



NATIONAL BIODIVERSITY STRATEGY & ACTION PLAN

MALDIVES



2016- 2025



MINISTRY OF ENVIRONMENT AND ENERGY
REPUBLIC OF MALDIVES

National Biodiversity Strategy and Action Plan 2016-2025

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Foreword By

His Excellency Minister of Environment and Energy

Thoriq Ibrahim



Biodiversity is the bedrock of the Maldivian economy, culture and way of life. It constitutes the key building block of the environment-development nexus in the country. Our collective future as a country is then dependent on our efforts towards nurturing this balance.

The Maldives is custodian to one of the most diverse and unique marine biodiversity in the world. The territorial waters of the Maldives are home to mega fauna such as the whale shark and manta rays. Our islands provide a safe haven to numerous species of migratory birds. We must then recognise that our national efforts have global implications.

Over the years Maldives has made substantial progress towards mainstreaming biodiversity concerns into national development planning. The NBSAP 2016-2025 will provide further impetus towards these efforts. It encompasses the current status and the priority course of action in terms of protecting, conserving and ensuring the sustainable use of biodiversity in the Maldives. I am confident that this document will allow us to consolidate the gains, enhance synergy and channel a more concerted effort towards biodiversity protection and conservation.

This document is the result of extensive stakeholder engagement and a vigorous review process. As such, I would like to extend my sincere appreciation to the NBSAP team and the participants of the NBSAP process. I would also like to note the support of the Global Environment Facility and the United Nations Environment Program in producing this report.

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Abbreviations

AGO – Attorney General’s Office

CBD – Convention on Biological Diversity

CBOs – Community Based Organizations

CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora

CMS – Convention on the Conservation of Migratory Species of Wild Animals

COP – Conference of the Parties

CSC – Civil Service Commission

DNP – Department of National Planning

EPA – Environmental Protection Agency

GDP – Gross Domestic Product

GEF – Global Environment Facility

LGA – Local Government Authority

LMOs – Living Modified Organisms

MCS – Maldives Customs Service

MEA- Maldives Energy Authority

MEE – Ministry of Environment and Energy

MED – Ministry of Economic Development

MFDA – Maldives Food and Drug Authority

MOE – Ministry of Education

MOFA – Ministry of Fisheries and Agriculture

MOFT – Ministry of Finance and Treasury

MOH – Ministry of Health

MHI – Ministry of Housing and Infrastructure

MOT – Ministry of Tourism

MNDF – Maldives National Defense Force

MNU – Maldives National University

MPS – Maldives Police Service

MRC – Marine Research Centre

NBSAP – National Biodiversity Strategy and Action Plan

NGIS – National Geographical Information System

NGOs – Non Governmental Organizations

NIE – National Institute of Education

PO – President’s Office

SMART – Specific, Measurable, Achievable, Realistic or Time bound

UNCCD – United Nations Convention to Combat Desertification

UNEP – United Nations Environment Programme

UNFCCC – United Nations Framework Convention on Climate Change

NBSAP 2016-2025

1. Vision

A nation of people that co-exist with nature and has taken the right steps to fully appreciate, conserve, sustainably use, and equitably access and share benefits of biodiversity and ecosystem services.

2. Principles

The National Biodiversity Strategy and Action Plan (NBSAP) of the Maldives constitutes of three guiding principles. These principles were developed taking into account the three goals of the Convention on Biological Diversity (CBD). Focus was given on making the principles inclusive, decisive, and guiding. The principles were built with the understanding that it is the combined effort of everyone that will achieve the goals of biodiversity. Additionally, monitoring progress and ensuring accountability will be key factors that will ensure sustainability in achieving the targets of NBSAP.

The 3 basic principles are:

1. The people of this generation and the generations to come reserves the right to access and share benefits of rich biodiversity and ecosystem services;
2. Responsibility of conserving and sustainably using biodiversity lies on everyone's shoulders and shall be taken as a shared responsibility;
3. Biodiversity shall be mainstreamed into all sectors and in a manner whereby monitoring progress and accountability is ensured.

3. NBSAP Revision

The process of NBSAP revision was a thorough process involving stakeholders across the country from all sectors, society and local communities. The national consultation process included representation from all the 20 administrative atolls of the Maldives. While 6 of the stakeholder workshops were conducted at the local level involving community-based organisations, local councils and fishermen, 2 workshops were conducted at the national level where all the atolls, different sectors of the government and private sector were represented.

A technical committee was established to further ensure full involvement of high-level technical expertise from all the relevant organisations in the revision process of the NBSAP. The technical committee met several times during this period.

The following figure provides an outline of the NBSAP revision process.

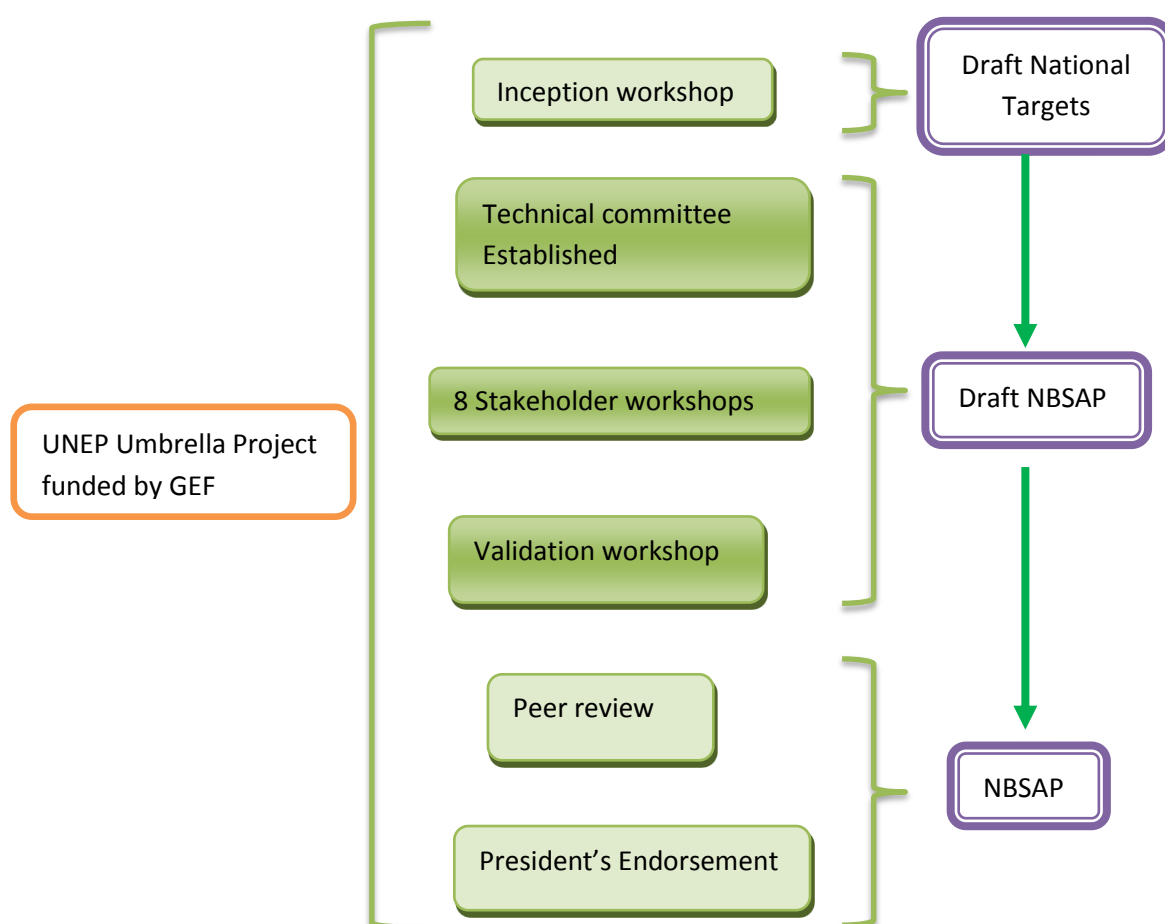


Figure 1: Outline of NBSAP process

4. Introduction

Article VI (a) of the CBD calls for the development of “national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned”. Following on this decision, Parties to the Convention are required to prepare National Biodiversity Strategy and Action Plans (NBSAPs) to implement CBD strategies.

Accordingly, Maldives prepared its first NBSAP in 2002. Since its preparation, NBSAP was widely used as guidance for other national policies, work plans and regulations on biodiversity. However, after 10 years, status and trends of, and threats to biodiversity have changed. Similarly, strategies of CBD and national policies on biodiversity have undergone changes during this period.

The Ninth Conference of the Parties (COP) in its Decision IX/8 “urges Parties in developing, implementing and revising their national and, where appropriate, regional, biodiversity strategies and action plans, and equivalent instruments, in implementing the three objectives of the Convention” and invited the Global Environment Facility, and urged “Governments and other donors to provide adequate funding to developing countries, in particular the least developed countries and Small Island Developing States, as well as countries with economies in transition, for the implementation and revision of national, and where appropriate, regional biodiversity strategies”. The decision to revise NBSAP and the invitation to GEF was repeated at the Tenth Conference of the Parties in its Decision X/2.

In addition to the commitments to the CBD, NBSAP will integrate national obligations of other relevant international conventions such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), United Nations Convention to Combat Desertification (UNCCD) and United Nations Framework Convention on Climate Change (UNFCCC). The current NBSAP will also contribute to achieving goals of significant biodiversity related conventions to which Maldives is yet to become a party to such as the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (the Ramsar Convention). To this regard, it is important to note that the Maldives is in the route of many migratory species and enforces a strict regulation on migratory birds.

In order to implement the guidance under the COP of CBD and many others, United Nations Environment Programme (UNEP) developed an umbrella project to assist countries to prepare the 5th National Report to CBD, review NBSAPs and implement the Second Phase of Clearing House Mechanism. Maldives received funding under the project and the current NBSAP revision exercise was conducted under this project.

5. Background

The first NBSAP of Maldives prepared in 2002 was a result of nationwide consultations and stakeholder involvement. The NBSAP was prepared in accordance with national policies and the Second National Environmental Action Plan (NEAP II) of Maldives. It had 3 main goals:

- 1) Conserve biological diversity and sustainably utilise biological resources.
- 2) Build capacity for biodiversity conservation through a strong governance framework, and improved knowledge and understanding.
- 3) Foster community participation, ownership and support for biodiversity conservation.

These goals and their objectives were incorporated into subsequent developmental plans relevant to biodiversity such as the National Adaptation Plan of Action (NAPA), Third National Environmental Action Plan (NEAP III) and Strategic Action Plan of Maldives 2009-2013 (SAP). However, during the past 10 years national priorities, governing structures and national policies have undergone dramatic changes. Some of these include the new constitution of Maldives adopted in 2008. In this regard, Article 22 of the constitution highlights the importance of conservation and sustainable use of biological resources for the benefit of present and future generations. It also states protection of environment as a duty of the state as well as the local councils.

The other significant development with regard to biodiversity was the pledge by the president of the Maldives to make the entire country a Biosphere Reserve by 2017. This pledge was announced during the United Nations Conference on Sustainable Development or Rio+20 held in Rio de Janeiro, Brazil, from June 20-22, 2012. The same pledge was also submitted to the Biodiversity Champions Initiative of CBD. Subsequently, the implementation plan to become a biosphere reserve by end of 2017 was endorsed by the cabinet on January 2013.

In addition to the changes at national level, NBSAP 2002 had some gaps that needed to be revised and reformulated. Although NBSAP 2002 highlights important goals and targets, targets on some areas were lacking such as traditional knowledge on biodiversity. Furthermore, targets of the NBSAP 2002 had no indicators to measure achievement and lacked an adequate monitoring mechanism. Hence, implementing the NBSAP 2002 and measuring progress has remained a challenge over the years. Additionally, it lacked the responsible agencies for the implementation of the targets. More notably, targets were not Specific, Measurable, Achievable, Realistic or Time bound (SMART).

The main drivers for the revision of NBSAP were the decisions IX/8 of COP 9 and decision X/2 of COP10 of CBD where the new Strategic Plan for Biological Diversity 2010-2020 and Aichi Biodiversity Targets were adopted. Decision X/2 also recognizes that Strategic Plan and Aichi Targets could be used as a flexible framework in developing national targets. Hence, the revision of NBSAP took into consideration all factors highlighted above and 3(f) of decision X/2 which supported “the updating of national biodiversity strategies and action plans as effective instruments to promote the implementation of the Strategic Plan and

mainstreaming of biodiversity at the national level, taking into account synergies among the biodiversity-related conventions in a manner consistent with their respective mandates”.

NBSAP 2002 was formulated with a wide range consultations targeted at all sectors and all corners of the country. The same approach was used in the revision process, but ensuring a wider range of consultative groups in the drafting process. The NBSAP went through 5 phases of drafting where thorough contribution was received from the technical committee as well as from stakeholders.

6. Biodiversity of Maldives

6.1. Status

Maldives is an archipelago in the Indian Ocean with more than 1192 islands that are geographically distributed into 26 natural atolls spread over 820 km from North to South and 80 to 120 km East to West. With an estimated land area of less than 300 km², the total land area covers less than 1% of the entire area of the country. About 90% of the 1192 islands have an area less than 0.5 km², with the largest island being approximately 6 km². As a result Maldives has very limited, but diverse terrestrial biodiversity of the coast, and abundant marine and coastal biodiversity.

Scattered across, the reef ecosystem of the Maldives represents the 5th richest reef biodiversity and the 7th largest reef ecosystems in the world. At least 200 species of stony corals and many associated species have been identified in the reefs of Maldives. In addition to being one of the most diverse ecosystems, coral reefs act as a natural defence against the surging seas. They also act as natural replenishments of the sand by which the islands are formed. It is also a source of food, income as well as a place for many tourist and recreational activities.

Marine biodiversity in the Maldives is characterised by the large megafauna found in the waters of Maldives. Over 20 species of whales and dolphins, and 40 species of sharks have been identified. Tuna remains the most exploited species commercially.

Over 167 species of birds, of which 5 are endemic to the country, have been identified in the Maldives. Majority of these are migratory species and protected under Environment Protection and Preservation Act of Maldives (4/93).

Maldives is also characterised by mangroves, one of the unique coastal ecosystems that act as a buffer as well as a drainage during floods and other natural hazards. Fourteen species of mangrove plants and many more associated species have been identified in Maldives. The size and diversity of mangrove ecosystems, although not globally significant, plays a critical role in sustaining the delicate balance of the island ecosystem.

The economy and the livelihoods of the people of Maldives are largely dependent on the biological resources of the country. Industries that directly benefit from biological resources include fisheries, agriculture, tourism and handicrafts.

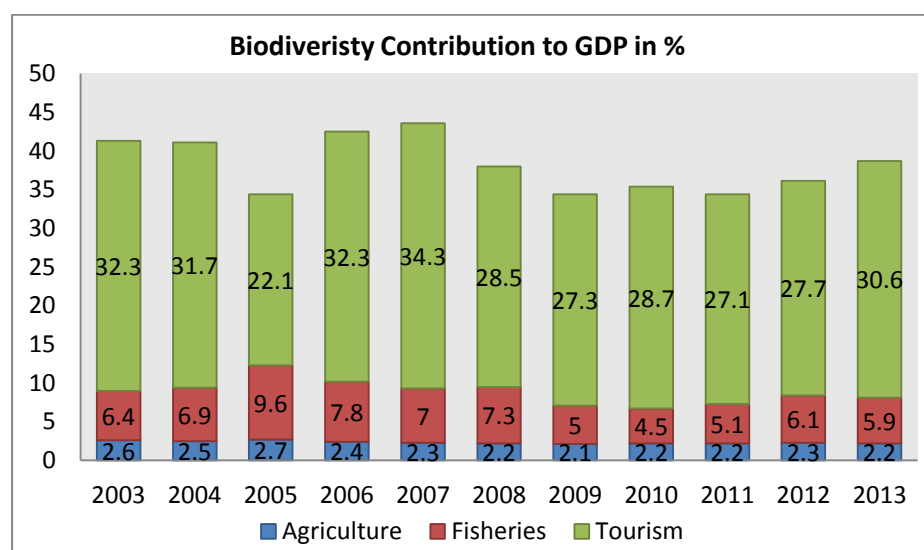


Figure 2: Biodiversity contribution to GDP

Source: Statistical Year Book of Maldives 2014

According to the Valuing Biodiversity Report (2009)¹, biological diversity of Maldives contributes to 71% employment, 89% of Gross Domestic Product (GDP) and 98% of export. As seen Figure 1, the sectors that depend entirely on biodiversity such as the tourism industry, fisheries and agriculture contribute significantly to the country's GDP.

6.2. Threats

One of the major emerging threats is the destruction of habitats, including reefs, lagoons, beaches and mangroves due to land reclamation, harbour building, channel construction, seawall construction and many related infrastructure development activities. To this regard, it is estimated that 202 artificial harbours have been constructed and over 10 km² of lagoon and reef area modified for land reclamation purposes.

Impacts of climate change on biodiversity and ecosystem services have also been increasing over the years. Increase in sea surface temperature, ocean acidification and increased frequency of extreme weather events such as storms results in severe impacts on biodiversity, livelihoods and consequently the adaptive capacity of people to climate change.

Given the geographic nature of the country, beach erosion remains a constant challenge. In this regard, over 60% of the inhabited islands report severe beach erosion threatening not only biodiversity but also human settlements.

¹ Valuing Biodiversity, The Economic Case for Biodiversity Conservation in Maldives, Ministry of Housing Transport and Environment, 2009

Furthermore, increase in population and economic growth has intensified the demand on natural resources and space. As a result, over-exploitation of biodiversity, decline in certain species such as turtles and tuna catch, clearance of vegetation to meet the demands of development has increased.

