

**Draft**

**NATIONAL ENVIRONMENT AGENCY**

**5 Fitzgerald Street  
Banjul, The Gambia**

**Thematic Assessment of Capacity Building  
Needs in the Areas of Biological Diversity, Climate Change,  
and Desertification Control Conventions  
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**Conducted by**

**Sambou L. Kinteh**

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## **EXECUTIVE SUMMARY**

The Gambia is a party to the three Rio Conventions of Biodiversity, Climate Change and Desertification/Land Degradation. As part of its commitments and obligations under the Conventions, the country prepared a National Biodiversity Strategy and Action Plan in 1999, draft Initial National Communications in 2003 and a National Action Programme to Combat Desertification in 2000.

The National Climate Change Strategy and Action Plan which is a component of the Initial National Communications is still in a draft form whereas the National Biodiversity Strategy and Action Plan (NBSAP) and the National Action Programme to Combat Desertification (NAP) remained largely unimplemented due to Capacity Constraints. Despite earnest efforts in capacity building undertaken with the support of the country's major donor partners in environmental management, in the course of implementation of the conventions since their adoption, little has been achieved in the way of implementation of their respective action plans due to capacity constraints. It is in recognition of this fact that the government, through the National Environment Agency (NEA) sought and obtained funds from the Global Environmental Facility to implement a National Capacity Self-Assessment (NCSA) project for The Gambia. This report presents the findings of the Thematic Assessment undertaken as the second step in the NCSA process.

A stock taking exercise of capacity building self-assessment of each of the three conventions was conducted by their respective Focal Points in early 2003. Based on the results of the stock taking exercises, a Thematic Profile indicating capacity needs at the individual, institutional and systemic levels for each of the three conventions is developed. A total of 30 capacity issues variously requiring capacity development needs at individual, institutional and systemic levels are identified, prioritized and rated under the CBD. A total of 7 capacity issues variously requiring capacity development needs at individual, institutional and systemic levels are identified, prioritized and rated under the UNFCCC. Similarly, a total of 25 capacity issues variously requiring capacity building needs at individual, institutional and systemic levels are identified, prioritized and rated under the UNCCD.

## LIST OF ABBREVIATIONS AND ACRONYMS

|         |   |  |
|---------|---|--|
| ANR     | - | Agriculture and Natural Resources                                    |
| BBWR    | - | Bao Bolong Wetland Reserve   |
| CBD     | - | Convention on Biological Diversity                                   |
| CBO     | - | Community-Based Organisation   |
| CHM     | - | Clearing House Mechanism   |
| CILSS   | - | Permanent Inter-State Committee for Drought Control in the Sahel     |
| DAS     | - | Department of Agricultural Services                                  |
| DFish   | - | Department of Fisheries  |
| DFor    | - | Department of Forestry   |
| DLS     | - | Department of Livestock Services                                     |
| DOP     | - | Department of Planning   |
| DOSA    | - | Department of State for Agriculture                                  |
| DOSFNRE | - | Department of State for Fisheries, Natural Resources and Environment |
| DPWM    | - | Department of State for Wildlife Management                          |
| DWR     | - | Department of Water Resources  |
| EIA     | - | Environmental Impact Assessment                                      |
| GEAP    | - | Gambia Environmental Action Plan                                     |
| GEF     | - | Global Environmental Fund  |
| GHG     | - | Greenhouse Gases   |
| GTZ     | - | German Technical Agency  |
| ICAM    | - | Integrated Marine and Coastal Area Management                        |
| IDA     | - | International Development Agency                                     |
| IPCC    | - | International Panel on Climate Change                                |
| NAP     | - | National Action Programme to Combat Desertification                  |
| NARI    | - | National Agricultural Research Institute                             |
| NBSAP   | - | National Biodiversity Strategy and Action Plan                       |
| NCC     | - | National Climate Committee   |
| NCSA    | - | National Capacity Self-Assessment                                    |
| NEA     | - | National Environment Agency  |
| NGOs    | - | Non-Governmental Organization  |
| NNP     | - | Nuimi National Park  |
| OECD    | - | Organization for Economic Cooperation and Development                |
| PVO     | - | Private Voluntary Organization                                       |
| SOS     | - | Secretary of State   |
| UNCCD   | - | United Nations Convention to Combat Desertification                  |
| UNCCEE  | - | UNEP Collaborating Centre for Energy and Environment                 |
| UNDP    | - | United Nations Development Programme                                 |
| UNEP    | - | United Nations Environment Programme                                 |
| UNFCCC  | - | United Nations Framework Convention on Climate Change                |
| UNSO    | - | United Nations Sahel Office  |
| US      | - | United States  |
| WWF     | - | World Wide Fund  |

# **I. INTRODUCTION AND BACKGROUND**

## **1.1 Introduction**

The Gambia is a party to the three Rio Conventions of Biodiversity, Climate Change and Desertification/Land Degradation. It ratified the Conventions of Biodiversity and Climate Change on June 10, 1994 and that of Desertification/land degradation on June 11, 1996. Within the framework of its overall responsibility for multi-sectoral agriculture and natural resource management planning, the Agriculture and Natural Resources (ANR) Working Group of the National Environment Agency (NEA) was mandated to initiate development of action plans for the three conventions within the decentralized process of the Gambia Environmental Action Plan (GEAP) to implement the government's commitments and obligations under the conventions. The ANR Working Group appointed a Task Force for each of the three conventions chaired by their respective Focal Points to facilitate the elaboration of the action plans through a broad-based consultative process.

### **1.1.1 National Biodiversity Strategy and Action Plan (NBSAP)**

With the technical backstopping services of the World Wide Fund for Nature (WWF), the Task Force on Biodiversity commissioned a team of national consultants in 1997 to carry out specific sectoral and subsectoral studies to gather and analyse biological and socio-economic data as a basis for preparing a national strategy and action plan. The studies covered two broad groups of issues – terrestrial and aquatic biodiversities.

- the terrestrial biodiversity includes parks and wildlife ecosystems, agricultural ecosystem (plant and land resources) forest ecosystems and agricultural ecosystem (livestock); and,
- the aquatic biodiversity includes inland water ecosystems and, marine and coastal ecosystems.

Consistent with the biodiversity-specific orientation of the National Mission Statement of Gambia Incorporated- - - Vision 2020 of “guaranteeing a well-balanced ecosystem” and the highlights of the long-term objectives and strategies of the vision, the country prepared a National Biodiversity Strategy and Action Plan (NBSAP) in 1999. The overall vision of the NBSAP is “a society in harmony with nature” with a mission “to create a society that sees itself as an integral part of nature, recognizes different life forms, sustainably uses natural resources and maintains for posterity a nurturing and dynamic world rich in biodiversity”.

### **1.1.2 Initial National Communications**

Following the GEF/UNEP supported national inventory study in 1994, the members of the National Climate Committee (NCC) established in 1992 benefitted from a series of capacity building exercises in 2000 to enable them to assess and evaluate projects. With the deployment of its four constituent Task Forces on GHG inventories, mitigation, impacts and adaptation and, education, training and public awareness, the NCC elaborated the Initial National Communications in 2003.

The development of the Initial National Communications was supported with financial assistance under the GEF Enabling Activities Programme. The report consists of four parts:

- a National Inventory Report;
- a Mitigation Assessment Report;
- a Vulnerability Assessment Report; and,
- a National Strategy and Action Plan.

The National Climate Change Strategy and Action Plan consists of nine programmatic components. These include:

- the coastal zone;
- water resources sector;
- agriculture (crop production) sector;
- rangelands and livestock;
- fisheries sector;
- forests and wetland ecosystems;
- the energy sector;
- waste management sector; and,
- cross-cutting issues (education, training and public awareness, research and systematic observations).

The National Climate Change Strategy and Action Plan which is still in a draft form is based on a perception of climate change as a development path in The

Gambia. Thus its design, development and the decision on its proposed implementation process have been guided by a principle of sustainable development.

### **1.1.3 The National Action Programme to Combat Desertification (NAP)**

The Task Force on Desertification commissioned international and national consultants in accordance with the recommendations of the first National Forum of 1998 to conduct detailed diagnostic studies in five core programme areas for inclusion in the NAP. These core programme areas are:

- Forestry and Wildlife Management;
- Agriculture, Soil and Water Conservation;
- Livestock and Range Management;
- Population and Social Dimensions; and,
- Institutional framework.

