

# GAMBIA: NAPA PROJECT PROFILE

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## NAPA PRIORITY PROJECT 1

### REHABILITATION OF EARLY WARNING SYSTEMS ON CLIMATE RELATED NATURAL HAZARDS

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**Sector:** Water Resources

**Project Area:** Nationwide

**Beneficiaries:** Nationwide

#### RATIONALE

Climate is the main natural hazard threatening lives and livelihoods of the majority of Gambians. Despite the fact that projected changes in temperature and rainfall will almost certainly alter relative magnitudes of hydrological cycle components, the country lacks a reliable climate early warning system and basic infrastructure to reduce the impacts of extreme weather events.

#### DESCRIPTION

##### **Objectives**

To enhance the preparedness of decision-makers and private individuals on impending climate hazards and the opportunity to harness favourable weather conditions.

##### **Specific objectives**

- Improvement of national disaster preparedness;
- Integration of climate information in socioeconomic sector planning and decision-making.

##### **Components/Activities**

- Strengthening the human resource base and technical capacity of hydro-meteorological networks;
- Improving efficiency of climate information dissemination/delivery to end-users;
- Promoting use of climate information in sectoral plans.

##### **Inputs**

- Hydro-meteorological equipment and ICT for the observation networks and control centre;
- Training;
- Public sensitisation.

##### **Short Term outputs**

- Functional meteorological and hydrological observation networks capable of providing reliable climate data;
- A functional early warning system;
- Greater awareness for end users of the relevance/importance of weather information.

##### **Potential long term outcomes**

- Operational data collection networks are strengthened and made responsive to users' needs;
- Integration of climate information in the national planning process;
- Quality dataset for climate change detection;
- Population well adapted to the adverse effects of climate change.

## IMPLEMENTATION

### **Institutional arrangements**

The project will be implemented by the Department of Water Resources in collaboration with other relevant technical departments, namely: Agricultural Services, Planning, Livestock Services and the National Environment Agency and Local Government Authorities. Other stakeholders will be co-opted as necessary. The Department of State for Forestry and Environment will be the executing agency.

### **Risks and barriers**

- Inadequate coordination of the Multidisciplinary Working Group (MWG) to ensure timely input of data and other relevant information;
- Inflation which can affect project costs if implementation is delayed;
- Poor interpretation and use of climate products by end-users;
- Difficulty to prepare adequately for extreme climate events.

### **Monitoring and Evaluation**

The MWG in agriculture, water resources and climate, with its Secretariat at DWR will be responsible for the preparation of reports that will be submitted to the authorities and the NAPA Steering Committee. At the end of the project an independent consultant would evaluate project achievements and advise on improvements needed.

### **Duration**

18 months

## COST

*Estimated at USD 450,000*

<b>ACTIVITY</b>	<b>COST (USD)</b>
Assessment of the state of existing hydro meteorological networks and the proposed flood monitoring stations	5 000
Repair, purchase and installation of hydrology and meteorology equipment /instruments	160 000
Purchase and installation of telecommunication equipment and remote sensing and data processing equipment	30 000
Provision of vehicle for countrywide trekking	25 000
Training of hydrological, meteorological forecasters and agro-meteorologists to technical and professionals levels	150 000
Data processing, publication and dissemination of information on early warning to end users	50 000
Training and Sensitisation workshops/seminars for policy makers and the local communities	15 000
Repairs and maintenance of regional meteorological offices	25 000
Support to collaborating agencies	10 000
Coordination, monitoring and evaluation	5 000
<b>TOTAL</b>	<b>450 000</b>

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## NAPA PRIORITY PROJECT 2

### IMPROVEMENT OF FRESH WATER AVAILABILITY

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**Sector:** Water Resources

**Project Area:** All regions

**Beneficiaries:** Rural communities with inadequate and unsafe drinking water supply

#### RATIONALE

Adverse climate change manifests itself in water resources in terms of too little, too much, and/or poor temporal distribution of rainfall. Shortfalls in aquifer recharge and base flow in particular are expected to affect water availability for domestic and agricultural uses. Water shortage in these sectors risks increasing poverty, and downgrading living conditions of rural communities.