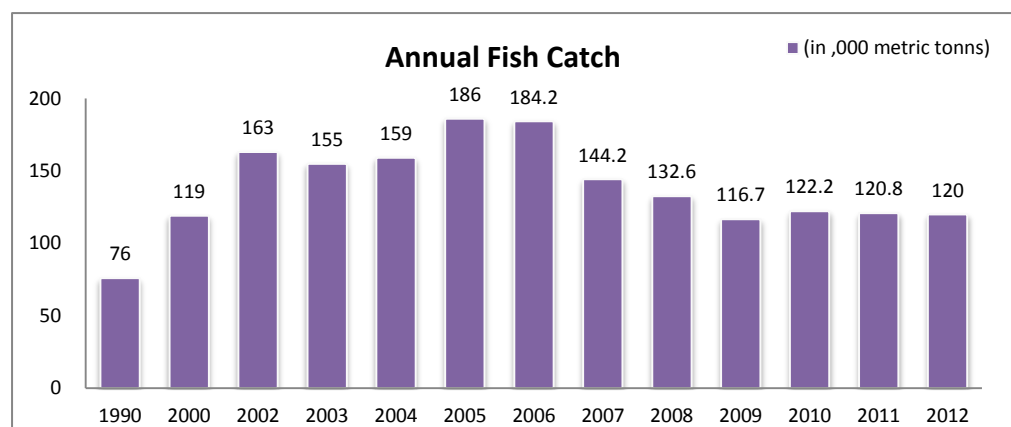


Figure 3: Annual fish catch

(Source: Statistical Year Book 2013)

Population and economic growth has also resulted in unsustainable agricultural practices with increase in chemical based fertilisers and pesticides. These chemicals enter into the food chain and into the freshwater aquifers and ultimately affect the natural vegetation as well as humans. Demand for improved and better market value has also resulted in introduction of many alien species.

In this regard, in recent years there has been an increase in import of alien species as exotic pets, ornamental plants and agricultural crops. Some alien species becomes dominant and invasive, challenging survival of native species. They also interbreed resulting in loss of local genetic diversity. Additionally, Maldives has been subject to international scrutiny for illegal trade of such species, especially those listed in CITES. The unregulated status of Living Modified Organisms (LMOs) and issues related to biosafety remain as additional challenges to the already weak enforcement mechanism.

Furthermore, improper waste management throughout the country results in disposal of dangerous chemicals, oils and non-biodegradable waste into the surrounding sea threatening the biodiversity of the reefs, lagoons and other habitats.

6.3. Progress

Although the country is highly dependent on its biological diversity and ecosystem services, the pressures on these have substantially increased. However, the lack of appreciation of the value of biodiversity, the lack of knowledge caused due to limited awareness among people

and inadequate resources have resulted in insufficient action. Challenges and gaps still exist, but progress has been achieved in some areas.

The current constitution of the Maldives in its article 22 states that it is a “fundamental duty of the state to protect and preserve the biodiversity, resources and beauty of the country for the benefit of present and future generations”. The constitution also bestows the same duty to the local councils and gives the right of a safe environment to every citizen. The Environmental Protection and Preservation Act (Law no. 4/93) in its entirety covers conservation of biological diversity of the Maldives. Since its formulation, NBSAP 2002 has served as an instrumental policy and planning document for conservation. Additional legislations that ensure conservation of biological resources include, amongst others, the Liability Regulation of 2011, Uprooting of Trees Regulation, Tourism Act, The Law on the Maldives Fisheries, Plant Protection Act, and Coral and Sand Mining Regulation. While coral and sand mining are controlled through the regulation, it still continues to be one of the core materials in construction and therefore, is exploited. The regulation on Environmental Impact Assessment and regulation on Land Reclamation and Dredging are some of the regulations that provide legal framework for minimising impacts of developmental practices such as land reclamation and dredging on environment.

Maldives has continued to increase protected as well as managed areas. Under the Environmental Protection and Preservation Act, 42 areas, 103 bird species and 14 marine species have been declared protected. The total area declared protected is over 242 km². However, out of the 42 protected areas, only one area is managed with an effective management regulation. Furthermore, a ‘sensitive area list’ with 274 environmentally significant areas has been identified by the Environmental Protection Agency. These areas are given careful consideration before approval of any type of development. Additionally, a migratory bird’s regulation that gives protection to all migratory species of birds is in effect since 2014. A further regulation controls import of bird species as pets. In spite of this regulation, many exotic birds banned by this regulation continue to be imported illegally.

In addition to the legally protected areas, the house reefs of 112 resort islands in Maldives are well managed with certain activities restricted, and in most cases limited to snorkelling. These areas extend to 1000 metres from the beach line where possible. The total reef and lagoon area of the 112 resorts, although not yet calculated, represents a significant area of well-managed territorial waters.

The most notable achievement for biodiversity conservation and sustainable use is perhaps the declaration of Baa Atoll as a UNESCO Biosphere Reserve in 2011. Subsequently a Conservation Fund was established to regulate the biosphere reserve and to promote sustainable livelihood, conservation, education, and research in Baa Atoll. The fund has already awarded 7 grant projects for the atoll. As a result of the success of this project, the government of Maldives has pledged to make the entire Maldives a UNESCO Biosphere Reserve by the end of 2017.

Maldives has continued its traditional environment friendly pole and line tuna fishery and has recently received the Marine Stewardship Council (MSC) certificate for Skipjack Tuna. To ensure sustainable grouper fishery, the government has enforced a ban on fisheries in 5 areas significant for grouper breeding. Additionally a licensing system for grouper fishing vessels was introduced in 2012. Further management plans are in the process of development for different types of fishery and mariculture activities.

Maldives became a Party to the CITES in early 2013. This has paved a path to effectively regulate trade of CITES listed species, endangered species and alien species in general. Maldives is developing its regulation on CITES which will further strengthen enforcement of trade in endangered species.

In general, waste management remains as one of the biggest challenges. To address this, a waste management regulation has been enacted and this came into effect in 2014. This regulation addresses management of different types of waste, including pollution and chemicals. Enforcement of this regulation will minimize impacts of waste, pollution and chemicals on biodiversity and environment. However, it does not cover use and trade of chemicals. While there is no special control on chemicals in general, all chemicals need a permit from the Ministry of Defence and National Security before being imported. Import of certain chemicals such as pesticides and fertilisers are controlled by the Ministry of Fisheries and Agriculture (MOFA).

There is little work done to rectify the contaminated ground water. As a result, degradation of ecosystem continues with the increase in pressures on ground water. However, progress has been made in providing safe drinking water to people through increased rainwater harvesting and storage capacity, installation of desalination plants and establishment of integrated water management systems that uses a combination of both rainwater and desalinated water.

While beach erosion continues to be a threat to the very existence of many inhabited islands, no long-term solutions have been identified. Mitigation measures used against beach erosion include the construction of sea walls using rock boulders. No ecosystem-based solution has been identified or established to fully address the impacts of erosion.

Contribution of biodiversity to the national economy and human wellbeing of the country demonstrates the need for sustainable use, conservation and equitable access and sharing of benefits of biodiversity. Efforts are underway to create awareness among people on the values of biodiversity. In this regard, most of the Island Developmental Plans and sector plans of all government organizations have biodiversity incorporated in them. Many Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs) now work in conserving biodiversity. However, mainstreaming biodiversity into private sector and making it a priority at national level remains a challenge.

6.4. Challenges, Gaps and Constraints

Although there are significant achievements, the increasing pressures on biodiversity threaten to eliminate any positive impact. Increase in existing pressures and the emergence of new issues thereof is the biggest challenge in conserving biodiversity. The geographic insularity and the subsequent dispersal of population is a major hurdle in addressing these challenges. With such dispersed communities, bringing about collective action, good governance, creating awareness, enforcement and long term planning becomes a challenge. This is further amplified when there is a constraint in the capacity of enforcement agencies and in local communities including CBOs and NGOs. Capacity is also lacking at both government and private sector in many areas including technical, technological and human capacity. The role of private sector is crucial especially when the economy of the country is dependent on biodiversity. Lack of this role creates a huge gap that needs to be overcome.

Lack of awareness, generally among everyone, on the values of biodiversity is the largest gap. Bridging this gap will contribute to solving many issues at the grassroots level. Knowledge management and sharing is fundamental for strategic planning. The gap in baseline data and knowledge on the status, trends and threats to biodiversity and ecosystem services in the country are constraints. This limitation extends to the success of current endeavours in conserving biodiversity. The lack of adequate mechanisms to monitor changes and lack of research in the field of biodiversity is a huge gap as well as a challenge. Consequently, the limited knowledge among people and decision makers on the value of biodiversity is a barrier which could only be overcome with detailed valuations of the biodiversity and ecosystem services, and when these values are integrated into national accounting.

The demand for land, modern infrastructure and economic growth has been increasing with the increase in population. To cater this demand, hasty actions often coupled with lack of alternative solutions have resulted in the destruction of habitat and species both in land and sea. It also results in increase in pollution due to introduction of chemicals and non-biodegradable waste. Finding the right alternatives and addressing the demands of development in a sustainable manner has then become a challenge. Additionally, the lack of knowledge, capacity and resources to address issues related to alien species and illegal trade of biodiversity remains a challenge.

7. Outline of National Biodiversity Strategy and Action Plan

The National Biodiversity Strategy and Action Plan 2016-2025 (NBSAP 2016-2025) seeks to ensure that threats to biodiversity are addressed, biodiversity is conserved, sustainably used and benefits arising from them are shared equitably. It also encompasses ways of addressing gaps, challenges and constraints highlighted in earlier sections. It is a living document that will have the capacity to adapt to changes in national conditions, capacities and to the changes in the international arena.

The NBSAP 2016-2025 will be a 10-year plan and is designed to address 6 broad areas of concern. A strategy with SMART targets was developed for each such area. Each target has an indicator and will be achieved through implementing the broad suggestive actions. Each action has a separate indicator, baselines, and responsible agency and is time bound. Monitoring of the progress of NBSAP and conducting its reviews will be carried by the government agency responsible for implementing the environmental mandate. The strategies under the NBSAP 2016-2025 are:

- Strategy 1 – Strengthen governance, policies and strategies for biodiversity
- Strategy 2 – Enhancing communication and outreach through awareness programmes and capacity building
- Strategy 3 – Work together globally for biodiversity conservation
- Strategy 4 – Ensure sustainable use of biological resources
- Strategy 5 – Address threats to conserve biodiversity
- Strategy 6 – Strengthen Information Management and Resource Mobilisation

Strategy 1: Strengthen governance, policies and strategies for biodiversity

The governance and proper institutional arrangements for biodiversity conservation are limited with lack of understanding of the roles and responsibilities coupled with the weak inter-institutional cooperation necessary to implement the mandates entrusted in them. While the Article 22 of the constitution is on biodiversity conservation, there are few institutions within the government or otherwise with biodiversity incorporated into their functions.

Environmental components are included into Tourism Master Plan, laws and regulations of Ministry of Fisheries and Agriculture and into the Decentralisation Act of Maldives. They serve as both policy and legislative instruments that regulate environment at different bodies and levels of the government. The centralised institution with powers of making national policy, strategy and national legislations on environment and biodiversity is the Ministry of Environment and Energy. While the lead agency for enforcement is the Environmental Protection Agency, depending on the mandates enforcement is further delegated to other authorities such as Maldives Police Services and Maldives Customs Service. The decentralised councils of Maldives also have a responsibility of enforcing biodiversity conservation within their jurisdiction.

However, the conflicting and undifferentiated mandates between the ministries, the overlaps between enforcement agencies and the legislative weaknesses result in complications in terms of implementation of conservation measures. The Environmental Protection and Preservation Act of Maldives (Law no. 4/93), under its article 3, provided the mandate to the ministry charged with the environment portfolio to act only in cases where other government bodies were not already operating in conservation efforts, thereby limiting its reach. However, 21 years since the Act came into effect, on 24 April 2014, the clause was amended to give powers of environmental conservation including biological diversity to the Ministry that has the mandate to protect and preserve environment.

Although this is an achievement, there are more challenges to overcome. Mandate overlaps, gaps and conflicts with other legal instruments continue to occur between institutions. Additionally, there is weak governance at different levels including the central government, Ministry of Environment and Energy, local governments, enforcement agencies and other government organisations.

As such, mainstreaming biodiversity holds the key to minimise conflicts, improve governance and institutional framework and make necessary amendments to laws and regulations to be more directed and harmonised.

Mainstreaming biodiversity into the private sector was given little attention in the past and has resulted in uncontrolled degradation of ecosystems and biodiversity due to their destructive approaches. Private sector remains the main beneficiary of the biological resources of the country and thereby has the responsibility in being a benefactor.

Thus, Strategy 1 of the NBSAP 2016-2025 aims at achieving a good governance structure and mainstream biodiversity into different institutions and sectors while addressing the

conflicts and overlaps. Under this strategy four different targets will be achieved by the end of 2025. These are as follows;

1. *By 2020 governance on biodiversity conservation is strengthened at local and national level*

The first target is aimed at governance at different levels, including institutional arrangements at local and national level. The activities under this target will revise mandates, train staff where necessary and will develop necessary institutional capacity through national education system.

The ***indicator*** for the target will be the number of conflicts addressed and number of environmental officers assigned at different levels of governance.

2. *By 2020 enforcement of laws and regulations on biodiversity are strengthened*

This target is aimed at addressing the legislative gaps and strengthening enforcement. The activities under this target will include addressing gaps and training enforcement officers.

The ***indicator*** for the target will be the number of cases successfully solved on biodiversity as compared to the number of cases reported.

3. *By 2025 mainstream biodiversity into island, atoll, sectoral and national plans.*

This target aims at mainstreaming biodiversity into sector plans and strategies at all levels of government both vertically and horizontally. It is expected that by 2025 biodiversity will be sufficiently addressed in all plans and strategies of the relevant government institutions. The activities under this target include amendment of existing island, atoll and national plans to include biodiversity and where necessary make new plans. To ensure informed decision making in the planning process it is essential to know the value of biodiversity, hence, activities to understand the value of biodiversity are also included.

The ***indicator*** for this target will be the number of plans that has biodiversity included in them.

4. *By 2025 government, businesses and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.*

The aim of this target is to ensure participation and involvement of different sectors including businesses, which will ensure widespread governance of biodiversity while creating a harmonised effort at national level where various sectors take on appropriate responsibilities in their operation. The activities for the target include introduction of extended producer/extractor responsibility, various safe ecological standards and limits, and certification systems for environment friendly operations.

The ***indicator*** for this target is the number of certified initiatives towards sustainable production and consumption.

Table 1: Strategy 1 - Strengthen governance, policies and strategies for biodiversity

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2020 governance on biodiversity conservation is strengthened at local and national level	Revise existing mandates of all government offices including local governments to incorporate and/or identify their respective responsibilities in mainstreaming biodiversity conservation	Revised mandates with no conflicts and overlaps on biodiversity	Existing mandates	MEE	PO, AGO, LGA, EPA	2018
	Assign and train an officer to address environment related issues at atoll level	Number of environment officers at atoll level		EPA	LGA, CSC, MNU	2016
	Revise existing school curriculum to include environmental conservation at all levels of primary and secondary education	Revised curriculum		MEE	EPA, MOFA, MOE, NIE, MNU	2020
2. By 2020 enforcement of laws and regulations on biodiversity are strengthened	Identify and address gaps in enforcing legal frameworks	Number of gaps identified New regulations to address gaps	Existing laws and regulations on biodiversity	MEE	EPA, AGO	2016
	Strengthen Environmental Police	Number of trained staff Number of cases addressed by Environmental Crime Unit Number of successful lawsuits against biodiversity crimes	Existing laws and regulations on biodiversity	MPS	MEE, EPA, MOFA, local councils	2020
3. By 2025 mainstream biodiversity into island, atoll,	Amend existing island, atoll and sectoral and national developmental plans	Number of island, atoll, sectoral and national	Number of island, atoll, sectoral and national	MEE	LGA, local councils, all government offices	2018

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
sectoral and national plans	to integrate biodiversity conservation, and include biodiversity conservation in new plans	development plans that include biodiversity conservation	development plans that has biodiversity conservation included			
	Calculate and identify the value of national biodiversity	Number of species with their value identified Number of activities with their value of biodiversity identified	Economic Valuation of Biodiversity Report by AEC Project	MEE	MOFT, PO	2022
	Incorporate biodiversity values into national accounts	The amount included in national accounts for biodiversity each year	Economic Valuation of Biodiversity Report by AEC Project	MEE	MOFT	2025
4. By 2025 government, businesses and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits	Introduce extended producer/extractor responsibility schemes for the damages caused to the biological resources and ecosystem	Reduction in biodegradable waste	Amount of food wasted per day	MEE	EPA	2018
	Introduce standards for safe ecological limits in production and consumption	Number and types of standards enforced Number of industries enforcing the standard	Internationally used standards	MEE	MOFA, MOH	2020
	Certify those industries that have sustainable production enforced	Number of certifications issued	Solid waste	MEE	MOFA, MOT, MOFT	2025

Strategy 2: Enhancing communication and outreach through awareness programmes and capacity building

It is believed that one of the underlying causes of biodiversity loss is the lack of awareness and capacity at local, national, individual and institutional level. So far there has been no survey to identify the institutional capacity, or the awareness of the people of Maldives on biodiversity. The valuation study done for Baa Atoll in 2009 shows that 71% of employment, 89% of GDP and 61% of foreign exchange in the Maldives depends on biodiversity. This proves the dependency of the Maldivian population on the biodiversity of the country. Thus, it is important to create enough awareness among people to address the causes of biodiversity loss.

While the rate of loss of biodiversity has not yet been calculated, it is clear that the exploitation of the limited land of islands pose a threat to terrestrial biodiversity. Additional stress is exerted on the coral reefs due to channel building, land reclamation, sand mining, sea wall building, harbour construction and dredging. However, lack of knowledge on pressures on biodiversity, services provided by them, value of conserving and the dependency on biodiversity results in poor decision making. A further stress is the lack of capacity in the communities as well as the government to address issues of biodiversity loss.

Communication networks in Maldives are strongly established and are the most reliable medium for awareness, capacity building and outreach. Maldives has 100% mobile network coverage while smartphones and Internet are commonly used.

While understanding these underlying causes of biodiversity loss and by making use of existing facilities and resources, the targets of this section will comprehend capacity needs and the need for awareness raising. It will also aim at building capacity as well as awareness at different levels of community and government including CBOs, NGOs, media and students.

Awareness, capacity, communication and outreach are all relative terms and therefore, the success of the targets described in this section is also measured in relative terms. If significant positive change of greater than 5% is achieved for each target in their indicators, then the target will be considered as achieved.

The targets under this Strategy are:

1. By 2025 people are aware of the value of biodiversity and the steps they can take to conserve and use it sustainably

This target is aimed at creating awareness among various sectors including island communities, businesses, youth, children and organisations. It is expected that by end of 2025 people at large will at least have some knowledge on the value of biodiversity and steps they can take to conserve it. Targeted activities will be conducted to different groups using the best resources and mediums. These mediums include, but are not limited to, social media, mobile networks, Internet sources, television,

publications, curriculum, entertainment and recreation. Given the small size of the population at both the national and island level, it is estimated that the entire population will be reached by the end of 2025.

