean surplus. These anomalies are due to several reasons. First, some organizations were not willing to give projections of financial needs beyond the 11MP period and hence, while they had projected BER expenditures, there were no FNA estimates. Some organisations did not want to speculate whether their programmes would continue beyond the masterplan period, and hence, while they had BER data, there were no financial needs after the current planning period. Attempts to get the organisations to review their assumptions were not successful and the anomalies were embedded into these results.

The largest expenditures were in Target 7 (Vulnerable Ecosystems), and Target 4 (Sustainable Use of resources). There were no expenditures made for Target 14 (Access and Benefit Sharing), and small amounts for Targets 17 (financial resources), 12 (biosafety), 11 (invasive alien species) and also 8 (ecological corridors). In terms of gaps, the largest were in Targets 6 (Protected Areas), 7 (Ecosystems), 10 (poaching and illegal harvesting) and 9 (species conservation). The percentage results are shown in **Table 5.4**.

What is clear in that when the organisations were asked to estimate the finance needed to achieve the NPBD policy goals, they estimated that they needed more than three times (3.2) i.e. RM 2,162 million (financial needs) to RM718 million (projected biodiversity expenses). Hence, if they did not plan their budgets based on the goals/outcomes that were expected of them, based on NPBD expectations, they might only be applying for 5% more budget (RM 718 million/RM 664 million).

Table 5.4: Financial Results by NPBD Targets, (percentage)

		2006-2017	2018-2025	2018-2025	2018-2025	No. Orgs
Target	Description	BER	Proj BER	FNA	GAP	
Target 1	Biodiversity Awareness	5%	4%	2%	1%	12
Target 2	Stakeholders Empowerment	1%	2%	0%	0%	10
Target 3	Mainstreaming Biodiversity	5%	5%	7%	8%	12
Target 4	Sustainable use	15%	11%	7%	5%	12
Target 5	Sustainable Tourism	2%	2%	2%	2%	7
Target 6	Protected areas	4%	5%	22%	31%	8
Target 7	Vulnerable Ecosystems	31%	32%	27%	25%	10
Target 8	Ecological connectivity	1%	1%	2%	2%	4
Target 9	Endangered Species Conservation	5%	7%	9%	9%	8
Target 10	Enforcement and Illegal Wildlife Trade	1%	2%	11%	15%	5
Target 11	Invasive Alien Species	0%	0%	0%	0%	2
Target 12	Biosafety	0%	0%	0%	0%	2
Target 13	Agricultural Genetic diversity	7%	6%	1%	-2%	4
Target 14	Access and Benefit Sharing	-	-	0%	0%	0
Target 15	Capacity on MEAs	5%	5%	5%	6%	15
Target 16	Science Basis	7%	7%	4%	3%	14
Target 17	Resource Mobilization	0%	0%	0%	0%	5
Misc. supporting exp.		8%	8%	-	-4%	11
N/A		1%	1%	0%	-	4
Total		100%	100%	100%	100%	19
Annual Expenditures (2010 constant prices) (RM million)		664.02	718.42	2,162.58	1,444.17	

Note: “-” means zero amount but “0” means insignificant at the 1-digit level.

In terms of the financial breakdown using BIOFIN Categories, **Table 5.5** shows the same results tabulated by the categories. The data shows that Ecosystem Management and Restoration received about 22% of the biodiversity expenditure, followed by Biodiversity Knowledge (21%

of BER), Sustainable Use (18%) and Targeted Species and Genetic Conservation about 11%. Miscellaneous supporting expenses accounted for about 8% of the BER. Categories that received very little spending are Access and Benefit Sharing, one of the four Goals of the NPBD. The last column shows the number of organisations providing data for these results.

Table 5.5: Financial Results by BIOFIN Categories (percentage)

BIOFIN Categories	BER	Projected Budget	FNA	GAP
Biodiversity Knowledge	21%	20%	17%	16%
Resilient Infrastructure	2%	2%	7%	9%
Sustainable Business	2%	2%	2%	2%
Sustainable Use	18%	15%	25%	30%
Targeted species and genetic conservation	11%	11%	6%	4%
Climate change mitigation and adaptation	1%	1%	0%	0%
Biosafety	1%	1%	0%	0%
Pollution control	3%	3%	2%	1%
Ecosystem management and restoration	22%	24%	23%	23%
Access and Benefit sharing (ABS)	0%	0%	0%	0%
Conservation areas	7%	8%	3%	0%
Biodiversity planning, finance and management	5%	6%	15%	19%
Misc. supporting expenses	8%	8%	-	-4%
Total (RM bil. 2010 constant price)	7968.22	5,747.32	17,300.67	11,553.35

Note: “-” means zero amount but “0” means insignificant at the 1-digit level.

6 Conclusion and Recommendations

This final chapter has only two main conclusions. First, the BIOFIN methodology has been successfully localised in the Malaysian context. It meets the financial planning objective of using an outcome-based approach in linking sectoral planning with budgets and provides decision makers with relevant information for how money is spent, how effective has been the spending, and an opportunity for evaluating the NPBD for biodiversity conservation. Second, the exercise shows that many organisations could not relate to biodiversity functions even though their plans and programmes had significant impact on it. Hence, mainstreaming and institutionalisation of biodiversity planning is needed to ensure that conservation is more effectively implemented.

Several recommendations will be discussed in this chapter. In this BIOFIN exercise, several limitations have been encountered and they are discussed here in order for policy makers to fully understand the full benefits and limits of this methodology.

6.1 Recommendations

This section will make specific suggestions for biodiversity finance in Malaysia based on work done in the BIOFIN Malaysia project (2017-2018).

Mainstreaming

The first recommendation is to mainstream the BIOFIN process. Mainstreaming means (1) acceptance that biodiversity is important to our economic base and production sectors (timber, fisheries, tourism), our well-being (health, recreation); (2) mechanisms that will enhance and benefit biodiversity and sustainability (SFM, etc); (3) a strategy to communicate, educate and raise public awareness¹³. That means all agencies and organisations that want to implement projects with benefits for biodiversity can and shall get support and cooperation from various agencies, with funding coming from the Malaysia Plan and operational budgets. Outside of government, it is important to explore partnerships with other organisations, getting the private sector to incorporate or to integrate their production activities with due consideration of biodiversity conservation. Implementing sustainable programmes is vital to our long-term survival. Mainstreaming means integrating or incorporating actions related to conservation and sustainable use of biodiversity into strategies for all productive sectors, whether they be in agriculture, fisheries, forestry, tourism or even mining. Indeed, there is also a need to work among the more enlightened private sector organisations on their CSR and biodiversity programmes. Mainstreaming biodiversity conservation in all areas of society and government will require government leadership, especially in Malaysia's case.

Institutionalisation

The second recommendation is to institutionalise the BIOFIN process. Institutionalisation is another government-led effort. A top down approach, with instructions from the ministry and central planning agencies must be complemented by capacity building of agencies/ministries from the bottom up. All agencies from federal to state to local government must be involved. It is recommended for MOEA, KATS and MOF to use BIOFIN methodology in the 12MP process.

¹³ For a more comprehensive discussion of mainstreaming, please refer to A Common Vision on Biodiversity In Government and the Development Process: Executive Summary for Planners and Decision-Makers (by NRE).

That would mean that agencies/ministries that apply for funding in biodiversity related projects would need to use the BIOFIN methodology. Agencies would have to do their sectoral or financial planning exercise using the outcome-based approach that is embedded in the BIOFIN methodology. A top-down approach will overcome many of the problems faced in the pilot phase of low priority, resistance to cross agency lines, explore innovative solutions, coordination and timing in accordance with other budget applications or audits, etc.

To do this effectively, all agencies would need to form a sub-group or team that comprise financial and sectoral planners. The FNA needs to be done properly. It will require cooperation and work from both project and budget officers. Both will have a better understanding of the project. The exercise will link actions to department, ministry or national plans. The level of detail required by the FNA methodology also assists the budget officer in defending the budget proposal and enables them to pitch better proposals.

Training and Capacity Building

The third recommendation is to utilise all the resource materials that have been developed for this project. This will involve a review of the materials, finalise them into a formalised format for use in the Malaysia Plans, issue the guideline instructions, develop a plan to use the BIOFIN methodology for all levels of government.

The BIOFIN methodology is simple in concept but it needs to be adapted into the Malaysian context because financial rules, regulations and practices are specific to individual agencies or organisations. For instance, all government institutions follow the financial procedures and rules of accounting which are quite different from the private sector. Fortunately, the pilot phase of the project has already learned some lessons that are useful for full scale implementation.

The BIOFIN methodology, while simple, still requires tagging and attribution of the accounts. In the project's initial experience, training and capacity building is needed. The persons who do the actual work will need to understand the objectives of the exercise and they would need to get together with their planners, managers and section leaders to link their plans to their budgets and complete the BIOFIN exercise. Training will help to improve their understanding and the results will help them improve their planning the outcomes and aligned with financial data.

Guidebooks for BER exercise have been prepared and are available for future use. They have been updated, simplified and improved based on the first phase of the BIOFIN exercise. It may be important for the government to allocate some people to become the trainers so that they can carry out the training.

Biodiversity Resource Mobilisation Plan

The fourth recommendation is to develop a resource mobilisation plan. Based on the BIOFIN exercise, most of the organisations expect their financial needs to be three times that of their projected expenditures. Such an estimate is only for 19 organisations. With a full suite of organisations (52 were named in the NPBD), the private sector, NGOs and other multilateral organisations, the financial needs would be much higher, perhaps even double current FNA estimates.

