



GOVERNMENT OF MALAWI

INTERIM

First National Report to the Convention on Biological Diversity

Ministry of Forestry, Fisheries & Environmental Affairs,
Environmental Affairs Department,
Lingadzi Mouse,
Private Bag 394,
LILONGWE 3.
Malawi

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Foreword

The Malawi Constitution, Chapter III, Section 13 (d) calls upon the State “to manage the environment responsibly in order to:

- (i) prevent the degradation of the environment;
- (ii) provide a healthy living and working environment for the people of Malawi;
- (iii) accord full recognition to the rights of future generations by means of environmental protection and sustainable development of natural resources, and
- (iv) conserve and enhance biological diversity of Malawi.”

In pursuance of the constitutional responsibility and in response to the agreement made under the RIO CONFERENCE held in Brazil, in June 1992, Malawi produced a National Environmental Action Plan (NEAP) which detailed the country's environmental situation with proposals on how environmental degradation can be slowed down, arrested or even reversed.

The National Environmental Action Plan, which was produced through participatory approach by all stakeholders, identified the threat to the biological resources and diversity as one of the environmental problems facing Malawi requiring urgent action. The signing of the Convention on Biological Diversity at the RIO CONFERENCE was therefore a timely development for the Government of Malawi.

Further, the NEAP indicated that the causal chains of environment and natural resource degradation are complex and intertwined. The nexus of population growth, poverty, illiteracy and lack of environmental and biological diversity information has contributed to the current environmental degradation including the destruction of habitats and loss of biological diversity in the country.

Biological diversity is the richness of species, both plant and animal, that make up Earth's realm. Biological diversity refers to individual species and embraces communities of organisms, ecosystems and entire landscapes. It is everything from micro-organisms that keep soil fertile and predators that keep animal populations healthy, to specific plant species that provide animals with shelter and food. Human changes to natural landscapes are reducing biological diversity at a drastic rate, destroying the health of the land. As we cut down forests and over-graze our range and grazing land, we alter the conditions that enable flora and fauna to thrive. Malawi, being an agriculture-based for her social and economic development, biological diversity forms the pillar for achieving sustainable development in the country.

In line with the Malawi Constitution, National Environmental Action Plan, National Environmental Policy, Environmental Management Act, Environmental Education and Communication Strategy, National Population Policy and other sectoral Acts and Policies in Forestry, Fisheries, National Parks and Wildlife, Agriculture and Livestock, Water Resources, Energy and Mining, Land-use Management, Physical Planning, National Herbarium and Botanic Gardens, and Tourism, amongst others; Malawi seeks to develop strategies and action plans to ensure that there are integrated and comprehensive measures put in place for conservation, sustainable use and fair and equitable sharing of benefits arising from the use of biological resources in the country. Harmonised and comprehensive sectoral, and cross-sectoral conservation legislation into the various national policies, plans and programmes will enhance Malawi's National Biodiversity Strategies and Action Plans.

The National Strategy and Action Plan seeks to:-

- (a) promote the efficient utilisation and management of the country's natural resources;
- (b) facilitate the rehabilitation and management of habitats, essential ecosystems and ecological processes;
- (c) enhance public education and awareness of the importance of sound and sustainable management of biological resources and diversity in Malawi through national, regional, district and area level campaigns for all stakeholders in government ministries and departments, the non governmental organisation (NGOs), community-based organisations (CBOs), parastatals, the University, the business community, the private sector and the local communities.
- (d) Introduce appropriate measures requiring environmental impact assessment of proposed projects that are likely to have significant adverse effects on biological diversity with a view to minimise or avoid such effects where possible, and allow for public participation in such procedures;
- (e) Ensure that Indigenous Knowledge Systems are documented and accounted for in line with Intellectual Property Rights to achieve fair and equitable sharing of benefits arising from the use of biological resources in the country.

Although the Government has already taken measures to implement some of the provisions of the Convention on Biological Diversity, there is still more that needs to be done. Our co-operative effort will continue to seek ways and means of participatory approach to broaden the strategies, actions, plans and debate on biological diversity matters through published research on key issues, workshops, briefings, campaigns and other mechanisms to ensure that the conservation, sustainable use and the fair and equitable sharing of benefits arising from the use of biological resources in Malawi is achieved.

It is my sincere hope and wish that all Malawians will join hands to implement the strategies and actions that will result from the National Biodiversity and Action Plan as a pillar for biological diversity conservation, sustainable use and fair and equitable sharing of benefits from the use of biological resources debate in the country for both the present and future generations of Malawi.

***Minister for Forestry, Fisheries and
Environmental Affairs***

Acknowledgements

This report is a product of co-operative effort of local Malawi experts and relevant stakeholders involved with biological diversity issues in the country. Experts worked through eight (8) components of plants, micro-organisms, wild and indigenous animals, ecosystems, review of conservation legislation, domesticated and introduced species, land-use management and biodiversity conservation, and inventory of literature on biodiversity in Malawi.

Extensive inquiry and discussion followed the work of these experts at a Technical experts national workshop held at Nkopola Lodge in Mangochi whose main objective was to reach a general consensus of the interim First National Report before submission to UNEP in Nairobi-Kenya and the CDB Secretariat in Montreal-Canada. The document gained much from the collective experience and consultation from these experts and the other stakeholders at the Mangochi workshop. The hard work and dedication of the experts and all the stakeholders in the whole process deserve a special thanks.

The National Biodiversity Strategy and Action Plan secretariat is indebted to the Chairman of the Malawi Biodiversity Committee, the Director of Environmental Affairs, Task Force Leaders and members of all the eight components of the National Biodiversity Strategy and Action Plan (NBSAP) project and all the participants to the Technical Experts Workshop on the First National Report to the CBD for their valuable contribution.

The Government of Malawi is grateful to the Global Environment Facility (GEF) and United Nations Environment Programme (UNEP) for the financial and technical support without which this interim First National Report would not have been developed and the NBSAP process initiated.

Malawi was one of the first few countries to sign the Convention on Biological Diversity at the United Nations Conference on Environment and Development (UNCED) popularly known as “*The Earth Summit*” in Rio de Janeiro- Brazil on 15th June, 1992 and ratified it on 28th February, 1994. The signing of the Convention was a timely development which will enable the country to address the conservation of Biological Diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources, including by appropriate access to genetic resources, taking into account all rights over those resources; transfer of relevant technologies, taking into account all rights to technologies; and funding.

The Government of Malawi has been very committed to the Convention on Biological Diversity since the early days of the technical experts meetings for laying the principal elements for the negotiations for the Convention on Biological Diversity in 1988-1990 up to the Nairobi Final Act of 22nd May, 1992 and finally the signing of the Convention at the UNCED-“*Earth Summit*” in Rio de Janeiro - Brazil on 15th June, 1992. Since ratification, the Government has taken a number of actions aimed at laying the institutional framework and capacity for the implementation of the provisions of the Convention on Biological Diversity. These include:

- (i) The enshrining of the protection and managing of biological diversity of the Constitution of the Republic of Malawi, (1994) **Cap.III. Section 13 (d) i-iv.**
- (ii) The launching of the National Environmental Action Plan (NEAP) in December 1994.
- (iii) The establishment in 1994 of the Ministry of Research Environmental Affairs, which among other objectives, was charged with the responsibility of co-ordinating the conservation of biological diversity matters in the country.
- (iv) Review of old legislation and re-enacting of new instruments pertaining to the conservation and sustainable use of biological resources, **namely:**
 - (a) Forestry Act;
 - (b) National Parks and Wildlife Act;
 - (c) Fisheries Act.
- (v) Establishment of new legislation/instruments/bodies to deal with biological diversity **namely:**
 - (a) Environmental Management Act;
 - (b) Malawi Biodiversity Committee;
 - (c) Other National Committees for GEF, IUCN, MAB, CITES, RAMSAR, amongst others.

- (vi) Public Education and Awareness:
 - (a) World Environment Day;
 - (b) International Biodiversity Day;
 - (c) National Tree Planting Day;
 - (d) “*Pride of Malawi*”; and “*You and the Environment*” local Radio Programmes featuring environmental degradation /biodiversity conservation activities in the country;
 - (e) National Environmental Education and Communication Strategy.

- (vii) Support for biodiversity projects/activities.
 - (a) Lake Malawi/Nyasa/GEF Biodiversity Project;
 - (b) Mulanje Mountain Conservation Trust (MMCT)GEF Project;
 - (c) IUCN-Lower Shire Regional Wetlands Project;
 - (d) Vwaza-Nyika GTZ Border Zone Protection Project;
 - (e) Community Based Natural Resource Management (CBNRM) under USAID-Nature Programme;
 - (f) Southern Africa Biodiversity Network: GEF/USAID Project;
 - (g) Co-ordination of Southern African Development Community (SADC) Biodiversity Sector;
 - (h) National Biodiversity Strategy and Action Plan;
 - (i) Lake Chilwa DANIDA Project;
 - (j) Initiative of the Southern Africa Biodiversity Forum;
 - (k) Southern African Biodiversity Network (SABONET).

Other pertinent Acts which are supposed to protect biodiversity include:-

- (a) Patent Act;
- (b) Intellectual Properties Rights (IPR) Act;
- (c) The Land Act;
- (d) The Town and Country Planning Act;
- (e) The Electricity Act;
- (f) The Local Government (District Councils) Act;
- (g) The Local Government (Urban Areas) Act;
- (h) The National Herbarium and Botanic Gardens Act;
- (i) The Water Resources Act;
- (j) The Waterworks Act;
- (k) The Mines and Minerals Act;
- (l) The Petroleum(Exploration and Production) Act;

Relevant Policies and Action Plans that affect biological diversity are:-

- (a) National Population Policy;
- (a) The National Environmental Action Plan (NEAP);
- (b) National Environmental Policy (NEP);
- (c) The Agricultural and Livestock Strategy and Action Plan;
- (d) The Water Development Strategy and Action Plan.

The objectives of the National Biodiversity and Action Plan are to:

- Document the biological diversity of Malawi covering plants, animals, micro-organisms, genetic materials and ecosystems;
- determine the conservation status of the various components of Biological diversity in the country;
- Create a data base and establish a public awareness programme for biological resources and diversity in Malawi;
- formulate National Strategies, Action Plans, and Programmes for the conservation, sustainable use and the fair and equitable sharing of its benefits;
- assess and evaluate current indigenous knowledge systems pertaining to the conservation, sustainable use and the fair and equitable sharing of its benefits;
- identify gaps in the knowledge-base and efforts to conserve and sustainably use biological diversity, and fairly and equitably share its benefits;
- foster collaboration between neighbouring countries in the conservation and sustainable use of biological diversity, and the fair and equitable sharing of its benefits;
- Determine the social-economic value of biological diversity and the benefits arising from conservation and sustainable use thereof;
- Assess the capacity of institutions and personnel in meeting the demands imposed by the requirement to conserve, sustainably use, and fairly and equitably share the benefits arising from the use of genetic resources of the country's biological diversity;
- Assess and identify biological resources requiring immediate statutory protection;
- integrate biological diversity conservation, sustainable use and the fair and equitable sharing of its benefits into sectoral, cross-sectoral policies, plans and programmes in the country.

Another strategy that the Government of Malawi has put in place is the National Environmental Education and Communication with the main objective of raising awareness of the complexity of the environment, environmental issues and methods of sustainably managing the environment and other life-support systems to the people of Malawi. Within this strategy the people are taught (through both formal and non-formal means) the major factors that are threatening biological diversity in the country including: -

- Over-harvesting of resources e.g. over-fishing in Lake Malawi and other lakes and other river systems; and deforestation in many forest and catchment areas of the country;
- Increased population pressure which has increased pressure on the natural resources and biological diversity of the country causing habitat destruction;
- Poaching which threatens a number of protected species within National Parks and Wildlife Reserves;
- Illiteracy which is greater than 60 percent in the population of the country contributing to problems of disseminating sustainable environmental and biological diversity information; and
- Pollution of lakes and rivers due to unauthorised discharge of sewage and cultivation of marginal areas, catchments and other protected areas; amongst others.

The National Biodiversity Strategy and Action Plan is directed at all stakeholders and all the parties involved in the management and utilisation of biological resources, ecosystems, literature and the concomitant legislation in the country. These stakeholders and parties include all decision-makers in Government ministries and departments, the University and other parastatals, NGOs, CBOs, political parties, religious groups, traditional leaders, herbalists, fuel/charcoal sellers, wood-carvers and crafts persons, the media and the civil society at-large since the rich biological diversity forms part of the national heritage and asset of the country that needs to be sustainably used and preserved for both the present and future generations.

BACKGROUND

Recognising the importance of biological diversity in the socio-economic development of the country and realising the severe destruction of ecosystems and habitats, the Government of Malawi has enacted in its new Constitution (Chapter III), Section 13(d) which requires the State to conserve and enhance biological diversity in the country; prevent the degradation of the environment; provide a healthy living and working environment for the people; and accord full recognition of the rights of the future generations by means of environmental protection and achieve sustainable development. It has also put in place *inter alia* legislation, national policies, strategies and programmes to try and curtail the destruction of biological resources in the country.

In order to address natural resource depletion and environmental degradation, a specific institutional mechanism was developed through the establishment of a Department of Research and Environmental Affairs (DREA) in 1991 in the Office of the President and Cabinet (OPC) with the mandate of co-ordinating issues pertaining to research and sustainable environmental management in the country through a multi-sectoral approach. This department was later up-graded to the Ministry of Research and Environmental Affairs (MOREA) in 1994. In 1997, MOREA was abolished and a new Ministry of Forestry, Fisheries and Environmental Affairs was created. The Environmental Affairs Department of this Ministry is currently charged with the responsibility of co-ordinating all issues pertaining to sustainable environmental management as part of sustainable development continuum in the country.

Through the then Ministry of Research and Environmental Affairs, the Government of Malawi, using a **participatory approach** developed a National Environmental Action Plan (NEAP) beginning late 1992 and finally launched in December 1994. Under the NEAP, the Government of Malawi in full consultation with all stakeholders in both the government and the private sector, local leaders and the civil society identified **inter alia**, the following environmental problems and issues :-

- 1) Soil erosion/loss of soil fertility;
- 2) Deforestation;
- 3) Water resource degradation;
- 4) High population growth;
- 5) Threat to biological diversity;
- 6) Human habitat degradation;
- 7) Air pollution;
- 8) Climate change;
- 9) Depletion of fish resources.