The **indicator** for the target will be the number of people reached through these activities.

2. ***By 2025 parliamentarians, judiciary, elected officials and decision makers across government are aware of the significance of including biodiversity conservation in all developmental, social and economic policies, strategies, plans, laws and regulations.***

This target will complement the targets under governance whereby lawmakers and decision makers across government are aware of the significance of biodiversity and the translation of this into their actions. While the judiciary is competent in dealing with civil and criminal cases, there is a significant lack of understanding in biodiversity related issues. One of the main drawbacks in this sector is the lack of trained lawyers on the field of environmental law and international environmental governance. This target is separated from the above target as the type of awareness required by these groups and the responses expected are hugely different from general awareness.

It is expected that by end of 2025 decision makers will fully reflect and address the significance of biodiversity conservation in their decisions. The activities under this target will have targeted training programmes and awareness sessions for different target groups in accordance to the requirement and needs.

The **indicator** for this target is the percentage of members from each selected group reached through trainings and awareness programmes.

3. ***By 2020 law enforcement officials are aware of the national laws, regulations and international obligations of Maldives and enforce them to conserve biodiversity.***

Even if laws, regulations and strategies consider biodiversity conservation, they will remain ineffective unless enforcement officials are fully enforcing the laws. Therefore, creating awareness on biodiversity related laws and regulations are important. In addition to being aware of the laws, it is necessary to understand the value of biodiversity conservation as described in target 2 of this Strategy. The activities for this target include conducting awareness programmes on laws and regulations in addition to providing general awareness to enforcement officers to increase enforcement capacity.

The **indicator** for the target is the number of awareness programmes and the number of enforcement officers reached through these programmes.

4. ***By 2025 the capacity of people including community, CBOs, NGOs, media and different government bodies to manage knowledge and to participate in biodiversity planning is increased.***

This target aims at building capacity, particularly at communities, different levels of organisations, government and media to manage knowledge on biodiversity and to

effectively and actively participate in biodiversity conservation. The activities for this target include reviewing capacity needs, conducting various capacity development programmes and finding means of increasing participatory capacity of different community based organisations. It is expected that by end of 2025 community initiatives on biodiversity conservation will be enhanced.

The **indicator** for this target is the number of participating organisations in various activities of biodiversity conservation.

Table 2: Strategy 2 - Enhancing communication and outreach through awareness programmes and capacity building

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2025 people are aware of the value of biodiversity and the steps they can take to conserve and use it sustainably	Baseline survey to measure current awareness on biodiversity	Baseline survey	Existing survey reports	MEE		2016
	Conduct nationwide awareness programmes for island communities, businesses, government staff, policy makers, expatriates, NGOs, children, youth, fishermen, tourism and other industries	Number of people reached through different awareness programmes Perception survey	Awareness programmes conducted thus far	MEE	Media	2025
	Conduct general awareness through various mediums	Number of people reached	Awareness programmes conducted thus far	MEE	Media, MOE	2024
	Review awareness index in 2025	Awareness index	Baseline survey	MEE		2025
2. By 2025 parliamentarians, judiciary, elected officials and decision makers across government are aware of the significance of including biodiversity	Conduct awareness programmes for the relevant government officials in government and private sector	Proportion of parliamentarians, judiciary, elected officials and decision makers that participated in the awareness activities	Existing plans, laws and regulations	MEE		2020
	Conduct targeted training for government	Number of government officials trained	Training modules of civil	MEE	CSC	2025

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
conservation in all developmental, social and economic policies, strategies, plans, laws and regulations	officials and civil servants through the inclusion of biodiversity in training modules		service			
3. By 2020 law enforcement officials are aware of the national laws, regulations and international obligations of Maldives and enforce them to conserve biodiversity	Conduct awareness programmes and specialised training for enforcement officials especially on environmental policing	Number of awareness programmes/number of participants Number of enforcement officials who completed the training	Number of awareness programmes	EPA	MEE, MPS, MCS, Maldives National Defence Force (MNDF)	2020
4. By 2025 the capacity of people including community, CBOs, NGOs, media and different government bodies to manage knowledge and to participate in biodiversity planning is increased	Review existing capacity needs assessment report of Maldives on biodiversity	Capacity Needs Assessment Report	Existing Capacity Needs Assessment Reports	MEE		2016
	Conduct capacity building programmes for NGOs, CBOs, island communities and government offices	Capacity Needs Assessment Report	Existing Capacity Needs Assessment Reports	MEE	DNP	2018
	Improve participatory capacity of the island communities, NGOs, CBOs and government offices through strengthening financial, technical and human capacity	Number of capacity building programmes conducted per year Number of NGOs and CBOs actively involved in conservation	Capacity building programmes already conducted	MEE	Local councils	2025
	Conduct capacity building programmes for media	Number of persons that participated in the capacity building programmes		MEE	Media	2020

Strategy 3: Work together globally for biodiversity conservation

Maldives is party to many international initiatives on environment. For small developing countries, international cooperation is required in areas such as knowledge sharing, technology needs, financial resources and human capacity. International initiatives are also needed to find solutions for global problems. Biodiversity conservation is one such global issue that needs to be addressed both nationally and globally.

Among the international treaties related to biodiversity, Maldives is party to CBD, the Cartagena Protocol on Biosafety and CITES. Maldives is also party to other related treaties such as UNFCCC and UNCCD.

Streamlining national actions with international commitments in addressing issues of conservation will bring about harmonised action through which global as well as national goals will be achieved. Maldives is in the vast Indian Ocean where migratory species and ecosystems are shared by many countries. As such, given that biodiversity and ecosystems services transcend national boundaries, Maldives like other countries will be affected by global threats on biodiversity and need international cooperation and resources to address such threats.

This section will be on strengthening this cooperation through bilateral and multilateral approaches. The targets under this section include regulating international trade and transfer of endangered species, living modified organisms and alien species pathways in addition to access and benefit sharing.

The targets under this Strategy are:

1. By 2018 international trade of endangered species of wild fauna and flora are regulated.

One of the concerns at national level is the illegal trade of different species including those that are endangered. Since becoming a member of CITES in March 2013, Maldives has taken steps to regulate trade of endangered species. However, the regulatory framework and the necessary capacity are still lacking. It is expected that by end of 2016, Maldives will have enforced most of the regulatory frameworks and other obligations under the convention that ensures sustainable use of biodiversity. It will also ensure that only authorised wildlife is traded and such trade is traceable.

The activities under the target include strengthening capacity of enforcement officers and ensuring a regulatory framework to regulate international trade in endangered species.

The ***indicator*** for this target is the decrease in number of cases of illegal trade of wild fauna and flora.

2. By 2018, Cartagena Protocol on Biosafety is implemented in Maldives

Maldives is a member to the Protocol since 2003. However, there is no regulation on biosafety. In 2006 a draft regulation was prepared under the National Biosafety Framework, which needs to be made the official regulatory framework for biosafety. To effectively implement the protocol it is also necessary to train enforcement officers and establish a coordination mechanism between different organisations. Under this target, the activities will include developing the necessary national regulations and train enforcement officers for proper enforcement of the regulations. Additionally, a database on living modified organisms imported to Maldives will be developed and maintained.

The *indicator* for this target will be the properly maintained database and the regulation on biosafety.

3. *By 2022 fair and equitable access to genetic resources and associated traditional knowledge, and fair and equitable sharing of benefits arising from them are regulated.*

Access and Benefit Sharing (ABS) is one of the goals of the Convention on Biological Diversity. Maldives has no law or regulation on ABS and is currently not a member to the protocol. However, Maldives is a favorite among researchers on marine and reef biodiversity, and holds extensive traditional knowledge on the biodiversity and the services provided by them. Unfortunately there is no legislation to address matters of ABS in the country.

This target aims at strengthening existing regulations that could address ABS and where necessary create and enforce new regulations for ownership, right and access to genetic resources, and benefit sharing. It also aims at creating an inventory of genetic resources in the country.

The *indicator* for this target is the number of cases of access and benefit sharing effectively addressed.

4. *By 2025 invasive alien species pathways are identified and priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.*

This target aims at identifying invasive alien species pathways and to control, eradicate or take measures to prevent damage to biodiversity and ecosystem services caused by these species. Although there is no clear data on the invasive alien species in Maldives, few species have already been identified. International cooperation and control in trade will be required in controlling the invasive alien species and addressing their pathways. It is anticipated that by end of 2025, a database on invasive alien species will be established and their pathways of introduction will be blocked.

The *indicator* for this target is the number of invasive alien species controlled or eradicated from the identified database.

Table 3: Strategy 3 - Work together globally for biodiversity conservation

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2018 international trade of endangered species of wild fauna and flora are regulated	Strengthen the capacity of the quarantine facilities in Maldives	The type and number of functional facilities	Quarantine facility	MOFA	MEE	2017
	Identify gaps in existing laws and regulations on trade in endangered and protected species and revise the laws and regulations where appropriate	Number of irregularities reported Revised laws and regulations		MEE	MED	2016
	Capacity building of customs and quarantine officers on identification, and verification of authorised trade in endangered species of wild fauna and flora	Number of staff trained in each place		MEE	MOFA, MCS	2018
	Conduct awareness programmes to decrease traders of wild fauna and flora	Decrease in number of illegal trade every year		MEE	MOFA	2018
	Ensure CITES compliance	Number of permits and number of non-compliance issues	Annual trade data published by CITES Secretariat	MEE		2016
	Conduct population surveys of commercially valuable and other key species affected by trade	Number of key species identified Population of each species	5 th National Report on Biodiversity	MEE	EPA, MOFA	2018
2. By 2018, Cartagena Protocol on Biosafety is implemented in Maldives	Revise and enforce the regulation on biosafety	Regulation	Draft Regulation on Biosafety	MEE		2017
	Establish and maintain a database on LMOs and their impacts on the environment and human health	Database		MEE	MOH, HPA	2018
	Conduct awareness programmes for the public and relevant organisations on biosafety	Number of people reached through awareness programmes		MEE		2018
3. By 2022 fair and equitable access to genetic	Make an inventory of the genetic resources in Maldives	Inventory	National Reports on biodiversity Research	MEE	EPA, MRC, MOFA	2022

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
resources and associated traditional knowledge, and fair and equitable sharing of benefits arising from them are regulated			reports on biodiversity			
	Strengthen existing regulations and where necessary make new regulation/guidelines on the ownership of, rights and access to and benefit sharing of genetic resources	Regulation or law on Access and Benefit Sharing Number of cases where benefits are shared	Valuing Biodiversity Report by AEC Project	MEE	EPA, MRC	2017
4. By 2025 invasive alien species pathways are identified and priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment	Establish and update a database on invasive alien species	Database on alien species	Customs data on the import of alien species	MEE	EPA, MOFA	2017
	Establish and implement national action plans for addressing invasive alien species	Reduced reports on cases on invasive alien species	Reports on invasive alien species	EPA	MEE, MOFA	2025
	Identify pathways of introduction of invasive alien species and establish mechanisms to prevent such pathways	Reduced cases of invasive alien species	Reports of invasive alien species	MEE	MCS, Maldives Ports Limited, MOFA	2021

Strategy 4: Ensure sustainable use of biological resources

Threats to biodiversity such as over-exploitation, habitat loss and unsustainable use result in exhaustion of resources. Maldives has already experienced such calamities in different forms of fishery and agriculture. The grouper and sea cucumber fishery are two well-known forms of fishery that faced near extinction due to improper management and unsustainable use. Furthermore, the Maldivian varieties of papaya and lemon have become rare due to improper management that caused other varieties to dominate over them.

Existing laws, regulations and management plans for different forms of fishery such as bait fishery, grouper fishery and mariculture ensures sustainable fishery. Additionally, Tourism Master Plan addresses sustainability and conservation in the tourism sector which is entirely dependent on biodiversity of the country. However, there are other forms of fishery and areas of tourism that needs management.

Agriculture is a sector that not only uses the limited land of the country but also uses chemicals extensively as insecticides, pesticides and fertilisers. The use of such chemicals results in chemical accumulation in food, soil and ground water contamination and resistance in pests. Although there is a positive list of insecticides and fertilizers that can be imported to the country, the use of such chemicals needs to be regulated. The types of crops grown and the quality of soil in Maldives are limited. Hence, improper management will lead to loss of habitat, species and ecosystems.

Similarly, proper management of incentives and subsidies in fishery as well agriculture plays an important role in sustainability.

This section aims at ensuring sustainable management of biological resources to ensure that they will be safely transferred to future generations. This section is ambitious and aims at achieving all its targets by 2020.

The targets under this Strategy are:

1. ***By 2020 all major fishery, including aquaculture and mariculture are managed and harvested sustainably.***

This target aims at sustainable management and harvesting of all fisheries by 2020. The activities for the target include strengthening regulatory framework and data collection. It also includes introducing certification systems and introducing sustainable fishery, monitoring, compliance and surveillance mechanisms. Additionally, this target will aim at recovering depleted species of fishery.

The *indicator* for the target is the number of sustainably managed fishery.

2. ***By 2017 fertilizers, insecticides, pesticide, and excess nutrient management are sustainably managed.***

A separate target is developed for fertilizers, insecticides and pesticide management to ensure that all agricultural practices are sustainable and the effects of such chemicals

on ecosystems and species are minimised. The activities of this target include developing the necessary regulatory framework and introducing certification system for sustainable agriculture.

The **indicator** for the target is the number of certification awarded for sustainable agriculture.

3. By 2017 at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimise or avoid negative impacts.

This target aims at eliminating and phasing out of existing incentives and subsidies that are harmful to biodiversity by 2017. The activities under the target include discontinuing existing subsidies and incentives.

The **indicator** for this target is the number of incentives and subsidies discontinued.

4. By 2020 at the latest, positive incentives for conservation and sustainable use of biodiversity are developed and applied.

This target aims at creating positive incentives for sustainable use of biodiversity. The target will be achieved by 2020 and will focus on various industries that depend on biodiversity and ecosystem services. The activities of this target include introducing incentives for industries that are conservation oriented and are sustainable.

The **indicator** for this target is the number of positive incentives in place.

Table 4: Strategy 4 - Ensure sustainable use of biological resources

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2020 all major fishery, including aquaculture and mariculture are managed and harvested sustainably	Strengthening regulatory and legal framework	Regulation on mariculture Management plans on; - Reef fishery - Aquarium fishery - Bait fishery - Recreational fishery Revised fisheries act	Fisheries Act CITES Trade Data and annual reports	MOFA	MRC, MEE	2018
	Strengthening fisheries statistics and data collection mechanisms	Consolidated database for various fisheries	Existing statistics on fisheries	MOFA	MRC	2017
	Implement and enforce environmental friendly and sustainable	- Number of offenses decreased - Number of management	Existing fisheries management plans	MOFA	MRC, MEE	2020

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
	fishery	plans for major fisheries species				
	Recovery plans and measure in place for all depleted species	Annual fish catch	Existing fishing data	MOFA	MRC	2018
	Develop monitoring, compliance and surveillance strategy	Monitoring, Control and Surveillance strategy	Fisheries statistics	MOFA	MRC	2019
2. By 2017 fertilisers, insecticides, pesticide, excess nutrient management are sustainably managed	Enforce a pesticide Act in Maldives	Regulations and guidelines on pesticide use		MOFA	MRC	2016
	Introduce a certification system for Good Agricultural Practices for agriculture and animal husbandry	Number of certifications awarded		MOFA	MOFA, MFDA	2016
	Establish local organic fertiliser producing facilities	Number of facilities producing organic fertiliser	Types of agriculture in Maldives	MOFA	Local councils	2017
	Conduct awareness programme on the benefits of organic farming and on the hazards of chemical fertilisers and pesticides in agriculture	Number of awareness programmes and number of participants in each awareness programmes	Types of chemicals used in agriculture	MOFA	Local councils	2017
3. By 2017 at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimise or avoid negative impacts	Discontinue incentives for agriculture that uses chemical fertilisers, pesticides and introduces alien species	Yearly reduction in import of chemical fertilisers, pesticides and alien species	Existing fertiliser, pesticide and alien plant database	MOFA	MEE	2017
	Discontinue subsidies and incentives for unsustainable fishery and other industries	Amount and Number of subsidies and incentives discontinued	Current subsidies	MOFA	MRC, MEE	2017

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
4. By 2020 at the latest, positive incentives for conservation and sustainable use of biodiversity are developed and applied	Introduce subsidies for organic farming	Amount and number of subsidies Number of organic farms	Existing data on organic farming	MOFA		2017
	Introduce certification systems for conservation friendly industrial establishments	Number of certifications given each year	Database on industrial establishments	MEE	MHI, MED, MOFA, MOT Local councils	2017
	Introduce subsidies for conservation friendly fisheries	Number of fishermen involved in conservation friendly fishery	Total number of fishermen and the type of fishery	MOFA		2020

Strategy 5: Address threats to conserve biodiversity

Human intervention and natural causes are the two main factors affecting biodiversity loss. Threats caused by these factors include habitat loss, over-exploitation, beach erosion, infrastructure development, overpopulation, invasive alien species and climate change among many others. However, in an environment like the Maldives where life depends mostly on marine resources and land is limited, as a consequence of increase in population and the demand for land, habitat loss in both terrestrial and marine ecosystems has escalated. Infrastructure development, land reclamation, harbour construction, seawall and channel building causes habitat loss in lagoons and reefs of many islands. Demand on natural resources causes over-exploitation while anthropogenic pollution and waste exerts further pressures on biodiversity.

Invasive alien species is also a likely threat that needs further attention to understand the extent of impact it has had on the biodiversity of Maldives. Considering the foreign origin of such species, invasive alien species is addressed under Strategy 3. However, the information from the trade data of CITES and the information from National Reports to CBD will contribute as baselines and checklists of species populations and trends.

To address biodiversity loss in the country, Maldives has so far protected 103 bird species and 13 marine species. Additionally, 42 areas have been declared protected under Environmental Protection and Preservation Act (Law no. 4/93). Furthermore, the Baa Atoll of

the Maldives was declared a UNESCO Biosphere Reserve in 2011, making it the only Biosphere Reserve in Maldives.

However, little has been done to address threats on biodiversity. Management of resources and protected areas in Maldives needs to be a priority both at government and individual level. There is almost no natural habitat in Maldives that has zero human intervention. It is therefore, necessary to reserve the few places with minimum exploitation for the sake of future generations.

This Strategy will aim at understanding the status of threats to biodiversity and to address those threats in addition to establishing protected areas.

