



Sectoral Integration in Malawi

Contents

1. Introduction	2
2. Relevant biodiversity policies and legislation	2
3. Sectoral biodiversity coordination	4
4. Cross sectoral biodiversity coordination.....	5
5. Cross cutting national programmes and strategies	7
6. National Strategy for Sustainable Development for Malawi	7
7. Malawi Growth and Development Strategy	8
8. Malawi National Adaptation Programmes of Action	9
9. Agricultural Sector Wide Approach (ASWAp)	10
10. The Millennium Development Goals (MDGs)	11
11. Linkages with other UN Conventions.....	11
12. Climate change.....	11
13. Migratory species.....	13
14. Desertification.....	13
15. Incentive measures	13
16. The Ecosystem Approach.....	14
17. Integrating biodiversity considerations into Environmental Impact Assessment and Strategic Environmental Assessment.....	15

1. Introduction

Malawi¹ (2010) reported that mainstreaming refers to inclusion or integration of action related to biodiversity conservation and sustainable use into economic sectors whose core business is not biodiversity conservations such as agriculture, tourism, fisheries, forestry and mining. It also entails inclusions of biodiversity considerations into national policies and programmes. By integrating biodiversity considerations Malawi is fulfilling requirements of Article 6b which requires all parties to integrate as far as possible and appropriate the conservation and sustainable use of biological diversity into relevant sectoral and cross sectoral plans, programme and policies. The need to mainstream biodiversity considerations into sectoral and cross sectoral policies and programmes is a complex challenge for Malawi especially considering that the responsibility of managing and conserving biodiversity is fragmented along the departments and statutory corporations under the Ministry of Natural Resources, Energy and Environment; Ministry of Agriculture and Food Security; Ministry of Irrigation and Water, and Ministry of Lands, Housing and Urban Development; The National Herbarium and Botanic Gardens of Malawi; Universities of Malawi and Mzuzu. Despite this challenge, Malawi has made good progress towards mainstreaming biodiversity at all levels. The report describes cross-sectoral coordination measures which are in form of enabling policies and legal frameworks, implementation structure and cross cutting national plans and programmes. It also examines efforts Malawi has made to facilitate mainstreaming of biodiversity considerations into the private sector and land use planning sector through enforcement of EIAs.

2. Relevant biodiversity policies and legislation

Malawi participated at the UNCED in Rio de Janeiro in June 1992. In response to the Rio agreements, Malawi in 1994 developed a National Environmental Action Plan (NEAP). The NEAP provides a framework for integrating environmental considerations into national economic and social development programmes and plans. Malawi's commitment to address its environmental problems was reflected in Section 13(d) of the Constitution which calls upon the State: "To manage the environment responsibly in order to-preserve the degradation of the environment; provide a healthy living and working environment for the people of Malawi; accord full recognition to the rights of future generations by means of environmental protection and the sustainable development of natural resources; and conserve and enhance the biological diversity of Malawi."

To implement the NEAP, Malawi in 1994-95 prepared the Environmental Support Programme (ESP) whose overall objective was to integrate environmental concerns into the socio-economic development of Malawi. The ESP provided a planning framework for the government's activities and interventions in environment but only a few of the identified interventions have been implemented.

¹ Malawi (2010). Fourth National Report, Environmental Affairs Department, Ministry of Natural Resources, Energy and Environment, 30 June 2010, 155 pp.

To facilitate implementation of Malawi’s environmental aspirations as enshrined in the Constitution, Malawi in 1996 adopted an overarching National Environmental Policy (the NEP). Legal instrument for the implementation of the principles of environmental and natural resource management as contained in the NEP are provided for in the Environmental Management Act. These documents are cross – cutting in nature and provide structure and legal frameworks for the development and/or revision of sectoral policies and legislation in environmental and natural resource management. The NEP was adopted in order to promote sustainable social and economic development through the sound management of the environment. The policy seeks to conserve, manage and utilize sustainably the country’s biological diversity (ecosystems, genetic resources and species) for the preservation of the National Heritage. EMA on the other hand was enacted to remove the lack of an overarching statute providing general environmental protection. Sectoral policies and legislations were required to be revised to be consistent with this Act. Thus as required by EMA, Malawi undertook a review and reform of environmental and natural resources management policies and legislation in 2004. The reviews were designed to address deficiencies and the over reliance on central government control over the use of natural resources and lack of community participation on natural resource management. The reform was also in response to the requirements of CBD article 6b. The NBSAP observed however that both NEP and EMA do not address biodiversity issues comprehensively and as a result included Strategy 7.1 which recommended development of a National Biodiversity Policy. Some policies and Acts that were revised in line with NEP and EMA are provided in Table 1.