Further, the NEAP indicated that the causal chains of environment and natural resource degradation are a complex and intertwined. The **nexus** of population growth, poverty, illiteracy and lack of environmental information has contributed to the current environmental degradation including the destruction of habitats and loss of biological diversity in the country. The National Environmental Action Plan clearly spells out strategies and actions that Malawi needs to put in place and undertake to sustainably conserve, utilise, and manage the biological resources in the country, among others.

Along with NEAP, Malawi has put in place a number of sectoral policies which include population, forestry, fisheries, agriculture and livestock development, national parks and wildlife, tourism, land tenure and land-use, amongst others. Most of the sectoral policies have been legislated to ensure full protection of biological resources. However, these policies need to be harmonised.

To implement and operationalise the NEAP, the government developed the Environmental Support Programme (ESP) whose overall objective is to integrate environmental concerns into the socio-economic development of the country. Further, the National Environmental Policy (NEP) has been developed with the main objective of addressing a broad range of environmental problems facing Malawi at the present time. The overall goal of the NEP is to promote sustainable social and economic development in the country through the sound management of natural resources in the country.

The Government of Malawi has also produced an Environmental Management Act (EMA) which is aimed at providing a legal framework for the regulation and establishment of sustainable environmental utilisation practices. The Act explicitly provides for the following:-

- ❑ identification of biological diversity;
- ❑ determination of threatened biodiversity;
- ❑ preparation and maintenance of inventory of biological diversity;
- ❑ putting in place measures for better protection and conservation of rare and endemic species of fauna and flora;
- ❑ determination of actual and potential threats to biological diversity of Malawi and devise such measures as are necessary for preventing;
- ❑ integration of conservation and sustainable use of biological diversity into sectoral or cross-sectoral plans, programmes and policies of government, the private sector and local communities;
- ❑ re-introduction of *ex situ* species in native habitats and ecosystems provided that they do not pose threat to *in situ* species and habitats;
- ❑ establishment of regulations and guidelines to control or restrict access by any person to the genetic resources of Malawi, including:
 - (a) prohibiting the exportation of germplasm except with government approval;
 - (b) providing for the sharing of benefits arising from the exploitation of germplasm originating from the technology owner and the government;
 - (c) providing for payment of fees and charges for access and export licence in respect of germplasm.
- ❑ promotion of such land use methods as compatible with the conservation of biological diversity of Malawi;
- ❑ selection and management of environmental protection areas for the conservation of various terrestrial and aquatic ecological systems in Malawi;
- ❑ establishment and management of buffer zone near environmental protection areas;
- 0 prohibition and control of introduction of alien species;

- ❑ establishment and management of germplasm banks; botanical gardens; zoos and animal orphanage; and such other similar facilities as may be prescribed shall be put in place;
- ❑ identification and integration of traditional knowledge into the conservation and sustainable utilisation of biological diversity.

Malawi endorses and adheres to internationally accepted principles of the 1972 Stockholm Declaration and the 1992 Rio Declaration as adopted by the United Nations Conference on Environment and Development (UNCED). In an effort to be part of the world community and in addition to having signed and ratified the Convention on Biological Diversity, Malawi is also a signatory to the following environmental conventions: -

- (i) Convention on International Plant Protection;
- (ii) Convention on wetlands of significant importance (RAMSAR);
- (iii) Convention concerning the protection of the world cultural and Natural Heritage;
- (iv) Convention on Conservation of Migratory species of Wild Animals;
- (v) Convention on International Trade in Endangered species of Wild Fauna (CITES);
- (vi) African convention on conservation of Nature and natural Resources;
- (vii) FAO International undertaking on Plant Genetic Resources;
- (viii) United Nations Convention on the Law of the sea;
- (ix) Montreal Protocol for the Protection of the Ozone Layer;
- (x) United Nations Framework Convention on Climate Change(UNFCCC);
- (xi) The Convention of Desertification and Drought (CCD).

The signing of the above conventions indicates one of the strategies that Malawi has put in place to address issues related to the sustainable utilization, conservation and management of biological diversity. Malawi will continue to accede to international protocols that are associated with a sustainable utilization, conservation and management of Biological Diversity.

BIOTIC ASSETS

PLANTS

- 5,500 higher or flowering plants
- 68 Forest reserves (87 were proposed but lost)
- 5 National Parks
- 4 Wildlife Reserves
- 3 Nature Sanctuaries
- 9 Vegetation types

In addition there are urban parks, arboreta, botanical gardens and private plant collections including shrines and graveyards.

ANIMALS

- **63** large mammal species
- 126 small mammal species
- 651 bird species
- 60 amphibians species
- 140 reptilian species
- 160,000 invertebrate species
- Over 500 fish species (to above 1000 species)

DOMESTICATED ANIMALS

- **254** species of forestry, agroforestry, bamboo, root crops, pastures
- 11 species of small livestock and birds
- 23 species of large livestock: equines, and companion animals
- 19 species of cereals and legumes
- 10 species of industrial crops
- 84 species of fruits and vegetables

MICROORGANISMS

- **88** viruses
- 87 bacteria
- 432 fungi
- 173 nematodes
- 12 cestodes
- 30 protozoa

NATIONAL CAPACITY

In most institutions there are no specific human resources solely responsible for biological diversity conservation. There are no specialised personnel dealing with the conservation and sustainable use of biodiversity. The institutions responsible for the management of protected areas in Malawi are the Department of National Parks and Wildlife (DNPW) and the Forestry Department (FD). The former manages National Parks and Wildlife Reserves while the latter manages Forest Reserves. The Wildlife Society of Malawi (WSM), a non-governmental organisation, also supports the two departments in public awareness campaign programmes, and short-term development projects.

The National Herbarium and Botanical Gardens of Malawi (NHBGM) was established by an Act of Parliament to carry out research and provide identification services of Malawi's flora. The National Gene Bank is responsible for collection, conservation and utilization of plant genetic resources. These institutions are inadequately resourced in terms of both human and financial and other resources.

There is now provision in the national policy for enabling framework for promoting participation of local communities and private sector in conservation and management of ecosystems e.g. Village Natural Resources Committee (VNRCs). Currently, the WSM in conjunction with DNPW is implementing a program called WURCS (Wildlife Utilization Raises Community Standards) in some protected areas like Majete Wildlife Reserves. Surrounding communities can today benefit from controlled harvesting of thatch grass from the reserve and in that way develop respect for the resources. Other activities include bee keeping and guinea fowl rearing. Another example is the co-operation that is existing between Lake Malawi National Park and the surrounding communities in the Nankumba Peninsula. The Park's survival lies in the hands of the local communities. The Fisheries Department has also established co-management programmes whereby the communities along the lakes are involved in the management of the stocks in the lakes and rivers through Village Beach Committees (BVCs) and River Village Committees (RVCs).

Current institutional arrangements of NGOs, Government and other organisations are: -

- Ministry of Forestry, Fisheries and Environmental Affairs.
 - Overall co-ordinating line ministry of forestry, fisheries and environment.
- Ministry of Tourism, National Parks and Wildlife.
 - facilitate development of tourism.
 - facilitate conservation, sustainable use and co-management of wildlife resources.
- Ministry of Agriculture and Irrigation.
 - management and sustainable utilisation of crops and livestock.
 - conservation of germplasm.
 - development of irrigation to augment rainfed agriculture in the country.
- Ministry of Lands, Physical Planning and Survey.
- sustainable utilisation of land resources. Ministry of Water Development.
 - conservation and sustainable use of water resources.

- Parastatals, Church, NGOs, CBOs, and private sector.
 - complement the above government efforts.

Implementation of the strategic recommendations:

- The above ministries, organisations and other stakeholders will actively be involved in the implementation of the overall recommendations through participation and consultations.
- A Malawi *Biodiversity* Secretariat will be created and mandated to co-ordinate the implementation of the strategic recommendations by all stakeholders and drive the whole process contained in the national strategy and action plan up to monitoring and evaluation.

GOALS AND OBJECTIVES

Malawi's vision for biodiversity is principally to conserve all forms of life and vegetation, for her people to use sustainably and where benefits accrue, to share them fairly and equitably.

MAIN GOAL

To conserve all forms of life for all people to use sustainably and where benefits accrue to share them fairly and equitably.

OBJECTIVES

1. PLANT DIVERSZTY

1. To compile a complete inventory and database of plant resources in Malawi.
2. To document threatened plant species and ecosystems of Malawi and identify those requiring immediate statutory protection taking note of local and international trade issues.
3. To identify and document noxious plant species and control their spread.
4. To assess the current infrastructure development and human resource capacity in the field.
5. To develop current infrastructure and human resource capacity in the field of plant diversity conservation.
6. To repatriate Malawi's biodiversity data, species or specimens where appropriate, that are outside the country.
7. To identify problems that impinge on biodiversity conservation in Malawi and document gaps that need addressing in the field of biodiversity conservation.
8. To Create awareness of the value of conservation.

9. To evaluate the socio-economic value of plant biodiversity resources in Malawi and determine the costs of their conservation.

2. *MICRO-ORGANISMS*

1. To compile a complete inventory of the species of micro-organisms in Malawi.
2. To determine the socio-economic uses and values of micro-organisms in Malawi.
3. To identify and conserve the threatened microbial resources.
4. To establish institutional infrastructure and resource capacities required in the conservation and sustainable use of micro-organisms.

3. **WILD AND INDIGENOUS ANIMALS OF MALAWI**

1. To compile a complete inventory and database of wild and indigenous animals both living and extinct.
2. To determine the distribution and abundance of wild and indigenous animals.
3. To identify and develop conservation measures for rare, endangered and endemic species in Malawi.
4. To find socio-economic value of species and determine the costs of their conservation.
5. To mount conservation education campaigns throughout the country.
6. To enhance Community-Based Natural Resources Management (CBNRM) Projects in Malawi.

4. **ECOSYSTEMS OF MALAWI**

1. To maintain the country's flora and fauna in the interests of science and the protection of the natural heritage of Malawi.
2. To provide a recreational and educational facility for visitors to these areas.
3. To provide guidelines for the derivation of utilisation benefits from wildlife as a legitimate form of land use in situations where it does not conflict with other forms of land use.

5. **CONSERVATION OF LEGISLATION**

1. To identify and review the existing natural resource and environmental legislation and determine their relevance and viability as elements of a framework for sustainable development.
2. To analyse the necessary legal and regulatory framework as a basis for adjusting development in accordance with the principles of sustainable development , taking into account the need for:-
 - a. a comprehensive national environmental protection framework legislation;

- b. incorporation of environmental concerns raised in the Convention on Biological Diversity in legislation dealing with land, land-use, population, food, species, ecosystems, energy and industry.
 - c. Recognise Intellectual Property Rights (IPR) and introduce legislation for patenting.
 - d. Valuation of our biological resources and the need for environmental impact assessment.
 - e. Improving regulations on importation and exportation of biological materials and technology.
 - f. Determining modalities for collection of biological resources by local and foreign scientists.
3. Study how the legislation is implemented in practice and identify gaps, inconsistencies and overlaps.
 4. Review the licensing system on utilisation and collection of Malawi biological resources.
 5. Formulate legislative strategies on the conservation and sustainable use of biological diversity in Malawi.
 6. Ensure adequate reinforcement of the natural resource and environmental laws and regulations.
 7. Promote participation of local communities in the reinforcement of natural resource and environmental laws and regulations.
 8. Harmonise and integrate conservation legislation into sectoral and cross-sectoral plans, policies and programmes in the country.
 9. Develop and facilitate institutional mechanisms to empower local communities and the civil society and the government to ensure that any use of biological diversity is sustainable and equitable.

6.0 DOMESTICATED AND INTRODUCED SPECIES

1. Compile a complete inventory and database of domesticated and Introduced species in Malawi.
2. Determine the costs and benefits of conserving Malawi's domesticated Species.
3. Develop *in situ* and *ex situ* conservation facilities.
4. Determine levels of anti-nutritional factors in land races.
5. Document indigenous knowledge of the uses of land races and Indigenous domesticated animals.
6. Utilise land races and indigenous domesticated animals in genetic Improvement.
7. Mount conservation education campaigns at national, regional, district and area levels.

7. LAND USE MANAGEMENT

1. Generate data on annual rate of agricultural change.
2. Rebuild fish stocks in Malawi's water bodies.
3. Generate data on biological resources.
4. Provide maximum protection of animals.
5. Share revenues accrued from protected areas equitably.
6. Reduce levels of pollution in Malawi's water bodies.
7. Rationalise resource usage in protected areas.
8. Empower local leaders to carry-out sustainable land-use initiatives.
9. Introduce realistic penalties commensurate with offence committed.
10. Document indigenous knowledge with respect to biodiversity conservation and sustainable use.
11. Create awareness on the importance of proper land use management to all stakeholders in government, the private sector, NGOs, CBOs, local communities and the civil society.
12. Develop alternative income generating projects (IGPs) to assist ease pressure on land resources in the country.

8. LITERATURE REVIEW

1. Design an information system capable of tracking relevant Malawian biodiversity literature with cross-reference key facility with an indication of which local institutions hold the documents.
2. Conduct a comprehensive overview of the sources of biodiversity research documentation which can indicate priority areas for new research initiative, important standards and scientific publications required.
3. Document information management professional capacity that can conduct awareness programs for the general public's change of attitude towards conservation of the country's biodiversity resources.
4. Identify, review and harmonise legislation on sources of information.
5. Ensure production of bibliographies, indexes and other information searching tools.
6. Develop human resources to manage information units which will collect, process and disseminate information on biodiversity.
7. Encourage institutions to up-grade their information systems on biodiversity .
8. Conduct education and public awareness campaigns at national, regional, district and area level on biodiversity information and management.

SUMMARY OBJECTIVES

1. To compile a complete inventory of Malawi's biodiversity .
2. To develop relevant and adequate human resources to manage various biodiversity policies, plans and programmes.
3. To develop mechanisms for the participation of local communities in legislation, conservation, sustainable use and fair and equitable distribution of benefits from biodiversity resources.