The targets under this Strategy are:

1. ***By 2025 pressures on coral reefs and other vulnerable ecosystems due to anthropogenic activities and climate change are minimised.***

The aim of this target is to reduce anthropogenic and climate change pressures on biodiversity and to create balance between anthropogenic activities and conservation. The most vulnerable ecosystems probably are those with most human intervention such as the terrestrial, reef and mangrove ecosystems.

The activities under this target include achieving low emission strategies developing a list of vulnerable ecosystems with the extent of risks they face from various threat factors. It also includes developing necessary policies and regulations.

The ***indicator*** for this target is the number anthropogenic pressures addressed through changes in policies and legislation.

2. ***By 2025, at least 10% of coral reef area, 20% of wetlands and mangroves and at least one sand bank and one uninhabited island from each atoll are under some form of protection and management.***

In addition to reducing anthropogenic pressures, protected areas play a significant role in conservation of species and ecosystems. These protected areas when managed properly will experience minimal human induced pressures. The activities under this target include identifying significant ecosystems, declaring protected areas and creating management plans or regulations.

The ***indicator*** for the target is the number of managed protected areas.

3. ***By 2025, impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly.***

The objective of this target is to ensure impacted ecosystems that provide essential services are sustainably restored so that they can continue to provide the services. In Maldives, these ecosystems include water table, mangroves, terrestrial vegetation, reefs, and other marine ecosystems. The activities under this target include identifying impacted ecosystems, conducting restoration programmes and establishing a beach vegetation zone wherever feasible around each island.

The ***indicator*** for this target is the number of impacted ecosystems restored.

4. ***By 2025 rate of loss of all natural habitats are identified and where rate of loss is high, the rate of loss is at least halved or where feasible, brought close to zero.***

This target identifies the rate of loss of natural habitats and where rate of loss is found to be high, the rate of loss will be halved and where feasible brought close to zero. While the target 3 focuses on essential services, this target emphasises the restoration all natural habitats. The activities under this target include identifying ecologically sensitive habitats, observe changes to these habitats, ensuring Strategic Environmental Assessment into all developmental practices and amending the EIA process.

The ***indicator*** for the target is the decrease in rate of loss of identified habitats

5. ***By 2020, prevent extinction of locally known threatened species.***

This target, specifically on species, aims at preventing species extinction caused due to anthropogenic pressures and natural threats. The target is to be achieved by 2020 and includes activities to identify threatened species; amend, prepare new and enforce regulations; designate protected species; and enforce management plans for them.

The ***indicator*** is the number of identified threatened species that are managed.

6. ***By 2018 illegal trade of locally protected species is eliminated.***

Illegal local trade of species is also an issue that requires attention. Recently, a significant number of protected species are subjected to illegal poaching and trade. Hence, the objective of this target is to prevent such trade. The activities for this target include identifying routes and pathways for such trade, enforce preventive measures and amend regulations as necessary.

The ***indicator*** for the target is the number of routes and pathways blocked from the identified list.

7. ***By 2020 pollution from waste and sewage has been brought to levels that are not detrimental to ecosystem functions and biodiversity.***

This target aims at reducing impacts of waste and sewage on biodiversity and ecosystem services. Different forms of waste and pollution are major threats to vulnerable ecosystems such as the reefs, lagoons, mangroves and terrestrial habitats. They also cause huge threat to the very delicate water table that is an ecosystem service to both humans and other terrestrial biodiversity. The activities for this target include creating awareness, enforcing sewage and waste water regulation and establishing air pollution control standards.

The ***indicator*** for the target is the percentage of waste, waste water, sewerage and air pollution managed.

Table 5: Strategy 5 - Address threats to biodiversity

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2025 pressures on coral reefs and other vulnerable ecosystems due to anthropogenic activities and climate change are minimised	Provide 30% of daytime peak load of electricity demand in all inhabited islands through renewable sources	Decrease in carbon foot print Fuel import data	Green House Gas Inventory Fuel Import data	MEE	Maldives Energy Authority (MEA), Utilities	2020
	Establish an inventory of sea grass beds, mangroves, wetlands and swamps	Inventories		MEE	MOFA, local councils	2018
	Asses and identify specific anthropogenic impacts on coral reefs and other vulnerable ecosystems	Number of assessments		MRC	EPA	2023
	Identify and assess the impacts on coral reefs and other vulnerable ecosystems due to ocean acidification and elevated sea surface temperature	Assessment reports	Existing surveys	MEE	EPA, MRC	2025
	Identify gaps and where necessary formulate and review policies, laws and regulations to decrease anthropogenic and climate change impacts on coral reefs and other vulnerable ecosystems	Policy on climate change Number of new regulations and amendments	Existing regulation	MEE	EPA	2025
2. By 2025, at least 10% of coral reef area, 20% of wetlands and mangroves and at least one sand bank and one uninhabited island from each atoll are under some form of protection and management	Survey and identify significant ecosystems that needs to be protected	Survey reports Significant areas identified	Previous surveys on protected areas List of sensitive areas	EPA	Local councils	2018
	Maldives is declared a Biosphere Reserve by end of 2017	UNESCO Man and Biosphere Reserve Status	Baa Atoll Biosphere Reserve	MEE	EPA, MOT, MOFA	2017
	Protect and manage representative areas of the identified ecosystems	Number and types of protected areas	Number of protected areas	EPA	MEE, local councils	2025
	Prepare management plans/regulations	Management plans/regulatio	Hanifaru manageme		EPA	2025

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
	promoting eco-tourism for sustainable management of the protected areas	ns Reports on increase in richness of ecosystems	nt plan			
3. By 2025, impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly	Establish a baseline database on the threats and pressures on ground water lenses and other important ecosystems for water, human health, wellbeing and livelihood	Database	EIA Reports Dredging and reclamation reports Harbour construction reports Housing and other infrastructure reports	MEE	Local councils	2019
	Conduct programmes to restore essential ecosystems through addressing pressures, restoration, and providing alternative solutions to prevent destruction and overuse.	Income generated through biodiversity and ecosystem services Fisheries statistics Number of community based initiatives on ecosystem conservation Number of land use plans addressing restoration of essential ecosystems at local level Number of islands with water quality improved to a potable	SOE Reports Harbour construction reports Housing and other infrastructure reports	MEE		2025

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
		standard				
	Where possible enforce a coastal vegetation belt in all islands	Number of islands with the vegetation belt	Number of islands with vegetation belt	MEE	EPA, local councils	2017
4. By 2025 rate of loss of all natural habitats are identified and where rate of loss is high, the rate of loss is at least halved or where feasible, brought close to zero	Develop protocols to identify ecologically sensitive habitats and establish an updatable “Habitat Database” on the types, number, quantity, quality of and pressures on the habitats of Maldives	The database populated Annual reviews of database Inventory of all critical/sensitive habitats established by 2016 CRMF database by MRC Islands of Maldives database of MOFA	Land use plans of islands 5 th National Report on Biodiversity	MEE	Local councils	2018
	Observe and record changes in habitat annually	Rate of loss/change in habitat	Database on land reclamation, harbour construction, land cleared for infrastructure and area of agricultural land	MEE	Local councils	2025
	Make Strategic Environmental Assessments mandatory for all developmental projects	SEA	EIA Regulation	MEE	EPA, local councils	2020
	Amend EIA process to at least halve the rate of loss of habitats during developmental practices	Change in EIA process SEA Revised Environment	Existing EIA regulation	MEE	EPA, local councils	2017

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
		Act				
5. By 2020, prevent extinction of locally known threatened species.	Identify locally threatened species and establish a database	Survey reports Database on threatened species		EPA		2018
	Revise existing regulations and guidelines where necessary	Number of revised guidelines and regulations on threatened species	Regulation on grouper fishery Guideline on sea cucumber fishery Protected species list	MEE	MOFA, EPA	2017
	Prepare and enforce new regulations and guidelines on threatened species	Number of regulations and guidelines enforced		MEE	EPA	2020
	Designate protected status to newly identified threatened species and revise existing protected categorisation	Increased reports on sighting of threatened species	Existing protected species	EPA		2020
	Develop and enforce management plans for threatened and endangered species	Management plans Population of the species	Protected species	EPA	MRC	2020
6. By 2018 illegal trade of locally protected species is eliminated	Identify routes and pathways of illegal trade and enforce preventive measures to block identified pathways	Number of trade routes blocked		EPA	MEE, MOFA	2018
	Identify gaps and amend regulations to address illegal trade	Amended regulation	Liability Regulation CITES trade Database	MEE	MPS (through Environmental Police)	2018
7. By 2020 pollution from waste and sewage has been brought to levels that are not detrimental to ecosystem	Create awareness on pollution and waste and their effects on biodiversity, human health and livelihoods	Decrease in waste produced per person per day	Waste data	EPA	Local councils, MEE	2018

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
functions and biodiversity	Enforce Waste Regulation nationally	<p>Number of islands enforcing Waste Regulation</p> <p>Number of island and tourism establishments with waste management plans in compliance with national Waste Regulation</p> <p>Percentage of population that have access to regional waste management centres</p>	<p>Waste Regulation</p> <p>Waste Data</p> <p>Number, capacity and types of waste management centres</p>	EPA	Local councils, MEE	2017
	Strengthen enforcement of sewerage and waste water regulation	Number of established sewerage systems in compliance with the regulation		EPA	Local councils, MEE	2017
	Establish and enforce air pollution control standard	<p>Pollution control standard</p> <p>Increased number of air quality monitoring systems</p>	Air quality control standard	EPA	Local councils, Transport Authority	2020

Strategy 6: Strengthen Information Management and Resource Mobilisation

Biodiversity itself is one of the largest platforms of information on earth. Understanding and managing this information is a great challenge. While management of known information and existing data on biodiversity has remained a challenge, there are estimations of millions of species unidentified around the world. Similarly, the number of species in Maldives, the inventory, threats to and trends of species are unidentified and unmanaged. Making use of modern data management systems will not only create databases but also will serve as the most reliable reference for future national and international actions. In this regard, the previous sections have indicated the lack of information management and the need for reliable information to be able to make informed decisions to effectively address biodiversity loss.

Currently Maldives has National Geographical Information System that has portals in several other ministries. However, data entry to this system is limited and incomplete. At national level, statistics is managed by the Department of National Planning, but these statistics also lack data on biodiversity and ecosystem services. Additionally, reports of many research and surveys are scattered within different organisations and individuals. Reports to and from international organisations such as the National Reports to CBD, CITES, UNFCCC can be used as data sources. Additionally, reports of these conventions and other relevant organisations such as CMS, Ramsar Convention and Red list of International Union for Conservation of Nature (IUCN) can be used for population and trend related data.

Hence, there is a need to manage the information on biodiversity to ensure accurate information is used in decision making, creating awareness and capacity building. One of the objectives of this section is to gather and manage the information on biodiversity and ecosystem services.

Previous sections have also revealed the need for finance to address biodiversity loss, conservation and sustainable use. Maldives, being a Small Island Developing State and having limited resources, lacks the necessary financial and technical means for biodiversity conservation. At national level, there are few resources allocated to address issues of biodiversity. Hence, this section also aims at developing new and innovative financial mechanisms that can contribute to achieve other targets of NBSAP 2016-2025.

Targets under this Strategy are:

- 1. By 2025 genetic diversity of cultivated and traditionally used medicinal plants and animals including socio-economically and culturally valuable species and their associated traditional knowledge is maintained to prevent genetic erosion and safeguard their diversity.***

The objective of this target is to create a knowledge base of at least some significant species and ecosystems by 2025. It also aims at creating museum, botanical and zoological gardens in addition to conducting programmes to sustain species of medicinal value.

The **indicator** for this target is the number of species in each one of the establishments.

2. ***By 2025 national data system on the status of key ecosystems, species and genetic diversity are in place and science based technologies related to biodiversity are improved, shared and transferred.***

The objective of this target is to establish a well-managed data management system on biodiversity and ecosystem services. The activities under this target include creating and maintaining a database, training personnel, using advanced methodologies for data gathering and integrating the results of data into national policy and planning.

The **indicator** for this target is the percentage of biodiversity related decisions based on knowledge generated from the data system.

3. ***By 2025 innovative financing mechanisms for biodiversity conservation are established.***

The objective of this target is to create means of generating and mobilising resources required to implement the NBSAP 2016-2025. The activities under this target include introducing eco-tourism and user-pay principles in addition to promoting private sector initiatives and collaborations in biodiversity conservation. It also includes using existing and additional resources of funding for the activities.

The **indicator** for this target is the amount of resource generated for biodiversity.

Table 6: Strategy 6 - Strengthen Information Management and Resource Mobilisation

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
1. By 2025 genetic diversity of cultivated and traditionally used medicinal plants and animals including socio-economically and culturally valuable species and their associated traditional knowledge is maintained to prevent genetic erosion and safeguard their diversity	Establish a database on traditional medicinal plants and animals	Database	Books on Dhivehi <i>Beys</i> (traditional medicine)	MEE	MOH	2018
	Identify significant and threatened species and ecosystems of traditional medicine and enforce a conservation system for sustainable use	<p>Number of threatened species of medicinal plants identified</p> <p>Increase in traditional medicinal plants and animals</p> <p>Number of patients utilising practitioners of traditional medicine</p> <p>Custom data on imports on herbal medicine</p> <p>Number of locally produced</p>	Books on Dhivehi <i>Beys</i> (traditional medicine)	MEE	MNU	2017

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
		traditional medicine available in the market				
	Develop guidelines to conserve socio-economically as well as culturally valuable species and ecosystems	Number of guidelines	Book on Dhivehi Beys (traditional medicine)	MEE		2018
	Conduct programmes to increase rare medicinal plants and animals	Number of patients utilising practitioners of traditional medicine Amount of locally produced medicine available in the market	Books on Dhivehi Beys (traditional medicine)	MEE	MNU, MOH	2024
	Establish and maintain a Natural History Museum of local plants and animals.	Number of plants and animals in the museum Number of specimens in the herbarium and animal museum	EPA herbarium collection	MNU	National Museum	2025
	Establish regional or international collaboration with the seed/gene banks for safeguarding local genetic diversity	Number of local specimens in the regional or international seed/gene bank		MEE	MNU, MRC	2023
	Establish a local botanical garden	Number of local species in the garden		MNU	MEE, EPA, MOFA	2023
	Establish a zoological garden with rescue facilities	Number of local species in the zoological garden		MEE	MNU, EPA, MRC	2025
	Establish a national entity or an institute on traditional medicine	Institute on traditional medicine	Dhivehi Beys Committee	MOH	MNU	2020
2. By 2025 national data system on the status of key	Prepare, update and maintain a database on the biodiversity and ecosystems of	Database on biodiversity and Ecosystem Services	MEE website, facebook, twitter,	MEE	NGIS, Maldives Land and Survey Authority	2024

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
ecosystems, species and genetic diversity are in place and science based technologies related to biodiversity are improved, shared and transferred	Maldives		blogs... etc		(MSLA)	
	Train personnel on handling, maintaining and upgrading of data systems on biodiversity	Number of trained traditional medicine practitioners	National reports on biodiversity	MEE	NGIS, MLSA	2018
	Integrate and update data on the status, trends and threats to biodiversity into National GIS (NGIS)	Number of trained personnel in different government offices Updated GIS system that has biodiversity included	Number of existing trained staff	MEE	MRC, EPA, MOT	2025
	Use advanced remote, mobile and computer technologies to monitor changes on biodiversity	advancement of the technologies used to monitor biodiversity Number, types and sources of information on biodiversity	National GIS GIS in MEE	MEE	NGIS	2017
3. By 2025 innovative financing mechanisms for biodiversity conservation are established.	Introduce eco-tourism throughout the country	Number of eco-tourism initiatives Government income generated from eco-tourism Number of families, businesses benefiting from eco-tourism	Baa atoll Conservation Fund	MEE	EPA, MOT, local councils	2018
	Introduce user-pay principle for using biodiversity resources and ecosystem services	Income generated through user-pay Number of CSR projects	Baa Atoll Biosphere Reserve Addu and Fuvahmulah eco-tourism project	MEE	EPA, MOFT, local councils	2025

Target	Suggested Actions	Indicator	Baseline	Lead Agency	Stakeholders	By
	Promote private sector initiatives through collaborative partnerships	Number of initiatives and partnerships	Existing lease for land, specifically for resorts	MEE	MOFT, local councils	2020
	Integrate Biodiversity conservation and implementation of NBSAP as a major component of Green Fund and Baa Atoll Conservation Fund	Number of projects awarded by each fund to biodiversity Monetary value of projects awarded annually to biodiversity		MEE	Local councils	2025

IMPLEMENTATION PLANS

10. Introduction

Implementation Plans are the evaluation of the needs required in order to effectively operationalise the actions to achieve the targets under the NBSAPs. They recognise the shortfall in human and technological capacity available within the country, and the financial requirements.

With a push from the Secretariat of CBD for national targets to be SMART, every country developing or updating their NBSAP recognises areas that require improvement. These implementation plans set out the areas that require focus, so that all stakeholders understand how they can both support and learn from the process throughout the life of the NBSAP.

The Implantation Plan set out below have been developed in consultation with MEE and the other members of the Biodiversity Technical Group – EPA, LGA, MOFA, DNP, MOT. In addition, a range of literature has been reviewed including capacity and technology needs assessments, policy documents on existing national conservation finance systems, and the national targets and actions developed as part of the NBSAP process.

The Implementation Plan is based on the following key areas;

- Capacity development,
- Technology needs assessment,
- Communication and outreach,
- Resource mobilisation and,
- National governance and co-ordination structure.

11. Capacity development plan

The Maldives has a long history of environmental management. As a country that has historically relied heavily on its natural environment, there exists a potentially strong network of agencies and individuals who can implement the NBSAP 2016-2025. However, increasing population numbers, increased consumption of both resources and the associated waste, and supra-national challenges such as climate change mean that there needs to be even greater effort by all those concerned with conservation.

In order to assess capacity, and to ensure that it can be increased as required, an internal monitoring and evaluation plan is required across all agencies involved with the implementation of NBSAP 2016-2025. This should focus on reviewing whether programmes have been implemented effectively, with adequate follow-up, and where improvements could be made. A financial review should also be included in order to ensure maximum efficiency in future.

Underpinning all staffing requirements, the academic community, in particular the Maldives National University, should be brought in to provide either full-time or part-time training on environmental management and associated skills.

The following are more specific capacity requirements for a range of stakeholders in the Maldives based on interviews and other consultations.