With the financial and technical assistance of the Federal Republic of Germany, the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) and the United Nations Development Programme/United Nations Sahelian Office (UNDP/UNSO) the studies were undertaken between March and October 1999. Based on the reports of the sectoral studies, a first draft NAP was elaborated and submitted in August 2000. The first draft NAP was reviewed and adopted by the second National Forum in September 2000 and subsequently endorsed by the President in October 2000 for implementation.

## **1.2 Background**

The National Climate Change Strategy and Action Plan is still in a draft form which is being finalized for adoption. The NBSAP and the NAP have all been finalized and adopted for implementation in 1999 and 2000 respectively. However, little have been achieved in the way of implementing these plans due to financial, human and institutional capacity constraints. Although the severity of these constraints varies from convention to convention, they have been the major factors dictating the implementation rates of the three environmental conventions.

### **1.2.1 Efforts at Mitigating the Capacity Constraints**

Important capacity building efforts especially financial assistance and training were made within the framework of the implementation of individual conventions as well as in the area of general environmental management. Under the UNDP Capacity 21 project launched in 1994 to support implementation of GEAP I, significant capacity building measures were undertaken as its primary objective. The main objective of that project was to strengthen the institutional capacity of NEA and line departments, Non-Governmental Organizations (NGOs) and local communities involved in the implementation of the GEAP.

Other capacity building support projects in the implementation of GEAP I included the IDA/World Bank and German Technical Cooperation Agency (GTZ) supports. While the IDA/World Bank assistance concentrated on establishment of environmental management processes and institutional development and capacity building of NEA, line departments and NGOs, the GTZ assistance concentrated on developing capacities in Environmental Impact Assessment (EIA), amending and implementing environmental legislation and legal reforms, strengthening of the documentation center, and the development and dissemination of environmental information in the form of newsletters. In addition to the foregoing systematic capacity building measures undertaken in the implementation of GEAP I, important thematic capacity building measures were effected as part of the implementation of each of the three Rio conventions.

Such thematic capacity building support in the implementation of the Convention on Biological Diversity (CBD) include:

- The government supported the construction of the building to house the Clearing House Mechanism (CHM), provided vehicles and conference facilities for all biodiversity businesses and provided support to the Biodiversity Task Force; and,
- GEF funding in support of implementation of enabling activities, capacity needs assessment, establishment of the CHM and preparation of an Integrated Coastal and Marine Biodiversity Management Project.

Within the framework of the implementation of the United Nations Framework Convention on Climate Change (UNFCCC), the following thematic capacity building measures were undertaken:

- The OECD Environmental Department conducted and provided training materials to the NCC at most of its workshops;
- The US Country Studies Programme supported the NCC in the assessment of the vulnerability of the economic sectors of The Gambia to climate change;



- The UNEP Collaborating Centre for Energy and Environment (UCCEE) at RISOE in Denmark supported the capacity building of members of the NCC to assess and evaluate projects for eligibility for funding under the Clean Development Programme Mechanisms; and,
- The support of the GEF/UNEP/IPCC AIACC Programme to the Global Change Research Unit of the Department of Water Resources to collaborate with the Energy Department of University of Cape Town and UCCEE to develop a Costing Framework for adaptation measures and projects.

Important thematic capacity building activities under the United Nations Convention to Combat Desertification (UNCCD) included:

- UNDP Capacity 21 Project supported a three-day capacity building training workshop in each division on community resource management strategies; and,
- A study tour for farmers to the northern parts of Senegal for the realization of the effects of desertification and to Guinea Bissau for the appreciation of undisturbed natural resources ecosystems.

In spite of the significant successes registered through the foregoing capacity building measures undertaken within the GEAP I implementation process and the implementation of the individual conventions, the implementation of their respective action plans continued to be impeded by inadequate capacity. The National Climate Change Strategy and Action Plan is still in a draft form because of inadequate human and institutional capacity of NCC and its collaborating institutions to finalize the document.

It is against the foregoing background that the government through NEA sought and obtained funds from the Global Environment Facility (GEF) to implement a National Capacity Self Assessment (NCSA) project for The Gambia.

### **1.2.2 Overall Objective of NCSA**

The overall objective of the NCSA project is to systematically assess The Gambia's capacity needs in the areas of biodiversity conservation, climate change and desertification land degradation and formulate an action plan for capacity building in these three areas. The NCSA process involves a number of assessments in the three thematic areas. The first stage of the assessment is a stock taking exercise aimed at identifying, confirming or reviewing priority issues within each thematic area as well as identify other capacity needs considered relevant for the effective implementation of each convention.

The second stage of the assessment is referred to as the Thematic Assessment which with further consultation with all relevant stakeholders, identifies capacity needs at the three levels (systematic, individual and institutional) for each convention.

### **1.2.3 Specific Terms of Reference of the Thematic Assessment**

The thematic assessment is designed to be carried out in close consultation with the Focal Points of the three environmental conventions and NCSA Project Coordinator. The specific terms of reference of the consultant are:

- In consultation with the relevant stakeholders, identify, review or confirm the capacity requirements of the three conventions at the three level: individual, systematic and institutional;
- Review the results of the Stock Taking exercise and come up with a revised Thematic profile for each convention outlining the capacity needs at the three different levels; and,
- Present the findings to a meeting of the Assessment Team and the respective Task Forces and come up with a final report of the revised Thematic profiles for Biodiversity, Climate Change and Desertification which would take into account the observations made at these meetings.

This report presents the findings of the Thematic Assessment incorporating the observations of the various stakeholders especially members of the Assessment Team and the Task Forces of the three conventions.

## **II. A REVIEW OF THE RESULTS OF THE STOCK TAKING EXERCISE**

A stock taking exercise of capacity building self-assessment of each of the three conventions was conducted by their Focal Points in early-2003. A detailed review of the reports of the exercise revealed that a series of capacity building needs exist in each of the conventions. By virtue of the multi-subsectoral nature of the NBSAP and NAP, there are repetitions of capacity issues within and between the stocking taking results of the two conventions. The following summaries of the review of the two reports are streamlined versions in which inter-report repetitions have been ironed out. However inter-report repetitions of issues are maintained in order to uphold the free standing character of the thematic profile of each convention.

### **2.1 Convention on Biological Diversity (CBD)**

The underlying causes of biodiversity loss emanated from the poor understanding of the phenomenon by the resource users especially the local communities. Thus to identify and implement measures to address the causes of biodiversity loss and degradation must involve local communities. Capacity constraints and issues identified in the stock taking exercise to this effect include:

- Poor forest management systems as well as poor enforcement of forest laws and policies are critical constraints to biodiversity conservation. Improving and strengthening forest management and law enforcement by updating knowledge/skills in forest management and law enforcement will be important capacity building measures to mitigate these constraints;
- Low level of community involvement in fisheries management. Promoting the use of relevant indigenous knowledge, management system, in modern fisheries by providing the necessary support to women and similar groups will be critical capacity building measures in mitigating this constraint;
- Out-dated wildlife Act or lack of wildlife policy and protected area management plans. This capacity issues in biodiversity conservation would require the revision of the act to ensure that the Tanbi, NNP, and BBWR have management plans which provide for increased involvement of communities and the private sector in protected areas management through attitudinal change;
- Lack of adequate capacity for wildlife management. This would require systematic capacity development at both the level of the administration and the local communities;

- Poor farming practices leading to loss of agricultural biodiversity. Capacity building measures to address this issue will entail training in good husbandry and rangeland management practices;
- Lack of knowledge of the impact of different policies, agricultural practices and technology on agricultural biodiversity. The capacity needs to address these issues will include the assessment and monitoring of the impacts of different policies, agricultural practices and technology on agro-biodiversity by training personnel, stakeholders, local people in relevant technologies and techniques;
- The loss of forest biodiversity is reflective of a systemic capacity constraint which could be mitigated through the promotion of forest management practices that contribute to biodiversity conservation, control bush fires, control the introduction of invasive alien species in forest ecosystem and by the adoption of legal, policy and administrative measures that remove perverse incentives and promote positive incentives;
- The lack of ecosystem approach to sustainable use of coastal and marine biodiversity as a systemic capacity issue which requires the development of a national guideline for ecosystem approach;
- The systemic capacity issues of degradation and over exploitation of marine and coastal resources can be curbed by developing legislation to prevent pollution and all other forms of degradations in marine and coastal areas;
- The systemic capacity issue of limited initiatives in aquaculture, can be mitigated through the initiation of pilot projects in mariculture based on success stories and best practices by developing a sound investment policy for aquaculture;
- The capacity issue of inadequate or lack of marine and coastal protected areas requires the development and implementation of comprehensive management plans for marine protected areas, and developing a system of coastal and marine protected areas;
- Lack of data on the taxonomy, status and biological characteristics of fish species and habitats. This capacity issue would require an inventory of fish species of the Gambian's coastal and marine areas, a description of biological characteristics of habitats of each taxonomic group, by putting in place a deliberate policy/registration on the collection of fisheries data, research and information exchange to bridge the gap between fisheries, scientists and other fisher folks and by promoting an understanding of the resources base;