As part of the BIOFIN methodology, a biodiversity finance plan, comprising various strategies and options have been put together. The key strategies of the BFP are: diversifying funding portfolio, reducing cost, raising finance via traditional and innovative financing, exploring partnerships (MBEON, MMEA-JTLM) and developing biodiversity markets and opportunities (via tax incentives, compliance measures), etc.

Current government trust funds only allow funding from government sources, but a few have permitted the collection of entrance fees, fines and penalties and contributions for specific purposes (e.g. fund for managing human-wildlife conflict). The government could consider opening up the space for joint trust funds to be created for biodiversity conservation.

As for the private sector, there are private trust funds that could be tapped into but they have stringent governance procedures as they are accountable to boards of trustees and fiduciary responsibilities. If government could share information with them about funding needs, they could be potential source of funding.

For NGOs, funds were largely raised from grants and donations from local and international organisations but they are much smaller. The major contribution of NGOs will be in the area of knowledge, skills, networks and potential for mobilising public funds and disseminating information. Partnerships with them would be helpful in meeting a few NPBD targets.

It is further recommended that the government review these plans and take the relevant ones for implementation.

Implementation Plan

The fifth recommendation is an implementation plan. In tandem with initiatives like training and capacity building, a dynamic Implementation Plan is required and would involve:

- implement the NPBD and BFP communications strategy and lobby for support;
- provide leadership, focal points with information on finance solutions;
- monitor progress of the BFP implementation concurrent to the NPBD review; and
- routinely look out for opportunities to secure further resources.

The BIOFIN methodology promotes a holistic approach that addresses multiple challenges, such as the lack of existing data on finance needs and expenditures, capacity deficits, lack of coordination, monitoring and evaluation, and too much reliance on a limited number of finance sources and solutions.

Biodiversity Financing Beyond Government

The final recommendation is to consider biodiversity financing beyond government.

Based on the BIOFIN Malaysia exercise, the Government is the major funder for biodiversity (67%). Of this, the federal government contributed the larger share of about 48%, and the rest was from trust funds, etc. The private sector contributed about 30%, but it was largely driven by environmental compliance to mitigate pollution (~23%) while CSR-type actions that are related to biodiversity were much smaller (7%). NGO spending on biodiversity contributed 2% to the estimated total while multilateral organisations (from overseas) were estimated to contribute about 1%.

This pattern shows heavy reliance on government funding for biodiversity and places it in direct competition with other development priorities. Thus, it is not surprising that only an estimated 1% of the government budget is spent on biodiversity each year. This suggests that there are still sources of funds that have not been tapped into for biodiversity financing. It is imperative that the government open up a conversation with the non-government sector to explore how to achieve the objectives of the NPBD.

6.2 Limitations

Despite the interesting results in this study, it is important to highlight some limitations as well.

Organisational Coverage

First, there is the issue of coverage of institutions or organisations participating in this exercise. A total of 19 organisations participated: 15 are government organisations, and four are non-government organisations. Among the government organisations, they are among the most important ones for biodiversity conservation (as listed in the NPBD).

There are some 18 other federal organisations that were not selected by the Core Team to include in this report as they did not complete the entire BIOFIN exercise. The other significant gap is the absence of any state agencies. As all land-based resources, as in land, forest, water and agriculture are under the jurisdiction of the state authorities, they should be included in future exercises. Although financial resources are centralised and concentrated in federal agencies, the state's role is also important and they have allocations and budgets for conservation and biodiversity-related activities.

The other major data gap is that of the private sector. There was only one private sector participant in this exercise. The BER report reported private sector data in terms of pollution abatement and compliance, ecosystem management, sustainable business and biodiversity knowledge. Their estimated expenditure was RM 2.2 billion over four years, or about RM 550 million annually. If this amount were added to the annual BER expenditure of RM 664 billion, it would boost the total BER by an additional 45%. Hence, their contribution is very significant. Additionally, the private sector, especially the larger corporations, also have set up foundations that focus partly on social and environmental, CSR concerns, which were not captured by the DOSM data.

Among the NGOs, they are also among the larger ones whose mandate and work are in nature and biodiversity. The NPBD also mentions local communities, indigenous people, research institutions, institutions of higher learning among those that are important to the conservation of biodiversity. All these have not been included in this study. Future studies should consider this area of work as well.

If coverage of the state governments, private sector, NGOs and local communities, were more comprehensive, the impact of the national exercise would be much larger, perhaps even double the estimate from this exercise.

Commitment Levels of Participants

Second, among the organisations that participated in the BIOFIN exercise, there were also dropouts. Eleven (11) organisations completed the BER exercise but did not stay on to complete the FNA. They dropped out for various reasons despite best efforts to persuade them to get back on board (see [Appendix I](#)). Another six (6) organisations came into the project later and completed or partially completed the FNA but they did not have further capacity to dig back into their records to submit the BER. All 17 of these organisations were also excluded from the results in this study, so as to maintain consistency of reporting.

Among the reasons for not being able to persuade them include their lack of awareness of their role in biodiversity conservation and subsequently, their awareness of the National Policy on Biological Diversity (NPBD). The lack of awareness is a major problem, and it is also expressed in the lack of priority given in this project, and the additional effort put in by the study team to not only convince the organisations' management to stay in the project but also to spread awareness about the NPBD. Note that the BIOFIN exercise is entirely voluntary.

Comprehensiveness of Data

Third, there were data problems. The BER exercise sought to compile data on the agency's development and operational financial data. Prior to 2011, the agency data were available by plans and programmes, and it was possible to tag and attribute the financial data. After 2011, there was a change in the reporting method, and it was no longer possible to tag the data at the detailed level. The purpose of this exercise was to find out expenditure growth pattern in order to apply them to the future expenditures of the agencies. This issue introduces an element of uncertainty to the projection exercise. The study team worked closely with the participating organisations to discuss and agree on the BER projections.

Capacity building, especially for tagging

Fourth, the capacity to tag, attribute and make projections was limited. Some organisations stated that they were willing to provide information on current and planned activities but were not willing to tag, attribute or project them beyond their limited knowledge. In other organisations, the FNA required cooperation between various departments, particularly finance and conservation, in order to link activities with budgets and estimate financial needs more accurately. This type of cooperation proved to be difficult because there was no decision from top management to support such an initiative. So, in some cases, the negative financial gaps were reported, while the BER reported expenditure data but the FNA did not include those items. Financial officers have good understanding of their departmental mandate but limited understanding of their agency's role in biodiversity conservation. Hence, they may not have provided good estimates. Future planning exercises will give them a chance to reflect on conservation planning, which can help to resolve the data problems.

It should be noted that the institutional challenge is quite wide as the agency officers have been doing their work for years, and changing the way they work is a major effort. Raising their awareness of their impact on biodiversity is important before they can even plan the actions that would conserve and improve on its status.

To help the organisations improve their understanding of the BIOFIN methodology, the study team prepared a set of guidebooks for BER, FNA and BFP and these were used in this exercise.

Overall, the findings are really a conservative estimate of the biodiversity financing needs, using a bottom-up approach. It can be greatly improved with top-down decision through an institutionalisation and mainstreaming approach.

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APPENDIX I: Complete List of Participants

Aside from the 19 participants highlighted in the earlier chapters, there were also 11 organisations that participated in the BER and 6 organisations that participated in the FNA. Highlighted in grey are the organisations that participated in certain either the BER or FNA exercise only.

BER (19+11 organisations)

Organisation Type	Name
Government	Ministry of Natural Resources & Environment (NRE – BBP, BSASH, BMG, BPASPI)
	Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN + Trust Fund)
	Department of Marine Parks (JTLM + Trust Fund)
	Forestry Department Peninsular Malaysia (JPSM)
	Forest Research Institute Malaysia (FRIM)
	National Hydraulic Research Institute of Malaysia (NAHRIM)
	Department of Irrigation and Drainage (JPS)
	Department of Minerals and Geoscience (JMG)
	Department of Environment (JAS)
	Ministry of Agriculture (MOA)
	Department of Agriculture (DOA)
	Department of Fisheries (DOF)
	Malaysian Agricultural Research and Development Institute (MARDI)
	Ministry of Plantation Industries & Commodities (MPIC HQ, LGM, LKM, LKTN)
	Malaysian Palm Oil Board (MPOB)
	Ministry of Tourism and Culture Malaysia (MOTAC)
	Ministry of Finance (MOF)
	Ministry of Urban Wellbeing, Housing and Local Government (KPKT)
Non-Government (Private sector)	Sime Darby Property
	Sime Darby Foundation
	Sime Darby Plantation
	Maybank
	Petronas
	TNB
Non-Government (NGO)	WWF-Malaysia
	Malaysian Nature Society (MNS)
	Management & Ecology of Malaysian Elephants (MEME)
	Wetlands International
Non-Government (Multilateral)	UNDP (BD, CC and ENV)
	SGP

FNA (19+6 organisations)

Organisation Type	Name
Government	Ministry of Natural Resources & Environment (NRE – BBP, BSASH, BMG, BPASPI)
	Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN + Trust Fund)
	Department of Marine Parks (JTLM + Trust Fund)
	Forestry Department Peninsular Malaysia (JPSM)
	Forest Research Institute Malaysia (FRIM)
	National Hydraulic Research Institute of Malaysia (NAHRIM)
	Department of Irrigation and Drainage (JPS)
	Department of Minerals and Geoscience (JMG)
	Department of Environment (JAS)
	Ministry of Agriculture (MOA)
	Department of Agriculture (DOA)
	Department of Fisheries (DOF)
	Malaysian Agricultural Research and Development Institute (MARDI)
	Ministry of Plantation Industries & Commodities (MPIC HQ, LGM, LKM, LKTN)
	Malaysian Palm Oil Board (MPOB)
	Department of Biosafety (JBK)
	Department of Veterinary Science (DVS)
	National Landscape Department (JLN)
	Federal Department of Town and Country Planning (PLANMalaysia)
	Malaysia Maritime Enforcement Agency (MMEA)
Non-Government (Private)	Sime Darby Property
Non-Government (NGO)	WWF-Malaysia
	Malaysian Nature Society (MNS)
	Management & Ecology of Malaysian Elephants (MEME)
	Harimau Selamanya, RIMBA

APPENDIX II: Data for Participants Not Included in the Integrated Report Analyses

As shown in Appendix I, there were 11 organisations that participated in the BER only, and 6 organisations that participated in the FNA only. As mentioned before, they only participated in either the BER or FNA and thus their data could not be included in the report analysis.