#### DESCRIPTION

##### **Objectives**

The overall objective of the project is to ensure adequate supply of fresh water and the reduction of the negative impacts of natural disasters.

##### **Specific objectives**

- Improving water availability in the surface and underground, in quantity and quality, suitable for agriculture, industrial and domestic needs;
- Improving the water supply infrastructure;
- Reducing drought impacts on domestic water supply and uses in agriculture.

##### **Components/Activities**

- Construction of water supply/control infrastructure;
- Development and adoption of appropriate policies.

##### **Inputs**

- Construction materials (including those locally available) for civil works;
- Labour (both skilled and unskilled);
- Specialised equipment and services (for the implementation of the project).

##### **Short Term outputs**

- Water harvesting, flow regulation and improved drainage systems;
- Water supply infrastructure development;
- Erosion control;
- Drought relief.

##### **Potential long term outcomes**

- Greater water security for communities;
- Increased protection of infrastructure to extreme climate events.

## IMPLEMENTATION

### **Institutional arrangements**

The Department of Water Resources will be the lead implementation agency with collaboration from the offices of the regional Governors, Agriculture and Community Development, together with the NAPA Project Steering Committee. The Department of State for Fisheries and Water Resources will be responsible for the general oversight of this intervention.

### **Risks and barriers**

- Inflation which can affect project costs if implementation is delayed;
- Difficulty to prepare adequately for rare extreme climate events;
- Multiplicity of stakeholders and the inability of implementing agencies to work in harmony;
- Implementing agencies may lack the capacity to identify and implement interventions effectively;
- Delays in implementation due to bureaucratic issues or lack financing.

### **Monitoring and Evaluation**

The Project Steering Committee, with its Secretariat at DWR will be responsible for the preparation of reports that will be submitted to the authorities and the NAPA Steering Committee. Mid-way into the project life, an independent consultant would evaluate project achievements and advise on improvements needed.

### **Duration**

18 months

## COST

*Estimated at USD 910,000*

<b>ACTIVITY</b>	<b>COST (USD)</b>
Reconnaissance survey team to assess physical and social conditions	26 000
Engineering design and detail soil surveys	52 000
Procurement of small hand tools as specified in the bill of quantities	18 000
Hire of tractor complete with disc harrow and trailer as specified in the bill of quantities	32 000
Construction of dikes, spillways, Upland soil conservation structures i.e.; contour and diversion bunds, Irish crossings, gully plugs, road ramps, etc	600 000
Monitoring and evaluation and continuous site supervision of all construction works	52 000
Procurement and delivery of agricultural inputs, i.e.; fertilizers, rice seeds for newly created ecologies due to the dikes, and lime for the treatment of areas with low pH	92 000
Agronomic follow-up to advise and supervise the routine crop husbandry, and supervise vegetative measures of improved drainage	18 000
Provision of modern equipment to DWR for continuous comprehensive data collection	20 000
<b>TOTAL</b>	<b>910 000</b>

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## NAPA PRIORITY PROJECT 3

### DIVERSIFICATION AND INTENSIFICATION OF AGRICULTURAL PRODUCTION, PROCESSING, AND MARKETING

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**Sector:** Agriculture  
**Project Area:** Central River, North Bank, Upper River, Lower River, Western Regions  
**Beneficiaries:** Nationwide

#### RATIONALE

Rainfed agriculture is a major source of employment and livelihood in the Gambia. Erratic rainfall patterns and increasing drought frequency are implicated in soil degradation, decline in production of traditional crops, deepening poverty and food insecurity of farming households.

#### DESCRIPTION

##### **Objectives**

The main objective of the project is to enhance food security, nutrition and socioeconomic livelihoods through agricultural diversification and intensification under increasing concentration of greenhouse gases in the atmosphere.