Table 1. Example of sectoral policies that were revised and/or developed in line with the requirements of EMA and NEP

Policies, legislation and strategies	Objectives relevant to biodiversity conservation	Biodiversity mainstreaming
Agriculture policies (Agriculture and Livestock Policy 1994)	To improve production and promote wealth creation through agriculture	Promotes conservation and sustainable use of agrobiodiversity through conservation of indigenous germ plasma on farm and in gene bank.
Forestry Policy 1996	To integrate forestry management with environmental conservation; Establish appropriate incentive that will promote community based conservation and sustainable use of forest resources as a means of poverty reduction.	<ul style="list-style-type: none"> · The policy has provisions related to co-management and forest protection. · Promotes sustainable forest management based on the ecosystem approach. · Promote private sector involvement in forest management. · Provides for protection of invasive alien species
Irrigation Policy 1998	To Improve use of water through irrigation. Conserve aquatic biodiversity	· Promote EIAs in irrigation development
National Fisheries and Aquaculture Policy 2001	To improve fisheries management	<ul style="list-style-type: none"> · Promotes aquaculture as a measure to reduce pressure on natural fisheries. · Promote co management and protection of endangered species and sustainable use of fish resources. · Provides for eradication of invasive alien species.
Land Resources Management policy 2000	To introduce proper land use planning and reduce biodiversity degradation; To avoid sectoral land use conflicts and enhance sustainable socioeconomic use for the conservation of biodiversity.	Promote development of technologies that are ecologically sound for environmental fragile areas such as steep slopes, stream banks, watershed areas, swamps and also promote the management, conservation and utilization of natural resources in order to ensure sustainable land and ecosystem productivity.
National Wildlife Policy 2000	To promote co-management of wildlife. Ensure the adequate protection of representative	· Provides for community participation and equitable sharing of benefits.

	ecosystems and their biological diversity	· Promotes protection of ecosystems and their biodiversity through adoption of sustainable land management practices.
Energy Policy 2002	To regulate and promote use of renewable energy sources	· Promotes the use of alternative energy sources as a means to reduce deforestation.
Water Resource Management Policy 1994, revised 2006	To reduce degradation of water resources and reduce pollution.	· Promote ecosystems approach in water resources management. · Promotes EIAs in all major water developments including irrigation schemes and dams.
Biotechnology and Biosafety policy 2008	Promote biotechnology research and development which is morally and ethically responsive and sensitive to environmental protection and safety. Promote awareness, understanding and knowledge of biotechnology at all levels of society in Malawi	· Regulates the use of GMOs · Promote sustainable management of the environment. · Discover and improve natural products and improve production of indigenous plants and animals. · Promote conservation of local farmer's seeds.

3. Sectoral biodiversity coordination

Management of biodiversity in Malawi is not a responsibility of a single government department but is a responsibility of all departments with mandate for the management of various components of biodiversity. The Forestry Department, Department of Fisheries, Department of National Parks and Wildlife, the National herbarium and Botanic Gardens of Malawi, Environmental Affairs Department are the major government agencies whose core mandates include biodiversity conservation and sustainable use. Specific biodiversity functions for these departments are prescribed in relevant sections of the Constitutions and further elaborated in sector specific policies and legislations. The Environmental Affairs Department has the overall responsibility for coordinating government departments and agencies that have specific responsibilities for the management of biodiversity. The Forestry Department is charged with management of forestry biodiversity both within and outside protected areas whilst the Department of National Parks and Wildlife is responsible for the conservation of ecosystems including biodiversity within them. The Department of Fisheries has a huge responsibility of managing the endemic and diverse fish of Malawi. Relevant government departments and agencies with mandate for biodiversity conservation and sustainable use are summarized in Table 2.

Table 2. Major government departments with environmental management responsibilities

Government department and or sectors	Functions related to conservation and sustainable use of biodiversity
Forestry Department	· In situ and ex situ conservation of forest resources. · Protection and management of Forest Reserves. · Management of forest plantations. · co-management of forest reserves. · Collection and management of biological materials (especially invertebrates) and data. · Ecological research and forestry inventories.
Environmental Affairs Department	· Coordination of environmental programmes and also the national focal point for all environmental conventions. · Following up of CBD issues at the national, regional and international levels. · Coordination of EIAs. · Outreach.
Department of Fisheries	· Conservation and sustainable use of fish biodiversity. · Eradication and control of invasive species. · Outreach. · Collection and management of biological collections and data. · Ecological research.
Ministry of Agriculture and Food Security	· Sustainable land management practices including promotion of reforestation, conservation

	agriculture, agroforestry. · In situ and ex situ conservation of agrobiodiversity.
Department of Energy	Contributes to reduced deforestation through promotion of alternative energy sources.
Department of National Parks and Wildlife	· In situ conservation of fauna and flora. · Community participation and provision of incentives. · Protection of protected areas through law enforcement.
Ministry of Education, Science and Technology	· Integration of environmental conservation into the school curriculum · Outreach.
Museums of Malawi	· Management of biological collections and information (inventories and conservation status of biodiversity components). · Research and outreach.
National Herbarium and Botanic Gardens of Malawi	· Ex situ and in situ conservation of endangered plants, · Management of biological collections information and data.
Universities of Malawi and Mzuzu	· Environmental education · Research

4. Cross sectoral biodiversity coordination

In order to ensure proper cross sectoral coordination of environmental activities in Malawi a specific institutional mechanism was developed through the establishment of a Department of Research and Environmental Affairs (DREA) in 1991. DREA was mandated to co-ordinate issues pertaining to research and sustainable environmental management in Malawi through a multisectoral approach. DREA was later up-graded to the Ministry of Research and Environmental Affairs (MOREA) in 1994 but the ministry was abolished in 1997 and replaced by a new Ministry of Forestry, Fisheries and Environmental Affairs with the Environmental Affairs Department having the responsibility of coordinating all issues pertaining to sustainable environmental management. The Environmental Affairs Department is now within the Ministry of Natural Resources, Energy and Environment but its mandate has remained the same since its establishment.