4. To create awareness of the value of conservation and sustainable use of biodiversity resources.
5. To improve existing infrastructure and acquire equipment and develop new infrastructure where necessary.
6. To review and harmonise existing legislation, enact and enforce appropriate legislation with respect to conservation, sustainable use and equitable distribution of benefits from biodiversity resources.
7. To assess the socio-economic value of biodiversity resources and ascertain equitable sharing of benefits among all the stakeholders.
8. To ensure proper management of biological resources with respect to their conservation and sustainable use.
9. To identify, collect, document information materials and design an information system capable of tracking relevant Malawian biodiversity literature on the local and international scenes.
10. To document indigenous knowledge systems (IKS) with respect to conservation and sustainable use of biodiversity resources.
11. To provide adequate financial resources to support all biodiversity programmes.
12. To promote vigorous research programmes in all areas of biodiversity.
13. To create awareness among political leaders, church organisations and the civil society of the significance of their offices in ensuring the success of biodiversity programmes in the country in-order to ensure that biological resources are conserved and sustainably used.
14. To enhance the use of existing environmentally friendly technologies and develop and introduce new ones and monitor their positive and negative effects on biodiversity.
15. To establish appropriate mechanisms for monitoring and evaluating various biodiversity programmes.
16. To ensure that endemic and alien species receive appropriate attention nationwide within all the biodiversity policies, plans, actions and programmes.
17. To set up a *Malawi Biodiversity Secretariat* to co-ordinate all biodiversity programmes in the country.

STRATEGIES

1. PLANT DIVERSITY

The following strategic recommendations are for addressing the above identified gaps. These have been pooled over as a result of the identified gaps of the four stated visions, namely conservation, sustainable utilisation, benefit sharing and policies :-

1. Review, and harmonise legislation/policies to address new emerging obligations/problems at the national, regional and international levels.
2. Enact new legislation to address new emerging obligations/problems at the national, regional and international levels.

3. Develop a comprehensive public education and awareness programme on conservation and sustainable use of plant resources and habitats to include the importance of legislations and policies.
4. Identify and protect habitats/areas of high plant diversity and endemism.
5. Train adequate personnel in conservation at both the technical and professional levels in relevant ministries and institutions to manage effectively the conservation and sustainable use of plant resources and habitats.
6. Improve or develop infrastructure and equipment that will support the conservation and sustainable use of plant resources and habitats.
7. Monitor the exploitation levels of plant resources and habitats.
8. Document trade in plant resources both for the domestic and international markets.
9. Determine the economic value of plant resources/habitats/ecological services.
10. Establish economically and socially sound incentive measures that promote the conservation and sustainable use of plant resources/habitats/ecological services.
11. Study benefit sharing systems and mechanisms at the local community, individual or government levels and where necessary develop guidelines/legislation for their efficient operation.
12. Involve the public, local leaders and NGO's in decision-making and in the management of plant resources/habitats/ecological services.
13. Undertake science and socio-economic research that promote the conservation and sustainable use of plant resources/habitats/ecological services.
14. Control the introduction and spread of alien, and evasive plants and plant diseases and pests.
15. Document and promote knowledge, innovations and practices of local communities relevant to the conservation and sustainable use of plant resources/habitats/ecological services.
16. Compile a National Red Data List of threatened plants/habitats/ecological services.
17. Undertake *ex situ* and *in situ* conservation of threatened plants/habitats.
18. Provide adequate funding to ministries, departments, institutions and NGOs involved with the conservation and sustainable use of plant resources/habitats/ecological services.
19. Develop and promote political advocacy amongst all political parties on their national obligations to conserve biological diversity as embodied in the constitution of the Republic of Malawi, Cap. 111, Section 13 (d) i-iv.
20. Monitor and evaluate the implementation of the programme on conservation and sustainable use of plant resources/habitats/ecological services in the country.

2. MICRO-ORGANISMS

1. Make inventories of micro-organisms.
2. Develop human resources in micro-organisms biosystematics.
3. Develop a programme for collection identification and conservation of micro-organisms.
4. Develop infrastructure and centres for handling and conservation of micro-organisms.

5. Determine the socio-economic uses micro-organisms and derive their economic value.
6. Create awareness of the importance of micro-organisms to the Malawi society.

10. WILD AND INDIGENOUS ANIMALS

1. Build capacity through **specialised** training
2. Up-date current inventories through taxonomic research and field surveys.
3. Create information management systems.
4. Initiate environmental awareness campaigns throughout the country.
5. Strengthen conservation and management of protected areas as present gene banks of wild and indigenous animals.
6. Initiate vertebrate zoology training programme at the University of Malawi and other allied institutions.
7. Improve specimen collections, identification, storage and preservation.
8. Acquire suitable equipment to aid in handling and data storage.
9. Improve sampling and sample un-sampled habitats.
10. Develop participatory resource actions (PRA) methods and mobilise communities for sustainable natural resource management.
11. Ensure that monitoring and evaluation; environmental audits, and socio-economic valuation and unmet costs of conserving and protecting wild and indigenous animals and their habitats are put in place.

4. ECOSYSTEMS

1. Develop appropriate gear restriction and dosed season measures.
2. Promote species-focused management of Malawi's ecosystems.
3. Carry out ecological surveys on the translocation of endemic fish species.
4. Map habitats in aquatic ecosystems.
5. Carry out biodiversity assessments and taxonomy.
6. Establish education and training programmes in management and sustainable utilisation of ecosystems.
7. Empower people to manage ecosystems through the provision of the right incentives.
8. Develop sustainable aquaculture systems at both national and local levels.
9. Develop and promote the use of alternative energy systems both at urban, peri-urban and local levels.
10. Rehabilitate degraded ecosystems.
11. Promote sustainable ecotourism.
12. Create areas to be reserved for fishing, hunting and logging.
13. Ensure that an ecosystem approach is followed in the country's efforts to conserve, sustainably use and fair and equitably share benefits arising from the use of biological resources by all stakeholders.

5. CONSERVATION ON LEGISLATION

1. Review the natural resource and environmental legislation, identify areas of conflict and duplication and harmonise the legislation.
2. Develop infrastructure and train personnel in natural resource information and implementation of natural resource and environmental legislation.
3. Identify new issues not covered by current natural resource and environment legislation and enact the necessary legislation.
4. Establish the necessary mechanism for the enforcement of natural resource and environmental laws.
5. Develop mechanism for involvement of the community in participation and enforcement of natural resource and environmental laws and enact **community-based** natural resource management (CBNRM) in the country.

6. DOMESTICATED AND INTRODUCED SPECIES

1. Collection and characterisation including genetic mapping of indigenous domesticated plant and animal species.
2. Create a data-base for introduced and indigenous domesticated plant and animal species.
3. Develop *in situ* and *ex situ* conservation programmes for both plant and animal species in the country.
4. Establish facilities for *in situ* and *ex situ* conservation for both plant and animal species in the country.
5. Develop propagation and distribution program of indigenous crop, plant and agroforestry tree species.
6. Institute intervention measures for the welfare of companion animals.
7. Institute monitoring mechanism of quality in water bodies.
8. Formulate and strengthen legislation on exploitation and conservation of domesticated animal and plant species.
9. Develop a comprehensive public education and awareness programme on sustainable utilization and conservation for domesticated indigenous and animal species.
10. Improve and develop adequate institutional infrastructure equipment human and financial resources.

7. LAND USE MANAGEMENT

1. To carry out land use surveys to determine rate of change of land under agriculture throughout the country's agro-ecological zones .
2. Strict reinforcement of regulation pertaining to sustainable land-use management.
3. Carry out biological data inventory in protected areas.
4. Elevate some animals to the CITES list.
5. Carry out awareness campaigns on sustainable land-use management.
6. Policy review to ensure that communities surrounding protected areas benefit from revenue accrued.
7. Develop management plans for both agricultural lands and protected areas.

8. Safe effluent discharge into water courses accompanied by regular monitoring and evaluation of all the water courses.
9. Carry out appraisal of protected areas and determine most suitable use in view of current conditions.
10. Carry out inventory of indigenous knowledge systems (IKS) with the view of assessing its applicability in resource conservation in Malawi.
11. Provision of legal framework for empowering local leaders to ensure that land is properly used.
12. Policy review to revise penalties.
13. Ensure that land and property rights schemes are put in place to encourage land ownership for sustainable biological diversity management.

8. LITERATURE REVIEW ON BIODIVERSITY

1. Facilitate the drawing up of documentation standards, career paths and staffing levels for various types of information units.
2. Collect and document other task focus' literature reviews and records and download biodiversity literature from existing data-bases locally and internationally.
3. Initiate the review of the Printed Publications Act so as to include the tracking down and acquisition of grey literature including sources of indigenous knowledge systems (IKS).
4. Encourage the production of bibliographies and indexes of biodiversity literature at least twice a year including sources of indigenous knowledge systems (IKS).
5. Create deliberate training programs for information scientists at various levels in conjunction with the Malawi Library Association, University of Malawi and other institutions.
6. Facilitate and encourage Biological Diversity information holding to source for equipment and facilities such as E-Mail and Internet connectivity for information management.
7. Introduce and maintain a repackaging of information service.
8. Establish an awareness programme on the importance of information in national development with special emphasis on Biological Diversity.
9. Continue to lobby for the drafting of the National Information and Documentation Act.

SUMMARY OF STRATEGIES

- Survey and document all literature and sources of information pertaining to biodiversity resources.
- Train personnel in various aspects of biodiversity, legislation, management, conservation and sustainable use of biodiversity resources.
- Develop mechanisms to ensure community participation in legislation, management, conservation, sustainable use and fair and equitable distribution.
- Mount campaigns to educate the public on the value, conservation and sustainable use of biodiversity resources.
- Obtain necessary resources to set up better infrastructure and purchase appropriate equipment to support the various biodiversity programmes.

- To initiate the process of improving legislation pertaining to biodiversity resources.
- Determine the value and means of sharing benefits accruing from biodiversity resources
- Institute proper management programmes on biodiversity.
- Develop appropriate methods of collecting, documenting and disseminating biodiversity information.
- Identify sources of indigenous knowledge with respect to the management conservation and sustainable utilisation of biodiversity resources.
- Enhance existing research programmes and initiate new ones in all areas of biodiversity .
- Design special awareness – creating programmes for various levels of leadership in all political parties.
- Design appropriate monitoring and evaluation mechanisms for various biodiversity programmes.
- Develop programmes for the promotion of environmentally friendly technologies for influencing suppliers to sell at affordable prices.
- Initiate the writing up of a project proposal for the setting up of a **Malawi Biodiversity Secretarial** to co-ordinate biodiversity programmes and initiatives in the country.
- Ensure that strategies, actions, plans, policies and programmes include the endemic species of Malawi and alien and evasive species in the country.

PARTNERS/ACTIONS

1. PLANT DIVERSITY

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/ PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1. Review and harmonise legislation/policies	- Ministry of Forestry, Fisheries and - Ministry of Justice - Ministry of Tourism, National Parks and Wildlife Ministry of Local Government - National Herbarium and Botanical Gardens of Malawi - NGOs (M M C T , W S M CURE, IUCN, WWF	-Forest Department - National Parks and Wildlife - Agricultural Research Station - ADD - Ministry of Justice and Attorney General - City Council - Municipalities and Town Councils	- Analyse present legislation to identify conservation gaps - Study sectoral policies action plans programmes of ministries, departments, Institutions, etc in order to harmonise activities and avoid duplication.
T2 Enact new legislations where necessary, to meet new merging problems or obligations at the national regional and international levels	- Ministry of Forestry, Fisheries and Environmental Affairs - Ministry of Tourism - Ministry of Agriculture and Irrigation - Ministry of Justice	- Ministry of Justice	- Discuss elements of new bills with relevant departments, institutions and NGOs. - Circulate draft bills to as many stakeholders as possible before it is debated and passed as Law in Department.
T3 Develop a comprehensive	- Ministry of Forestry, Fisheries and Environmental Affairs	Schools and Colleges - Radio and Television - News Papers	- Develop effective plant conservation curricula for schools

public education and awareness programme on the importance of the legislations and policies being undertaken.	<ul style="list-style-type: none"> - Ministry of Tourism, National Parks and Wildlife - Ministry of Agriculture and Irrigation - Ministry of Information - NHBG - Malawi Broadcasting Corporation (MBC) - The Press - Religious denominations - NGOs (MMCT, WSM, CURE, etc) 	<ul style="list-style-type: none"> - Public Meetings - Churches, Mosques, Temples, Synagogues, etc. - Buffer Zone areas of protected areas - District Development Communities (DDC) - Parliament - Local Communities - Private Sector 	<p>and colleges.</p> <ul style="list-style-type: none"> - Prepare simple extension messages, visual aids, etc on the conservation and wise use of plant resources for dissemination to various target groups. - Initiate radio programmes including panel discussion of all stakeholders on thematic issues affecting the conservation and sustainable use of plant resources/habitats/ ecological services
T4 Identify and protect habitats/areas of high plant diversity or endemism.	<ul style="list-style-type: none"> - Forestry Department - National Parks and Wildlife - NHBG - Biology Department (Chancellor College) - NGOs (MMCT, WSM) 	<ul style="list-style-type: none"> - Forest Reserves - National Parks and Wildlife - Wildlife Reserves - Customary Land - Public Land - Wetlands - Private Land 	<ul style="list-style-type: none"> - Inventorise plant distribution of all collections of the NHBG - Analyse the plant distribution of the NHBG for sites of higher plant diversity.
T5 Train adequate personnel in conservation and sustainable use of plant resources at both the technical and professional levels in the relevant ministries, institutions, and NGOs.	<ul style="list-style-type: none"> - Ministry of Education - Ministry of Local Government - Ministry of Women, Children and Social Welfare - Department of Human Resources Development - University of Malawi - Malawi College of Forestry and Wildlife Management - Natural Resources College 	<ul style="list-style-type: none"> - Ministry of Education - Chancellor College (Biology Department) - Bunda College of Agriculture (Crop Science Dept) - City Councils and Municipalities, Town and District Councils - Polytechnic, Applied Sciences Dept - Malawi College of Forestry and Wildlife, Dedza - Natural Resources College, Lilongwe 	<ul style="list-style-type: none"> - Review current curricula to embrace some aspect of plant conservation and sustainable use. - Develop, where necessary, a comprehensive curricula on plant conservation - Establish simple short courses for local leaders, the public, schools, the private sector, religious leaders, etc.
ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES, PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T6 Improve or develop infrastructure and equipment.	<ul style="list-style-type: none"> - Forestry Dept - National Parks and Wildlife - City Councils - Municipalities, Town Councils, District Councils and Divisions - District Commissioners Offices 	<ul style="list-style-type: none"> - Regional, District and Area Forestry Offices - Village forest patrols and guards. - Regional, district and parks wildlife offices - DCs Offices and District community Development Offices, City and District Councils - Agricultural extension especially at Extension 	<ul style="list-style-type: none"> - improve current office space and accommodation for staff. - Construct much needed offices and staff houses. - Provide adequate office and field equipment. - Upgrade current services to higher

