Government of Malawi

Ministry of Natural Resources, Energy and Mining

SIXTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY

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Acronyms and Abbreviations

ABBC	Agricultural Biotechnology and Biosafety Committee
ABC	African Bats Conservation
ABS	Access and Benefit Sharing
ABT	Aichi Biodiversity Target
AEJ	Association of Environmental Journalists of Malawi
ALG	African Leadership Group
APN	African Parks Network
ASSETS	Attaining Sustainable Services from Ecosystems through Trade-off Scenarios
BBI	Bio Bridge Initiative
BCI	Biodiversity Conservation Initiative
BID	Biodiversity Information Development
BIMF	Biodiversity Information Management Forum
BIOFIN	Biodiversity Finance Initiative
BSCH	Bingu School of Culture and Heritage
BVC	Beach Village Committee
CBD	Convention on Biological Diversity
CBNRM	Community Based Natural Resources Management
CH	Clearing House
CITES	Convention on International Trade of Endangered Species
CPI	Community Performance Index
COP	Conference of Parties
CultiAF	Cultivate Africa Future Project
DNPW	Department of National Parks and Wildlife
EA	Ecosystem Approach
EAD	Environmental Affairs Department
ENR	Environment and Natural Resources
EPA	Extension Planning Area
FAnGR	Farm Animal Genetic Resources
FISH	Fisheries Integration of Society and Habitat

FISP	Farm Input Subsidy Program
FLR	Forest Landscape Restoration
FNI	Fridtj of Nansen Institute
GBIF	Global Biodiversity Information Facility
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Green House Gas
GoM	Government of Malawi
GR	Genetic Resources
IACCWC	Inter-Agency Committee on Combating Wildlife Crime
IAS	Invasive Alien Species
ICCWC	International Consortium on Combating Wildlife
ICH	Intangible Cultural Heritage
ICLEI Africa	ICLEI – Local Governments for Sustainability, Africa Secretariat
ICT	Information and Communications Technology
IKSP	Indigenous Knowledge Systems and Practices
INDC	Intended Nationally Determined Contribution
IPBES	Intergovernmental Platform for Biodiversity and Ecosystem Services
IWT	Illegal Wildlife Trade
IUCN	International Union for Conservation of Nature
JBF	Japanese Biodiversity Fund
KBA	Key Biodiversity Area
KPA	Key Priority Area
LMO	Living Modified Organisms
MAJI	More Action for Justice
MEAs	Multilateral Environmental Agreements
MEET	Malawi Environment Endowment Trust
METT	Management Effectiveness Tracking Tool
M&E	Monitoring and Evaluation
MGDS	Malawi Growth and Development Strategy
MMCT	Mulanje Mountain Conservation Trust
MUST	Malawi University of Science and Technology
MYFRP	Malawi Youth Forest Restoration Programme

MYP	Maximum Sustainable Yield
NAPA	National Adaptation Programme of Action
NBSAP	National Biodiversity Strategy and Action Plan
NBRC	National Biosafety Regulatory Committee
NCST	National Commission for Science and Technology
NECCCS	National Environment and Climate Change Communication Strategy
NGO	Non-Governmental Organization
NHGB	National Herbarium and Botanical Gardens
NIAP	National Ivory Action Plan
NISM	National Information Sharing Mechanism
NICHC	National Intangible Cultural Heritage Committee
NSO	National Statistics Office
OTAMA	Oral Traditions Association of Malawi
PA	Protected Area
PEI	Poverty Environment Initiative
PER	Public Expenditure Review
PES	Payment for Ecosystem Services
PERFORM	Protecting Ecosystems and Restoring Forests in Malawi
PFM	Participatory Fisheries Management
PIF	Program Identification Form
PGRFA	Plant Genetic Resources for Food and Agriculture
ROAM	Restoration Opportunities Assessment Methodology
SANBI	South African National Biodiversity Institute
SRGDI	Sustainable Rural Growth and Development Initiative
TK	Traditional Knowledge
SwedBio	Knowledge interface at the Stockholm Resilience Centre
TSC	Technical and Scientific Cooperation
TT	Technological Transfer
UNA	Urban Natural Assets
UNA Rivers	Urban Natural Assets for Africa: Rivers for Life project
UNDP	United Nations Development Program
UNEP-WCMC	United Nations World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization

USAID	United States Agency for International Development
VSO	Voluntary Services Oversees
WDDU	Wildlife Detection Dog Unit

SECTION ONE: INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL

☐ Malawi has adopted national biodiversity targets or equivalent commitments in line with the Strategic Plan for Biodiversity 2011-2020 which were developed through a participatory process.

Description of National Targets

National Target 1: By 2025, human and institutional capacity for science and technology related to biodiversity is improved.

Rationale for the national target

Malawi's scientist and conservationists are faced with multiple challenges in generating new technologies and applying existing technologies developed elsewhere despite presence of policies that promotes science and technology in the country. Inadequate financial support towards research and training is among the key challenges being faced in research institutions Research and Development activities require state of the art equipment which is often very expensive and therefore becomes difficult for these institutions to acquire due to limited financial resources. Furthermore, the country current investment in scientific and technological infrastructure (research centres, testing laboratories, availability of skilled workers) is inadequate. If Malawi is to benefit from technologies that add value to biodiversity and create wealth from natural resources, it is important to empower and enable individuals to generate and apply knowledge that leads to creation of wealth from Biodiversity. This target therefore aims at improving human and institutional capacities in science and technology and enhance adoption of technologies that promote conservation and sustainable utilisation of biodiversity.

Level of application

- ☐ Regional/multilateral
- ☒ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The national target contributes to Aichi Biodiversity Target (ABT) 19 which states that "by 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied". By implementing the national target, Malawi will contribute to increased availability and access to biodiversity information thereby improving knowledge, science and technologies on biodiversity conservation, sustainable use and the fair and equitable sharing of benefits.

Other relevant information

Malawi has made considerable efforts in building capacity on biodiversity management. However, all these capacity building efforts are not taken into account or included in the reporting and decision-making process and continuum. This presents as a weakness in data sharing as since the various organizations in the country work in separate silos.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- http://www.mw.undp.org/content/malawi/en/home/library/environment_energy/economic-valuation-of-sustainable-natural-resources-use-in-malaw.html
- https://www.ltsi.co.uk/project/environmental-and-natural-resources-management-interventions-enrmi-in-the-middle-shire-river-basin-in-malawi
- http://41.77.13.208:8081/ipt/resource?r=malawi_bid_redlist

- http://41.77.13.208:8081/ipt/resource?r=thyolo1_2_3
- https://www.gbif.org/occurrence/search?q=malawi

National Target 2: By 2025, traditional knowledge, innovations and practices of local communities are respected and harnessed in line with national and international legislation.

Rationale for the National target

Biological diversity in Malawi, is the cornerstone of sustainable agriculture and food security. The loss of cultural diversity (including languages) and traditional knowledge is therefore intricately linked to the loss of biological diversity. Cultural diversity plays an important role of sustaining biodiversity and ecosystem services and therefore its loss affects local communities in their role as the creators, custodians and innovators of biological knowledge and resources. In most cultures, areas rich in biodiversity have been designated as sacred or protected areas for a number of reasons. For example, graveyards all over Malawi are designated as sacred and protected areas where harvesting of forest and wildlife resources is prohibited. However, most of these practices and beliefs are rapidly being lost due to changes in the socioeconomic environment. Despite playing a role in the conservation of biodiversity, traditional knowledge systems, innovations and practices have not been adequately promoted and documented.

The importance of preserving Malawi's culture therefore cannot be overemphasized. Malawi is one of the countries identified by its cultural values, beliefs, customs and traditions. The 2018 Malawi Population Census has revealed that the majority of the human population is the youth. As the young generation takes part in decision-making processes, there is need to preserve important cultural and traditional knowledge for future generations. Oral traditions, languages, craftsmanship, traditional knowledge about nature such as herbal medicine and seasonal customs, performing festivals and customary practices such as marriages, funerals, initiations, installations and birth ceremonies, have to be documented and made known to the public. Due to geographical and spatial

separation, people living in different areas of the country are not knowledgeable of some of the cultural values, beliefs, customs and traditions as practiced by other ethnic communities. This target was developed to ensure that traditional knowledge systems, innovations and practices are documented, valued and properly utilized.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The national target is related to ABT18 which states that "by 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels". Implementing the national target in Malawi will ensure that the capacity of indigenous and local communities is increased to enable them participate in land management planning and policy, as well as in the management of Protected Areas (PA) and other conserved areas thereby contributing effectively to ABT 18.

The following are some of the relevant websites, web links, and files related to the national target

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan, Lilongwe, Malawi.
- http://www.foacmw.org/index.php/database/heritage/cultural-institutions/

- http://www.nsomalawi.mw/images/stories/data_on_line/demography/census_2018/2018
- http://www.sdnp.org.mw/budget2011/votes2011/Vote_360_TourismWildlifeand Culture.pdf
- https://www.norway.no/en/malawi/norway-malawi/development-cooperation2/culturalcooperation/
- https://www.ncst.mw/

National Target 3: By 2025, at least 50 % of the Malawi population is aware of the value of biodiversity to ensure its conservation and sustainable use.

Rationale for the national target

Environmental education and public awareness plays an important role in improving people's understanding of biodiversity and their participation in conservation programs. Malawi identified low awareness among various biodiversity stakeholders on the value of biodiversity which has consequently lead to their limited participation in conservation programs. It is apparent that unless the value of biodiversity is well understood among the general population and decision makers, conservation activities can never be prioritized at any level of development planning. This target was thus developed with the sole purpose of raising awareness on biodiversity value and enhance active participation of various stakeholders including policy makers, nongovernmental organizations, local communities and individuals in conservation to enhance sustainable utilisation of biodiversity.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The implementation of the national target contributes to ABT 1 which states that by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. Increasing awareness on the wide range of values of biodiversity, including social, ecological and economic benefits, will ensure that people of Malawi also contribute effectively to the achievement of all other ABTs.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan, Lilongwe, Malawi.
- www.shirebasin.mw
- https://twitter.com/TourismMalawi/status/1062630120052191232
- https://tourism.mw/
- https://www.lilongwewildlife.org/2017/06/01/minister-commemorates-environment-biodiversity-days/
- www.aejmalawi.org

National Target 4: By 2025, biodiversity values are integrated into national, sectoral and local development policies and plans

Rationale for the national target

The conservation of biodiversity and socioeconomic development are intrinsically linked. Biodiversity conservation plays an important role in the social economic development in the country and therefore its integration into every aspect of development decision making is important. Integrating biodiversity concerns in the planning process is, key in ensuring that the macro and sectoral policies, and management decisions embrace biodiversity conservation and sustainable use through recognizing and measuring/estimating the actual and potential contribution of biodiversity to development and the overall economic growth.

Similarly, dependency on natural resources due to poverty and population in the absence of other economic opportunities are among the underlying factors causing biodiversity loss. This is also exacerbated by poverty with a large population relying on natural resources. This target was aimed at facilitating biodiversity accounting for informed decision making for sustainable development.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The national target contributes to the achievement of ABT 2 which states that "by 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting and reporting systems, as appropriate". By implementing this national target, Malawi will ensure that biodiversity values have been integrated into the national and local development and poverty reduction strategies and the planning processes, thereby contributing to ABT 2.

Other relevant information

In 2011, the Government of Malawi commissioned an economic analysis of sustainable natural resource use in the country. The primary objective of the study was to provide evidence on the costs and benefits of sustainable and unsustainable natural resources management for four selected natural resources namely, forestry, fisheries, wildlife and soils. The analysis established linkages between natural resource management on one hand and poverty reduction, economic well-being and development on the other, which provided a basis for development of the target. Further, case studies were used to assess the net benefits of key interventions to encourage more sustainable natural resource use in each selected natural resource sector. Similar studies have been carried out in other ecosystems for example, the Shire River Basin.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2017); Malawi Growth and Development Strategy III; Ministry of Economic Development and Economic Planning
- http://www.unpei.org/programmes/country_profiles/www.nso.malawi.net
- http://www.unima.mw/bunda.htm
- http://www.chanco.unima.mw/economics/index.htm
- http://www.lead.org/page/335
- www.shirebasin.mw

National Target 5: By 2025, sustainable financing mechanisms for effective implementation of biodiversity programs developed

Rationale for National Target

There are many ways in which financial issues act as a constraint to effective biodiversity conservation, which extend beyond a simple lack of funds. The amount of budget available for effective biodiversity conservation in Malawi has always been insufficient and uncoordinated. Despite having focal points in place who oversee implementation of NBSAP II activities in their sectors, tracing expenditure for biodiversity conservation activities still remains a challenge. Despite the government and development partners supporting implementation of biodiversity programs, there is still inadequate financing in biodiversity management. The target was formulated to develop sustainable financing mechanisms for effective implementation of biodiversity programs in a strategic and coordinated manner through the slowing down of drivers of conservation costs, filling the funding gap, and improving the effective use of funds.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The national target relates to ABT 20 which states that "by 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011–2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels." Assessing the financial co-benefits of biodiversity and of the long-term costs of inaction and articulating the value of biodiversity to the economy and society to decision makers will ensure Malawi's contribution to achievement of ABT 20.

Other relevant information

In 2014, the Ministry of Finance and Economic Development Planning, with support from the United Nations Development Program (UNDP)-United Nations Environment (UNEP) Poverty-Environment Initiative (PEI), commissioned a Public Expenditure Review (PER) of the Environment and Natural Resources sector to assess the Government's expenditure into the sector between 2006 and 2012. The Review examined the expenditure for the following sector ministries: Ministry of Environment and Climate Change Management; Ministry of Lands, Housing and Urban Development; Ministry of Agriculture and Food Security, Departments of Forestry and Fisheries; Ministry of Irrigation and Water Development; Ministry of Tourism, Wildlife and Culture; Ministry of Health; and Local Councils and Authorities and relevant Parastatals.

The results of the study revealed that on average the annual expenditure on Environment and Natural Resources (ENR) is equivalent to 0.96% of the total GDP which is very low considering that unsustainable ENR use has been estimated to

cost Malawi 5.3% of GDP annually. Furthermore, 70% of ENR expenditure occurred in sectors, which are important for ENR implementation. However, there was still a disconnect between ENR sectoral policies, budget processes and cross-sectoral coordination. Bearing in mind that biodiversity conservation is equally affected by insufficient funding in the ENR sector, this target was developed to ensure that there are sustainable financing mechanisms in place for the country to follow and use.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- http://www.unpei.org/programmes/country_profiles/www.nso.malawi.net
- http://www.malawi.gov.mw/EP&D

National Target 6: By 2025, at least 50% of degraded terrestrial habitats are restored and protected

Rationale for National Target

Terrestrial habitats are among the most diverse ecosystems in Malawi rich in both species and ecosystem diversity. These ecosystems provide essential services such as wetlands that regulates climate and floods, forests that capture and store carbon dioxide and forest that enhance oxygen circulation. Protected areas, forests and other biodiversity rich areas in productive landscapes form the largest components Malawi's terrestrial habitats.

Despite their role in sustaining livelihoods, terrestrial habitats are threatened with habitat loss resulting from increased land use change due to population growth coupled with increased consumption of forest products, industrial developments and shortage of land for agriculture. The national Environmental Action Plan (NEAP) identifies loss of terrestrial habitat and biodiversity as one of the major environmental problems in the country.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The national target is related to ABT 5 which states that "by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced". Through the implementation of the national target, Malawi aims to conserve its terrestrial habitats and contribute to the protection of biodiversity and maintaining the ecosystem services that are vital to human wellbeing. This is particularly important for habitats that have been degraded by human activities, or that face a critical tipping point or threshold thereby contributing to achievement of ABT 5.

The national target also partly links to Achi target 11 on terrestrial area conservation through well connected systems of protected areas and other effective area based conservation measures and Aichi target 15 which focus on restoration of 15% of degraded ecosystems with emphasis for climate change mitigation and adaptation

Other relevant information

Since the adoption of the Public Private Partnerships Act in 2011, Malawi has been working with the Private Sector in restoring degraded terrestrial habitats. Even before then, the Government of Malawi entered into an agreement with the private sector to manage some of its protected areas in order to restore and protect them for sustainability. For example, Majete Wildlife Reserve and Kuti Game Ranch have been managed by private sector entities before 2011. The target was developed to ensure that other areas that are of importance to the nation are also restored and sustainably managed to ensure that improved delivery of ecosystem services.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- https://www.africanparks.org/the-parks/liwonde
- https://www.africanparks.org/the-parks/nkhotakota
- https://www.africanparks.org/the-parks/mangochi
- https://www.africanparks.org/the-parks/liwonde
- https://www.kuti-malawi.org/

National Target 7: By 2025, aquatic biodiversity is managed and harvested sustainably within safe ecological limits

Rationale for national target

Aquatic biodiversity is important in contributing substantially to food and nutritional security, livelihoods and economic growth in Malawi. According to the Annual Economic Report (2016), the per capita fish consumption in Malawi has subsequently fallen from 14 kg per year in the 1970s, to about 5kg in 2010. The decline in per capita supply and protein intake brings serious nutritional implications for the nation, especially to vulnerable groups such as HIV/AIDS affected and infected people, orphans and the poor as fish is the main source of protein in the country.

Management of aquatic biodiversity has been compromised over the years due to increase in human activities in the catchment of Malawi's aquatic ecosystem this has led to increased, erosion, siltation and consequently sedimentation of most aquatic ecosystems in the country. The inflow of sediments has affected water turbidity and light penetration, which reduces photosynthesis and productivity in areas of the inflowing plumes further contributing to reduced fish breeding sites and habitats resulting into reduction of aquatic plants which are major sources of food for aquatic fauna including fish. All these have been mainly exacerbated by

ever increasing human population, land degradation, loss of habitats, declining water levels and limited implementation of specific regulations, among others. The NBSAP II further reveals that the exploitation regimes of the aquatic species have not paid any respect to the safe ecological thresholds and their associated ecosystem services. Hence this target aims at addressing such challenges as highlighted above.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of target is relevant to ABT 6 which states that "by 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits." By implementing a variety of steps which include protecting areas that are critical for life stages and ensuring appropriate policies and catch levels will contribute to achievement of ABT 6.

Other relevant information

The 2017 National Fisheries and Aquaculture Policy also aims to ensure that the target is implemented. Issues of aquatic biodiversity being managed within safe ecological limits have also been included in the Malawi Growth and Development Strategy III (MGDS III).

Relevant websites, web links, and files

- Government of Malawi (2017); Malawi Growth and Development Strategy III, Lilongwe, Malawi.

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan III, Lilongwe, Malawi.
- Government of Malawi (2017) National Fisheries and Aquaculture Policy, Lilongwe, Malawi.
- https://www.tandfonline.com/doi/abs/10.1080/14634988.2010.504695?journalCode=uaem20

National Target 8: By 2025, area under forest cover is increased by 4% and managed sustainably, ensuring conservation of biodiversity

Rationale for the national target

Malawi recognizes the contribution of forest resources to the infrastructural and socio economic development of the country. However, over the past decade Malawi has experience rapid losses in forest resources due to unsustainable harvesting for fuelwood, charcoal production and agricultural expansion among others. Several actions and measures are being implemented to conserve biodiversity in forest reserves which include annual tree planting programmes, community forest management and forests restoration programmes. Despite such efforts government is still concerned with the continued deforestation and forest degradation occurring in the country

This target aims to safeguard and manage forest biodiversity sustainably through increasing the areas of forests under protection, improving the quality of protected forest habitats through ecological restoration and enhancing nature management methods used in commercially utilized forests.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

The target is related to ABT 7 which states that "by 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity." The National Target also contributes to the achievement of ABT 5 which states that "by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced."

Other relevant information

Through the AFR100, Malawi has committed to restore 2 million hectares of deforested and degraded land by 2020 and 2.5 million hectares by 2030. This target is relevant to ensure that Malawi achieves its AFR100 target.

Relevant websites, web links, and files

- Government of Malawi (2017); Malawi Growth and Development Strategy III, Lilongwe, Malawi.
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan, Lilongwe, Malawi.
- Government of Malawi (2017) National Forest Policy, Lilongwe, Malawi.
- https://portals.iucn.org/library/node/46837
- https://afr100.org/content/malawi
- https://www.nepad.org/nepad-oncontinent/african-forestry-restoration-afr100-malawi

National Target 9: By 2025, invasive alien species and their pathways are identified and prioritized for control and prevention from movement and spreading in and out of the country.

Rationale for the national target

Invasive Alien Species are among major threats of biodiversity in Malawi (NBSAP 2015). Afforestation activities for climate change mitigation, agroforestry and landscaping have resulted in intentional introduction of Invasive alien species in

the country which has impacted negatively on biodiversity. In addition, some non-native species, like *Pinus patula* used in commercial forestry have cause major problems as invaders of natural ecosystems There is limited evidence to suggest that cost benefit analysis is carried out during intentional introduction of invasive species in Malawi. The Fisheries and livestock sectors also face a threat of invasive species with increasing aquaculture and import of new livestock breeds. The target was developed to ensure that IAS and their pathways are properly identified, controlled, sustainably managed, and eradicated

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the national target contributes to achievement of ABT 9 which states that "by 2020, invasive alien species and their pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment."

Other relevant information

When compared against the desirable outcomes, it would appear that Malawi has not made significant progress towards the eradication and prevention of entry of invasive alien species in the country. Malawi's fifth National Report to CBD (2014) reported that invasive alien species have grown in number from 29 to 31 with the inclusion of black wattle and Eucalyptus bug. Other attempts to document IAS in Malawi indicated between 45 to 68 IAS. A proper documentation and definition of what should be regarded as invasive in the Malawian context was required and though there have been efforts to documents IAS Since 2014, more should be done in dissemination and developing strategies for management.

The Global Environment Facility (GEF) 6 Program Identification Document (PIF) on an Invasive Alien Species programme highlighted that Parthenium weed, is expected to spread widely and threaten biodiversity as well as produce negative health impacts on humans and livestock. The PIF further indicates that both productive and protected landscapes are faced with potential increased threats from IAS due to the development of road infrastructure in Malawi which increases access to previously remote areas and also facilitates the movement of goods (that may contain IAS) within the country and from neighboring countries. Climate change is also likely to exacerbate the problem of IAS and therefore the need practical and sustainable initiatives to address IAS invasions in the country.

Figure 1: *Showing* Prosopis juliflora*, a common invasive species in Lower Shire*

One of the notable invasive alien species in the lower shire is *Prosposis Juliforia* (Figure 1). Prosopis was originally introduced in the lower shire as a fence of farms from livestock but has now invaded the farmlands that were meant to be protected from livestock damage in Nsanje district and parts of Chikwawa more particularly in the area around the elephant marsh. District reports estimate about 20 hectares and 60 hectares of land in Magoti and Makhanga respectively which constitute a major part of elephant marsh is invaded by *prosopsis.* The geographical spread of *prosposis* is accelerating at high rate through animal droppings because the pods

and the tops leaves are tender and eaten by livestock and largely cattle. *Prosposis* is not easy to uproot because it is deep rooted and spreads very quickly. The shrub has therefore caused many economic and environmental problems and suppresses the growth of native species. At the moment, information from the District Agriculture Office indicates that several Extension Planning Areas (EPAs) are affected by the shrub including 20 hectares in Zunde EPA, 30 hectares in Nyachilenda, 35 hectares in Mpatsa EPA, 20 hectares in Magoti EPA, and 60 hectares in Makhanga EPA.

Further, section 71 of the Environment Management Act (2017), has provisions on the Control and management of IAS.

Relevant websites, web links, and files

- https://www.thegef.org/sites/default/files/project_documents/12-01-16_PIF_Request_Document_revised_corrected_PMC1_0.pdf
- Government of Malawi (2017); Malawi Growth and Development Strategy III, Lilongwe, Malawi.
- Government of Malawi (2017); Environment Management Act, Lilongwe, Malawi. Accessible on http://extwprlegs1.fao.org/docs/pdf/mlw169354.pdf
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- M. Mailu, A. (2001). Preliminary Assessment of the Social, Economic and Environmental Impacts of Water Hyacinth in the Lake Victoria Basin and the Status of Control. Accessed on https://www.researchgate.net/publication/237390946_Preliminary_Assessment_of_the_Social_Economic_and_Environmental_Impacts_of_Water_Hyacinth_in_the_Lake_Victoria_Basin_and_the_Status_of_Control

National Target 10: By 2025, pollution is reduced to minimize ecosystem degradation and biodiversity loss

Rationale for the national target

Pollution is one of the major threats to biodiversity in Malawi (NBSAP II, 2016). The State of Environment and Outlook Report (2010) indicated that effluents from major factories and domestic sources including commercial sewages which are often discharged knowingly or unknowingly into the river systems and lakes pollute the aquatic ecosystems in Malawi. Furthermore, continuous use of fertilizers and herbicides in the agricultural sectors has negative bearings on both terrestrial and aquatic biodiversity. Similarly, pollution due to indiscriminate dumping of waste due to lack of proper landfills and waste transfer stations may result into solid waste making its way into rivers, affecting various biodiversity in the water bodies.

Currently Malawi is overwhelmed with the amount of waste generated in most cities and towns. On average, waste generation is estimated at 0.5 kgs per capita per day (National Waste Management Strategy 2017-2022). As such, like all fast urbanizing cities in the world, the cities of Malawi are challenged by the accumulation of waste due to the increase of their urban population and limited resources of public services. The target was developed to ensure that ecosystem degradation and biodiversity loss resulting from pollution is minimized.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the target is related to ABT 8 which states that "by 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem functioning and biodiversity."

Other relevant information

According to Malawi's Fifth National report to the CBD, concentration of sulphates, sodium, magnesium, calcium, chloride, iron, nitrate and total dissolved solids in some of the rivers in Malawi, indicated that the concentration of these parameters increased towards the dry season and were more pronounced in the intestines and the liver of most fish, thereby threatening their survival Apart from waste finding its way in ecosystems and polluting them Indiscriminate dumping of waste also results in GHG emissions due to un managed landfills and dumpsites. This therefore means that if waste is properly managed through the three R's (reduce, reuse recycle) we may avoid pollution.

The capital city, Lilongwe, located in the centre of the country has an annual growth rate of 4.3% and it generates 500 metric tonnes of waste per day of which 40% is from residential areas, 40% from commercial areas, 15% from industries and 20% from hospitals. (National Waste Management Strategy 2017-2022). Similarly, about 450 tons of wastes are produced per day in Blantyre, the main commercial city, and only 28% are collected by the municipalities. The country lacks proper landfills to manage these high volumes of waste as such some of it find its way into the environment and affects biodiversity and other sectors. The Environment Management Act (2017) also identifies pollution as a threat to biodiversity and the environment as a whole and provides environmental quality standards to reduce the impacts of pollution to the environment.

Relevant websites, web links, and files

- Government of Malawi (2010) State of Environment and Outlook report, Lilongwe, Malawi.
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2017); Environment Management Act, Lilongwe, Malawi. Accessible on http://extwprlegs1.fao.org/docs/pdf/mlw169354.pdf
- https://www.cbd.int/doc/world/mw/mw-nr-05-en.pdf
  National Waste Management Strategy (2017-2022)

National Target 11: By 2025, anthropogenic pressures on vulnerable ecosystems are minimized, thereby improving ecosystems resilience to climate change.

Rationale for the national target

There is ample evidence that climate change affects biodiversity. The Millennium Ecosystem Assessment (2005) reports that climate change is likely to become one of the most significant drivers of biodiversity loss by the end of the century. Climate change is already forcing biodiversity to adapt either through shifting habitat, changing life cycles, or the development of new physical traits.

Negative impacts of anthropogenic activities on vulnerable ecosystems are on the rise owing to human population growth and increasing poverty leading into high demand for services and subsequent unsustainable use biodiversity. The impacts from the anthropogenic activities range from environmental degradation resulting in siltation, eutrophication especially from agricultural, domestic and industrial sources, loss of fish breeding grounds and increased human and livestock disease risks which increases vulnerability of ecosystems to climate change and therefore reduces the resilience of these ecosystems and people dependent upon them.

Conserving natural terrestrial and freshwater ecosystems besides restoring degraded ecosystems is essential for the overall goals of the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), as well the United Nations Convention to Combat Desertification (UNCCCD). Ecosystems play a key role in the global carbon cycle and in adapting to climate change, while also providing a wide range of ecosystem services that are essential for human well-being and the achievement of the Sustainable Development Goals (SDGs) (UNDP, 2015). This target was developed to minimize anthropogenic pressures on vulnerable ecosystems and ensure their resilience to climate change.

Level of application

- ☐ Regional/multilateral
- ■ National/federal

☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the National Target contributes to ABT 10, which specifies that "by 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning." It further contributes to achievement of ABT 15 which states that "by 2020, ecosystem resilience and their contribution to carbon stocks has been enhanced, through conservation and restoration including restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combatting desertification."

Other relevant information

The National Adaptation Programmes of Action (NAPA)**,** identified sectors that are affected by climate change and these include agriculture, human health, energy, fisheries, wildlife, water, forestry and gender. Further, the National Climate Change Policy (2016), reports on a number of initiatives that Malawi is implementing to ensure that vulnerable ecosystems adapt to current and projected climate change impacts.

Relevant websites, web links, and files

- https://www.usaid.gov/malawi/fact-sheets/malawi-climate-change-fact-sheet
- Government of Malawi (2010) State of Environment and Outlook report, Lilongwe, Malawi.
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2005); National Adaptation Programme of Action, Lilongwe, Malawi.

- Government of Malawi (2016) National Climate Change Management Policy, Lilongwe, Malawi.

National Target 12: By 2025, the extinction of known threatened species is prevented and their conservation status is improved and sustained

Rationale for the national target

There has been a major decline of some species and reported cases of extinction. NBSAP II reports on the complete extinction of rhinos and cheetahs and the measures that have been taken to reintroduce rhinos in Malawi. The Wild Dog Conservation Malawi Initiative further reports that the African wild dog, which is the second most endangered carnivore in Africa, has some viable populations in Kasungu National Park, hence the need for improving their conservation status.

The 2018 IUCN Red List also indicates that about 9 per cent of the 458 fish species that were assessed in Lake Malawi are at high risk of extinction, causing concern for regional food security. Three out of the four species of Chambo (*Oreochromis karongae*, *Oreochromis squamipinnis*, *Oreochromis lidole*), the country's most economically valuable fish, are critically endangered. This National Target 12 was developed to ensure that the conservation of known threatened species in Malawi is improved and sustained.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the target relates to ABT 12 which specifies that "by 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those in the most decline has been improved and sustained".

Other relevant information

The National Parks and Wildlife (Amendment) Act (2017), provides new definitions of protected species and endangered species to include both plants and animals and provides an addition of 216 wildlife species which have been put under protection. The Act further provides a review of penalties and fines providing a clear categorization of species with their attendant fines and penalties. The minimum penalties were removed for the highest level of protected species and the new penalties include a maximum of 30 years' custody which categorizes wildlife crimes as "Serious Crimes".

Relevant websites, web links, and files

- Government of Malawi (2010) State of Environment and Outlook report, Lilongwe, Malawi.
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2017) National Parks and Wildlife (Amendment) Act, Lilongwe, Malawi
- http://wwf.panda.org/?uNewsID=338311&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+wwf%2Fwater+%28WWF++Freshwater+News%29&utm_content=Google+Feedfether
- http://www.wilddogconservationmalawi.org/

National Target 13: By 2025, the genetic diversity of wild and domesticated plants and animals is maintained and safeguarded

Rationale for the national target

Plant and Animal genetic resources are the foundation for sustainable agriculture and Malawi's food security. They possess genes that offer resistance to pests and diseases and resilience to abiotic stresses, such as drought tolerance, soil erosion, and other constraints. Genetic resources are, however, eroding at unprecedented rates due to loss of habitat, outbreaks of pests and diseases, and abiotic stresses.

It has become imperative to conserve genetic resources for agricultural sustainability and the preservation of biological diversity. Although indigenous animal genetic resources comprise the Main component of the Farm Animal Genetic Resources (FAnGR) In terms of numbers, distribution and utilization, some species like the indigenous pigs are at risk due to rapid replacement with exotic pigs. Malawi's production of new plant and animal breeds to achieve food security requires use of clean planting materials such as seeds. Clean production of seeds in a changing environment requires new knowledge that is generated through research. New knowledge is also required to store plant and animal genetic resources in variable environmental conditions. However, the plant gene bank does not have adequate infrastructure to effectively store indigenous plants and their wild relatives. In terms of animal genetic resources, there hasn't been any investment in construction of an animal gene bank or procurement of facilities to allow Malawian Animal Scientist to characterize and conserve animal genetic resources for improvement of the livestock sector in the country. As a result of absence of infrastructure, most research and development on biological resources requires that samples be analyzed in countries with developed technologies. In cases where value is created and interesting commercial research outputs are identified, it becomes difficult to follow up the resources including the outcome of analysis if done outside the country. This target aims at maintaining and safeguarding the genetic diversity of wild and domesticated plants and animals in Malawi.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the national target relates to ABT 13, which states that "by 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other social-economically as well as culturally valuable species, is maintained, and strategies have been developed and

implemented for minimizing genetic erosion and safeguarding their genetic diversity."

Other relevant information

The State of Plant Genetic Resources for Food and Agriculture for Malawi reveals that with Malawi's economy heavily dependent on agriculture, genetic diversity of plant and animals is significant for the economy in order for Malawi to achieve its MGDS III.

Relevant websites, web links, and files

- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- http://www.fao.org/docrep/013/i1500e/Malawi.pdf

National Target 14: By 2025, level of protection on safe handling, transfer and use of living modified organisms resulting from modern biotechnology that may have adverse impact on biodiversity is strengthened, taking into account risks to human health

Rationale for the national target

Malawi is among few African countries that have made significant progress in biotechnology research and development. Since 2011, three permits have been issued for conducting confined field trials for genetically/Living modified organisms (LMOs). These include genetically modified cotton, cowpea and banana. Of these, only cotton has been granted approval for general release. According to the research findings, *Bt.* Cotton, which is resistant to cotton bollworm, will not only improve cotton production but also reduce the amount of pesticides requirement in cotton production which consequently reduces chemical pollution in the environment.