##### **Specific objectives**

- Increasing and diversifying agricultural productivity;
- Establishing food processing and preservation plants;
- Addressing the issue of infrastructural deficits;
- Reducing demand and supply disequilibria of traded products;
- Making agriculture a profitable economic activity.

##### **Components/Activities**

- Establishing irrigation schemes;
- Promoting crop diversification;
- Enhancing breeding and adoption of appropriate cultivars;
- Establishing food processing plants.

##### **Inputs**

- Physical infrastructure;
- Plant, equipment and machinery;
- Training resources.

##### **Short Term outputs**

- 14 (2 to 3 hectare size) vegetable gardens at 2 schemes per agricultural region (7);
- 60-hectare established tidal irrigated facility;
- Increased multiplication and dissemination of root crops (cassava, yam, taro, sweet potatoes), NERICA, findo and short-cycle groundnut varieties in 12 villages;
- Strengthened crop evaluation and suitable crop variety dissemination capacities of the National Agricultural Research Institute (NARI);

- Reduced post-harvest losses of crops using appropriate technologies such as solar drier, cassava grater, and threshers, mills, etc.;
- Strengthened and expanded outreach programme of the Food and Nutrition Unit;
- Two established central fruit and vegetable processing plants.

### Potential long term outcomes

- Sustainable increased production of vegetables and household food security;
- Reduced rural-urban drift;
- Reduced import of food;
- Promotion of yam cultivation;
- Increased diversified cropping systems and extensive adoption of suitable crop varieties;
- Improved nutritional standards and increased household food security and income.

## IMPLEMENTATION

### Institutional arrangements

The Policy Focal line Department of State will be the implementing agency and the public, private and civil society agencies and institutions at central, regional and local levels will be executing agencies. The Department of State for Agriculture will be the executing agency. The National Agricultural Development Agency will lead the implementation and will work with public, private and civil society organisations and institutions at central, regional and local levels. A select number of NGO, CBO and private enterprise representatives will be co-opted into a Project Steering Committee (PSC) that reports to the National Climate Committee.

### Risks and barriers

- Multiplicity of stakeholders and the difficulties of implementing agencies to work in harmony;
- Implementing agencies may have inadequate capacity to implement interventions effectively;
- Delays in implementation due to bureaucratic issues or lack of financing.

### Monitoring and Evaluation

The Project Steering Committee with its Secretariat at DWR will be responsible for the preparation of reports that will be submitted to the authorities and the NAPA Steering Committee. Mid-way into the project life, an independent consultant would evaluate project achievements and advise on improvements needed.

### Duration

3 years

## COST

*Estimated at USD 2,710,000*

ACTIVITY	COSTS (USD)
Establishment of vegetable gardens (land dev., fence, water supply, tools, inputs)	1 040 000
Design and establish central fruit and vegetable processing plants in Brikama & Soma	1 000 000
Expand introduction/adoption of root crops, <i>NERICA</i> rice and early maturing varieties of groundnut	160 000
Strengthening/developing outreach programme of the Food and Nutrition Unit of the Department of Technical Services/NADA	90 000

Development and establishment of 60 hectares of tidal irrigated land for rice cultivation (including inputs)	270 000
<b>TOTAL</b>	<b>2 710 000</b>



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## NAPA PRIORITY PROJECT 4

### EXPANSION OF COMMUNITY PARTICIPATION IN THE MANAGEMENT OF FORESTS AND PROTECTED AREAS

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**Sector:** Forestry  
**Project Area:** North Bank, Lower River, Western, Upper River and Central River Regions  
**Beneficiaries:** Communities within project area of influence

#### RATIONALE

Multi-decadal trends in loss of forest cover through irrational exploitation and land use changes are exacerbated by slow rates of natural regeneration and bush fires. Social forestry is one of the new approaches in natural resources management that has proven a success in management of protected areas and other classified forests.