- Inadequate protection for critical species, habitat and heritage measures are reflective of capacity constraints which can be mitigated by enacting legislation to protect critical species and habitat and increasing protection capacity;
- Lack of good farming practices that conserve agricultural biodiversity would require adoption of appropriate policy, laws and programmes including incentives to promote good and sustainable farming practices;
- Lack of scientific information to orientate towards sustainable production patterns. This capacity constraint would require the adoption of policy, legislation and administrative measures in consolidated existing facilities (NARI, DAS) and create new ones (gene bank) and provided with the necessary resources;
- Absence of lack of understanding of ecosystem approach to forest management including its sustainable issues;
- Over-exploitation of commercial fish species;
- Poor management of buffer zones around protected areas;
- Neglected of minor crops, medicinal plants and wild crops;
- Poor promotion of biodiversity enhancing agricultural systems and practices;
- Poor animal breeding and rearing practices. These capacity issues will require development of improved animal breeding and management practices and adequate monitoring and evaluation systems
- Inadequate supply of livestock products (poultry, pork, draft animal, meat etc);
- Over-grazing and poor rangeland management practices;
- Inadequate supply of feed for livestock;
- Predominance of extensive livestock (low-input) production system;
- Lack of clear policy and institutional framework for the management of inland water ecosystem;
- Lack of integrated/ecosystem approach to the management of inland water ecosystems;

- Poor data/information about the status, threats to and importance of wetlands;
- Poor knowledge of the status and current management practices of water ecosystems; and,
- Over-exploitation/wastage of fresh water resources.

## **2.2 Climate Change Convention (UNFCCC)**

As the science and politics of climate change progress, the mandate of the National Climate Committee (NCC) will broaden thereby increasing its scientific capacity needs. Given the existing low capacity of the committee such an increased demand on its capacity will imply intensive capacity building to mitigate existing capacity issues, constraints and building needs. The stocking taking exercise in capacity building for climate change identified the following thematic capacity issues, constraints and building needs:

- Lack of an enabling environment for an effective climate change management. This capacity building need would require instituting appropriate legal and institutional frameworks; developing systemic observation and monitoring networks; providing research, training, education and scientific and technical supports in specialized fields relevant to climate change; and creating public awareness in climate change related issues;
- Lack of skills for vulnerability and adaptation assessment. The capacity building needs include the ability to conduct in-depth assessment of the impacts of climate variability and future climate change on the national economy and identifying and developing measures to adapt to future climate variability and change;
- Low level of implementation of adaptation measures. The capacity building needs to address this capacity issue will include the establishment of energy efficient systems in such areas as industry, agriculture and transport; acquisition of relevant technologies; and, the creation of endogenous scientific and technical absorptive capacity to efficiently utilize technology through building mechanisms for technology forecasting and assessment and protection of intellectual propriety rights of concern to technology source-the private sector;
- Low level of scientific and technical/capacity for effective climate change management. This capacity constraint has individual, institutional and systemic capacity needs dimensions which include training of Gambian scientists in specific aspects of environment management; development of

scientific and technical capacities for assessment of impacts of climate change and formulation of adaptation strategies and establishment of technology assessment and procurement facilities; and networking the NCC with global and regional science networks;

- Inadequate national policy – and decision-making processes for sustainable climate change management. These capacity constraints will require appropriate information that assist the policy- and decision-makers to arrive at well-articulated and relevant policies and plans; qualified scientists and technicians to give necessary and adequate advice to the policy- and decision-makers and participate in the scientific, technical and socio-economic assessment of climate change conducted by the Intergovernmental Panel on Climate Change (IPCC); development of requisite negotiation skills to enhance their participation in negotiations involving climate change issues, and involvement of the grass-roots level especially the poor in the consultation process through empowering community-based groups and organisations;
- Low national capacity for the assessment of the nature and status of the environmental problems. The climate change capacity needs relating to assessment of the nature and status of the environmental problems include capacity to assess green house gas emissions, global warming and impacts of climate change and specialized skills in climatology, biophysics, generation of information and data using tools and technologies such as Geographical Information System (GIS) and remote sensing, and appropriate technological infrastructure to undertake assessments and information management; and,
- Inadequate, weak and ineffective research bodies and programmes. This capacity issue is common to both the three conventions like the previous two issues. With particular reference to climate change it would require strengthening of the Global Change Research Unit of the UNFCCC Focal Point through the provision of regular financial support under the national budget.

## **2.3 Convention to Combat Desertification (UNCCD)**

The results of the stock taking exercise of capacity building needs in the thematic area of UNCCD are summarised hereunder in terms of issues, capacity constraints and capacity building needs:

- The lack of human resources capacity for biodiversity conservation and sustainable use which requires the strengthening of human resources, capacity building for biodiversity conservation and sustainable use by

training individuals in key and priority areas and increase the moral and motivation as well as skills and knowledge of personnel;

- Low institutional capacity of public, NGO, CBO, PVO Agencies involved in the conservation and sustainable use of biodiversity. This will require the improvement of all concerned agencies through joint project implementation actions;
- Rampant bush fire has been identified as a critical issue in biodiversity conservation. To effectively curb, this would require increased awareness campaign and the strengthening of the capacity of CBOs in bush fire management in collaboration with other stakeholders;
- Dwindling supply of forest products in the face of an increasing demand, which would require capacity to ensure sustainable supply of forest product for urban and rural populations;
- Inappropriate crop production practices and strategies have been identified as important issues in biodiversity conservation. These should be minimised by promotion of sustainable crop production practices which enhance the productivity of the soil and minimise soil degradation;
- Over-grazing and poor range land management practices are important issues in biodiversity conservation and sustainable use which would require capacity for determining the carrying capacities of different grazing areas;
- Lack of capacity for assessment, identification and monitoring of components of biodiversity. This requires building and strengthening as appropriate the national capacity for assessment, monitoring and identification of components of biodiversity in various biomes through training in specific and relevant discipline e.g. forestry, inlandwater and dryland;
- The absence and/or lack of understanding of the ecosystem approach to forest management including its sustainable management issues critical in biodiversity conservation. The capacity need in this regard is one of creating an enabling institutional environment to promote the ecosystem approach through pilot projects;
- Poor forest management systems as well as poor enforcement of forest laws and policies have been identified as critical issues in biodiversity conservation. To remedy these would require the capacity for increased education and awareness campaign;



- A deteriorating national forest cover has been identified as an important issue in biodiversity conservation. Ameliorating this situation would require sensitizing and involving all stake holders and interest groups about the need to maintain an adequate forest cover, by capacity building process through formal and informal training;
- Low level of community and private participation in forest management, is identified as major constraint in biodiversity conservation. This could be redressed through effective participation of local communities and private sector in forest resources management;
- Lack of coherent and sufficient wildlife policy and legislation. The capacity need to address this situation is to review the propose wildlife policy and legislation with a view to developing effective implementation tools and trans-frontier boundary management strategies;
- Lack of comprehensive baseline data, criteria and indicators against which the status, trends and threats to biodiversity can be measured and monitored. The capacity implications of these issue include the existence of programme, inventories, surveys and studies to assess the trends and states of biodiversity components;
- Over-exploitation of biological resources is an important systematic capacity issue in biodiversity conservation and sustainable use which can be curbed by limiting livestock numbers to carrying capacity of rangelands;
- Poor fisheries harvesting, processing and utilization methods and practices as systemic capacity issues in biodiversity conservation can be addressed through the promotion of sustainable fisheries management, harvesting, processing and utilization techniques;
- Lack of effective enforcement of laws, especially with regard to wildlife and poor understanding of biodiversity conservation and sustainable use issues and practices. These systemic capacity issues will require increased public awareness campaign, enforcement of laws and empower of local communities to monitor and report illegal activities as remedial capacity measures;
- Poorly managed protected areas;
- Poor land use practices;
- Poor and deleterious agricultural practices;
- Poor planning database;

- Lack of suitable husbandry practices for various classes of livestock
- Lack of reliable inland fisheries catch, effort and resources data on which rational management could be based;
- Uncontrolled catching and dumping of undersized fish (juveniles) as a by-catch during shrimping
- Employment of destructive methods of oyster harvesting; and,
- Alarming rate of mangrove die-back along the Gambia River estuary.