The data of the 11 organisations can be found in Table i (NPBD Target) and Table ii (BIOFIN Categories) below. When compared to the BER Results by Target and BIOFIN Categories in the report, their data provides a slightly different picture of biodiversity expenditure in Malaysia that amounts to an additional 10% (RM 869.30 million) of the BER spending (RM 7,968.28 million). In particular:

Key Government organisations that contribute towards biodiversity expenditure in ways that are unique and not in the report:

- MOTAC (RM 101.64 million)
 - Target 5 - nature-based tourism. They are also listed as a lead agency in Target 5 of the NPBD;
 - Sustainable Business;
- MOF (RM 37.60 million)
 - Target 3 – mainstreaming. They are also mentioned as a lead agency in Target 17 of the NPBD;
 - Biodiversity planning, finance and management;
- KPKT (RM 475.30 million)
 - Target 3 – mainstreaming. They are also mentioned as a lead agency in Target 3 on protecting environmentally sensitive areas in statutory land use plans; and
 - Pollution control.

Non-Government (Private sector) organisations that add to a more balanced picture of private sector expenditure beyond just the one organisation featured in the report:

- Petronas (RM 90.90 million) and TNB (RM 0.69 million)
 - Target 8 – Ecological corridors;
 - and Conservation Areas;
- Maybank (RM 3.12 million)
 - Target 9 - Species and Target 10 - Poaching; and
 - Conservation areas, Targeted species conservation, Sustainable business;
- SD Plantation (RM 2.55 million),
 - Target 1 - Awareness, Target 2 - Stakeholders, Target 7 - Ecosystems, 8 – Ecological corridors, 9 – Species and 10 - Poaching; and
 - Biodiversity knowledge, Ecosystem management, Targeted species conservation.

NGO sector – expenditure of the medium-sized local office of a global organisation:

- Wetlands International (RM 4.56 million);

- Targets 1 - Awareness, 2 - Stakeholders, 3 - Mainstreaming, 4 - Sustainable use, 5 - Tourism, 6 - Protected areas, 7 - Ecosystems, 9 - Species, 16 – Science; and
- All BIOFIN Categories except ABS, Biosafety and Pollution control.

Source of funds:

- Grants Programme expenditures – SGP (RM 48.92 million) that supports local NGOs and communities:
 - Targets 4 – Sustainable use, 7 - Ecosystems, 15 - CBD and 16 - Science; and
 - Mainly ecosystem management but also climate change mitigation and adaptation (not prominently featured in the BER chapter).
- Sime Darby Foundation – can help shed light onto how foundations spend money from their donors:
 - Mainly Target 7 - Ecosystems, Target 9 – Species and Target 16 – Science; and

Mainly Biodiversity knowledge, Conservation areas and Targeted species conservation.

Table i: BER by NPBD Targets (2006-2016, RM million, n=11)

NPBD Targets	KPKT	MOF	MOTAC	Maybank	Petronas	SIME DARBY FOUNDATION	SIME DARBY PLANTATION	TNB	SGP	Wetlands International	Grand Total	BER (19 orgs)
Target 1 - Biodiversity Awareness						2.03	2.20			0.15	4.38	395.19
Target 2 - Stakeholders Empowerment							0.01			0.43	0.45	101.20
Target 3 - Mainstreaming Biodiversity	475.30	37.60								0.41	513.32	432.50
Target 4 - Sustainable use						0.18			1.51	0.05	1.74	1,233.90
Target 5 - Sustainable Tourism			101.64			0.14				0.63	102.41	181.45
Target 6 - Protected areas										0.67	0.67	334.94
Target 7 - Vulnerable Ecosystems						19.35	0.04		39.59	1.49	60.47	2,463.72
Target 8 - Ecological connectivity					90.90	2.01	0.05	0.69			93.64	63.74
Target 9 - Endangered Species Conservation				1.91		25.11	0.04			0.07	27.13	436.99
Target 10 - Enforcement and Illegal Wildlife Trade				1.20		0.10	0.20				1.51	112.30
Target 11 - Invasive Alien Species											0.00	33.87
Target 12 - Biosafety											0.00	29.08
Target 13 - Agricultural Genetic diversity						11.36					11.36	525.12
Target 14 - Access and Benefit Sharing											0.00	-
Target 15 - Capacity on MEAs									1.73		1.73	397.59
Target 16 - Science Basis						43.73			5.80	0.58	50.11	521.22
Target 17 - Resource Mobilization											0.00	15.96
Misc. supporting expenses									0.30	0.09	0.39	642.12
N/A											-	47.39
Total	475.30	37.60	101.64	3.12	90.90	104.02	2.55	0.69	48.92	4.56	869.30	7,968.28

Table ii: BER by BIOFIN Categories (2006-2016, RM million, n=11)

BIOFIN Categories	KPKT	MOF	MOTAC	Maybank	Petronas	SIME DARBY FOUND- ATION	SIME DARBY PLANT- ATION	TNB	SGP	Wetlands Internat- ional	Grand Total	BER (19 orgs)
Access Benefit Sharing											-	0.14
Biodiversity Knowledge						40.77	0.01		0.02	0.84	41.63	1,658.22
Biodiversity planning, finance and management		37.60				5.00			1.71	0.31	44.62	380.12
Biosafety											-	64.26
Climate change mitigation and adaptation									5.80	0.81	6.60	65.16
Conservation areas				0.53	90.90	19.45		0.69		0.46	112.03	558.53
Ecosystem Management						2.01	0.09		39.59	1.00	42.68	1,783.55
Pollution control	475.30								0.60		475.91	642.12
Resilient Infrastructure										0.08	0.08	269.22
Sustainable Business			101.64	0.18		0.14				0.64	102.60	173.64
Sustainable use						0.18			0.91	0.28	1.37	137.60
Targeted species conservation				2.40	0.00	36.47	2.44			0.07	41.38	1,407.09
Miscellaneous supporting expenses									0.30	0.09	0.39	828.63
Total	475.30	37.60	101.64	3.12	90.90	104.02	2.55	0.69	48.92	4.56	869.30	7,968.28

Meanwhile, 6 organisations were not included in the FNA report analysis as they did not provide their BER data. They are:

Government organisations

- JBK (RM 2.87 million)– The sole government organisation created with biosafety as their primary mandate:
 - Target 12 – Biosafety; and
 - Biodiversity knowledge, Biodiversity planning, finance and management and Biosafety;
- DVS (RM 228.75 million) – Knowledge on genetic biodiversity and health for livestock and the animal industry:
 - Target 4 – Sustainable use, Target 13 – Genetic Diversity and Target 16 - Science; and
 - Biodiversity knowledge, Sustainable use and Targeted species conservation;
- JLN (RM 220.75 million) – Urban biodiversity falls under their jurisdiction:
 - Target 3 – Mainstreaming, Target 6 – Protected areas and Target 7 – Ecosystems; and
 - Mainly resilient infrastructure.
- PLANMalaysia (RM 18.39 million) – Determine the guidelines and regulations for Malaysia’s rural and urban planning:
 - Target 3 – mainstreaming; and
 - Biodiversity planning, finance and management/
- APMM - Malaysia’s Coast Guard – the sole government enforcement organisation that watches over our coastal routes; duties include curtailing of illegal smuggling and the enforcement of the Fisheries Act:
 - Target 2 – Stakeholders, Target 10 – Poaching, Target 15 – CBD and Target 16 – Science; and
 - Biodiversity knowledge and Biodiversity planning, finance and management (enforcement).

NGOs

- Harimau Selamanya, RIMBA (RM 1.18 million) – one project on the sustainable financing of a national park through collaborations with local communities, and the state and federal conservation agencies, from a small local NGO that primarily receives foreign funding:
 - Target 9 – Species; and
 - Biodiversity planning, finance and management, Conservation areas, Sustainable use and Targeted species conservation.

Another 42 organisations mentioned in the NPBD were also not included in the BIOFIN Malaysia exercise – 21 state governments and their agencies; 21 federal and other institutions including Higher Learning Institutions, indigenous & local communities.