Despite progress made towards biotechnology research in the country, several capacity gaps were identified in the NBSAPII (2016). Such capacity gaps include

inadequate knowledge in conducting risk assessments and risk management for LMOS, limited capacity to detect and trace LMOs which may enter in the country intentionally or unintentionally and weak Biosafety Legislation among others. The National Target 14 was developed to ensure that relevant capacities among regulators are strengthened to ensure that sound scientific based decisions are taken during the review and approval process of activities involving LMOs. This target also aims to ensure adequate levels of protection in the field of safe handling, transfer and use of LMOs developed through modern biotechnology that may have adverse impacts on biodiversity taking into account risks to human health.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the National Target 14 relates and contributes to the achievement of ABT 13 which states that that "by 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other social economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity." This National Target further contributes to the achievement of ABT 12 which states that "by 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained as well as ABT 19 on ensuring that "by 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied".

Other relevant information

The Malawi Environment Management Act (2017) provides for the establishment of an authority, which will among others prescribe measures and issue guidelines on the safe handling, transfer, and use of LMOs resulting from modern biotechnology that may have adverse impact on biodiversity, human health, and the environment. The Biosafety Act of 2002, Biosafety Regulations of 2007 and the Biotechnology and Biosafety Policy provides a Legal Framework for regulating LMOs in the country.

Relevant websites, web links, and files

- Government of Malawi (2010) State of Environment and Outlook report, Lilongwe, Malawi.
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan, Lilongwe, Malawi.
- Government of Malawi (2017); Environment Management Act, Lilongwe, Malawi. Accessible on http://extwprlegs1.fao.org/docs/pdf/mlw169354.pdf

National Target 15: By 2025, the supply of important ecosystem services is safeguarded and restored, taking into account gender roles and responsibilities of the youth, the poor and the vulnerable

Rationale for the national target

While loss of biodiversity the changes in the ecosystem functioning affect everyone, they affect men, women and the youth differently. A baseline gender and social assessment study conducted by LTS International in the shire river basin to identify and assess potential economic, social, and gender differences and inequalities indicated that these differences and inequalities affect land use practices; access, control, and/or use of natural resources; or the decision making of key actors, such as smallholder farmers and other natural resource users (LTS International et al. 2014c). Gendered access to and control over agricultural assets vary substantially between men and women. Access and control are lowest for

female-headed households and due to the matrilineal property rights system in many parts of rural Malawi, women generally own the land and have better access to loans and extension information, but men remain the main decision makers in agriculture. There is concern that both female-headed households and the matrilineal system in parts of the Shire River Basin contribute to soil erosion and land degradation (LTS International et al. 2014c). Female-headed households have insufficient resources (especially cash and male labor) to sustainably manage their land—for example, through conservation agricultural methods, including adequate organic and chemical fertilizer applications. Moreover, within the matrilineal system, although women hold the land rights, men make most of the agricultural decisions. However, men reportedly have reduced interest in managing farmland sustainably—including addressing soil erosion challenges—because they have weak tenure security and are expected to leave the village in the case of divorce or the death of the wife. Thus, despite land rights, women are prevented from sustainably managing lands. Identifying and addressing women's and men's needs and having gender-environment data readily available are critical elements to ensuring the success of environment and natural resource policy and programming. Further the involvement of the youth is important to address ecosystem degradation and its impacts on the youth and vulnerable groups.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the target contributes to the achievement of ABT 14 which states that "by 2020, ecosystems that provide essential services including services related to water, and contribute to health, livelihoods and well-being are restored, and safeguarded, taking into account the needs of women, indigenous and local communities, the poor and vulnerable."

Relevant websites, web links, and files

- Klause R. (2015); How important is gender is conservation? Accessed on https://www.dw.com/en/how-important-is-gender-in-conservation/a-18358268
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2017); Malawi Growth and Development Strategy III, Lilongwe, Malawi
- Government of Malawi (2005); National Adaptation Programme of Action, Lilongwe, Malawi.

National Target 16: By 2025, access to genetic resources and traditional knowledge is regulated and benefits arising from utilization of the resources and associated traditional knowledge are shared in a fair and equitable manner.

Rational for national target

Malawi is endowed with diverse biological resources which contribute significantly to the country's economy both directly as source of livelihood for the majority of the population and indirectly through various ecosystem services. Recently there has been growing demand for these resources for research and/or development and bio-trade, both from local and foreign users. In 2017 a total of 113 exports permits for plant and insect genetic resources were recorded whilst 352 plants and insects were recorded for 2018 alone indicating an increasing trend in the amount of genetic resources leaving the country. The highest number of these resources were exported for research purposes. This growing demand for biological resources has also been accompanied by the demand for traditional knowledge associated with the use of these biological resources. Economic interests linked to these resources have prompted an interest on the importance of securing property rights and regulating access.

The rising demand for biological resources has also created challenges in ensuring sustainable utilization and conservation of these resources for the country. These challenges include illegal access of biological resources, unequal sharing of benefits arising from use, loss of export revenue and unsustainable harvesting of resources. These challenges emanate from lack of ABS procedures, lack of institutional coordination with regard to access and export of biological resources including conflicting mandates amongst institutions; limited institutional knowledge and capacity on ABS and inadequate systems for monitoring compliance to ABS legislation. As a result, communities and institutions that own genetic resources and associated traditional knowledge have not substantially benefited from their utilization. This target was thus developed to ensure that Malawi's genetic resources are well regulated and benefits arising from their utilization and shared in a fair and equitable manner.

Level of application

- ☐ Regional/multilateral
- ■ National/federal
- ☐ Subnational

Relevance of the national targets to the Aichi Biodiversity Targets

Implementation of the target contributes to achievement of ABT 16 which specifies that "by 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation."

Other relevant information

The Malawi Environment Management Act (2017) establishes an authority which is responsible for initiating legislative proposals, issuing guidelines and prescribing measures for the protection, conservation and sustainable management and utilization of genetic resources and for access to genetic resources.

Relevant websites, web links, and files

- http://www.abs-initiative.info/uploads/media/Malawi_abs-procedures-guidelines_Seyani.doc
- Government of Malawi (2015); National Biodiversity Strategy and Action Plan II, Lilongwe, Malawi.
- Government of Malawi (2017); Malawi Growth and Development Strategy III, Lilongwe, Malawi
- Government of Malawi (2017); Environment Management Act; Lilongwe, Malawi

SECTION II: MEASURES TAKEN TO CONTRIBUTE TO THE IMPLEMENTATION OF THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN II

Malawi has taken several measures in the implementation of its NBSAP II. In this regard**,** a measure is referred to as any action taken to contribute to the implementation of the NBSAP II. Such measures include policies, legislation, programmes and initiatives. The measures are reported below in line with the strategic objectives of the NBSAP II;

STRATEGIC OBJECTIVE ONE: IMPROVE CAPACITY AND KNOWLEDGE ON BIODIVERSITY ISSUES

There are three national Targets under strategic objective one which include targets 1-3. During the reporting period, Malawi has taken the following measures to implement the first objective of its NBSPA II;

National Target 1: By 2025, human and institutional capacity for science and technology related to biodiversity is improved

National Biodiversity Information Facility

Malawi has established a National Biodiversity Information Facility (NBIF) which is managed by the National Commission for Science and Technology (NCST). Further, Malawi has several biodiversity data holders including the National Plant Genetic Resource Centre (NPGRC), Agricultural Research Stations, Botanical Gardens, Museums of Malawi, National Statistical Office (NSO), Department of Surveys, Academic institutions and the Forestry Research Institute of Malawi (FRIM). Some of these institutions in most cases do not have a platform to share information among themselves and with the general public, which makes it very difficult for researchers, policy makers and the general public to access the information. Through this measure, Malawi is developing capacity of different stakeholder institutions to prepare and store data in a form that can be shared with different stakeholders. It also aims to put in place an effective planning and management structure to coordinate biodiversity information. In implementing the measure,

Malawi aims to ensure that biodiversity information is available and well organized to meet the needs of researchers, relevant partners and policymakers to support informed decision making.

Relevant Aichi target

This measure is directly related to ABT 19 which says "by 2020, knowledge, the science base and technologies related to biodiversity, its values and functioning, status and trends, and for the consequences of its loss, are improved, widely shared and transferred and shared.

Box 1: Malawi Spatial Data-Platform (MASDAP)

The Malawi Spatial Data Platform is a public platform for GIS Data to support development in Malawi. The platform contains over 170 spatial data sets, both vector and raster data which can be downloaded in a range of formats. The web based sharing data tool was launched in 2012 by the National Spatial Data Centre housed in the Department of Surveys in collaboration with the NSO and other technical Ministries.

www.masdap.mw

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

Using a case study approach to understand whether the measure has been successful or not, different stakeholders have been able to establish their own

platforms for data sharing, but more needs to be done to populate these platforms with the available data. There is also need for more training in managing these platforms and being able to measure their overall impact in meeting the needs of researchers and decision makers. Considering the intended objectives that the measure aimed to achieve, it can be concluded that the measure has been partially effective. There is need for more capacity building in data capture and management to ensure effectiveness in data and information sharing. Further, Malawian users have not been made more aware of such data sharing platforms which still renders it a challenge to meet its objectives. Going on at this pace however, Malawi is on the right track in the implementation of the NBSAP II, in terms of improving capacity and knowledge on biodiversity issues.

Other relevant information

Within the reporting period, different organizations have implemented different projects that contribute to the measure. Some of the projects include;

Malawi Global Biological Information Facility Advocacy Action Project

Implemented between 2015 and 2016 through the NCST and funded by the JRS Biodiversity Foundation, the project aimed at developing national capacity to manage biodiversity data to effectively enhance management, conservation and utilization of the country's biological diversity and resources. Through this project, Malawi identified challenges related to data management for biodiversity management some of which include lack of human capacity in Information and Communication Technology (ICT) and Library services; Lack of ICT equipment for managing data and information; Lack of proper infrastructure for housing data and information; and inadequate coordination and networking within and across institutions.

Mapping Biodiversity Priorities

The Mapping Biodiversity Priorities Project aims to support countries to conduct spatial biodiversity assessments, and to engage a range of stakeholders to support the development of evidence base that will enable the exploration of sectoral

synergies, trade-offs and policy impacts. The project is funded by the Japanese Biodiversity Fund (JBF) and is being implemented in the country through the Environmental Affairs Department. The project aims to build NBSAP implementation capacity in three African countries through the development and use of biodiversity and socio-economic spatial data and information products to integrate biodiversity into other sectors and national development priorities. Through the project, Malawi is conducting spatial biodiversity assessment using the Mapping Biodiversity Priorities program or software, which was developed by the South African National Biodiversity Institute (SANBI) and the United Nations Environment World Conservation Monitoring Centre (UNEP-WCMC). As part of project implementation, Malawi is developing map products, identifying mainstreaming entry points which provide a basis for biodiversity mainstreaming in relevant sectors.

The National Information Sharing Mechanism on Plant Genetic Resources

The National Information Sharing Mechanism (NISM) is a partnership among stakeholders that contribute to the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) in Malawi. Its main objectives include; i) Foster the exchange of information on PGRFA; ii) Promote understanding of PGRFA status and dynamics; iii) Allow meaningful analysis of gaps and priorities in the conservation and utilization of PGRFA; iv) Assist decision-making on and planning of available resources; v) Increase visibility of on-going efforts in the conservation and sustainable utilization of PGRFA; vii) Conserve the country's historical memory on PGRFA; viii) and improve capacity to manage PGRFA information and to meet international reporting commitments. NISM is housed within the MPGRC in Chitedze which also acts a secretariat.

Through NISM, Malawi is able to provide information regarding the different plant genetic resources found in the country as well as access and benefit sharing procedures. However, most of the institutions participate as data users rather than data providers, and not much information has been updated on the platform.

National Target 2: By 2025, traditional knowledge, innovations and practices of local communities are respected and harnessed in line with national and international legislation.

Implementation of National Culture Policy (2015)

The National Culture Policy was adopted in 2015 and provides for the establishment of a National Arts and Heritage Council to spearhead both the preservation of natural heritage and safeguarding of intangible cultural heritage. It further provides for the review of the relevant pieces of legislation such as the Arts and Craft Act, Monuments and Relics Act, Museums Act and Copyright Act. The Policy emphasizes the importance of "expressions of folklore" and provides qualifications which are in line with the United Nations Educational, Scientific and Cultural Organization (UNESCO) 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (ICH). It also ensures that there is benefit sharing with communities, groups and individuals for any form of exploitation of folklore and traditional knowledge for commercial purposes. As a means of implementing the policy, the Museums of Malawi in collaboration with Malawi National Commission for UNESCO documented the various aspects of intangible cultural heritage that Malawi has to ensure that such knowledge is passed on to the future generation.

Relevant National or Aichi target

This policy measure is directly related to ABT 18 where " by 2020 the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the convention with the full and effective participation of indigenous and local communities at all levels

Assessment of the effectiveness of the implementation measure

In order to ascertain the effectiveness of the implementation measure, a before and after comparison process was made. In this approach, progress made within the reporting period was considered. The effectiveness approach concluded that any observed changes after adoption of the National Cultural Policy (2015), are as a result of the effectiveness of the policy. Therefore, the measure has been partially effective. The results indicated that since the policy was adopted, three national inventories, Volumes 1, 2 and 3 had been developed. Five elements of ICH have since been inscribed on the UNESCO Representative List of Intangible Cultural Heritage of Humanity. These are: Vimbuza Healing Dance (2005), Gule Wamkulu the Great Dance (2005), Tchopa, the Sacrificial Dance of the Lhomwe People of Southern Malawi (2014), Nsima, Culinary Tradition of Malawi (2017), and Mwinoghe, the Joyous Dance of the Sukwa People (2018). Malawi and Zimbabwe also submitted a joint nomination on Sansi/Mbira Music Playing for possible inscription on the Representative List of Intangible Cultural Heritage of Humanity. The nomination file will be discussed at the forthcoming Intergovernmental Committee Meeting for the UNESCO's 2003 Convention which will be held in Colombia in December 2019. In addition to that, Malawi has line up two more Intangible Cultural Heritage elements to be submitted to UNESCO for possible inscription. One element, Kaligo Music Playing, is earmarked for inscription on the Urgent Safeguarding List and the other one, Kukwengula Mabwese - the Tradition of Extracting Oil from Palm Fruit among the Nyakyusa of Northern Malawi, is earmarked for inscription on the Representative List.

Other relevant information (Case studies to illustrate how the measure taken resulted in the outcomes that contribute to the implementation of the NBSAP)

As a means of implementing the National Cultural Policy (2015), the Government of Malawi established the Bingu School of Culture and Heritage (BISCH) within the Malawi University of Science and Technology (MUST) which started enrolling students in Indigenous Knowledge Systems and Practices courses in 2016. The School has undergraduate programs in Indigenous Knowledge Systems and Practices (IKSP), which deals with fields of ethics and morality, fine arts, health,

dietary systems, architecture, heritage, and environment. It also combines multiple domains and types of knowledge with differing logics and epistemologies to help improve the quality of human life and sustainable development. Examples of applications of IKSP are: the development and production of ceramics ware (e.g., cups, plates, tea ports, and tiles); weaving ware; fashion ware; herbal drugs; viewing of lifestyles, diets, architectural designs; and protection of endangered knowledge and skills. All these knowledge systems learnt in the BISCH fall in one or the other of the five domains of ICH, which includes oral traditions, knowledge about nature and universe, cultural practices and rituals, performing arts and traditional craftsmanship with the application of scientific knowledge.

Relevant websites, web links and files (Any additional information)

Apart from the Department of Museums and Monuments, several cultural groups have also been documenting the intangible cultural heritage within the reporting period. The list of publications for the period under review include:

- The Inventory of Intangible Cultural Heritage of Malawi, **Volume 1** by Museums of Malawi, Department of Arts and Crafts, and Malawi National Commission for UNESCO;
- Inventory of Intangible Cultural Heritage of Malawi, **Volume 2** by Community-based Youth led by National Intangible Cultural Heritage Committee and ethnic communities in the Northern Region of Malawi;
- Inventory of Intangible Cultural Heritage of Malawi, **Volume 3:** Ludodiversity/Traditional Games by National Intangible Cultural Heritage Committee and Department of Arts and Crafts and Museums of Malawi;
- Inventory of Intangible Cultural Heritage of Malawi, **Volume 4:** Proverbs and Folktales, by Oral Traditions Association of Malawi led by National Intangible Cultural Heritage Committee;
- Inventory of Intangible Cultural Heritage of Malawi, **Volume 5:** Folktales, by National Library Service;
- Inventory of Intangible Cultural Heritage of Malawi, **Volume 6:** Folksongs by Music Crossroads Malawi Chapter;

- Inventory of the Intangible Cultural Heritage of the Lhomwe People by Community-based Youth and Mulhako wa Alhomwe (Lhomwe Heritage Association) led by Museums of Malawi

The National Intangible Cultural Heritage Committee (NICHC) has the responsibility of updating these inventories every three years through heritage associations giving updated information on each element, which would be used to update the inventories in succeeding editions of each volume. The inventories are made available in all National Library Services throughout the country.

Obstacles and scientific technical needs related to the measures taken

Despite establishing these inventories, the majority of Malawians are not aware of such initiatives and therefore rendering it difficult for everyone to access such important materials. Further, there has not been studies done or conducted to show clear linkages on how Malawian culture contributes to conservation of biodiversity as well as the role of indigenous knowledge and the protection of the environment. Most of the inventories that have been done have also not made the linkages on how the cultural diversity is contributing to conservation of biodiversity at local level. This, therefore, poses a challenge for the country to understand how valuable cultural diversity is in the conservation of biodiversity and be able to put a value to it.

Relevant websites, web links and files (relevant information related to obstacles and scientific needs)

- Kamoto, J., Clarkson, G., Dorward, P. and Shepherd D. (2013); Doing more harm than good? Community based natural resource management and the neglect of local institutions in policy development. Land Use Policy, 35. Pp 291-301

  https://en.unesco.org/creativity/sites/creativity/files/activities/conv2005_eu_docs_malawi_policy.pdf

National Target 3: **By 2025, at least 50 % of the Malawi population is aware of the value of biodiversity to ensure its conservation and sustainable use.**

Biodiversity Conservation Awareness Initiatives

During the revision of the NBSAP process, it was reported that awareness of biodiversity and its values was very low in Malawi. Within the reporting period, the country had taken several initiatives in order to create awareness on the value of biodiversity.

Box 2:Recognizing Excellence through the Green Media Award

Coordinated through AEJ, the awards aim to promote and sustain media coverage on environment in Malawi and accelerate the agenda for sustainable utilization of Malawi's natural resources. This will in the long term help to attain the Malawi Growth and Development Strategy but also the sustainable development at global level.

The awards target content from published and aired content in print, radio, television and online media. In the picture, 2015 Green Media Award finalists with key invited guests at the Award Ceremony in Blantyre.

Relevant National or Aichi Targets

The measure is related to Aichi biodiversity target 1 which aims to ensure that "by 2020 people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably."

Assessment of effectiveness of the measure

Due to lack of baseline information, a counterfactual evaluation to ascertain the effectiveness of the measure was conducted. Despite acknowledging that biodiversity awareness was a major challenge to conservation in the country, there have not been adequate efforts to measure the effectiveness of awareness initiatives, in terms of number of people reached, and behavioral change. Therefore, the counterfactual evaluation would not have been possible to use as a measure of effectiveness.

Using a case study approach however, there is clear evidence on the effectiveness of awareness initiatives in creating awareness. For example, the Sustainable Rural Growth and Development Initiative (SRGDI) organised a Misuku Hills Arts Challenge with the aim of awareness on the values of Misuku Hills Forest Reserve. Twelve artists were tasked to come up with artworks on biodiversity, culture and tradition of Misuku after a 5- day tour of the Misuku hills. A National Exhibition was conducted where paintings, sculptures, photographs and short films on Misuku Hills Key Biodiversity Area (KBA) were exhibited. The exhibition brought together government departments, NGOs, Companies, Development Partners and the general public. Live images and sounds of birds in Misuku Hills were streamed and displayed, opening up views of Misuku Hills never seen before by the public. The exhibition also displayed school children's art work. The artwork also led to the development of communication materials that showcased the beauty and ecological, cultural, aesthetical and economic value of Misuku Hills Forest Reserves which are currently being used to generate interest and awareness in species/ecosystem conservation in Misuku Hills and also showcase the culture of the people in Misuku Hills, at local, national and international level. The communication materials included; three short films/documentaries, 16 pieces of fine Art, 3 pieces of sculpture, over 68 photos, 1000 brochures, 10 children

drawings, a website for promoting Misuku hills KBA, Facebook and Twitter. According to SRGDI, the challenge reached to over 6,000,000 people through Television, Radio, Newspapers, Facebook, Tweeter, Art Exhibition, Brochures and Website.

Other relevant information (Case studies to illustrate how the measure taken resulted in the outcomes that contribute to the implementation of the NBSAP

Commemoration of World Biodiversity Day

In 2017, Malawi commemorated World Biodiversity day for the first time under the theme "Biodiversity for Sustainable Tourism". Malawi's tourism is highly dependent on biodiversity due to the natural and beautiful landscapes, which harbor significant biodiversity. The event was presided over by the Minister of Natural Resources, Energy and Mining and saw different institutions exhibiting the importance that biodiversity plays in their various and respective sectors (see Figure 2). The event also attracted different schools that showcased the importance of biodiversity in their day to day lives.

There were also different video clips that were produced on the role of biodiversity in tourism in Malawi which have been shown on the national television.

Photo Credit: Peter J. Makwana

Figure 2:Displays at World Biodiversity Day, 2017

Publications on Biodiversity and Ecosystem Services in the Shire River Basin

Through the Shire River Basin Management Program (SRBMP), Malawi has been able to produce publications on biodiversity and ecosystem services which provide information on the important biodiversity found in the basin. These have also been significant in showcasing how biodiversity is important in the basin.

Box 3: Contribution of Articles in Inflight Magazines on the importance of Malawi's biodiversity

Another important element of creating biodiversity awareness is keeping the wider public informed about developments in various protected areas through articles of public interest in journals and magazines. One such useful outlet are in-flight magazines such as the one that is produced by Malawian Airlines called TIYENDE. In 2015, an article on Lengwe National Park was published in the In-flight magazine of Malawian Airlines detailing the work to date at the park, the progress made, and the plans for the future rehabilitation of the park. Articles such as these are a very good platform for informing a wide and varied audience on the important biodiversity in Malawi.

Malawi International Tourism Expos

Malawi's rich biodiversity offers a myriad of activities not found in other countries in the southern African region, including fresh water habitats, over 750 species of prolific birdlife, world's largest fresh water body with over 1,000 cichlid species which are part of the Lake Malawi National Park, a UNESCO World Heritage Site and many more. Every year, Malawi showcases the importance of biodiversity for tourism which normally attracts over 130 exhibitors to over 7000 stakeholders.

Since 2017, Malawi has been hosting the tourism expo to provide a platform for different stakeholders to interface and experience first-hand Malawi's tourism products and share best practices on how to network and package Malawi's tourism products for increased returns. The expo also provides an opportunity to create awareness on the value of Malawi's biodiversity and its contribution to the

tourism sector. Figure 3 showing some traditional products displayed at the Tourism Expo.

Photo Credit: Peter J. Makwana

Figure 3:: Traditional products displayed at the Tourism Expo

Relevant information

- www.shirebasin.mw
- https://twitter.com/TourismMalawi/status/1062630120052191232
- https://tourism.mw/
- https://www.lilongwewildlife.org/2017/06/01/minister-commemorates-environment-biodiversity-days/
- http://www.srgdi.org/misiuku-hills-conservation.html

Implementation Obstacles

There is still need for more efforts in creating biodiversity awareness in Malawi. Despite considerable efforts in environmental awareness and education, linkages of specific actions and how they relate to biodiversity conservation are not well established. Also there have not been many initiatives that have showcased the importance of different ecosystems in the provision of ecosystem services to the public which poses as a challenge to conservation of KBAs. For tourism purpose, there has been increased social media marketing on Malawi being the best tourist destinations even though most of it has targeted the international audience. For example, during the spectacular translocation of 500 elephants from Majete wildlife Reserve and Liwonde National Park to Nkhotakota Wildlife Reserve, the international media covered it very well and marketed Malawi as one of the tourism destinations. However, in the local media, there was inadequate coverage leaving Malawians unaware of different initiatives happening in the country. There is need for deliberate efforts to ensure that Malawians are made aware of efforts like these to assist them appreciate the value of biodiversity as well.

Further, there are a lot of initiatives that are going on in Malawi aimed at raising awareness about environment in general in the country. However, linkages on how biodiversity is important for human wellbeing and climate change adaptation has not been clearly articulated in most of the initiatives, nor have there been efforts to measure effectiveness on the awareness raising initiatives for biodiversity conservation. The lack of efforts to measure effectiveness could be attributed to the lack of a comprehensive Monitoring and Evaluation framework for the National Environment and Climate Change Communication Strategy (2010) which is currently under review to include issues of biodiversity comprehensively and an M & E framework.

Biodiversity Information Management Forum

Hosted by the Environmental Affairs Department (EAD), Museums of Malawi, The National Herbarium and Botanical Gardens, Wildlife Environmental Society of Malawi (WESM), NCST, the forum aims to bring together key players in biodiversity information management to ensure their initiatives are aligned, coordinated and

relevant. The Biodiversity Information Management Forum (BIMF) also aims to offer opportunities for strategic thinking, innovation, knowledge sharing, training and networking. It is primarily aimed at people who are involved in mobilising, managing, serving and using biodiversity information. Participants are usually from local, provincial or national government departments, universities, research institutions, museums, conservation bodies and Non-Governmental Organizations. The BIMF serves the following roles:

- Coordinate biodiversity information management initiatives amongst partner organizations.
- Build social capital by identifying incentives to share and use biodiversity data.
- Establish and promote common standards and practices.
- Promote the free flow of data through data sharing agreements between key institutions.
- Provide a technical platform for knowledge sharing.
- Build relevant capacity.
- Incentivize end user uptake of biodiversity information by demonstrating its value.

So far the Forum has met once in 2018 and it is envisaged that there will be regular meetings to ensure coordinated biodiversity information management initiatives. This is a very good development for biodiversity information, as it will ensure that mobilisation of biodiversity information is well coordinated and also provides a platform for creating awareness on initiatives currently being implemented. There is need for EAD to prioritise the Forum and ensure allocation of financial resources to enable the Forum meet its objectives, as well as contribute to the Department's mandate of coordinating environment issues in the country.

Relevant websites, web links and files

- Khaki Mponya N, Maxted N (2018). Status and spatial diversity of Sorghum wild species in Malawi. Malawi Plant Genetic Resources Centre (MPGRC).
- http://www.fao.org/pgrfa-gpa-archive/mwi/welcome.htmx

- https://www.gbif.org/sites/default/files/gbif_analytics/country/MW/GBIF_CountryReport_MW.pdf
- https://www.iucn.org/theme/species/our-work/freshwater-biodiversity/what-we-do/lake-malawi-catchment
- https://www.gbif.org/project/82210/gbif-malawi-advocacy-action

Obstacles and scientific technical needs related to the measures taken

Despite increased progress in establishing biodiversity information facilities in Malawi, lack of baseline data or assessments on biodiversity in the country still poses a challenge in informing the public on the status, trends and value of biodiversity. Further, most of the data holding sites have been tailored to meet the needs of an international audience rather than Malawians themselves. There is need for awareness creation within the country to ensure that Malawians are aware of such initiatives and are able to use them to inform decision-making. If implementation and awareness of such initiatives is improved, Malawi could use such information to fulfil its commitments to some of the intergovernmental processes like the CBD, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and other biodiversity related Multilateral Environmental Agreements (MEAs) to which Malawi is a party to. It will also provide a basis for decision making on biodiversity mainstreaming in different sectors. Malawi needs to put much emphasis in data generation and monitoring whether the data being generated is being used for decision-making in the country. Measurement for impact of such initiatives should also go beyond access to the information but also consider the effect on behavioral change.

STRATEGIC OBJECTIVE TWO: MAINSTREAM BIODIVERSITY INTO NATIONAL SECTORAL AND LOCAL DEVELOPMENT PLANS

Malawi's economy being natural resource base mainstreaming biodiversity into development sectors at all levels was recognized as an important element in light of the rapid decline of biodiversity in the country. In order to sustain essential services that biodiversity provides to the development sectors and human wellbeing immediate and collective actions involving all stakeholders (government agencies, non-governmental organization and Local Communities) must be taken to address the loss of biodiversity in the country. Within the reporting period, Malawi implemented the following measures to contribute to strategic objective two of the NBSAP II.

National Target 4: **by 2025, biodiversity values are integrated into national, sectoral and local development policies and plans in Malawi**

Integrated Ecosystem Assessments

Based on the findings of the Economic valuation of ENR use in Malawi (2011), which revealed high economic cost of soil erosion on agricultural productivity and poverty reduction, the Government of Malawi carried out an integrated ecosystem assessment on soils in 2016 to determine the best approach to control soil loss problems in the country. The assessment revealed that soil loss is a major threat to the agricultural development in Malawi and by extension is also a major hindrance to the overall economic development of the country since the economy is dependent on agriculture. In terms of degree and severity of soil loss rates, the northern region seemed to have had moderate to severe soil loss problems while the rest of the country had light soil loss problems as shown in figure 4 below;

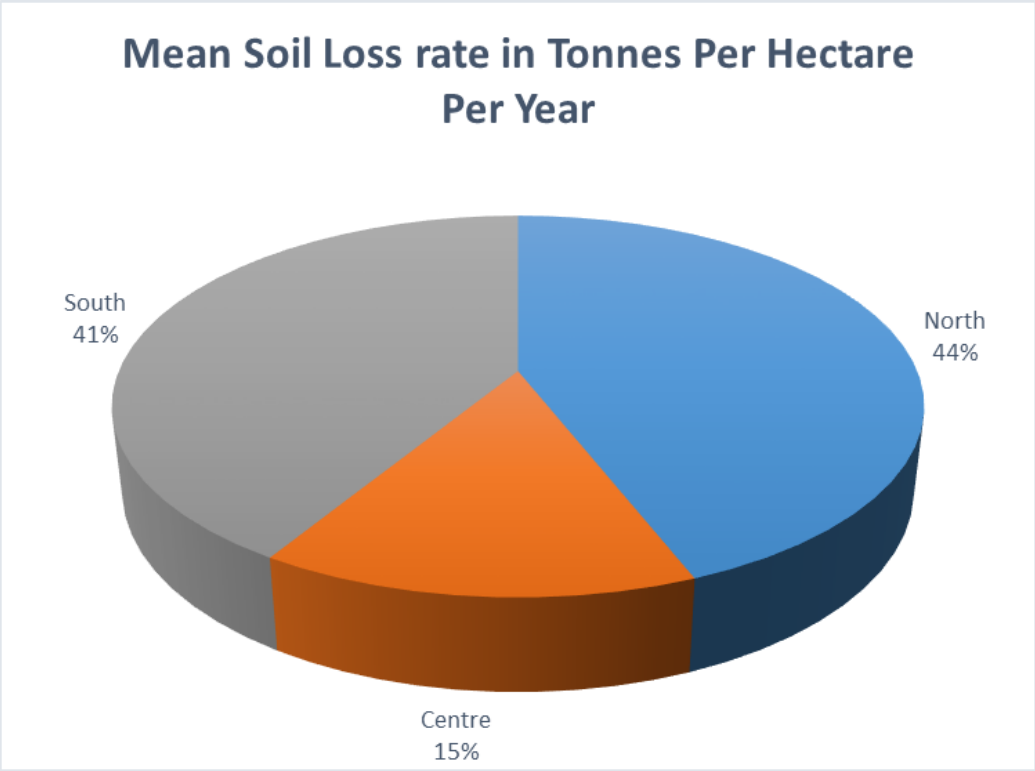

Figure 4:Mean soil loss rate in tons per Hectare per Year expressed as a percentage

The study further revealed that Malawi has developed very good policies for natural resources management and Sustainable Land Management practices, which have created necessary structures for implementation and monitoring. However, the actual implementation has been weak and inadequately funded thereby contributing to further increased soil loss.

Relevant websites, web links and files

- http://www.unpei.org/our-stories/soil-loss-assessment-in-malawi
- https://www.iaere.org/conferences/2018/files/pallante.pdf

Relevant Aichi or National Target

This measure is related to Aichi biodiversity target 2 which aims to ensure that "by 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are

being incorporated into national accounting, as appropriate, and reporting systems."

Assessment of effectiveness

The measure has been effective in providing the much needed evidence on how much soil is being lost in the country per year. The spatial data developed during this assessment is also very important for necessary action towards restoration of degraded areas. However, the country will need to develop adequate dissemination packages for the products developed in this study in order to reach the intended audience. There is need for continued capacity building and deliberate efforts to monitor soil loss in each district and also to assess the impact of soil loss to biodiversity conservation. A detailed monitoring framework for monitoring soil loss will also be essential for determining some prevention measures and best management practices.

Mainstreaming biodiversity into development projects

If biodiversity is to be better considered, more carefully conserved and sustainably used in developing societies and economies, key people in those societies and economies need to be involved. This is the approach to 'biodiversity mainstreaming' which Malawi has taken through the Mainstreaming biodiversity into development project to which Malawi was part of. As part of the African Leadership Group (ALG) of the mainstreaming project, Malawi's capacity was built on how biodiversity could be presented in a valuable manner to development and financial sectors in order to attract the attention of those in charge of planning and investments in the country. Through the project, Malawi received support and leadership on different aspects of the link between biodiversity and poverty and on mainstreaming biodiversity. The project helped to build capacity to understand the linkages of biodiversity and development sectors in order to ensure that biodiversity has been mainstreamed in sectoral planning, policies and programs. Malawi was also part of the ALG which co-produced five international statements at the ALG annual meetings and promoted them at the CBD COP 13 which was held

in Cancun Mexico in 2016, encouraging other countries with practical ways to ensure that biodiversity and development are integrated. Further, Malawi also co-produced and tested eight guidance documents and tools on biodiversity mainstreaming in order to contribute to a knowledgeable and influential community of practice embracing biodiversity, development and finance in sectors such as energy and agriculture; and government officials, academics and civil society.