National Government Agencies

Expected to lead the implementation, national government agencies are to guide both other agencies and the public. In order to do so, there is a need to address some weaknesses and to avail of opportunities that may be presented to them.

A recent capacity self-assessment² by the Ministry of Environment & Energy and UNDP highlighted a series of challenges, including hindrances in communicating across departments, understaffing and the semi-autonomous nature of some agencies such as the Environmental Protection Agency. In particular, staff felt ‘overburdened’ due to institutional bottlenecks as well as due to the lack of skills in units, and there was widespread dissatisfaction with regard to the salary structure, selective allocation of incentives, and avenues for upward mobility. A lack of capacity and the need for the adoption of an on-going training program was highlighted with a need to augment capacity in certain key skills at specialist level that are currently lacking.

The EPA in particular, as would be expected of an enforcement agency, needs to have a stronger mandate and an improved budget. It is also proposed to develop the EPA as a separate agency to minimise influence from government. If a Strategic Environmental Assessment which is endorsed by the President’s Office is developed, improved control over infrastructure developments in the Maldives can be achieved. Equally, a comprehensive fisheries resource assessment would bolster the governance of the sector by the Ministry of Fisheries and Agriculture.

² Bagai, D., Singh, S. & Patel, D. 2013. Capacity Self-Assessment of the Ministry of Environment & Energy, Republic of Maldives. UNDP, Maldives.

Improved staffing should also include Environment Officers in all ministries and bodies of government. While it would be preferable for these to be full-time positions, it must be recognised that this may not be possible. However, their presence in such agencies would support greater interaction with such agencies and the Biodiversity Technical Group and could support the production of specific materials to mainstream the NBSAP into other sectors. An example could include wildlife law enforcement officers, who would be responsible for overseeing fisheries and protected areas management.

Apart from these overarching themes, various units within the government raised specific issues. Some of the key ones are listed below:

Agency	Capacity Needs ³ and status identified
Department of Environment	<ul style="list-style-type: none"> • Mandates and job description unclear – given <i>ad hoc</i> work regularly, hence difficult to monitor performance of individuals • As a core of the ministry, the department has shrunk – some functions are now with climate change, Ministry of Foreign Affairs, Ministry of Fisheries and Agriculture or with other departments formed within the ministry. • Information sharing across ministries is a challenge • Abrupt decision-making – Many of the decisions especially related to development lack proper consultation with relevant stakeholders and are not based on strategic long-term planning. • National Council for the Protection of the Environment (NCPE) was an important body of the department that was abolished. It was re-established under a presidential decree in 2014 – however, has not started functioning due to lack of capacity • Lack of staff • In 2014 as much as 80% of the budget was raised from international organisations • Staff mostly under 30 – high turnover, staff leave after training to work in private sector • Department considered good, has most graduates and is considered efficient • Monitoring done for local budget, not for international projects • International funding has a focus on expenditure not outputs, and expenditure is becoming difficult due to procurement • Department has to do procurement as well as implementation due to the lack of a dedicated procurement unit in the Ministry
Environment Protection Agency	<ul style="list-style-type: none"> • While task is to enforce legislation, also assists Ministry to draft legislation • Vision towards becoming an independent body soon • Need to integrate local councils with functions of EPA as monitoring islands and protected areas by a centralised agency is difficult • Current work is reactive rather than proactive – need to evolve mechanisms to move towards that end • Work plan and budgeting is activity based and not mandate driven – need a medium term programmatic approach • •
Department	<ul style="list-style-type: none"> • Relatively new department, established in 2012 (earlier with CC&E)

³ Adapted from Bagai, D., Singh, S. & Patel, D. 2013. *Capacity Self-Assessment of the Ministry of Environment & Energy, Republic of Maldives*. UNDP, Maldives.

Agency	Capacity Needs ³ and status identified
of Energy	<ul style="list-style-type: none"> • Lack of staff – 4 graduates out of 8 staff • Aim to achieve their energy policies and strategies • Scaling up renewable energy use • Funding primarily from donors • Have been able to raise resources for Ministry that goes to a Trust Fund – about MVR 100,000/yr • Identified the need to retain and attract staff through incentives
Energy Authority	<ul style="list-style-type: none"> • Set up in 2006 – regulatory body for conventional and renewable energy • Semi-independent structure with a road-map to full autonomy • Working with ADB & WB for drafting regulations, safety, reliability, financial sustainability & tariff setting • Has a planning and regulatory unit: <ul style="list-style-type: none"> • Regulatory functions constrained due to HR – 30 regulations needs to be implemented and monitored • Data collection and management to benchmark low emission development strategy is weak • Need to develop a legal cell as currently disputes are referred to the Auditor General and this causes delays (alternately contract out a legal firm) <ul style="list-style-type: none"> • Need legal backing to enforce regulations • Inter-sectoral coordination is weak; so is coordination with utilities and local authorities • Should move towards charging license fees • Need specialised training on demand basis, testing facilities for standard certification of equipment, clarity on tariff methodology, and focus on awareness
Department of Climate Change	<ul style="list-style-type: none"> • Commendable for drawing international attention to Maldives and accessing international resources • Objective is to implement National Climate Change Policy Framework, develop projects and source required assistance • Government procurement regulations are cumbersome – three bids as required under the guideline are often not submitted, resulting in fresh advertisements and delays that put additional pressure on human resources • Donors have unrealistic expectation of disbursements (some as soon as 2 weeks from signing of documents) • Monitoring is done at activity level – financial utilisation is only 50-60% • Payment clearances held back by Ministry of Finance • Coordination crucial – follow weekly heads of unit meetings • Negotiations require at least staff for each of the 5 main thematic area of negotiations (Mitigation, Adaptation, Finance, Technology, Capacity Building), most staff travel regularly – working and communication arrangements have been devised in response but the lack of adequate number of staff in the department results in some of the responsibilities being transferred to other departments at times.
Meteorology Office	<ul style="list-style-type: none"> • Few synergies with Department of Climate Change • Ministry has responded well to its needs over the last 2 years • Oriented towards weather forecast and would like to provide value by analysing data for risk assessment for which resources are required • Undergoing capacity exercise with WMO • Lack of resources:

Agency	Capacity Needs ³ and status identified
	<ul style="list-style-type: none"> • Difficulty in monitoring network • Procurement and maintenance of equipment is delayed: infrastructure acquired after Tsunami cannot be maintained • 100 staff (10 graduates; have 20 weather stations, out of which only 9 are currently working) • Need commercialisation for cost recovery (difficulty as civil service) • Need ISO9000 standards for the same – this requires resources and staff – if acquired can contribute to tourism, aviation industry, fisheries, agriculture and transport • Monitoring weather accuracy of forecasts, feedback system with fisheries and other sectors need to be strengthened
Department of Water and Sanitation	<ul style="list-style-type: none"> • Focus not only on policy and planning, but also on implementation • Currently looking at water and sewerage projects • Need to ensure that guidelines are adhered to for which inspection during implementation is critical • Efficiency of staff is not at best due to many factors that affect their motivation • Require training on office management practices; procurement and contract management • Need to integrate PMUs within the Ministry • Greater coordination with local councils as well as Utilities
Corporate Management (Finance & Human Resources)	<ul style="list-style-type: none"> • Finance – Planning, Budgeting and Monitoring • Keep an inventory of assets and buildings • Not enough technically trained staff • Monthly release of expenditure, mid-year review of work plan • Expenditure statement on basis of activities • Work Plan reporting to Permanent Secretary • International Projects (currently adding up to a total of USD 21m), monthly reporting to unit heads who report to donors quarterly • Procurement • Manage the bidding process for expenditure less than MVR 1.5 m, above that coordinate with National Tender Board • Capacity in PMU on procurement not within Ministry • Need to revisit government regulations on procurement • Want on-job training on procurement and integration of PMU procurement • Integration of different systems of procurement – national and (diverse) donor projects requirements • IT needs to be integrated and developed as knowledge management • HR does hiring in accordance with the Civil Service rules and in coordination with the Civil Service Commission • Monitor performance, but no incentives for good performance or adequate punitive action against defaulters • Limited focus on training, limited collaboration with training institutions – a mechanism where the training institutions can take feedback and respond accordingly could enhance training results
Partner Utilities	<ul style="list-style-type: none"> • Male' Water and Sewerage Company Pvt Ltd (MWSC) and FENAKA (for Power, Water, Wastewater and Sanitation) • MWSC (80% owned by Japanese company and 20% by Government), established for water and sewerage of Male'

Agency	Capacity Needs ³ and status identified
	<ul style="list-style-type: none"> • Now expanded to provide engineering solutions (to resorts as well as government projects) for water and sanitation as well as for bottled water • Market leader in water, but face competition from Sri Lankan companies in sewerage projects • EPA regulations are of very high standard • Tariff fixed by government (company established in 1995, but tariff reduced in 2005 and stagnant since) • FENAKA (100% government owned company) • Need to have engineers and technical staff in every island, affecting their profitability • Tariff structure not independently managed • Government could play a greater role in promoting and supporting private sector development through incentives and subsidies for environment friendly and sustainable practices • Unable to bid in competition to MWSC or foreign companies
National Bureau of Statistics	<ul style="list-style-type: none"> • Statistical Year Book is an annual statistics book that includes indicators on environment. The indicators and the annual data records need to be strengthened. • Annual monitoring is done on the basis of templates • Obtaining, managing and disseminating national level data on environment needs to be prioritized and streamlined • National problem on absorption of international aid resources (35%-40% - no figures for MEE) • International assistance is about the same as national budget • MEE could strengthen linkages with education and health sector for enhanced outreach • MEE gets a large portion of PSIP <ul style="list-style-type: none"> • Lack of capacity and procurement delays (even though one of the better agencies with skilled staff) • No statistical unit, need environmental indicators for reporting on conventions

Sub-national government agencies

While governance has been decentralised to atoll and island level, a range of challenges including capacity, lack of staff and resources exist. The basic management of fishing permits and the enforcement of regulations on fisheries and waste can all be undermined due to these limitations.

A stronger fisheries monitoring programme is required, which should include on-board observers, catch audits, and resort fisheries reporting. In addition, each Atoll Council should have an officer who is responsible for conservation, waste management, etc. In order to do so, increased budgets and streamlined regulation management – such as an online fisheries permit registration system – would be required.

Civil Society Organisations

Non-governmental and community-based organisations play a key role in implementing the NBSAP, but are themselves often highly hindered by capacity limitations. Their contributions in outreach and community education, as well as monitoring, should be encouraged and aided through collaborative programmes and joint applications for project funding.

In addition, many non-government organisations have experts on their staff that can support with regular marine and terrestrial monitoring. Such contributions should be supported by the MEE and other agencies, on the condition that the data collected are provided to the appropriate ministry or government agency.

In addition to strengthening individual capacity within these organisations there is also a need to develop and strengthen the network of CBOs and NGOs throughout the country. Such a network would allow for collaboration, information sharing and opportunities for collaborative funding applications.

Private Sector

Production and construction companies need to be made aware of their footprints, and incentives put in place to encourage their minimisation. These can include tax breaks for reducing emissions or minimising waste, fines for development in sensitive areas and pollution incidents, and providing avenues for communicating positive initiatives to the public.

The tourist industry plays a central role in both minimising the impacts of their guests and infrastructure, and for raising awareness of positive action. Hotel staff should be fully aware of the importance of biodiversity to both the business and the country, and guesthouses in particular of the heritage features that may interest their customers. In addition, resort staff can support regular marine and terrestrial monitoring, including on their house reefs, and should provide the data collected to the appropriate ministry or government agency.

The agreed biodiversity targets for the Maldives also suggest a series of capacity development activities required to achieve the listed actions. They are summarised below:

Target	Suggested Actions	Capacity Development Activities
I.1. By 2020 governance on biodiversity conservation is strengthened at local and national level	Assign and train an officer to address environment-related issues at island and atoll level	<ul style="list-style-type: none">• Invite all officers to national-level workshops, seminars and meetings• Establish focal points in atolls council / civil service / national levels• MEE to monitor the developments annually
I.2. By 2020 enforcement of laws and regulations on biodiversity are strengthened	Establish and strengthen Environmental Crime Unit	<ul style="list-style-type: none">• Upgrade training facility to also look at environmental perspective, including providing training modules and curricula, to enhance the environmental police

Target	Suggested Actions	Capacity Development Activities
		<ul style="list-style-type: none"> Strengthen police enforcement through enhanced environmental policy
II.4. By 2025 the capacity of people including community, CBOs, NGOs, media and different government bodies to manage knowledge and to participate in biodiversity planning is increased	Conduct capacity building programmes for NGOs, CBOs, island communities and government offices	Ongoing, to be undertaken by MEE
III.1. By 2016 international trade of endangered species of wild fauna and flora are regulated	Capacity building of customs and quarantine officers on identification, and verification of authorised trade in endangered species of wild fauna and flora	<ul style="list-style-type: none"> Undertake awareness raising / education / training programmes Establish specific focal points in customs to liaise with MEE
VI.2. By 2025 national data system on the status of key ecosystems, species and genetic diversity are in place and science based technologies related to biodiversity are improved, shared and transferred	Train personnel on handling, maintaining and upgrading of data systems on biodiversity	<ul style="list-style-type: none"> Enhance the use of existing GIS systems through working more closely with university staff Enhance the role of the National Centre for Information Technology to explore existing GIS systems in place and strengthen where appropriate MEE to support financially and by other necessary means

12. Technology needs assessment

In a country as spread out as the Maldives, the role of technology is vital to support positive action with regards to the environment. In the 21st century, with the development of information technology and the emerging use of social media, many of the challenges that faced previous generations have now been overcome.

Information technology

The Internet has opened many doors and allowed people to communicate in a way that was unimaginable just twenty years ago when the CBD was in its infancy. The opportunity for instant communication with colleagues thousands of kilometres away means that even meetings with distant Atoll Councils can be had without the need for expensive and time-consuming travel.

Equally, the development of multimedia systems has the ability to enthrall children and adults, and allows them insights into worlds not normally visible, such as the seabed or landscape level ecological functions that lead to the delivery of ecosystem services. By piquing their interest, it can be hoped that behaviours may change for the better.

However, information technology use in the Maldives is not consistent. To this regard, there is a critical need to establish conformity in data collection and methodologies utilised, and this may subsequently require additional staff. This is certainly the case with the digitising of maps through geographic information system (GIS) to ensure that the resultant outputs are interoperable and complementary. For instance, there are no comprehensive baseline studies existing for the whole country, and existing monitoring programmes are not easily comparable.

There are a number of areas where information can be enhanced, which will aid the implementation of the action plans for the targets, as well as supporting the broader achievement of sustainable environmental management. Such areas include the mainstreaming of information and knowledge resources available to the general public, the opportunities for formalised research and educational institutions to gather and provide relevant data, and the use of citizen science for data collection and sharing (in particular for the fisheries sector). For the latter, innovative technological systems, such as mobile apps for recording fish catch would need to be developed by the Marine Research Center.

One system that should be developed is an internet-based Clearing House Mechanism. This repository of information should be a legacy of the NBSAP that can be self-sustaining and allow for users of all backgrounds – environment professionals, finance ministry staff, community-based organisation workers, media personnel or members of the public – to be able to find and understand relevant information on the state of the environment and what they should be doing. Possible items for the Clearing House Mechanism could include:

- Archive of reports;
- Collection of or links to relevant datasets and GIS databases;
- Links to relevant legislation;
- Copies of outreach materials, e.g., posters, etc.;
- Contact details for experts.

Environmental management hardware

Waste management and energy generation at atoll and national levels requires serious thought, planning and investment. With the majority of the country's GDP being spent on fossil fuels, waste to energy is a promising area that could serve a dual purpose – reduce the impacts of detritus from unplanned and overflowing waste heaps that present a major threat to local biodiversity and also ease the country's fiscal burden allowing expenditure on other policy areas. Increased options for recycling could also be investigated, in particular for common packaging such as drinking water bottles. A comprehensive national waste audit is required in this regard.

Despite the importance of maintaining genetic diversity, and the interest that the Maldives has displayed in the area of access and benefit sharing of genetic resources under the CBD, there is a need to develop a gene bank in the Maldives, and to carry out surveys on existing genetic resources.

The agreed biodiversity targets for the Maldives also suggest a series of technology needs required to achieve the set actions. They are listed below:

Target	Suggested Actions	Technology Needs
III.2. By 2018, Cartagena Protocol on Biosafety is implemented in Maldives	Establish and maintain a database on LMOs and their impacts on the environment and human health	Database
III.4. By 2025 invasive alien species pathways are identified and priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment	Establish and update a database on invasive alien species	Database
IV.1. By 2025 all major fishery, including aquaculture and mariculture are managed and harvested sustainably	Strengthening fisheries statistics and data collection mechanisms	
V.3. By 2025, impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly	Establish a baseline database on the threats and pressures on ground water lenses and other important ecosystems for water, human health, wellbeing and livelihood	Database
V.4. By 2025, the rates of loss of all natural habitats are identified and where rate of loss is high, the rate of loss is at least halved or where feasible, brought close to zero	Develop protocols to identify ecologically sensitive habitats and establish an updatable 'Habitat Database' on the types, number, quantity, quality of and pressures on the habitats of Maldives	Database
	Observe and record changes in habitat annually	Data collection systems
V.5. By 2025, prevent the extinction of locally known	Identify locally threatened species and establish a database	Database

Target	Suggested Actions	Technology Needs
threatened species		
VI.1. By 2025, the genetic diversity of cultivated and traditionally used medicinal plants and animals including socio-economically and culturally valuable species and their associated traditional knowledge is maintained to prevent genetic erosion and safeguard their diversity	Establish a database on traditional medicinal plants and animals	Database
VI.2. By 2025 national data system on the status of key ecosystem, species and genetic diversity are in place and science based technologies related to biodiversity are improved, shared and transferred	Prepare, update and maintain a database on the biodiversity and ecosystems of Maldives	Database
	Integrate and update data on the status, trends and threats to biodiversity into National GIS.	Database, GIS
	Use advanced remote, mobile and computer technologies to monitor changes on biodiversity	Remote sensing and data collection systems

13. Communication and outreach strategy

The general purpose of the communication strategy is to support Goal A of the NBSAP to “address the underlying causes of biodiversity loss by mainstreaming biodiversity conservation across government and society.” Through effective implementation of these enabling Targets, it is expected that such actions will support the achievement of the other Targets in the NBSAP.