The Environmental Affairs Department is also charged with harmonization of national environmental policies and legislation and also coordinates environmental activities through a number of committees (intergovernmental structures relevant for coordination of biodiversity activities undertaken by various government departments) such as:

- a) The Cabinet Committee on Agriculture and Natural Resources (CCANR). This is the highest level policy and decision making body responsible for environmental policy issues and informs Parliament on the state of the environment.
- b) The Parliamentary Committee on Agriculture and Natural Resources (PCANR) lobbies parliament on all matters to do with the environment.
- c) National Council for Environment (NCE) is a policy advisory institution which operates through working groups and national steering committees, advises both the CCANR and PCANR on environmental issues.
- d) The Technical Committee on Environment (TCE) is responsible for examining scientific issues and makes recommendations for action.

e) The National Biodiversity Steering Committee follows up and monitors implementation of biodiversity issues.

f) National Biosafety Regulatory Committee.

The current implementation structure will change if the Environmental Management Bill is approved by Parliament. It is envisaged that a National Environmental Protection Authority will have the mandate to coordinate and monitor all activities concerning protection and management of the environment and the conservation and sustainable utilization of natural resources, including regulation of access to genetic resources, policy formulation, law enforcement and environmental mainstreaming. The Authority will be guided by of Board Directors and the following technical committees:

a) Technical Committee on Environmental Impact Assessments.

b) Technical Committee on Standard Reviews and Enforcement.

c) Technical Committee on Community Based Natural Resources Management.

d) Technical Committee on Biodiversity Conservation.

e) Technical Committee on Pollution Control.

f) Technical Committee on Soil and Water Conservation.

g) Technical Committee on Hazardous Wastes, Chemical and other Toxic substances.

h) Technical Committee on Environmental Information and Public Awareness.

Implementation of biodiversity activities at the district level is guided by the Local Government Act of 1998. The Act unifies government and local authorities and facilitates community participation in the formulation, planning and implementation of development and environmental programmes through District Councils. District levels committees facilitate integration of biodiversity into Assembly plans and programmes. In this regard, District Environmental Subcommittee (DESC) coordinates and ensures that environmental concerns are mainstreamed into all district programmes. In line with the Decentralization Policy the EAD has established environmental offices at each district. District Environmental Officers are members of DESC and hence facilitate mainstreaming of biodiversity issues into assembly plans. The revised EMA proposes the establishment of District Environmental and Natural Resources Management Committee at the district level to promote a coordinated approach in the integration of environmental considerations at the district level.

Malawi is required by EMA to prepare NEAPs and State of Environment Reports (SOERs) every four years. Malawi published its first SOER in 1996 with support from Danish Development Agency (DANIDA). The second edition was prepared in 2002 and the third edition is under preparation. Similarly the first NEAP was published in 1994 and the second edition was published in 2002. Although these documents are not regularly updated as provided for in EMA, they provide national perspective on the management of

natural resources. District Assemblies are also required by the EMA to prepare District Environmental Action Plans and District State of Environment Reports which should be reviewed regularly. Despite this provision, DESPs and DSOERs were prepared for a limited number of districts and preference was given to lake shore districts to limit the impact of lake shore holiday resorts on the aquatic ecosystems.

Government departments that have a focus on natural resource management are also required by the law to prepare environmental management plans which should be consistent with the NEAP. The purpose of the environmental management plans is to facilitate interdepartmental mainstreaming of biodiversity issues. This also applies to environmental NGOs. For example, in line with EMA, the Wildlife and Environmental Society of Malawi (WESM) developed an environmental and communication strategy to guide implementation of environmental education. In addition, environmental NGOs are also members of major environmental committees at the central and assembly levels as required by NEP and the Decentralization Policy. By participation in these committees, NGOs play a crucial role in influencing mainstreaming of biodiversity conservation into national programmes and policies.

Coordination of NGO environmental activities is the responsibility of Coordinating Union for Rehabilitation of the Environment (CURE) but WESM is the leading NGO when it comes to the implementation of NRM activities.

5. Cross cutting national programmes and strategies

Malawi as part of the global community has committed itself to a number of international protocols and conventions and is obliged through these forums to integrate international protocols and conventions into national programmes and policies. For example, Malawi is required by Article 6b of the Convention on Biological Diversity to integrate as far as possible the three objectives of the Convention into national programmes and policies. In response to its international obligation, Malawi has included biodiversity considerations into cross cutting national plans, strategies, programmes and policies such as the National Adaptation Programme of Action (NAPA), National Strategy for Sustainable Development (NSSD), Malawi Growth and Development Strategy (MGDS), the Millennium Development Goals (MDGs).