Table iii: FNA by NPBD Targets (2018-2025, RM million, n=6)

NPBD Targets	JBK	DVS	JLN	PLANMALAYSIA	APMM	HARIMAU SELAMANYA, RIMBA	Total	FNA (19 orgs)
Target 1 - Biodiversity Awareness	-	-	-	-	-	-	-	365.10
Target 2 - Stakeholders Empowerment	-	-	-	-	0.20	-	0.20	30.49
Target 3 - Mainstreaming Biodiversity	-	-	1.37	18.39	-	-	19.77	1,282.35
Target 4 - Sustainable use	-	188.62	-	-	-	-	188.62	1,259.55
Target 5 - Sustainable Tourism	-	-	-	-	-	-	-	345.12
Target 6 - Protected areas	-	-	208.33	-	-	-	208.33	3,868.15
Target 7 - Vulnerable Ecosystems	-	-	11.04	-	-	-	11.04	4,731.70
Target 8 - Ecological connectivity	-	-	-	-	-	-	-	271.00
Target 9 - Endangered Species Conservation	-	-	-	-	-	1.18	1.18	1,474.32
Target 10 - Enforcement and Illegal Wildlife Trade	-	-	-	-	1,167.67	-	1,167.67	1,861.54
Target 11 - Invasive Alien Species	-	-	-	-	-	-	-	12.35
Target 12 - Biosafety	2.87	-	-	-	-	-	2.87	3.50
Target 13 - Agricultural Genetic diversity	-	38.75	-	-	-	-	38.75	90.06
Target 14 - Access and Benefit Sharing	-	-	-	-	-	-	-	17.58
Target 15 - Capacity on MEAs	-	-	-	-	41.41	-	41.41	947.56
Target 16 - Science Basis	-	1.39	-	-	22.93	-	24.31	712.67
Target 17 - Resource Mobilization	-	-	-	-	-	-	-	27.61
Total	2.87	228.75	220.75	18.39	1,232.22	1.18	1,704.16	17,300.67

Table iv: FNA by BIOFIN Categories (2018-2025, RM million, n=6)

BIOFIN Categories	JBK	DVS	JLN	PLAN-MALAYSIA	APMM	HARIMAU SELAMANYA, RIMBA	Total	FNA (19 orgs)
Access and Benefit sharing (ABS)	-	-	-	-	-	-	-	16.88
Biodiversity Knowledge	1.08	196.34	-	-	39.18	-	236.60	2,973.18
Biodiversity planning, finance and management	1.20	-	1.37	18.39	1,193.04	0.96	1,214.96	2,559.19
Biosafety	0.60	-	-	-	-	-	0.60	4.68
Climate change mitigation and adaptation	-	-	-	-	-	-	-	54.12
Conservation areas	-	-	6.00	-	-	0.05	6.05	467.76
Ecosystem management and restoration	-	-	-	-	-	-	-	4,012.04
Pollution control	-	-	-	-	-	-	-	330.01
Resilient Infrastructure	-	-	208.33	-	-	-	208.33	1,178.67
Sustainable Business	-	-	-	-	-	-	-	332.72
Sustainable Use	-	7.30	-	-	-	0.09	7.39	4,315.46
Targeted species and genetic conservation	-	25.11	5.04	-	-	0.08	30.23	1,055.95
Total	2.87	228.75	220.75	18.39	1,232.22	1.18	1,704.16	17,300.67

APPENDIX III: NPBD targets, policy actions and implementing agencies

Target 1: By 2025 more Malaysians are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Lead Agency	Key Partners	Related Actions
1.1 Create awareness across all segments of society	Ministry of Natural Resources & Environment	Department of Environment, Natural Resources & Environment Board Sarawak, Environmental Protection Department Sabah, civil society, private sector	1.2, 1.3
1.2 Nurture participation amongst children and youth		Ministry of Education, Forestry Department Peninsular Malaysia, Department of Wildlife and National Parks Peninsular Malaysia, Department of Marine Park Malaysia, Department of Environment, Ministry of Resource Planning and Environment Sarawak, Natural Resources & Environment Board Sarawak, Forest Department Sarawak, Sabah Forestry Department, Environmental Protection Department Sabah, Sarawak Biodiversity Centre, Sabah Biodiversity Centre, civil society	1.1
1.3 Engage with the legislature and judiciary		Attorney General's Chambers, Sabah AG Chambers, Sarawak AG Chambers	1.1, 15.4
Target 2: By 2025, the contributions of indigenous peoples and local communities, civil society and the private sector to the conservation and sustainable utilisation of biodiversity have increased significantly.	Lead Agency	Key Partners	Related Actions
2.1 Recognise, support and empower indigenous peoples and local communities	Ministry of Natural Resources & Environment	Ministry of Urban Well-being, Housing & Local Government, Ministry of Rural and Regional Development, Department of Orang Asli Development, Sabah Biodiversity Centre, Sarawak Biodiversity Centre, civil society	1.1, 2.4, 6.3
2.2 Recognise, support and empower civil society		National Biodiversity Centre, civil society	1.1, 2.4, 15.2
2.3 Develop sustained collaborations with the private sector		National Biodiversity Centre, private sector	2.4, 3.4, 15.2
2.4 Enhance stakeholder participation in decision making processes		National Biodiversity Centre, civil society, private sector, higher education institution	2.1, 2.2, 2.3, 15.2
Target 3: By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans.	Lead Agency	Key Partners	Related Actions
3.1 Embed biodiversity conservation into national and state development planning and sectoral policies and plans	Ministry of Natural Resources & Environment	State Economic Planning Units, Ministry of Plantation Industries & Commodities, Ministry of Energy, Green Technology & Water, Ministry of Agriculture and Agro-based Industries, Ministry of Tourism, Ministry of Works Malaysia, Economic Planning Unit, Department of Minerals & Geoscience, Department of Environment, State Economic Planning Units, civil society	3.2, 4.1, 4.2, 4.3
3.2 Recognise the economic value of biodiversity and ecosystem services		Economic Planning Unit, Forestry Department Peninsular Malaysia, Department of Marine Park Malaysia, State Economic Planning Units, Forest Department Sarawak, Sabah Forestry Department, Sabah Parks, Sarawak Biodiversity Centre, Sabah Biodiversity Centre	4.4
3.3 Protect environmentally sensitive areas in statutory land use plans	Ministry of Urban Well-being, Housing & Local Government	Ministry of Resource Planning & Environment Sarawak, Town & Country Planning Department Pen Malaysia, Town & Regional Planning Department, Sabah	6.1, 6.2, 6.5
3.4 Promote sustainable consumption and production	Economic Planning Unit	Ministry of Natural Resources & Environment, Ministry of Finance, Ministry of Energy, Green Technology & Water, civil society, private sector	4.1, 4.2, 4.3

Target 4: By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably.	Lead Agency	Key Partners	Related Actions
4.1 Strengthen sustainable forest management	Ministry of Natural Resources & Environment	Ministry of Plantation Industries & Commodities, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Forest Department Sarawak, Forest Research Institute Malaysia	3.2, 7.2
4.2 Strengthen agricultural planning and improve practices	Ministry of Agriculture and Agro-based Industries	Ministry of Plantation Industries & Commodities, Department of Agriculture, Malaysian Palm Oil Board, Malaysian Palm Oil Certification Council, civil society, private sector	3.2, 7.2
4.3 Implement the Ecosystem Approach to Fisheries Management		Department of Fisheries, private sector	3.2, 10.1
4.4 Rationalise incentives that are harmful to biodiversity	Ministry of Agriculture and Agro-based Industries, Ministry of Plantation Industries & Commodities,	Ministry of Natural Resources & Environment, Ministry of Finance, Economic Planning Unit, Department of Fisheries	3.2
Target 5: By 2025, tourism is sustainably managed and promotes biodiversity conservation.	Lead Agency	Key Partners	Related Actions
5.1 Identify and mitigate impacts of tourism on biodiversity	Ministry of Tourism & Culture	Ministry of Natural Resources & Environment, private sector	3.2
5.2 Promote green guide certification		Ministry of Natural Resources & Environment, private sector	5.1
5.3 Engage indigenous peoples and local communities in nature tourism and promote volunteerism		Forestry Department Peninsular Malaysia, Department of Marine Park Malaysia, Sabah Forestry Department, Forest Department Sarawak, Department of Wildlife & National Parks, Sabah Parks, civil society, private sector	2.1, 2.2
Target 6: By 2025, at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas, are conserved through a representative system of protected areas and other effective area-based conservation measures.	Lead Agency	Key Partners	Related Actions
6.1 Expand the extent and representativeness of our terrestrial PA network	Ministry of Natural Resources & Environment	State Economic Planning Units, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Sabah Parks, Forest Department Sarawak	3.3, 6.5, 8.1, 8.2
6.2 Expand the extent and representativeness of our marine PA network		Department of Marine Parks, Department of Fisheries, Sabah Parks, Forest Department Sarawak	3.3, 8.3
6.3 Develop community conserved areas as an integral part of our PA network		Forestry Department Peninsular Malaysia, Sabah Forestry Department, Sabah Parks, Forest Department Sarawak, Department of Fisheries, civil society, Indigenous & Local Communities	2.1
6.4 Improve the effectiveness of PA management		Forestry Department Peninsular Malaysia, Department of Wildlife & National Parks, Sabah Forestry Department, Sabah Parks, Sabah Wildlife Department, Forest Department Sarawak, Johor National Parks Corporation, Perak State Parks Corporation	6.1, 6.2
6.5 Protect and maintain biodiversity in urban areas	Ministry of Urban Well-being, Housing & Local Government	Ministry of Natural Resources & Environment, National Biodiversity Centre, Ministry of Resource Planning and Environment Sarawak, Forest Department Sarawak, Town and Country Planning Department Pen. Malaysia, Sabah Town and Regional Planning Department, Land and Survey Department, Sarawak, Town & Country Planning Department Pen Malaysia, civil society	3.3