The challenges in communicating biodiversity are:

- Biodiversity information is complex;
- Biodiversity information is hard to understand;
- Biodiversity information is difficult to relate to concrete policy decisions and needs; and
- Biodiversity is not readily accepted as important in everyday life for many citizens.

Target groups

MEE will focus on assisting communication by partners to end users rather than undertaking direct outreach, except in the cases noted below. The communication products generated will be designed to support outreach to:

- (a) Government agencies, such as those not directly involved in environmental management, but who can have either a positive or negative impact;
- (b) Civil society organizations, in particular national and international environmental NGOs and community based organisations;
- (c) Business and industry, especially natural resource-based industries (agriculture, fishing, etc.) and financial institutions;
- (d) Mass media, including press, radio and television;
- (e) General public directly through poster campaigns (on climate change, waste, heritage, key species & habitats, etc.), social networks, etc.

Goals and expected results

The communication effort will be aimed at achieving a substantive goal and a process goal:

- (a) Position biodiversity and ecosystem services at the centre of national policy making in the Maldives;
- (b) Catalyse the active engagement of entities that impact the natural environment in the Maldives through communicating to the target audiences.

In the longer run, the communication strategy needs to result in changes in discourse, policy, behaviour and biophysical and development trends, in order to meet the overall goal of the NBSAP. The NBSAP partner agencies’ specific contribution to this goal is the facilitation of the flow of information needed to support decision-making. In the short run, over the duration of the project, the communication strategy is expected to result in:

- A demand from end users for information on biodiversity;
- The use of biodiversity-related information in documents, publications and news reports;
- A growing number of entities actively engaged with conservation work, including effective and sustainable ecosystem management.

While all targets require communications and outreach to a degree, there are a number of targets that specifically focus on awareness raising.

Target	Suggested Actions
II.1 By 2025 people are aware of the value of biodiversity and the steps they can take to conserve and use it sustainably	Baseline survey to measure current awareness on biodiversity
	Conduct nationwide awareness programmes for island communities, businesses, government staff, policy makers, expatriates, NGOs, children, youth, fishermen, tourism and other industries
	Conduct general awareness to everyone using different mediums including media
	Review awareness index in 2025
II.2 By 2025 parliamentarians, judiciary, elected officials and decision makers across government are aware of the significance of including biodiversity conservation in all developmental, social and economic policies, strategies, plans, laws and regulations	Conduct awareness programmes for the relevant government officials in government and private sector
	Conduct targeted training for government officials and civil servants through including training modules on biodiversity
II.3. By 2020 law enforcement officials are aware [to enforce] the national laws, regulations and international obligations of Maldives to conserve biodiversity	Conduct awareness programmes and specialised training for enforcement officials especially on environmental policing
II.4. By 2025 the capacity of people including communities, CBOs, NGOs, media and different government bodies to manage knowledge management and to participate in biodiversity planning is increased.	Review existing capacity need assessment report of Maldives on biodiversity
	Conduct capacity building programmes for NGOs, CBOs, island communities and government offices
	Improve participatory capacity of the island communities, NGOs, CBOs and government offices through strengthening financial, technical and human capacity
	Conduct capacity building programmes for media

Activities

Strategic approach

The MEE is not well positioned to directly address final users, but it is extremely well positioned to organise, synthesise and package information coming from multiple sources, which in turn can be used by NBSAP partner agencies and others in their direct interactions with users. The basic approach will therefore be to rely on partners to reach out to users. MEE will facilitate communication activities of partners, seeking to coordinate and minimise competition for the attention of the same audiences, making the flow of information to end users as clear and strategic as possible, and ensuring that the information is generally perceived as highly credible and legitimate.

Activities

(a) Coordination of partnership communication

MEE information will reach users primarily through each NBSAP partner agency, in particular key partners such as the Local Government Authorities and media council/association, in accordance with their communication activities, and as requested by MEE with occasion of specific opportunities. This requires a significant level of coordination among partner's communication officers. In particular:

- Throughout the period of the NBSAP, MEE will convene one or more meetings of all partner's communication officers to request guidance for MEE message and communication product development, and coordinate joint activities, ranging from a minimum level of mass media outreach for the year to concerted campaigns;
- MEE will also establish a regular communication channel (e.g. email listserv) to keep these officers informed of developments and engage in discussions when needed.

(b) Interactions with users

MEE needs to regularly receive input from users to ensure that its communication is successful and to broaden its audience. For this:

- MEE will ensure that Biodiversity Technical Group, members review and discuss outreach plans and their specific communication commitments for any given period;
- MEE will follow CBD CEPA's plan to establish focal points and national implementation bodies for CEPA activities. These bodies, when established, will be tasked with engaging national media, educators, business, youth and the scientific community, and MEE will seek to coordinate a flow of information to and from these instances;
- The Clearing House Mechanism will serve as the main instrument for periodic updates, including electronic alerts mailed out widely.

(c) Message development

MEE will develop and propose to partners a positioning for the NBSAP partner agencies. Specific messaging will vary depending on circumstances and on agreement by the Biodiversity Technical Group.

(d) Communication product development

The Biodiversity Technical Group will produce materials that partners can use in their outreach activities, including products tailored for the four main audiences (government agencies, civil society organisations, business/industry and media). The products include:

- A collection of PowerPoint slides to be used by NBSAP partners to explain biodiversity and the objectives of the NBSAP;
- Highly designed, user-friendly maps, graphics and tables that can be used in multiple media. This could include animated visualisations of the data that can be used in audiovisual presentations;
- The Clearing House Mechanism website will be the main platform for direct outreach, including periodic e-mailing to communicate updates as they become available;
- A periodic publication with a compilation of the information generated to date. The frequency of the publication needs to be determined in accordance with the schedule

of production of indicators. The frequency will in turn determine its nature and size. For instance, a schedule that will yield new indicators quarterly may warrant an update, newsletter or leaflet format for the publication;

- Contacts for the press and press kits. MEE will keep an updated list of experts in the various topics to facilitate access by the media to the sources of information, as well as a standard press pack that can be used and complemented by partners.

(e) Delivery

In addition, MEE will:

- Liaise with partners to explore the use of its products in partners' periodic publications;
- Use the existing television channels to regularly communicate the messages on biodiversity;
- Develop a website and electronic alerts – MEE will keep an updated website through which all its information can be accessed, and where the use of social media supported;
- Give Press briefings and releases –MEE organise specific media events (such as the release of findings);
- Provide biodiversity literacy training to island/atoll councillors via the Maldives local government Institute;
- Include biodiversity literacy in the school and university curricula.

Throughout the year there are celebrations of various days associated with biodiversity and environment and MEE partners will coordinate messaging and press releases on those dates – e.g. World Environment Day, International Day for Biodiversity, Wetlands Day, etc.

In addition, MEE will coordinate with partners' actions to seize specific opportunities to organise press briefings and provide useful material to the press when opportunities arise (such as natural disasters or major international meetings).

Messages

To frame its messages, MEE will use existing material and efforts to make biodiversity as less complex and more understandable and easier to relate to concrete policy issues. With clear articulation of the general case for biodiversity, the Biodiversity Technical Group will develop the content of its communication efforts around:

- A clear, compelling articulation of challenge/problem that MEE addresses, and its legitimacy;
- What NBSAP is (goals, participating agencies, timeline, resources);
- Why biodiversity is important.

A major messaging issue that needs to be addressed is, as the Millennium Ecosystem Assessment reports, “projections and scenarios indicate that [rapid conversion of ecosystems] will continue, or accelerate, in the future”. The NBSAP agencies need to communicate in a way that does not build unrealistic expectations. Partners should discuss this issue at their regular meetings to provide the communications team with guidance in this regard. The communications team, in turn, needs to discuss this with communication officers of partners.

Monitoring

Since communication will rely heavily on outreach by partners it is important to establish early on a monitoring system that feeds back to MEE in order to assess the effectiveness of communication activities and modify course accordingly.

MEE will monitor both the internal and external flow of communication. The former, to ensure that partners are well informed, engaged and able to perform the communication activities agreed. The latter, to ensure that biodiversity information is well received by end users. MEE will develop a monitoring tool (such as a web-based survey) that partners will formally commit to implement. The tool should assist MEE to gather standardised information from partners and end users.

For internal communication monitoring purposes, MEE will develop a tool to assess partners' levels of information, levels of participation in the implementation of communication activities, and perception of benefits derived from MEE communication activities.

For external communication monitoring, MEE will develop, together with partners, a tool to assess progress towards achieving communication goals and results. Examples of indicators and means of verification that could be considered in this tool are presented in Table 7 below.

Table 7: Examples of indicators and means of verification for NBSAP communication and outreach plan

	Result	Indicator	Means of verification
Goal 1: Positioning	A demand from end users for the information generated by MEE and NBSAP partner agencies	<ul style="list-style-type: none"> - Number of downloads from website - Number of notes of request for material from users - Survey of users that receive materials directly from MEE and NBSAP partner agencies 	<ul style="list-style-type: none"> - Download records/statistics - Written notes received - Survey forms received
	The use of MEE and NBSAP partner agency information in documents, publications and news reports	<ul style="list-style-type: none"> - Number of citations / graphics used in publications and official reports - Media hits 	<ul style="list-style-type: none"> - Publication / reports clippings - Press clippings
Goal 2: Engagement	Formal recognition of the MEE and NBSAP partner agencies products by central legislative governmental bodies	<ul style="list-style-type: none"> - Number of decisions and resolutions adopted that make reference specifically to biodiversity - Number of information documents requested by organisations 	<ul style="list-style-type: none"> - Decisions and resolutions - Information documents
	A growing number of entities actively engaged with MEE and NBSAP partner agencies' work, both in the production of information and in its dissemination	<ul style="list-style-type: none"> - Number of requests to join in activities - Number of new members accepted 	<ul style="list-style-type: none"> - Letters from prospective members - Letters accepting inclusion in activities

14. Resource mobilisation plan

In order to effectively implement NBSAP and achieve its objectives, it is essential to have budgetary support for the entire period of implementation. As such it is important for the NBSAP to be fully adopted by at least all agencies on the Biodiversity Technical Group. With such support, negotiations with other agencies, such as the Ministry of Finance, Department of National Planning and the President's Office can be more effectively undertaken.

Biodiversity is both directly and indirectly important to the economy of the Maldives. For instance, the table below shows the direct contribution of biodiversity to key Maldives national economic indicators in 2006. Studies have also shown the indirect value as a contribution to shoreline protection, carbon sequestration, fishery nurseries, etc.

Table 8: Biodiversity contribution to key national economic indicators in 2006

		Tourism (a)		Fisheries (b)		Biodiversity (a+b)		Total In Maldives ⁺
		Amount	% of total	Amount	% of total	Amount	% of total	
Employment	No. of jobs	64,000	58.1%	14,500	13.2%	78,500	71.2%	110,231
Public revenue*	MVR mil.	2,500	48.3%	12	0.2%	2,512	48.6%	5,172
Foreign exchange	USD mil.	434	62.1%	1	0.1%	435	62.2%	698
Exports	MVR mil.	n/a	---	1,700	97.9%	1,700	97.9%	1,736
GDP**	MVR mil.	9,741	82.0%	855	7.2%	10,596	89.2%	11,885

* tax and non-tax current revenue

** at current market prices;

⁺ from MPND, 2007, Statistical Yearbook 2007. Ministry of Planning and National Development, Male'

Source: As reported in Emerton L., Baig S. & Saleem M. 2009. *Valuing Biodiversity. The economic case for biodiversity conservation in the Maldives. AEC Project, Ministry of Housing, Transport and Environment, Government of Maldives and UNDP Maldives.*

The Maldives has some good examples of financing environmental management at the national and sub-national level. For instance, the Baa Atoll Conservation Fund has been created as a collaborative effort between the Global Environment Facility and the Government of Maldives, as well as the majority of tourist resorts operated in the Baa Atoll pledging to donate, which is to finance conservation projects as well promote sustainable livelihood opportunities in the area. Equally, the Maldives Green Fund has been announced

to work as an overarching trust fund for climate change, conservation, and sustainable development projects nationally.

Needs

As in many countries, support for conservation remains a secondary concern to other development needs such as infrastructure and health. With increasingly stretched national budgets, an over-reliance on the current allocations to the Ministry of Environment & Energy for the implementation of the NBSAP is unlikely to provide satisfactory results. While the existing initiatives are a good start, more needs to be done.

In order to supplement the national budgetary allocation, as well as facilitating the raising of additional funds from other sources, it is advisable that economic valuations of biodiversity and ecosystem services are carried out. Through a clear understanding of the scale of the direct contribution of tourism, fisheries, and other sectors to the national economy, as well as the indirect contribution through the health and well-being of the national workforce, it would be possible to increase awareness and understanding by those not familiar with ecological concepts. Similarly, a requirement to include biodiversity and other environmental concerns into island development plans in order to receive annual budget should be enforced.

Options

There are a number of sources of funding available for the implementation of aspects of the NBSAP. Below is a list of some of those options:

Mobilising domestic biodiversity revenues

Strategies for mobilising domestic revenues in support of NBSAPs include:

- Tourism revenues, such as protected areas entry fees, diving and yachting fees, airport passenger fees, cruise ship fees, taxes and fines, hotel taxes and voluntary contributions by tourism operators;
- Fishing and forestry industry revenues, such as quotas, recreational fishing licenses, eco-labelling product certification, fishing access payments, and fines for illegal activities; and
- Real estate and development rights, such as purchases and donations of land, conservation concessions, conservation easements, real estate tax surcharges for conservation, biodiversity offsets, and tradable development rights.

The proposed Maldives Green Fund has been recognised as a potential highly important source of funds. Of the five priority target areas, biodiversity and natural resources is jointly considered the most important along with renewable energy and energy efficiency. While all five target areas⁴ have some relevance to the NBSAP, specifically under biodiversity and nature protection, the possible subsectors that are proposed are:

- Management of protected areas (equipment, infrastructure);
- Sustainable livelihood alternatives in and around protected areas;
- Sustainable economic development in and around protected areas;

⁴ 1. Renewable energy and energy efficiency; 2. Biodiversity and natural resources; 3. Waste management; 4. Water management; 5. Education & research program

- Conservation programs for specific species of fauna and flora;
- Education and research in the area biodiversity and nature protection;
- etc.

The introduction of a ‘green tax’ to protect biodiversity may be a possibility, with the revenue generated contributing to trust funds like the Maldives Green Fund. The tax could either be a reframing of existing taxes and duties, such as customs duty on vehicles or plastic bags, but could also focus on other activities such as commercial activities that are seen to impact the environment. As such, there would be a need to measure the negative externalities of activities undertaken and equivalent rates calculated on the impact. Biodiversity offsets are also an option here where the contribution of in-kind resources, such as staff salaries, technology, and land could be accepted in addition to or instead of direct monetary payments. The revenue could be allocated to city/atoll councils, with the councils responsible for carrying out activities to protect the environment. A customs procedure code (CDC) to monitor the imports which cause damage to biodiversity and ecosystems would also need to be introduced.

The rectifying of perverse incentives that impact the environment may also be another useful funding source. Examples here may include reallocating support to the importation of fuel towards the promotion of sustainable energy sources, fisheries development programmes also including the enforcement of no-fishing zones/periods, or any tourism development programmes to include reef management training or waste and energy management programmes.

The private sector could offer substantial financial contributions towards the achievement of the targets. Either operating at the local or national level, efforts under the guise of corporate social responsibility (CSR) could lead to sponsorship of training programmes, funding of particular habitat or species conservation activities, the provision of clean technology such as solar arrays for island communities and electric vehicles for government agencies, or contribute to meeting the information technological needs. Companies may be present in the Maldives, such as tourist resorts, or could be located abroad and can recognise the value in supporting a high-profile environment-rich yet perilous country such as the Maldives. Legislative options for such resource flows may need to be reviewed during the implementation of this NBSAP.

Global Environment Facility

The Maldives has been successful in securing funding from the Global Environment Facility (GEF) in the past. While the GEF requires the country to provide counterpart funding, the resources from the GEF can provide additional support to large-scale activities.

International cooperation

Funding from other national governments has been used to support a number of environmental initiatives in the Maldives, including waste management, energy generation and climate change adaptation. Such projects may also include additional benefits, such as the provision of technology to fisheries auditing schemes and a Masters course on Fisheries Management.

While international schemes, such as LifeWeb should be investigated, nascent schemes for carbon sequestration with regards to climate change, such as Blue Carbon, could offer a country with widespread suitable marine habitat like the Maldives an important opportunity to secure additional financial resources.

15. National governance and coordination structure

The successful implementation of NBSAP requires the coordinated support of a wide range of governmental and non-governmental agencies. Through strong leadership, effective dialogue and opportunities to review actions and outcomes, the Biodiversity Technical Group would be in a strong position to develop effective policies and build capacity to effect real change and maximise the potential for success during the period of 2016-2025.

Led by the Biodiversity Unit of the Ministry of Environment & Energy, a Biodiversity Technical Group – already constituted to facilitate the development of this NBSAP – should meet on a regular basis (e.g., every six months) to discuss activities, review monitoring system, and decide on improved management approaches. It should be the responsibility of the Biodiversity Technical Group to drive the development of appropriate guidance, legislation and proposals for the necessary assessments. The Group should also review national reports, including those for the CBD and for the annual Statistical Yearbook of the Maldives.

Table 9 provides a summary of the roles of each agency or group involved in the NBSAP (italicised agencies are currently members of the Biodiversity Technical Group).