Relevant Aichi Target or National Target

This measure is related to Aichi Biodiversity Target 2 which aims to ensure that "by 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems." The measure is also related to Aichi target 19 which says "by 2020, knowledge, the science base and technologies related to biodiversity, its values and functioning, status and trends, and for the consequences of its loss, are improved, widely shared and transferred and shared," as well as to National Target 1 one which states that "by 2025, human and institutional capacity for science and technology related to biodiversity is improved."

Assessment of effectiveness

Through the project, five government officials were able to build their capacity on developing business cases for biodiversity. Using counterfactual evaluation, it can be concluded that the measure has been effective. However, despite this capacity building initiative, lack of economic analyses on the importance of biodiversity has still rendered it difficult to fully mainstream biodiversity and development planning. If Malawi has been able to include biodiversity in development planning, there has not really been a considerable increase in spending for biodiversity conservation initiatives to indicate that the importance of biodiversity in those sectors has been fully understood.

Other relevant information

Within the reporting period Malawi adopted the MGDS III whose overarching theme is to build a Productive, Competitive and Resilient Nation". Unlike its immediate predecessor, the strategy is built around one theme that aims to improve productivity, turn the country into a competitive nation and develop resilience to shocks and hazards. The strategy will be implemented from 2017-2022 which is within the implementation period of NBSAP II.

Despite being a natural resource based economy, the value of biodiversity in the economy has not been fully captured in the MGDS III. The tourism sector however, has recognized the role of biodiversity under Key Priority Area (KPA) 2 on energy, infrastructure and tourism development where biodiversity for tourism development is recognized despite the tremendous pressure on the natural resources. Economic analyses showcasing the value of biodiversity in different sectors is therefore critical to ensure its conservation.

Malawi is among the first ten countries to pilot projects under the Bio-bridge Initiative (BBI). The country in cooperation with Uganda will jointly develop a proposal on biodiversity valuation which if successful will contribute to knowledge on the value of biodiversity and act as a tool to guide prioritization of resources for conservation.

At local level, Malawi has made progress in mainstreaming biodiversity in local councils. Through the Urban Natural Assets for Africa: Rivers for Life project (UNA Rivers), Lilongwe City Council has strengthened local sustainability and improved climate resilience, through mainstreaming biodiversity and ecosystem services into land-use planning and city decision-making processes. An integral part of the UNA Rivers project has been supporting coordination between City Councils, local organizations and communities, as well as fostering community-based activities and engaging citizens in being stewards of their cities.

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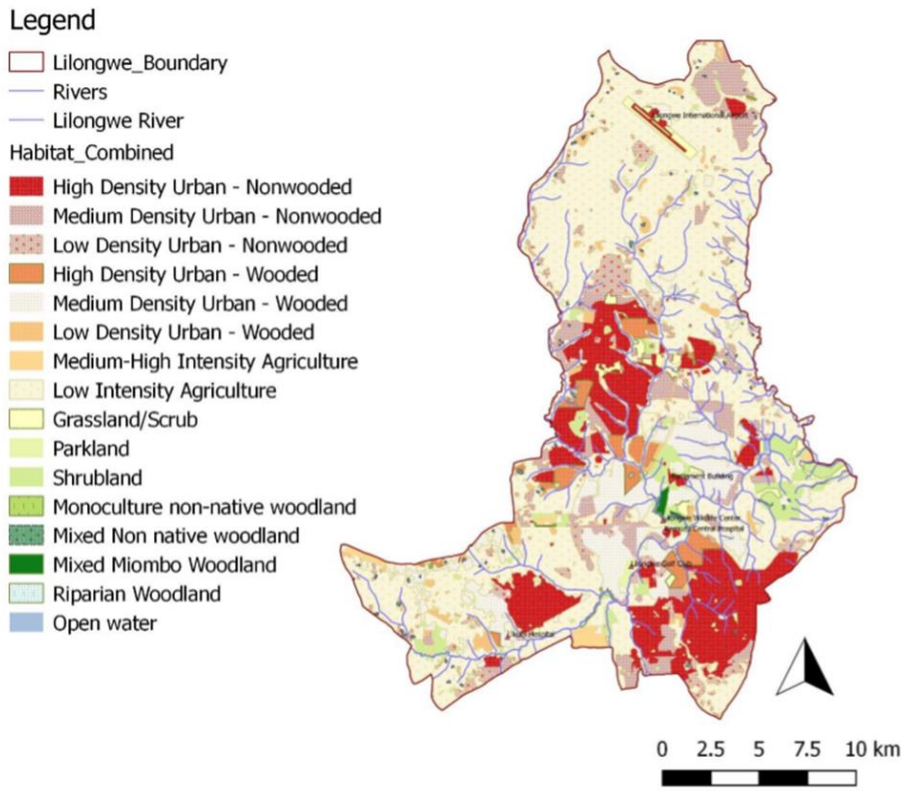

Figure 5: Urban Assets in Lilongwe City

In Lilongwe, the project has mapped urban assets (figure 5), and assessed the degradation of Lilongwe river which will be important for land use planning. More importantly, the project has supported the prioritization of Lilongwe's urban natural assets through developing an urban natural asset (UNA) hotpot map. This information aims to support the municipality through outlining priority hotspots in Lilongwe City (indicated in dark red in figure 6 below). The mapped priority hotspots guide development, as they indicate where development should/should not occur within the city due to the value of nature in urban life. Hotspot areas identified and marked by a priority or high status are extremely important to the resilience of the city and therefore should be preserved. The mapped information also helps to overcome monitoring and enforcement challenges as it provides a new methodology to manage biodiversity. The UNA method and approach should be up scaled to other urban centers in Malawi.

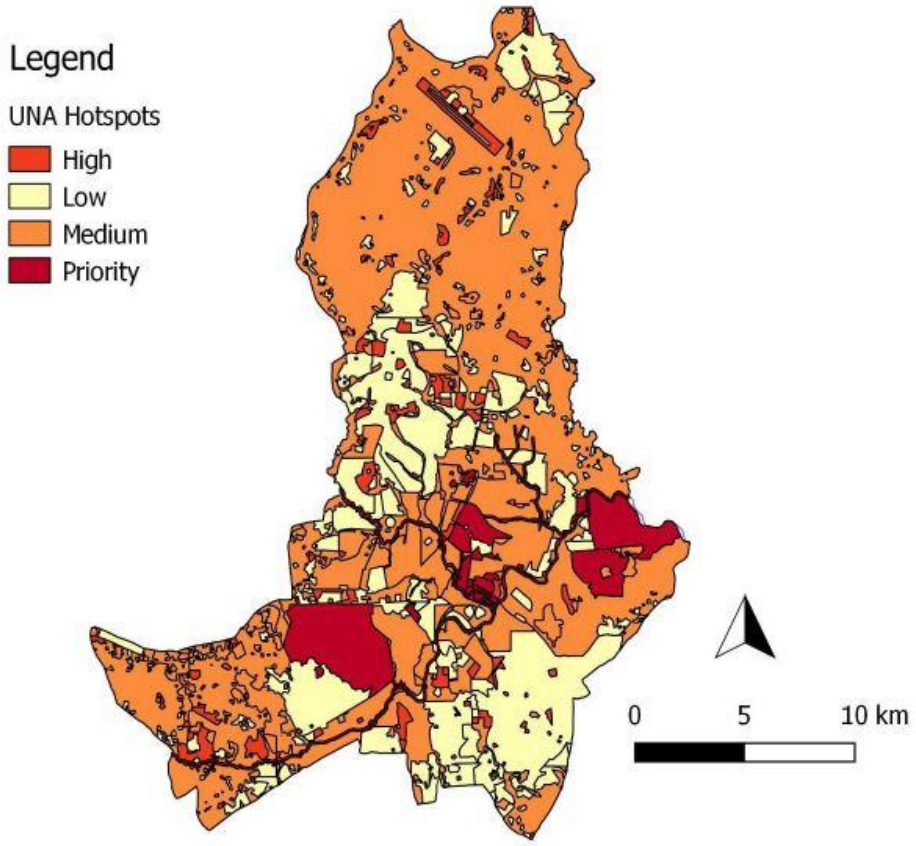

Figure 6:UNA Hotspot and Prioritization map for Lilongwe

Relevant websites, web links and files

- http://www.mw.undp.org/content/dam/malawi/docs/UNDP_Malawi_MGDS)%20III.pdf
- https://www.iied.org/national-biodiversity-strategies-action-plans-20-mainstreaming-biodiversity-development
- http://www.thegef.org/sites/default/files/publications/Mainstreaming-Biodiversity-LowRes_1.pdf
- https://www.slideshare.net/IIEDslides/biodiversity-mainstreaming-in-malawi-progress-and-challenges
- http://extwprlegs1.fao.org/docs/pdf/mlw149233.pdf
- https://cbc.iclei.org/project/una-rivers-life/
- https://sq1.co.za/portfolio/lilongwe-river-revitalization-plan/

Obstacles and scientific technical needs related to the measures taken

The lack of valuation studies on the value of biodiversity in Malawi has contributed to inadequate mainstreaming initiatives in different sectors. In some sectors, biodiversity is mentioned as important to achieving the sectoral goals and sustainable development but there are still inadequate investments for effective biodiversity conservation. For example, ecosystem based adaptation has been considered as one of the main adaptation strategies in tackling climate change in Malawi, however there is inadequate climate change investments for biodiversity conservation.

National Target 5: By 2025, sustainable financing mechanisms for effective implementation of biodiversity programmes are developed"

Biodiversity financing Initiative

The Biodiversity Finance Initiative (BIOFIN) is a global platform seeking to improve the management of nature and nature's services through an enhanced understanding and use of finance solutions. It offers a comprehensive and stepwise methodology for countries to break from the historical pattern of ecosystem loss and degradation. The BIOFIN approach starts with a baseline scenario to understand levels and needs for biodiversity financing. BIOFIN works with countries towards a future scenario where these amounts become known and where solutions are deployed to meet the challenge of financing biodiversity. Malawi has recently joined BIOFIN in phase II and aims to increase financial flows for biodiversity.

Relevant Aichi Biodiversity Target or National Target

The measure is related to Aichi Biodiversity target 2020 which states that "by 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels." It is also

related to Aichi target 2 on integrating biodiversity values into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems. At the national level the measure is also related to national target 4r on ensuring biodiversity values are integrated into national, sectoral and local development policies and plans.

Assessment of effectiveness of the measure

The effectiveness of the measure is currently unknown because the measure is at an early stage of implementation. However, if well implemented, the initiative will assist in linking key sectors with each other in the pursuit of mobilizing resources and also better managing the current resources available for conservation. The initiative will also strengthen capacities in biodiversity finance within key institutions, as well as the country's success in institutionalizing biodiversity finance directly into the relevant ministries and agencies which will ensure the country moves towards a more sustainable future with healthy and thriving biodiversity and ecosystems.

Relevant websites, web links and files

- https://www.biodiversityfinance.net/

STRATEGIC OBJECTIVE THREE: REDUCE DIRECT PRESSURES ON BIODIVERSITY

The Fifth National Report to the CBD highlighted different threats to biodiversity which continue to threaten biodiversity in Malawi. These included habitat loss and fragmentation, over-exploitation of biological resources, introduction of alien species, pollution and climate change. During the reporting period, the following measures have been implemented:

National Target 6: By 2025 at least 50% of the degraded terrestrial habitats are restored and protected.

Protecting Ecosystems and Restoring Forests in Malawi

Protecting Ecosystems and Restoring forests in Malawi (PERFORM) Project is a five-year project funded by the U.S. Agency for International Development (USAID) which aims to improve quality of life across Malawi. PERFORM promotes forest conservation and green growth, while working to reduce greenhouse gas (GHG) emissions from forestry land use and strengthen climate resilience. Through its implementation, Malawi has been able to conduct a National Forest Inventory and develop forest cover maps. In addition, the country has been able to conduct a national forest landscape restoration assessment and develop and operationalize a national forest landscape restoration strategy which aims to promote large-scale restoration of Malawi's degraded lands and forests in line with the provisions of UNCCD.

Relevant Aichi Targets

The measure is related to Aichi Biodiversity Target 5 which states that "by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced." The measure is also related to Aichi Target 11 where "by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes." It is also related to Aichi Target 7 which aims to ensure that "by 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity." At the national level the measure also contributes to achievement of national target 8.

Assessment of effectiveness of the measure

Using actual versus planned comparison for non- experimental evaluation, the measure has been effective in ensuring that Malawi has the relevant information and data for making informed decisions for forest restoration. Through PERFORM, forest spatial data and the National Forest Inventory have been produced which have been very important for determining the neutrality targets for land degradation for Malawi as well as contributing to achievement of Malawi's commitments under the AFR100 and the Bonn Challenge. Most of the spatial information has also been made available to the public through MASDAP.

Malawi's Intended Nationally Determined Contributions (INDC) to the Paris Agreement prioritized emission reductions in forestry and land use sectors. Through PERFORM, several REDD+ readiness activities have been implemented to ensure preparedness for results-based payments for net GHG reductions in the forestry sector.

Relevant Information

- https://cepa.rmportal.net/Library/climatechange/Governance%20Assessment%20of%20Participatory%20Forest%20Management%20in%20Malawi.pdf
- https://cepa.rmportal.net/Library/climatechange/PERFORM%20Gender%20Analysis%20and%20Plan.pdf
- https://theredddesk.org/countries/malawi

Obstacles and scientific needs related to implementation of the measure

Despite having such initiatives in place, Malawi continues to experience deforestation both within and outside its protected areas due to lack of alternatives to fuelwood and charcoal for household energy use, agricultural expansion and inadequate policies that address land use pressures especially for tobacco and brick production. The Forest Landscape Restoration Opportunities Assessment for Malawi (2017) reports that between 2001 and 2009, Malawi lost an estimate of $244 million to land degradation. Uncontrolled deforestation and land degradation

have very serious implications on hydro-electric power generation and portable water supply for drinking water to urban residents.

The Restoration Opportunities Assessment Methodology (ROAM) which was carried out in Liwonde Forest Reserve landscape also revealed the barriers to forest restoration including land use pressures and declining soil fertility, low literacy levels, high dependency on firewood and charcoal from natural forests, weak coordination of upstream and downstream interventions, deficiencies in enforcement of existing regulations governing sustainable use of forest resources, and limitations in extension, training and technical support for scaling up restoration practices through integrated landscape management. There is therefore need to consider these barriers in the development of landscape restoration initiatives to ensure their effectiveness.

Designation of Elephant Marsh as a Ramsar Site

In order to reduce pressure to some important biodiversity areas in the country, Malawi designated Elephant Marsh (Ramsar Site no. 2308) as its second wetland of International Importance in 2017. The site, situated in the Lower Shire Valley in Southern Malawi, was named "Elephant Marsh" by the explorer David Livingstone in 1859, who counted as many as 800 elephants in one sighting (Figure7). Currently, the elephants are largely gone, but the Site supports over 20,000 waterbirds. Around 26 waterbird species have been found breeding in the area; among them are the threatened Madagascar squacco heron (*Ardeola idae*), wattled crane (*Bugeranus carunculatus*) and grey crowned crane (*Balearica regulorum*). It also supports populations of hippopotamus, and several species of fish and aquatic invertebrates, including the newly identified sub-species of the butterfly *Colotis amata* (GoM, 2015) that breeds exclusively on the wetland/or marsh edge surrounded by the evergreen shrub *Salvadora persica*.

Apart from harboring important biodiversity, the Marsh also plays an important role in maintaining the valley's hydrological regime, through flood control, water storage and supply of nutrient-rich sediment. The combination of the different habitat types within the Marsh, and the changes in these over the course of the

flood cycle, gives rise to the overall productivity of the Site and its importance for the conservation of resident and migratory species.

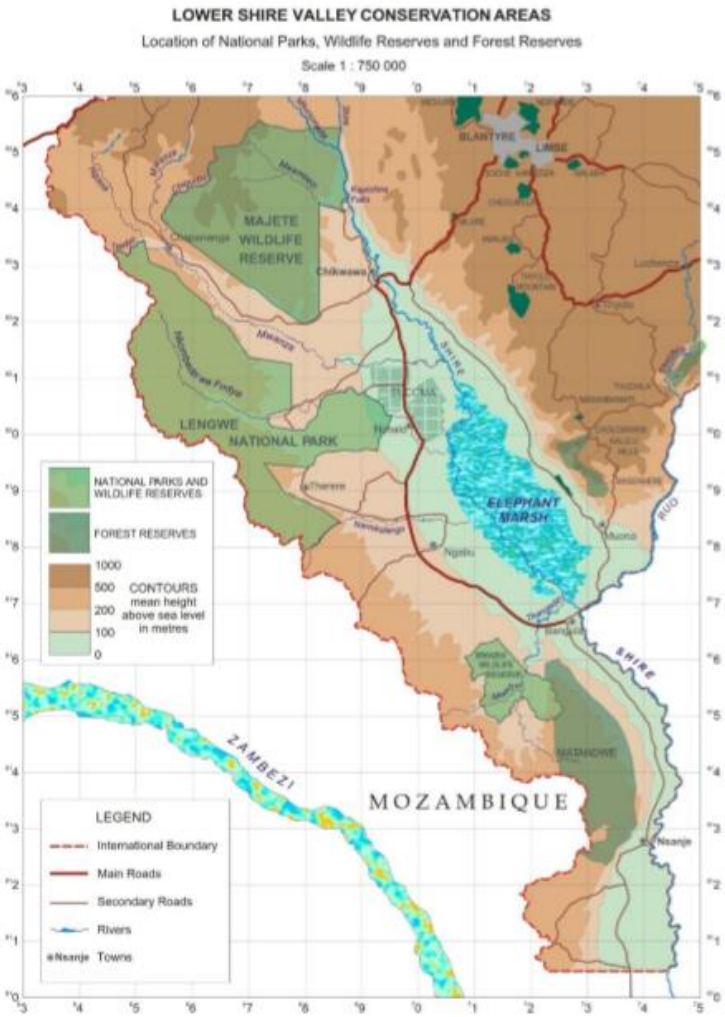

Figure 7:Map showing location for the Elephant Marsh

Relevant Aichi Targets or national targets

The measure is related to Aichi Target 10, which specifies “by 2015, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.” It is also related to Aichi Target 11 which states that “by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed,

ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes." The measure further relates to Aichi Target 14 which states that "by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable."

Assessment of effectiveness of the measure

Using a counterfactual evaluation, the measure has been effective in ensuring that the protection status of one of the most important ecosystems is improved. During the reporting period, studies on the status of biodiversity, ecosystem services and flood control studies have been conducted in the wetland. Furthermore, a management plan has been developed whose implementation started in 2018 and expected to run up-to 2022.

Other Relevant Information

The Elephant Marsh wetland is one of the most productive ecosystems in Malawi, contributing to the livelihoods of thousands of households in Chikhwawa and Nsanje districts. The Elephant Marsh supports a wide diversity of species and is especially important for water birds as it regularly supports 1% or more of three water bird species, including the African Skimmer, for which the Marsh is a significant locality. According to the biodiversity survey that was conducted in the wetland, around 110 water bird species have been recorded at Elephant Marsh and 26 of these have been found breeding in the area. The survey also revealed a new sub-species of butterfly and estimated that about 25% of Malawi's butterfly species are found in the Marsh. During the reporting period, a new race of *Colotis amata* was discovered that breeds exclusively on *Salvadoria persica* on the Marsh edge.

The biodiversity survey also reported a total of 199 bird species in the Elephant Marsh area, of which 68 species are regarded as water birds. This confirms that the

Elephant Marsh supports 1% or more of a delineated population of three waterbird species and in general regularly supports over 20,000 waterbirds. Eight of the waterbird species that have been recorded at the Elephant Marsh are formally considered globally threatened including; Madagascar Squacco Heron, Lesser Flamingo, Wattled Crane, Southern Crowned Crane, Great Snipe, Bar-tailed Godwit, Curlew Sandpiper and African Skimmer. Of these species, the Elephant Marsh is a significant locality for the African Skimmer.

Relevant Websites, Web links and Files

- https://rsis.ramsar.org/RISapp/files/RISrep/MW2308RIS_1707_en.pdf
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=27:the-elephant-marsh-general-adaptive-management-plan-2018-2022&Itemid=497&start=30
- https://openaccess.leidenuniv.nl/bitstream/handle/1887/50875/02.pdf?sequence=5

Obstacles and scientific needs relevant to the measure

The Marsh currently faces challenges ranging from lack of sustainable management strategies, fluctuation in water levels caused mainly by hydroelectric power generation at Kapichira falls and the abstraction of water for irrigation by Illovo sugar estate; both located upstream. The coordination of roles of the various stakeholders in wetland management at Elephant Marsh is also not very clear or stable which poses as a challenge in the management of the marsh.

Similarly, despite this welcome development of designating the marsh as a Ramsar Site, it does not necessarily qualify the Marsh as a Protected Area, thereby creating a vacuum in its management as a Key Biodiversity Area (KBA). This coupled with the absence of legislation on wetlands, conservation and sustainable use of biodiversity in the wetland might be a challenge. Currently, issues of wetlands (and floodplains) are marginally present in the National Parks and Wildlife Policy (2017), the Malawi Environment Management Act (2017) and the National Fisheries and Aquaculture Policy (2016). As a result, the country lacks a management framework

strong enough to enforce a balanced and sustainable wetland management under rising pressures such as over-exploitation and agricultural conversion which are mainly driven by population growth, rural poverty, climate change, lack of alternatives by the large part of the rural population, and market growth.

Furthermore, the Shire Valley Transformation Program (SVTP) being implemented in the same area provide an opportunity to take measures that contributes to the management of the marsh.

Relevant websites

- https://www.afdb.org/fileadmin/uploads/afdb/Documents/Environmental-and-Social Assessments/Malawi_Proposed_construction_of_main_canal_from_intake_to_lengwe_national_park_under_the_shire_valley_transformation_program__Phase_1__-_ESIA_Summary.pdf
- https://openaccess.leidenuniv.nl/bitstream/handle/1887/50875/02.pdf?sequence=5
- http://documents.worldbank.org/curated/en/423461495837170013/pdf/SFG3384-REVISED-Box405295B-PUBLIC-MW-SVIP-ESIA-8-8.pdf
- Government of Malawi (2017); GEF 5 Investments in the 9 Protected Areas through the Shire River Basin Management Programme, Phase 1

National Target 7: By 2025, aquatic biodiversity is managed and harvested sustainably within safe ecological limit.

National Fisheries and Aquaculture Policy (2016)

The National Fisheries and Aquaculture Policy (2016) aims to address critical issues affecting fisheries and aquaculture development in Malawi. Several opportunities exist in the implementation of this Policy including the governance reforms that aim to ensure sustainability of the fisheries resources for future generations The growing interest in aquaculture investment also provides an impetus to sustained fish production for local and export markets.

The Policy also recognizes challenges in the implementation of Participatory Fisheries Management (PFM) or co-management arrangements. Without an appropriate strategy for establishing community property regimes that empower fishing communities and other stakeholders to formulate fisheries by-laws and developing management plans, fish supply continued to decline against the increasing human population.

As a way of operationalizing the policy, the Department of Fisheries with support from the Fisheries Integration of Society and Habitats (FISH) project, developed guidance for PFM which aims to promote active participation of stakeholders at all levels in fisheries governance. The guide defines how local communities can be empowered to manage water bodies and be more involved in co-partnerships in formulating and implementing fisheries by-laws and management plans.

Relevant Aichi Targets or National Targets

The measure is related to Aichi Target 6 which states that "by 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits." It also relates to Aichi Target 3 on ensuring that "by 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out, or reformed in order to minimize or avoid negative impacts and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions."

Assessment of effectiveness of the measure

The previous Fisheries and Aquaculture Policy (2001) had several challenges which the revised policy aims to address. The revised Policy is designed to meet the challenges and emerging issues of the fisheries sector, and to provide linkages with the emerging cross-cutting policies, plans and activities of national and regional bodies where they affect or interact with fisheries, to which were not effectively addressed in the previous policy. In this regard, it is too early to attribute effectiveness of the policy measure as its implementation is still at an early stage.

Other relevant information

There are several challenges that exist in the fisheries sector and need to be addressed for the benefit of fishers and fish farmers. The major challenges include overfishing of the commercial valuable fish species like Chambo, high post-harvest losses, climate change, weak collaboration among stakeholders, and slow progress in aquaculture development due to poor quality feed and fingerlings (GoM, 2016). Hence, the revised Policy provides practical solutions to the challenges.

The fisheries sector is an important sector in contributing substantially to food and nutritional security, livelihoods of the rural population and economic growth of the country as it contributes significantly to the Gross Domestic Product (GDP). The 2015 catch trends and the 2016 and 2017 projections, revealed that fish production and estimated revenue increased through the years as shown in Table 1 below;

Table 1:Trends in fish catch and value between 2015 and 2017

Local Name	Fish Species: Sceintific Name	2015 Quantity	2015 Value	2016 Quantity	2016 Value	2017 Quantity	2017 Value
Chambo	Oreochromis	2540.83	1,913,854.79	2,792	2,208,278,585	3,532	2,933,326,00
Kambuzi	Lethrinops spp. & Allied genera	7376.75	5,556,463,170	7,220	5,710,035,516	7,581	6,296,020,500
Kasawala	Juvenile Oreochromis spp.	135.07	101,740,127	248	196,153,482	260	215,930,00
Chisawasawa	Lethrinops spp. & Allied genera	901.7	679,196,508	714	564,614,176	750	622,875,000
Kampango	Bagrus meridionalis	962.43	724,940,773	1,579	1,248,686,523	1,658	1,376,969,000
Mbaba	Buccochromis spp. & Allied genera	3073.19	2,314,849,636	5,914	4,677,713,987	6,210	5,157,405,000
Mcheni	Rhamphochromis spp.	1338.57	1,008,264,467	1,431	1,131,680,145	1,502	1,247,411,000
Mlamba	Bathyclarias & Clarias spp.	6172.63	4,649,471,821	5,420	4,286,761,029	5,691	4,726,375,500
Mpasa	Opsaridium microlepis	2.51	1,890,632	73	57,809,412	77	63,948,500
Nchila	Labeo mesops	0	-	3	2,412,087	3	2,558,187
Sanjika	Labeo cylindricus	12.56	9,460,694	44	34,745,344	46	38,203,000
Usipa	Engraulicypris sardella	99369.65	74,849,195,166	85,408	67,549,187,200	89,678	74,477,579,000
Utaka	Copadichromis virginalis & relatives	13337.89	10,046,632,264	11,969	9,466,045,146	12,567	10,436,893,500
Ndunduma	Diplotaxodon spp	1458.71	1,098,758,720	1,469	1,162,069,212	1,543	1,281,461,500
Nkholokolo	Synodontis nyassae	0	-	161	127,663,124	169	140,354,500
Makumba	Oreochromis shiranus & relatives.	1165.92	878,217,581	1,225	968,543,045	1,286	1,068,023,000
Matemba	Barbus paludinosus & relatives	839.31	632,201,864	643	508,237,012	675	560,587,500
Other Tilapia	Tilapia rendalli & others	1501.67	1,131,117,911	1,158	915,934,710	1,216	1,009,888,000
Others	Various spp	4125.22	3,107,280,713	3,980	3,147,698,734	4,179	3,470,659,500
TOTAL		**144,315**	**108,703,536,836**	**131,451**	**103,964,268,467**	**138,623**	**115,126,468,187**

Source: Department of Fisheries

Biodiversity information for the Lake Malawi catchment Eastern Africa: Data for decision-makers

The Lake Malawi catchment is an area of high freshwater biodiversity that plays a crucial role in the local economy of people living around the lake. It is however under increasing threat from development, deforestation, hydropower development, proposed oil exploration and multiple other interconnected factors. Further, there is lack of information and awareness of freshwater biodiversity which results into ineffective conservation actions as they fail to recognize its importance and vulnerability. The biodiversity information for the Lake Malawi Catchment project aims to enhance access to biodiversity knowledge of Lake Malawi thereby contributing to informed decision making. The project is being implemented through the Fisheries Department with support from International Union for the Conservation of Nature. Through the project, Malawi is assessing the status and distribution of freshwater species in the Lake Malawi catchment area in order to raise awareness and improve their conservation and sustainable use. So far, the results of the project have already contributed to different assessments, for example the 2018 IUCN Red List of threatened species. It is envisaged that at the end of the project, the red list assessments for freshwater fishes, molluscs, dragonflies, shrimps, crabs and selected families of aquatic plants within the Lake Malawi catchment area will be updated. The project will also identify key freshwater biodiversity areas which will require proper conservation planning to ensure their effectiveness in conservation in Malawi.

Relevant Websites, web links and files

- Government of Malawi (2016); National Fisheries and Aquaculture Policy, Lilongwe, Malawi
- http://www.mw.undp.org/content/malawi/en/home/library/environment_energy/economic-valuation-of-sustainable-natural-resources-use-in-malaw.html
- http://www.fao.org/fi/oldsite/FCP/en/MWI/profile.htm
- FISH (2015). Environmental Threats and Opportunities Assessment (ETOA) of Four Major Lakes in Malawi. USAID/FISH Project, Pact Publication, Lilongwe, Malawi: 250 pp.
- FISH (2015) A Community Performance Index (CPI) of Fisheries Co-management in Four Major Lakes in Malawi. USAID/FISH Project Publication, Lilongwe, Malawi: 52 p.

Obstacles and scientific needs related to implementation of the measure

The country's increased population growth now estimated at slightly above 17 million (NSO, 2018) is putting more pressure and demand for fish. The per capita fish consumption level has been declining since 1970 where it registered about 14kg per annum to about 10 kg in 2016 (GoM, 2016). The declining per capita fish consumption undoubtedly affects the nutritional status of the Malawian population, a majority of which depends on fish as a cheap source of animal protein and valuable source of micronutrients. While there have been attempts to regulate fishing through licensing of fishing gear, competition for resource exploitation is a threat to sustainability of the fish stocks.

It has been reported that PFM has also not been successful. The FISH project analyzed the capacity of local communities to manage the fisheries sector in Malawi. Through the Community Performance Index (CPI), it was revealed that co management structures are very weak and their composition does not reflect equal representation of men and women nor the inclusion of various categories of persons involved in the fishing industry. There is therefore need for effective

capacity building initiatives that will enable the community structures to conserve and manage freshwater ecosystems, thereby improving their quality of life and execute their mandate in enforcing bylaws pertaining to fisheries management in Malawi.

With regards to aquarium trade, an area that the policy objectives have also highlighted on, where it is expected that annual fish exports will increase from 500 tons to 3,000 tons in the implementation period, there is need to come up with clear guidance on aquarium trade specifically on certification issues and the development of a value chain for cichlid fish which is endemic to Malawi. Some management measures and export regulations of the species are enforced by the Department of National Parks and Wildlife and the Environmental Affairs Department. A strengthened collaboration between the government Departments including the Ministry of Trade and Industry is, therefore, necessary.

Limited human resource management capacity within the fisheries and aquaculture sub-sectors also remains a key problem which subsequently affects service delivery. A functional review of the Department of Fisheries which was approved in 2012 to address manpower issues, is still yet to be implemented. Therefore, effective implementation of the functional review will greatly improve service delivery in collaboration with fishers, fish farmers and other relevant stakeholders. Furthermore, the level of skills in the sector is currently inadequate to satisfy needs of the capture fisheries and aquaculture sub-sectors.

National Target 9: By 2025, Invasive alien species and their pathways are identified and prioritized for control and prevention from movement and spreading in and out of the country”.

Enhancing Sustainability of Protected Area Systems and Stabilizing Agro production in Adjoining Areas through improved IAS Management Project

The Enhancing Sustainability of Protected Area Systems and Stabilizing agro production in adjoining areas through improved IAS management project is a 5 year GEF funded project whose main objective is to prevent new invasions and reduce

the current impacts of IAS in protected areas and adjoining agro-ecosystems in Malawi. The project seeks to establish a national framework and capacity to enhance IAS management in protected areas and associated agro ecosystems; strengthen on the ground IAS management in protected areas through invasive species control and habitat restoration, as well as adjoining agro-ecosystems through sustainable farming for improved welfare and to improve knowledge management and broader adoption of developed strategies in Malawi's protected areas.

Relevant Aichi targets

The measure is related to ABT 9 which is related to IAS management.

Assessment of effectiveness of the measure

Unknown as the measure is yet to be implemented

Other relevant information

Malawi's fifth National Report to CBD (2014) reported that invasive alien species had grown in number from 29 to 31 with the inclusion of black wattle and Eucalyptus bug. Other attempts to document IAS in Malawi also reported numbers between 45 to 68. These invasive species have been disrupting Malawi's ecosystem balance thereby contributing to biodiversity loss.

The national report also reported several efforts Malawi has implemented as a way of dealing with IAS including removal of *Pinus Patula* in Mulanje Mountain Forest Reserve as well as manual removal of blacken fern (Figure 8) in Nyika National Park, which continued in the reporting period.