		Planning Area Level. - Research Centres and Institutions - NHBG	standards. - Complement Forestry and Parks and Wildlife Departments. - Conservation work at Regional, District and Community levels.
T7 Monitor the exploitation levels of plant resources and habitats	- Forestry Depart - Environmental Affairs Dept - Ministry of Commerce - National Parks and Wildlife Dept - City Councils - District and Town Councils - Malawi Export Promotion Council - Malawi Chamber of Commerce - Timber Companies: ITG, WICO, VIPCOR, VIPLY - National Statistical Offices	- Forest Reserves - National Parks and Wildlife - Public Land Customary Land, Private Land, Sales offices for Forestry, City Councils, Municipalities, and District Councils. - Customary Land	- Conduct continuous survey of exploitation levels of plant resources and habitats in all protected areas, customary land, public, and private land. - Document amount of fuelwood, poles, and timber being sold. - Document the annual rate of deforestation the various, vegetation types.
T8 Document trade in plant resources both for the domestic and external markets	- Ministry of Commerce and Industry - Malawi Chamber of Commerce - Malawi Export Promotion Council - Timber Companies (ITG) - National Statistical Offices - Forestry Dept - City Councils and Municipalities - District and Town Councils	- Department of Commerce (Trade records) - MEPD (Trade data) - Timber Companies - Sales offices of Forestry Dept, City Councils and Town Councils - National Statistical Office	- Document trade data on all plant resources/products from the implementing agencies and focal points for both domestic and external trade. - Analyse correlation between the trade levels and the conservation status of the respective plant species and their habitats (fr T7.iv)
T9 Determine the economic value of plant resources, habitats and ecological services	- Ministry of Water Development - National Economic Council - Centre for Social Research - Economics Dept, Chancellor College - Forestry Department - Fisheries Dept - NHBG - Ministry of Health - Herbalists - Craftsmen	Economists/Socio-economists of Economics Dept CC, National Economic Council, Centre for Social Research, Forestry Department, Fisheries Department, National Parks and Wildlife - Primary Health Care Workers - Rural and Urban households - Herbalist - Craftsmen	- Document the socio-economic values of plant resources, habitats and ecological services - Document the annual contribution of plant resources and ecological services to the GDP - Document the role played by habitats to functioning of ecological services.
T11 Study benefit sharing systems and mechanisms at local community individual or government levels	- Ministry of Forestry, Fisheries And Environmental Affairs - Ministry of Agriculture - Ministry of Tourism - National Economic Council - Ministry of Women, Children and Social Welfare - Ministry of Local Government - OPC: District Administration	- Forest Reserves - National Parks - Forests, Woodlands, grasslands on customary or public and private land. - Sites of high plant diversity - Farmers' fields - Extension planning Areas - District Commissioners and ADDs - Traditional authorities - District Community Development Offices.	- Establish and improve incentives in buffer and transitional zones of protected areas, customary/public land/forests/woodlands/grasslands, etc - Implement at the on set those activities that show quick results as to gain confidence of the local communities living around protected areas or other habitats of higher plant

			diversity.
T12 Involve the public, local communities, local leaders, and NGOs in decision making regarding the management of plant resource/habitats/ ecological services	- Ministry of Forestry, Fisheries and Environmental Affairs, -Ministry of Tourism, National Parks and Wildlife, -Ministry of Agriculture, -Ministry of Women, Children and Community Services, -Ministry of Local Government, -OPC: District Administration , NGOs	- Forestry Dept - National Parks and Wildlife - Agriculture Research Dept District Community Development - City Councils and Municipalities, District and Town Councils, DDCs, Traditional Authorities, NGOs (WSM,MMCT, CURE)	Involve as collaborating partners, the public local communities, local leaders, and NGOs in the conservation/ management and sustainable use of plant resource/habitats., ecological services throughout the country. - Win the support of the prominent members in local community co-management activities, i.e. business people politicians, religious leaders, civil servant, etc
T13 Undertake plant science and socio-economic research that promote the conservation sustainable use of plant resource/habitats/ ecological services	- Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Tourism, National Parks and Wildlife, - Ministry of Agriculture, NHBG, -University of Malawi	- Forestry Dept - Forestry Research Institute of Malawi - National Parks and Wildlife - Agricultural Research Dept - Malawi Gene Bank - NHBG - Biology Dept, Chancellor College - Bunda College - Centre for Social Research - National Environmental Council - Local communities	Undertake a comprehensive collection of plants throughout Malawi. Make an inventory of all plant species in all protected areas and sites of high plant diversity and endemism. - Undertake research on the taxonomy, conservation, ecology and uses, of plants and habitats of Malawi. - Document and develop the plant genetic resources of Malawi. - Inventorise the medicinal plants of Malawi
T14 Control the introduction and spread of alien, evasive plants and plant diseases	- Ministry of Agriculture, Ministry of Forestry, Fisheries and Environmental Affairs, Ministry of Tourism, University of Malawi, NHBG, NGOs	- Agricultural Research Dept - Forestry Dept - National parks and Wildlife Dept - Biology Dept - Crop Science Dept, Bunda College, - NHBG	- Educate the public about dangers of alien and evasive plants and diseases Control the introduction or spread of alien and invasive plants and plant diseases by enforcing plant protection and quarantine
T15 Document and promote knowledge, innovations and practices of local communities relevant conservation and sustainable use of plant resources/habitats/ecological services	- Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Tourism - Ministry of Agriculture - Ministry of Women, Children, Community Development and Social Welfare - University of Malawi	- Forestry Dept - National Parks and Wildlife - Agricultural Research Dept - Malawi Gene Bank - District Community - Biology Department (Chancellor College) - CSR - Bunda College - NHBG	- Document the indigenous knowledge systems of the local communities. - Survey and document innovations and practices of local communities relevant to the conservation on sustainable use of plant

	<ul style="list-style-type: none"> - NHBG - NGOs 	<ul style="list-style-type: none"> - NGOs (WSM, CURE) 	<p>resources/habitats/ecological services.</p>
<p>T16</p> <p>Develop a National Red list of threatened plants/habitats/ecological services.</p>	<ul style="list-style-type: none"> - NHBG - Ministry of Forestry, Forestry, Fisheries and Environmental Affairs - Ministry of Tourism University of Malawi - NGOs 	<ul style="list-style-type: none"> - National Herbarium and Botanical Gardens - Forestry Dept - National Parks and Wildlife - Biology Dept (Chancellor College) - NGOs (WSM, MMCT, IUCN, SSC, etc) 	<p>Determine the conservation status of the plants of Malawi through the study of plant collections of the NHBG by applying IUCN Redlist categories.</p> <p>Document the conservation status of vegetation types and other important habitats</p>
<p>T17</p> <p>Undertake ex situ conservation of threatened/endangered plant species or habitats</p>	<ul style="list-style-type: none"> - NHBG -Ministry of Forestry, Fisheries and Environmental Affairs Ministry of Local Government 	<ul style="list-style-type: none"> - NHBG - Forestry Dept - City Councils and Municipalities, Town, District Councils and Municipalities - Herbalist Associations - Private Sector 	<ul style="list-style-type: none"> - Collect and propagate all threatened/endangered plant species in Botanic gardens, parks and arboreta. - Establish a living collection of threatened/endangered plants in Botanic gardens, parks and arboreta, private gardens, etc - Establish endangered vegetation types in Botanic gardens, parks and arboreta.
<p>T18</p> <p>Provide adequate funding to ministries, departments and institutions and NGOs involved with the conservation and sustainable use of plant resources/habitats/ecological services</p>	<ul style="list-style-type: none"> - The Government - Donor Agencies - Private Sector - NGOs 	<ul style="list-style-type: none"> - The Cabinet - The Treasury - Ministries, departments, institutions, involved in conservation - Private companies - World Bank - GEF -DFID- UK 	<ul style="list-style-type: none"> - Government to commit itself to funding the conservation gaps identified by NBSAP - Government to see donor and NGO support for implementation of its plant conservation programme. Ministries, departments, and institutions to commit the voted funds to conserving plant resources and habitats
<p>T19</p> <p>Develop and promote political advocacy</p>	<ul style="list-style-type: none"> - The Government - The Ruling Party - Opposition Parties 	<ul style="list-style-type: none"> - Government institutions and bodies - The Public - Local Communities - Political Parties - NGOs 	<ul style="list-style-type: none"> - Sensitise the public on Malawi's obligations to conserve biological diversity as embodied in the Constitution of the Republic of Malawi. - Educate the Nation on the fundamental importance of conservation and sustainable use of plant resources and habitats to human kind. Disseminate conservation messages at political parties,

			DDC meetings and other for a.
T20 Monitor and evaluate the implementations of the actions of the strategic recommendations	- Ministry of Forestry, Fisheries and Environmental Affairs.	- Department of Environmental Affairs - National Environmental Council Malawi National Biodiversity Committee	- Review the implementation of each set activity task/policy. Provide recommendations for actions to be taken for activities/tasks/policies

2. MICRO-ORGANISMS

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Produce an inventory of all micro-organisms present in Malawi	- UNIMA - Department of Crop and Animal Science- Bunda, Public Health- Polytechnic, Department of Agriculture Research: Bvumbwe, Chitedze, Makoka, Lunyangwa - College of Medicine - NHBG - Breweries e.g Carlsberg, Chibuku, Napolo - Dairies e.g MDI Central Veterinary Laboratory - Ministry of Health & Population	- UNIMA - Malawi Bureau of Standards - Ministry of Health & Population	- to co-ordinate private institutions e.g Breweries, Sugar Industry, Bakeries, Water Boards, Tea Research Foundation.
T2 Identify and conserve endangered species of micro-organisms	- Department of Forestry - Ministry of Lands, Housing and Physical Planning, Health and Population - Agricultural Extension Unit - Water Department	- Ministry of Agriculture & Irrigation, Health & Population, Department of Forestry, - UNIMA	- Compile a complete inventory & data-base of micro-organism species in Malawi
T3 Carry out research on socio-economic values of the species of micro-organisms such as the mycorrhiza	- UNIMA - Department of Forestry - Ministry of Lands, Housing and Physical Planning, Women, Youth and Children's Affairs - Water Development - Traditional Healers - Ministry of Agriculture - College of Medicine - Parks and Wildlife - ARET	- UNIMA - National Economic Council of Malawi - Ministry of Agriculture & Irrigation - Ministry of Forestry, Fisheries and Environmental Affairs	- Document the socio-economic values of micro-organisms including trade related activities. - Carry out related research in micro-organisms throughout the country.
T4 Refurbish and equipment laboratories of institutions conducting research on micro-organisms - Create awareness on the value of micro-organisms	- Malawi Bureau of Standards - Ministry of Agriculture - Medical Institutions - Tea Research Foundation - UNIMA - College of Medicine - Central Vet. Laboratory - Ministry of Health and Population - Ministry of Forestry, Fisheries and Environmental Affairs - Ministry of Information - Parks and Wildlife	- UNIMA - Malawi Bureau of Standards - Malawi College of Medicine - Ministry of Information - Ministry of Health and Population - Central Vet. Laboratory	- Create inventory of threatened microbial resources - Identify, conserve and sustainably use threatened microbial resources. - Conduct continuous surveys of exploitation levels throughout relevant industries in the country. - Carry out massive awareness campaigns

			throughout the country to enhance Community-Based Natural Resource Management projects in the country.
T4 Refurbish and equipment laboratories of institutions conducting research on micro-organisms - Create awareness on the value of micro-organisms	- Malawi Bureau of Standards - Ministry of Agriculture - Medical Institutions - Tea Research Foundation - UNIMA - College of Medicine - Central Vet. Laboratory - Ministry of Health and Population - Ministry of Forestry, Fisheries and Environmental Affairs - Ministry of Information - Parks and Wildlife	- UNIMA - Malawi Bureau of Standards - Malawi College of Medicine - Ministry of Information - Ministry of Health and Population - Central Vet. Laboratory	- Create inventory of threatened microbial resources - Identify, conserve and sustainably use threatened microbial resources. - Conduct continuous surveys of exploitation levels throughout relevant industries in the country. - Carry out massive awareness campaigns throughout the country to enhance Community-Based Natural Resource Management projects in the country.

3. WILD AND INDIGENOUS ANIMALS OF MALAWI

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Produce an inventory of all animal species and their distribution pattern.	- Department of National Parks and Wildlife - Department of Forestry - Department of Environmental Affairs - Ministry of Agriculture and Irrigation, Lands, Housing and Physical Planning - Museums of Malawi, NHBG - Bee Keepers Association of Malawi - Blantyre Zoo, Comoroc (Crocodile ranch) - Private Game ranches, MMCT	- Department of National Parks & Wildlife - Ministry of Agriculture & Irrigation - Department of Animal Health & Industry - Ministry of Lands, Housing & Physical Planning - Wildlife Society of Malawi - Ministry of Forestry, Fisheries & Environmental Affairs - Ministry of Tourism, National Parks & Wildlife - Museums of Malawi	- Compile a complete inventory and database of wild and indigenous animals of Malawi both living and extinct. - Carry out surveys to determine distribution and abundance of wild and indigenous animals throughout the country. - Develop conservation measures for rare endangered and endemic species in Malawi. - Carry out research and evaluation to find the socio-economic value of wild and indigenous species and determine the cost of their conservation.
T2 Monitor and evaluate utilisation of wild and indigenous animals.	- Customs Department - Tourism, parks and Wildlife - Forestry, Fisheries and Environmental Affairs - TRAFFIC (Trade Records Analysis of fauna, flora in commerce)	- Ministry of Tourism, Parks & Wildlife - Customs Department - TRAFFIC - UNIMA - National Economic Council of Malawi - Wildlife Society of Malawi	- Mount conservation campaign throughout the country - Facilitate and enhance Community-Based Natural Resources Management projects throughout the country.