Target 7: By 2025, vulnerable ecosystems and habitats, particularly limestone hills, wetlands, coral reefs and seagrass beds, are adequately protected and restored.	Lead Agency	Key Partners	Related Actions
7.1 Identify, map and protect all vulnerable ecosystems	Ministry of Natural Resources & Environment	Forestry Department Peninsular Malaysia, Department of Wildlife and National Parks Peninsular Malaysia, Department of Marine Park Malaysia, State Economic Planning Units, Sabah Forestry Department, Forest Department Sarawak, Sabah Wildlife Department, Research Institutions	6.1, 6.2
7.2 Improve management and rehabilitation of vulnerable ecosystems		State Economic Planning Units, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Forest Department Sarawak, Department of Marine Parks, Research Institutions	6.1, 6.2, 6.3
7.3 Support the implementation of the National Action Plan on Peatlands		National Biodiversity Centre, State Economic Planning Units, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Forest Department Sarawak, Department of Irrigation & Drainage, Department of Environment, Department of Agriculture, Chief Minister's Department Sarawak, civil society	7.1, 7.2
Target 8: By 2025, important terrestrial and marine ecological corridors have been identified, restored and protected.	Lead Agency	Key Partners	Related Actions
8.1 Strengthen the implementation of the CFS Masterplan for Peninsular Malaysia	Ministry of Natural Resources & Environment	State Economic Planning Units, Forestry Department Peninsular Malaysia, Department of Town and Country Planning Peninsular Malaysia, Department of Wildlife & National Parks Peninsular Malaysia, Forest Research Institute Malaysia, civil society	6.1, 6.3
8.2 Strengthen the implementation of terrestrial connectivity under the HoB initiative		State Economic Planning Units, Sabah Forestry Department, Forest Department Sarawak, civil society	6.1, 6.3
8.3 Identify, map and protect marine ecological corridors		State Economic Planning Units, Department of Marine Parks, Department of Fisheries, Sabah Parks, Sabah Town & Regional Planning Department, Forest Department Sarawak	6.2, 6.3
Target 9: By 2025, the extinction of known threatened species has been prevented and their conservation status has been improved and sustained.	Lead Agency	Key Partners	Related Actions
9.1 Conduct conservation assessments for plants and animal species	Ministry of Natural Resources & Environment	National Biodiversity Centre, Forest Research Institute Malaysia, Department of Wildlife & National Parks, Department of Fisheries, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Forest Department Sarawak, Sabah Wildlife Department	7.1, 9.1, 15.4
9.2 Protect our most threatened species		Department of Wildlife & National Parks, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Forest Department Sarawak, Sabah Parks, Sabah Wildlife Department, Department of Fisheries, Forest Research Institute Malaysia, civil society	6.1, 6.2, 7.1, 7.2
9.3 Develop a national strategy for ex-situ conservation		Ministry of Agriculture and Agro-based Industries, National Biodiversity Centre, Department of Wildlife & National Parks, Sabah Wildlife Department, Forest Department Sarawak, Research Institutions	9.1

Target 10: By 2025, poaching, illegal harvesting and illegal trade of wildlife, fish and plants are under control and significantly reduced.	Lead Agency	Key Partners	Related Actions
10.1 Strengthen enforcement to eradicate poaching, illegal logging and illegal trade in wild animals, fish and plants	Ministry of Natural Resources & Environment	Malaysia Maritime Enforcement Agency, Customs Department, Royal Malaysian Police, Department of Fisheries, Department of Wildlife & National Parks, Forestry Department Peninsular Malaysia, Sabah Forestry Department, Sabah Wildlife Department, Forest Department Sarawak	15.1, 15.4
10.2 Reduce demand through public awareness and behavioural change		National Biodiversity Centre, Forestry Department Peninsular Malaysia, Department of Wildlife and National Parks Peninsular Malaysia, Department of Marine Park Malaysia, Forest Department Sarawak, Sabah Forestry Department, Sabah Parks, civil society, private sector	1.1
Target 11: By 2025, invasive alien species and pathways are identified, priority species controlled and measures are in place to prevent their introduction and establishment.	Lead Agency	Key Partners	Related Actions
11.1 Improve our understanding and public awareness about IAS	Ministry of Agriculture and Agro-based Industries	Ministry of Natural Resources & Environment, Ministry of Plantation Industries & Commodities, Department of Agriculture, state agriculture and fisheries departments, Research Institutions, civil society	1.1, 16.1
11.2 Conduct risk assessment on all introduced exotic species before their release		Ministry of Natural Resources & Environment, Ministry of Plantation Industries & Commodities, Department of Agriculture, state agriculture and fisheries departments	12.1, 12.2
11.3 Strengthen quarantine inspection and enforcement at entry points and international borders		Ministry of Natural Resources & Environment, Ministry of Plantation Industries & Commodities, Customs Department, Marine Department Malaysia, Port Authorities	10.1
Target 12: By 2025, By 2025, a comprehensive biosafety system inclusive of a liability and redress regime is operational to manage potential adverse impacts of modern biotechnology on biodiversity and human health.	Lead Agency	Key Partners	Related Actions
12.1 Enhance inspection and biosafety compliance	Ministry of Natural Resources & Environment	Ministry of Agriculture and Agro-based Industries, Department of Biosafety, Research Institutions	11.2, 11.3
12.2 Assess impacts of LMOs on biodiversity and human health		Ministry of Agriculture and Agro-based Industries, Department of Biosafety, Research institutions, civil society	11.2
12.3 Develop response to biosafety emergencies		Ministry of Agriculture and Agro-based Industries, Department of Biosafety	15.1, 15.4
Target 13: By 2025, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives is adequately conserved.	Lead Agency	Key Partners	Related Actions
13.1 Support the implementation of the National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilisation	Ministry of Agriculture and Agro-based Industries	Ministry of Natural Resources & Environment, Department of Agriculture, MARDI, Research institutions, private sector	9.3, 11.1, 11.2, 11.3, 12.1, 12.2, 12.3

Target 14: By 2025, Malaysia has an operational ABS framework that is consistent with the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation	Lead Agency	Key Partners	Related Actions
14.1 Develop and enforce legislation on ABS	Ministry of Natural Resources & Environment	Attorney General's Chambers, Sabah Biodiversity Centre, Sarawak Biodiversity Centre, civil society	15.4
14.2 Enhance capacity and awareness on ABS		National Biodiversity Centre, Sabah Biodiversity Centre, Sarawak Biodiversity Centre, civil society	1.1, 15.1
14.3 Protect and document the traditional knowledge, innovations and practices of indigenous peoples and local communities		Sarawak Biodiversity Centre, Sabah Biodiversity Centre, Forest Research Institute Malaysia, Department of Orang Asli Development, civil society	2.1, 16.1
Target 15: By 2025, capacity for the implementation of the national and subnational biodiversity strategies, the CBD and other related MEAs has significantly increased.	Lead Agency	Key Partners	Related Actions
15.1 Strengthen the capacity of government agencies to manage biodiversity	Ministry of Natural Resources & Environment	Public Services Department, National Biodiversity Centre, Ministry of Plantation Industries & Commodities, Ministry of Energy, Green Technology & Water, Ministry of Agriculture and Agro-based Industries, Ministry of Tourism and Culture	3.1, 4.1, 6.4, 10.1, 11.3, 12.1
15.2 Strengthen coordination and decision making at the national level		State Economic Planning Units, civil society	2.4, 15.1
15.3 Establish a framework and mechanisms for implementing the national policy at the state level.		State Economic Planning Units	3.1, 15.1
15.4 Strengthen the legislative framework to support the Policy implementation		Attorney General Chambers	3.1, 4.3, 6.3, 9.3, 10.1, 12.1
15.5 Strengthen international and transboundary cooperation		Ministry of Foreign Affairs, Natural Resource Office, Sabah, Ministry of Resource Planning and Environment, Sarawak, Department of National Heritage, civil society	6.1, 6.2, 8.1, 8.2, 8.3

Target 16: By 2025, knowledge and the science base relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are significantly improved and applied.	Lead Agency	Key Partners	Related Actions
16.1 Enhance the quality and quantity of research on Malaysia's biodiversity	Ministry of Natural Resources & Environment	Ministry of Higher Education, National Biodiversity Centre, Ministry of Science, Technology and Innovation, Sarawak Biodiversity Centre, Sabah Biodiversity Centre Forest Research Institute Malaysia, Department of Wildlife & National Parks, Forestry Department Peninsular Malaysia, Sabah Wildlife Department, Forest Department Sarawak, Department of Fisheries, Research Institutions	7.1, 9.1, 11.1, 12.2, 16.2, 16.3
16.2 Establish comprehensive databases and monitoring programmes			4.3, 9.1
16.3 Improve our knowledge on the link between climate change and biodiversity			7.1, 7.2
16.4 Improve the interface and communication between science and policy			1.1, 15.2
Target 17: By 2025, there is a significant increase in funds and resources mobilised for the conservation of biodiversity from both government and non-government sources.	Lead Agency	Key Partners	Related Actions
17.1 Improve the utilisation of the existing funding mechanisms	Ministry of Natural Resources & Environment	Economic Planning Unit, Ministry of Finance, State Planning Unit, State Treasuries, civil society, private sector	All
17.2 Scale up the National Conservation Trust Fund for Natural Resources			All
17.3 Explore and implement new and innovative financing mechanisms			All
17.4 Diversify state governments' revenue streams	Ministry of Finance	Ministry of Natural Resources & Environment, Economic Planning Unit, State Economic Planning Units	All

Note: The list of key partners mentioned in Table 3-1, is non exhaustive.