6. National Strategy for Sustainable Development for Malawi

Malawi published its NSSD in 2004. The purpose of the strategy is to set out an agenda for providing the basis for Malawi's sustainable development in the thematic areas of water, energy, health, agriculture and biodiversity to ensure sustainable livelihoods and poverty reduction.

The goal for the strategy is to manage the environment responsibly, prevent degradation, provide a healthy life for all, protect the rights of future generations and conserve and enhance biological diversity. Within the context of sustainable development, the NSSD proposed strategies and actions that would contribute to sustainable environmental management and attainment of CBD goals. For example, the NSSD strongly recommends inclusion of EIAs in the planning and construction of roads, airports and railways so as to minimize adverse environmental effects of road construction and ensure that the infrastructures are environmentally friendly.

Theme three of the NSSD is devoted to the protection and management of natural resources base and therefore includes strategies for sustainable management of biodiversity (which is broken down into forestry, fisheries, and wildlife resources). The NSSD therefore provides for strategies to enable inclusion of CBD objectives into national and regional policies and programmes. The NSSD also has strategies to reverse biodiversity loss through monitoring trends in biodiversity, establishment of protected areas of biodiversity significance and restoration of biodiversity in degraded areas. Recognizing the adverse effects of invasive alien species on biodiversity, the NSSD included strategic actions to facilitate control and prevention of invasive alien species. The NSSD also recognizes that meaningful biodiversity conservation is not possible without sustainable funding. Thus strategies to promote innovation and sustainable funding mechanisms for biodiversity conservation and wise use were proposed. It is evident from the forgoing that the NSSD has demonstrated Malawi's efforts to integrated biodiversity related issues into national plans and programmes. An assessment of the extent to which the NSSD has been achieved has never been conducted. However, if implemented in line with provisions of the NSSD, these strategies and actions will contribute to the realization of the CBD goals and objectives.

7. Malawi Growth and Development Strategy

Malawi in 2006 published the Malawi Growth and Development Strategy (MGDS) as a medium term strategy for worth creation and economic growth. The strategy sets out a national vision, areas of strategic interventions or priority areas and the approach for achieving the vision. The MGDS provides basis for resource mobilization and also include indicators for measuring success and identifies the following nine key priority areas that should be implemented in order to achieve economic growth and wealth creation.

- a) Agriculture and food security,
- b) Greenbelt irrigation and water development,
- c) Education, science and technology,
- d) Transport infrastructure and Nsanje world inland port,
- e) Climate change, natural resources and environmental management,
- f) Integrated rural development,
- g) Public health, sanitation, HIV and AIDS management,
- h) Youth development and empowerment,
- i) Energy, mining and industrial development.

In addition to these key priority areas the MGDS also described other focus areas which are grouped into five themes; sustainable economic growth, social protection, social development, infrastructure development, and improving governance. Of relevance to biodiversity conservation and sustainable use

is sub theme related to the conservation of natural resources base. This recognizes that sustainable use of natural resources contribute to the achievement of many of the goals of the MGDS. If implemented in line with the MGDS it is expected that proposed interventions in the forestry sector will lead to reduced environmental degradation whilst interventions in the fisheries sector will assist Malawi maintain fish biodiversity. It is expected further that interventions in the environmental sector will lead to environmental protection and sustainable use and conservation of the natural resources endowment and interventions related to the wildlife sector will facilitate the sector achieve its long term goal of conserving and managing protected areas and wildlife.

Progress in achieving MGDS goals and objectives is reviewed annually based on a set of indications. Recent reviews have indicated that progress towards achievement of natural resources management is slow. The review has recorded increased deforestation and increased sediment loads in aquatic ecosystems. This means that the MGDS will not achieve its goal of reducing environmental degradation by 2011. However, through partnership with South African Parks, Malawi has reintroduced rhinos and its population has increased to 15 since the programme started. Threatened animals such as elephants have been relocated from areas with high animal human conflicts (such as Phililongwe Forest Reserve) to more secure and well protected wildlife reserves (Majete Wildlife Reserve). This is a clear demonstration that the MGDS has achieved one of its goal of increasing populations and conservations of wild animals.

Although the MGDS includes issues related to biodiversity conservation, integration of biodiversity matters into agriculture and food security, transport infrastructure and development, social development etc. was not emphasized. Thus interventions in these areas may be implemented without taking into consideration the impact the interventions may have on biodiversity conservation and sustainable use. Consideration should be given for inclusion of biodiversity matters into all priority areas in the next phase of MGDS.