T3 strengthen law enforcement techniques	Parks and Wildlife Forestry Department Police Wildlife Action group Hunters and producers of Malawi	Ministry of Justice & Attorney General Ministry of Tourism, Parks & Wildlife - Malawi Police - Customs Department - Forestry Department - Ministry of Forestry, Fisheries & Environmental Affairs - TRAFFIC	- Carry out a number of bottom-up strategies for Natural Resources Management using Indigenous Knowledge Systems (IKS) Train law enforcement officers and all stakeholders in the importance of conserving and sustainably using biological resources
T4 Re-introduce existing species in favourable habitats.	- Ministry of National Parks and Wildlife - Forestry Department - Wildlife Society of Malawi - J&B Circle, MMCT, - Animal Health & Industry (Veterinary Department)	- Department of National Parks & Wildlife - Department of Animal Health & Industry - Ministry of Agriculture & Irrigation - Ministry of Justice & Attorney General - Environmental Affairs Department - Office of the President & Cabinet - Customs Department - Malawi Police	- Check inventory of wild and indigenous species, their distribution and habitats. - Carry out nation-wide surveys to document lost and existing species within habitats - Carry out relevant research to establish lost species before re-introduction.
T5 Create awareness of importance of wild and indigenous animals - Initiative community based conservation activities	- Ministry of Forestry, Fisheries and Environmental Affairs Agriculture, Information, Tourism, Parks and Wildlife - Community Leaders - Wildlife Society of Malawi - Political Leaders	- Ministry of Education & Culture - Ministry of Tourism, National Parks & Wildlife - Ministry of National Heritage - Political Leaders	- Carry out massive public education and awareness campaigns throughout the country at national, regional and area levels. - Introduce wild and indigenous animal of Malawi curricular in primary, secondary and University of Malawi.

4. ECOSYSTEMS OF MALAWI

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Manage and conserve natural resources	- Ministry of Forestry, Fisheries & Environmental Affairs - National Herbarium and Botanical Gardens of Malawi - Ministry of Tourism, Parks and Wildlife - Ministry of Agriculture & Irrigation	- Ministry of Agriculture & Irrigation - Ministry of Lands, Physical Planning, Housing & Survey - Ministry of Forestry, Fisheries & Environmental Affairs - Ministry of Justice & Attorney General - Ministry of Tourism, Parks and Wildlife - CURE	- Develop land use plans throughout the country. - Intensify land use patterns. - Train experts at various levels on land use planning, management and utilisation. - Develop a number of enforcement strategies in both communal and protected areas - Review land-use policy - Carry out quality control measures in land, water etc.
T2	- Department of Fisheries	- CONGOMA	- Massive education

Promote aquaculture for nutrition and income generation	- MIPA - Department of Arts (Chancellor College)	- SEDOM - MIPA - Fisheries Department - Bunda College of Agriculture - Ministry of Agriculture & Irrigation	and public awareness campaigns. - Develop various land-use plans. - Conduct in-service, training at regional, district and area level involving all stakeholders.
T3 Create areas for hunting and fishing	- Department of Forestry - Department of Fisheries - Traditional Healers and Community Leaders	- Ministry of Justice & Attorney General - Forestry Department - Department of National Parks and Wildlife - Fisheries Department	- Develop management plans. - Train enforcement officers at various levels.
T4 Promote development and use of appropriate technology	- Malawi Industrial Research & Technology - Ministry of Energy and Mining Malawi Development Corporation - MIPA - Ministry of Lands, Physical Planning and Surveys	- UNIMA - Malawi Industrial Research & Technology - Malawi Development Corporation	- Train people in various appropriate technology initiatives throughout the country.

5. REVIEW OF LEGISLATION ON BIODIVERSITY

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Review and harmonise legislation on conservation and management of biodiversity	- Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Tourism, Parks and Wildlife, - Ministry of Agriculture & Irrigation, Ministry of Local Government -NHBG	- Ministry of Justice & Attorney General - Ministry of Forestry, Fisheries & Environmental Affairs UNIMA (Law Department) - National Herbarium and Botanical Gardens of Malawi	- Set up mechanisms to review the existing natural resource and environmental legislation with all stakeholders. - Develop a framework to integrate conservation and sustainable use into sectoral and cross-sectoral plans, policies and programmes.
T2 Identify and protect rare and endangered species	- Department of Forestry, - Department of National parks and Wildlife - UNIMA, - Tea Research Foundation -NHBG, -MMCT - WSM	-NHBG - Ministry of Agriculture & Irrigation - National Research Council of Malawi - Ministry of Justice & Attorney General - Ministry of Information	Develop a comprehensive national environmental framework legislation and appropriate enforcement measures.
T3 Build capacity in relevant institutions on conservation and sustainable use of plant resources	- Ministry of Education, Forestry, Fisheries and Environmental Affairs, - Ministry of Tourism, Parks and wildlife, Ministry of Local Government, - Ministry of Energy and Mining - UNIMA	- Ministry of Education -Ministry of Forestry, Fisheries and Environmental Affairs - Ministry of Agriculture & Irrigation - Wildlife Society of Malawi -CURE	- Train personnel at various levels.
T4 Improve and develop	- Ministry of Forestry, Fisheries and Environmental Affairs,	- Malawi Bureau of Standards - Ministry of Commerce	- Train and equip various institutions with appropriate

infrastructure and acquire/replace equipment	<ul style="list-style-type: none"> - Ministry of Commerce and Industry - ITG, - LONHRO - Herbalist Association of Malawi 	& Industry	infrastructure.
T5 Monitor and evaluate use of plant resources	<ul style="list-style-type: none"> - Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Local Government, - Ministry of National Heritage - NHBG 	<ul style="list-style-type: none"> - NHBG - Ministry of Agriculture & Irrigation - Wildlife Society of Malawi - Department of National Parks and Wildlife - Department of Forestry 	<ul style="list-style-type: none"> - Set up monitoring and evaluation mechanisms in various institutions - Train personnel in various institutions in modern methods of monitoring and evaluation of natural resources.
T6 Determine economic value of plant resources	<ul style="list-style-type: none"> - Centre for Social Research of Malawi, - National Economic Council - NHBG - Herbalist Association of Malawi 	<ul style="list-style-type: none"> - National Economic Council of Malawi - Centre for Social Research 	Introduce economic valuation of all biological diversity in all sectors including national budgeting.
T7 Control the introduction and spread of alien and evasive plants and plant diseases.	<ul style="list-style-type: none"> -Ministry of Forestry, Fisheries and Environmental Affairs, -Customs Department , - Ministry of Tourism, Parks and Wildlife - Chancellor College (Biology Dept) -NHBG, -MMCT 	<ul style="list-style-type: none"> - NHBG - Ministry of Justice & Attorney General - Malawi Police -OPC -UNIMA - Environmental Affairs Department - Customs Department - Community Leaders 	<ul style="list-style-type: none"> - Train personnel to deal with control, introduction and spread of alien evasive plants, animals and associated diseases. Personnel from Customs, Police, NGOs, CBOs, pupils from primary and secondary schools and other relevant stakeholders.
T8 Document and promote knowledge innovations and practices of local community relevant to conservation and sustainable use of plant resources, habitats and ecological services	<ul style="list-style-type: none"> - Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Agriculture, Information - NHBG, - MMCT, - WSM - Community leaders 	<ul style="list-style-type: none"> - Ministry of Education - MIRTDC - Ministry of Local Government -Wildlife Society of Malawi - Ministry of Information 	<ul style="list-style-type: none"> - Inventory and document IKS, other knowledge, innovations and practices. - Conduct awareness campaigns at local, district, regional and national levels. - Train Community Leaders.
T9 Develop and promote political advocacy	<ul style="list-style-type: none"> - Political parties, - Ministry of Local government - Traditional Healers, - PAC 	<ul style="list-style-type: none"> - Office of the President and Cabinet - PAC - Environmental Affairs Department - Herbalist Association of Malawi 	<ul style="list-style-type: none"> - Conduct meetings, symposium and workshops with all political parties, cabinet, all parliamentarians and the local leaders and communities.
T10 Develop comprehensive public education and awareness on conservation and sustainable use on plant and animal resources and their diversity.	<ul style="list-style-type: none"> - Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Tourism, Parks and Wildlife - Ministry of Agriculture, Irrigation, - Ministry of Information 	<ul style="list-style-type: none"> - Ministry of Education - MIE - Environmental Affairs Department - Ministry of Information 	<ul style="list-style-type: none"> - Conduct formal and non-formal public education and awareness in conservation and sustainable use of biological resources including participatory

	<ul style="list-style-type: none"> - Religious groups, political leaders - Community leaders - MMCT - Wildlife Society of Malawi 		running, consensus building and empowerment at all levels.
T11 Introduce legislation for patenting and safe guarding of intellectual property rights including IKS	<ul style="list-style-type: none"> - Registrar General - Ministry of Commerce and Industry 	<ul style="list-style-type: none"> - Ministry of Justice & Attorney General - Registrar General - Ministry of Agriculture & Irrigation - Environmental Affairs Department 	- Carry out consultative meetings, symposium and workshops in all sectors of the civil society.
T12 Improve regulation pertaining to importation and exportation of biological material and technology	<ul style="list-style-type: none"> - Department of Customs and Excise - Malawi Police Forestry & Fisheries Department 	<ul style="list-style-type: none"> - Ministry of Justice - Customs Department - Environmental Affairs Department - MIRTDC - NHBG 	Develop documentation for proper recording of imports and exports of biological material. - Establish enforcement mechanisms at all levels.
T13 Create awareness on legislation on biodiversity	<ul style="list-style-type: none"> - Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Justice - Ministry of Tourism, Parks and Wildlife - Ministry of Agriculture and Irrigation, Ministry of Local Government - NHBG 	<ul style="list-style-type: none"> - Ministry of Justice - Environmental Affairs Department - Forestry Department - Fisheries Department - UNIMA - CONGOMA - NHBG - Ministry of Education - Ministry of Agriculture & Irrigation 	- Introduce curriculum on legislation on biodiversity and the UNIMA, Mpemba School of Administration and other sectoral and cross-sectoral policies, plans and programmes.
T14 Review licensing system on utilisation and collection of biological resources	<ul style="list-style-type: none"> - Ministry of Forestry, Fisheries and Environmental Affairs, - Ministry of Justice & Attorney General - Ministry of Agriculture & Irrigation, Ministry of Local Government - NHBG 	<ul style="list-style-type: none"> - Ministry of Justice & Attorney General - Ministry of Commerce & Industry - Ministry of Agriculture & Irrigation - NHBG - Chancellor College (Biology Dept) - OPC 	Develop a comprehensive licensing framework and its appropriate enforcement measures.

6. DOMESTICATED AND INTRODUCED SPECIES

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Produce an inventory of all domesticated and introduced species	<ul style="list-style-type: none"> - Ministry of Agriculture - Bunda - Crop and Animal Science - National Seed Company, - Pannar Seed - Tea Research Foundation - ARET, - Wildlife Society of Malawi, - Department of Customs and Excise - MIPA, - National Economic Council of Malawi 	<ul style="list-style-type: none"> - Ministry of Agriculture & Irrigation - Bunda College of Agriculture - Tea Research Foundation of Malawi - Department of Customs and Excise - National Economic Council of Malawi - NSO 	Document all domesticated and introduced animals and plant species of Malawi through comprehensive field surveys and literature review.
T2	<ul style="list-style-type: none"> - Ministry of Agriculture & Irrigation 	<ul style="list-style-type: none"> - Ministry of Agriculture & Irrigation 	- Conduct continuous surveys of plant and

Identify endangered species	- UNIMA(Bunda College of Agriculture, Biology Dept) FRIM -NSO	UNIMA(Bunda College of Agriculture, Biology Dept) - FRIM -NSO - Department of Customs and Excise - National Research Council of Malawi	animal endangered species throughout the country.
T3 Multiply and conserve animal genetic resources especially those that are rare and endangered	- Agricultural Research and Technical Services - UNIMA - Department of Animal Health and Industry - Ministry of Forestry, Fisheries and Environmental Affairs	- NHBG - Agriculture Research & Technical Services UNIMA- Bunda College of Agriculture – Biology Dept - Wildlife Society of Malawi - Ministry of Information - Ministry of Health & Population	- Establish a number of animal and plant gene banks for both <i>ex situ</i> and <i>in situ</i> conservation
T4 Civic education and training on conservation of biological resources	- Ministry of Agriculture - Bunda – Crop and Animal Science, NSCM, Pannar Seed, Tea Research Foundation of Malawi, ARET, Wildlife Society of Malawi, Customs and Excise, Ministry of Forestry, Fisheries and Environmental Affairs, MIPA, NEC, Treasury	- Land Resource and Conservation Unit - Ministry of Education - ARET -NHBG - Ministry of Local Government -Ministry of Information	- Train personnel at various levels. - Carry out massive awareness campaigns and demonstrations in all the ADDs in the country - Carry out consultative meetings and workshops with local communities and the civil society
T5 Monitor and evaluate population, status of domesticated and introduced species	- MIPA, - Treasury, NEC Ministry of Forestry, Fisheries and Environmental Affairs, Customs and Excise ARET, Tea Research Foundation, Pannar Seed NSCM	- UNIMA - Ministry of Agriculture & Irrigation - ARET - Department of Customs & Excise	- Establish short courses for local leaders, the private sector, technicians, schools.
T6 Identify and control vermin species	- MIPA, - Treasury, - NEC - Ministry of Forestry, Fisheries and Environmental Affairs, - Department of Customs and Excise -ARET, -Tea Research Foundation, -Pannar Seed -NSCM	UNIMA- Bunda College of Agriculture - Environmental Affairs Department - Agriculture Research & Technical Services - FRIM - Fisheries Department	- Establish measures for identification and control in our sectors.