APPENDIX IV: BIOFIN Categories

Tagging - BIOFIN Categories

Biodiversity Knowledge

- Biodiversity Education
- Biodiversity Communication
- Indigenous and local community knowledge
- Biodiversity knowledge improved, shared and applied
- Managerial and technical capacity increased
- Evaluation, accounting and monitoring methods

Resilient Infrastructure

- Sustainable energy infrastructure
- Sustainable roads
- Public sustainable recreational areas
- Sustainable water systems
- Sustainable transportation
- Sustainable urban areas

Sustainable Business

- Sustainable Consumption
- Corporate Sustainability (CSR)
- Nature based tourism
- Green Supply Chain
- Responsible Extractive Industries

Sustainable Use

- Sustainable Land Management
- Sustainable marine and coastal management
- Sustainable Fisheries
- Sustainable Agriculture
- Sustainable Aquaculture
- Sustainable Forestry
- Sustainable Rangelands
- Sustainable Wildlife
- Watershed Management

Targeted species and genetic conservation

- Ex-situ conservation of endangered species
- In-situ conservation of endangered species outside PAs
- Species extinction threat reduction
- Agro-biodiversity maintained

Climate Change Mitigation and Adaptation

- GHG mitigation
- Sustainable energy
- Ecosystem Based Adaptation

Biosafety

- Invasive Alien Species
- LMOs & GMOs

Pollution control

- Protection of ambient air and climate
- Wastewater management
- Waste management
- Protection and remediation of soil, groundwater and surface water
- Other pollution reduction

Ecosystem management and restoration

- Reduce or stop loss of valuable habitats
- Improve ecosystem connectivity
- Conservation of valuable ecosystem services
- Restoration of ecosystems

Access and Benefit Sharing (ABS)

- Nagoya Protocol
- Bioprospecting

Conservation Areas

- Expand PA Systems
- Improve PA Management
- Expand landscape conservation
- Improve landscape conservation management

Biodiversity Planning, Finance and Management

- Strategic planning
- Biodiversity policy and management
- Environmental finance planning
- Environmental finance policy and management
- International environmental agreements and conventions
- Environmental laws and regulations
- Environmental law enforcement

APPENDIX V: BER Guidebook

Please see attached [BER Guidebook](#).

APPENDIX VI: FNA Guidebook

Please see attached [FNA Guidebook](#).

Appendix VII: Data status

No.	Organisation	Data status		
		BER - DE	BER - OE	FNA
1	NRE	EPU Database + JANM Data	JANM Data	DE mixture of rolling plans and planning according to NPBD,
2	PERHILITAN	Data from Participant + JANM Data	Data from Participant + JANM Data	Data complete
3	JTLM	Data from Participant + JANM Data	Data from Participant + JANM Data	Data complete
4	FRIM	Data from Participant + EPU Database	Agency Annual Report	Data mixture of rolling plans and planning according to NPBD
5	JPSM	EPU Database + JANM Data	Agency Annual Report	DE complete, OE no emoluments
6	DOE	EPU Database + JANM Data	JANM Data	Data complete
7	JMG	EPU Database + JANM Data	JANM Data	Data complete
8	JPS	EPU Database + JANM Data	JANM Data	Data complete
9	NAHRIM	EPU Database + JANM Data	JANM Data	DE complete, OE no emoluments
10	MOA	Data from Participant + JANM Data	Data from Participant + JANM Data	DE 2 projects only, OE no emoluments
11	DOA	Data from Participant + JANM Data	Data from Participant + JANM Data	DE complete, OE no emoluments
12	DOF	Data from Participant + JANM Data	Data from Participant + JANM Data	Data complete
13	MARDI	Data from Participant + JANM Data	Data from Participant + JANM Data	DE complete, OE no emoluments
14	MPIC	Data from Participant + JANM Data	Data from Participant + JANM Data	DE mixture of rolling plans and planning according to NPBD, OE no emoluments

No.	Organisation	Data status		
		BER - DE	BER - OE	FNA
15	MPOB	Data from Participant + JANM Data	Data from Participant + JANM Data	DE and OE one project only
16	MEME	Data from Participant	Data from Participant	Data complete
17	MNS	Data from Participant	Data from Participant	Data complete
18	WWF	Data from Participant	Data from Participant	Data complete
19	SD PROPERTY	Data from participant – DE one project only	No data	DE one project only, OE no emoluments
20	JBK	Data from participant – Incomplete + JANM Data	JANM Data	DE based on existing capacity, OE no emoluments
21	JLN	JANM Data	JANM Data	DE based on rolling plans, no OE
22	PLANMalaysia	JANM Data	JANM Data	DE one project only, no OE
23	APMM	JANM Data	JANM Data	DE complete, no emoluments
24	DVS	JANM Data	JANM Data	Data complete
25	RIMBA	No data	No data	Data complete – 1 project only
26	MOF	Data from Participant	No relevant OE data	No data
27	MOTAC	Data from Participant - Incomplete	JANM Data	No data
28	KPKT	Data from Participant	JANM Data	No data
29	Wetlands International	Data from Participant	Data from Participant	No data
30	UNDP	Data from Participant	Data from Participant	No data
31	SGP	Data from Participant	Data from Participant	No data
32	SD Plantation	Data from Participant	Data from Participant	No data
33	SD Foundation	Data from Participant	Data from Participant	DE only – as source of funding
34	Petronas	KLSE	KLSE	No data

No.	Organisation	Data status		
		BER - DE	BER - OE	FNA
35	TNB	KLSE	KLSE	No data
36	Maybank	KLSE	KLSE	No data

Appendix VIII: List of Federal NPBD organisations tagged with biodiversity involvement level

NPBD list of organisations

Agency	Involvement level tag
Attorney General's Chambers	5%
Department of Agriculture	50%
Department of Biosafety	100%
Department of Environment	50%
Department of Fisheries	50%
Department of Irrigation & Drainage	50%
Department of Marine Park Malaysia	100%
Department of Minerals & Geoscience	20%
Department of National Heritage	20%
Department of Orang Asli Development	20%
PLAN Malaysia (former JPBD)	20%
Department of Wildlife and National Parks Peninsular Malaysia	100%
Economic Planning Unit	5%
Forest Research Institute Malaysia	80%
Forestry Department Peninsular Malaysia	80%
Malaysia Maritime Enforcement Agency (MMEA/ APMMA)	70%
Malaysian Palm Oil Board (MPOB)	20%
Malaysian Palm Oil Certification Council (MPOCC)	80%
Malaysian Agricultural Research and Development Institute (MARDI)	50%
Marine Department	20%
Ministry of Agriculture and Agro-based Industries	50%
Ministry of Education	5%
Ministry of Energy, Green Technology & Water	5%
Ministry of Finance	5%
Ministry of Foreign Affairs	5%
Ministry of Plantation Industries & Commodities	5%
Ministry of Rural and Regional Development	5%
Ministry of Science Technology and Innovation	5%
Ministry of Tourism and Culture	5%
Ministry of Urban Well-being, Housing & Local Government	5%
Ministry of Works	5%
National Biodiversity Centre	100%
Port Authorities	5%
Public Services Department	5%
Royal Malaysia Customs Department	20%
Royal Malaysian Police	20%
National Landscape Department	50%
(not specified in NPBD but should be included)	

Note: The attributions for the organisations that participated in BIOFIN Malaysia have been confirmed by the participants

APPENDIX IX: Examples of organisation profiles used to help relate them to biodiversity

This appendix comprises a collection of 10 examples of organisation profiles that were prepared by the study team for internal reference in preparation of briefing meetings. The standard profile was modelled after PERHILITAN's example which was chosen because the study team was most familiar with the organisation due to their willingness to cooperate and share since BER stage. Examples for their profile were taken from their BER inputs. Profiles for the other organisations were subsequently developed as and when the study team secured top management briefing sessions. Examples were based on secondary data from EPU DE data (BER stage) but mostly from online searches on the organisation's mandate, functions, and activities available on their website. English was largely used although Bahasa Malaysia was mixed into the profiles to aid the team find the right words to use during the briefings. These profiles were shared with the organisations only after their FNA submission to prevent influencing their FNA inputs.