### **III THEMATIC PROFILES OF THE STOCK TAKING EXERCISES**

#### **3.1 The Capacity Context of the Thematic Assessment**

The Capacity context for sustainable national development in The Gambia is generally grossly inadequate but appallingly unsatisfactory in the domain of sustainable environmental management as a framework for accelerated poverty reduction and durable food security. The dismal slow pace of implementation of the three environmental conventions since their adoption by the country attests to this fact. The key capacity constraints for environmental management derive from a series of institutional, human resources and structural inadequacies including:-

- Inappropriate policies and legal instruments and/or lack of effective regulatory mechanisms.
- Ill-defined responsibilities and poorly coordinated public institutions especially major agencies in agriculture and those in natural resources.
- Low level of involvement of industry, civil society organizations and interest groups in natural resource management particularly in research.
- Low level of skills and technical capacity development and general training, education and human capital formation.
- Low funding and equipping of public agencies and lack of motivations and incentive schemes for civil servants.

Almost all the legal and regulatory frameworks for natural resources management were instituted many years before the Rio Conventions. The National Environment Management Act, 1994 is the framework legislation for environmental management in The Gambia. Despite recent attempts to streamline and implement this in earnest through the enactment of enabling regulations such as the Ozone Depleting Substances Regulations, 1999 and the Environmental Discharge Permit Regulations, 2001, major capacity inadequacies in this framework law still remain. A number of conflicts in roles and mandates with other sectoral legislation exist. Other important improvements in the legal environment include the enactment of the Forestry Act 1998 and the Biodiversity/Wildlife Act 2003. More improvement in the legal framework of natural resources management in particular is required.

The key public agencies in sustainable environmental management include the State Department of agriculture (DOSA) and its six staff and line departments and the Department of State for Fisheries, Natural Resources and the Environment (DOSFNRE) and its five staff and line departments. The following summarizes the manpower situation of these agencies as at 2001:

- DOSA Office of the SOS including the Department of Administration 93

- Department of Planning (DOP) 96
- Department of Cooperative Development (DCD) 40
- Department of Livestock Services (DLS) 207
- Department of Agricultural Services (DAS) 483
- National agricultural Research Institute (NARI) 149
- DOSNRE including the office of the SOS 12
- Department of Water Resources (DWR) 241
- Department of Fisheries (DOFish) 88
- Department of Forestry (DFish) 190
- Department of Parks and Wildlife Management (DPWM) 38
- National Environment Agency (NEA)30

The total staff complement of these agencies excluding NARI and NEA was 1488 people about 13% of the total public administration of 11055 people. While this staffing level is grossly inadequate for an effective management of the national environment, the lack of clear sense of purposes and direction and duplication of responsibility seriously constrain their cumulative output at any point in time. A case in point is extension education all the technical departments of DOSA and DOSFNRE have an extension unit virtually talking to the same target group.

Of even more importance than the numerical strength of these public agencies are the quality of staff, their level of equipment and the level of funding of their operations. The approved total recurrent budget of DOSA and DOSFNRE in 2002 was about D43.447 million equivalents to about only 3% of the total national recurrent budget. The approved total development budget for the two departments of State in 2002 amounted to D64, 933 million equaled to about 14.7% of the total national development budget. While the low recurrent budgetary provisions seriously compromises the prospects of medium- and long- term sustainability of the already built and existing capacity, the creation of new capacity is seriously checked by these low development budgetary allocations.

The foregoing analysis exemplifies the critical nature of the capacity context of sustainable environmental management in the Gambia on one hand and the difficulties of sustaining existing capacity and building new ones on the other hand.

### **3.2 Perioritization of Issues Identified within each Thematic Area**

Following a critical review of the capacity issues identified in the three thematic areas in the stock taking exercise, the observed relevant strengths and weaknesses of the issues and gaps in the exercise have become more apparent. TO provide a better focus for identifying capacity constraints and future capacity building efforts, the capacity issues identified are prioritized in Tables 3.1 to 3.3 under each of the three thematic areas to allow for a simple comparison of their relative importance to facilitate further confirming or reviewing the priorities.

**Table 3.1: Issues Prioritization Matrix of Capacity Needs in the Thematic Area of CBD**

| <b>Issue</b>   | <b>Scale of Problem</b> | <b>Level of Concern</b> | <b>Ability to Adequately Address Issue</b> | <b>Priority Ranking</b> |
|--|-------------------------|-------------------------|--|-------------------------|
| Poor forest management systems as well as poor enforcement of forest laws and policies are critical constraints to biodiversity conservation   | National                | High                    | Low  | 1                       |
| Low level of community involvement in fisheries management   | National                | High                    | Low  | 1                       |
| Out-dated wildlife Act or lack of wildlife policy and protected area management plans  | National                | High                    | Low  | 1                       |
| Lack of adequate capacity for wildlife management  | Local                   | Medium                  | Low  | 1                       |
| Poor farming practices leading to loss of agricultural biodiversity  | National                | High                    | Low  | 2                       |
| Lack of knowledge of the impact of different policies, agricultural practices and technology on agricultural biodiversity  | National                | Medium                  | High                                       | 2                       |
| The loss of forest biodiversity is reflective of a systemic capacity constraint which could be mitigated through the promotion of forest management practices that contribute to biodiversity conservation | National                | Low                     | High                                       | 3                       |
| The lack of ecosystem approach to sustainable use of coastal and marine biodiversity   | National                | High                    | Low  | 1                       |
| The systemic capacity issues of degradation and over exploitation of marine and coastal resources  | National                | High                    | Low  | 1                       |
| The systemic capacity issue of limited initiatives in aquaculture  | National                | Low                     | High                                       | 2                       |
| The capacity issue of inadequate or lack of marine and coastal protected areas   | National                | Low                     | High                                       | 1                       |
| Lack of data on the taxonomy, status and biological characteristic of fish species and habitats  | National                | High                    | Low  | 1                       |
| Inadequate protection for critical species, habitat and heritage measures  | National                | Low                     | High                                       | 3                       |
| Lack of good farming practices that conserve agricultural biodiversity   |                         |                         |  |                         |

|  |          |      |        |   |
|--|----------|------|--------|---|
|  | National | High | High   | 1 |
| Lack of scientific information to orientate towards sustainable production patterns                          | National | High | Low    | 2 |
| Absence of lack of understanding of ecosystem approach to forest management including its sustainable issues | National | Low  | Low    | 2 |
| Over-exploitation of commercial fish species   | National | High | Medium | 1 |
| Poor management of buffer zones around protected areas   | National | Low  | High   | 2 |
| Neglect of minor crops, medicinal plants and wild crops  | National | Low  | High   | 1 |
| Poor promotion of biodiversity enhancing agricultural systems and practices                                  | National | Low  | Medium | 3 |
| Poor animal breeding and rearing practices   | National | Low  | High   | 1 |
| Inadequate supply of livestock products (poultry, pork, draft animal, meat etc)                              | National | Low  | Medium | 1 |
| Over-grazing and poor range land management practices  | National | Low  | Medium | 2 |
| Inadequate supply of feed for livestock  | National | Low  | Medium | 2 |
| Predominance of extensive livestock (low-input) production system  | National | Low  | Medium | 3 |
| Lack of clear policy and institutional framework for the management of inland water ecosystem                | National | Low  | High   | 2 |
| Lack of integrated/ecosystem approach to the management of inland water ecosystems                           | National | Low  | Low    | 4 |
| Poor data/information about the status, threats to and importance of wetlands                                | National | Low  | Low    | 2 |
| Poor knowledge of the status and current management practices of water ecosystems                            | National | Low  | Low    | 3 |
| Over-exploitation/wastage of fresh water resources   | National | Low  | Medium | 2 |