#### DESCRIPTION

##### **Objectives**

The global objective of the project is to enhance the management of forest resources for continuous supply of products for sustainable livelihood.

##### **Specific objectives**

- Maintaining and improving productive functions of forest and woodland ecosystems;
- Improving and maintaining biological diversity in forest and woodland ecosystems;
- Minimising soil desiccation and soil movement caused by water and wind erosion;
- Empowering communities over/in their forest resource management;
- Enhancing capacity of local communities in forest management.

##### **Components/Activities**

- Surveying and demarcation of the target forests and protected areas;
- Development and adoption of sound management policy;
- Establishment and equipment of regional and community level nurseries;
- Training of trainers in Community Forest Management concepts and techniques;
- Training of villagers in tree nursery attendance;
- Procurement and delivery of patrol and bush-fire fighting equipment to participating communities.

##### **Inputs**

- Physical infrastructure;
- Plants, equipment and machinery;
- Training resources.

##### **Short Term outputs**

- Nine communities with management plans developed and adopted for sustainable forest management in project intervention areas;
- 15 established district nurseries for the production of multipurpose tree species for enrichment planting;
- 162 knowledgeable villages in nursery production and management;
- 162 equipped villages for fire-fighting and control.

## Potential long term outcomes

- Adoption of sustainable forest resource exploitation strategies;
- Legal ownership over the forest and its resources by the participating communities;
- Increased earning capacity of participating communities;
- Well established network of community nurseries for a large scale tree planting;
- Increased supply of forest resources;
- Large areas of regenerated forest cover and availability of wide variety of forest resources.

## IMPLEMENTATION

### Institutional arrangements

The Department of State for Forestry and the Environment will be the executing agency. The Department of Forestry will lead the implementation as Implementing Agency and will work with public, private and civil society organisations and institutions at central, regional and local levels. The Project Steering Committee will be reporting to the National Climate Committee.

### Risks and barriers

- Multiplicity of stakeholders and the inability of implementing agencies to work in harmony;
- Inability to contribute effectively due to conflicts of interest;
- Implementing agencies may not have adequate capacity to implement interventions effectively;
- Delays in implementation due to bureaucratic issues or lack of financing;
- Potential resource use and ownership conflicts.

### Monitoring and Evaluation

The Project Steering Committee with its Secretariat at DWR will be responsible for the preparation of reports that will be submitted to the authorities and the NAPA Steering Committee. Mid-way into the project life, an independent consultant would evaluate project achievements and advise on improvements needed.

### Duration

5 years

## COST

*Estimated at USD 1,412,000*

<b>ACTIVITY</b>	<b>COSTS (USD)</b>
Surveying and demarcation of 3 target community forests	458 000
Development of 3 management plans	74 000
Establishment of District Nurseries Production of seedlings	80 000
Training of villagers in tree nursery production (budding and grafting techniques, methods of transplanting tree seedlings and forestry management principles)	30 000
Equipping each of the participating communities/villages (3) with patrol and bush-fire fighting equipment	20 000
Provision of boreholes fitted with appropriate water lifting devices (2)	600 000
Strengthening the forestry extension and M&E units and some selected NGOs and CBOs	150 000
<b>TOTAL</b>	<b>1 412 000</b>

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## NAPA PRIORITY PROJECT 5

### EXPANSION AND INTENSIFICATION OF AGRO-FORESTRY AND RE-FORESTATION ACTIVITIES

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**Sector:** Forestry  
**Project Area:** North Bank, Lower River, Western, Upper River and Central River Regions  
**Beneficiaries:** Communities within project area of influence

#### RATIONALE

Local tree species play a major role in improving livelihoods and food security. Declining populations and disappearance of valuable species from specific areas due to drought and human factors (land use change, commercial exploitation) requires urgent remedial actions.