Table 9: Summary of roles of each national agency or group in the implementation of the NBSAP

Group	Agency	Role
Environmental management	<i>Ministry of Environment & Energy</i>	The Biodiversity Unit holds responsibility for the overall coordination of NBSAP implementation. Other Departments, such as water, climate change, etc. will offer expertise in their respective fields and offer support as necessary for specific targets. The Biodiversity Unit will form a central hub for information sharing, ensure delivery of the Clearing House Mechanism and provide reports to both the Biodiversity Technical Group and other relevant audiences.
	<i>Environmental Protection Agency</i>	The Environmental Protection Agency has a key role in the collection and collation of data on a range of environmental parameters. Equally, it is centrally placed to advise on the development of new policies such as Strategic Environmental Assessments and strengthening existing Environmental Impact Assessment legislation. The Environmental Protection Agency also advises on technical matters related to the implementation of a number of multilateral environmental agreements, which supports the

Group	Agency	Role
		intention of the NBSAP
	<i>Ministry of Fisheries & Agriculture</i>	<p>Sustainable fisheries are of major importance to the Maldivian economy as well as for the general well-being of the population, and the Ministry of Fisheries & Agriculture is responsible to ensure that this occurs. As a result, it plays a central role in the development of policies and guidance with regards to marine resource management and to the enforcement of related legislation.</p> <p>The Marine Research Center is the scientific arm of the Ministry of Fisheries & Agriculture and gathers and disseminates related statistics. It is therefore important for the management of the NBSAP and assessing progress.</p>
Financial agencies	<i>Ministry of Tourism</i>	The primary driver in the Maldivian economy, tourism is vital for the country and is itself highly dependent on the natural environment. Through resorts, dive safari operators and guesthouse owners, the Ministry has the power to regulate and guide such business owners, and their guests, towards effective environmental management.
	Ministry of Economic Development	As the acting agent tasked with trade issues on banned species, the Ministry holds an essential role in fighting the pathways of existing and potential invasive alien species.
	Ministry of Finance and Treasury	Since the Ministry of Finance co-ordinates the annual budget for all agencies, it is vital to ensure that the staff is aware of the values of biodiversity and ecosystem services. By positive engagement with the staff, adapting existing taxation and other economic policies may be facilitated to remove perverse incentives and to enhance resource mobilisation.
	Ministry of Foreign Affairs	Responsible for securing bilateral aid and its effective expenditure, the Ministry of Foreign Affairs is a key partner to facilitate north-south and south-south cooperation in terms of both financial and technical assistance for the implementation of the NBSAP.
Construction & development	<i>Department of National Planning</i>	One of the objectives of the Department of National Planning is to promote national development through effective planning. Therefore it is a key agency for the development of a national Strategic Environmental Assessment. Also responsible for the Statistical Yearbook, the incorporation of a more comprehensive suite of biodiversity and ecosystem service indicators can aid in communicating the NBSAPs message to the public.
	<i>Local Government Authority</i>	The Local Government Authority coordinates, monitors and provides guidance to the Atoll Councils to ensure that they implement policies in a standardised and effective manner. In order to ensure that environmental policies are implemented effectively through the decentralised system, the Local Government Authority is a vital agency for the successful implementation of the NBSAP.

Group	Agency	Role
	Atoll, Island & City Councils	Following the devolution of many environmental responsibilities to the councils, it is more important than ever to ensure that all are working in a coordinated manner. This includes monitoring, coordinating and conducting relevant activities on islands such as the issuance of permits, effective management of waste and energy generation. It should be expected that council members can freely and easily approach the Local Government Authority, the Ministry of Environment & Energy and the Ministry of Fisheries & Agriculture, as well as other bodies, with comments and queries.
	Ministry of Housing & Infrastructure	Ministry of Housing & Infrastructure can assist in the implementation of a range of policies. Meeting economic, development and environmental objectives on an equal level is challenging, and so it is by bringing this Ministry to the table when developing policies and seeing them implemented that will lead to success.
	Private sector	The private sector as a whole plays a significant role in the development of the Maldives economy, and therefore can greatly influence national policy on a range of related issues, including the environment. Support and cooperation of the public and private sector, such as companies like Maldives Ports Limited, can result in great strides towards achieving conservation objectives.
Legislation & enforcement	President's Office & the Cabinet	The President's Office and the Cabinet are ultimately responsible for the implementation of legislation and are seen as holding the power to ensure that all agencies adhere to their commitments. They, therefore, can be a powerful ally in the implementation of the NBSAP.
	Judiciary	As the body responsible for the enforcement of relevant environment law in the Maldives, the Judiciary holds a powerful responsibility. Full awareness of the value of biodiversity and ecosystem services, as well as the legislation in place to ensure its conservation and sustainable use, is therefore necessary by individuals within the Judiciary.
	Maldives Police Service	Responsible for the enforcement of laws, the Maldives Police Service needs to be aware of the relevant environmental legislation and be prepared to act. Equally, the Maldives Police Service can play an educational role by informing members of the public of any minor infractions, without necessarily penalising on every occasion.
	Coast Guard	Responsible for the enforcement of laws at sea, the Coast Guard needs to be aware of the relevant environmental legislation and be prepared to act. Equally, the Coast Guard can play an educational role by informing members of the public of any minor infractions, without necessarily penalising on every occasion.
	Maldives Customs Service	The Maldives Customs Services play a vital role in data management, monitoring and reporting of export and import of biodiversity into Maldives. The mechanisms that currently exist

Group	Agency	Role
		needs to be revised to accommodate data monitoring obligations of international treaties. Customs can also create awareness among traders and general public on the biodiversity related control mechanisms monitored through them.
Support agencies	Civil society organisations	Community-based and non-governmental organisations play an important role in educating the public and involving them in environmental activities. From citizen science to volunteer habitat management initiatives, such organisations have a long record of mobilising the public into action. Equally, they can play a vital role in building community support and effectively communicating a conservation message.
	Media	Raising the awareness of the general public is an essential component for the successful achievement of the NBSAP. Through advertisements in printed media, television and on radio, as well as special programmes, the media has an existing and trusted avenue to carry the conservation message.
	Academia	In addition to children being encouraged to set up environmentally-friendly practices in the home, such as recycling and reusing waste packaging, future government staff and industry leaders can be educated in the importance of the natural environment through school – messages that could stay with them forever. Equally, future conservation practitioners, through appropriate university level courses, can gain the skills necessary to undertake the complicated processes of effective species and habitat management. In addition, student placements and thesis studies offer excellent opportunities for associated data collection and analyses, as well as other tasks.
	Private sector	The production of goods and service, and the resources required to do so, can have a negative impact on the environment, whether through fuel use, byproducts or the packaging discarded as waste. While companies can minimise their footprints, they can also encourage consumers to do likewise such as through using recyclable or biodegradable packaging or subsidising effective waste management schemes.

Figure 4 offers a visual representation of the overlapping roles of all agencies involved in the effective implementation of the NBSAP (italicised agencies are currently members of the Biodiversity Technical Group).

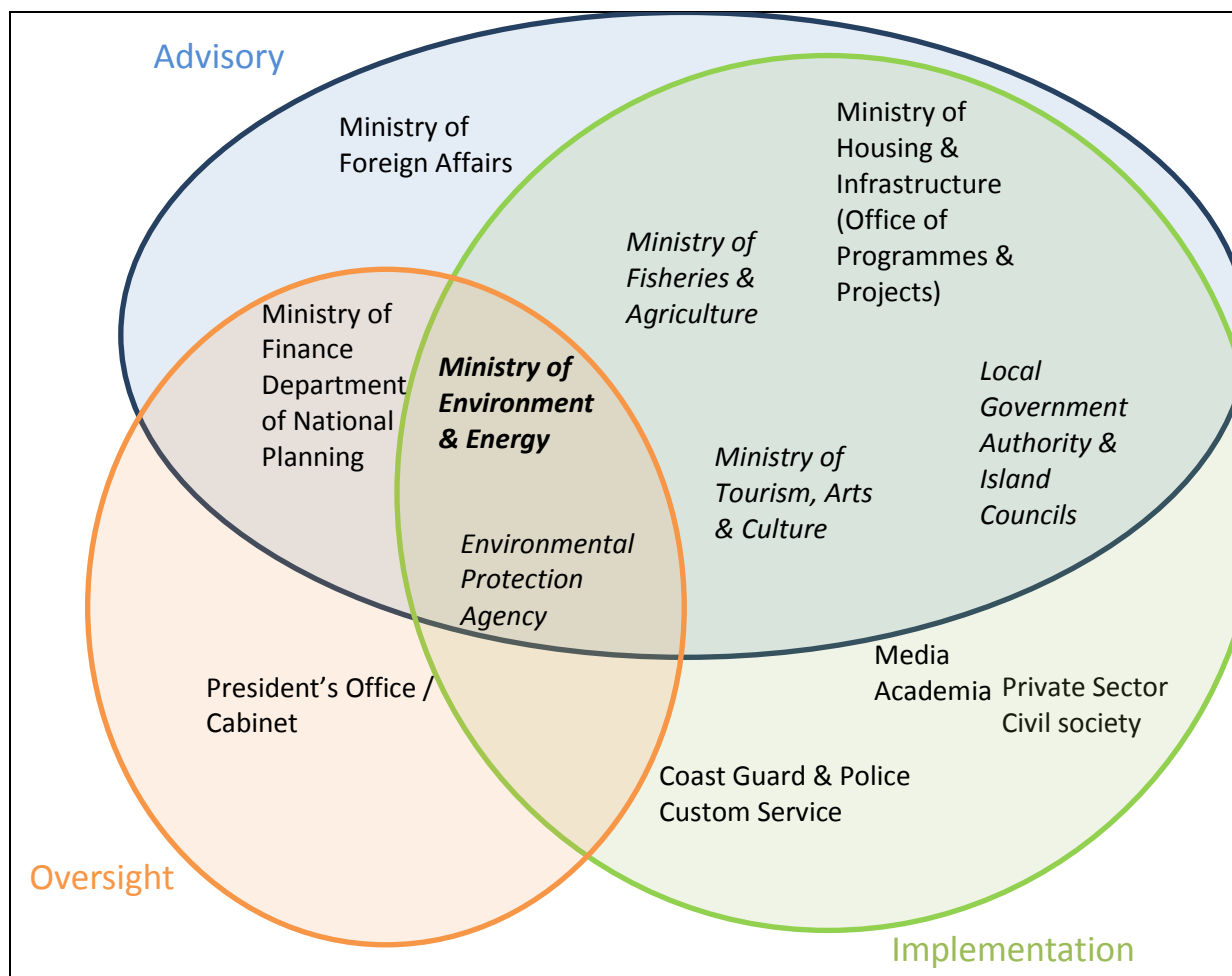


Figure 4: Roles of each national agency or group in the implementation of the NBSAP

RESOURCE MOBILISATION PLAN

16. Maldives Resource Mobilisation Plan – Target cost breakdown

The following lists anticipated cost items for each target, based on the suggested actions provided. The * indicates where existing staff may be sufficient to undertake the necessary administrative and technical work, or at least provide guidance to temporary or permanent support taken on for the specific needs required. Only the Lead Agencies (with MEE substituted where a Lead Agency is not identified) have been considered as staffing cost items, with the assumption that the Lead Stakeholders will provide their time without charge. The costs were estimated based on rough estimations and do not consider costs that may be incurred for administration and logistics. No comprehensive research was conducted for the estimation and no comprehensive consultative process was carried out for costing. The information was derived from existing situations using current annual budgeting as a base. Hence, the figures shown are conservative and crude.

The cost estimate shows at least MVR 342 million may be required to implement the NBSAP. In consideration of the limitations of this exercise, the estimates shall not be taken as definitive and where appropriate it shall be adjusted to ensure maximum attainment of the vision of this action plan.

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
1	I. Strengthen governance, policies and strategies for biodiversity								
	I.1 By 2020 governance on biodiversity conservation is strengthened at local and national level	Revise existing mandates of all government offices including local governments to incorporate and/or identify their respective responsibilities in mainstreaming biodiversity conservation	<ul style="list-style-type: none"> Existing MEE Staff* Additional staff hire/consultants 	500,000	MEE	PO, LGA, EPA	2016-2018	3	1,500,000
		Assign and train an officer to address environment-related issues at atoll level	<ul style="list-style-type: none"> Existing EPA Staff* Workshop costs Production of training materials 	600,000	EPA	LGA, CSC, MNU	2016	1	600,000
		Revise existing school curriculum to include environmental conservation at all levels of primary and secondary education	<ul style="list-style-type: none"> Existing MEE & MOE Staff* Produce textbooks & other materials consultancies 	500,000	MEE	EPA, MOFA, MOE, NIE, MNU	2016-2020	5	2,500,000
	I.2 By 2020 enforcement of laws and	Identify and address gaps in enforcing legal	<ul style="list-style-type: none"> Existing MEE Staff* 	500,000	MEE	EPA, AGO	2016	1	500,000

Suggested priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMATED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHOLDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	regulations on biodiversity are strengthened	frameworks							
		Strengthen Environmental Police	<ul style="list-style-type: none"> Existing MEE Staff* Additional staff hire Develop training modules & other materials Workshop costs Study tour to learn good practices 	250,000	MPS	MEE, EPA, MOFA, local councils	2017-2020	4	1,000,000
	I.3 By 2025 mainstream biodiversity into island, atoll, sectoral and national plans.	Amend existing island, atoll, sectoral and national developmental plans to integrate biodiversity conservation, and include biodiversity conservation in new plans	<ul style="list-style-type: none"> Existing MEE Staff* Existing LGA & local council staff Workshops and trainings 	500,000	MEE	LGA, local councils, all government offices	2016-2018	3	1,500,000
		Calculate and identify the value of national biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFT staff Fund research by academic and 	2,000,000	MEE	MOFT, PO	2016-2022	7	14,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			<ul style="list-style-type: none"> other experts Database development 						
		Incorporate biodiversity values into national accounts	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFT staff consultants 	400,000	MEE	MOFT, PO	2024-2025	2	800,000
	I.4. By 2025 government, businesses and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits	Introduce extended producer/extractor responsibility schemes for the damages caused to the biological resources and ecosystem	<ul style="list-style-type: none"> Existing MEE Staff* Existing EPA staff Production of explanatory documents & other materials Consultants Workshops and trainings 	350,000	MEE	EPA	2016-2018	3	450,000
		Introduce standards for safe ecological limits in production and consumption of biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA & MOH staff Fund research by academic and other experts Production of explanatory documents & 	400,000	MEE	MOFA, MOH	2016-2020	5	2,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			other materials						
		Certify those industries that have sustainable production enforced	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA, MOT & MOFT staff Cost of certification system development and awareness raising 	100,000	MEE	MOFA, MOT, MOFT	2019-2025	7	700,000
5	II. Enhancing communication and outreach through awareness programmes and capacity building								
	II.1 By 2025 people are aware of the value of biodiversity and the steps they can take to conserve and use it sustainably	Baseline survey to measure current awareness on biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* Hire survey company 	1,000,000	MEE		2016	1	1,000,000
		Conduct nationwide awareness programmes for island community, businesses, government staff, policy makers, expatriates, NGOs, children, youth, fishermen, tourism and other industries	<ul style="list-style-type: none"> Existing MEE Staff* Workshops and trainings Consultancy Production of media materials – documents, posters, videos, etc. 	500,000	MEE	Media	2016-2025	10	5,000,000

Suggested priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMATED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHOLDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
		Conduct general awareness through various mediums	<ul style="list-style-type: none"> Existing MEE Staff* Production of media materials – documents, posters, videos, etc. 	100,000	MEE	Media, MOE	2016-2024	9	900,000
		Review awareness index in 2025	<ul style="list-style-type: none"> Existing MEE Staff* Hire survey company 	1,000,000	MEE		2025	1	1,000,000
	II.2 By 2025 parliamentarians, judiciary, elected officials and decision makers across government are aware of the significance of including biodiversity conservation in all developmental, social and economic policies, strategies, plans, laws and	Conduct awareness programmes for the relevant government officials in government and private sector	<ul style="list-style-type: none"> Existing MEE Staff* Production of materials – documents, posters, videos, etc. Workshop costs 	150,000	MEE		2016-2020	5	750,000
		Conduct targeted training for government officials and civil servants through the inclusion of biodiversity in training modules	<ul style="list-style-type: none"> Existing MEE Staff* Existing CSC staff Production of training modules & other materials Workshop costs 	70,000	MEE	CSC	2020-2025	5	350,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	regulations.								
	II.3. By 2020 law enforcement officials are aware of the national laws, regulations and international obligations of Maldives and enforce them to conserve biodiversity	Conduct awareness programmes and specialised training for enforcement officials especially on environmental policing.	<ul style="list-style-type: none"> Existing EPA Staff* Develop training modules & other materials Workshop costs 	100,000	EPA	MEE, MPS, MCS, MNDF	2016-2020	5	500,000
	II.4. By 2025 the capacity of people including communities, CBOs, NGOs, media and different government bodies to manage knowledge management	Review existing capacity need assessment report of Maldives on biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* consultant 	250,000	MEE		2016	1	250,000
		Conduct capacity building programmes for NGOs, CBOs, island communities and government offices	<ul style="list-style-type: none"> Existing MEE Staff* Develop training modules & other materials Workshop costs 	500,000	MEE	DNP	2016-2018	3	1,500,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	and to participate in biodiversity planning is increased.	Improve participatory capacity of the island communities, NGOs, CBOs and government offices through strengthening financial, technical and human capacity	<ul style="list-style-type: none"> Existing MEE Staff* Develop training modules & other materials Workshop & other meeting costs 	100,000	MEE	Local councils	2016-2025	10	1,000,000
		Conduct capacity building programmes for media	<ul style="list-style-type: none"> Existing MEE Staff* Develop training modules & other materials Workshop costs 	70,000	MEE	Media	2016-2020	5	350,000
6	III. Work together globally for biodiversity conservation								
	III.1. By 2018 international trade of endangered species of wild fauna and flora are regulated	Strengthen the capacity of the quarantine facilities in Maldives	<ul style="list-style-type: none"> Existing MOFA Staff* Existing MEE staff Develop training modules & other materials Workshop costs Construct/enhance quarantine facilities 	5,000,000	MOFA	MEE	2017	1	5,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
		Identify gaps in existing laws and regulations on trade in endangered and protected species and revise the laws and regulations where appropriate	<ul style="list-style-type: none"> Existing MEE Staff* Existing MED staff Workshops 	80,000	MEE	MED	2016	1	80,000
		Capacity building of customs and quarantine officers on identification, and verification of authorised trade in endangered species of wild fauna and flora	<ul style="list-style-type: none"> Existing MEE Staff* Develop training modules & other materials Workshop costs Costs of auditing of trade records 	100,000	MEE	MOFA, MCS	2016-2018	3	300,000
		Conduct awareness programmes to decrease traders of wild fauna and flora	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA staff Production of media materials – documents, posters, videos, etc. 	100,000	MEE	MOFA	2016-2018	3	300,000
		Ensure CITES compliance	<ul style="list-style-type: none"> Existing MEE Staff* Costs of auditing of trade records 	350,000	MEE		annually from 2016	10 years of NBSAP period	3,500,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			<ul style="list-style-type: none"> Annual reports to CITES 						
		Conduct population surveys of commercially valuable and other key species affected by trade	<ul style="list-style-type: none"> Consultancy Population surveys Database Additional Staff 	2,500,000	MEE	EPA, MOFA	2016-2018	3	7,500,000
	III.2. By 2018, Cartagena Protocol on Biosafety is implemented in Maldives	Revise and enforce the regulation on biosafety	<ul style="list-style-type: none"> Existing MEE Staff* Workshop 	400,000	MEE		2016-2017	2	400,000
		Establish and maintain a database on LMOs and their impacts on the environment and human health	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	500,000	MEE	Ministry of Health and Health Protection Agency	Late 2016-late 2018	2	1,000,000
		Conduct awareness programmes for the public and relevant organisations on biosafety	<ul style="list-style-type: none"> Existing MEE Staff* Costs of auditing of trade records Awareness materials 	80,000	MEE	Media	2016-2018	3	240,000
	III.3. By 2022 fair and equitable access to genetic	Make an inventory of the genetic resources in Maldives	<ul style="list-style-type: none"> Existing MEE Staff* Fund research by academic and 	2,000,000	MEE	EPA, MRC, MOFA	2018-2022	5	10,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	resources and associated traditional knowledge, and fair and equitable sharing of benefits arising from them are regulated.		other experts <ul style="list-style-type: none"> • Consultancy • Equipment, • Travel 						
		Strengthen existing regulations and where necessary make new regulation/guidelines on the ownership of, rights and access to and benefit sharing of genetic resources	<ul style="list-style-type: none"> • Existing MEE Staff* • Existing EPA & MRC staff • Cost of publishing regulation/ guidelines • Workshop • Consultancy 	500,000	MEE	EPA, MRC	2016-2017	2	1,000,000
	III.4. By 2025 invasive alien species pathways are identified and priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment	Establish and update a database on invasive alien species	<ul style="list-style-type: none"> • Existing MEE Staff* • Hire database expert • Fund research by academic and other experts to populate database 	250,000	MEE	EPA and MOFA	2017	1	250,000
		Establish and implement national action plans for addressing invasive alien species	<ul style="list-style-type: none"> • Existing MEE Staff* • Existing EPA Staff* • Fund research by academic and other experts 	150,000	EPA	MEE, MOFA	2018-2025	8	1,200,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			<ul style="list-style-type: none"> • Workshops 						
		Identify pathways of introduction of invasive alien species and establish mechanisms to prevent such pathways	<ul style="list-style-type: none"> • Existing MEE Staff* • Fund research by academic and other experts • Facilities and equipment • Workshops • Training 	300,000	MEE	MCS, Ports, MOFA	2016-2021	6	1,800,000
4	IV. Ensure sustainable use of biological resources								
	IV.1 By 2020 all major fishery, including aquaculture and mariculture are managed and harvested sustainably	Strengthen regulatory and legal framework	<ul style="list-style-type: none"> • Existing MOFA Staff* • Workshops and meetings • consultants 	200,000	MOFA	MRC, MEE	2016-2018	3	600,000
		Strengthening fisheries statistics and data collection mechanisms	<ul style="list-style-type: none"> • Existing MOFA Staff* • Develop database • Develop data collection systems (apps) 	1,000,000	MOFA	MRC	2016-2017	2	2,000,000
		Implement and enforce environmental friendly and sustainable fisheries	<ul style="list-style-type: none"> • Existing MOFA Staff* • Fund research by academic and other experts • Hire enforcement 	1,000,000	MOFA	MRC, MEE	2016-2020	5	5,000,000