**Table 3.2: Issues Prioritization Matrix of Capacity Needs in the Thematic Area of UNFCCC**

| <b>Issue</b>   | <b>Scale of Problem</b> | <b>Level of Concern</b> | <b>Ability to Adequately Address Issue</b> | <b>Priority Ranking</b> |
|--|-------------------------|-------------------------|--|-------------------------|
| Lack of an enabling environment for an effective climate change management                           | National                | Low                     | Medium                                     | 2                       |
| Lack of skills for vulnerability and adaptation assessment   | National                | High                    | Low  | 1                       |
| Low level of implementation of adaptation measures   | National                | Medium                  | Low  | 2                       |
| Low level of scientific and technical/capacity for effective climate change management               | National                | Low                     | Low  | 1                       |
| Inadequate national policy – and decision-making processes for sustainable climate change management | National                | Low                     | Low  | 2                       |
| Low national capacity for the assessment of the nature and status of the environmental problems      | National                | Medium                  | Low  | 2                       |
| Inadequate weak and ineffective research bodies and programmes                                       | National                | High                    | Low  | 1                       |

**Table 3.3: Issues Prioritization Matrix of Capacity Needs in the Thematic Area of UNCCD**

| <b>Issues</b>   | <b>Scale of Problem</b> | <b>Level of Concern</b> | <b>Ability of Adequately Address Issue</b> | <b>Priority Ranking</b> |
|---|-------------------------|-------------------------|--|-------------------------|
| The lack of human resources capacity for biodiversity conservation and sustainable use  | <b>Local</b>            | <b>Low</b>              | <b>Medium</b>                              | <b>1</b>                |
| Low institutional capacity of public, NGO, CBO, PVO Agencies has been identified as a major capacity constraint for the conservation and sustainable use of biodiversity  | <b>National</b>         | <b>Medium</b>           | <b>Low</b>                                 | <b>2</b>                |
| Rampant bush fire has been identified as a critical issue in biodiversity conservation  | National                | <b>High</b>             | <b>Low</b>                                 | <b>1</b>                |
| Dwindling supply of forest products in the face of an increasing demand   | National                | <b>High</b>             | <b>Medium</b>                              | <b>1</b>                |
| Inappropriate crop production practices and strategies have been identified as important issues in biodiversity conservation  | National                | <b>Medium</b>           | <b>High</b>                                | <b>3</b>                |
| Over-grazing and poor range land management practices are important issues in biodiversity conservation and sustainable use   | National                | <b>High</b>             | <b>Low</b>                                 | <b>1</b>                |
| Lack of capacity for assessment, identification and monitoring of components of biodiversity  | Local                   | <b>Low</b>              | <b>Medium</b>                              | <b>1</b>                |
| The absence and/or lack of understanding of the ecosystem approach to forest management including its sustainable management issues critical in biodiversity conservation | National                | <b>Low</b>              | <b>Medium</b>                              | <b>2</b>                |
| Poor forest management systems as well as poor enforcement of forest laws and policies have been identified as critical issues in biodiversity conservation               | National                | <b>High</b>             | <b>Medium</b>                              | <b>3</b>                |
| A deteriorating national forest cover has been identified as an important issue in biodiversity conservation  | National                | <b>High</b>             | <b>Medium</b>                              | <b>3</b>                |
| Low level of community and private participation in forest management, is identified as major constraint in biodiversity conservation                                     | National                | <b>High</b>             | <b>Medium</b>                              | <b>3</b>                |
| Lack of coherent and sufficient wildlife policy and legislation   | Local                   | <b>Low</b>              | <b>High</b>                                | <b>5</b>                |
| Lack of comprehensive baseline  |                         |                         |  |                         |



|  |          |        |        |   |
|--|----------|--------|--------|---|
| data, criteria and indicators against which the status, trends and threats to biodiversity   | National | High   | Low    | 1 |
| Over-exploitation of biological resources is an important systematic capacity issue in biodiversity conservation and sustainable use                                   | National | Medium | Low    | 3 |
| Poor fisheries harvesting, processing and utilization methods and practises as systemic capacity issues in biodiversity conservation                                   | National | High   | Medium | 1 |
| Lack of effective enforcement of laws, especially with regard to wildlife and poor understanding of biodiversity conservation and sustainable use issues and practices | National | High   | Low    | 1 |
| Poorly managed protected areas   | National | Low    | Medium | 2 |
| Poor land use practices  | National | Medium | High   | 2 |
| Poor and deleterious agricultural practices  | National | Medium | High   | 3 |
| Poor planning database   | National | Low    | Medium | 2 |
| Lack of suitable husbandry practices for various classes of livestock  | National | Low    | Medium | 2 |
| Lack of reliable inland fisheries catch, effort and resources data on which rational management could be based   | National | Medium | Low    | 1 |
| Uncontrolled catching and dumping of undersized fish (juveniles) as a by-catch during shrimping  | National | Medium | Medium | 2 |
| Employment of destructive methods of oyster harvesting   | National | Low    | High   | 1 |
| Alarming rate of mangrove die-back along the Gambia River estuary  | National | Low    | Low    | 1 |

### 3.3 Capacity Constraints for Priority Issues in Each Thematic Area

Following the identification and prioritization of capacity issues under the three conventions, related capacity constraints were identified and categorized into individual, institutional and systemic capacity constraints under each convention and presented in capacity constraints matrix in **Tables 3.4, 3.5 and 3.6** below.

**Table 3.4** presents the capacity constraints matrix for the Convention on Biological Diversity (CBD). Of a total of 30 capacity issues identified under the

CBD, 13 are rated as most severe (1), 11 as second most severe (2), 5 as third most severe (3) and 1 as fourth most severe (4) problems requiring capacity building needs.

**Table 3.5** presents the capacity constraints matrix for the United Nations Framework Convention on Climate Change (UNFCCC). Of a total of 7 capacity issues identified under the UNFCCC, 3 are rated as most severe (1) and 4 are rated as second most severe (2) problems requiring capacity building needs.

**Table 3.6** presents the capacity constraints matrix for the United Nations Convention to Combat Desertification (UNCCD). Of a total of 25 capacity issues identified under the UNCCD, 11 are rated as most severe (1), 7 are rated as the second most severe (2), 6 are rated as the third most severe (3) and 1 is rated as the fifth most severe (5) problems requiring capacity building needs.

**Table 3.4: Capacity Constraints for Priority Issues in CBD**

| Issues   | Capacity Needs  |  |  |
|--|---|--|--|
|  | Individual  | Institutional  | Systemic   |
| <b>Issue 1:</b> Poor forest management systems as well as poor enforcement of forest laws and policies are critical constraints to biodiversity conservation | Development and implement in service training courses/ modules for various categories of DFor staff in forest management. Provide professional tracking for various categories of staff | Equip DFor appropriate to carry out intensive surveillance. Endow the department with adequate recurrent budget. Increase staff capacity to an optimal level | Develop and implement public education and awareness programme on forestry laws and policies   |
| <b>Issue 1:</b> Low level of community involvement in fisheries management   | Train DFish extension staff in PRA methodology  | Equip the department to carry out effective training and training programme for fishing communities  | Establish fisheries development committees as sub-committees of village development committees (VD)  |
| <b>Issue 1:</b> Out-dated wildlife Act or lack of wildlife policy and protected area management plans  | Train staff in cartography taxonomy, terrestrial ecology and development of management plans  | Increase the staff strength of DPWM and equip the institution adequately with cartography equipment and facilities   | Review the newly enacted wildlife policy and legislation to develop effective implementation tools. Develop and implement management plans for the protected areas |
| <b>Issue 1:</b> Lack of adequate capacity for wildlife management  | Train personnel in appropriate professional disciplines relevant to wildlife management   | Strengthen DPWM to be able to intensify and expand its extension education programme   | Expand the agriculture and livestock curricular of Gambia College and University of The Gambia to include courses in wildlife management                           |