EXAMPLE 1:

Organisation: Department of Wildlife and National Parks (DWNP) / Jabatan Perlindungan Hidupan Liar dan Taman Negara (PERHILITAN)

Role in biodiversity:

- Reduce/ eliminate negative pressures on biodiversity
 - **Mitigate or eliminate threats of human activities on wildlife and their habitats – illegal poaching and trade, nature-based tourism, human-wildlife conflict, sustainable wildlife**
Guidelines, action plans, monitoring, enforcement, education, research and development – including of related experts, community engagement and collaboration with stakeholders
 - **Prevent extinction of threatened species**
In-situ and Ex-situ conservation, specific action plans, monitoring, enforcement, education, research and development – including of related experts, community engagement and collaboration with stakeholders
- Increasing positive biodiversity outcome
 - **Strengthen conservation of wildlife and management of their habitats**
Legal requirements, monitoring, enforcement, implementing and promotion of guidelines, research and development – including of related experts, Protected Areas management, community engagement
 - **Enhance knowledge, awareness and wider stakeholder participation towards wildlife conservation and sustainable wildlife**
Research, planning or implementation collaborations, education, promotion of conservation values, publications

Scale of operation: Species and PA level

Functions	BIOFIN categories	BIOFIN Sub-categories	NPBD targets	Policy actions	Examples relevant to PERHILITAN
Mitigate or eliminate threats of human activities on wildlife and their habitats – illegal poaching and trade, human-wildlife conflict, sustainable wildlife, nature-based tourism	Sustainable use	<i>Sustainable Wildlife</i>	Target 10	10.1	Reduce cases of illegal wildlife trade by 50% (<i>Pengurangan 50% kes perdagangan haram hidupan liar</i>) Reduce complaints of elephant-human conflict up to 85%
	Sustainable business	<i>Nature based tourism</i>	Target 5	5.1, 5.3	Increase entrepreneurial opportunities among local community through existing and new ecotourism activities
	Biodiversity Planning, Finance and Management	<i>Environmental law enforcement</i>	Target 10	10.1	100% of enforcement actions based on analysed information Enhancement and improvement of capacity and efficiency of forensic analysis: Human Resource
		<i>Environmental laws and regulations</i>	Target 10	10.1	Creation, review and updating of laws, regulations, guidelines?
Prevent extinction of threatened species	Targeted species and genetic conservation	<i>Ex-situ conservation of endangered species</i>	Target 9	9.1, 9.2, 9.3	Increase existing caged wildlife populations for purpose of release (<i>Meningkatkan populasi hidupan liar dalam kurungan/ padok sedia ada bagi tujuan pelepasan</i>)
		<i>In-situ conservation of endangered species outside PAs</i>	Target 9	9.1, 9.2	Update the population status of seladang and other species in wildlife hotspots outside protected areas (<i>Kemaskini maklumat status populasi seladang dan spesies lain di kawasan hotspot hidupan liar yang berada di luar kawasan perlindungan</i>)

		<i>Species extinction threat reduction</i>	Target 9	9.1, 9.2, 9.3	Achieve 100% implementation of National Tiger Conservation Action Plan (NTCAP)
	Ecosystem Management and Restoration	<i>Restoration of ecosystems</i>	Target 7, 8	7.1, 8.1	Assessment of needs and effectiveness of habitat enrichment in protected areas (<i>Satu kajian keperluan dan keberkesanan pengkayaan habitat di PA</i>)
	Biodiversity Knowledge	<i>Managerial and technical capacity increased</i>	Target 2 6 15	2.3 6.4 15.1	Develop at least 6 experts in the field of conserving Kambing Gurun
Strengthen conservation of wildlife and management of their habitats	Conservation areas	<i>Improve PA Management</i>	Target 3, 4, 6	3.1, 4.1, 6.4	Decrease encroachment in PA by 100% through 1MBEON and SMART Patrolling
	Biodiversity Knowledge	<i>Biodiversity Education</i>	Target 1, 10	1.1, 10.2	Undertake national level biodiversity appreciation programmes: 1. World Tapir Day 2. World Tiger Day 3. Ranger Day 4. World Elephant Day 5. World Wildlife Week
		<i>Biodiversity Communication</i>	Target 1, 10	1.1, 10.2	Sponsor engagement programmes (relating to illegal wildlife trade)
	Biodiversity Planning, Finance and Management	<i>Biodiversity policy and management</i>	Target 15	15.1, 15.2, 15.5	Attending international conventions or conferences such as CITES
Enhance knowledge, awareness and wider stakeholder participation towards wildlife conservation and sustainable wildlife		<i>Biodiversity knowledge improved, shared and applied</i>	Target 16	Target 16.1, 16.2, 16.4	To strengthen the Wildlife Genetic Resources Bank (WGRB) to be a national and regional reference centre.

EXAMPLE 2:

Organisation: Department of Environment (DOE) / Jabatan Alam Sekitar (JAS)

Role in biodiversity:

- Reduce/ eliminate negative pressures on biodiversity
 - **Reduce threats from pollution**
Guidelines, monitoring, enforcement, education, developing related experts, promote self-regulation
 - **Minimise environmental impacts from development projects**
Legal requirement, approval of projects, monitoring of EMS, enforcement, promotion of guidelines, developing related experts, preventive management of post-development ecosystems
 - **Mitigate and control environmental contingencies**
Response team, coordination functions, guidelines and SOPs, monitoring, enforcement, assessing damage
- Increasing positive biodiversity outcome
 - **Promoting environmental awareness and education**

Scale of operation: Ecosystem level

Functions	BIOFIN categories & sub-categories	NPBD targets	Policy actions	Examples relevant to JAS
<ul style="list-style-type: none"> • Reduce threats from pollution • Minimise environmental impacts from development projects • Mitigate and control environmental contingencies • Promoting environmental awareness and education 	<p>Pollution control <i>Protection of ambient air and climate</i> <i>Wastewater management</i> <i>Waste management</i> <i>Protection and remediation of soil, groundwater and surface water</i> <i>Other pollution reduction</i></p> <p>Biodiversity planning, finance and management <i>Environmental laws and regulations</i> <i>Environmental law enforcement</i></p> <p>Biodiversity knowledge <i>Biodiversity education</i> <i>Biodiversity communication</i> <i>Evaluation and monitoring methods</i> <i>Biodiversity knowledge improved, shared and applied</i> <i>Managerial and technical capacity increased</i></p> <p>Ecosystem management and restoration <i>Reduce or stop loss of valuable habitats</i></p>	<p>Target 3, 7 Target 3 Target 3 Target 3</p> <p>Target 3, 15</p> <p>Target 3 Target 3</p> <p>Target 1, 3 Target 2,3, 16</p> <p>Target 15</p> <p>Target 3, 16</p> <p>Target 15</p> <p>Target 7</p>	<p>3.1, 3.4, 7.3 3.1 3.1, 3.4 3.1</p> <p>3.1, 15.2, 15.5</p> <p>3.1 3.1</p> <p>1.1, 1.2, 3.4 2.2, 2.3, 3.4, 16.4 15.1</p> <p>3.1, 16.1</p> <p>15.1, 15.2</p> <p>7.1, 7.2</p>	<p>E.g. industrial emissions, haze from burning peat E.g. effluent and discharge E.g. leachate, solid waste, heavy metals E.g. soil contamination, water quality, pollution pathways E.g. marine oil spills guidelines, SOP and coordination efforts between response teams</p> <p>E.g. develop guidelines for effluent discharge E.g. enforcement of EQA, marine pollution, enforce EIA requirement and EMS</p> <p>E.g. environmental education curriculum E.g. promote guidelines and self-regulation, partnerships, communicating with decision makers E.g. methods and systems to detect pollution and source, environmental impacts, criteria setting E.g. Ecological knowledge that guides guideline development and approval decisions, assessing damage of environmental contingencies E.g. developing experts in water modelling, pollution pathways, negotiators for water issues, capacity building, application of latest technology</p> <p>E.g. consideration of cumulative impacts in EIA, management of post-development ecosystems</p>

EXAMPLE 3:

Organisation: Malaysian Maritime Enforcement Agency (MMEA)/ Agensi Penguatkuasaan Maritim Malaysia (APMM)

Role in biodiversity:

- Reduce/ eliminate negative pressures on biodiversity
 - **Reduce threats from illegal poaching, harvesting and sale of biodiversity**
Monitoring, surveillance and intelligence gathering, enforcement, human capital development, developing related experts, communication strategy to prevent offences in the maritime zone, assist in any criminal matters on request by a foreign country, public awareness and education, increasing awareness of environmental crimes among own personnel, facilitate cooperation between internal maritime communities, collaboration with other agencies, database sharing, research facilities and equipment sharing
 - **Reduce threats of pollution**
Monitoring and surveillance, enforcement, human capital development, collaboration with other agencies, database sharing, research facilities and equipment sharing

Scale of operation: Species, Habitat and Ecosystem level

Functions	BIOFIN categories & sub-categories	NPBD targets	Policy actions	Examples relevant to APMM
<ul style="list-style-type: none"> • Reduce threats from illegal poaching, harvesting and sale of biodiversity • Reduce threats of pollution 	Biodiversity Planning, Finance and Management <i>Environmental law enforcement</i>	Target 10, 15	10.1, 15.1	E.g. Monitoring, surveillance and intelligence gathering, mapping of illegal trade routes of threatened species, mapping biodiversity hotspot areas, identifying hotspots with previous offences, Joint patrols with other agencies, collaborations with private sector and civil society, training and awareness raising among own personnel
	<i>Environmental laws and regulations</i>	Target 15	15.4	E.g. Proposing enhancements to legislative framework that will better support enforcement of biodiversity-related laws in the maritime zone
	<i>Biodiversity policy and management</i>	Target 15	15.1, 15.2	E.g. Providing feedback on policies and management practices in maritime zones that would ease or complicate enforcement activities
	Biodiversity knowledge <i>Managerial and technical capacity increased</i>	Target 10	10.2	E.g. Enhancing citizen reporting channels and mechanisms, training community partners to identify and respond properly to offences observed, education communities about the laws and regulations
	<i>Biodiversity communication</i>	Target 15	15.1	E.g. Raising the profile of environmental crimes among personnel, national priorities, judiciary, public
	Sustainable use <i>Sustainable Fisheries</i>	Target 4	4.3	E.g. Enforcing laws relating to fishing permits, gears and zones
	Biosafety <i>Invasive Alien Species</i>	Target 11	11.3	E.g. Strengthening the quarantine inspections of invasive alien species at international borders, detaining illegal imports of IAS
	Pollution control Other pollution reduction	Target 3	3.1	E.g. Curb illegal dumping of pollutants that harm marine biodiversity

APMM being an enforcement agency would possibly have an expenditure that is reactive to the amount of enforcement needs there are. For example, if there are more illegal fishing vessels entering Malaysian waters, then more patrols would be needed and more intelligence gathered and more raids, processing and legal follow up actions needed. Even for the activities they do in terms of fire-fighting forest fires, is dependent on the occurrence of such serious conditions that would warrant their participation. This is not planned. In this sense, it is perhaps difficult for them to budget forward how much they will need to enforce these laws.