7. LAND USE MANAGEMENT AND CONSERVATION ON BIODIVERSITY IN MALAWI

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Carry out land use surveys	- Land Resources and Conservation Unit - Department of Surveys	- Land Resources and Conservation Unit - Department of Surveys - Environmental Affairs	Introduce and establish short courses in land-use management using IKS and

		Department	appropriate technology.
T2 Carry out biodiversity resources surveys in protected areas	- NHBG - Ministry of Forestry, Fisheries and Environmental Affairs - UNIMA	- NHBG - Department of National Parks & Wildlife - FRIM - UNIMA	- Carry out biological diversity data inventory in protected areas - Train alternates silviculturists, biologists and taxonomists and other support staff at local and community level
T3 Develop management plans for protected areas.	- Department of Forestry, - Department of National Parks and Wildlife	-National Parks & Wildlife Department - NHBG - Department of Forestry - Wildlife Society of Malawi	- Develop resource survey maps.
T4 Reduce levels of pollution in water.	Ministry of Local Government - Department of Water - Water Resources Boards - Environmental Affairs Department	- Water Resources Board - Environmental Affairs Department - Ministry of Water - Development - Ministry of Agriculture	- Develop short courses in water pollution monitoring. - Develop mechanisms for regular monitoring of water courses. - Develop mechanisms for safe effluent discharge into water courses.
T5 Establish a resource centre for indigenous knowledge systems.	- Centre for Social Research -NHBG - Ministry of National Heritage - Copyright Society of Malawi	- Ministry of Agriculture & Irrigation - Ministry of National Heritage - Copyright Society of Malawi -NHBG - Centre for Social Research	- Carry out inventory of IKS. - Document its applicability in resource conservation and sustainable use. - Train sociologists - Conduct surveys on IKS
T6 Conduct civic education on the role of local leaders in land allocation and conservation.	- Politicians - Agricultural Extension - Environmental Affairs Department - Forestry Department	- Ministry of Justice & Attorney General Presidential Commission on Land Reform - Ministry of Lands, Housing, Physical Planning & Surveys - Ministry of Local Government - MWCCASW	- Develop a legal framework to empower chiefs to ensure that land is properly allocated and sustainably managed.
T7 Review of regulations and enhance penalties for offences committed on natural resources	- Ministry of Justice & Attorney General, - Malawi Police, - T/As - Politicians, - Forestry Department	- Ministry of Justice & Attorney General Presidential Commission on Land Reform - Ministry of Lands, Housing, Physical Planning & Surveys - Ministry of Local Government - MWCCASW	- Carry out comprehensive policy review to revise penalties <i>vis-a-vis</i> introduction of Community-based Natural Resources Management.

8. REVIEW OF LITERATURE ON BIODIVERSITY IN MALAWI

ACTIVITIES, TASKS AND POLICIES (Ts)	IMPLEMENTING AGENCIES/PARTNERS	FOCAL POINTS OF ACTIVITIES TASKS AND POLICIES	WHAT MEASURES TO BE EMPLOYED
T1 Build capacity in documentation services-training and career paths.	<ul style="list-style-type: none"> - MALA - UNIMA – Library Systems - Ministry of Education - NRCM - Department of Human Resource Development 	<ul style="list-style-type: none"> - DHRMD, - MALA, - National Research Council of Malawi, - Ministry of Education 	Introduce and promote training programs for information managers.
T2 Document task force literature reviews	<ul style="list-style-type: none"> - National Archives - Environmental Affairs Department - Ministry of Agriculture - NHBG - National Research Council - UNIMA Library system 	<ul style="list-style-type: none"> - NRCM, - National Herbarium and Botanical Gardens of Malawi, - Environmental Affairs Department 	- Establish specialised data bases for task force literature review
T3 Review printed publications Act.	<ul style="list-style-type: none"> - Ministry of Justice - National Archives - National Library Service - Malawi Library Association - Publishers Association - Ministry of Information 	<ul style="list-style-type: none"> - Ministry of Justice & Irrigation, - National Archives, Ministry of Information, MALA, UNIMA library system 	- Establish a review technical committee and draw a work plan
T4 Repackaging information services	<ul style="list-style-type: none"> National Archives National Research Council National Library Services Tea Research Foundation of Malawi University of Malawi Print and Electronic Media 	<ul style="list-style-type: none"> National Library Services, National Research Council of Malawi, Ministry of Information 	Conduct information needs assessment by subject, language format and mode of presentation
T5 Establish awareness program	<ul style="list-style-type: none"> Ministry of Information National Library Services National Research Council NHBG Print and Electronic Media 	<ul style="list-style-type: none"> Malawi Broadcasting Corporation, Ministry of Information, National Research Council of Malawi, National Library Services, Print media 	Introduce radio programs, feature articles, educational tours and forums.
T6 Enact new legislation on provisions for free access to biodiversity information	<ul style="list-style-type: none"> Ministry of Justice National Archives MALA, NRCM, EAD Ministry of Information National Heritage 	<ul style="list-style-type: none"> National Research Council of Malawi, Environmental Affairs Department, Justice 	Establish a committee to assess the current legislation and draft new legislation in biodiversity information.
T7 Produce bi-annual bibliographies and indexes of biodiversity information	<ul style="list-style-type: none"> National Archives NRCM, Parks and Wildlife, Forestry, Fisheries and Environmental Affairs UNIMA- Library system National Libraries Services 	<ul style="list-style-type: none"> National Research Council of Malawi, Environmental Affairs Department, NHBG, UNIMA library system 	Create templates and download bibliographic details.
T8 Refurbish and equip biodiversity information holding centres	<ul style="list-style-type: none"> Forestry, Fisheries and Environmental Affairs National Library Services Museums of Malawi Ministry of Agriculture Ministry of Information NRCM, NHBG Tea Research Foundation of Malawi 	<ul style="list-style-type: none"> NHBG, Environmental Affairs Department, National Library Services, Ministry of Information, National Research Council of Malawi 	Identify centres for refurbishment and prepare project documents for equipment.

BUDGET

SUMMARY OF BUDGET FOR: -

	MK	US\$
1. Diversity of Plants in Malawi	126,100,000	6,305,000
2. Micro-organisms	24,000,000	1,200,000
3. Wild and Indigenous	42,000,000	2,100,000
4 Ecosystems of Malawi	131,000,000	6,550,000
5 Review of Conservation legislation in Malawi	46,141,000	2,307,050
6. Domesticated and Introduced species	71,720,000	3,586,000
7. Land Use Management	28,640,000	1,432,000
8. An inventory of literature on Biodiversity in Malawi	72,380,000	3,619,000
TOTAL	541,981,000	27,099,050
* Establish a Secretariat	1,000,000,000	5,000,000
GRAND TOTAL	<u>1,541,981,000</u>	<u>32,099,050</u>

SCHEDULE

1. PLANT DIVERSITY

TASKS	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POSTS
	1	2	3	4	5		
T1 Review and harmonise legislation/policies		✓	✓			17.5	- Legislation/policies on conservation and sustainable use of biological diversity review and harmonise. - Effective enforcement of conservation laws/policies.
T2 Enact new legislation where necessary, to meet new emerging problems or obligations at the national, regional and international levels.	✓	✓	✓	✓	✓	12.5	- Legislation of new bills - Establishment of new policies

	TIME FRAME (YEARS)						
	✓	✓	✓	✓	✓		
T3 Develop a comprehensive public education and awareness programme on the importance of conservation legislation and policies being undertaken.	✓	✓	✓	✓	✓	175	<ul style="list-style-type: none"> - Development and introduction of new or improved plant conservation curricula in schools and colleges. - Development of plant conservation extension messages through radio, the press and other media.
T4 Identify and protect habitats areas of high plant/biological diversity or endemism	✓	✓	✓	✓	✓	350	<ul style="list-style-type: none"> - Gazettement of more habitats/sites of high plant/biological diversity and endemism throughout Malawi. - Effective protection of habitats of high plant/biological diversity or endemism. Throughout Malawi
T5 Train adequate personnel in conservation at technical and professional levels in relevant	✓	✓	✓	✓	✓	530	<ul style="list-style-type: none"> - Achievement of critical mass of targeted trained personnel in plant conservation at technical and professional levels to be trained over the 2 year period
T6 Improve or develop infrastructure, equipment and services.	✓	✓	✓	✓	✓	750	<ul style="list-style-type: none"> - Improvement of office space through renovations of present buildings. - Construction of much needed office, laboratory and staff accommodation. - Repairing of malfunctioning equipment. - Provision of new laboratory equipment.
T7 Monitor the exploitation levels of plant/biodiversity resources and habitats	✓	✓	✓	✓	✓	125	<ul style="list-style-type: none"> - Establishment of standard methods for monitoring the exploitation levels of plant/biodiversity resources and habitats - Periodic reporting of the exploitation levels of plant/biodiversity resources and habitats. - Establishment of sustainable exploitation levels of specific plant species habitats or ecological services.
T8 Document trade in plant/biodiversity resources at domestic and international levels.	✓	✓	✓	✓	✓	175	<ul style="list-style-type: none"> - Publication of annual trade for data for the domestic and external markets.
T9 Determine the economic value of plant/biodiversity resources, habitats and ecological services	✓	✓	✓	✓	✓	75	<ul style="list-style-type: none"> - Establishment of real costs and prices of conserving plant/biodiversity resources/habitats/ecological services. - Accurate valuation of plant/biodiversity resources/habitats/ecological services of given areas
- Incentives made available to local communities, particularly those adjacent to protected areas and site of high plant/biological diversity.	✓	✓	✓	✓	✓	600	

	TIME FRAME (YEARS)						
	✓	✓	✓	✓	✓		
T11 Study benefit sharing systems at local community, individual or government levels	✓	✓	✓	✓	✓	125	<ul style="list-style-type: none"> - Benefit sharing systems and mechanisms operating in the country established. - Benefit sharing legislation and development.
T12 Involve the public, local leaders and NGOs in decision making, including the manage of plant resources/habitats/ Ecological services.	✓	✓	✓	✓	✓	100	<ul style="list-style-type: none"> - Inclusion of the stakeholders at the local level in natural resources management committees. - Involvement of all stakeholders at the planning and implementation of plant/biodiversity conservation and sustainable use.
T13 Undertake plant science and socio-economic research that promote the conservation and sustainable use of plant resources/habitats/ Ecological services.	✓	✓	✓	✓	✓	10,000	<ul style="list-style-type: none"> - Comprehensive collection of plant species throughout Malawi. - Production of checklist of plants in protected areas and sites of high plant diversity. - Publication of taxonomic treatments and revisions of major plant taxa. - Major ethno-botanical survey of the flora of Malawi completed and published. - Re-classification of vegetation of Malawi completed.
T14 Control the introduction and spread of alien, evasive plants and plant diseases	✓	✓	✓	✓	✓	375	<ul style="list-style-type: none"> - Production of extension materials on negative impacts of alien and evasive plant diseases - Commencement of radio programme on negative impacts of alien and evasive plants; and plant diseases for schools and the general public. - Research programmes on the biology and control of alien and evasive plants and plant diseases - Enforcement of quarantine and plant health regulations
T15 Document and promote knowledge innovations and practices of local communities relevant to the conservation and sustainable use of plant resources/habitats/ ecological services	✓	✓	✓	✓	✓	250	<ul style="list-style-type: none"> - Publication of indigenous knowledge systems in Malawi. - Documentation of innovations and practices of local communities relevant to the conservation of plant/biological diversity
T16 Develop a National Red list for Threatened plants/habitats/ Ecological services	✓	✓	✓	✓	✓	75	<ul style="list-style-type: none"> - Publication of a Red Data List for threatened/endangered plant species. - Publication of the conservation status of all vegetation types, habitats of high plant/biological diversity etc
T17 Provide adequate funding to ministries departments and institutions and NGOs involved with the conservation and sustainable use of plant resources/habitats/ecological services	✓	✓	✓	✓	✓	600	<ul style="list-style-type: none"> - Collection, propagation and establishment of threatened plant species in botanical gardens and arboreta. - Establishment of threatened vegetation types in botanical gardens and arboreta.

	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
T18 Develop and promote political advocacy.	✓	✓	✓	✓	✓	250	<ul style="list-style-type: none"> - Expanding strong political statements at rallies, meetings, etc. by all politicians that favour the conservation and sustainable use of plant/biological diversity and habitats. - Expanding strong political support for conservation and sustainable use of plant/biological diversity and habitats, by all political parties.
T19 Provide adequate funding to ministries, departments, institutions and NGOs involved with the conservation and sustainable use of plant resources/habitats/ Ecological services	✓	✓	✓	✓	✓	500	<ul style="list-style-type: none"> - Increased budgetary allocations for capacity building in terms of human resources and infrastructures development from both the Treasury and donor agencies.
T20 Monitor and evaluate the implementation of the actions of the strategic recommendations	✓	✓	✓	✓	✓	250,	<ul style="list-style-type: none"> - Documentation of the achievements and failure of the strategies/actions - Provision of advice to maintain the success as well as address the failures
TOTAL						US\$6,305,000	

2. MICRO-ORGANISMS

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
1. Establish co-ordination and management system	✓	✓	✓	✓	✓	610	<ul style="list-style-type: none"> • 12 project staff recruited • management system in place
2. Train biosystematic experts	✓	✓	✓	✓	✓	250	<ul style="list-style-type: none"> • 10 staff members trained • 80 people attend workshops
3. Inventorise micro-organisms	✓	✓	✓	✓	✓	120	Samples identified and collected.
4. Conserve micro-organisms	✓	✓	✓	✓	✓	170	<ul style="list-style-type: none"> • Building created • Various micro-organisms conserved
5. Document micro-organisms			✓	✓	✓	50	Database in place
TOTAL						US\$1,200	

3. WILD AND INDIGENOUS ANIMALS OF MALAWI

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
Train in invertebrate zoology			✓	✓	✓	450	6 zoologists trained
Identify and collect specimen			✓	✓	✓	200	Animal species identified and collected
Carry out survey and research on animal distribution and habitat		field	✓	✓	✓	300	Animal distribution and habitat mapped out
Establish information management system	✓	✓	✓	✓	✓	50	Data base on wild and indigenous animals put in place by end of 2 nd year
Establish specimen storage and			✓	✓	✓		Storage and preservation facilities in

preservation facilities						300	place by 3 rd year
Undertake environmental awareness and mobilisation campaigns	✓	✓	✓	✓	✓	100	Awareness programmes put in place
Promote community (participation) conservation)	✓	✓	✓	✓	✓	620	Wild indigenous animals conserve IGAs introduced income genetic activities
Establish monitoring and evaluation system	✓	✓	✓	✓	✓	80	Monitoring system for animal conservation put in place