#### DESCRIPTION

##### **Objectives**

The global objective of the project is to enhance the contributions of properly restored forest ecosystems to forest-based poverty alleviation and more broadly to other national economic goals; reduce the vulnerability of the affected stakeholders and increase their resilience to cope with climate change.

##### **Specific objectives**

- Promotion and adoption of appropriate agro-forestry systems and reforestation;
- Maintenance and improvement of the productive functions of forest and woodland ecosystems;
- Improvement and maintenance of biological diversity in forest and woodland ecosystems;
- Slowing down topsoil degradation (desiccation, and transport) by water and wind.

##### **Components/Activities**

- Diagnostic study of technical problem for agro-forestry treatment and determination of appropriate technology packages;
- Sensitisation and awareness creation campaigns;
- Surveying and demarcation of the target forests;
- Establishing nurseries of multi-purpose tree species, domestication seedlings and re-forestation seedlings;
- Training of villagers in tree nursery production;
- Equipping participating communities/villages with patrol and bush-fire fighting equipment ;
- Strengthening agro-forestry research within the National Agricultural Research Institute (NARI).

##### **Inputs**

- Physical infrastructure;
- Seeds;
- Vehicles and supplies/consumables;
- Training resources;
- Plants, equipment and machinery.

##### **Short Term outputs**

- 162 communities enlightened on the value of agro-forestry and re-forestation in the five participating regions;

- Repertoire of 33 identified agro-forestry technical packages for adoption in 11 villages within three (3) Regions;
- Agro-forestry technical packages for 11 villages within three (3) regions;
- 15 established district nurseries for the production of multipurpose tree species seedlings;
- 162 knowledgeable villages in nursery production and management;
- 162 equipped villages for fire-fighting and control;
- 162 identified forest areas;
- Well equipped agro-forestry research unit.

#### **Potential long term outcomes**

- Widely adopted agroforestry and reforestation systems in 162 villages;
- Copious supply of multipurpose domesticated tree species and reforestation planting materials;
- Large areas of regenerated forest cover and availability of wide variety of forest resources;
- Established capacity to produce tree seedlings for planting;
- Reduced resource ownership disputes and use conflicts;
- Availability of scientific knowledge and information on agro-forestry and the state of national forest cover.

### **IMPLEMENTATION**

#### **Institutional arrangements**

The Department of State for Forestry and the Environment will be the executing agency. The department of Forestry will lead the implementation and will work with public, private and civil society organisations and institutions at central, regional and local levels. The Project Steering Committee will be reporting to the National Climate Committee.

#### **Risks and barriers**

- Multiplicity of stakeholders and the difficulty of implementing agencies to work in harmony with all of them;
- Implementing agencies may not have adequate capacity to implement interventions effectively;
- Delays in implementation due to bureaucratic issues or lack of financing.

#### **Monitoring and Evaluation**

The monitoring and evaluation of this project will be within the framework of the Poverty Reduction Strategy Paper (PRSP) and Medium-Term Plan (MTP) for the agriculture & natural resources sectors. Based on information in the PRSP document, this will be possible with the establishment and functioning of the National Planning Commission.

#### **Duration**

5 years

### **COST**

*Estimated at USD 2,753,000*

<b>ACTIVITY</b>	<b>COST (USD)</b>
Sensitization and awareness creation campaigns	50 000
Diagnostic study of the technical problems for agroforestry in the Region	50 000

Establishment of nurseries for the production of multipurpose tree species domestication seedlings and re-forestation seedlings	600 000
Training of villagers in tree nursery production (budding and grafting techniques, methods of transplanting tree seedlings and forestry management principles)	68 000
Equipping each of the participating communities/villages with patrol and bush-fire fighting equipment	55 000
Provision of boreholes fitted with appropriate water lifting devices	1 150 000
Surveying and demarcation of the target forests (re-forestation)	280 000
Strengthening the agro-forestry research programme of the National Agricultural Research Institute (NARI), the extension and M&E units of the Department of Forestry at local level and some selected NGOs and CBOs	500 000
<b>TOTAL</b>	<b>2 753 000</b>