8. Malawi National Adaptation Programmes of Action

In 2008 Malawi launched the National Adaptation Programme of Action (NAPA). The purpose of NAPA was to develop strategies that would enable Malawi address urgent and immediate climate adaptation needs caused by climate change and extreme weather events. The NAPA identified five key adaptation priorities needs as follows:

- a) Improving community resilience to climate change through development of sustainable rural livelihoods.
- b) Restoring forests in upper, middle and lower Shire valley catchments to reduce siltation and the associated water flow problems.
- c) Improving agricultural production under erratic rains and changing climatic conditions,
- d) Improving Malawi's preparedness to cope with draughts and floods

e) Improving climate monitoring to enhance Malawi's early warning capacity and decision making and sustainable utilization of Lake Malawi and lake shore area resources.

The NAPA focus areas are environmental related and focus on using natural resources sustainably in order to build the resilience of the communities to adapt to effects of climate change. This is a clear indication that the NAPA incorporates biodiversity related matters as prominent factors that need to be included in the national adaptation programme. Although the NAPA was not developed with a clear focus on mainstreaming biodiversity it is clear that these measures will support biodiversity and contribute to the achievement of the CBD goals.

9. Agricultural Sector Wide Approach (ASWAp)

Malawi is in the process of developing an Agricultural Sector Wide Approach Programme. The goal of ASWAp is to achieve food security. This will be achieved through the following four priority areas:

- a) Improved food security and nutrition,
- b) Commercial agriculture and agro-processing and market development,
- c) Sustainable agriculture land and water management and.
- d) Agricultural research and extension services.

ASWAp recognizes that agriculture expansion over the past 30 years has led to the replacement of natural flora with introduced ones and decimation of ecologically important wildlife and microorganisms. In order to reduce the loss of biodiversity associated with agriculture, the ASWAp proposes to intensify conservation agriculture, protection of catchment areas and other fragile areas such as wetland and river banks.

A key programme within the ASWAp is the intensification of irrigation through the Greenbelt Initiative (GBI). The purpose of GBI is to increase production through irrigations. The programme proposes to increase the area under irrigation to one million hectares.

Recognizing the impact GBI may have on the environment, a number of measures to mitigate the impact of GBI on the environment have been proposed. All interventions to do with irrigation will be supported by EIAs. In addition, GBI will contribute to afforestation of degraded areas and also manage the impact of chemical fertilizers on the environment by promoting agroforestry, use of manures and conservation agriculture.

Although the focus of ASWAp is on improved food production, the programme does not fully recognize the value of agrobiodiversity since strategies related to the conservations of agrobiodiversity have not been included. The ASWAp should therefore take into consideration the benefits that agrobiodiversity may bring to the agricultural sector. An aspect of the conservation of indigenous crops and their wild relatives including conservations of pollinators and other soil microorganisms of importance to agriculture should be considered.

10. The Millennium Development Goals (MDGs)

As a signatory to the Millennium Development Goals, Malawi is obliged to contribute to the global attainment of the eight goals. Malawi is implementing the MDGs through medium term strategies such as the Malawi Growth and Development Strategy. The MDGs priority areas are fully aligned with MGDS. The MGDS is therefore recognized as an important framework for implementing the MDGs. Of relevance to biodiversity conservation is goal number 7 of the MDGs (ensuring environmental sustainability). Indicators for the environmental sustainability were described as proportion of land area covered by forests, percentage of area protected to maintain biodiversity, energy usage and carbon dioxide emission. Based on the Malawi MDGs review for 2008, it would appear Malawi is making significant progress in maintaining the area under forest cover. The proportion of Malawi under protected area network is about 15% which is already more than the MDGs target of 10% by 2020. However, proportion of land area covered by forest declined from 41.4 percent in 1990 to 36.2 percent in 2005. If this trend continues, Malawi is unlikely to remain with land area covered by forest by 2020.

Government and private sector forestry programmes which focus on reforestation, afforestation, promotion of natural regeneration, forest protection should be intensified to contain this problem.

11. Linkages with other UN Conventions

Malawi is signatory to a number of biodiversity related conventions such as the CITES, Convention of Migratory Species, Ramsar, the World Heritage Convention, Convention of Climate Change, and the Convention on Desertification. Activities of these conventions overlap considerably and as such establishment of linkages between these instruments is crucial. This section describes the linkages between these conventions at policy and programme levels.

12. Climate change

Malawi signed the climate change convention in 1992. In line with the requirements of the Convention, Malawi demonstrated its commitment to the Convention by including in the National Environmental Policy and the Environmental Management Act issues of climate change. Climate change has also been mainstreamed into biodiversity related policies (e.g. Forestry Policy, Fisheries Policy, National Parks and Wildlife Policy). The Forestry policy recognizes the role of forest in carbon capture and storage and therefore emphasizes on reforestation programmes. By promoting conservation agriculture, agroforestry and small scale irrigation technologies the agriculture sector contributes to the implementation of some requirements of climate change especially those related to limiting greenhouse gas emissions.

Population of Nyala (restricted to Lengwe National Park) has been reported to be declining mostly due to climate change (erratic rainfall patterns) and poaching. As conservation measure DNPW has increased the distributional range of Nyala antelopes by reintroducing them in Majete Wildlife Reserve and Kuti Ranch in Salima.