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|---|---|---|--|
| <b>Issue 1:</b> The lack of ecosystem approach to sustainable use of coastal and marine biodiversity              | Train DFish staff in ecosystem approach. Design and implement projects in ICAM techniques   | Develop inter-agency linkages and involve other institutions in implementation of projects in ICAM techniques. Provide necessary resources to support participation of participating institutions | Develop national policy and guideline for ecosystem and integrated approach to natural resource management. Provide adequate incentives to encourage adoption of ecosystem and integrated management systems by resource users |
| <b>Issue 1:</b> The systemic capacity issues of degradation and over exploitation of marine and coastal resources |   | Increase the staffing and operational budgets of DPWM and DFish to assist communities to develop and implement their management system  | Develop and implement a policy of community management system for coastal and marine protected areas I particular and marine and coastal resources in general  |
| <b>Issue 1:</b> The capacity issue of inadequate or lack of marine and coastal protected areas                    | Train and improve skills in protected area management especially marine and coastal protected areas   | Increase the staffing levels of DPWM and DFish to be able to effectively assume increased regulatory functions and increase their operational resources   | Develop a system of coastal and marine protected areas and provide necessary resources to operationalize the system  |
| <b>Issue 1:</b> Lack of data on the taxonomy, status and biological characteristic of fish species and habitats   | Train personnel in relevant disciplines up-grade professional skills through relevant specialized short courses. Establish networking programmes with sub-regional regional and international with research and educational institute | Appropriately staff, equip and endow DFish to plan and conduct appropriate research projects and programme with NARI  | Develop and implement appropriate fisheries research programmes with increased participation fisher-flocks especially fishermen. Provide necessary incentives to sustain greater participation of the resource harvester       |

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|--|---|---|--|
| <b>Issue 1:</b> Lack of good farming practices that conserve agricultural biodiversity | Train farmers in sustainable farming practices  | Strengthen DAS, NGOs, PVOs and CBOs to undertake effective extension education programmes   | Formulate and implement appropriate land policy and law. Provide appropriate incentives for their adoption and implementation  |
| <b>Issue 1:</b> Over-exploitation of commercial fish species                           | Train personnel to conduct stock assessment surveys. Empower communities to administer laws. Train in skills to negotiate access regimes. Involve local in negotiations   | Strengthen existing institutional structure and provide with necessary resources to effectively monitor exploitation trends and recommend guidelines on best practices fisheries  | Introduce legislative and policy measures with incentives built into them to discourage all aspects of commercial fisheries over-exploitation  |
| <b>Issue 1:</b> Neglect of minor crops, medicinal plants and wild crops                | Information and awareness raising on the importance of minor crops, medicinal plants etc. Collect data on minor crops/medicinal plants etc. Assess status and threats to minor crops, medicinal plants etc. Involve local people in research on minor crops/medicinal plants etc. Train local people in the cultivation and management of local plants/crops. Initiate pilot projects and involve local people to capacitate them | Set-up a gene bank provide it with adequate resources to collect and preserve genetic materials of minor crops, medicinal plants etc. and strengthen the various extension units to promote their propagation and cultivation | Create policy, law, and administrative measures for the conservation and sustainable use of medicinal plants, minor crops etc., including their prospection, access and benefit sharing arrangements |

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| <b>Issue 1:</b> Poor animal breeding and rearing practices                                      | Sensitization of small and commercial farmers on the need for conservation and sustainable use of local animal genetic resources. Training in improved breeding and management techniques. Training in business and enterprise                                 | Training of DLS and NGO staff and CBOs in conservation of AGR (animal genetic resources). Strengthening of CBOs for promotion of AGR. Improve veterinary care services    | Legislative and logistic support to promote animal genetic resources conservation. Improve monitoring and evaluation systems. Improve veterinary health care system   |
| <b>Issue 1:</b> Inadequate supply of livestock products (poultry, pork, draft animal, meat etc) | Increase access to improved animal genetic resources. Improve market information. Training in processing, preservation and marketing. Improve access to credit facilities. Train DLS, NGO, CBO, PVO staff on processing, preservation and marketing techniques | Strengthen linkage between research and extension. Strengthen linkage between producers and local markets and tourist industry. Strengthen the organisation of producers. | Policy change from extensive production base to intensive production base. Improve private sector involvement in livestock. Improve investment in livestock sector. Review and update veterinary public health etc. |
| <b>Issue 2:</b> Poor farming practices leading to loss of agricultural biodiversity             | Develop and conduct appropriate in-service training courses for VEWs and raise professional skills of staff through increased training   | Strengthen the extension service to intensify extension education and increase frequency of T & V sessions. Increase the number of extension workers                      | Formulate and enact appropriate land policy and act. Develop appropriate incentive scheme to support adoption   |

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|---|--|---|---|
| <b>Issue 2:</b> Lack of knowledge of the impact of different policies, agricultural practices and technology on agricultural biodiversity | Develop M & E skills through appropriate training  | Strengthen or create agricultural policy development unit and endow it with necessary resources to function effectively. Develop and implement appropriate monitoring systems | Adopt agricultural policies, laws and practices developed and accepted by consensus with the participation of all stakeholders  |
| <b>Issue 2:</b> The systemic capacity issue of limited initiatives in aquaculture   | Develop skills in aquaculture  | Develop and implement research & development and extension programmes in aquaculture  | Develop and implement sound investment policy for aquaculture   |
| <b>Issue 2:</b> Lack of scientific information to orientate towards sustainable production patterns                                       | Train qualified scientists in appropriate disciplines and crop/livestock research methods  | Design and conduct appropriate research programmes involving NARI, extension and farmers  | Develop appropriate policy and administrative and organization structures that involve scientists, extensionists and farmers in agricultural development administration |
| <b>Issue 2:</b> Absence of lack of understanding of ecosystem approach to forest management including its sustainable issues              | Promote the ecosystem approach in forest biodiversity project. Involve local communities, NGOs, CBOs, PVOs etc. in forest biodiversity project. Public awareness among stakeholders. Train personnel | Create an enabling institutional environment to promote the ecosystem approach through pilot/demonstration projects   | Adapt existing and/or develop guidelines and or principles for the ecosystem approach to biodiversity management  |

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| <b>Issue 2:</b> Poor management of buffer zones around protected areas | Teaching and community Development skills ecological and management plan writing skills  | Creation of trusting/mutually supportive environment between Government and local communities  | Closer collaboration between different sectors e.g DPWM and Community Development  |
| <b>Issue 2:</b> Over-grazing and poor range land management practices  | Introduce communities, land owners to sound range management through pilot projects. Increase capacity to acquire and or make additional feed using locally available materials/resources. Encourage off take at critical times of the year. Identify and improve market outlets | Strengthen the organisation capacity of CBOs. Sensitisation of CBOs on the fragility of range ecosystem. Strengthen capacities of CBOs in elaboration development plans. Strengthen of range management unit. Training of DLS/NGO, CBO staff in range management. Strengthen linkage between different institutions using range resources. Group management training. Environmental training programme | Range management policies formulated. Legislation of range management policies. Encourage integrated use of range resources. Financial and technical support for development and utilization of range resources. Improved monitoring and evaluation system |



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| <b>Issue 2:</b> Inadequate supply of feed for livestock  | Train framers in feed conservation and preservation. Train farmers in processing and milling of feed. Train farmers n mineral lick preparation. Train farmers n business management conduct. Exchange visit.  | Strengthen training centre at YBK. Strengthen sectoral linkages between livestock, agriculture, forestry and fisheries in the production and management of livestock feeds. Strengthen producer groups and organizations involved in livestock feed production. Strengthen extension services. | Train human resources in livestock production and management. Improve access of financial institutions. Improve coordination of different stakeholders in livestock feed production through the creation of an enabling policy, legislative and administrative environment. |
| <b>Issue 2:</b> Lack of clear policy and institutional framework for the management of inland water ecosystems | Training in policy review, formulation and streamlining. Training in institutional setting/re-organisation/re-structuring to define mandates.   | Put in place a policy and law formulation body to ensure that inland water policy and legislative issues are considered in relevant sectoral plans and policies  | Water development policy to be revised/update. Provide an integrated policy and legislative environment for inland waters within the framework of the national development plan.  |
| <b>Issue 2:</b> Poor data/information about the status, threats to and importance of wetlands                  | Train alistakeholders in data collection, storage, dissemination. Raise awareness about threats to wetlands. Empower communities to control, police and monitor threats. Information exchange through transfrontier collaboration. All stakeholders to participate in the preparation of management plan. | An institutional structure with the necessary resources to spearhead the development and implementation of appropriate legal, administrative and incentive measures establishment of gene banks for fish and other species education, public awareness and local community involvement.        | Policy and legislation on the establishment, appropriate funding and management of gene banks as a resource of information on wetlands and other ecosystems.  |