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## NAPA PRIORITY PROJECT 6

### BRIQUETTING AND CARBONIZATION OF GROUNDNUT SHELLS

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**Sector:** Energy  
**Project Area:** Western Region, Banjul Municipality  
**Beneficiaries:** Participating households

#### RATIONALE

Fuelwood and charcoal obtained from biomass production are the main energy resources in The Gambia. Faced with decreasing precipitation and increasing temperatures, climate change will impose additional stress on energy security further compounded by volatile international energy market. As a part of the solution to the problem, this project aims to provide an alternative energy choice to charcoal and firewood, so as to reduce pressure on the forest and make domestic energy supply sustainable.

#### DESCRIPTION

##### **Objectives**

The general objective is to ensure greater energy security in project area and to reduce the pressure on forest resources.

##### **Components/Activities**

- Procurement of equipment and hiring of expertise for briquetting and carbonisation of groundnut shells;
- Procurement of raw materials (groundnut shells);
- Installation of the machines and initial production of carbonized briquettes by supplier;
- Testing the comparative burning efficiencies of charcoal and carbonised briquettes;
- Training of local technicians by the equipment supplier;
- Survey of households to determine the acceptability of the briquettes;
- Public sensitisation on the new the product through the media;
- Strengthening capacities of leading institutions; Gambia Renewable Energy Centre (GREC), Department of Community Development's appropriate technology unit- (ATU), and the National Agricultural Research Institute (NARI).

##### **Inputs**

- Equipment (agglomerating machines, hammer mill, charcoal furnace);
- Raw Materials;
- Human resources development;
- Public sensitization.

##### **Short Term outputs**

- Creation of employment opportunities and new technology;
- Increased incentives for agricultural production
- Increased energy security in project area
- Strengthened institutional capacities for monitoring the renewable energy sub-sector.

##### **Potential long term outcomes**

- Reduced dependence on fuelwood use;

- Reduced exposure of womenfolk to indoor pollution (from fuelwood).

### IMPLEMENTATION

#### **Institutional arrangements**

The Energy Division under the Office of the President, through its Renewable Energy Centre will be the executing agency for the project. The Department of Community Development mandated to work with local communities will be a major partner in this project and partnerships will be established with the private sector in a bid to finally sell the project to the private sector.

#### **Risks and barriers**

- Multiplicity of stakeholders and the difficulty of implementing agencies to work in harmony with all of them;
- Implementing agencies may not have adequate capacity to implement interventions effectively;
- Delays in implementation due to bureaucratic issues or lack of financing.

#### **Monitoring and Evaluation**

The monitoring and evaluation of this project will be within the framework of GEAP II. and will include three steps:

- Measuring the progress of implementation of the budgets against the proposed time schedules;
- Analysis of any variance in the budgets execution against the planned time schedules both in terms of actual expenditures versus the budgeted amounts and times of making the expenditures versus the planned schedules;
- Determination of any remedial actions where necessary.

#### **Duration**

18 months

### COST

*Estimated at USD 230,000*

<b>ACTIVITY</b>	<b>COSTS (USD)</b>
Agglomerating machines	30 000
Hammer mill	45 000
Charcoal furnace	25 000
Training of local Technicians	15 000
Efficiency tests	10 000
Stove fabrication	20 000
Raw materials	50 000
Supervision by foreign experts	35 000
<b>TOTAL</b>	<b>230 000</b>

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## NAPA PRIORITY PROJECT 7

### REDUCTION OF CLIMATE CHANGE RELATED DISEASES

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**Sector:** Health  
**Project Area:** Kanifing Municipality, Central River and Upper River Regions  
**Beneficiaries:** Communities in the project areas

#### RATIONALE

Direct negative impacts of climate change and variability include the spread of parasitic and often infectious diseases. Public health consequences of floods in particular linger on well after their occurrence.