Photo Credit: Peace Parks Foundation

Figure 8: Zebra in Bracken Fern in Nyika National Park

Relevant websites, web links and files

- Mpalika D, Mwanyambo M (2018). Invasive Alien plant species of Malawi. Version 1.2. National Herbarium & Botanic Gardens of Malawi.
- https://www.thegef.org/project/enhancing-sustainability-protected-area-systems-and-stabilizing-agro-production-adjoining
- http://issg.org/database/species/search.asp?st=sss&sn=&rn=Malawi&ri=19395&hci=-1&ei=-1&fr=1&sts=&lang=EN
- http://erepository.uonbi.ac.ke/bitstream/handle/11295/75758/Makhambera_An%20assessment%20of%20environmental%20impacts%20of%20plant%20invasive%20species.pdf;sequence=3
- https://www.gbif.org/dataset/6183f1f7-0513-4587-bee6-cad11e23002d

Environment and Natural Resource Management (ENRM) Project 2017-2018

Malawi Government in Partnership with the Millennium Challenge Corporation implemented the Environment and Natural Resource Management (ENRM) Project from 2015 to 2018 worth USD 27.9 million. The project aimed at reducing the impact of weed and sedimentation on power generation within the Shire river. The Shire River is a critical and important ecosystem for the generation of hydro-electric

power. However, the river has been badly impacted by sedimentation and aquatic invasive weeds like water hyacinth; *Vossia cuspidata* and *Cyperus mundtii* which, together with water hyacinth formed "floating islands" leading to disruptions to the power plants downstream by disrupting hydro-electrical power facilities, causing reduced electrical output, load shedding, and higher power production costs. The country's growing energy needs and its energy policies are putting additional pressure on power generation and distribution. It is estimated that the annual cost of power cuts due to siltation, power rationing, and other factors is about US$215 million (Reuters 2010) or 3.3 percent of the country's GDP of US$6.404 billion (World Bank 2015). It is estimated that siltation and reduced water flow reduces about 10 to 12 percent of power generation from the Shire River hydropower plants (Government of Malawi 2013). The high costs have important policy implications for Malawi. The Malawi government and its development partners recognize that unless soil erosion in the Shire River resulting from human-induced activities is addressed, weeds and sediment will continue to cause operational costs and threaten hydroelectric generation for the country.

The Weed and Sediment Management activity involved procuring and using mechanical equipment to reduce sedimentation and aquatic weed infestation at the Liwonde Barrage, Nkula Hydro Power Plant, and Kapichira Hydro Power Plant. Invasive Weed Harvesters, tipper trucks, backhoe loaders, dredgers were bought including conveyer accessories and parts, two tipper trucks and other materials worth US$18,086,537 were procured for Invasive weed and sediment management between 2017 and 2018. The removal of the weeds and sediments is expected to directly benefit households and businesses through increased power generation, thereby improving electricity reliability and reduce blackouts and brownouts.

The project also planned to apply greater use of biological control upstream as part of the efforts to manage the water hyacinth by breeding and releasing high densities of the Neochetina biocontrol agents at strategic localities and developing a supply of beetles to replace those that are swept downstream on the floating water hyacinth plants (and so are lost to the biological control process). The purpose of enhancing the biological control of water hyacinth was to reduce the invasive characteristics of the water hyacinth to a population size and distribution

that ceases to threaten the production of hydropower in the Shire River. However, the activity was not implemented because it was de-scoped.

The mechanical removal of invasive water plants and water weeds is always considered as an option as it can clear the problem arising from their presence and subsequent movement downstream. However, with invasive plants that can reproduce by flowers fruits and seeds, once seeds in the substrate germinate, the problem is able to resume.

In water ways that are invaded by water hyacinth yet still used for human water supply, irrigation water, commercial and subsistence fishing and conservation of biodiversity (such as the Upper Shire River in particular) mechanical removal of water hyacinth and "problem plants" like hippo grass cannot avoid removal of plants valuable for natural processes – which become lost to the system. Water plants (including water hyacinth) that give shelter to immature fish (larvae and fingerlings), to spawning adult fish, to many species of invertebrates that provide food for people and fisheries fish, plants that serve to remove excess nutrients (and pollution) from the water and smaller essential submerged and emergent water plants that keep natural processes active, may all be removed during mechanical removal – especially when it is carried out by large machines which cannot avoid removal of wanted plants with the unwanted plants. This has been the objection to mechanical (especially with large mechanized harvesters) in the past. This makes the measure partially effective yet costly.

Relevant websites, web links and files

- file:///C:/Users/hp/Downloads/grand%20final_compact%20completion%20report%2001162019_clean.pdf
- file:///C:/Users/hp/Downloads/ENRMI%20Task%204%20Report_Biocontrol.pdf

National Target 10: By 2025, Pollution is reduced to minimize ecosystem degradation and biodiversity loss

Waste Transfer Station Project

Construction of waste transfer stations in liaison with Lilongwe City Council under the National climate change programme with support from the Flemish International Cooperation Agency (FICA) through the United Nations Development Programme (UNDP) in Lilongwe Areas 24 and 25. The stations will allow for proper disposal of waste, sorting, reusing and recycling to ensure waste does not find its way into water bodies which have vulnerable ecosystems that may be polluted. At the same time communities will be able to get income from waste management through recycling of waste and composting.

Development of a National Waste Management Strategy (2017-2022) which aims to provide information and tools to regulatory bodies, generators of hazardous waste, its recyclers and operators of facilities to enable them to minimize, recycle, treat and dispose of waste in an environmentally sound manner for sustainable development of Malawi.

Beautify Malawi Trust

The Beautify Malawi Trust (BEAM) was established in 2014 by the First Lady of the Republic of Malawi, Madam Gertrude Mutharika to encourage Malawians work towards making the country cleaner and healthier. BEAM intends to increase access to participatory and improved sanitation and sustainable community management of waste and sanitation facilities in the country.

The BEAM initiative is implement several activities which include, cleaning campaigns in cities and trading centers, provision of sanitation facilities in strategic areas in cities, promoting girls' education through provision of hostels in community day secondary schools and conducting sanitation competitions in schools among others.

In 2017 BEAM organized a sanitation competition among Private Secondary Schools in Malawi under the theme "My Clean School, My Pride". The competition was conducted in phases starting with regional level and ending with national level.

This competition targeted private secondary school and rewarded those school that maintained high standards of hygiene and cleanliness in their premises. At national level 4 schools merged as winner and received trophies and equipment such as wheelbarrows, shovels and bins.

Relevant Aichi targets

The measures are relevant to ABT 8 and at national level Target 10, both deals with matters relating to pollution control.

Relevant websites, web links and files

- National Waste Management Strategy (2017-2022)
- https:mwnation.com/first-lady-register-beautify-malawi-trust

Climate Proofing Project

This is a pilot project on Implementation of Climate Proofing Local Development Gains in Urban and Rural areas of Machinga and Mangochi Districts. The project started in 2014 and is expected to complete in 2019 with support from the Global Environment Facility (GEF) Least Developed Countries Fund (LDCF) through UNDP. One of the major components of the project is to ensure that the impact of ecosystems degradation in aggravating vulnerability to climate change risks and reducing resilience of development gains understood and integrated into key decision-making processes at the local, sub-national and national levels.

Forest regeneration and afforestation in vulnerable ecosystems have been practiced in both Mangochi and Machinga to ensure resilience endangered rivers and lakes. The project has also supported review of District Development Plans and District State of Environment and Outlook reports to ensure that ecosystem based adaptation approaches are integrated in these planning frameworks for both Mangochi and Machinga. Construction of solar powered irrigation systems and multipurpose dams to decrease pressures on rivers and lake Malawi in terms of fish production, irrigation farming and water for domestic purposes. Stambuli dam has

been constructed in Mangochi district and is expected to be fully functional in the year 2019.

Another related pilot project is on implementing urgent adaptation priorities through strengthened decentralised and national development plans (ADAPT PLAN) in Nkhata Bay, Ntcheu and Zomba Districts. The goal of the project is for all government spending to contribute to resilience-building and adaptation in Malawi. The objective of the project is to reduce the vulnerability of rural communities to the adverse impacts of climate variability and change in Malawi. One of the major components of the project is to ensure that there is diversified and strengthened livelihoods for vulnerable people in target areas to reduce pressure on already vulnerable ecosystems.

Relevant Aichi targets

The measure is relevant to ABT 10 and target 11 at national level

Effectiveness of measure

Measure is ongoing and can be rated as partially effective.

STRATEGIC OBJECTIVE FOUR: IMPROVE THE STATUS OF BIODIVERSITY

The NBSAP II and the Fifth National Report to the CBD reported the increased loss of plant and animal species which has been exacerbated by habitat loss through urban expansion, human population growth, clearing of vegetation for agricultural production, forestry exploitation through removal of certain woody species for timber and poles, introduction of invasive alien species, fire, unsustainable harvesting of other plant species for medicinal purposes, liberalization of crop production and marketing. NBSAP II, also reported on a general decline in plant and animal species which was observed throughout the country. In addition, genetic diversity is threatened with genetic erosion caused by the introduction of modern crop varieties and animal breeds that have been replacing the traditional crop

varieties and livestock breeds. Genetic erosion is more pronounced in agro-biodiversity.

In the reporting period, Malawi has implemented several measures to contribute to its NBSAPs fourth objective and these are outlined below;

National Target 12 "by 2025, the extinction of known threatened species is prevented and their conservation status is improved and sustained"

Shire River Basin Management Program

Through the 5th replenishment of the Global Environment Facility (GEF), the Shire River Basin Management Program funded by the World Bank aimed to increase sustainable social, economic and environmental benefits by effectively and collaboratively planning, developing and managing the Shire River Basin's natural resources. The program focused on supporting nine protected areas in the Shire basin as shown in table 2 below; Specifically, Subcomponent B4 (Ecological Management) of the program aimed at strengthening management of remaining key natural habitat areas in the basin to protect and enhancing the delivery of environmental services (such as catchment protection, flood attenuation, biodiversity conservation, carbon sequestration and as a basis for generating revenues from tourism).

Table 2:Protected areas under Phase 1 of the Shire River Basin Management Program

Protected Area	***Area (ha)***	***Area KM²***
Lengwe National Park	88,700	887
Liwonde National Park	54,800	548
Elephant Marsh	61, 556	616
Mangochi Forest Reserve	32, 553	326
Tsamba Forest Reserve	3,270	33
Neno Escarpment Forest Reserve	63,100	631
Zomba Malosa Forest Reserve	19, 018	190
Liwonde Forest Reserve	29,437	294
Matandwe Forest Reserve	28,915	289
Total (Aggregate)	**381, 349**	**3814**

Relevant Aichi Target

The measure is related to Aichi Biodiversity Target 5 which states that "by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced." It also relates to Aichi Biodiversity Target 14 which states that "by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable." At the national level, the measure is related to National Target 6 and 12.

Assessment of effectiveness of the measure

During the end of project evaluation, a Management Effectiveness Tracking Tool (METT) was employed to monitor the effectiveness of the measure in the management of the nine protected areas. METT results revealed overall improvement in the state of management effectiveness with Liwonde National Park scoring higher than the other sites which can be contributed to management takeover by the African Parks Network (APN) in July 2015. Further, the Elephant Marsh also indicated the greatest effectiveness mainly due to the different actions that were implemented including the Climate Change Resilience Study, the formation of community organizations for natural resource management, registering the site as a Ramsar Site of international importance, and an intense programme of surveys and evaluation. On the other hand, Tsamba and Neno Forest Reserves showed low percentages of effectiveness since the project did not invest much in them due to the good ecological state. For Lengwe National Park, the measure included development of infrastructure, identification of sustainable financing mechanisms and improved nature based tourism. Overall, the implementation of the measure has been effective.

Other relevant information

The Lake Malawi–Shire River hydrological system represents Malawi's single most important natural resource system. The Shire River provides water for a number of productive purposes, including: hydropower, agriculture, fisheries, transport, tourism, urban water supply and rural water users along the length of the river, in addition to various environmental functions.

During the reporting period, the measure also concentrated on law enforcement in Lengwe National park where illegal activities such as poaching, deforestation, and encroachment were the major problems. Through implementation of the measure, there has been increased law enforcement patrols, procurement of equipment to increase the efficiency of law enforcement activities, such as vehicles and short-wave radios, and support in the judiciary and legal process of prosecution are all important and high on the agenda. The end of project evaluation report indicated

a reduction in wire snares found from 1714 in 2012 to just 270 in 2017, a reduction of about 85%. Also of interest is an increase in the number of arrests from 86 in 2012 to 116 in 2017 (176 in 2016). Public education and awareness and collaborative management efforts working with the local communities, chiefs and political leaders will add value to this initiative.

Relevant websites, web links and files

- Government of Malawi (2017); GEF 5 Investments in the 9 Protected Areas through the Shire River Basin Management Programme, Phase 1
- https://www.ltsi.co.uk/wp-content/uploads/2015/02/Overall-Shire-River-Basin-Profile-FINAL-non-print.pdf
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=56:lengwe-report-english-version&Itemid=497
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=26:gef-5- investments-in-9-protected-areas-through-the-srbmp-phase-1-biodiversity-and-protected-areas-specialist-final-report&Itemid=497&start=30
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=45:monitoring-performance-reports&Itemid=497
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=42:final-report-sustainability-plan-capacity-assessment&Itemid=497&start=15
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=file&id=37:addendum-co-management-specialist-phase-one-report-feb-2018&Itemid=497&start=15
- http://www.shirebasin.mw/index.php?option=com_phocadownload&view=category&id=8&Itemid=497

Obstacles related to implementation of the measure

Management effectiveness in the protected areas, Lengwe National Park still has law enforcement issues as well as increased poaching. There is still need to ensure that the Park receives adequate funding to enable management to effectively reduce poaching levels.

Further, the project was implemented with support from GEF-5, it is important for Government to ensure consistent financial flows into the protected area management system to enable effective management.

Public Private Partnerships for Management of Protected Areas

During the reporting period, Malawi saw an increase of public - private managed protected areas from two to five. This includes Nkhotakota Wildlife Reserve, Liwonde National Park and Mangochi Forest Reserve. APN assumed management of Liwonde National Park in partnership with the Department of National Parks and Wildlife (DNPW) in 2015, and since then has completely overhauled law enforcement to secure the protected areas, making significant progress in revitalizing habitat and wildlife populations through the reduction of poaching and mitigating human-wildlife conflict. In 2018, APN also entered into agreement with the Department of Forestry to manage Mangochi Forest Reserve.

Relevant Aichi target

The measure is related to Aichi Biodiversity Target 5 which states that “by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.”; Aichi Biodiversity Target 11 which ensures that “ by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and

seascapes." At the national level, the measure is related to National Target 6 and 12.

Assessment of effectiveness of the measure

Over the years, management of protected areas in the country had been faced with several challenges including inadequate protected area financing, lack of tourism infrastructure, inadequate law enforcement staff and lack of equipment which led to increased human-wildlife conflict and high levels of poaching which led to declines in their mammal populations. Through a counterfactual evaluation to measure effectiveness, it has been revealed that there has been increased protection and law enforcement since APN took over management of the four protected areas. For example; Nkhotakota Wildlife Reserve has had a difficult past, where the 1,800 km^2 reserve, with over 1,500 elephants in the 1990s, were reduced to fewer than 100 individuals by 2015. Since African Parks took over management of the reserve, there has been increased financial investments in the park, restoration of important wildlife for example wildlife as well as improved tourism facilities. Table 3 below provides information on the animal translocation to Nkhotakota Game Reserve to date.

Through the measure, it has been observed that Public Private Partnerships (PPPs) offer a powerful policy tool for improving the economic sustainability of protected areas, enhancing the quality of services, efficiently leveraging investment in conservation, and, through all this, contributing to the core function of biodiversity conservation.

Table 3:Animals translocated to Nkhotakota Game Reserve

SPECIES	2016	2017	TOTAL TRANSLOCATION	CURRENT ESTIMATED POPULATION
Elephant	261	255	486	616
Kuddu	100	0	100	110
Buffalo	92	101	193	212
Sable Antelope	200	0	200	220
Waterbuck	404	101	505	556
Eland	0	25	25	28
Zebra	0	25	25	28
Impala	122	0	122	134
Warthog	199	0	199	219

Other relevant information

Liwonde National Park is a haven for biodiversity in southern Africa. More than 500 elephants, as well as hippos, black rhinoceros, dozens of species of grazing mammals as well as reptiles, fish, insects and more than 600 species of birds are found in the national park. Before the partnership, the park faced a lot of threats ranging from poaching, illegal harvesting of trees for firewood and illegal fishing in the vitally important Shire River which threatens the survival of rare species, including rhinos and elephants. Since the partnership, there have been different wildlife restoration projects including introduction of cheetahs into the park. Further, an electric fence has been mounted around the park to reduce incidences of poaching and human wildlife conflict.

Nkhotakota Game Reserve on the other hand, was once home to more than 1,500 elephants. Over the last two decades, lack of protection coupled with the insatiable demand for precious ivory reduced this once vibrant herd to fewer than

100 individuals, and most of the other wildlife had been hunted out too. Just two years ago, Nkhotakota, which spans 1,800km^2 was an empty forest; and the silence was deafening. During the reporting period, over 500 elephants have been translocated to the park and no issues of poaching have been reported so far.

Further, Kuti Wildlife Reserve and Lilongwe Wildlife Centre are other conservation areas being managed through public private partnerships.

Relevant Websites, web links and files

- https://www.africanparks.org/the-parks/nkhotakota
- https://www.africanparks.org/the-parks/liwonde
- https://www.africanparks.org/the-parks/majete
- https://www.africanparks.org/the-parks/mangochi
- https://www.lilongwewildlife.org/where-we-work/
- https://www.kuti-malawi.org/activities

Obstacles related to implementation of the measure

Despite success in the implementation of PPPs, more clarity is needed on the effectiveness of PPPs in terms of short-term conservation outcomes and of the long-term implications for national management capacity. Critically, there is need for deliberate efforts to ensure that local management capacity is built to enable successful implementation of conservation projects once the partnerships end. The PPP arrangement has brought expertise which should be imparted to the locals as well

The 500 Elephant Initiative

Elephants are a keystone species and play an important role in engineering the structure of biodiversity within their habitats. While this is normally to the benefit of the environment, degradation takes place when populations are too dense and when migration is restricted. As Malawi is a densely-populated agro-based country, lacking the necessary ecological corridors that allow for natural migration, elephant populations within protected areas need to be carefully managed to mitigate adverse effects on both the habitat and the surrounding local communities.

Liwonde National Park and Majete Wildlife Reserve, located in southern Malawi, are considered to be 'source populations' for elephants. In consideration of the size of the parks and the availability of natural resources, both parks were near to capacity, with approximately 800 elephants in Liwonde and 400 elephants in Majete prior to the start of the 500 elephant's initiative. The density of these populations contributed to degradation of wildlife habitats and high levels of human-wildlife conflict, largely deriving from crop-raiding elephants, and the degradation of habitats.

In Nkhotakota Wildlife Reserve on the other hand, is a natural habitat for the species, containing sufficient resources to support a large herd of elephants and other animals. The reserve previously had more than 1,500 elephants but due to poaching fewer than 100 remained by 2015. Through the 500 elephant initiative, more than 520 elephants and 2,000 other animals were moved from Liwonde National Park and Majete Wildlife Reserve to Nkhotakota Wildlife Reserve and Nyika National Park (figure 9) between July 2016 and August 2017, and no incidences of poaching have been reported so far.

Figure 9: The 500 Elephant Initiative

Relevant National or Aichi target

The measure is related to Aichi Target 12 as well as National Target 12

Assessment of the effectiveness of the implementation measure

Using counterfactual evaluation, the measure has been effective. Following the translocations, Nkhotakota is revitalized as a wildlife sanctuary, restoring healthy population dynamics among key species. Additionally, the return of the elephants to the park marked its establishment as an important ecotourism attraction, through which tourism revenue flowed and employment opportunities opened to the direct benefit of local communities. By restoring biological value to the park, both its economic and intrinsic value has been made more tangible for local residents to whom the park belongs, as part of their natural heritage. Currently the

reserve boosts over 500 elephants and other mammal species including sable, kudu, buffaloes, waterbuck, impala, warthog and lions. Further, the wildlife is being monitored by ground and air surveillance with no poaching incidents recorded since the translocation.

Relevant websites, web links and files

- http://500elephants.org/
- https://www.nationalgeographic.com/photography/proof/2017/07/500-elephants-move-malawi-africa-video-spd/
- https://www.france24.com/en/20170803-malawi-hails-historic-relocation-520-elephants
- https://www.lonelyplanet.com/news/2017/08/03/malawi-nkhotakota-wildlife-reserve/

Obstacles in the implementation of the measure

Despite this historical initiatives, most Malawians are not aware of the conservation efforts that are being undertaken in the country due to inadequate dissemination of such initiatives on Malawi media outlets, which poses it as a challenge for Malawians to appreciate these remarkable initiatives. Furthermore, the transfer of these skills and technology is mostly limited to international scientists thereby not providing a platform for local expertise to learn and be able to take over once APN contract comes to an end. For example, the Inside Africa story that was documented by CNN in 2018 (https://youtu.be/eMmsaWyZpTY) only highlighted the work that foreign scientists had done in Liwonde National Park. Even though this is commendable, there is need to build local expertise to ensure continuity of such initiatives once APN's contract comes to an end.

Relevant websites

- https://t.co/kZEo7nUblS
- https://youtu.be/eMmsaWyZpTY
- http://www.conservation-watch.org/2018/08/22/why-were-british-soldiers-deployed-to-train-rangers-in-the-majete-wildlife-reserve-malawi/

The Mulanje Cedar Ecological Restoration Project

Mulanje Cedar (*Widdringtonia whytei*), is one of the endemic tree species of Mount Mulanje Forest Reserve. Mulanje cedar is highly sought after by local communities and the general construction industry in Malawi for its aromatic, termite and fungal resistant wood, making it more vulnerable to exploitation. It constitutes an important livelihood source for many rural communities around the reserve, especially wood carvers and timber sawyers and merchants. Natural regeneration of cedar in the wild is difficult and requires human intervention of a sort. This project seeks to implement a consensus built cedar management plan that guides priority setting and coordination of appropriate conservation and restoration actions to sustain the populations of the Mulanje cedar and ensure its sustainable utilization.

Figure 10: A Mulanje Cedar nursery

Relevant Aichi Targets or National Targets

The measure is related to ABT 12 and national target 12.

Assessment of effectiveness of the measure

Through the project, a community- based seedling and nursery program was developed which will replant thousands of hectares of the cedar species (Figure 10). Within the reporting period, over 500,000 trees have been planted and the plan is to replant 1,000,000 cedar trees by 2019. However, what remains is the management to ensure that the trees grow to maturity which will take a long time to measure whether it has been effective or not.

On the other part, Mulanje Mountain Conservation Trust (MMCT) has been providing knowledge and improving horticultural methods for cedar restoration. The organization is currently working with 10 community groups that help in raising and planting these trees every tree planting season.

Other relevant Information

Over time, Mulanje Mountain Forest Reserve has seen a steady decline over the past few decades owing to the continuous reduced capacities by the government management authority to address conservation threats which include wildfire, illegal logging, invasive alien plant species and climate change. The management plan that was developed under the project aims to address some of the challenges with accessing and sharing natural resources in the area.

Relevant websites, web links and files

- https://www.saveourspecies.org/projects/conifers/mulanje-cedar-ecological-restoration-project
- https://www.iucn.org/content/implementing-cedar-management-plan-mount-mulanje
- https://cdn.ymaws.com/www.ser.org/resource/resmgr/sernews/sernews_32-4/sernews_vol32.4.pdf

Obstacles in implementation of the measure

Restoration through seed collection, management and tree planting has not come without its challenges. The general belief amongst local people surrounding the Mulanje Mountain Forest Reserve is that Mulanje Cedar is a "God-given Wonder" and no human intervention can reverse slide toward extinction. So a prerequisite for success should also aim at demystifying this perception through outreach work but also by demonstrating the efficacy of the nurseries to supply young trees for planting out on the mountain. There is need for more efforts in creating awareness on the importance of Mulanje Cedar as well as increased efforts on fire management, invasive alien species management and law enforcement.

Bats and Biodiversity Monitoring Programme

Implemented by the African Bats Conservation (ABC), the programme aims to build capacity for long-term bat conservation, research and monitoring in Malawi. Central to achieving this aim is the development of a long-term strategy to assess the status, distribution of and threats to bats and biodiversity in Malawi. Standardized monitoring surveys are being conducted in five different habitat types initially in Liwonde NP and surrounding areas.

Relevant Aichi Target or national target

The measure is related to ABT 12 and National Target 12.

Assessment of the effectiveness of the measure

Unknown

Other relevant information

The project has created a bats and biodiversity database to store and record all sightings and records gathered to provide an effective way to use conservation tool for wildlife managers to facilitate long-term conservation and monitoring of bats and biodiversity in Malawi. The project also provides training wildlife managers from DNPW in the use of the database to ensure long-term sustainability.

ABC (through the Conservation Research Africa) collaborated with ICLEI Africa on the UNA Rivers project to compile a database for Lilongwe, and to use bats as an indicator species for monitoring the quality of the Lilongwe River. In Lilongwe, bat surveys have shown that riverine habitats are not significantly different from garden habitat (figure 11) in terms of both bat diversity and abundance. According to UNA rivers project report (2017), these results highlight the importance of wooded garden habitats in Lilongwe, in supporting urban biodiversity. Information for carnivore species for Lilongwe was also collected and documented.

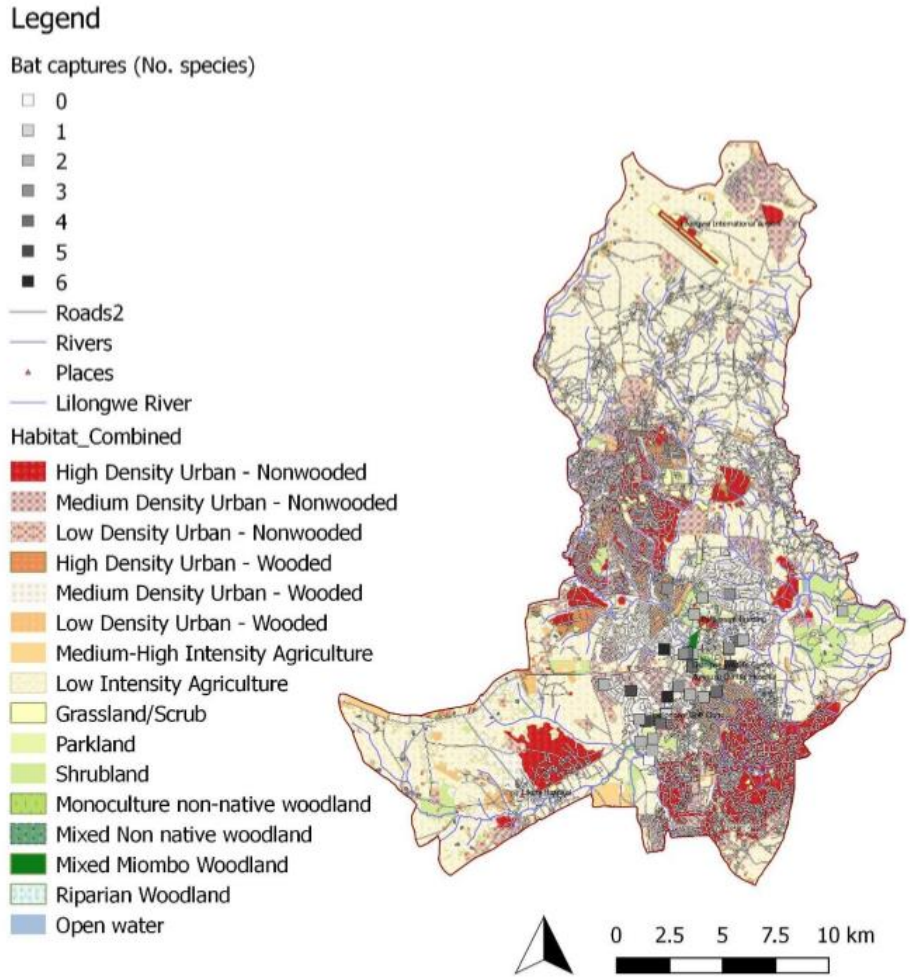

Figure 11:Abundance of bats species across Lilongwe

Relevant Websites, Web links and Files

- Stone E (2017); ICLEI UNA rivers project progress report, Lilongwe, Malawi
- http://www.africanbatconservation.org/monitoring.html
- http://cbc.iclei.org/wp-content/uploads/2018/03/UNA-Rivers-bats-case-study-2.pdf

Combatting Illegal Wildlife Trade

Wildlife in Malawi has undergone devastating declines for many years and the country has regularly been implicated in some of the world's largest wildlife trafficking seizures according to the Seventeenth Conference of Parties to the Convention on International Trade of Endangered Species (CITES, COP 17). Bordering countries with high elephant populations, Malawi is positioned centrally within a wildlife poaching/trafficking hotspot. The country is not only a source of illicit wildlife products but also a well-known collection, distribution and transit hub for wildlife trafficking. Malawi is ranked 120 of 176 countries on the Corruption Perception Index, i.e. it falls within the top one-third most corrupt countries in the world. The risk reward ratio for wildlife criminals has been extremely high and the country has been an ideal hub for wildlife crime syndicates to source, collect, store, process and transit shipments of wildlife products out of Africa.

Relevant Aichi or National Target

The measure is related to ABT 12 as well as National Target 12

Assessment of effectiveness of the measure

Unknown as it is still work in progress

Other relevant information

The Elephant Trade Information System (ETIS) report from CoP17 identified Malawi as a country of "primary concern", in large part due to the likelihood of significant trade governance failure and the high probability of organized crime syndicates operating in and from the country. The report notes that significant

quantities of illicit ivory are likely to move through Malawi undetected. In addition, in May 2017, in recognition that Malawi is a hub for ivory trafficking, Malawi developed a National Ivory Action Plan (NIAP). In the past 18 months, over 900 kilograms of elephant ivory and two rhino horns have been confiscated by the Malawian authorities and significant amounts of additional contraband seized overseas has been linked to Malawi. Further there have been awareness creation initiatives throughout the country.

Figure 12: One of the posters used in creating awareness on IWT

In 2018, Malawi launched its first ever Wildlife Detection Dog Unit (WDDU), to help detect illegal wildlife products and other contraband concealed within aircrafts, vehicles and freight containers that enter and leave Malawi. The WDDU searches for ivory, rhino horn, pangolin scales, animal skins, bush meat, hippo teeth,

firearms and ammunition and other contraband in luggage, cargo, freight and post, and on transport. The unit currently has 4 dogs and it is hoped that this skilled unit will help reduce the amount of wildlife crime being carried out within Malawi's borders.

Obstacles in the implementation of the measure

More awareness needs to be created for Malawians to understand issues of illegal wildlife trade and how it impacts on the countries development.

Relevant Websites, Web links and Files

- https://www.youtube.com/watch?v=myWS7KfIqVs
- https://www.lilongwewildlife.org/2018/08/09/wddu-now-in-action/
- https://cites.org/sites/default/files/eng/prog/niaps/MALAWI_NATIONAL_IVORY_ACTION_PLAN_13_SEPTEMBER_2017.pdf
- https://www.lilongwewildlife.org/2018/04/02/royal-visit-malawi-focuses-wildlife-crime/
- http://www.bagheera.com/china-joins-tanzania-and-malawi-to-curb-illegal-wildlife-trade/
- https://www.gov.uk/government/news/uk-government-helps-train-park-rangers-in-malawi-to-combat-the-illegal-wildlife-trade

Species Restoration Initiatives

Since the Fifth National Report to the CBD, there have been a lot of initiatives on species restoration the protected areas. The fifth national report reported the extinction of cheetahs in Malawi since almost 20 years of their occurrence. Despite the decline of large predators like cheetahs on the continent, they play pivotal roles in African ecosystems. Due to poaching, habitat loss and human wildlife conflicts, there had been severe reduction in the nation's predator populations, entirely eradicating cheetahs, a species threatened with extinction in Africa. Further lions and leopards were also historically common, but disappeared in recent years due to poaching. During the reporting period, seven cheetahs (Figure 13) were translocated from South Africa to Liwonde National Park, restoring the severely

threatened species at least twenty years after its extinction in the country. Further, Lions and leopards have also been translocated to the Liwonde National Park.

In addition, 13 giraffes were translocated into Majete Wildlife Reserve from South Africa in 2018. The translocation brings the national numbers of giraffes to just over 30 animals according to APN. Broadly, giraffe numbers have dropped in recent decades, with pressures including habitat loss, civil unrest and illegal hunting reducing them to fewer than 100,000 animals remaining on the continent. The translocation therefore came at an urgent time when the 2018 IUCN Red List of Threatened Species was released and indicated that several giraffe subspecies are now critically endangered. The translocation of the giraffe to Malawi hopes to establish a viable population of the species to support their conservation across the region. Table 4 below shows the number of animals translocated to Majete Game Reserve in the reporting period;

Table 4:Mammal Species translocated to Majete Wildlife Reserve

Species	Total number
Black Rhino	1
Impala	449
Giraffe	13

Relevant Aichi targets and national targets

The measure is related to ABT 12 and National Target 12

Assessment of effectiveness

Using program theory evaluation methods, the measure has been effective in restoring key species population in Malawi's protected areas. As seen in Table 4 above, restoration of key species has been successful during the reporting period which holds great optimism for the restoration of the natural system and the conservation of this highly vulnerable species.

Figure 13:Cheetah cabs captured in Liwonde National Park

Additional information

The reintroduction of the cheetah forms part of the vision of Malawian government to restore the country's parks, rehabilitate wildlife populations, and increase tourism, creating highly-valued assets for the country and its people. Managing and restoring key species also positions Liwonde as a globally significant wildlife tourism destination, with benefits flowing to local communities.

Other relevant information

- http://www.malawitourism.com/pages/news/index.asp?NewsID=760
- https://giraffeconservation.org/2018/11/19/malawi-south-african-giraffe/

Illegal Wildlife Trade Review

Wildlife crime data is the bedrock upon which strategies for combating crime are based on (GoM, 2017). After the amendment to the National Parks and Wildlife Act which was adopted in February 2017, significantly stiffened wildlife crime penalty provisions and that ensured that Malawi treat IWT a serious crime have been instituted. Following the IWT review, Malawi Government has established a specialized wildlife Crime Investigation Unit (WCIU) and several other initiatives

that has led to wildlife criminals being comprehended and sentenced in courts (Figure 14). Figure 15 shows the ivory seizure data confiscated in 2016 and 2017 as a result of intensive patrols and strengthened enforcement mechanism currently in place.