What could be budgeted would be the number of standard patrols they do. **The patrols they could possibly budget for will be the patrols they have for specific sites where natural resources are at stake**, such as the mangrove forest or around islands where there are forest reserves or marine parks or designated fishing zones. They would therefore need to know how many of these areas and how wide they need to protect across Malaysia's maritime zone, how many patrols they will do and therefore require how many personnel, fuel and equipment to successfully patrol these areas. Joint patrols with other agencies could also be budgeted.

Yet on the other hand, it is useful for them to budget for the **actions they need to take in order to curb such illegal activities relating to biodiversity in the maritime zone**. This may include strategies to promote citizen reporting, intelligence gathering, mapping of illegal trade routes and important natural resources and biodiversity hotspots, coordinating information exchange and joint action with other agencies like JPSM, JTLN, DWNP, DOF, LKIM, JAS etc, improving prosecution of cases, (these would fall under Target 10, 10.1) increasing awareness of wildlife crime and illegal harvesting among their own officers and how to recognise these offences (this would fall under Target 15, 15.1). Should they also have communication strategies to improve awareness and reporting by citizens and private sector? If yes, that would come under Target 2.

If they haven't really explored their role in dealing with environmental crimes, then the BER is a useful exercise to first know what they have actually done so far and how much they have already spent. They can then identify whether there is anything further that they as the maritime enforcement agency can do to achieve Target 10 of the NPBD policy.

If however, they have already thought about these matters and have a strategy on how to deal with this category of crimes, then diving straight into the FNA would be possible.

Gauging this difference in awareness level is important when approaching the officers.

In any case, having their BER data would be just as important as the FNA because we need to understand how much of their expenditures would go to activities that they cannot simply plan for but respond to. That component would need to be accounted for when we assess their FNA because they may need to set aside a contingency amount to just do the reactive work.

APPENDIX X: Malaysia's Budgetary Process

Over the years, Malaysia has made significant changes in the national budgeting systems. Since 1969, the Programme and Performance Budgeting System (PPBS), which stressed output-oriented budgeting has used. Allocations were given on the basis of programmes and activities designed to meet the national development objectives. At the same time, the performance of departments were tracked based on pre-determined performance indicators relating to their objectives, and their alignment to the national development plans.

To improve efficiency in the operating agencies and to provide flexibility to the management of financial resources, the Treasury introduced modifications to the PPBS system in 1990. The Modified Budgeting System (MBS), which in effect is the final phase of PPBS, essentially advocates a decentralisation of authority, giving controlling officers (agency heads) greater autonomy in financial management.

Budget Planning

The Malaysia Plans are the blueprints for development covering all aspects of the national economy. Successive 5-Year Malaysia Plans formulate national development goals and the strategic means for achieving them.

The Malaysia Plans set out the national policy directions and development priorities for five years. Planning and budgeting go hand in hand. Planning is both top-down and bottom-up. The EPU defines the national development objectives and direction for five years (top-down), and each Ministry then aligns their policies and programmes to the national policies. The Ministry then communicates their policies to the departments and agencies within their portfolio. The agencies will design programmes and plans to achieve the sectoral policies, and estimate the budgets for implementing them (bottom-up). All the departmental programs and plans are aggregated at the Ministry level. They are submitted to the EPU where the budget sessions will scrutinise and examine them in detail. The programmes are then consolidated into sectoral or thematic areas. The allocation is finalised subject to the Budget ceiling for the Malaysia Plan.

Role of the Budget Management Division

The primary role of the Budget Management Division is to analyse and examine all financial proposals of government agencies to ensure that they are in accordance with prescribed national objectives and that the resources are applied in an economical, efficient and effective manner to achieve sustainable economic growth.

The organisational structure of the Division follows the sectoral classification of the budget e.g. general administration sector, security sector, natural resources sector, etc. The Director of the Budget is supported by Senior Assistant Directors in charge of each sector with four or five Budget Review Officers (BRO's) assisting each of them. The number of departments governed under each BRO is dependent on the size of sector in-charge.

Budget steps

The budget year is from 1st January to 31st December. In January, the Ministry of Finance issues guidelines for preparing the budget estimates. The circular includes the expenditure budget policy, the formats to be used and the timetable for submission of budget proposals. After taking into account various factors such as the charged expenditure and personal emoluments, the treasurer calculates the total commitment for the year. Once the 'the locked-in' expenditure and the projected revenue for the year is known, the Treasury decides on the ceiling for operating expenditures. Figure 3.1 shows the budget process in Malaysia.

By the end of March budget estimates are submitted by the Agencies and the Budget Management Division inspects the proposals. The budget review officers (BROs) conduct a hearing session with each agency. A primary hearing followed by a detailed hearing is carried out to examine the justifications for the proposals and the implications. The BROs are assisted by the representatives of two central agencies; the Public Services Department (PSD) - with responsibilities for examining the manpower requirements of the agency, and the Economic Planning Unit (EPU) of the Prime Minister's Department who would advise on proposals made in the annual development estimates.

The planned ceilings by then would already be approved by the EPU and the Treasury. The only consideration is the cash flow position of government and the ability and capacity of agencies to implement the programmes. The BRO then, based on the arguments during the budget hearing and past performance and ceiling imposed by the Ministry of Finance, recommends the allocation to the Agency.

As for the revenue budget, each agency provides earnings forecast for the year. New sources of revenue, reviews of areas to improve collections, reduction or elimination of existing taxes and duties are explored by the Treasury in conjunction with the revenue earning departments.

The Minister of Finance holds annual 'budget dialogues' with a wide range of organisations representing industry, agriculture, consumer groups, trade unions, etc., to listen to their views on government financial and fiscal policies and other specific measures. The dialogues provide valuable feedback and a sense of the taxpayers' sentiments. Budget hearings are completed by the end of July and the BROs then present their estimates to the Budget Director and ultimately to the Minister of Finance. These are submitted to the Cabinet before being tabled in Parliament in October.

The Minister of Finance highlights fiscal and financial strategies and policies in his Budget Speech. The Finance bill will introduce new taxes and modifications alongside new revenue measures. After the estimates of each Ministry are debated, the estimates are then taken through various stages in the Parliament and the Senate. The Parliament passes the Supply Bill.

Only after the Supply Bill receives the royal assent, would it become law. By the first week of the January, the Accountant General receives a warrant from the Minister of Finance that authorizes expenditure from the consolidated fund. Figure I shows the budget process.

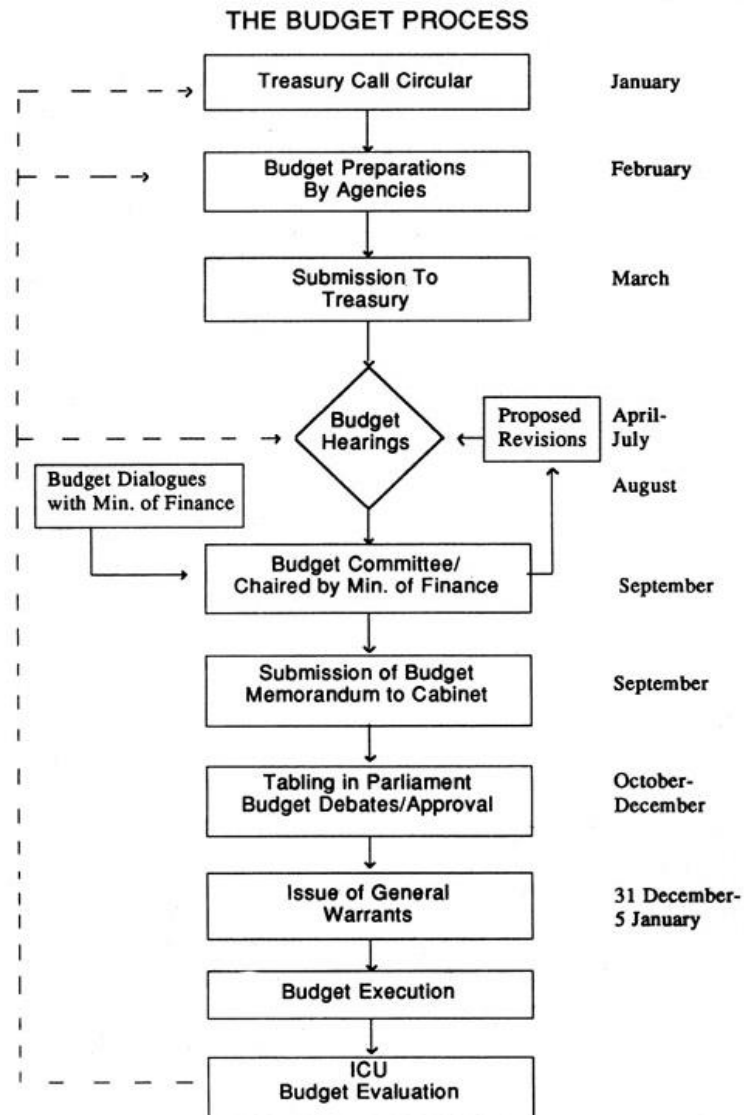


Figure I: Summary of Malaysia's national budgetary process