Malawi is in the process of developing a climate change response programme which will guide implementation of climate change activities in Malawi including those outlined in the NAPA.

Meanwhile, the NAPA which was launched in 2008 provides guidelines for the implementation of climate change activities. The NAPA therefore identified potential adaptation options to climate changes in agriculture, forestry, fisheries, energy, wildlife, water etc. For example, options for adapting to Climate Change in agriculture include changes in land use and limiting greenhouse gas emissions through adoption of conservation agriculture technologies, whilst options for adaptation to climate change in fisheries included building a capacity for fish gene banks to maintain genetic diversity of the fish population.

In addition to mainstreaming climate change issues into biodiversity related policies, Malawi is also implementing climate change interventions. In 2007 Malawi launched a Tree Planting and Management for Carbon Sequestration and other Ecosystem Services Programme.

Approximately 148 farmers with at least 2 hectares of land are participating in the programme and are paid for each hectare per year over a period of five years. Although the programme has some design problems (in that no baseline data was collected at the start of the project and as such without baseline data any carbon gains cannot be verified) the programme has contributed to an increase in area under forest cover.

The Forestry Department with funding from MEET and CAMPASS II Project undertook a pilot study on forest conservation in protected Areas (in Nyika National Park and Mkuwazi Forest Reserve). The aim was to reverse the trends of degradation, preserve biodiversity, conserve ecosystems and provide opportunities for livelihoods development through community management using various interventions. The project provided a methodology for determining the carbon benefits from the conservation of forests in protected areas and also includes methods for quantifying carbon stocks and determining the likely rates and areas at risk of deforestation in the absence of project activities. Estimated carbon stocks were 211,889±23,694 tC in the 1,767 ha of Mkuwazi Forest Reserve and 995,446±120,385 tC in the 35,910 ha of Thazima region of Nyika National Park. Based on these estimates it was projected that Mkuwazi and Thazima would make about US\$39,400 and US\$141,888 per year over a period of 50 years respectively. The interventions, activities and systems of carbon crediting and making payments for carbon benefits through Reduced Emissions from forest Degradation and Deforestation can be replicated for most protected areas in Malawi. Thus through this project, the Forestry Department demonstrated a strong linkage between forest conservation and climate change.

The private sector has potential to implement interventions that promote climate change and biodiversity. For example Total LandCare (TLC), is currently implementing an integrated land management programme within Lake Malawi basin (covering the areas between Chia lagoon and Nkhatabay). Programme activities such as Conservation Agriculture, agroforestry and community forestry promote carbon capture and storage. Thus as the project builds the resilience of communities to adapt to climate change, the biodiversity related interventions demonstrate the strong linkage between biodiversity and climate change.

13. Migratory species

Malawi became party to the Convention on Migratory Species in 1975 and also signed the Ramsar Convention in 1996. In line with the Ramsar Convention a strategy which focuses on wetland management and conservation was launched. In keeping with the Convention obligations, Lake Chilwa wetland was declared a Ramsar site. Lake Chilwa has been identified as an important bird area. With support from Danish Hunter Association (DHA) communities are being involved in the identification and protection of breeding sites for migrating birds.

The breeding sites will be designated bird sanctuaries and there are also plans to turn part of the wetland into a community conservation area. Thus as Malawi promotes sustainable management of wetlands, Malawi's obligations on Convention on Migrating species are being met.

Another programme related to the protection of migrating species is the Transfrontier Conservation Areas (TFCA) project. In 2004 Malawi and Zambia signed a Memorandum of Understanding to manage Nyika and Kasungu National Parks as Transfrontier Conservation Areas. Through this arrangement endangered species such as lions, elephants and wild dogs are protected as they migrate between the two countries. These initiatives therefore demonstrate a strong linkage between the conservation and sustainable use of wetlands, biodiversity and migratory species.

14. Desertification

Malawi became party to the United Nations Convention to Combat Desertification (UNCCD) in 1996. To facilitate implementation of the Convention a National Action Plan (NAPs) was developed and adopted in 2000. NAPs addresses five core areas related to desertification; food security, water management and development, renewable energy, forest resource management and environmental management. These areas are also prioritised in the NAPA and the NBSAP. Thus demonstrating strong linkages between desertification, climate change and biological diversity conventions.

15. Incentive measures

Malawi has an obligation as required by Article 11 of the Convention to adopt in as far as possible and appropriate, economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity. Malawi has made some progress towards adopting measures to promote incentives in biodiversity conservation and sustainable use. Incentive measures for natural resources management is strongly supported by the NEP 2004 part 3.2 (Economic Incentives for Sustainable Environmental Management). In keeping with this provision sectoral policies especially the National Forestry Policy, Fisheries and Aquaculture Policy and the National Parks and Wildlife policy promote incentives through Community Based Natural Resources Management programme. For example, through collaborative management of forest reserves, attempts have been made to give back to communities some stake in forest conservation and use through co-management activities. These have been sources of income to the communities through sharing of revenues earned from confiscation of illegal forest produce and income generating activities (IGAs) in form of non-forest based activities such as bee keeping, mushroom farming and ecotourism.