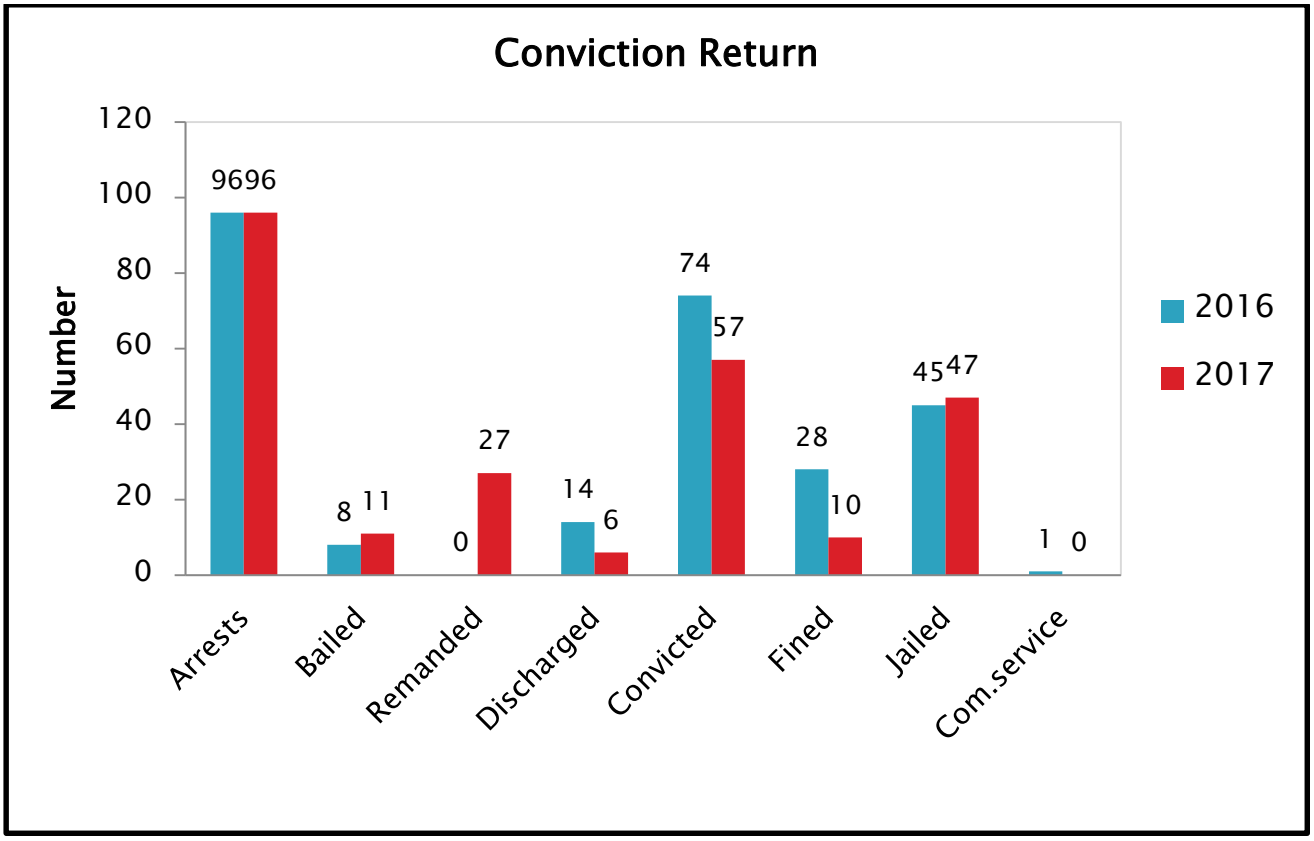

Figure 14: Conviction Returns for wildlife crimes

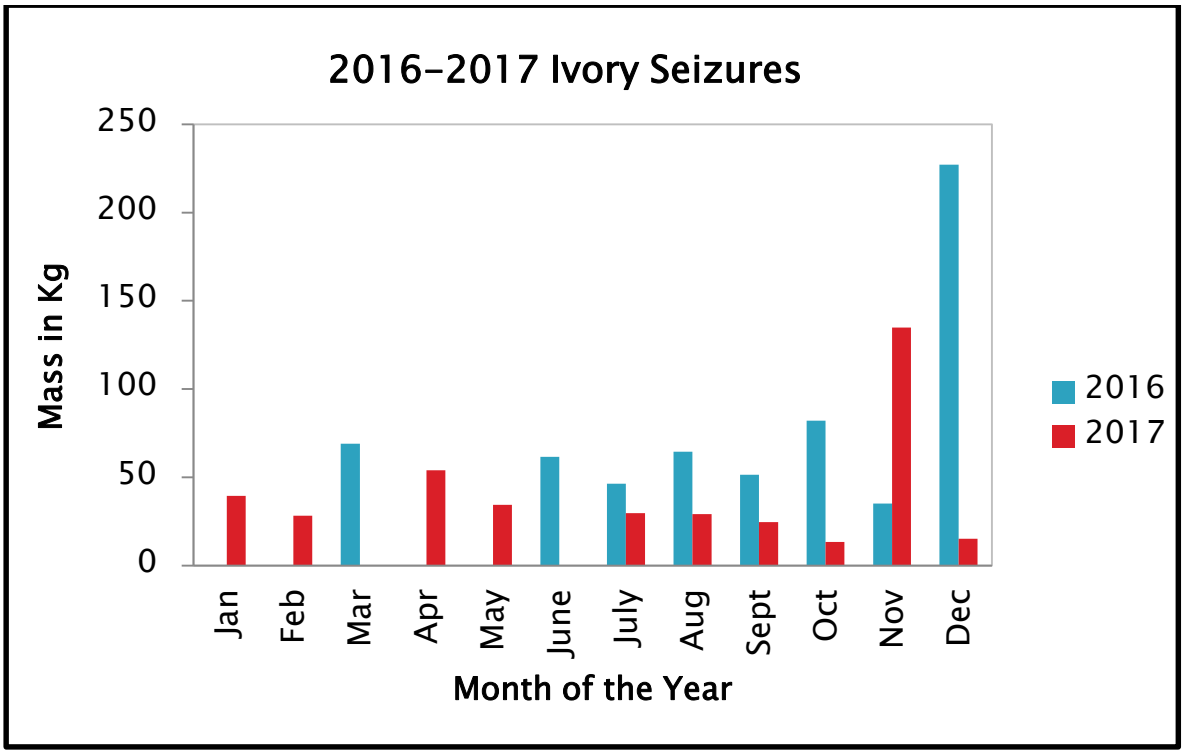

Figure 15:Ivory Seizures for 2016 and 2017

Relevant national or Aichi Biodiversity Target(s)

The measure is related to ABT 19 as well as National Targets 3 and 12

Assessment of the effectiveness of the implementation measure

The measure has been effective in providing data and information for development of strategies for combating wildlife crime in Malawi. As a result of such information Malawi established an Inter-Agency Committee on Combating Wildlife Crime (IACCW) with the aim of improving cross sectoral collaboration on IWT issues. The committee comprises senior representatives from the following institutions; Ministry of Justice, Judiciary, Department of National Parks and Wildlife, Malawi Police Service, Malawi Defence Force, INTERPOL, Department of Immigration, EAD, Finance Intelligence Unit, Anti- Corruption Bureau, Malawi Revenue Authority (MRA), Department of Public Prosecution, Department of Forestry, National Intelligence Bureau and the Wildlife and Environmental Society of Malawi (WESM).

Other relevant information

Among other things the IACCW has the following functions;

- Facilitating the investigation of wildlife crime cases;
- Advocating for use of multiple laws in prosecution of wildlife crime cases;
- Advocating for review of wildlife legislation and other related pieces of legislation;
- Strengthening the collaboration and co-ordination among participating agencies;
- Facilitating the gathering, collating and analysis of intelligence relating to wildlife crime;
- Facilitating awareness campaigns to the general public and other stakeholders;
- Developing and delivering training for enforcement agencies

It is clear from the comprehensive cross-sector representation on the IACCWC that the Task Force must form a central core to Malawi's strategy for addressing and mitigating against wildlife crime.

Figure 16:IWT poster at Kamuzu International Airport

Relevant websites, web links and files

- https://www.lilongwewildlife.org/wp-content/uploads/IWT-Review-Malawi.pdf
- https://www.elephantprotectioninitiative.org/malawi-launches-illegal-wildlife-trade-review/
- https://www.gov.uk/government/publications/declaration-london-conference-on-the-illegal-wildlife-trade-2018/london-conference-on-the-illegal-wildlife-trade-october-2018-declaration-annex-english-only

National Target 13: By 2025, the genetic diversity of wild and domesticated plants and animals is maintained and safeguarded

Status and Spatial diversity of sorghum wild species project

Status and spatial diversity of sorghum wild species project is supported by the European Union through Global Biodiversity Information Facility (GBIF) and Biodiversity Information for Development(BID). The project aims to generate data on crop wild relatives of sorghum that occur in Malawi for research and sustainable conservation purposes. Sorghum wild species occurrence data documented and published through this project is an overview of Sorghum crop wild species occurring in Malawi. The project is led by the MPGRC in collaboration with University of Birmingham, Lilongwe University of Agriculture and Natural Resources, National Herbarium and Botanic Gardens of Malawi and NCST.

Through the project, there has been an increase in information availability about the occurrence of wild sorghum thereby reducing genetic erosion and safeguarding the species for present and future use. It is also expected that by the end of the project, Malawi will be able to establish the spatial diversity and the state of vulnerability of these species, to enable local farmers use the species in climate change adaptation programmes and initiatives.

National Target 14: By 2025, level of protection on safe handling, transfer and use of living modified organisms resulting from modern biotechnology that may have adverse impact on biodiversity is strengthened, taking into account risks to human health

Multi country project to Strengthen institutional capacity for LMO testing ;(MCP-LT) in support of national biosafety decision making.

The Multi country project on strengthening institutional capacities for LMO testing in support for national decision making (MCP-ICLT) is a GEF funded project which Malawi is implementing alongside with other five countries namely; Angola, DR Congo, Lesotho, Madagascar and Mozambique. The project is being implemented in collaboration with Regional Agricultural and Environment Innovations Network-Africa (RAEIN Africa) and United Nations Environment Programme (UNEP). The project aims to build capacities of existing biotechnology laboratories through provision of basic equipment for LMO testing and building capacities of Lab technicians in LMO testing. Successful implementation of this project will contribute to ensuring an adequate level of protection in the field of safe transfer, handling, transport and use of LMOs resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity,

Relevant websites, web links and files

- https://www.thegef.org/sites/default/files/project_documents/ID5283__BS_SANGL_Project_Document_05.09.2016_clean_version1.pdf
- http://www.raein-africa.org/homepage-one/mcp-iclt/mcp-iclt-background/

Integrated implementation of the Cartagena protocol on Biosafety and the Convention on Biological Diversity.

Malawi participated in the pilot capacity building project to promote integrated implementation of the Cartagena Protocol on Biosafety and the Convention on Biological Diversity in 2016. The project aimed at developing and testing practical measures that promote integrated implementation of the Cartagena Protocol on

Biosafety and the Convention. The project analyzed existing national policies and activities relevant to biosafety including identifying practical steps taken to integrate biosafety in the NBSAP. Several entry points were identified for biosafety mainstreaming which targeted revision of some existing policies and acts such as Forestry Act (1997), Fisheries Act, National Parks and Wildlife. All these Acts have been revised and biosafety have been integrated to some extent in some of the Policies.

Relevant Aichi Target or national target

The measure is related to ABT 13 as well as national targets 1 and 14

Assessment of the implementation of the measure

The measure has been partially effective in that biosafety gaps in several national policies were identified and have been incorporated in some. Despite the revised Environment Act (2017) a provision on biosafety, there is limited coverage on the matter. The Biosafety Act and Regulation also shows several gaps which need to be addressed for effective implementation of the Cartagena Protocol on Biosafety.

Biosafety Clearing House Mechanism III Project

Malawi is among the seventy-six (76) developing countries participating in the Biosafety Clearing House III Project (BCH III). The objectives of the BCH III project include; development of an information strategy on Genetically or Living Modified Organisms (GMOs or LMOs) using a common communication platform and to enhance stakeholder's understanding of the BCH, its use and type of information to be uploaded on it. Twenty-four participants drawn from private sectors, industries, government departments, non-governmental organization and the media attended the initial workshop under this project in February 2019. Out of the 24 participants 8 were women (Figure 17).

The country is supposed to conduct three trainings on how to use the BCH for three categories of stakeholders. The current training targeted general stakeholders who will basically use the BCH as information platform for their knowledge and decision making. The last two trainings will focus on the direct users, those who are to be

mandated to register information on the platform and also consider mechanisms that will ensure sustainability of the BCH at national level.

Figure 17: Participants to the BCH Training

Relevant Aichi Target or national target

The measure is related to ABT 19 as well as national targets 1 and 14

Assessment of the implementation of the measure

Since it is an on-going initiative, the measure has been partially effective. Currently only general stakeholders have been trained. National Authorized users will be trained in due course

STRATEGIC OBJECTIVE FIVE: ENHANCE THE BENEFIT TO ALL FROM BIODIVERSITY AND ECOSYSTEM SERVICES;

National Target 15: By 2025, the supply of important ecosystem services is safeguarded and restored, taking into account gender roles and responsibilities of the youth, the poor and the vulnerable

Malawi Youth Forest Restoration Program

Recognizing that a sustainable future lies in the hands of the country's youth, who need a bold demonstration of the value of forests, the Malawi Youth Forest Restoration Program (MYFRP) aims to work with the youth in the country to restore degraded landscapes through tree planting. Under this new initiative, the Department of Forestry will work with the Ministry of Labour, Youth and Manpower Development to set up youth groups across the country. The young people receive a daily wage for planting trees and, later on, the program will introduce bonuses based on how many trees survive and how much forest management improves.

Relevant Aichi Biodiversity Target or National Target

The measure is related to several ABTs namely ABT 5,7, and 15. At the national level, the measure is related to national targets 6, 8 and 15.

Assessment of effectiveness of the measure

Effectiveness of the measure is unknown as it is a newly launched initiative.

Other relevant information

The initiative also contributes to Malawi's commitments to the AFR100 initiative where Malawi pledged to restore 4.5 million hectares (11 million acres), more than one-third of the country's land area. The initiative is in response to the National Forest Landscape Restoration Strategy, which provides clear targets and priority interventions for increasing forest cover as a means of achieving critical development goals. The strategy has also mapped opportunity areas for restoration as shown in figure 18 below;

Figure 18:Restoration opportunities in Malawi

The programme is entirely funded through Malawi's domestic budget, and about $7 million will be invested in this forest landscape restoration initiative. The initiative will plant trees on 25,000 hectares of degraded land and fund the natural regeneration of a further 100,000 hectares.

Young participants from both rural and urban areas will receive a daily wage of K900 ($1.25) to plant trees, maintain firebreaks, and practice sustainable land management techniques. The Government will also implement a bonus scheme tied to tree survival rates and improved forest management, and Local Councils will take the lead in forming youth groups and implementing restoration on the ground.

If implemented successfully, the programme will create awareness of the importance of maintaining Malawi's ecosystems and how young people can benefit from sustainable land management. It will help build a resilient nation, with livelihoods and local economies supported by healthy ecosystems. By putting young people at the center of this effort, the Government has demonstrated its commitment to the long-term success of Malawi's restoration movement.

Relevant website, web links and files

- https://afr100.org/sites/default/files/Malawi%20Youth%20Program%20One-Pager.pdf
- https://afr100.org/sites/default/files/Monitoring_Malawi_Report_final_web.pdf
- https://theredddesk.org/countries/malawi

Other relevant information

Environment and Natural Resource Management Project in the Shire River

The Millennium Challenge Corporation in collaboration with Malawi government created a grant facility to address environmental and natural resource management challenges as well as social and gender disparities in the Shire River Basin in 2016. The project provided grants to non-governmental organizations (NGOs) working in high-priority areas along the Shire to support interventions that addressed the social and gender disparities in the upper and middle Shire River basin and improve participation of both men and women in the implementation of

ENRM activities. The total value of contract signed amounted to US$6,143,809.00. The grants helped women and vulnerable groups engage in more sustainable land use practices and improved decision-making power and social outcomes. The grants also supported programming to work with men who had limited control of resources in a matrilineal society.

The implementation of activities led to the following: (a) Provided communities with alternative sources of income, thereby, enabling forests to be conserved; (b) Promoted greater awareness of environmental issues; (c) Encouraged saving culture through the creation and operationalization of Village Loans and Savings Schemes; (d) Village Savings and Loans (VSL) have enabled people to borrow sizeable amounts of money which is used to buy assets or as business capital; (e) Contributed to women empowerment in terms of the women contributing meaningful financial resources to the family; more women having influential positions in the community; women contributing meaningfully to developmental decisions in the community; (f) Improved literacy levels of both men and women; (g) Led to decrease in the rates of domestic violence; and (h) Led to decrease in school dropout rates as parents are able to pay for school fees for their children.

Sustainable Land Management and Gender Mainstreaming

A 2015 mid-term evaluation of UNDP Malawi's outcome 31 and Gender mainstreaming assessed the mainstreaming of gender in three natural resources programmes in Malawi. One of the programmes, The Private Public Sector Partnership for Sustainable Land Management (SLM) Project in the Shire River Basin did not include Gender issues in its sub-outcomes but its project interventions were informed by a gender assessment which disaggregated findings. For example, the study found that the average land holding size for both Male Headed Household and Female Headed Household was 0.7207 hectares and 0.6213 hectares respectively. Of the total land owned/utilized by each type of households, 0.6082 hectares of the total land owned/utilized by male household was rented, while 0.4143 hectares of the total land owned by a female household was rented as well. On average, bee keeping and charcoal and weaving provided better sources of income generation than the others for both male headed and

female headed household. Female headed households earned more income from only four of the income generating activities; Charcoal, Remittances, Firewood and Weaving. The evaluator further notes that the gender assessment finding 'Female headed households earned more income from only four of the IGAs; Charcoal, Remittances, Firewood and Weaving, led the project to support bee keeping and fish farming as alternative livelihoods for communities engaged in charcoal production with high income gains realized by farmers from honey production. As a result of the gender assessment the project created more income generating activities for women in the impact area. Over 50% of the beneficiaries in these bee keeping groups were women. One farmer group had over 75% women participation. Similar results have been achieved with communities participating in fish farming and crop diversification through provision of sweet potato.

Enhanced Gender mainstreaming in the Natural Resources and Environment legislation and programming

The Government of Malawi has also enhanced Gender mainstreaming in the Natural Resources and Environment legislation and programming. A review of the major policies in the ENRM sectors indicated that the level of gender mainstreaming in ENRM legislation varies significantly. While some are extremely progressive, others proved quite dogmatic. Because various sectors and institutions have recognized the importance of the advancement of women in their societies, specific targets and strategies to advance issues of gender in their activities have been developed. Target 15 of Malawi's NBSAP aims at enhancing the involvement of the youth and mainstreaming gender in ecosystem services. The Climate Change Policy and programmes like Adapt Plan has strong provisions on gender as well. In addition, the Environmental Impact Assessment Guidelines of Malawi were recently revised to include gender issues. Forestry policies and activities also greatly consider involvement of the youth and mainstreaming of gender issues. However, a strong government commitment is needed through goodwill, financial aid and other resources to promote the advancement of Gender issues beyond inclusion in strategic policy documents.

- file:///C:/Users/hp/Downloads/ENRM%20Project%20Design%20Report.pd
- http://www.unpei.org/sites/default/files/e_library_documents/Gender_ENR_Data_and_Indicator_Rapid_Assessment_0.pdf
- http://www.mw.undp.org/content/malawi/en/home/presscenter/articles/2015/09/08/malawi-includes-chapter-on-inclusive-environment-and-natural-resource-mainstreaming-in-guide-to-executive-decision-making-handbook.html

National Target 16: By 2025, access to genetic resources and traditional knowledge is regulated and benefits arising from utilization of the resources and associated traditional knowledge are shared in a fair and equitable manner

National Guidelines on Access and Benefit Sharing

Malawi ratified the Nagoya protocol in 2014 and has been regulating access to, and benefit sharing of biological resources in accordance with the Environment Management Act of 1996 as well as sectoral legislation including the Forestry Act (1997), Fisheries Conservation and Management Act (1997), National Parks and Wildlife Act (2017), Control of Animal Diseases Act (1980), Science and Technology Act (2003) and Plant Protection Act (1969).

Section 63 of the revised Environmental Management Act (2017) empowers the Minister to initiate legislative proposals, guidelines and prescribe measures for protection, conservation and sustainable utilisation of genetic resources and for access to genetic resources and the sharing of resulting benefits. In this regard, Malawi developed ABS guidelines in 2018 to respond to the increasing need for clarity in procedures for granting access to and sharing of benefits from genetic resources. The guidelines describe procedures required to obtain permits for access, import and export of Genetic Resources (GR), traditional knowledge and/or use of genetic information, provides institutional framework for ABS; the detailed rights and obligations of Providers and Users, including roles and responsibilities of Designated National Authority (DNA), Competent National Authorities' (CNA's) and

other relevant stakeholders. Furthermore, the guidelines provide basic principles and concepts of ABS, with a special view to the relationship between the permits and the ABS Contracts; and provide guidance regarding negotiation of ABS Contracts on benefit sharing. The guidelines contain annexes that include Application forms, list of permits and institutions granting the permits and IPR guidance. ABS

Malawi is also in the process of developing ABS Regulations under a GEF 6 funded project called Shire Valley Transformation Project. It is envisaged that the Regulations will provide a regulatory framework, administrative mechanisms and measures to achieve regulated access and the fair and equitable sharing of benefits arising from their use as an incentive for biodiversity conservation and contribute to economic development in Malawi. With regards to IPR, the National Commission for Science and Technology, Office of the Registrar General and the Copyright Association of Malawi have been conducting sensitization workshops on the role of traditional knowledge within the context of intellectual property rights.

Awareness Raising on Access and Benefit Sharing

The informed engagement of key stakeholders is key in ensuring that ABS frameworks in Malawi are developed and implemented in an inclusive and participatory process to achieve desired impact. Effect communication addresses the varying expectations between providers and users of genetic resources to make ABS a less complex issue and set realistic expectations in benefit sharing. Malawi has implemented a number of Communication, Education and Public Awareness (Figure 19) activities including development of awareness materials, conducting stakeholder consultations, awareness meetings and working with the media to promote ABS.

Malawi has developed ABS brochures and frequently asked questions to simplify the communication on the basics of the ABS process and procedures that need to be followed in ABS. Further community meetings with custodians of resources have been held to raise awareness on the ABS process. The country also worked

with the media to include ABS stories in papers and coordinated with other non-governmental organizations like Wildlife Environmental Society of Malawi to sensitize University students on ABS. Further the Office of Registrar general conducted a stakeholders meeting to raise awareness and build capacity of stakeholders to participate IPR and Traditional Knowledge at BICC.

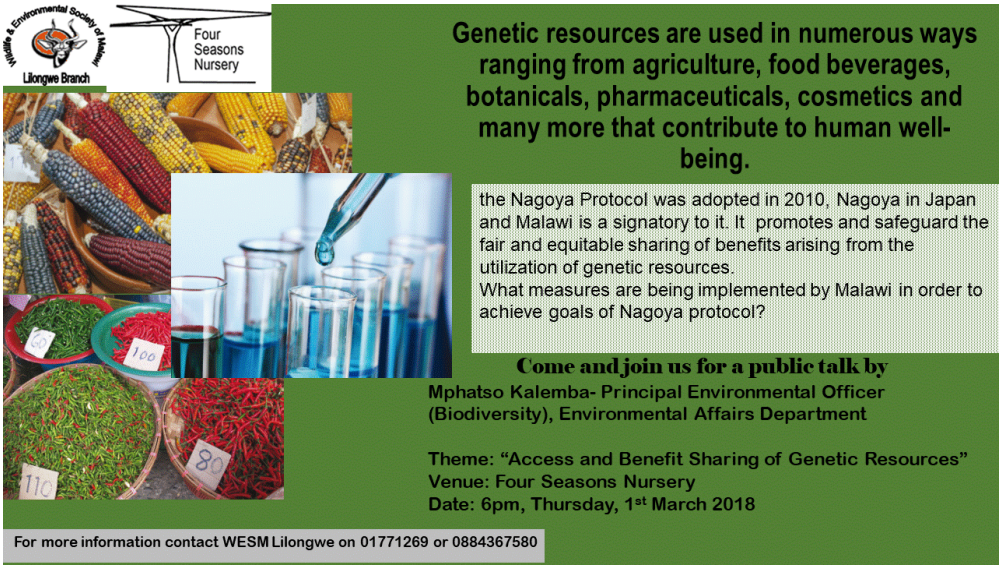

Figure 19: Advert for Public Talk on ABS

Relevant website, web links and files

http://www.times.mw/lost-treasure-in-genetic-resources/

Development of an Inventory of Export Permits for Biological Resources

Malawi has developed an Inventory on export permits issued for genetic resources from 2015 to 2019. The Fisheries Department reports that in 2016 alone, a total of 36,147 live fish was exported, generating approximately USD 222,280, which was higher as compared to 31,397 live fish that were exported in 2015, generating USD204,765. The exports have mostly been to countries like Canada, Denmark, France, Germany, Hong Kong, Japan, South Africa, Sweden, Thailand, United Kingdom (UK), and USA, with Germany having the greatest value of exports. However, the weakness has been the lack of documentation of the actual utilisation of the species leaving the country as such there has not been Prior

Informed Consent and Mutually Agreed Terms developed. The inventory further revealed that Malawi has exported some genetic resources through long-term collaborative projects and developed Mutually agreed terms with international partners like the Royal Botanical Gardens (KEW Gardens) for ex-situ and in-situ conservation and sustainable use of genetic resources that are indigenous to Malawi.

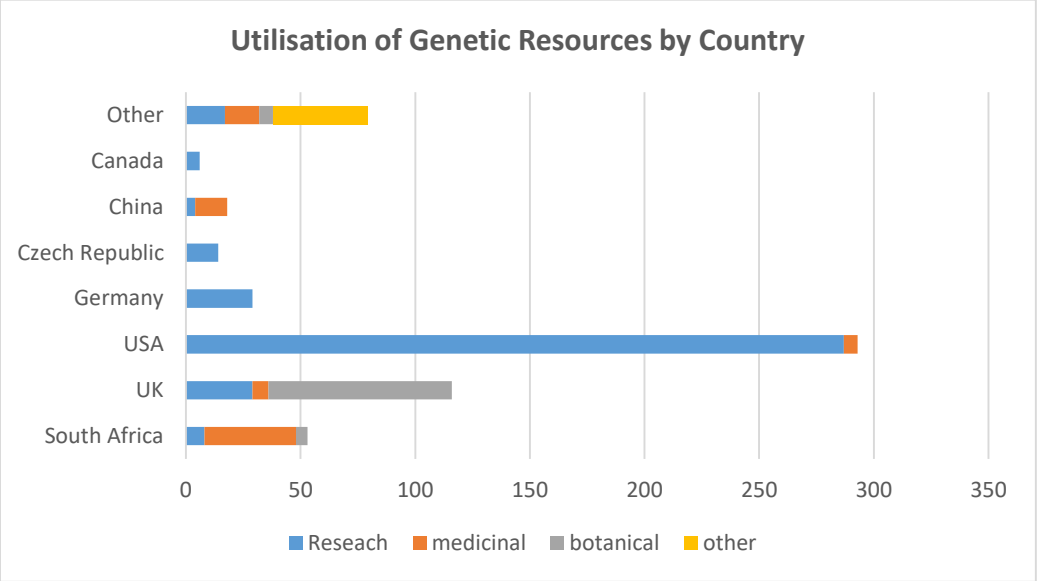

Figure 20: Utilisation of Genetic Resources from Malawi

The figure 20, indicates the top users of genetic resources from Malawi from 2016 to 2019. USA mostly has collaboration with Malawian Research Institutions and utilized the genetic resources for Research including sequencing and DNA barcoding of the Biological resources. Most African Countries like South Africa are also top users of genetic resources mainly for medicinal purposes and propagation. Huge Botanical collections in the UK are attributed to the collaboration between Malawi and KEW Gardens on conservation of Malawian indigenous plant species. Fish and Livestock resources were however not documented in the inventory due to lack of data in the departments and more effort is being put to ensure that all sectors document exports and utilization of genetic resources under their jurisdiction.

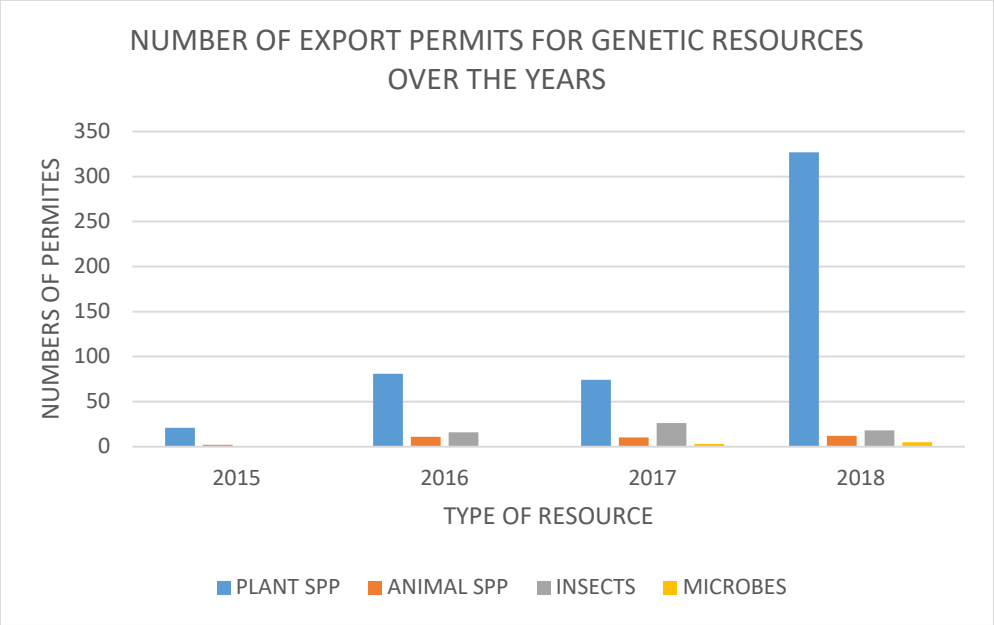

Figure 21: Number of Export permits Issued over the Years

The inventory also revealed an increasing trend in the number of export permits recorded from 2017 to 2018 on plants (Figure 21). The increment in documentation of resources leaving the country in 2018 is because of increased enforcement and awareness by departments on the need for documentation and tracking of resources leaving the country. The process of developing the inventory revealed that most sectors that issue export permits do not get adequate information from the User on the actual utilisation of the genetic resources. It has also been proven difficult for the regulators to differentiate between Bio-trade and research and development when defining the Utilisation during the application for export process as such they cannot determine if the use can generate non-monetary or monetary benefits for the country. Further, most of the genetic resources were obtained without Prior Informed Consent and Mutually agreed Terms. As a result, communities in Malawi have not been able to benefit from providing the genetic resources. This has resulted in the value of genetic resources being undermined by Malawian providers and incentives for conservation of ecosystems that are habitats to these genetic resources inexistent.

The inventory also revealed the need for a harmonised monitoring system to ensure coordinated reporting on ABS issues and achievement of the target.

Although enforcement is increased, other sectors have not had good documentation and regulatory procedures to document and track resources leaving the country. A lot of resource still leave the country undocumented and untracked. There is need for generating information to record what genetic resources have left the country, where they have gone to and for what purpose. Periodic Surveys and data collection are important in this regard.

CASE STUDY ON JATEORHIZA PALMATA, LOCALLY KNOWN AS "THABALABA

Figure 22: Community Members in Lower Shire accessing *J. palmata* an important Genetic Resource

Jateorhiza palmata (syn. J. columba) locally known as "Thabalaba" is a perennial climbing plant found in East and Central Africa. It is a tall, dioeciously twining perennial vine; often reaching the tops of trees. The annual stems, one or two from each root, are hairy with glandular tips and have large bright green membranous

leaves which are palmate, alternate and long petioled. It is high value medicinal plant species. In Malawi this species naturally occurs in Matandwe Forest Reserve in Nsanje District. The species is heavily exploited by local communities through harvesting of its tubers. The tubers are sold to businessmen in the area who in-turn sell them to a local exporting company in Malawi. However, little is known on the extent and status of the species or the final utilisation of the species in the importing countries.

Previously, the crop was harvested anyhow but with the coming of the Improved Forest Management for Sustainable Livelihoods Program in Matandwe Forest Reserve and surrounding communities, Forest co-management blocks have been demarcated using Group Village Headman existing boundaries and with each block has produced management plan for sustainable harvesting of the forest products. It is with this understanding that each block has forest based enterprise groups that would assist in the management of forest resources in both reserve and surrounding community forests. Therefore, in all the forest co-management blocks have Thabalaba forest based enterprise group. The name of the group has taken that of the block name for easy identification. It is this group that is involved in extraction of the product and sells to the immediate customer at K20/kg for flesh ones and K50/kg for dried ones after processing into slices form. The group pays small amount of money in form of fees/royalties to the block to assist the management of the entire forest block. Refer to all Forest co-management plans for more details.

The aspiration of the Thabalaba group is to form a cooperative group that would sell their product direct to the Users of the product where could fetch higher price per Kilogram and develop a benefit sharing mechanism for the community with future buyers. Under the Shire Valley Transformation project, a project has been planned to develop community protocols for the community and develop better benefit sharing mechanisms with buyers.

Obstacles related to the implementation of the measure

- inadequate capacity of relevant stakeholders to implement provisions of the Environmental Management Act on ABS and ABS guidelines effectively.
- Inadequate awareness regarding the Nagoya Protocol at all levels.
- resistance by Users and Bio-traders to participate in the process
- time and cost burden it takes to have a successful ABS process and negotiate Mutually
- Another obstacle is the inadequate cooperation with other countries that are Users of genetic resources to raise awareness and prevent illegal access and export of genetic resources.

SECTION III: ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET

National Target 1: By 2025, human and institutional capacity for science and technology related to biodiversity is improved.

In order to attain National Target 1, Malawi planned to implement the following actions;

a. Establish a National Biodiversity Information Facility;
b. Update an inventory of institutions that are involved in biodiversity research and management;
c. Assess knowledge gaps and identify priority research areas;
d. Enhance institutional capacity to manage and monitor implementation of biodiversity programmes;
e. Increase the number of programmes on biodiversity research;
f. Strengthen the capacity of training institutions on biodiversity research and dissemination;
g. Strengthen human capacity to manage biodiversity.