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| <b>Issue 2:</b> Over-exploitation/wastage of fresh water resources   | Involve personnel/stakeholders in initiatives on the sustainable use of water resources. Sensitize communities about the importance of water and the need to exploit it rationally. Empower local people to regulate water use. Training in low enforcement  | Strengthen institution and provide adequate material financial and equipment/infrastructure resources to better plan and manage water resources development in the country.  | Provide legislative, policy and administration measures, including the provision of incentives to promote sustainable use of water resources and discourage water wastage.                             |
| <b>Issue 3:</b> The loss of forest biodiversity is reflective of a systemic capacity constraint which could be mitigated through the promotion of forest management practices that contribute to biodiversity conservation | Train personnel in forest biodiversity assessment and monitoring, train and involve local communities in good forest management practices  | Strengthen the capacity of DPWM and DFish to carry out effective regulatory functions  | Enforce and/or strengthen existing legal, policy and administrative measures and remove all perverse incentives and promote positive incentives in exploitation and utilization of forest biodiversity |
| <b>Issue 3:</b> Inadequate protection for critical species, habitat and heritage measures  | Development ecological and taxonomic skills and ecological survey skills.  | Establish inter-agency committees to assist the coordination of the programmes of concerned institutional including NGOs. Endow these structure with funds to operate effectively                                    | Review existing laws and appropriately update them with the involvement of local communities   |
| <b>Issue 3:</b> Poor promotion of biodiversity enhancing agricultural systems and practices  | Raise awareness about agro-biodiversity. Initiate field/pilot projects with local people and introduce appropriate incentive measures. Study tours/field visits to areas of success stories. Training in proper storage techniques. Strengthen partnership between farmers, researchers and extension workers for skills transfer. | An institutional structure with appropriate infrastructure and other resources to promote approved and tested agro-biodiversity systems and practices for all stakeholders including NGOs, CBOs, PVOs, industry etc. | Package of agro-biodiversity policy, legislative and administrative measures including appropriate incentive measures to promote biodiversity enhancing agricultural systems and practices.            |

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|  | Further develop skills of local people through modernisation of indigenous technologies practices and innovations relevant to agro-biodiversity                                   |  |  |
| <b>Issue 3:</b> Predominance of extensive livestock (low-input) production system                  | Awareness campaigns on Socio-cultural and environmental issues. Training on improved husbandry practices. Training on environmental implications/issues. Study Tours/Study Visits | Strengthen extension services. Training on cooperative formation for different producer association. Access to financial institutions            | Train human resources. Logistical support. Building linkages between financier, producers and consumers through the enactment of a national training policy and interagency collaborative mechanism. |
| <b>Issue 3:</b> Poor knowledge of the status and current management practices of water ecosystems  | Train personnel in research methods. Interagency regional, sub-regional collaboration. Exchange programmes. Initiate pilot projects with local people                             | Strengthen existing structure or create appropriate ones and provide with adequate resources together and disseminate data on inland waters.     | Further strengthen the national institution responsible for biodiversity research, including inland waters, through appropriate policy and legislative measures as well as appropriate funding.      |
| <b>Issue 4:</b> Lack of integrated/ecosystem approach to the management of inland water ecosystems | Personnel gain experience through case studies. Transfer of skills through field projects. Information exchange. Trans-boundary cooperation. Implement joint projects             | Institutionalise the ecosystem approach for inland water ecosystem develop and provide appropriate guiding principle for adoption in the country | Legislative and policy measure in place to promote the application of a flexible guiding principles for the ecosystem approach   |

**Table 3.5: Capacity Constraints for Priority Issues in UNFCCC**

| Issues   | Capacity Needs  |  |   |
|--|---|--|---|
|  | Individual  | Institutional  | Systemic  |
| <b>Level 1:</b> Lack of Skills for vulnerability and adaptation assessment                             | Train DWR personnel in professional disciplines such as climatology, biophysics etc. and specialized skills such as vulnerability and adaptation assessment. Train NCC in vulnerability and adaptation assessment | Strengthen the DWR to carry out effective climate change monitoring  | Develop the critical mass of scientists to be able to generate the necessary socioeconomic information and develop a culture of technology assessment and general optimization management industry or at national level |
| <b>Level 1:</b> Low level of scientific and technical/capacity for effective Climate Change Management | Train personnel of NARI and DWR in relevant professional disciplines and organize networking programme and opportunities  | Develop and/or strengthen the research capabilities of DWR and NARI and endow them with the necessary tools resources to critical analyse climate change issues  |   |
| <b>Level 1:</b> Inadequate, weak and ineffective research bodies and programmes                        | Train personnels of NARI, DOP and DWR to acquire high level scientific and professional skills  | Strengthen the capacity of NARI, DOP and DWR through increased staff strengthening operational budget and equipment to carry out effective technical and socioeconomic research relevant to climate change |   |

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| <b>Level 2:</b> Lack of enabling environment   | Change attitude of individuals appropriate review the scheme of service of the concern technical departments to ensure security of tenure and career progression and access to training opportunities           | Review sectoral policies and laws of relevance of climate change to reflect to obligations and commitments of the government as custodian of the convention  | Rehabilitate and strengthen meteorological and hydrological observations   |
| <b>Level 2:</b> Low level of implementation of adaptation measures   |   | Strengthen the capacity of the technical Departments of the programme areas of the action plan to implement their activities effectively   | Critically review the policies of and laws relating to the major sectors of the action plan with view to harmonizing them for effective climate change management. Establish a strong rapport between the private sector and public sector |
| <b>Level 2:</b> Inadequate national policy – and decision-making processes for sustainable climate change management | Train scientists and technicians in professional disciplines and negotiation skills and provide them with incentives as well as skills refreshment opportunities and equipment tools to exert analytical rigor. | Strengthen the capacity of research and technical departments of provide sound policy advice to policy- and decision-makers  | Provide relevant information to policy- and decision-makers. Build climate change into education curricular of schools and University of The Gambia as a matter of policy  |
| <b>Level 2:</b> Low national capacity for the assessment of the nature and status of the environmental problems      | Train and retain qualified environmentalists in NEA and line departments by assuring them security of tenure, career progression, training and networking opportunities   | Strengthen the capacity of technical departments to generate and manage scientific information and knowledge on which to base responses, degradation of the environment and establishment of early warning systems | Formulate and adopt a legislation to allocate time and financial resources to climate change mitigation and adaptation.  |

**Table 3.6: Capacity Constraints for Priority Issues in UNCCD**

| Issues  | Capacity Needs   |   |  |
|---|--|---|--|
|   | Individual   | Institutional   | Systemic   |
| <b>Issue 1:</b> The lack of human resources capacity for biodiversity conservation and sustainable use                                      | Train personnel in appropriate professional disciplines such as taxonomy, environmental economics, wildlife management | Increase the staffing level of DPWM   |  |
| <b>Issue 1:</b> Rampant bush fire has been identified as a critical issue in biodiversity conservation                                      |  | Strengthen the operational capacity of DFor. Increase the staff strength of the Department appropriately to expand and intensify surveillance activities    | Strengthen the capacity of CBOs on bush fire management. Sensitize local authorities to enforce the forest legislation. Equip the village fire fighting committees   |
| <b>Issue 1:</b> Dwindling supply of forest products in the face of an increasing demand   |  | Strengthen forest research programmes,. Encourage NGOs, CBO and PVOs to intensify and expand their community woodlot programmes                             | Increase number of forest reserves. Develop alternative economic activities to harvesting of forest resources. Encourage increased planting of trees on farm lands. Develop silvicultural practices. Create a National Mangrove Committee to improve management of mangrove ecosystem. |
| <b>Issue 1:</b> Over-grazing and poor range land management practices are important issues in biodiversity conservation and sustainable use | Train Range Management experts. Train personnels of NGOs and CBO on range management practices                         | Strengthen the capacity of the Range Management Unit of DLS to carryout studies, develop range management strategy and plan and grazing management systems. | Formulate and implement range management policies and legislation which emphasize community ownership of rangeland, destocking efficient management and utilization of range resource through the  |