The Department of National Parks and Wildlife started a system of incentive measures as a means to promote collaborative management in National Parks when the Government in 1996 approved resource use and revenue sharing with communities who legitimately use the land on which wildlife occurs. Currently, DNPW is implementing the following programmes: Resource Use Programme (RUP), which allows harvesting selected wildlife resources by adjacent communities; wildlife related enterprises; and revenue sharing with adjacent communities.

Natural Resources Management Policies (e.g. the Wildlife Policy) have some provisions that promote provision of incentives for communities to participate in biodiversity conservation. Apart from these policies, the concept of incentive measures has not been integrated into other institutions and policies whose core business is not biodiversity conservation. For example lack of legislation on intellectual property rights mean that genetic resources and indigenous knowledge are exchanged freely and as such the potential resulting commercial and technological benefits do not trickle down to the local communities. Another problem is that Malawi's biodiversity is inadequately valued due to poor pricing of biological resources. In recognition of these inadequacies Malawi has initiated a process to review and document incentive measures in Malawi and the results will be used to develop guidelines and procedures for incentive measures for biodiversity conservation and sustainable use.

16. The Ecosystem Approach

Principles of Ecosystem Approach (sometimes also referred to as the Malawi Principles for Ecosystems Approach) were endorsed by the CoP in 2000 based on recommendations from the workshop on Ecosystem Approach held in Malawi in January 1998. The CBD defines Ecosystem Approach as a strategy for integrating management of land, water and other living resources that promotes conservation and sustainable use in equitable way. Thus the Convention regards the Ecosystem Approach as the primary framework for action under the Convention since its implementation shall assist parties to reach a balance of the three objectives of the Convention. The Ecosystem Approach recognizes humans as an integral component of ecosystems and therefore promotes interdisciplinary and holistic environmental approach in natural resources management and active involvements of stakeholders in defining sustainable alternatives.

Malawi has made significant progress in integrating some principles of Ecosystem Approach into national policies and programmes. For example, principles of the Ecosystem Approach especially those associated with involvement of all relevant sectors in the society, decentralization of natural resources management to the lowest point possible, recognition of ecosystems in an economic context etc., are integrated into the National Environmental Policy (2004) and sectoral policies dealing with biodiversity conservation (Forestry Policy, National Parks and Wildlife Policy, Fisheries and Aquaculture Policy). The NBSAP strategies and its actions recognize the importance of interdisciplinary and holistic approach in maintaining natural diversity and productivity of landscapes whilst sustaining human needs. In this connection the NBSAP emphasized the use of the Ecosystem Approach in the management of protected areas and therefore responded by providing a specific Guiding Principle "e"; which recognizes that conservation of biodiversity both within and outside protected areas including mountains is best done

following the Ecosystem Approach. Furthermore, recognizing that the Ecosystem Approach is integral to the protected areas management, the NBSAP also provided strategy 3.2.1; that will facilitate development of appropriate guidelines, methodologies, procedures and technologies that fully utilises the concepts of Ecosystem Approach in protected areas.

Despite the lack of a national Ecosystem Approach framework, some environmental programmes are designed and implemented taking into consideration provisions of ecosystems and their functioning. Both the government and the private sector have initiated programme that embrace the principles of Ecosystem Approach. The most well-known projects with strong Ecosystem Approach focus include the Mulanje Mountain Reserve Biodiversity Conservation Project and Management for Adaptation to Climate Change (MACC) Programme. The MACC project is a 5 year program to improve the capacity of rural communities to adapt to the growing threat of climate change. Over 50,000 households are targeted, of which a minimum of 35-40% are women, across 5 districts in the central watersheds of Lake Malawi. Climate change interventions being implemented include:

- **Reforestation** efforts that combine tree planting and natural regeneration with the promotion of fuel efficient stoves to reduce wood use and related impacts of deforestation.
- **Sustainable Land and Water Management** with key focus on Conservation Agriculture and agroforestry.
- **Farm diversification** to reduce the impacts of climate change by promoting a) high yielding, drought and disease resistant crops, and b) small livestock adapted to the local environment.
- **Low-cost irrigation systems** using treadle pumps, drip kits, and water harvesting.
- **Rural-based Enterprises** focusing on bee keeping, fish farming, eco-tourism and mushroom farming.
- **Carbon Markets:** A feasibility assessment has identified Conservation Agriculture and village woodlots as having potential for carbon revenues based on REDD Plus (Reduced Emission from Forest Deforestation and Forest Degradation) requirements.

The project is being implemented by Total LandCare (TLC) a non-profit, non-government organization registered in Malawi, Mozambique, Zambia and Tanzania with funding from the Norwegian Government.