Category of progress towards the implementation of the selected target:
Progress towards target but at an insufficient rate

Date the assessment was done
22 December 2018

Additional information
As reported in section II, Malawi has been able to establish a National Biodiversity Information Facility which is currently being managed by the NCST. Many other institutions have also established their own websites where information is currently being shared. Most of the data available on the information facility do not make clear linkages between conservation and development and makes it difficult to use it as monitoring data for nature-based SDGs, such as the value of forests in securing water.

There is also significant progress toward implementation of the first national target through the tertiary education. The curriculum for most universities where biological sciences are taught covers some component of biodiversity conservation. The Lilongwe University of Agriculture and Natural Resources (LUANAR) has enrolled forty students since 2015 (see figure 23).

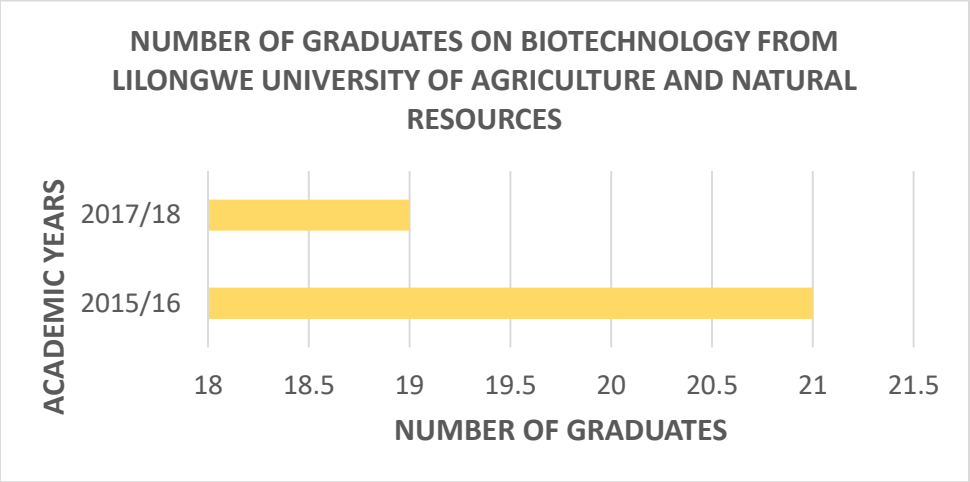

Figure 23: Number of graduates in Biotechnology at LUANAR

Furthermore, Malawi have limited information that can be used to in assessing if knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improving. The science base and technologies for conservation are inadequate and therefore makes biodiversity knowledge limited especially amongst non-conservationists. Capacity building is of very crucial for the Government of Malawi to attain some headway to fulfil the requirements of most of the conventions which the country is Party to such as the CBD, UNFCCC, UNCCCD, CITES, among others.

Indicators used in this assessment

- The extent to which knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improving

- The extent to which biodiversity knowledge, the science base and technologies are widely shared and transferred and applied
- The extent of awareness of key constituencies of the multiple values of biodiversity, ecosystems and ecosystem services to local and national economies, to communities and to national sustainable development goals, has been assessed.
- Number of graduates in science and biotechnology

Relevant websites, web links and files

- http://www.mw.undp.org/content/malawi/en/home/library/environment_energy/economic-valuation-of-sustainable-natural-resources-use-in-malaw.html
- https://www.ltsi.co.uk/project/environmental-and-natural-resources-management-interventions-enrmi-in-the-middle-shire-river-basin-in-malawi
- http://41.77.13.208:8081/ipt/resource?r=malawi_bid_redlist
- http://41.77.13.208:8081/ipt/resource?r=thyolo1_2_3
- https://www.gbif.org/occurrence/search?q=malawi

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Despite different institutions developing information sharing facilities to enable capacity improvement in biodiversity management, most of the data being presented is outdated. Malawi requires updated studies that can showcase the status and the trends of biodiversity in the country. Furthermore, academic institutions training graduates in different biodiversity related programs, there are no mechanisms in identifying the impact that these graduates are making in terms of biodiversity conservation in the country. Such information must be reported to the Environmental Affairs Department to ensure effective monitoring on the implementation of the NBSAP II. Conversely, EAD should develop a strategy for

collection of information from different sectors on the implementation of the NBSAP II to ensure efficient coordination.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The monitoring system currently in place is the NBSAP II monitoring and evaluation framework. There is need for a more robust monitoring system to ensure effective assessment on the knowledge, science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss.

National Target 2: By 2025, traditional knowledge, innovations and practices of local communities are respected and harnessed in line with national and international legislation.

Under National target 2, Malawi planned to implement the following actions;

a. Update an inventory of traditional management systems, innovations and practices in Malawi;
b. Conduct awareness campaigns among communities, researchers and NGOs to raise the profile on the value of traditional systems and knowledge;
c. Facilitate development of community protocols on traditional knowledge, practices and innovations;
d. Promote and upscale best traditional management systems.

Category of progress towards the implementation of the selected target

On track to achieve the target

Date the assessment was done

22 December 2018

Additional information

The Department of Culture has carried out several initiatives to conduct inventories of different traditional management systems. The Malawi Plant Genetic Resource Centre has also taken initiatives to document the innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of agro biodiversity. In the forest sector, local communities have been key in using local practices in the conservation and sustainable use of forest biodiversity. Despite the important role that local communities play in biodiversity conservation, the linkages between the role of traditional knowledge in the conservation and sustainable use of biodiversity in Malawi has not been well documented.

Further, the Centre for Environmental Policy and Advocacy (CEPA) has carried out several advocacy initiatives to ensure the inclusion of the informal seed sector and farmers rights in the National Seed Policy, as well as creating stakeholder awareness on the same. Through the Department of Disaster Management, local knowledge on early warning systems for disaster preparedness have been documented and encouraged to be used throughout the country.

Indicators used in this assessment

- The effectiveness of NBSAP strategies and actions for integrating TK, innovations and practices of indigenous and local communities into implementation of the NBSAP and ensuring effective participation
- Trends of linguistic diversity
- Numbers of speakers of indigenous languages

Relevant websites, web links and files

See section II

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Despite the Department of Culture making progress in documenting the linguistic diversity in Malawi, the number of speakers have not been conclusively made, nor has their contribution to conservation and sustainable use of biodiversity been intrinsically linked.

Malawi is yet to develop community protocols on traditional knowledge, innovations and practices and their contribution to biodiversity management.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The target is monitored through the NBSAP II monitoring and evaluation framework. However, the indicators provided do not really provide an adequate understanding of whether the target has been effectively met or not.

Relevant websites, web links and files

- www.cbd.int/mw-nbsap-v2-en.pdf
- file:///C:/Users/hp/Downloads/38029-EN.pdf

National Target 3: By 2025, at least 50 % of the Malawi population is aware of the value of biodiversity to ensure its conservation and sustainable use.

Under the third national target, the following actions were planned;

a. Develop a communication, education and public awareness strategy for biodiversity;
b. Integrate biodiversity issues in primary and secondary school curricula;
c. Conduct awareness campaigns on the importance of biodiversity;
d. Promote active participation of local communities in biodiversity conservation through various Community-Based Institutions;

e. Publications to raise the profile on biodiversity in Malawi.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done

22nd December 2018

Additional information

Awareness on biodiversity is important to ensure that the public is aware on the wide range of values of biodiversity, including social, ecological and economic benefits. Addressing the direct and underlying drivers of biodiversity loss in Malawi requires behavioral changes by the general public. Public understanding, awareness and appreciation of the diverse values of biodiversity are key in motivating general public to participate in biodiversity conservation. Understanding the values and benefits of biodiversity is a critical first step to integrating these values into economic and development sectors.

During the reporting period, different awareness campaigns had been undertaken. Through different media outlets, different programs have been aired to make the public aware of the importance of biodiversity as well as different ongoing initiatives related to biodiversity conservation. As reported in section II for example, SRDGI conducted a Misuku Hills Art Challenge with the aim of creating awareness on the values of biodiversity found in the Misuku Hills Forest Reserve and promote tourism activities in 2017. Through the challenge, twelve artists toured the Misuku Hills and produced artworks and documentaries on the value of biodiversity in the hills and their contribution to tourism development. The contest also depicted the rich culture and traditions of the people in Misuku Hills which contributes to conservation of biodiversity. The Green Media Awards have also motivated journalists to report and create awareness on biodiversity issues.

On IWT, Malawi has taken steps to create awareness both within and outside the country. During the 2018 London IWT Conference in, a Malawian ranger was able to share his experience in combating wildlife crime at country level.

Through the Association of Environmental Journalists in Malawi (AEJ), over 100 journalists have benefited from different training programs supported by different organizations African Parks, Departments of National Parks and Wildlife, Fisheries, Forestry and Environmental Affairs. These in turn has resulted in improved coverage in issues to do with biodiversity conservation in Malawi. Coverage has also been extended to certain biodiversity hotspots such as Lake Chilwa due to issues of seasonal rainfall fluctuations. Climate change has affected habitats for birds and water fowl including some social economic activities that support livelihoods in the area. There are also specialized columns, environment pages, online blogs, radio and television programmes covering issues related to biodiversity in Malawi. All these platforms are meant to raise the profile of biodiversity issues through awareness and outreach.

With regards to the extent to which Malawians are aware of the NBSAP II, there is a general knowledge of the existence of the document amongst environmental professionals, however there is still need to create awareness on the strategies Malawi has put in place to conserve biodiversity as well as on progress being made towards their implementation.

Indicators used in this assessment

- The number of activities that focus on raising awareness about biodiversity values and/or the actions that individuals can take to conserve and sustainably use biodiversity.
- The impacts of the actions taken to increase public awareness of biodiversity.
- The extent to which a communication and outreach plan has been developed and implemented to communicate key findings, lessons, results and progress from the NBSAP to a variety of constituencies.

Relevant websites, web links and files

Refer to section II

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Despite the increased number of initiatives and activities to create awareness on biodiversity, the activities have not really focused on providing the value of biodiversity and the steps that people can take to implement conservation awareness as the target specifies. Most awareness activities have focused on environment in general, and therefore, lacked providing relevant information for the general public to take biodiversity conservation actions. There is need for increased efforts in providing solutions to biodiversity loss and measures that people could take in order to achieve targets in the NBSAP II.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring and evaluation framework for NBSAP II, different institutions monitor their own initiatives related to awareness creation on biodiversity issues, making it very difficult to evaluate the overall effectiveness of the initiatives taken to achieve the target.

Further, the NECCCS has been revised to include issues of biodiversity as well as a monitoring and evaluation framework. Once finalized, Malawi will be able to measure the impact of its awareness strategies on ensuring both biodiversity awareness and resulting behavior change.

Relevant websites, web links and files

- www.cbd.int/mw-nbsap-v2-en.pdf
- https://www.cepf.net/grants/grantee-projects/misuku-hills-art-challenge

- https://mwnation.com/misuku-hills-hidden-treasure/

National Target 4: By 2025, biodiversity values are integrated into national, sectoral and local development policies and plans

The NBSAP II specifies the following actions to contribute to the achievement of national target 4;

a. Conduct integrated ecosystem assessments and economic analyses to evaluate the specific contributions of biodiversity to the national economy and human well-being;
b. Integrate biodiversity poverty linkages into the Malawi Growth Development Strategy III;
c. Develop guidelines on how sectors and national planners can integrate biodiversity conservation into relevant policies and plans;
d. Identify and engage sectors to integrate biodiversity conservation;
e. Develop Local Biodiversity Strategies and Actions Plans (LBSAPs).

Category of progress towards the implementation of the selected target:
Progress towards target but at an insufficient rate

Date the assessment was done
22nd December 2018

Additional information
Although biodiversity and ecosystem services provide enormous societal values, these values and benefits are not widely reflected or accounted for in societal decision making, including in productive sectors, such as agriculture and energy, and in development sectors, such as land-use planning and poverty reduction. As a result, other sectors often have major negative impacts on biodiversity, underpinning the very foundation that sustains them. Furthermore, trends in biodiversity loss are often invisible in national accounts. To achieve national target 4, there was need to assess the values of biodiversity to a variety of sectors, and

integrate those biodiversity values fully into the national planning processes. Even though there is need to consider developing natural capital accounting systems, Malawi prioritized conducting ecosystem assessments to evaluate the role of biodiversity in the national economy. The country is currently in the process of developing a joint project proposal on natural accounting with Uganda with support from Bio-bridge Initiative. This project will contribute to knowledge on the value of biodiversity economically and can be used as a tool for lobbying conservation resources from government which is very low at present.

Under the Shire River Basin Management Program, an evaluation of the biodiversity in the basin was conducted to highlight its contribution to the economy in the basin. There is also need to update the economic analysis that was done on natural resources management in 2010 to fully understand the value of biodiversity to the economy. Even though Malawi also planned to ensure that biodiversity is integrated in the MGDS III, lack of proper assessments on the contribution of biodiversity to poverty alleviation rendered it a challenge.

At local level, the Ministry of Local Government revised the guidelines for District Developing Planning Systems which has now included minimum required indicators for assessing biodiversity loss and contribution. District Development Plans, Social Economic Profiles and District State of Environment Reports developed within the reporting period have a clear articulation of biodiversity issues.

Indicators used in this assessment

- The degree to which biodiversity has been integrated in the MGDS III.
- Number of integrated ecosystem assessments conducted.

Relevant websites, web links and files

See section II

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

During the reporting period, the MGDS III was approved and operationalized. Despite the NBSAP II prioritizing biodiversity mainstreaming in the MGDS III, lack of data on the importance of biodiversity to the economy has been a challenge to ensure that biodiversity or the NBSAP II is fully integrated into the MGDS III. The wildlife sector, has been identified as one main contributing sector to tourism development in the country, however, the MGDS III does not recognize the need to increase investments in effective management and monitoring of wildlife. All in all, the MGDS III recognizes the need for integrated ecosystem assessments to enable biodiversity mainstreaming in different economic sectors.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring system under the NBSAP II, the MGDS III also has specific indicators to measure how biodiversity conservation is being achieved in the country. For example, under the MGDS III the following indicators are available;

- Proportion of biodiversity and genetic resources and associated traditional knowledge accessed and benefitting the country;
- Number of key biodiversity areas conserved and sustainably used.

Relevant websites, web links and files

- http://www.mw.undp.org/content/dam/malawi/docs/UNDP_Malawi_MGDS)%20III.pdf
- www.cbd.int/mw-nbsap-v2-en.pdf

National Target 5: By 2025, sustainable financing mechanisms for effective implementation of biodiversity programs developed

Under national target 5; Malawi planned to implement the following;

a. Develop and implement a Biodiversity Resource Mobilization Strategy;
b. Promote and implement innovative finance mechanisms such as Access and Benefit Sharing (ABS) and PPP programs;
c. Develop and implement market-based approaches for biodiversity conservation including Payment of Ecosystem Services (PES).

Category of progress towards the implementation of the selected target:
On track to achieve target

Date the assessment was done
22nd December 2018

Additional information
Sufficient financial and human resources underpin Malawi's ability to achieve the strategic objectives of its NBSAP II and its related national targets which also contribute to the achievement of the Aichi Biodiversity Targets and the SDGs. There has been a significant gap in financing of conservation initiatives which led to privatization of some protected areas to ensure sustainable flow of financial resources and effective management.

During the reporting period, Malawi has made progress to broaden biodiversity funding to better meet biodiversity planning needs and implement innovative financial mechanisms, including payment for ecosystem services. Malawi recently joined the BIOFIN initiative, which will assist in understanding the biodiversity financing gap and develop financing plans. Further, Malawi continued to implement the two innovative financing mechanisms for biodiversity namely the Mulanje Mountain Conservation Trust (MMCT), which is specifically targeting the management of the Mulanje Mountain Forest Reserve, a biosphere reserve which

harbors the Mulanje Cedar; and the Malawi Environment Endowment Trust (MEET) which mainly supports community initiatives in conservation.

As reported in section II, Malawi continued to promote public private partnerships where African Parks Network increased management of protected areas from 2 to 5, to include Nkhotakota Game Reserve, Liwonde National Park and Mangochi Forest Reserve. The APN model has taken advantage of the private-sector efficiencies in capturing visitor-related revenues to reinvest them in the protected areas they are managing while maintaining the role of the public sector to ensure increased investments in conservation in Malawi.

With regards to market based approaches, the Mulanje Mountain Water Project, uses a payment for ecosystem services approach where Blantyre Water Board is expected to contribute to rehabilitation of Mulanje Mountain Forest Reserve, for the water provision services that it provides to Blantyre City.

Indicators used in this assessment

- The extent to which the mobilization of financial resources to implement the NBSAP II from all sources is increasing substantially.

Relevant websites, web links and files

- https://chm.cbd.int/database/record/206319
- www.meet.org.mw
- www.mmct.org
- www.africanparks.org
- https://www.linkedin.com/company/consortium-of-african-funds-for-the-environment/

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Although a resource mobilization strategy for biodiversity in the country has not been developed, Malawi has made considerable progress in the promotion and implementation of innovative financing mechanisms for biodiversity conservation. In 2015, the PEI conducted an expenditure review of how much government spends in the environment sector, which also provided a basis for financial reporting to the convention. Further, Malawi's financial report framework to the CBD highlighted the flow of domestic expenditure as well as the priority areas with financial gaps.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Monitoring of the target is currently through the monitoring framework of the NBSAP II. However, implementation of the BIOFIN project will also provide another monitoring system for monitoring the target.

Relevant websites, web links and files

- https://www.biodiversityfinance.net/
- https://chm.cbd.int/database/record/206319
- www.cbd.int/mw-nbsap-v2-en.pdf

National Target 6: By 2025, at least 50% of degraded terrestrial habitats are restored and protected

Under national target 6, Malawi planned to implement the following actions;

- Identify degraded habitats;
- Identify habitats with high species diversity;
- Develop, review and implement strategies and programmes for restoring habitats;
- Develop and implement programmes to protect habitats of high species diversity.

Category of progress towards the implementation of the selected target:
Progress towards target but an insufficient rate

Date the assessment was done
22nd December 2018

Additional information
NBSAP II reported that degradation of natural habitats represents one of the key drivers for biodiversity loss in Malawi and reducing habitat loss and fragmentation has been one key priority area for the country in order to achieve the NBSAP II and contribute to the SDGs.

During the reporting period, Malawi has taken considerable steps to restore degraded habitats especially in the Forestry sector. The National Forest Landscape Restoration Strategy identified and mapped priority areas for restoration and provides priority opportunities and interventions that can translate the potential of restoration into multiple benefits such as improved food security, increased biodiversity, improved water supply, job creation, income, carbon sequestration and enhanced resilience to climate change. However, despite the efforts, Malawi continues to experience land degradation and it is not clear whether Malawi will be able to restore 50 % of degraded habitats as specified in the national target.

Through the National Forest Landscape Restoration Assessment (2017), a geospatial analysis was performed to map suitable areas for each of the five restoration interventions and to estimate the national scale of restoration opportunity for each type of intervention. Figure 24 shows mapping of the opportunities in forest management and community land. In total, nearly 7.7 million hectares, which is 80 percent of the total land area of Malawi, has an opportunity for restoration. The restoration interventions, their specific objectives and targeted contributions to national sustainable development goals, and estimated opportunity area are presented in Table 5 below;

Table 5:Summary of restoration interventions and opportunities in Malawi

Specific restoration objectives	benefits	primary contribution to national goals	estimated area of opportunity	percent of country
AGRICULTURAL TECHNOLOGIES (CONSERVATION AGRICULTURE, FARMER-MANAGED NATURAL REGENERATION AND AGROFORESTRY)				
Increase tree cover on degraded, low-yielding cropland and pastures in agricultural landscapes through farmer-managed and assisted natural regeneration, direct seeding, and planting of agroforestry trees and shrubs; implement climate-smart agriculture techniques, including FMNR, continuous cover crops, crop rotation, other agroforestry technologies	Increased crop yields with reduced dependence on inorganic inputs, reduced soil/nutrient loss, increased resilience to drought and other climate shocks.	- Food security - Climate resilience - Sustainable energy - Poverty alleviation - Gender equity and equality - Biodiversity conservation	753,471	8%
FOREST MANAGEMENT				
Restore forest cover and improve management in deforested and degraded forests, including forest reserves, natural forests outside reserves, and plantations	Decreased sedimentation in catchments of hydropower infrastructure, protection of source water, increased access to forest products for subsistence and	- Climate resilience - Sustainable energy - Water quality and supply - Poverty alleviation	3,401,279	36%

	sale, conservation of biodiversity	- Biodiversity conservation - Gender equity and equality		
SOIL AND WATER CONSERVATION				
Stabilize soils and increase infiltration in areas with high rates of rainfall runoff, erosion and source areas for downstream sedimentation by constructing check dams, gully plugs, infiltration ditches, and other rainwater harvesting and soil and water conservation techniques	Protection of croplands and water sources from rainfall runoff and erosion; reduced landslide risk during high rainfall events	- Food security - Climate resilience - Water quality and supply - Gender equity and equality	1,043,768	11%
RIVER AND STREAM BANK RESTORATION				
Increase tree cover in denuded buffer zones of rivers and streams through natural regeneration and tree planting	buffer zones of rivers and streams through natural regeneration and tree planting Protection of source water and decreased sedimentation in catchments of hydropower infrastructure, reduced impacts of flood events	- Climate resilience - Sustainable energy - Water quality and supply - Gender equity and equality	36,478	0.4%

Further improved management of protected areas by African Parks Network from one to four protected areas also contributes to the achievement of this target.

The Multi-Criteria Analysis that was carried identified and prioritized degraded land in need of restoration. The restoration interventions were developed based on opportunity areas calculated in a spatial analysis and stakeholder consultation to ensure that interventions were best suited to the local situation.

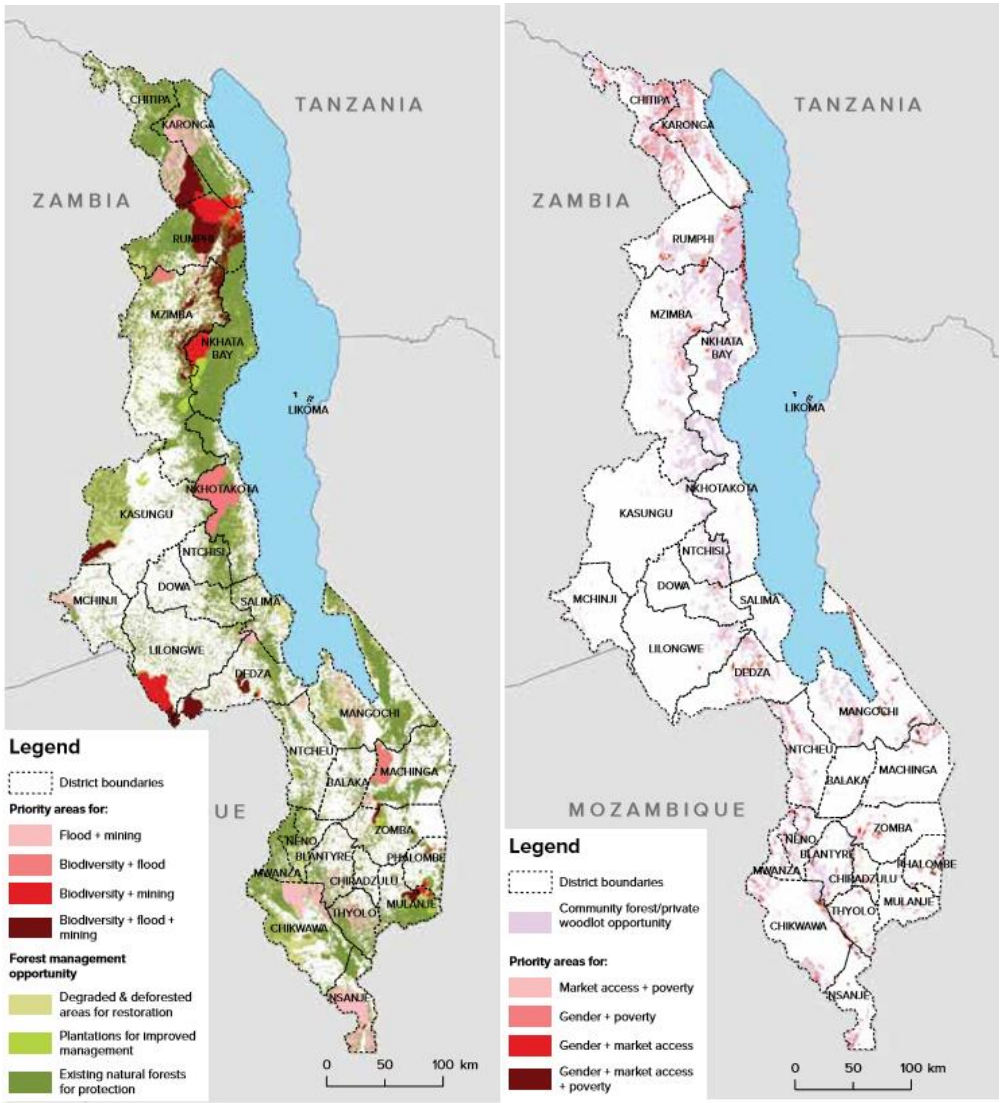

Figure 24: Forest Management Restoration opportunities in Malawi

Indicators used in this assessment

- The rate of loss of natural habitats, including forests, is identified and spatially mapped
- The effectiveness of NBSAP strategies and actions for significantly reducing the rate of loss of all natural habitats, including forests

Relevant websites, web links and files

- https://afr100.org/sites/default/files/Malawi_NFLR_Strategy_FINALv2.pdf
- https://portals.iucn.org/library/sites/library/files/documents/2017-029.pdf
- https://afr100.org/content/malawi

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Malawi has taken considerable steps to map degraded habitats and restoration priorities as reported in section II. Proper assessments of forest landscape restoration potential have been carried out to determine what strategies can be proposed for implementation of the restoration commitments made under the AFR100.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring system for the NBSAP II, Malawi has also developed national framework for monitoring progress in restoration that focuses on measuring progress toward the goals and interventions outlined in Malawi's National Forest Landscape Restoration Strategy (2017). There is however need for development of strategies and a monitoring system for wetland restoration.

Relevant websites, web links and files

- https://afr100.org/sites/default/files/Monitoring_Malawi_Report_final_web.pdf
- www.cbd.int/mw-nbsap-v2-en.pdf

National Target 7: By 2025, aquatic biodiversity is managed and harvested sustainably within safe ecological limits

Under national target 7, Malawi planned to implement the following actions;

- Develop guidelines to promote integrated watershed management;
- Develop programmes on integrated watershed management;
- Promote use of legal fishing gear;
- Develop a national wetlands policy;
- Identify, rehabilitate and protect fish spawning and nursing areas;
- Undertake ex-situ conservation of threatened or endangered aquatic species;
- Review and implement strategies and plans for management of endemic fish species;
- Reduce fishing effort in shallow waters by promoting deep-water fishing.

Category of progress towards the implementation of the selected target:
unknown

Date the assessment was done

-

Additional information

The overexploitation and unsustainable harvest of fish and other aquatic biodiversity puts significant pressure on biodiversity and threatens the fisheries sector in Malawi which is one of the important production sectors. Information on harvesting of aquatic biodiversity in Malawi has mainly focused on management and harvest rates of fish species and little data exist for aquatic invertebrates and plants. Further, important fisheries habitats are largely unmapped, and there are

very few efforts to develop geospatial overlays of fisheries, critical habitat and freshwater ecosystems.

With regards to fisheries monitoring for its conservation, the Fisheries Department reports that in 2016 alone, a total of 1,423 fishing licenses and sanitary certificates were issued. However, the Department reports that insufficient equipment and facilities to monitor enforcement of fisheries regulations in all water bodies, as well as to conduct research in the deep-water offshore fishing grounds on Lake Malawi renders it a challenge to fisheries conservation.

Another challenge in the achievement of the target relates to the management of wetlands in the country. Despite the important role that wetlands play in social economic development in Malawi, they lack protection status and there are uncoordinated efforts in the management of wetlands. As outlined in section II, Malawi successfully designated elephant marsh, as a wetland of international importance and developed its management plan under the shire river basin management program. However, ownership of implementation and monitoring of the management plan at national level remains unclear.

Further, during the reporting period, Malawi had started discussions on a possible program on the Lake Malawi Catchment which had the potential to provide opportunities to manage aquatic biodiversity in the lake with neighboring countries. However, due to political differences, the project was halted, thereby rendering the lake Malawi ecosystem vulnerable to unsustainable harvesting of aquatic biodiversity. Despite the Environment Management Act (2017), having provisions on management of water bodies in Malawi, absence of the National Environmental Protection Authority (NEPA), presents a challenge on management of water bodies in the country. Currently, the water bodies being managed are those declared as protected areas, like Lake Malawi National Park. There is therefore need to improve capacity of the fisheries Department to regulate fishing and protect fish spawning areas. Currently, despite the importance of Lake Malawi for conservation and economic development, the ecosystem remains unprotected.

Furthermore, watershed management has been a challenge in Malawi. During the reporting period major important wetlands like Lake Chilwa Wetland, a wetland of international importance dried up due to poor watershed management. Mpira dam in Balaka district has also dried up affecting water availability to surrounding communities.

Indicators used in this assessment

No indicator used

Relevant websites, web links and files

- https://mwnation.com/mpira-dam-dries-up-communities-suffer/
- https://allafrica.com/stories/201811260600.html
- GoM (2017) Annual Economic Report, Ministry of Finance, Economic Planning and Development

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring and evaluation framework for NBSAP II, the Department of Fisheries monitors the fisheries catch per year. However, monitoring of other aquatic biodiversity is limited.

Relevant websites, web links and files

- http://www.fao.org/3/a-br797e.pdf
- www.cbd.int/mw-nbsap-v2-en.pdf

National Target 8: By 2025, area under forest cover is increased by 4% and managed sustainably, ensuring conservation of biodiversity

Under national target 8, Malawi planned to implement the following;

- Review and implement effective reforestation programmes that ensure survival and diversity of planted trees;

- Develop and implement community based programmes on conservation and sustainable use of forest biodiversity;
- Promote improved forest management techniques;
- Promote the use of alternative sources of energy.

Category of progress towards the implementation of the selected target:

No significant change

Date the assessment was done

22nd December 2018

Additional information

During the reporting period, Malawi has taken considerable measures to implement the actions related to the national target. High incidences of poverty and food insecurity have increased demand for land and forest resources thereby increasing dependence on fuel wood as a source of energy for cooking and heating. Every year Malawi has been implementing reforestation program called the National tree planting season, where different stakeholders plant trees both in degraded areas as well as establishment of woodlots. Within the reporting period of over 50 million trees have been planted as seen in Figure 25. The main challenge observed over the years is the low survival rate of the trees being planted.

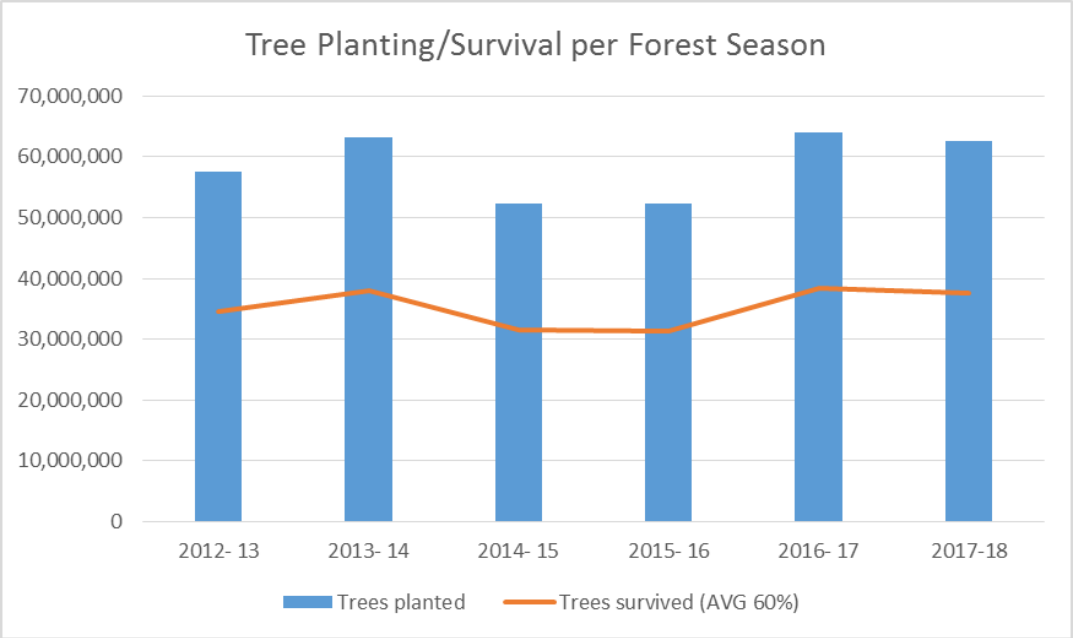

Figure 25:Number of trees planted between 2013 to 2016 tree planting season

For improved forest management, Malawi has been involving local communities in decision making about their surrounding natural resources, through Participatory Forest Management (PFM) which provides for a more effective local control over forest resources and sustainable land management. In 2015, Malawi reported that 33.38% of the total land area comprise forest area as shown in Figure 26. However, government also estimated that the country's 3.4 million hectares (8.4 million acres) of predominantly natural forests are being depleted at a rate of 1.8 2.6 percent annually, largely for charcoal production. Since 2015, the government has been conducting 24-hour military patrols of the major forests, with authorization to arrest loggers and confiscate their equipment, thereby reducing the rate of deforestation.

Further, government adopted a National Charcoal Strategy (NCS) (2017-2027) with an aim of providing a framework to address the linked problems of increased deforestation and increased demand for household cooking fuel, with defined and prioritized short-term, medium term and long-term actions. Aligned with the Forestry Policy (2016), Forestry Act (1997), Energy Policy (2003), draft National Energy Policy (2016), Energy Act (2004), and the Climate Change Policy (2016), the

NCS supports Government's objectives to arrest and reverse deforestation and forest degradation and to reduce energy overdependence on solid biomass fuels.