TOTAL = US\$ 2,100,000

4.ECOSYSTEMS OF MALAWI

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
1. Establish classical fisheries management system.	✓	✓	✓	✓	✓	300	Management system in place.
2. Enforcement gear restrictions, closed season.	✓	✓	✓	✓	✓	150	Use of proper gear followed.
3. Identify fish species in water bodies.	✓	✓	✓	✓	✓	300	Keys for identification developed.
4. Map habitats of fisheries biodiversity	✓	✓	✓	✓	✓	1000	Geographical maps produced.
5. Conduct awareness campaigns to the public.	✓	✓	✓	✓	✓	500	Educational materials produced.
6. Rehabilitate degraded ecosystems.	✓	✓	✓	✓	✓	1100	Ecosystem recovery rate improved.
7. Educate the public on Eco-tourism.	✓	✓	✓	✓	✓	100	Mammals, brochures produced and circulated.
8. Assess genetic diversity at species level	✓	✓	✓	✓	✓	1050	Genetic pop structures of each species defined.
9. Screen best performing species of fish	✓	✓	✓	✓	✓	500	Yield improved
10. Develop fish sanctuaries	✓	✓	✓	✓	✓	150	Sanctuaries developed
11. Train fish farmers to conserve genetic diversity at farm	✓	✓	✓	✓	✓	500	Many fish farmers trained
						TOTAL = US\$ 6,050	

5. REVIEW OF CONSERVATION LEGISLATION

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
Review legislation	✓	✓				1000	40 legi-reviewed
Formulate regulations			✓			22.05	Relevant regulations in place by 3 rd year.
Conduct awareness campaigns to public <ul style="list-style-type: none"> Meetings Media Pamphlets 				✓	✓	1200	<ul style="list-style-type: none"> Pamphlets in place Awareness campaigns with material produced Meetings conducted.
Conduct awareness meeting to staff members				✓	✓	25	Meetings conducted.
						TOTAL=US\$2,307.05	

6. DOMESTICATED AND INTRODUCED SPECIES

ACTIVITY	TIME FRAME(YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
1. Build institutional capacity - Personnel - Training & Workshops - Co-ordination	✓					500	<ul style="list-style-type: none"> Personnel trained Equipment procured Institutional frame work developed
	✓	✓	✓	✓	✓	200 100	
2. Characterise germplasm - Sample collections - Biotech. Lab - Equipment - Animal purchases - Labour - PCR & Supplies			✓	✓	✓	200 100 50 1,000 500 17	<ul style="list-style-type: none"> Collections made Biotech. Lab set-up Equipment procured Animals purchased
	✓	✓	✓		✓		
3. Assess nutritional value - Equipment, chemicals, reagents, supplies	✓					20	<ul style="list-style-type: none"> Chemical composition anti-nutritional factors determined
4. Create data base - Computers - Printers - Photocopiers - UPS	✓					14 11 10 4	<ul style="list-style-type: none"> Data base in place
5. Establish gene banks - <i>Ex situ</i> - <i>In situ</i>						200 300	<ul style="list-style-type: none"> Gene Banks established
		✓	✓	✓	✓		
6. Improve germ- plasma - PPB		✓	✓	✓	✓	300	<ul style="list-style-type: none"> PPB in place
6. Propagate germ plasm - Seed multiplication - Tissue culture						10 50	<ul style="list-style-type: none"> Seed multiplied Propagating produced
		✓	✓	✓	✓		
TOTAL						US\$3,586,000	

7. LAND USE MANAGEMENT AND BIODIVERSITY CONSERVATION

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
1. Carry out land use surveys			✓	✓	✓	651.5	Land-use maps developed
2. Intensify patrols for			✓	✓	✓	143	No. of patrols

reinforcement in land-use							
3. Establish awareness programs.	✓	✓	✓	✓	✓	50	Awareness programs in place.
4. Carry out surveys for biodiversity.			✓	✓	✓	100	• Data base on Biodiversity established
5. Mount participatory awareness campaigns			✓	✓	✓	263	• Of participatory awareness campaigns
6. Review policy	✓	✓	✓	✓	✓	2	• Revised policy document
7. Carry out resource surveys			✓	✓	✓	50	• Resource maps developed
8. Map protected areas	✓	✓	✓	✓	✓	2.5	• Protected areas gazetted
9. Monitor water courses			✓	✓	✓	67.5	• Monitoring system for water in place
10. Carry out laboratory test of water in major streams in cities.			✓	✓	✓	100	• Monthly lab tests of water carried out
TOTAL = US\$1429.50							

8. INVENTORY OF LITERATURE ON BIODIVERSITY

ACTIVITY	TIME FRAME (YEARS)					BUDGET (US\$'000)	SIGN POST
	1	2	3	4	5		
1. Document standard develop career paths.	✓	✓	✓	✓	✓	8	<ul style="list-style-type: none"> Standards in place Career paths developed.
2. Review literature	✓	✓	✓	✓	✓	5	• Data base established
3. Review publications Act.	✓					8	• Publications Act. Reviewed
4. Train information managers	✓	✓	✓	✓	✓	2020	• Information managers trained workshops held.
5. Repackage information services.	✓	✓	✓	✓	✓	360	• DTP suite in place. • Studio place.
6. Establish awareness programs		✓	✓	✓	✓	423	• Radio program video and audio cassettes produced.
7. Draft a national documentation and information bill	✓	✓				140	• Bill enacted
8. Publish indexes of biodiversity literature	✓	✓	✓	✓	✓	20	• Indexes of biodiversity literature produced
9. Down load literature	✓	✓	✓	✓	✓	110	• Internet connection in place
10. Refurbish and equipped biodiversity information holding centres		✓	✓	✓	✓	525	20 BIHC refurbished and equipped
TOTAL = US\$3,619,000							

MONITORING AND EVALUATION

COMPONENT 1: PLANT DIVERSITY

ACTIVITY	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATION	TIME SPAN
1. Review, Harmonise legislation/policies	Legislation policies, Harmonised, reviewed	Availability of revised legislation/policies	- Ministry of Justice - Parliament - Forestry, Fisheries and -Environmental Affairs - Water Development - Ministry of Agriculture - Local Authorities	1,2, 3, 4, 5
2. Enact legislation where necessary and formulate new policies	Bills enacted and Formulated policies		- Ministry of Justice - Parliament (as above)	←-----→
3. Develop public and educational programmes	Awareness and Educational programme in schools and media introduced	Radio programs on plant diversity curriculum plant diversity.	Forestry and Fisheries, Parks and Wildlife, MBC, Agriculture, Information, NGOs, Botanical Gardens, Education and Religious.	←-----→
4. Identify and protect habitat areas of high plant diversity and endemism and monitoring utilisation.	Complete species inventory. Habitats with high concentration of plant species endemism identified		MMCT, National Parks, NHBG, Chancellor College (Biology Dept), Forestry, Wildlife Society of Malawi	←-----→
5. Train personnel in conservation and sustainable use of plant resources	No of trained personnel	% age of the trained personnel	Ministry of Education, Ministry of Local Government, Ministry of Women Affairs, DPMT, UNIMA, MACOFO	1, 2, 3, 4, 5
6. Development of infrastructures and acquisition equipment	No of infrastructures developed and equipment accrued	% age of infrastructures developed and equipment accrued	City Council, and Municipalities, ADDs, District Community Development DC, Ministry of Works, Ministry of Physical Planning and Survey	←-----→
7. Document trade in plant resources for both domestic and external markets	Documented trade volume in plant resources	Records on trade in plant resources	Commerce and Industry, Malawi Export Promotion Agency, Timber Companies Industrial Timbers (ITG), National Statistical Office	←-----→

COMPONENT 2: MICRO-ORGANISMS

ACTIVITY	INDICATORS	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATION	TIME FRAME
				1,2, 3, 4, 5
BIOSYSTEMATICS	- Documented findings.	Presence of an inventory on micro-organisms.	- Central Vet. Lab, - University of Malawi, - Dept of Agricultural Research, -Technical Services, -Tea Research Association, -Food Beverages	1,2, 3, 4, 5
· Identification of micro-organism.	Developed inventories.			
· Develop an inventory of micro-organisms.				

• Documenting the findings.			Industries, -MBS, -Local Authorities, -National Herbarium	
2 Training (Local and International)	No. of people trained by category.	% of the people trained by category.	UNIMA, DATS, Vet. Agric. Mzuzu University. As above Central Water Lab.	←-----→
3.Conservation	Decrease in the No. of threatened species.		National Herbarium and Botanical Gardens of Malawi	←-----→
4.Capital Formation		Availability of fully equipped laboratories at various responsible institutions.	National Economic Council of Malawi	←-----→

3.WILD AND INDIGENOUS ANIMALS

ACTIVITIES	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. To conserve and manage wildlife species in and out protected areas			Department of National Parks and Wildlife, Museums of Malawi, Bunda, Wildlife Society of Malawi	1, 2, 3, 4, 5
2. Survey animal distribution	No. of documents on animal distribution	No. of documents on animal distribution produced	-Do-	←-----→
3. Monitor population and habitat quality trends	Habitat assessment report	Habitat reports on biomass		←-----→
4. Re-introduce extinct species	No. of extinct species re introduced	Survey of extinct	-Do-	←-----→
5. Translocate threatened species to safer sanctuaries	No. of threatened species introduced in safer sanctuaries	A monthly survey of threatened introduced species in safer sanctuaries	-Do-	←-----→
6. Participation of indigenous local community	Resources shared with the community	Financial records	-Do-	1, 2, 3, 4, 5
7. Identify new invertebrates and document. - Provide an update check list of wild and indigenous animals.	No. of new invertebrates identified and documented - Provide an up date list of wild and indigenous animals	New invertebrates identified and documented. - Annual submissions of wild and indigenous animals	Museums of Malawi. - Chancellor College, Museums of Malawi and Bunda College	←-----→

4. ECOSYSTEMS OF MALAWI

ACTIVITY	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. Promote the monitoring and rehabilitation of ecosystems	No. of rehabilitated areas	% age decrease of degraded areas	Chancellor College (Biology Department)	1,2,3,4,5
2. Identify and conserve biological diversity	Complete biodiversity species inventory	New species identified and documented		←-----→

2. Identify and conserve biological diversity	Complete biodiversity species inventory	New species identified and documented		←-----→
3. Intensify research on conservation and sustainable use of biological resources	Improve varieties released			
4. Introduce environmentally friendly technologies	No. and types of environmentally friendly technologies introduced	Adoption of the new technologies		←-----→

5. REVIEW OF LEGISLATION IN MALAWI ON BIODIVERSITY

ACTIVITY	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. Review, harmonize and enact legislations and formulate policies on biological resources	- Reviewed & harmonize legislation and bills - New bills enacted and policies formulated	- Availability of reviewed bills - Enacted bills - Availability of policy documents	-Ministry of Justice & Attorney General -Parliament -Ministry of Forestry, Fisheries & Environmental Affairs -Water Department	1,2,3,4,5
2. Develop mechanisms to strengthen law enforcement on biodiversity	- Reduced offences on breach of biodiversity legislation	- No. of offences related to breach of biodiversity legislation	-Ministry of Justice & Attorney General -Ministry of Agriculture	←-----→
3. Translocate threatened species to safer habitats	- No. of threatened species introduced in safer habitat	- Monthly surveys of threatened introduced species in safer habitats	-Department of National Parks and Wildlife -Wildlife Society of Malawi	←-----→

6. DOMESTICATED AND INTRODUCED SPECIES

ACTIVITY	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. Awareness and education campaigns on propagation forestry and agroforestry species.	- Educational campaigns conducted - No. of Forestry and agroforestry planted.	Woodlots and community based forests established	Department of Forestry; Department of Agriculture Research ; Wildlife Society of Malawi, Herbalist Association of Malawi	I, 2, 3, 4, 5 ←-----→
2. Survey collect and establish field gene banks.	Local animals and plants characterised		Department of Agricultural Research, Department of Forestry, Agricultural Research and Extension Trust (ARET)	←-----→
3. Encourage research multipurpose tree species and minor root and tube crops.	Improved varieties released		Department of Agricultural Research, Forestry Department, Chitedze Research Station	←-----→
4. Prevent pollution of water bodies	Improved water quality	Water quality testing	Department of Agricultural Research, Water Development, Water Boards, Fisheries Department, Marine and Civil Aviation	←-----→
5. Control of the spread of alien invasive plants and plant diseases	Availability of control measures		Agricultural Research Department, Forestry Department, Department of National Parks and	

			Wildlife, Biology Department (Chancellor College), Crop Science Department (Bunda College), NGOs, WSM, MMCT, CURE	←-----→
5. Control of the spread of alien invasive plants and plant diseases	Availability of control measures		Agricultural Research Department, Forestry Department, Department of National Parks and Wildlife, Biology Department (Chancellor College), Crop Science Department (Bunda College), NGOs, WSM, MMCT, CURE	←-----→
6. Provide adequate funds to implement Agencies.	Budget allocations		- The Cabinet, - Treasury, Ministries, Departments, Institutions, World Bank, GEF, DFID -UK	
7. Develop and promote political advocacy	Plant resource management messages developed		Got institutions and bodies, the public, local communities, political parties, NGOs	←-----→
8. Assess economic value of plant resources	Income from plant resources	Amount of money collected periodically	Water Development, National Economic Council, Centre for Social Research, Biology Department (Chancellor College), Forestry Department, Parks and Wildlife Department, Fisheries Department, NHBG, Herbalists Association of Malawi, Craftsmen, Rural and Urban Households	←-----→
9. Study benefit sharing systems and mechanisms at local community individual and government level	Diversity of shared benefit systems at local community and government levels		-Do- plus Ministry of Women, Children Affairs, Agriculture, Tourism, Justice and Constitutional Affairs, OPC (District Administration)	←-----→
10. Involve mass participation, decision making and management of plant resources	No. of participants parting in decision making – management of plant resource	Reduction of deforestation. No. of established community based plant management centres	-Do- plus NGOs, local government, Education	←-----→
11. Undertake Research in the promotion of plant conservation and sustainable use.	Availability of documents on plant conservation and sustainable use		Forestry Department and Environmental Affairs, Tourism, National Parks and Wildlife, NHBG, UNIMA	←-----→
12. Develop National Red list of threatened plant resources	Availability of a Red list of threatened plant resources	No. of threatened plant resources	NHBG, Forestry, Parks and Wildlife, Biology Dept (Chancellor College), NGOs, WSM, MMCT, IUCN, SSC	←-----→