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|  |   | Strengthen the organizational capacity of CBOs to assume increasing role in community range management   | adoption of improved range management strategy and plan and grazing management system. Formulate a land care policy and Act  |
| <b>Issue 1:</b> Lack of capacity for assessment, identification and monitoring of components of biodiversity   | Develop the critical mass of environmental economists, taxonomists, biologists etc.   | Strengthen the staff level of DPWM through increased budgetary allocation increased number of staff, increased level of equipping appropriately                      |  |
| <b>Issue 1:</b> Lack of comprehensive baseline data, criteria and indicators against which the status, trends and threats to biodiversity            | Train personnel in survey techniques and taxonomy and other relevant professional discipline to undertake animal resources research | Increase the staffing level, equipment and operational budget of DPWM to undertake effective animal resource research and monitoring & evaluation and surveying work | Develop a national biodiversity baseline survey project and seek friends to implement the survey as a matter of urgency  |
| <b>Issue 1:</b> Poor fisheries harvesting, processing and utilization methods and practices as systemic capacity issues in biodiversity conservation | Train fisheries personnel in improve fish harvesting, processing and utilization methods and practices                              | Strengthen the capacity of DFish to intensify its regulatory functions and education/extension programme   | Review the fisheries act with a view to redefining some of its regulatory classes and conditions an utilization. Adopt more strength efficiency guidelines. Develop the technical and scientific research infrastructure to conduct effective processing, harvesting and utilization research in fisheries |

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| <b>Issue 1:</b> Lack of effective enforcement of laws, especially with regard to wildlife and poor understanding of biodiversity conservation and sustainable use issues and practices  | Train DPWM staff in rural extension methods and PRA techniques  | Strengthen the capacity of DPWM to intensify its regulatory activities and education/extension programme and develop and disseminate improved conservation practices   | Develop effective implementation tools to implement the new wildlife policy and legislation  |
| <b>Issue 1:</b> Employment of destructive methods of oyster harvesting  | Up-grade the skills of various levels of DFish staff on improved oyster harvesting methods  | Strengthen the capacity of DFish and NARI to conduct research on alternative methods of oyster harvesting, and to carry out extension educational programme on the need to preserve the mangrove substrate and the oyster population | Develop alternative methods of oyster production crack/raft/long line methods of oyster culture. Ban all destructive methods as a matter of policy   |
| <b>Issue 1:</b> Alarming rate of mangrove die-back along the Gambia River estuary   | Train some scientific personnel of NARI in rehabilitation and eco-system restoration  | Strengthen the research capacity of NARI to investigate ways and means of rehabilitating the mangroves in collaboration with DFish, DFor and DPWM  | Constitute a Nation Mangrove Committee to develop and implement a mangrove rehabilitation policy   |
| <b>Issue 2:</b> Low institutional capacity of Public NGO, CBO, PVO agencies has been identified as a major capacity constraint for the conservation and sustainable use of biodiversity | Train DPWM, DAS, DLS, DFor and DFish personnel in appropriate professional disciplines to be able to provide subject matter specialist advices to NGOs, CBOs and PVOs | Appropriately define the mandate institution/ organization structure of DPWM to include an outreach programme of support to NGOs, CBOs and PVO involved in biodiversity  | Formulate and adopt a systematic policy and administrative guideline for the involvement of NGOs, CBOs and PVOs agencies in biodiversity conservation and allow them access to scientific and technical infrastructure for |



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|   |  | conservation. Increase the staff and operational budget of DPWM to be able to undertake an effective extension/education/training programme for NGOs, CBOs, and PVOs | research and conservation  |
| <b>Issue 1:</b> Lack of reliable inland fisheries catch, effort and resources data on which rational management could be based  | Train enumerators for fisheries data collection                                    | Strengthen the extension education and data collection activities of DFish and its capacity to conduct animal frame survey throughout the country                    | Develop/map out significant fish landing sites along the Gambia river and estuary and involve some key local fishermen as sampling units                         |
| <b>Issue 2:</b> The absence and/or lack of understanding of the ecosystem approach to forest management including its sustainable management issues critical in biodiversity conservation |  |  |  |
| <b>Issue 2:</b> Poorly managed protected areas  | Train personnel of the concerned departments in requisite professional disciplines | Strengthen the capacity of DPWM, DFor and DFish to implement protected area management systems   | Develop and implement protected area management plans with local communities. Adopt a policy of involving local communities in the management of protected areas |

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| <b>Issue 2: Poorly land use practices</b>  |   | Strengthen the capacity of DAS to intensify its extension education in promoting improved cultural practices. Strengthen the capacity of Department of Physical Planning and control to enforce the Land Use Regulations 1995 | Enact and implement a land care act and design appropriate incentive schemes to implement the act. Enforce the Land Use Regulations 1995    |
| <b>Issue 2:</b> Poor planning database   | Train economist, statisticians and monitoring and evaluation specialists                  | Strengthen the capacity of DOP to collect, analysis and provide good planning data and build up a reliable database   |   |
| <b>Issue 2:</b> Lack of suitable husbandry practices for various classes of livestock  | Up-grade the skills of extension workers on provided animal husbandry practices           | Strengthen the capacity of DLS to develop extension packages for stratified livestock production systems  | Develop an awareness campaign against indiscriminate burning of biomass through extension, primary schools, radio and television programmes |
| <b>Issue 2:</b> Uncontrolled catching and dumping of undersized fish (juveniles) as a by-catch during shrimping                              | Up-grade the skills of data collection and inspection staff of DFish                      | Strengthen the capacity of DFish to enforce recommended mesh size in shrimping and monitor the trend of fish by-catch and discard by shrimpers  | Review mesh size regulations of shrimping nets  |
| <b>Issue 3:</b> Inappropriate crop production practices and strategies have been identified as important issues in biodiversity conservation | Provide regular in-service training for extension workers in principal of crop production | Strengthen DAS to intensify and expand its extension programme in promoting sustainable crop production techniques through low input  |   |

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|   |  | approaches such as green manure, organic manure, crop residues, animal dung and composting   |   |
| <b>Issue 3:</b> Poor forest management systems as well as poor enforcement of forest laws and policies have been identified as critical issues in biodiversity conservation | Develop the critical mass of soil chemists, soil microbiologists and soil physics, foresters and range specialists | Increase the staffing level, budget and equipment of DFor  | Review the role local government authorities in natural resource management and establish the Natural Resource Committees envisaged in the Local Government Act |
| <b>Issue 3:</b> A deteriorating national forest cover has been identified as an important issue in biodiversity conservation  | Train personnel in appropriate professional disciplines  | Increase the staffing levels, operational budget, equipment and transport facilities for DPWM and DFor   | Develop principles for forest management planning for state, community and private forests and adopt as a policy  |
| <b>Issue 3:</b> Low level of community and private participation in forest management, is identified as major constraint in biodiversity conservation                       | Develop the skills of personnel of DFor and DPWM in PRA techniques and extension education methodologies           | Increase the staffing levels and budgetary allocations of DFor & DPWM to facilitate and regulate the involvement of communities and private sector in management of state forest parks | Adopt a policy of involving communities and private individuals in the management of state forest parks   |
| <b>Issue 3:</b> Over-exploitation of biological resources is an important systematic capacity issue in biodiversity conservation and sustainable use                        | Establish a gene bank. Train high level animal scientists to undertake serious and effective breeding programme    | Strengthen the capacity of relevant technical departments to undertake more effective regulatory and developmental functions   | Review all the regulatory frameworks governing exploitation of biological resources with a view to mitigating the rate of exploitation of biological resources  |
| <b>Issue 3:</b> Poor and deleterious agricultural practices   | Conduct regular in-service training for VEWs and train highly qualified agrarian                                   | Strengthen the capacity of DAS to intensify its extension education in   | Introduce legislation, policy including incentives to encourage the adoption of   |

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|   | scientists to continual up-grade the skills of VEWs   | promoting improved cultural practices   | improved agricultural practices  |
| <b>Issue 5:</b> Lack of coherent and sufficient wildlife policy and legislation | Train DPWM personnel in relevant professional disciplines including biology, animal science, marine biology fisheries | Improve the staffing level equipment and budgetary allocations of DPWM to undertake effective policy implementation functions | Review the newly enacted wildlife policy and legislation to develop effective implementation tools and trans-frontier boundary management strategies and draft implementation guidelines |

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