Additionally, EAD as a Designated National Authority (DNA) is promoting the Clean Development Mechanism (CDM) projects which promote use of technological innovations that offset GHG emissions and contribute to sustainable development. The initiative has resulted in adoption of efficient cook stoves which has reduced pressure on usage of biomass for energy generation. Despite increased restoration efforts, Malawi continues to lose its forest cover.

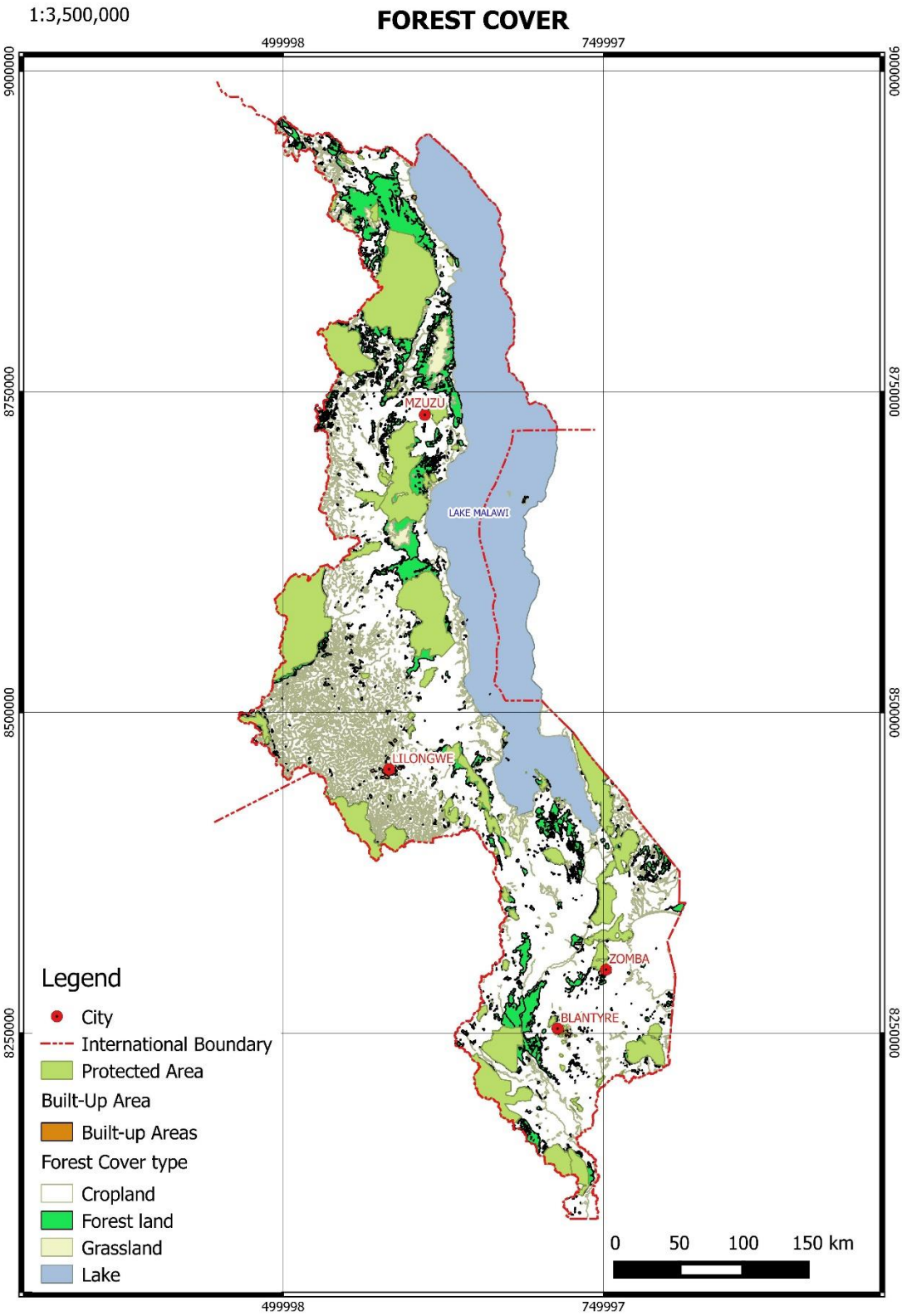

Figure 26:Malawi Forest Cover map

Indicators used in this assessment

- Forest cover percentage

Relevant websites, web links and files

- https://afr100.org/sites/default/files/Restoration_Malawi_Charcoal-Strategy_lowq.pdf
- https://www.arcgis.com/apps/View/index.html?appid=a677f1c3ddb94c0ba5e56c2f8d6a1d61
- https://www.indexmundi.com/facts/malawi/indicator/AG.LND.FRST.ZS

Level of confidence of the above assessment

Based on partial evidence

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

In addition to the monitoring and evaluation framework of the NBSAP II, the Department of Forestry has put in measures to monitor forest cover in the country. Through the different restoration initiatives, Malawi has developed a monitoring strategy for all restoration projects which will monitor the extent to which restoration efforts are contributing to the restoration targets that Malawi has set.

Relevant websites, web links and files

- https://afr100.org/sites/default/files/Monitoring_Malawi_Report_final_web.pdf

National Target 9: By 2025, invasive alien species and their pathways are identified and prioritized for control and prevention from movement and spreading in and out of the country.

To effectively implement national target 9, Malawi planned to implement the following;

- Compile documentation and maps on IAS in Malawi, including an inventory of invasive alien species prevalent in the country;
- Develop a national invasive species management plan;
- Conduct awareness campaigns and build capacity of different stakeholders on how to identify, track and prevent IAS in their localities and on the threats of invasive alien species to biodiversity (cross-border inspection, quarantine and certification);
- Procure and upgrade inspection infrastructure for tracking and identifying IAS in Malawi;
- Conduct capacity-building initiatives on invasive alien species monitoring;
- Monitor the entry and spread of invasive alien species;
- Regulate and control movement and spreading of IAS.

Category of progress towards the implementation of the selected target:

Early to measure progress

Date the assessment was done

- **December 2018**

Additional information

One of the greatest threats to biodiversity in Malawi as reported in the 5th National Report to the CBD is the introduction of invasive alien species which have been exacerbated due to weak border controls and climate change.

Under GEF-6, Malawi is implementing a project on invasive alien species which if implemented successfully it will address all the actions planned to achieve this

target. The project is being implemented in two protected areas that are important biodiversity hot spots rich in endemic species. The project aims to ensure that new invasions are prevented and the current impacts of invasive alien species (IAS) in protected areas and adjoining agro-ecosystems in Malawi are reduced.

In addition, Malawi continued to implement IAS eradication projects that were reported in the 5th National report.

Indicators used in this assessment

None

Relevant websites, web links and files

- https://www.thegef.org/project/enhancing-sustainability-protected-area-systems-and-stabilizing-agro-production-adjoining

National Target 10: By 2025, pollution is reduced to minimize ecosystem degradation and biodiversity loss

Under national target 10, Malawi planned to implement the following activities;

- Procure equipment for monitoring environmental pollution;
- Conduct capacity-building initiatives on monitoring of environmental pollution;
- Develop and implement polluter pays principle regulations;
- Develop programs to promote the reduction, reuse and recycling of wastes;
- Promote public-private partnerships on waste management;
- Strengthen enforcement of policy and regulatory frameworks for pollution control.

Category of progress towards the implementation of the selected target:

Progress towards target but at an insufficient rate

Date the assessment was done

22 December 2018

Additional information

In 2017, Malawi revised its Environment Management Act (2017) with an aim of ensuring that environmental pollution is reduced among others. The Act provides for the development of environmental quality standards for air quality, water quality, discharge of effluent into water, control of obnoxious smell, soil quality and radiation.

Further, the Atomic Energy Radiation Authority (AERA) was established with the aim of regulating activities and practices involving all uses of ionizing radiation, to ensure adequate protection of humans and the environment against the harmful effects of ionizing radiation and for the safety and security of radiation sources. The authority establishes the requirements for obtaining a license to conduct mining and processing of radioactive materials. Monitoring of the mining of uranium in Kayelekera to ensure that pollution from radioactive materials is minimized has also been conducted within the reporting period.

Under the Shire River Basin Management Program, an analysis of pollution in the basin revealed that the major pollutants which are a major concern in the aquatic ecosystem in Malawi are organic matter and nutrients and differs depending on whether the area is rural or urban, with Blantyre being the urban district in the basin as shown in Table 6 below. The analysis indicates the low levels of awareness, knowledge and capacity on water quality management as a challenge to water quality management in the basin.

Table 6:Estimated pollution loads reaching water bodies in the Shire River Basin

District				Pollution from rural population		
	Total human pollution generated (t/yr)			Resulting load to water body (t/yr)		
	BOD5	TN	TP	BOD	TN	TP
BALAKA	4,936.10	617.01	246.80	247	93	62
BLANTYRE CITY	10,440.12	1,305.02	522.01	0	0	0
BLANTYRE RURAL	5,231.84	653.98	261.59	262	98	65
CHIKHWAWA	6,716.64	839.58	335.83	336	126	84
CHIRADZULU	2,652.38	331.55	132.62	133	50	33
MACHINGA	2,450.99	306.37	122.55	123	46	31
MANGOCHI	3,242.76	405.35	162.14	162	61	41
MULANJE	7,127.31	890.91	356.37	356	134	89
MWANZA	1,446.10	180.76	72.31	72	27	18
NENO	1,669.69	208.71	83.48	83	31	21
NSANJE	3,653.01	456.63	182.65	183	68	46
NTCHEU	3,988.21	498.53	199.41	199	75	50
PHALOMBE	484.18	60.52	24.21	24	9	6
THYOLO	9,108.84	1,138.60	455.44	455	171	114
ZOMBA RURAL	1,733.11	216.64	86.66	87	32	22
	64,881	8,110	3,244	2,722	1,021	681

Source: Shire River Basin Management Program

With regards to solid waste management, through the Integrated Waste Management Project, sewer lines are being rehabilitated to reduce the risk of seepage and procuring waste bins for public institutions.

The Department of Water Resources has been monitoring water quality using different monitoring boreholes across the country. Figure 27 shows location of monitoring boreholes for water quality around Lake Chilwa wetland.

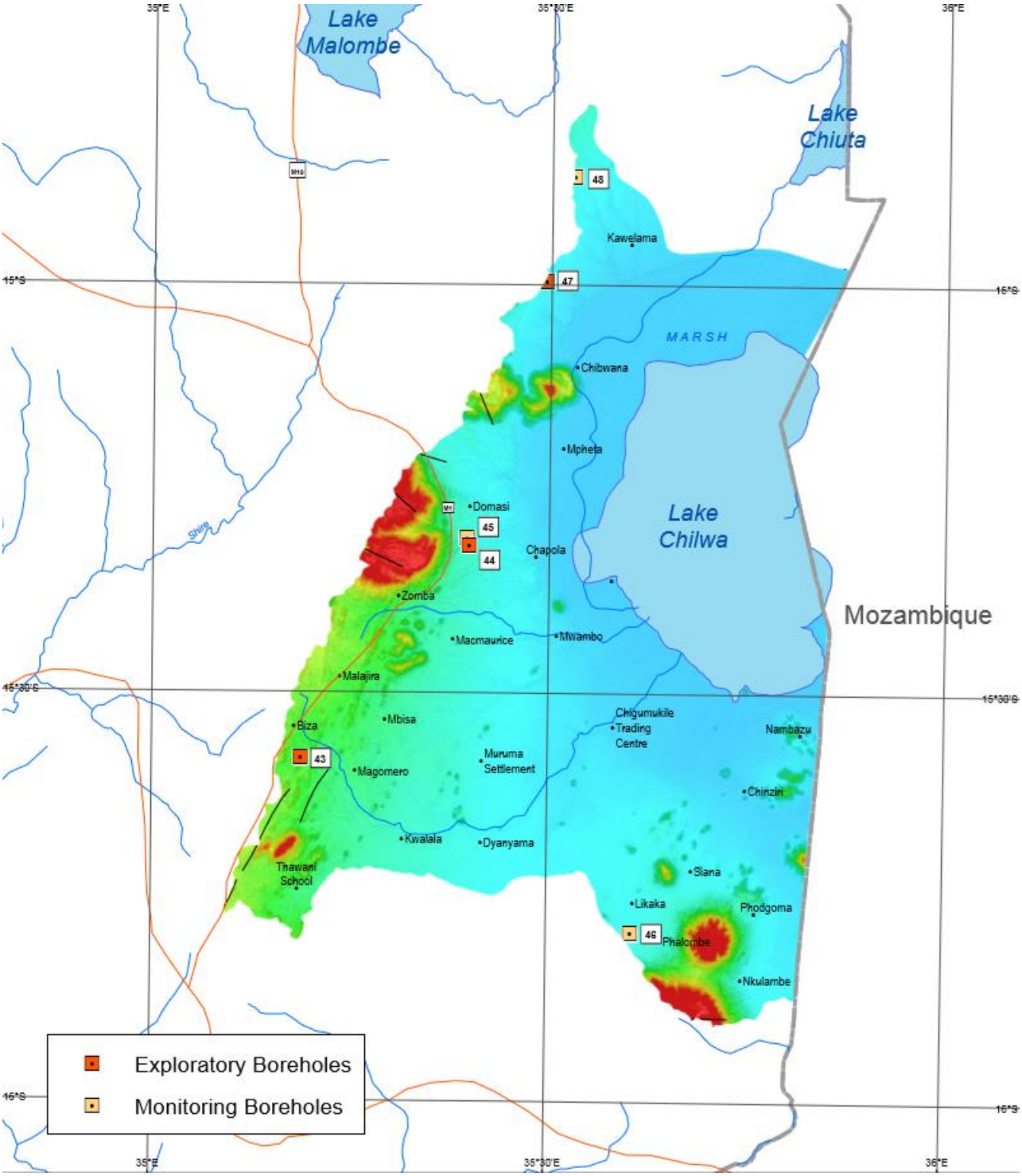

Figure 27: Location of water quality monitoring boreholes in Lake Chilwa catchment

Indicator(s)used in this assessment

No indicator used

Level of confidence of the above assessment

Based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Despite several initiatives being undertaken to reduce pollution threats, there is no proper monitoring system to measure pollution levels and whether initiatives being undertaken are effective or not. To a major extent, there has been a lot of solid waste management programs at district level that have led to reduction in solid waste accumulation. However, no monitoring system is in place to measure whether these initiatives are effective or not. Furthermore, there is need for a coordinated approach in monitoring all forms of pollution at country level.

Adequacy of monitoring information to support assessment

No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Only monitored through the NBSAP II M&E framework. In addition, the Department of Water Resources has its own indicators and standards which they use to monitor pollution.

National Target 11: By 2025, anthropogenic pressures on vulnerable ecosystems are minimized, thereby improving ecosystems resilience to climate change.

Just like other developing countries, Malawi is also vulnerable to climate change. Increased pressure on vulnerable ecosystems has resulted into increased vulnerability thereby reducing ecosystems resilience. The NBSAP II outlines the following actions, in order to contribute to national target 11;

- Promote alternative energy sources to fuel wood and charcoal;

- Promote sustainable livelihood programs such as bee keeping and mushroom production;
- Identify and promote REDD+ programs;
- Promote afforestation programmes;
- Promote initiatives on PES;
- Promote enforcement of legislation

Category of progress towards the implementation of the selected target:
Progress towards target but at an insufficient rate

Date the assessment was done
22nd December 2018

Additional information
Reducing anthropogenic pressures on vulnerable ecosystems that are disproportionately affected by climate change strengthens the resilience of these ecosystems, and provide more opportunities for them to adapt to climate-related impacts. In Malawi, wetland ecosystems are the most vulnerable to climate change impacts. Even though during the revision of the NBSAP, forest ecosystems were considered to be the most vulnerable hence the specified actions, wetlands have shown to be equally vulnerable. Currently the Lake Chilwa wetland, which is a wetland of international importance, has also dried up as a result of climate change. Coupled with anthropogenic pressures and lack of policies and management regimes in the catchment area, including massive deforestation, farming in river banks and diverting wetland water inlets for irrigation has resulted into increased siltation of the lake and further drying up. These threats undermine the ecological integrity and functioning of the ecosystem.

As reported in section II, Malawi has implemented several activities through the LCBCCAP, to enhance resilience and secure the livelihood of 1.5 million people who live in the basin. The programme focused on enhancing the resilience of rural communities surrounding the Lake Chilwa in line with Malawi's NAPA.

Several initiatives in the programme contributed to achievement of the target including tree planting as shown in Figure 28 below and natural regeneration of about 6,760 hectares of tree cover along degraded land including river banks. On increasing social resilience, the project enhanced capacity in agribusiness and livelihood through income generating activities like small livestock pass-on scheme, conservation agriculture, fish value addition, village savings and loan schemes and integrated agriculture aquaculture. For instance, within the Programme period, yield from conservation agriculture increased from 1,500 Kg/ha baseline to 3,500 Kg/ha.

Figure 28: Number of Seedlings planted in the LCBCCA

Further, the Building Social and Ecological Resilience project in the Lake Chilwa Basin implemented by Wolfish Centre aims at conducting baseline studies on critical ecological systems, processes and components such as biodiversity, water

resources, soil erosion and vegetation. There is need for Government to take up the results from these studies and implement the recommendations.

The effectiveness of the Communication and Outreach Strategy under the LCBCCAP resulted in replication of best practices in other programmes within and outside the Lake Chilwa basin through mutual synergy and feedback loops. Examples included the solar dryers for fish being replicated along Lake Malawi under Cultivate Africa Future Project (CultiAF), and the Ecosystem Approach (EA) being adopted by the More Action for Justice Initiative (MAJI) project implemented by Voluntary Service Overseas (VSO) in some districts in Central and Northern Malawi, Fisheries Integration for Society and Habitats (FISH) project implemented in Lakes Malawi, Malombe, Chilwa and Chiuta and the Attaining Sustainable Services from Ecosystems through Trade-off Scenarios (ASSETS) research project implemented in Zomba. Furthermore, forest restoration initiatives reported in section II also contribute to achievement of the target.

With regards to identification and implementation of REDD + programs, Malawi developed a national action plan for REDD+ which will be implemented over a five-year period. Through its implementation Malawi launched the UN-REDD Programme with the aim of assisting the country to develop a clear road map, objectives and vision for the formulation of a national REDD+ strategy.

With regards to alternative energy sources, Malawi has developed the NCS which highlights different alternatives the country can take to reduce pressure on the forest resources. More awareness needs to be carried out on the strategies identified.

Indicators used in this assessment

- The effectiveness of NBSAP strategies and actions for strengthening the resilience of vulnerable ecosystems to climate change impacts
- The effectiveness of NBSAP strategies and actions for restoring and safeguarding key ecosystems that provide key ecosystem services,

particularly food security, water security, carbon sequestration, livelihoods and disaster risk reduction.

Please describe any other tools or means used for assessing progress

The LCBCCAP also had its own monitoring system that were used in assessing the impact of the programme.

Relevant websites, web links and files

- https://www.taylorfrancis.com/books/e/9781351057097/chapters/10.4324%2F9781351057103-10
- https://www.researchgate.net/publication/260241663_Riparian_ecosystem_resilience_and_livelihood_strategies_under_test_Lessons_from_Lake_Chilwa_in_Malawi_and_other_lakes_in_Africa
- Chiotha, S.S., Likongwe, P.J., Sagona, W., Mphepo, G.Y., Likoswe, M. Tsirizeni, M.D., Chijere, A. and Mwanza, P. (2017). Lake Chilwa Basin Climate Change Adaptation Programme: Impact 2010 – 2017. LEAD SEA Publications, Zomba, Malawi. https://cepa.rmportal.net/Library/climate-change/lake-chilwa-basin-climate-change-adaptation-programme-impact-report-2010-2017

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

The LCBCCAP has been implemented from 2010 to 2017. The final project report revealed progress and monitoring indicators. Therefore, the assessment provided information to make conclusions on the implementation of the target.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring and evaluation framework for NBSAP II, the LCBCCAP had its own monitoring system to track changes. Further, the country has a monitoring system for all forest restoration programmes. There is need for the country to conduct an inventory of all vulnerable ecosystems to ensure that impact is measured whether the initiatives are effective or not.

Relevant websites, web links and files

- Chiotha, S.S., Likongwe, P.J., Sagona, W., Mphepo, G.Y., Likoswe, M. Tsirizeni, M.D., Chijere, A. and Mwanza, P. (2017). Lake Chilwa Basin Climate Change Adaptation Programme: Impact 2010 – 2017. LEAD SEA Publications, Zomba, Malawi. https://cepa.rmportal.net/Library/climate-change/lake-chilwa-basin-climate-change-adaptation-programme-impact-report-2010-2017
- www.cbd.int/mw-nbsap-v2-en.pdf

National Target 12: By 2025, the extinction of known threatened species is prevented and their conservation status is improved and sustained

Under target 12, Malawi planned to implement the following actions

- Update the National Red Data List;
- Increase connectivity between protected areas and wildlife home ranges both locally and internationally;
- Reintroduce species that have been locally extinct;
- Develop and implement strategies to manage threatened and endemic species;
- Conduct robust species monitoring using methods that account for both common and threatened species;
- Identify and characterize biodiversity hotspots;

- Ensure that current protected areas with special designations (biosphere reserves, Ramsar sites, world heritage sites) and actively seek and are able to access funds through these designations;
- Develop a National Action Plan for implementation of POWPA.

Category of progress towards the implementation of the selected target:

On track to exceed target

Date the assessment was done

22nd December 2018

Additional information

This is one of the targets that Malawi has made considerable progress on. With regards to updating the national red list, there are several initiatives that Malawi is taking to ensure that the red list is updated. The National Herbarium and Botanical Gardens collects information on different species and their conservation status. Through the Biodiversity information for the Lake Malawi catchment Eastern Africa project, The Fisheries Department is conducting research on fish species to assess status and distribution of freshwater species in the Lake Malawi catchment and raise awareness to improve their conservation and sustainable use. Some of the results from the research have already made it into the 2018 IUCN red list and will guide conservation initiatives in the country. The project has also revealed that almost three quarters of the country is a catchment area for the lake and therefore requires effective management regimes as shown in Figure 29 below;

Figure 29: Catchment area for Lake Malawi

Under GEF 6, Malawi planned to update a national red list data for all species. This will ensure that all conservation efforts for threatened species are guided by sound science. There is also need for scenarios on the conservation status for different threatened species to ensure prioritization of their conservation in government planning processes.

With regards to connectivity of protected areas, government entered into another agreement with APN to manage Mangochi Forest Reserve during the reporting

period, with an aim of increasing the elephant range and other species from Liwonde National Park. Kasungu National Park and Nyika National Park are also part of a trans frontier program with Zambia. Further, there are plans to connect Lengwe and Majete Wildlife Reserve which will ensure free movement of species between the two protected areas.

With APN taking over management of several protected areas in the country, species monitoring has been robust. In all the areas where APN is managing, there has been consistent species monitoring and reduced incidences of poaching. Most of the iconic species that have been reintroduced in the country are also thriving well. This has been reported extensively in section II.

Malawi is also part of the Elephant Protection Initiative (EPI) which aims to conserve Africa's elephants and build a sustainable future for its people. Through the initiative, Malawi has been able to produce its NEAP with the aim of protecting Malawi's elephants. Currently, Malawi's elephant range is estimated at 7,789 km^2 which is about 7% of the total area and about 89% is protected. With regards to plant genetic resources, the MPGRC ensures that germplasm for threatened plant species is available and supplied to local farmers for breeding.

MMCT in collaboration with FRIM and other organizations are also taking several initiatives to restore Mulanje Cedar on Mulanje Mountain. There have been trials to understand the suitability of growing the Mulanje Cedar in other areas across Malawi, in order to increase the growing range of the endemic species. Progress on restoration of Mulanje Cedar has also been adequately reported in section II.

Indicators used in this assessment

- The extent to which the extinction of known threatened species being prevented.
- The extent to which the conservation status of those species most in decline is improving or being sustained

- The effectiveness of NBSAP strategies and actions for preventing extinctions, and improving the conservation status of key species, including those species vulnerable to climate change impacts.

Level of confidence of the above assessment

Based on comprehensive evidence

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the monitoring system for the NBSAP II, monitoring is mostly done for large mammal species and where adequate funding is available. The NHBG for example, is expected to be updating the National red list quite often but due to inadequate funding, the red list has taken time to be updated.

Relevant websites, web links and files

- https://www.bgci.org/garden.php?id=1225
- https://www.frim.org.mw/

National Target 13: By 2025, the genetic diversity of wild and domesticated plants and animals is maintained and safeguarded

Under target 13, Malawi planned to implement the following actions;

- Document community practices and traditional knowledge on agro-biodiversity management;
- Develop guidelines for collection, characterization and conservation of germplasm;
- Conduct capacity-building initiatives on collection, characterization and conservation of species;

- Procure equipment for collection characterization and conservation of species;
- Update land use maps and management plans for biodiversity conservation sites;
- Conduct research on genetic variation of domesticated wild plants;
- Develop mechanisms to harmonize activities of organizations dealing with agro-biodiversity conservation (genetic material conservation);
- Promote cultivation of indigenous plant species such as fruits and vegetables to enhance their preservation;
- Maintain and promote local land races by establishing local community and provincial gene banks;
- Promote farmer's rights and collaborate on prioritization;
- Collect representatives of common flora and fauna currently not available in the Herbarium and Museums' Natural History collections;
- Conduct targeted conservation research in biodiversity hotspots.

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done

22nd December 2018

Additional information

As outlined in section II, considerable efforts have been made to achieve this target through implementation of the actions specified in NBSAP II. Through the Biodiversity Conservation Initiative (BCI), crop diversification, including indigenous crops, as one way of enabling smallholder farmers in the country to adapt to effects of climate change has been promoted. Further, seed and food fairs where farmers are able to display indigenous crop varieties have been conducted. Available agrobiodiversity has been documented including and their levels of utilization in four districts namely Rumphi, Mzimba, Dowa and Lilongwe districts. Some of the

agrobiodiversity documented include local crops such as denje, Bambara nuts, yams, sesame etc. Most of these indigenous crops are used as food and medicine.

Through field days, farmers, agro dealers, extension workers and researchers have been able to share skills and knowledge on different agriculture technologies and interventions. For example, through a field day held at Mkombezi Seed Bank in Rumphi, local farmers were able to share the information on the resilience of different local varieties of crops in the face of drought. Farmers have also been able to establish community seed banks with the aim of conserving agrobiodiversity.

Through ROAM, three agricultural technologies which could be implemented at a national-level across Malawi; agroforestry, conservation agriculture and farmer-managed natural regeneration have been identified. These technologies make use of native species in restoring degraded agricultural land, increasing yields and food security as a result contributes to achievement of the target by increasing the genetic diversity of plants on farmland.

Indicators used in this assessment

- The extent to which the genetic diversity of cultivated plants is being maintained.
- The effectiveness of NBSAP strategies and actions for ensuring fair and equitable sharing of benefits arising from the utilization of biodiversity, including genetic resources.

Relevant websites, web links and files

- https://portals.iucn.org/library/sites/library/files/documents/2017-029.pdf
- https://cepa.rmportal.net/Library/climate-change/lake-chilwa-basin-climate-change-adaptation-programme-impact-report-2010-2017

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Malawi is making progress in conserving agro biodiversity, however, most of these efforts have not been documented.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Through the NBSAP II Monitoring and evaluation framework

Relevant websites, web links and files

- https://www.mbc.mw/index.php/news/entertainment/item/5905-biodiversity-conservation-initiative-reintroduces-indigenous-crops

National Target 14: By 2025, level of protection on safe handling, transfer and use of Living Modified Organisms resulting from modern biotechnology that may have adverse impact on biodiversity is strengthened, taking into account risks to human health

In order to achieve target 14, Malawi planned to implement the following activities;

- Revise the Biosafety Act and regulations;
- Conduct public awareness campaigns on biosafety legislation;
- Develop and implement a National Biosafety Capacity Building Plan;
- Establish national systems for documentation, management and information sharing on biosafety;
- Establish an effective detection and monitoring system for biotechnology.

Category of progress towards the implementation of the selected target:

On track to achieve target

Date the assessment was done

22nd December 2018

Additional information

Although the capacity building plan has not been put in place, Malawi has made tremendous progress in training different stakeholders. With support from Biosafety partners, which include the Programme for Biosafety Systems (PBS) and NEPAD/ABNE, Malawi has trained various groups of stakeholders in biosafety issues. Some of the stakeholders trained include members of the Agricultural Technology Clearing Committee (ATCC which serves as an agricultural technical group of experts for scientific safety review of new crop varieties, institutional biosafety committee members and members of the National Biosafety Regulatory Committee (NBRC). Further, lawyers have been trained on biosafety laws and inspectors have also been trained compliance monitoring of confined field trials.

Table 7:National Capacity building on biosafety

YEAR	STAKEHOLDERS TRAINED	NUMBER TRAINED	AREA OF FOCUS
April 2017	NBRC and ATCC	39	Overview of the review process of CFT application. Elements of risk assessments.
Dec 2017	NBRC, ATCC	20	Awareness on emerging technologies, review of dossier
August 2018	Biosafety inspectors	15	Monitoring compliance to biosafety Laws
November 2018	Lawyers	20	Biosafety Legal Framework
February 2019	Biosafety stakeholders	24	Uses of the BCH and how to register information on the platform

Malawi is participating in Multi- Country project aimed at strengthening institutional capacities in LMO testing in support for national biosafety decision making. The project is being implemented in two laboratories one of which will be designated as a referral LMO testing Lab. The country conducted a legal review of

all biosafety legistration and recommended for a review to address the gaps identified and include some emerging technologies.

Indicators used in this assessment

- Number of people trained in biosafety issues
- Number of trainings conducted

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

There are a lot of activities on this target on the ground however not much has been documented and open to the general public. There is also need to ensure information on monitoring of introduction of GM crops is made available to the public for their understanding on the role of GM crops as well as their implications in the environment.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Through the NBSAP II monitoring and evaluation framework

Relevant websites, web links and files

- http://www.fao.org/food/food-safety-quality/gm-foods-platform/browse-informationby/country/country-page/en/?cty=MWI
- https://www.ncst.mw/?p=1798

National Target 15: By 2025, the supply of important ecosystem services is safeguarded and restored, taking into account gender roles and responsibilities of the youth, the poor and the vulnerable

Under target 15, Malawi planned to implement the following actions;

- Develop policy and legislative frameworks on biodiversity management that take into account the needs of vulnerable groups and gender roles;
- Develop and implement collaborative management programs for the terrestrial and aquatic ecosystems with the participation of vulnerable groups, including women;
- Conduct awareness-raising campaigns in the fringes of protected ecosystems on biodiversity management from a poverty and gender perspective.

Category of progress towards the implementation of the selected target:
Progress towards target but at an insufficient rate

Date the assessment was done
22nd December 2018

Additional information
Ecosystems provide a wide range of goods and services that are essential to humans. In Malawi, ecosystem services are particularly important for vulnerable sectors of society, who depend disproportionately on them for their wellbeing. However, many ecosystems have been degraded, and are in urgent need of restoration. The forest sector has done considerable work to assess the level of protection and therefore identified restoration initiatives that also take into consideration the needs of women, youth and local communities. These restoration initiatives have been adequately presented in section II.

A gender analysis that was carried out as part of the Forest Landscape Restoration (FLR) Opportunities Assessment, revealed the gender differences in perception of forest condition. The analysis also reinforces that the depletion of forest resources

disproportionally increases burdens on women as they play key role meeting household food and fuel needs. Malawi has been able to detail successful practices in planning gender-responsive, context-specific FLR activities. These practices have been very helpful in informing stakeholders involved in similar processes of best practices and lessons learned to ensure that local gender issues are fully and intentionally considered at project inception and continued through implementation. Forest landscape restoration initiatives have also been mapped (Figure 30) to indicate optimal areas for increasing the values of ecosystem services in areas where the proportion of women is high.