7. LAND USE MANAGEMENT AND CONSERVATION ON BIODIVERSITY

ACTIVITIES	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. Conduct land use surveys to determine rate of change of land under agriculture	Rate of change of land under agriculture	Photography H/hold survey API Remote sensing sat images	LRCD Surveys NSO	1, 2, 3, 4, 5
2. Strict enforcement of fishing regulations and encourage community participation	Number of patrols Awareness rate		Do fisheries Local leaders	←-----→
3. Prepare inventory of biological data in protected areas	Inventory of biological data in protected areas.		NHBGM DOF Do Fisheries UNIMA	←-----→
4. Elevate some animals in Appendix 2 to Appendix I of the cites; Awareness campaigns	Draft proposal Participatory Awareness campaigns mounted		DPWL Do Fisheries Do Forestry District Administration Local Leaders	←-----→
5. Policy review to ensure that communities near protected areas benefit from revenue collected	Policy review		Fisheries DPWL Justice Forestry	←-----→
6. Develop management plan for protected areas	Resource surveys and mapping		Forestry DPWL	←-----→
7. Regular monitoring of water courses to ensure safe effluent discharge	Levels of pollution in water	Carry out periodic laboratory tests	Local authorities Ministry of Water Development Malawi chamber of Commerce	1, 2, 3, 4, 5
8. Carry out inventory of protected areas and determine most suitable use in view of current conditions	Appraisal reports and maps	Resource surveys and mapping	Forestry DPWL Agricultural and Irrigation	←-----→
9. Carry out inventory of IKS. Document IKS and document its applicability in resource conservation	Inventory of IKS and documentation on its application.	Conduct surveys	CSR NHBGM c s c Local leaders	←-----→
10. Empowerment of local leaders legally to enable them enforce proper use of land	Policy reviewed	Policy review	Justice District Administration	←-----→
11. Policy review to revise penalties	Reviewed policy	Policy review	Ministry of Justice	←-----→

COMPONENT 8 : LITERATURE REVIEW AND INFORMATION SYSTEM

ACTIVITY	INDICATOR	MEANS OF VERIFICATION	RESPONSIBLE ORGANISATIONS	TIME FRAME
1. Training of information managers at all levels	140 managers trained at different levels	% of trained staff per year	UNIMA, University of Muzzle, MALA, NRCM, Treasury, DHRMD , DEA, NHBG	←-----→
2. Repackaging, education and awareness programs	DTP and production studio set and operational	No. of awareness programmes and information kits produced per year	NRCM, NHBG, EAD, MBC, TV Malawi	←-----→
3. Refurbishing and equipping information holding centres .	20 centres fully refurbished and equipped	No. of entries refurbished and equipped per year	MALA, Treasury, NRCM and all sectional institutions	←-----→
4. Data base development and maintenance	6 specialised data base established and operational	No. of entries and queries attended to per year	All concerned institutions	←-----→
5. Bibliographies and indexes	4 published document per year	Bibliographies and indexes	NRCM, NHBG, UNIMA. NA	←-----→

SHARING OF NATIONAL EXPERIENCE

SADC Biodiversity meeting: October, 1995, Lilongwe

OBJECTIVES

- To draw up strategies to implement the provisions of the convention on Biological Diversity which also includes article six(6) of the Convention.

EXPERIENCES SHARED

The Lilongwe meeting ended up with a declaration; the Lilongwe declaration in which the following were part of the declaration:-

- SADC should ratify the Convention.
- SADC should develop a Biodiversity information network.
- Individual countries should develop their own strategies and action plans.

A follow up meeting was held in Maputo, Mozambique in August, 1996.

OBJECTIVES

To review agreements and solutions of the Lilongwe meeting.

SHARING AND EXPERIENCES AT THIS MEETING.

Malawi shared with other 10 SADC countries the following experiences:-

- There is a Southern African Biodiversity Project which is submitted to GEF and currently is being reviewed. Malawi is party to this project.
- This project has a number of activities and proposals for each country to undertake in order to address conservation and sustainable use of biodiversity resources in the region.

BIODIVERSITY CONSERVATION SUPPORTIVE EFFORTS AT NATIONAL LEVEL

The following are some of the project under biodiversity conservation which Malawi is currently undertaking.

1. Mulanje Mountain Conservation Trust.
2. Wildlife Society of Malawi.
3. USAID Nature Project.
4. DFID (Department of International Development (ODA – UK) which support MMCT Project.
5. IDRC (International Development and Resource Corporation).
6. GTZ – Biodiversity of protected areas.
7. Vwaza-Nyika Boarder Zone Management.

8. Wildlife Utilisation Resources Conservation Strategies project.
9. UNESCO project on the knowledge on the uses and conservation of plant resources around Mulanje Mountain.
10. DANIDA – Lake Malawi Wetlands projects.
11. Co-management project at Nyika, Kasungu, Nkhotakota and Lengwe National Park.

OTHER BIODIVERSITY EXPERIENCES AT SUB-REGIONAL LEVEL

1. Lake Malawi/Nyassa Biodiversity GEF project
2. Southern African Botanical Network GEF (USAID)
3. IUCN-ROSA Wetlands Programmes.
4. Southern African Biodiversity Forum
5. SADC plant genetic resources conservation project.
6. ICRAF-Agro-forestry project
7. Tree seed centre project.
8. Biodiversity co-ordination in SADC.

CONTRIBUTORS TO THE FIRST NATIONAL REPORT

NAME

ORGANISATIONS

TASK FORCE LEADERS AND MEMBERS

A. THE DIVERSITY OF PLANTS IN MALA WI

- | | |
|-------------------------|--|
| 1. Professor J.H Seyani | National Herbarium & Botanical Gardens of Malawi |
| 2. Dr M.P Munyenembe | Chancellor College |
| 3. Mr L Mwabumba | Forestry Research Institute of Malawi |
| 4. Mr H.M Banda | Malawi College of Forestry and Wildlife |
| 5. Mr M.C Mwambene | Ministry of Local Government |
| 6. Mr A.K Banda | National Herbarium & Botanical Gardens of Malawi |

B. MICRO-ORGANISMS

- | | |
|-----------------------|--|
| 1. Professor V.W Saka | Bunda College of Agriculture |
| 2. Dr Msuku | Bunda College of Agriculture |
| 3. Dr C.T Kisyombe | Chitedze Research Station |
| 4. Dr A.T Daudi | Bvumbwe Research Station |
| 5. Mr Kaunda | Bunda College of Agriculture |
| 6. Dr (Mrs) P. Ngwira | Chitedze Research Station |
| 7. Dr N. Gondwe | Chitedze Research Station |
| 8. Mrs Mwafongo | National Herbarium and Botanical Gardens of Malawi |

C. WILD AND INDIGENOUS ANIMALS OF MALA WI

- | | |
|--------------------|---|
| 1. Mr L.D Sefu | Department of National Parks & Wildlife |
| 2. Dr M.E.D Nhlane | Museums of Malawi |
| 3. Dr Dudley | Chancellor College |
| 4. Miss C.R Mhango | Chancellor College |
| 5. Mr Chitaukali | Museums of Malawi |

D. ECOSYSTEMS OF MALA WI

- | | |
|-----------------------|--------------------|
| 1. Mrs M. Kalindekafe | Chancellor College |
| 2. Dr Ambali | Chancellor College |
| 3. Mr L.M Mwanyambo | Chancellor College |

- | | |
|----------------|------------------------------|
| 4. Mr Mapila | Fisheries Department |
| 5. Mr Chilwa | Forestry Institute of Malawi |
| 6. Mr Kapyepye | Wildlife Society of Malawi |

E. REVIEW OF CONSERVATION LEGISLATION OF M-ALA WI

- | | |
|-------------------------|--|
| 1. Mr Kenyatta Nyirenda | Ministry of Justice & Attorney General |
| 2. Mr E.M Makawa | Environmental Affairs Department |
| 3. Mr D Kamundi | National Herbarium and Botanical Gardens of Malawi |
| 4. Mr Ziwawo | Ministry of Energy and Mining |
| 5. Mr Jiya | Department of National Parks and Wildlife |
| 6. Mr Mikuwa | Water Department |
| 7. Mr Mhura | Chancellor College |

F. DOMESTICATED AND INTRODUCED SPECIES

- | | |
|------------------------|------------------------------|
| 1. Dr A.B.C Mkandawire | Bunda College of Agriculture |
| 2. Dr J.M Bokosi | Bunda College of Agriculture |
| 3. Mr L.S Nsapato | Chitedze Research Station |
| 4. Dr R.KD Phoya | Bunda College of Agriculture |
| 5. Mr E.M Khonje | Chitedze Research Station |
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G. LAND USE MANAGEMENT AND BIODIVERSITY

- | | |
|------------------------|--|
| 1. Mr V.A.L Mkandawire | Land Resource and Conservation Unit |
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| 4. Dr E.Y Sambo | University Office |
| 5. Mr G Mloza | Ministry of Energy and Mining |
| 6. Mr Mjojo | UNHCR |
| 7. Miss P.N.S Mkwamba | Ministry of Women, Children's Affairs and Community Services |

H. INVENTORY OF LITERATURE ON BIODIVERSITY

- | | |
|-----------------------|-------------------------------------|
| 1. Mr James B.M Chuma | National Research Council of Malawi |
| 2. Mr Vuwa Phiri | Chancellor College |

3. Mr Malunga National Archives

SOCIO-ECONOMISTS

1. Miss Annie-Marie Brouder Centre for Social Research
2. Mrs Theu National Economic Council
3. Mr Alufandika Office of the President and Cabinet

TECHNICAL EXPERTS WORKSHOP AND THE FIRST NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY, NKOPOLA LODGE, MANGOCHI (1 4th – 18th DECEMBER, 199 7)

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2. Dr Gangile Phiri	National Herbalist Association
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9. Mr R.P Chingoli	Ministry of Lands, Housing , Physical Planning and Surveys
10. Mr J. Musyani	Ministry of Tourism
11. Mr C Kapeleta	Malawi Chamber of Commerce and Industry
12. Mr Guluwe	Chancellor College
13. Mr Kamwendo	Treasury
14. Mrs Kulemeka	Malawi Investment Promotions Agency
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36. Chancellor College	Mr Vuwa Phiri
37. National Archives	Mr Malunga
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39. Blantyre City	Dr Alufandika
40. Centre for Social Research	Miss Marie-Annie Brouder
41. Museums of Malawi	Dr Nhlane
42. NHBG	Mr Kamundi

List of Acronyms

ADD	Agriculture Development Division
ARET	Agricultural Research and Extension Trust
CBD	Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
CBO	Community Based Organisation
CCD	Convention to Combat Desertification and Drought
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CONGOMA	Council for Non-Governmental Organisations
c s c	Christian Service Committee
CSR	Centre for Social Research
CURE	Co-ordination Unit for Rehabilitation Environment
DANIDA	Danish International Development Agency
DATS	Department of Agricultural Technical Services
DFID-UK	Department of International Development - UK
DHRMD	Department of Human Resources Management and Development
DNPW	Department of National Parks and Wildlife
DPMT	Department of Personnel Management and Training
DREA	Department of Research and Environmental Affairs
EAD	Environmental Affairs Department
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
ESP	Environmental Support Programme
FAO	Food and Agriculture Organisation
FD	Forestry Department
FRIM	Forestry Research Institute of Malawi
GEF	Global Environment Facility
GTZ	Federal Republic of Germany
ICRAF	International Centre for Research Agroforestry
IGA(P)	Income Generating Activities (Projects)

IKS	Indigenous Knowledge Systems
IPR	Intellectual Properties Rights
ITG	International Timbers
IUCN	International Union for Conservation of Nature and Natural Resources, also known as World Conservation Union
LRCDD	Land Resource and Conservation Department
MAB	Man and Biosphere
MACOFO	Malawi College of Forestry
MALA	Malawi Library Association
MBC	Malawi Broadcasting Corporation
MDI	Malawi Dairy Industries
MEPD	Ministry of Economic Planning and Development
MMCT	Mulanje Mountain Conservation Trust
MIE	Malawi Institute of Education
MIRTDC	Malawi Industrial Research and Technology Development Centre
MIPA	Malawi Investment Promotions Agency
MOREA	Ministry of Research and Environmental Affairs
MWCASW	Ministry of Women, Children's Affairs and Social Welfare
NA	National Archives
NBSAP	National Biodiversity Strategy and Action Plan
NEC	National Economic Council
NEAP	National Environment Action Plan
NEP	National Environmental Policy
NGO	Non Governmental Organisation
NHBG	National Herbarium and Botanical Gardens
NRCM	National Research Council of Malawi
NSCM	National Seed Company of Malawi
NSO	National Statistics Office
OPC	Office of the President and Cabinet
PAC	Public Affairs Committee
PRA	Participatory Resource Actions

RAMSAR	Wetlands Convention
RVC	River Village Committee
SABONET	Southern African Biodiversity Network
SADC	Southern Region African Development Countries
SEDOM	Smallholder Enterprise Development of Malawi
s s c	
T/A	Traditional Authority
TRAFFIC	Trade Records Analysis of fauna, flora in Commerce
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Education, Scientific, and Cultural Organisation
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIMA	University of Malawi
USAID	United States Agency for International Development
VBC	Village Beach Committee
VNRC	Village Natural Resources Committee
VIPLY	Viphya Plywood
VIPCOR	Viphya Corporation
WICO	Wood Industries Company
WSM	Wildlife Society of Malawi
WURCS	Wildlife Utilisation Raises Community Standards
WWF	World Wide Fund for Nature