17. Integrating biodiversity considerations into Environmental Impact Assessment and Strategic Environmental Assessment

The Environmental Management Act is the primary mechanism or instrument at the national level for ensuring that environmental considerations are integrated in national plans and decision making across all sectors. To guide integration of environmental considerations in national development EMA requires that all projects shall not be implemented unless an environmental impact assessment is carried out. It also a requirement that environmental audits shall be carried out for purposes of enforcing provisions of the EMA and that all developers shall take reasonable measures for mitigating any undesirable effects on environment arising from the implementation of a project which could not be foreseen in the

process of conducting EIAs. In line with EMA, Malawi in 1997 published guidelines for Environmental Impact Assessments. EIA guidelines give a list of projects for which EIA is mandatory. These include; a) agriculture/aquaculture projects e.g. irrigation schemes, fish ponds, introduction of exotic fish; b) water resources development, e.g. ground water utilization projects, dams; c) infrastructure projects e.g. roads, hospitals, sewerage works; d) energy generation; e) mining and quarrying projects; f) Forestry projects e.g. logging operations, conversion of forests to another land use; g) tourism development projects e.g. construction of lodges. In general biodiversity considerations are integrated in EIAs by making sure that the following issues are taken into consideration in making environmental impact assessments:

- a) That the project should not cause damage to biodiversity (wildlife, plants and habitats)
- b) That the project promotes sustainable use of natural resources,
- c) That the project promotes ecosystem maintenance – i.e. the project will not affect any environmentally sensitive areas e.g. wetlands, areas containing rare and endangered species.

It is evident from Table 3 that Malawi has made good progress in using the EIA guidelines as a tool to integrate biodiversity considerations into land use planning and decision making. For example, based on EIA result, the National Environmental Council rejected an application for Central African cattle Ranch to open a cattle ranch in Dzalanyama Forest Reserve on the basis that the activity would disturb the ecological balance of the forest reserve. The proposal to develop 5 Ha of land within Lilongwe City into a recreation centre and modern park was also rejected is the main catchment for a dam.

Table 3. Effectiveness of EIAs in mainstreaming biodiversity considerations into planning and decision making

Project name	Brief project description	Recommendations
Area 10 Housing and Recreation Project	Development of a recreation centre and modern park within a catchment area of a dam in the City of Lilongwe	The project was rejected because the proposed site is the main catchment area for Area 10 dam.
Central African Cattle Ranch	Establishment of a 12000 Ha ranch within Dzalanyaama Forest Reserve. The reserve was gazetted in 1946.	The cattle ranch was rejected in order to maintain ecological balance in the forest reserve.
Lusangazi Solid Waste Disposal Site	Construction of solid waste disposal site in an area of 12 Ha in Lusangazi Forest Reserve.	The landfill in Lusangazi Forest Reserve was rejected to proven environmental degradation in the forest.
Lufuwu Sugar Estate	12000 Ha was earmarked for sugar estate within an ecologically important wetland.	The estate was granted 6,000 ha out of the 12,000 ha excluding the critical elements of the wetland.
New Tourist Lodge within Majete Wildlife Reserve	Proposal by African Parks Majete to construct a lodge on one Ha of land within the wildlife reserve.	The Resort Project in Majete was approved on condition that there should be selective cutting down of trees and that heavy machinery is not used to prevent disturbance of animals.
New Nkhatabay District Hospital	Kalwe FR is about 207 and the hospital will cover 50 Ha	The project was approved on condition that rare species will be relocated and that construction should not be on ecologically sensitive site.
Kayelekela Uranium Mine	Keyeleke Uranium mine is in Northern region of Malawi and covers an area of 157 km ² .	The project was approved on condition that all degraded areas will be re-vegetated, seed bank of all rare and endemic plants will be established and that the whole area will be re-vegetated on closure of the mine.

Land use practices for urban development, agricultural expansion, infrastructure development and mining have contributed to the current environmental degradation. To ensure a balance between development and sustainable environmental management, integration of environmental considerations into land use plans and decisions making is crucial. To achieve the balance, efforts have been made to integrate environmental considerations into tools guiding land use planning and decision making. Land use planning is the responsibility of the Department of Physical Planning in the Ministry of Lands, Housing and Urban Development. Land use planning is governed by a number of legislations such as Town and Country Planning Act, the Land Act, Mines and Minerals Act, Public Roads Act, Industrial Development Act etc. The National Planning and Development Plan (NPDP) of 1987, was the first major steps towards guiding land use planning but environmental considerations were not adequately taken into consideration. This gap is now covered by the National Land Resources Management Policy (2000) which promotes integration of environmental concerns into land use planning and decision making by promoting the development of technologies that are economically viable, ecologically sound and socio culturally acceptable especially in environmentally fragile areas such as steep slopes, stream banks, watershed areas, swamps and dambos; and by promoting the management, conservation and sustainable utilization of natural resources.

At the local level, local authorities are urged to use the Local Government Act as a planning tool. The Local Government Act promotes incorporation of community concerns into developmental programmes, hence the most important entry point to ensuring proper integration of biodiversity considerations into programme and plans is at the district level. As pointed out earlier, the NEP provides for preparation and publication of NEAPs and SOERs at the national and district levels. These have been most important tools to guide planners and decision makers integrate environmental considerations into land use planning and decision making at the local level.