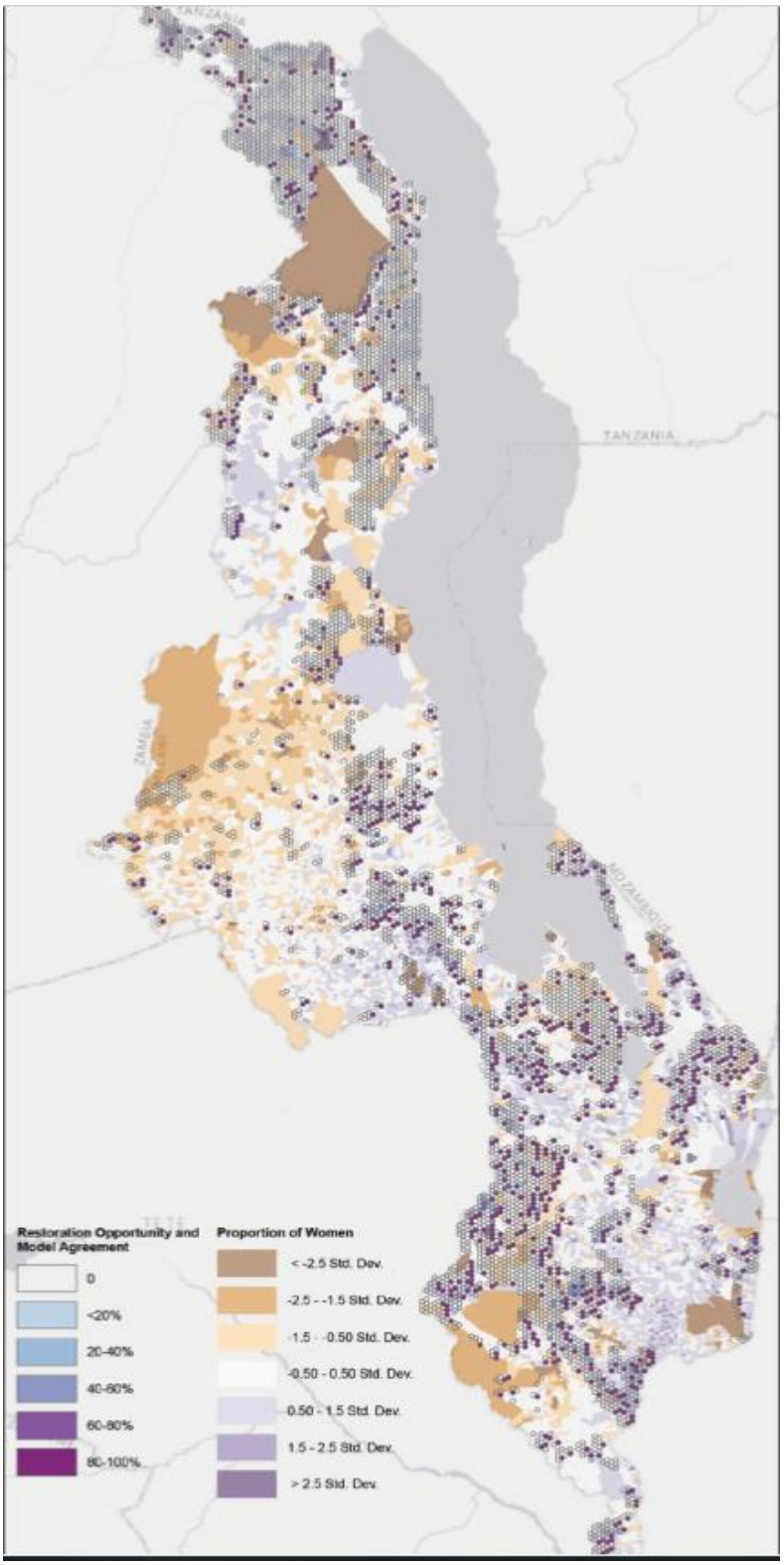

Figure 30: areas where restoration would optimally benefit ecosystem services, weighed towards areas where there are proportionally more women

PERFORM also conducted a gender analysis and provided recommendations for building the gender sensitivity and capacity of PERFORM staff, timesaving opportunities in support of women's project participation, and programmatic recommendations. As one way of implementing the National Forest Landscape Restoration Strategy, Malawi is currently implementing a 5-year FLR plan with a budget of US$7 million per year, and includes FLR interventions that will be specifically implemented through youth engagement.

With regards to collaborative management of biodiversity, both in aquatic and terrestrial ecosystems, local communities are part and parcel of the management of biodiversity. In the wildlife sector for example, local communities collect 20% realized from tourism in national parks. Similarly, in the fisheries sector, local communities are organised into Beach Village Committees (BVCs) where they formulate by laws in the management of fisheries resources and regulation of fishing activities. In the forestry sector, local communities also develop by laws to manage forest resources.

Indicators used in this assessment

- Trends in restoration of ecosystems that provide essential services.
- Ecosystems providing essential ecosystem services, such as water, food, livelihoods, disaster risk reduction, and the extent of their ecological integrity, threat and protection, are identified and mapped.
- Spatial data overlay of restoration potential against gender roles.

Relevant websites, web links and files

- https://portals.iucn.org/library/sites/library/files/documents/2018-031-En.pdf
- https://www.cbd.int/doc/c/2534/029e/ba8ecf0adbef614bf21f6bbb/cop-14-inf-18-en.pdf
- IUCN (2017). Gender-responsive restoration guidelines: A closer look at gender in the Restoration Opportunities Assessment Methodology. Gland, Switzerland: IUCN.

- https://afr100.org/sites/default/files/Malawi%20Youth%20Program%20One-Pager.pdf

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Malawi has conducted comprehensive assessments on forest landscape restoration and identified priority interventions to meet its restoration targets.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The NBSAP II monitoring framework does not have relevant indicators to adequately measure the target. For Forest Landscape Restoration initiatives, Malawi produced a monitoring framework however there is need for an integrated monitoring framework for all restoration initiatives in the country.

Relevant websites, web links and files

- https://afr100.org/sites/default/files/Monitoring_Malawi_Report_final_web.pdf

National Target 16: By 2025, access to genetic resources and traditional knowledge is regulated and benefits arising from utilization of the resources and associated traditional knowledge are shared in a fair and equitable manner.

Under target 16, Malawi planned to implement the following actions;

- Develop legislation on Access and Benefit Sharing (ABS) and Intellectual Property Rights (IPR);

- conduct sensitization on the ABS and IPR legislation at all levels.
- Develop a valorization strategy for Malawi;
- Strengthen capacity of institutions and local communities to effectively participate in negotiations, regulation and monitoring compliance of genetic resources (GR) and TK users;
- Establish an effective system for monitoring and tracking compliance to ABS legislation;
- Establish institutional and administrative structures to facilitate implementation of the Nagoya Protocol in Malawi;
- Establish an effective mechanism for documentation, management and sharing of information related to ABS and ensure effective participation in the Access and Benefit Sharing Clearing House (ABS-CH).

Category of progress towards the implementation of the selected target:
On track to achieve target

Date the assessment was done
22nd December 2018

Additional information
Malawi ratified to the Nagoya Protocol in 2015 and believes that effective ABS capacity building should be accompanied by awareness tools. During the reporting period, Malawi has carried out different awareness initiatives on the Nagoya protocol. Specifically, awareness raising meetings in 3 districts that are highest providers of genetic resources and are tourist areas were conducted in the reporting period. There has also been capacity building initiatives on ABS with the National Biodiversity Research Committee, different government Departments, the private sector and lawyers.

In 2017, Malawi enacted a revised Environment Management Act which contains substantial provisions to regulate and promote Access and Benefit Sharing in Malawi. The Act also provides for development of regulations and guidelines for

ABS issues in Malawi. The Act establishes an authority responsible for regulating access to genetic resources, equitable sharing of benefits, protect indigenous property rights and regulate trade in components of biological diversity. Furthermore, the Act establishes various committees such as the National Biodiversity Steering committee (NBSC) which is a policy making body that oversees biological diversity management, including ABS, in Malawi.

Through support from GIZ (ABS Capacity Development Initiative) and Norad and Fridtjof Nansen Institute (FNI) Malawi has also trained 17 officers from government Institutions, research and academic institutions on development of ABS contracts. Development of ABS guidelines is also currently underway. There has been a major financial challenge however to develop awareness raising materials for effective communication on ABS. Malawi needs to ensure that capacity building initiatives are implemented at all levels in government to ensure an understanding of ABS issues, ABS contracts and negotiation.

With regards to IPR, the NCST, Office of the Registrar General and the Copyright Association of Malawi have been conducting sensitization workshops on the role of traditional knowledge within the context of intellectual property rights.

It is, therefore, important that this protection adequately covers and includes all avenues that can be used by unscrupulous prospectors to collect and export Malawi's valuable genetic resources. It is also important that proper documentation be kept on genuine research efforts that involve the collection and export of such genetic resources and ensure that the associated Traditional Knowledge (TK) is well protected.

Level of confidence of the above assessment

Based on comprehensive evidence

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Apart from the NBSAP II monitoring framework, different institutions have their own monitoring systems depending on the type of genetic resource being sought. There is need for harmonization of the monitoring system to ensure coordinated reporting on ABS issues and achievement of the target. For example, the Department of fisheries has been monitoring exportation of ornamental fish and how much it contributes to the Malawi economy. The Fisheries Department reports that in 2016 alone, a total of 36,147 live fish was exported, generating approximately USD222,280, which was higher as compared to 31,397 live fish that were exported in 2015, generating USD204,765. The exports have mostly been to countries like Canada, Denmark, France, Germany, Hong Kong, Japan, South Africa, Sweden, Thailand, United Kingdom (UK), and USA, with Germany having the greatest value of exports.

Relevant websites, web links and files

- https://absch.cbd.int/pdf/documents/absNationalReport/ABSCH-NR-MW-238969/1
- GoM (2017); Annual Economic Report, Ministry of Finance, Economic Planning and Development, Lilongwe

SECTION IV: DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET

Malawi's national targets were developed in line with the Aichi biodiversity targets, and therefore this section will target mostly the Aichi targets that do not have related national targets and the contribution of Malawi to the SDGs.

Aichi Target 1: Biodiversity Awareness

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Table 8 below indicates which Sustainable Development Goals (SDGs) the country has contributed to;

Table 8: SDGs related to implementation of Aichi Target 1 and national target

SDG	Specific SDG Targets	Malawi's Progress
SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global	Contribution of preserving culture to national economy. Curriculum in primary and secondary schools. Number of trainings conducted by media.

	citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	

Aichi Target 2: Biodiversity Mainstreaming

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Through implementation of the Aichi target at country level, Malawi has contributed to the achievement of the following SDGs as shown in Table 9 below;

Table 9: SDGs related to implementation of Aichi Target 2 and national target 4

SDG	Specific SDG Targets	**Malawi's Progress**
SDG 1: End poverty in all its forms everywhere	Target 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial	Ecosystem Resilience

	services, including microfinance. Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate- related extreme events and other economic, social and environmental shocks and disasters.	
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	Target 8.4: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavor to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programs on sustainable consumption and production, with developed countries taking the lead. Target 8.9: By 2030, devise and implement policies to promote sustainable	Tourism contributes directly to GDP as a proportion of total GDP and in growth rate is at 7.2% according to the Malawi National Accounts and Balance of Payment (2016). Proportion of jobs in tourism industries as a proportion of total employment (National: Percentage contribution of tourism to direct employment per year (%) is at 2.9 according

	tourism that creates jobs and promotes local culture and products	to the Malawi National Accounts and Balance of Payment (2016).
SDG 15: Protect, restore and promote sustainable useof terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.	Biodiversity well integrated in the MGDS III and sector policies (wildlife, forestry, environment). Economic analysis of biodiversity earmarked to be conducted in two hotspots under IAS project.

Aichi Target 3: Incentives reformed

The Aichi target aims to ensure that by 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions. In Malawi, biodiversity and ecosystems maintain the flow of ecosystem services that are essential for human wellbeing, including economic development. Yet incentives and subsidies often encourage individual and organizational behavior that either fosters biodiversity loss and degradation. Since the multiparty democracy, Malawi has implemented the Farm Input Subsidy Programme (FISP), with the aim of enhancing food self-sufficiency by increasing smallholder farmers' access to and use of improved agricultural inputs, thereby boosting the incomes of resource-poor farmers.

However, the programme has also had its negative impacts on the environment. Firstly, the programme has affected land use by increasing the amount of land allocated to maize. The programme has mostly focused on providing improved maize seeds and fertilizer thereby monopolizing the sector with maize production. Such subsidies have contributed to pollution of soils and water bodies as well as increasing vulnerability of communities in eventualities of drought and floods due to lack of crop diversification.

Country Contribution

Since the program aims at enhancing food-security, Malawi has also implemented other programs to ensure diversification of the agricultural sector to increase resilience of the local communities. Through the MPGRC, local communities in Malawi have been encouraged to continue saving local seeds and their landraces as well as establishment of seedbanks that provide cushion during disasters since most of the local landraces are resilient to climate change.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the Aichi target at country level, has also contributed to the following SDGs as shown in Table 10 below;

Table 10: : SDGs related to implementation of Aichi Target 3

SDG	Specific SDG Targets	**Malawi's Progress**
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type is at 17.5 (SDG baseline report, 2016).

Aichi Target 4: Sustainable Production and Consumption

The Aichi target aims to ensure that by 2020, at the latest, governments, 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 natural resources use well within safe ecological limits. The unsustainable use of natural resources is one of the main drivers of biodiversity loss and the impairment of ecosystems in Malawi. Depletion of forest resources, the use of water beyond carrying capacity, the degradation of soil fertility, and the collapse of species resulting from overharvesting are some of the issues resulting in biodiversity loss in Malawi. Even though Malawi does not have a national target related to ABT 4, there has been progress contributing to the achievement of the ABT.

According to the National Charcoal Strategy (2017), almost 97% of the population relies on firewood or charcoal as their primary source of cooking and heating fuel. With alternative fuel sources underdeveloped, firewood and charcoal continues to form a significant part of Malawi's energy mix. The demand for charcoal and firewood is driving deforestation and forest degradation in Malawi, and is undermining agricultural productivity and food security, water security, and hydroelectric generating capacity, leaving the country more vulnerable to climate shocks. In Malawi, charcoal is almost exclusively derived from wood sources. its production is a growing livelihood source and its consumption is predominantly urban and growing.

Country Contribution

Through the National Charcoal Strategy (2017), Malawi is implementing several strategies to ensure sustainable production and consumption of firewood and charcoal. Key strategies being implemented include promotion of alternative household cooking fuels, promotion od sustainable wood production, promotion of adoption of fuel-efficient cook stove technologies and regulation of sustainable charcoal production.

Further, through different initiatives, different women groups have been transforming waste into wealth, by producing compost manure which is important for agricultural production.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the Aichi target has contributed to the following SDGs as shown in Table 11below;

Table 11:SDGs related to implementation of Aichi Target 4

SDG	Specific SDG Targets	Malawi's Progress
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services	10% of the population has access to electricity (NSO); whilst 1.8% of the population are using clean fuels and technologies for cooking, heating and lighting divided by total population reporting that any cooking, heating or lighting (MERA, 2015).
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land	Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands,	Forest area as a proportion of total land area is at 20% (Department of Forestry, 2016).

degradation and halt biodiversity loss	mountains and drylands, in line with obligations under international agreements. Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally. Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.	Number of sustainable charcoal production licences issued to organisations so far is at 2 (MNREM, 2015).

Aichi Target 5: Habitat loss halved or reduced

The Aichi target specifies that by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in table 12 below;

Table 12:SDGs related to implementation of Aichi Target 5 and national target 6

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally. Target 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world. Target 15.5:Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.	Over 63 million trees were planted mainly on customary land (Over 61 million trees) followed by in Government plantations. Natural regeneration was promoted on additional 400 hectares (MNREM, 2018). Annual rate of deforestation i.e degraded area as a proportion of forest area per annum is at 2.5 (MNREM, 2015). Red list index is at 0.8 (SDG Malawi Baseline report, 2016)

Aichi Target 6: Sustainable Fisheries

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

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the Aichi target also contributes to the following SDGs as shown in Table 13;

Table 13:SDGs related to implementation of Aichi Target 6 and national target 7

SDG	Specific SDG Targets	Malawi's Progress
SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Target 14.5: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	

Aichi Target 7: Sustainable Agriculture, aquaculture and forestry

The Aichi target specifies that by 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in Table 14below;

Table 14:SDGs related to implementation of Aichi Target 7 and national target 13

SDG	Specific SDG Targets	Malawi's Progress
SDG 2: End hunger, achieve food security and improve nutrition and promote sustainable agriculture	Target 2.4. By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	Proportion of agricultural area under productive and sustainable agriculture is at 46% (MoAIWD, 2015)
SDG 12: Ensure sustainable consumption and production patterns	Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources	

Aichi Target 8: Pollution reduced

The target aims to ensure that by 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in Table 15below;

Table 15: SDGs related to implementation of Aichi Target 8 and national target 10

SDG	Specific SDG Targets	Malawi's Progress
SDG 6: Ensure the availability and sustainable management of water and sanitation for all	Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.	Proportion of wastewater safely treated Proportion of bodies of water with good ambient water quality

Aichi Target 9: Invasive Alien Species

The target aims to ensure that by 2020, invasive alien species (IAS) and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

By implementing the target, Malawi has contributed to the achievement of the following SDGs as shown in Table 16below;

Table 16:SDGs related to implementation of Aichi Target 9 and national target 9

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.8: By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species.	national legislation and adequately resourcing the prevention or control of invasive alien species

Aichi Target 10: Ecosystems vulnerable to climate change

Reducing anthropogenic pressures on vulnerable ecosystems that are disproportionately affected by climate change strengthens the resilience of these ecosystems, and provide more opportunities for them to adapt to climate-related impacts. One of the ecosystems vulnerable to climate change impacts in Malawi are wetlands, where over the years, most of them have dried up. The target aimed at ensuring that by 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification, are minimized, so as to maintain their integrity and functioning.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

By implementing the target, Malawi has contributed to the achievement of the following SDGs as shown in Table 17;

Table 17:SDGs related to implementation of Aichi Target 10 and national target 11

SDG	Specific SDG Targets	Malawi's Progress
SDG 13: Take urgent action to combat climate change and its impacts	Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	Ecosystems vulnerable to climate change e.g. wetlands

Aichi Target 11: Protected Areas

Conserving biodiversity through networks of protected areas (PA) and other conserved areas is a critical tool to safeguarding species and ecosystems from human impacts. The CBD adopted the following definition of protected areas to include not just state owned protected areas, but a wide range of areas that allow for sustainable use, including areas owned by indigenous and local communities. Aichi Biodiversity target 11 aims to ensure that by 2020, at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Country Contribution

Even though Malawi did not have a specific national target related to ABT 11, considerable progress has been made to contribute to its achievement. Through the National Forest Landscape Restoration Assessment, Malawi assessed the gaps in Forest Protected area management, identified key weaknesses and threats, as well as identified take steps to improve PA coverage, representativeness,

connectivity and management effectiveness which have now been laid out in the National Forest Landscape Restoration Strategy.

Through the National Forest Programme, local communities have been given the authority to establish and manage village forest areas in order to preserve biological resources on which their livelihoods depend on.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Through implementation of the ABT, Malawi has contributed to the achievement of the following SDGs as shown in table 18below;

Table 18:SDGs related to implementation of Aichi Target 11

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.	Status and condition of ecosystems in protected areas as shown in Maps show that most of the ecosystems are less represented, endangered, vulnerable, and not natural.

Aichi Target 12: Species and Extinction

Aichi Target 12 specifies that by 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Achievement of the target at country level has contributed to the following SDGs as shown in table 19below;

Table 19: SDGs related to implementation of Aichi Target 12 and national target 12

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.	Red list index already provided above
	Target 15.7: Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	Proportion of traded wildlife that was poached or illicitly trafficked

Aichi Target 13: Safeguarding Genetic Diversity

The genetic diversity of cultivated plants and domesticated animals, and of their wild relatives, is declining globally. In Malawi, genetic diversity is critical to maintaining food security, and to ensuring a robust, resilient agricultural system that can adapt to the impacts of climate change, including genetic stocks that are resistant to drought, disease, floods and temperature fluctuations. The target aims to ensure that by 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in Table 20below;

Table 20: SDGs related to implementation of Aichi Target 13 and national target

SDG	Specific SDG Targets	Malawi's Progress
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Target 2.5: By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote	2.5.1 Initiatives are underway to develop facilities for securing plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities. 2.5.2

	access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	Efforts underway to assess the proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction.

Aichi Target 14: Ecosystem Services

ABT 14 specifies that by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities and the poor and vulnerable.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in table 21below;

Table 21:SDGs related to implementation of Aichi Target 14 and national target 15

SDG	Specific SDG Targets	Malawi's Progress
SDG 6: Ensure the availability and sustainable management of water and sanitation for all	Target 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.	Change in the extent of water-related ecosystems over time

Aichi Target 15: Climate resilience, sequestration and restoration

ABT 15 focuses on strengthening climate resilience and carbon sequestration through ecosystem restoration. ABT 15 states: "By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least fifteen percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation, and to combating desertification." Restoring degraded ecosystems can simultaneously increase carbon sequestration, improve climate resilience, and restore essential ecosystem services and safeguard biodiversity.

Country Contribution

With regards to restoration initiatives, Malawi has made very considerable progress and have been reported under Section III.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Through implementation of the target, Malawi has contributed to the following SDGs as shown in table 22below;

Table 22: SDGs related to implementation of Aichi Target 15 and national targets 8 and 11

SDG	Specific SDG Targets	Malawi's Progress
SDG 5: Achieve gender equality and empower all women and girls	Target 5.1: End all forms of discrimination against all women and girls everywhere Target 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-	Gender is mainstreamed in various programs and strategies i.e. NBSAP, IAS project,

	making in political, economic and public life.	
SDG 6: Ensure the availability and sustainable management of water and sanitation for all	Target 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.	

Aichi Target 16: Access and Benefit Sharing

Aichi target 16 states that by 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in force and operational, consistent with national legislation. The fair and equitable sharing of the benefits, arising out of the utilization of genetic resources of biodiversity, is one of the three objectives of the Convention on Biological Diversity.

Country Contribution

Malawi ratified to the Nagoya protocol in 2014. Malawi has also taken considerable measures to implement the protocol as outlined in Section III.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in Table 23below;

Table 23:SDGs related to implementation of Aichi Target 16 and national target 16

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.6: Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.	Malawi has developed national guidelines on ABS, Environment Management Act (EMA) revised and incorporated a component on ABS, Strategy on ABS has been developed with clear actions and timelines.

Aichi Target 17: NBSAPs

Aichi biodiversity 17 focuses on the development and implementation of National Biodiversity Strategies and Action Plans (NBSAPs). It states that by 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan."

Country Contribution

Malawi adopted its NBSAP II in 2015 with 5 strategic goals and 16 national targets which were developed in line with the Aichi Biodiversity Targets. Further the MGDS III recognizes the NBSAP II as a key policy document for conservation of biodiversity in Malawi and encourages its effective implementation for the achievement of national development goals. This report also provides information on how Malawi has made progress in the implementation of its revised NBSAP.

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of this target at country level contributes to the following SDGs as shown in Table 24below;

Table 24: SDGs related to implementation of Aichi Target 17

SDG	Specific SDG Targets	Malawi's Progress
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss	Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.	NBSAP II developed and biodiversity mainstreamed in national planning (MGDS III).
SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive intuitions at all levels	Target 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels.	16.7.1 Proportions of positions (by sex, age, persons with disabilities and population groups) in public institutions (national and local legislatures, public service, and judiciary) compared to national distributions 16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group
SDG 17: Strengthen the means of implementation and revitalize the global	Target 17.9 Enhance international support for implementing effective and	Plans are underway to conduct biodiversity expenditure review in 2019

partnership for sustainable development	targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.	through the Biodiversity Finance (BIOFIN) Project.

Aichi Target 18: Traditional Knowledge

Aichi Target 18 states that by 2020, the Traditional Knowledge (TK), innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels. ” This target also includes the body of knowledge built by indigenous and local communities over generations. TK can contribute to both the conservation and the sustainable use of biodiversity. TK is especially important in ensuring the diversity of biodiversity and natural resource management practices required to enable adaptation to climate change impacts.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the Aichi target also contributes to the following SDGs as shown in Table 25below;

Table 25:SDGs related to implementation of Aichi Target 18 and national target

SDG	Specific SDG Targets	Malawi's Progress
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Target 2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.	The Sustainable Development Targets do not explicitly mention indigenous and local communities, however, there is one on seed and plant banks which has already been reported on genetic resources.

Aichi Target 19: Science and research

Improving, sharing and applying scientific knowledge and research is an important element for biodiversity conservation. ABT 19 states that by 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied. Sound scientific data is required in Malawi to implement the strategies that are set out in NBSAP II. Further, effective systems that help policy makers translate data into information for better decision-making are very important to ensure the country's contribution to the target.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in table 26 below;

Table 26:SDGs related to implementation of Aichi Target 19 and national target 1

SDG	Specific SDG Targets	Malawi's Progress
SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development	Target 17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism when agreed upon. Target 17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed. Target 17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing states, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.	

Aichi Target 20: Resource Mobilization

Mobilizing the financial resources required to implement the NBSAP II is an important element to ensure the goals and targets set in the NBSAP are effectively met. ABT 20 states that by 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels.

Country Contribution

Refer to Section III

Contribution to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

Implementation of the target has contributed to the following SDGs as shown in Table 27below;

Table 27:SDGs related to implementation of Aichi Target 20 and national target

SDG	Specific SDG Targets	Malawi's Progress
SDG 1: End poverty in all its forms everywhere	Target 1.a: Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies	

	to end poverty in all its dimensions	
SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development	Target 17.3: Mobilize additional financial resources for developing countries from multiple sources.	

Malawi has also revised different sectoral policies within the reporting period to ensure mainstreaming of biodiversity. Among others, the National Forestry Policy and the National Fisheries and Aquaculture Policy were revised. The National Wildlife Act was also revised to include stiffer penalties for wildlife crime.

Human and institutional capacity has also been improved through institutions of higher learning, with Mzuzu University, Malawi University for Science and Technology, Lilongwe University of Agriculture and Natural Resources and the University of Malawi running courses and programs on biodiversity and culture.

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020:

See sections III and IV

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.):

In addition to revision of different policies within the reporting period, the Environmental Affairs Department and other sectors have coordinated capacity building initiatives in different areas for example, access and benefit sharing, biosafety, biodiversity mapping and mainstreaming in order to support implementation of the NBSAP. Through initiatives like the Bio Bridge on country collaboration on biodiversity valuation with Uganda, the BIOFIN and the Mapping

biodiversity project, Malawi is strengthening its capacity to effectively implement the NBSAP.

Further, Malawi revised the Environment Management Act in 2017 which includes provisions on access and benefit sharing, management of mountain and aquatic ecosystems, which for a long time were not given consideration.

Mechanisms for monitoring and reviewing implementation:

Through the NBSAP revision process, Malawi developed a monitoring and evaluation framework. Further, different strategies have their own monitoring systems. There is need to coordinate such monitoring frameworks.

SECTION VII. UPDATED BIODIVERSITY COUNTRY PROFILE

Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions

The major ecosystems in Malawi are terrestrial and aquatic, the latter comprising around 20% of the total surface area. The greatest diversity of plants and animals exists in the country's 87 protected areas (90% of which are forest reserves). Malawi boosts over 6,000 flowering plant species which includes 400 orchid species. Animal species comprise both vertebrates and invertebrates. The reintroduction of cheetah and black rhinos in the reporting period has increased the number of mammal in Malawi. About 83 species of amphibians have been recorded in Malawi, of which 6 species are endemic and 12 threatened. The country has 145 species of reptiles, of which 12 are endemic and six rare. There are 650 known bird species, of which 4 are endemic and 7 threatened. The total number of fish species found in Malawi is estimated to be in excess of 1000 species. Over 800 fish species have been described in Lake Malawi, 95% being haplochromine cichlids, and 99% of which are endemic to the Lake. Figure 31 below, shows the distribution of threatened species and Figure 32 shows key bird areas in Malawi.

The biodiversity surveys carried out in the Elephant Marsh within the reporting period, reveal that about 84 species of amphibians occur in Malawi including two unidentified species (*Leptopelis sp and Phryonobatrachus sp*). It also reports that none of the Malawi's amphibians are affected by international trade and therefore none is regulated through CITES. With regards to reptiles, the report reveals that the country has approximately 130 species. The report further reveals additional reptile species of concern that were not presented in the Fifth National Report to the Convention and are presented in Table 28 below;

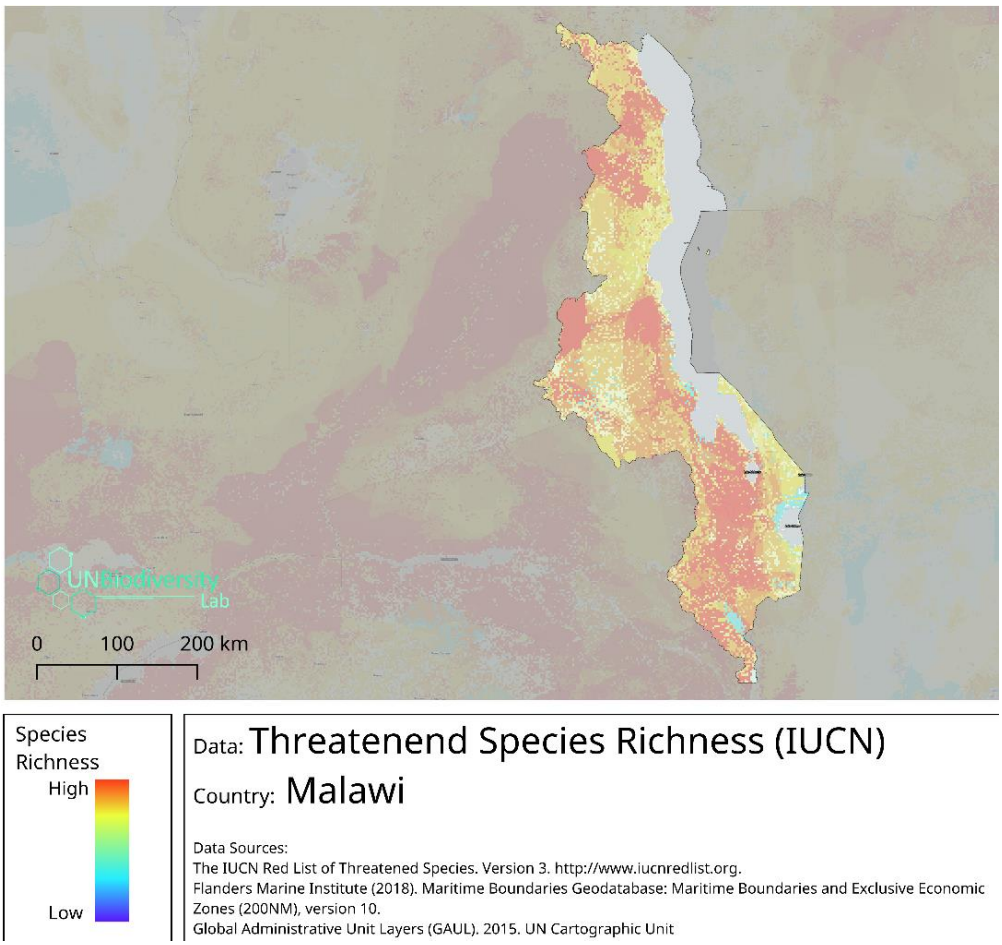

Figure 31::Threatened species richness

Table 28: Additional Reptiles Species of Concern and regulated by CITES

Common Name	Scientific Name	IUCN	Endemic	CITES
Southern African Python	*Python natalensis*	LC		II
Chapman's Pygmy Chameleon	*Rhampholeon chapmanorum*	CE	Yes	II
Sword-nosed Chameleon	*Trioceros melleri*	LC		II
Flap-necked Chameleon	*Chamaeleo dilepis*	LC		II
King Dwarf Day Gecko	*Lygodactylus rex*	LC	Yes	
Rock Monitor	*Varanus albigularis*	LC		II
Nile Monitor	*Varanus niloticus*	LC		II
Zambezi Soft-shelled Terrapin	*Cycloderma frenatum*	NT		
Spek's Hingeback Tortoise	*Kinixys spekii*	LC		II
Mulanje Flat Lizard	*Platysaurus mitchelli*	LC	Yes	

Source: Biodiversity of the Elephant Marsh, 2016

Terrestrial and aquatic ecosystems are being modified, degraded and species composition altered due to the unsustainable utilization and management of natural resources. Tree cover in most parts of the country has been markedly reduced due to continuous degradation in surrounding areas. The National Charcoal Strategy (2017) indicates that demand for charcoal is growing considerably and will continue to do so into the foreseeable future. Furthermore, while the percentage of households that relied on firewood as their primary source of cooking fuel decreased from 92% in 1998 to 86% in 2014, when population growth over this period is factored in, there is a net increase in the number of households using firewood. The report further reveals that based on 2008 per capita consumption data, urban household demand for charcoal in 2016 was projected at more than 253,400 tons which will require 2.35 million m^3 of wet wood and could clear more than 25,000 ha of forest land to meet the demand.

Being an agro-based economy, agricultural ecosystems, forests and fisheries are important sectors to the national economy. According to the Annual Economic report (2017), the agriculture, forestry and fisheries sectors contributed 27.6% to the GDP and projected that it will contribute 27.7% in 2018.

Figure 32: : KBAs in Malawi

In the fisheries sector, Lake Malawi alone registered a total landing of 147,972 tons of fish catch, representing 94.1% presenting it as a major source of fish for the country in 2016. Recent data and information concerning Malawi's fisheries industry is limited. Lake Malawi however continues to be under threat from climate change, anthropogenic pressures as well as the expected oil exploration.

Main pressures on and drivers of change to biodiversity (direct and indirect)

The fifth national report to the CBD reported habitat loss and fragmentation, overexploitation of biodiversity, invasive alien species, pollution and climate change as the main pressures for biodiversity in Malawi. Within the reporting period, there has not been any identified new pressures.

Measures to enhance implementation of the Convention

Implementation of the NBSAP:

Malawi has taken considerable efforts to implement the NBSAP. Through the partnership with African Parks Network, protected area management effectiveness has increased, species have been reintroduced and restocked in some protected areas as well as increased revenue collection through improved tourism facilities. Table 29 below indicates the species that have been reintroduced and translocated to Liwonde National Park, between 2017 and 2018.

Table 29: Translocations to Liwonde National Park

Species	2017	2018
Eland	23	
Zebra	25	
Hartebeest	7	
Cheetah	7	
Lion		9

Source: African Parks

Malawi has also revised different sectoral policies within the reporting period to ensure mainstreaming of biodiversity. Among others, the National Forestry Policy and the National Fisheries and Aquaculture Policy were revised. The National Wildlife Act was also revised to include stiffer penalties for wildlife crime.

Human and institutional capacity has also been improved through institutions of higher learning, with Mzuzu University, Malawi University for Science and Technology, Lilongwe University of Agriculture and Natural Resources and the University of Malawi running courses and programs on biodiversity and culture.

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020:

See sections III and IV

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.):

In addition to revision of different policies within the reporting period, the Environmental Affairs Department and other sectors have coordinated capacity building initiatives in different areas for example, access and benefit sharing, biosafety, biodiversity mapping and mainstreaming in order to support implementation of the NBSAP. Through initiatives like the Bio Bridge on country collaboration on mainstreaming with Uganda, the BIOFIN and the Mapping biodiversity project, Malawi is strengthening its capacity to effectively implement the NBSAP.

Further, Malawi revised the Environment Management Act in 2017 which includes provisions on access and benefit sharing, management of mountain and aquatic ecosystems, which for a long time were not given consideration.

Mechanisms for monitoring and reviewing implementation:

Through the NBSAP revision process, Malawi developed a monitoring and evaluation framework. Further, different strategies have their own monitoring systems. There is need to coordinate such monitoring frameworks.