Suggested priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMATED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHOLDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			<ul style="list-style-type: none"> officers Develop guidelines, management plans, manuals and regulations 						
		Recovery plans and measure in place for all depleted species	<ul style="list-style-type: none"> Existing MOFA Staff* Fund research by academic and other experts Hire enforcement officers Recovery programmes (manuals, guidelines, etc) 	800,000	MOFA	MRC	2016-2018	3	2,400,000
		Develop monitoring, compliance and surveillance strategy	<ul style="list-style-type: none"> Existing MOFA Staff* Fund research by academic and other experts Monitoring and surveillance equipment and other resources Travel Monitoring technologies such 	1,000,000	MOFA	MRC	2016-2019	4	4,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
			as tracking devices for boats, fish, etc						
	IV.2 By 2017 fertilisers, insecticides, pesticide, excess nutrient management) are sustainably managed	Enforce a pesticide act in the Maldives	<ul style="list-style-type: none"> Existing MOFA Staff* Hire enforcement officers Training and workshops 	70,000	MOFA	MRC	2016	1	70,000
		Introduce a certification system for Good Agricultural Practices for agriculture and animal husbandry	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA Staff* Cost of certification system development and awareness raising 	150,000	MOFA	MEE, MFDA	2016	1	150,000
		Establish local organic fertiliser producing facilities	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA Staff* Cost of physical establishment of organic fertiliser producing facilities 	500,000	MOFA	Local councils	2016-2017	2	1,000,000
		Conduct awareness programme on the	<ul style="list-style-type: none"> Existing MEE Staff* 	500,000	MOFA	Local councils	2016-2017	2	1,000,000

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		benefits of organic farming and on the hazards of chemical fertilisers and pesticides in agriculture	<ul style="list-style-type: none"> Existing MOFA Staff* Production of media materials – documents, posters, videos, etc. 						
	IV.3. By 2017 at the latest, incentives including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts	Discontinue incentives for agriculture that uses chemical fertilisers, pesticides and introduces alien species	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA Staff* Production of explanatory media materials – documents, posters, videos, etc. 	100,000	MOFA	MEE	2016-2017	2	200,000
		Discontinue subsidies and incentives for unsustainable fishery and other industries	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA Staff* Production of explanatory media materials – documents, posters, videos, etc. 	100,000	MOFA	MRC, MEE	2016-2017	2	200,000
	IV.4. By 2020 at the latest,	Introduce subsidies for organic farming	<ul style="list-style-type: none"> Existing MEE Staff* 	5,000,000	MOFA		2016-2017	2	10,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	positive incentives for conservation and sustainable use of biodiversity are developed and applied.		<ul style="list-style-type: none"> Existing MOFA Staff* Production of explanatory media materials – documents, posters, videos, etc. Cost of subsidies 						
		Introduce certification systems for conservation friendly industrial establishments	<ul style="list-style-type: none"> Existing MEE Staff* Cost of certification system development and awareness raising 	250,000	MEE	MHI, local councils	2016-2017	2	500,000
		Introduce subsidies for conservation friendly fisheries	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFA Staff* Production of explanatory media materials – documents, posters, videos, etc. Cost of subsidies 	5,000,000	MOFA		2016-2020	5	25,000,000
3	V. Address threats to conserve biodiversity								

Suggested priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMATED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHOLDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
	V.1. By 2025 pressures on coral reefs and other vulnerable ecosystems due to anthropogenic activities and climate change are minimized	Provide 30% of daytime peak load of electricity demand in all inhabited islands through renewable sources	<ul style="list-style-type: none"> Existing MEE Staff* Cost of green technologies (or cost of subsidies) 		MEE	MEA, Utilities	2016-2020	5	3,084,000,000 (funding secured)
		Establish an inventory of sea grass beds, mangroves, wetlands and swamps	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	800,000	MEE	MOFA, local councils	2016-2018	3	2,400,000
		Assess and identify specific anthropogenic impacts on coral reefs and other vulnerable ecosystems	<ul style="list-style-type: none"> Existing MRC Staff* Cost of monitoring – staff, equipment, database development 	1,000,000	MRC	EPA	2019-2023	5	5,000,000
		Identify and assess the impacts on coral reefs and other vulnerable ecosystems due to ocean acidification and elevated sea	<ul style="list-style-type: none"> Existing MEE Staff* Cost of monitoring – staff, equipment, database development 	1,000,000	MEE	EPA, MRC	2018-2022	5	5,000,000

Suggest ed priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMAT ED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHO LDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
		surface temperature							
		Identify gaps and where necessary formulate and review policies, laws and regulations to decrease anthropogenic and climate change impacts on coral reefs and other vulnerable ecosystems	<ul style="list-style-type: none"> Existing MEE Staff* Cost of monitoring – staff, equipment, database development 	350,000	MEE	EPA	2020-2025	6	2,100,000
	V.2. By 2025, at least 10% of coral reef area, 20% of wetlands and mangroves and at least one sand bank and one uninhabited island from each atoll are under some form of protection and management	Survey and identify significant ecosystems that needs to be protected	<ul style="list-style-type: none"> Existing EPA Staff* Cost of monitoring – staff, equipment, database development 	450,000	EPA	Local councils	2016-2018	3	1,350,000
		Maldives is declared a Biosphere Reserve by end of 2017	<ul style="list-style-type: none"> Existing MEE Staff* 	9,000,000	MEE	EPA, MOT, MOFA	2016-2017	2	18,000,000
		Protect and manage representative areas of the identified ecosystems	<ul style="list-style-type: none"> Existing EPA Staff* Hire rangers Equipment 	1,000,000	EPA	MEE, local councils	2017-2025	9	9,000,000

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			<ul style="list-style-type: none"> • Trainings 						
		Prepare management plans/regulations promoting eco-tourism for sustainable management of the protected areas	<ul style="list-style-type: none"> • Existing MEE Staff* • Workshop costs • Equipment 	500,000		EPA	2018-2025	8	4,000,000
	V.3. By 2025, impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly.	Establish a baseline database on the threats and pressures on ground water lenses and other important ecosystems for water, human health, wellbeing and livelihood	<ul style="list-style-type: none"> • Existing MEE Staff* • Hire database expert • Fund research by academic and other experts to populate database 	2,500,000	MEE	Local councils	2017-2019	3	7,500,000
		Conduct programmes to restore essential ecosystems through addressing pressures, restoration, and providing alternative	<ul style="list-style-type: none"> • Existing MEE, EPA Staff* • Costs of restoration 	1,500,000	MEE	EPA, local councils	2019-2025	7	10,500,000

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		solutions to prevent destruction and overuse.							
		Where possible, enforce a coastal vegetation belt in all islands	<ul style="list-style-type: none"> Existing MEE Staff* Awareness programme for councils 	750,000	MEE	EPA, local councils	2017	1	750,000
	V.4. By 2025, the rates of loss of all natural habitats are identified and where rate of loss is high, the rate of loss is at least halved or where feasible brought close to zero.	Develop protocols to identify ecologically sensitive habitats and establish an updatable “Habitat Database” on the types, number, quantity, quality of and pressures on the habitats of Maldives	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	1,500,000	MEE	Local councils	2017-2018	2	3,000,000
		Observe and record changes in habitat annually	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	200,000	MEE	Local councils	2018-2025	8	1,600,000
		Make Strategic Environmental	<ul style="list-style-type: none"> Existing MEE Staff* 	80,000	MEE	EPA, local councils	2018-2020	3	240,000

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		Assessments mandatory for all developmental projects	<ul style="list-style-type: none"> Existing EPA staff Workshops and trainings 						
		Amend EIA process to at least halve the rate of loss of habitats during developmental practices	<ul style="list-style-type: none"> Existing MEE Staff* Existing EPA staff workshops 	300,000	MEE	EPA, local councils	2016-2017	2	600,000
	V.5. By 2020, prevent extinction of locally known threatened species	Identify locally threatened species and establish a database	<ul style="list-style-type: none"> Existing EPA Staff* Hire database expert Fund research by academic and other experts to populate database 	2,500,000	EPA		2016-2018	3	7,500,000
		Revise existing regulations and guidelines where necessary	<ul style="list-style-type: none"> Existing MEE Staff* Production of explanatory media materials – documents, posters, videos, etc. Workshop costs 	350,000	MEE	MOFA, EPA	2016-2017	2	700,000

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		Prepare and enforce new regulations and guidelines on threatened species	<ul style="list-style-type: none"> Existing MEE Staff* Hire enforcement officers Production of explanatory media materials – documents, posters, videos, etc. Workshop costs 	250,000	EPA	MEE, EPA	2017-2020	4	1,000,000
		Designate protected status to newly identified threatened species and revise existing protected categorisation	<ul style="list-style-type: none"> Existing EPA Staff* Production of explanatory media materials – documents, posters, videos, etc. Workshop costs 	80,000	EPA		2017-2020	5	400,000
		Develop and enforce management plans for threatened and endangered species	<ul style="list-style-type: none"> Existing EPA Staff* Hire enforcement officers 	1,000,000	EPA	MRC	2017-2020	5	5,000,000
	V.6. By 2018 illegal trade of locally protected species is eliminated	Identify routes and pathways of illegal trade and enforce preventive measures to block	<ul style="list-style-type: none"> Existing MEE Staff* Fund research by academic and 	500,000	MEE	MOFA	2017-2018	2	1,000,000

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		identified pathways	other experts						
		Identify gaps and amend regulations to address illegal trade	<ul style="list-style-type: none"> Existing MEE Staff* Workshops Awareness programmes 	150,000	MEE	MPS (through Environmental Police)	2016-2018	3	450,000
	V.7. By 2020 pollution from waste and sewage has been brought to levels that are not detrimental to ecosystem functions and biodiversity.	Create awareness on pollution and waste and their effects on biodiversity, human health and livelihoods	<ul style="list-style-type: none"> Existing EPA Staff* Production of explanatory media materials – documents, posters, videos, etc. 	150,000	EPA	Local councils, MEE	2016-2018	3	450,000
		Enforce Waste Regulation nationally	<ul style="list-style-type: none"> Existing EPA Staff* Hire enforcement officers 	500,000	EPA	Local councils, MEE	2016-2018	3	1,500,000
		Strengthen enforcement of sewerage and waste water regulation	<ul style="list-style-type: none"> Existing EPA Staff* 	500,000	EPA	Local councils, MEE	2016-2017	2	1,000,000
		Establish and enforce air pollution control standard	<ul style="list-style-type: none"> Existing EPA Staff* Fund research by academic and other experts Monitoring 	400,000	EPA	Local councils, Transport Authority	2016-2020	5	2,000,000

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			equipment and mechanism						
2	VI. Strengthen information management and resource mobilisation								
	VI.1 By 2025 genetic diversity of cultivated and traditionally used medicinal plants and animals including socio- economically and culturally valuable species and their associated traditional knowledge is maintained to prevent genetic erosion and safeguard their diversity	Establish a database on traditional medicinal plants and animals	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	700,000	MEE	MOH	2016-2018	3	2,100,000
		Identify significant and threatened species and ecosystems of traditional medicine and enforce a conservation system for sustainable use	<ul style="list-style-type: none"> Existing MEE Staff* Fund research by academic and other experts 	1,500,000	MEE	MNU	2016-2017	2	3,000,000
		Develop guidelines to conserve socio- economically as well as culturally valuable species and ecosystems	<ul style="list-style-type: none"> Existing MEE Staff* Production of explanatory media materials – documents, posters, videos, etc. Workshop costs 	150,000	MEE		2016-2018	3	450,000

Suggested priority order	TARGET	SUGGESTED ACTIONS	COSTABLE ACTION NEEDS	ESTIMATED ANNUAL COST (MVR)	LEAD AGENCY	LEAD STAKEHOLDERS	TIME PERIOD	TOTAL NO. OF YEARS	TOTAL COST (MVR)
		Conduct programmes to increase rare medicinal plants and animals	<ul style="list-style-type: none"> Existing MEE Staff* Costs of rehabilitation programmes Production of explanatory media materials – documents, posters, videos, etc. Tree planting programmes 	350,000	MEE	MNU, MOH	2018-2024	7	2,450,000
		Establish and maintain a Natural History Museum of local plants and animals	<ul style="list-style-type: none"> Existing MNU Staff* Hire staff Costs of museum creation and collection development 	1,500,000	MNU	National Museum	2017-2025	9	13,500,000
		Establish regional or international collaboration with the seed/gene banks for safeguarding local genetic diversity	<ul style="list-style-type: none"> Existing MEE Staff* Hire staff Costs of bank creation and collection development 	2,500,000	MEE	MNU, MRC	2018-2023	6	15,000,000
		Establish a local botanical garden	<ul style="list-style-type: none"> Existing MNU Staff* 	3,000,000	MNU	MEE, EPA, MOFA	2019-2023	5	15,000,000

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			<ul style="list-style-type: none"> • Hire staff • Costs of garden creation and collection development 						
		Establish a zoological garden with rescue facilities	<ul style="list-style-type: none"> • Existing MEE Staff* • Hire staff • Costs of garden creation and collection development 	5,000,000	MEE	MNU, EPA, MRC	2018-2025	8	40,000,000
		Establish a national entity or an institute on traditional medicine	<ul style="list-style-type: none"> • Existing MOH Staff* • Hire staff • Costs of institute creation and collection development 	2,000,000	MOH	MNU	2017-2020	4	8,000,000
	VI.2. By 2025 national data system on the status of key ecosystems, species and genetic diversity are in place and science based technologies	Prepare, update and maintain a database on the biodiversity and ecosystems of Maldives	<ul style="list-style-type: none"> • Existing MEE Staff* • Hire database expert • Fund research by academic and other experts to populate database • Equipment and technologies (e.g. 	250,000	MEE	NGIS	2019-2024	6	1,500,000

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	related to biodiversity are improved, shared and transferred.		database and statistics related software and hardware)						
		Train personnel on handling, maintaining and upgrading of data systems on biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	200,000	MEE	NGIS	2017-2018	2	400,000
		Integrate and update data on the status, trends and threats to biodiversity into NGIS.	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database 	1,000,000	MEE	MRC, EPA, MOT	2018-2025	8	8,000,000
		Use advanced remote, mobile and computer technologies to monitor changes on biodiversity	<ul style="list-style-type: none"> Existing MEE Staff* Hire database expert Fund research by academic and other experts to populate database Equipment, 	2,500,000	MEE	NGIS	2017-2019	3	7,500,000

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			technology and software						
	VI.3. By 2025 innovative financing mechanisms for biodiversity conservation are established.	Introduce eco-tourism throughout the country	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOT staff 	1,500,000	MEE	EPA, MOT, local councils	2016-2018	3	4,500,000
		Introduce user-pay principle for using biodiversity resources and ecosystem services	<ul style="list-style-type: none"> Existing MEE Staff* Existing EPA & MOFT staff Awareness programmes Workshops 	700,000	MEE	EPA, MOFT, local councils	2018-2025	8	5,600,000
		Promote private sector initiations through collaborative partnerships	<ul style="list-style-type: none"> Existing MEE Staff* Existing MOFT staff 	120,000	MEE	MOFT, local councils	2016-2020	5	600,000
		Integrate biodiversity conservation and implementation of NBSAP as a major component of Green Fund and Baa Atoll Conservation Fund	<ul style="list-style-type: none"> Existing MEE Staff* Workshop costs 	80,000	MEE		2020-2025	5	400,000