#### DESCRIPTION

##### **Objectives**

The overall objective is to enhance national emergency and disaster preparedness to climate change hazards in relation to human health.

##### **Specific objectives**

- Providing support in the six Regional Health Management Teams (RHMT's) in the management of epidemics and emergency public health response by 2010;
- Reducing the number of climate-related diseases by 50% in 2010;
- Increasing access to water and sanitary facilities by 20% in 2010;
- Providing support to the epidemiological and Disease Control Unit (of the Department of Health services) in the surveillance of climate change related diseases by 2010;
- Raising awareness about the prevention and control of climate-related disease by 2010.

##### **Components/Activities**

- Public health education (mass media, traditional communicators, open field days);
- Capacity building in the management of epidemics and emergency public health response;
- Provision of essential drugs, medical supplies and vector control equipment and supplies;
- Provision and regular monitoring of safe drinking water supply for schools, health centres and communities;
- Construction of ventilated improved pit (VIP) latrines in public schools, health centres and communities.

##### **Inputs**

- Laboratory equipment and reagents;
- Medical supplies (drugs, vaccines, intravenous fluids, syringes, needles);
- Construction materials;
- Fogging machines;
- Sprayers;
- Protective clothing;
- Training equipment.

##### **Short Term outputs**

- Public awareness regarding diseases related to climate change raised;
- Availability of safe drinking water in public places;



- Reduced vector breeding sites and habitats;
- Toilet facilities for schools, health centres and markets built;
- Equipment, materials and medical supplies available for use by health staff in emergency response and management of epidemics;
- Early warning system for diseases' epidemic potential, including existing and emergent diseases in place.

### **Potential long term outcomes**

- Health sector's capacity to respond to public health emergencies and the management of epidemics enhanced;
- Reduction in incidence of diseases related to climate change;
- Cleaner and healthier environment;
- Healthier population;
- Decreased government expenditure on the health sector.

## **IMPLEMENTATION**

### **Institutional arrangements**

The project will be executed by the Department of State for Health and Social Welfare (DoSH&SW) in collaboration with the departments of Community Development (DCD), Water Resources, the National Water and Electricity Company and the local government authorities during the implementation phase. The National Climate Committee would be overseeing the implementation.

### **Risks and barriers**

- Inflation pushes cost of equipment, materials beyond project estimates;
- Staff shortage complicating workload distribution at the level of collaborating institutions;
- Frequent staff turnover would mean constant training for new staff deployed in the project areas;
- Buffer stock of drugs and vaccines used during routine services and not replenished on time when disaster strikes.

### **Monitoring and Evaluation**

The Chief Public Health Officer in the Department of State for Health will be responsible for quarterly monitoring whilst the National Climate Committee will be responsible for mid and end of project evaluation.

### **Indicators**

- Number of community sensitisation meetings/programmes and field days held;
- Proportion of health staff trained in emergency public health response and management of epidemics;
- Monthly surveillance on diseases of epidemic potential maintained;
- Drugs, vaccines and other medical supplies procured;
- Community Water Management Committees formed, trained and supported;
- Number of VIP latrines constructed;
- Number of mosquito and other vector breeding sites treated.

### **Duration**

3 years

## **COST**

*Estimated at USD 1,217,000*

<b>Description</b>	<b>COST (USD)</b>
Health education programmes	60 000
Training of health personnel	150 000
Drugs, vaccines, other medical supplies	250 000
Stand pipes, boreholes, wells	190 000
Support to Water Management Committees	30 000
Water testing and treatment	30 000
VIP latrines	175 000
Vector control equipment, materials, chemicals	305 000
Supervision, monitoring and evaluation	27 000
<b>TOTAL</b>	<b>1 217 000</b>

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## NAPA PRIORITY PROJECT 8

### IMPROVED LIVESTOCK AND RANGELAND MANAGEMENT FOR FOOD SECURITY AND ENVIRONMENTAL SUSTAINABILITY

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**Sector:** Livestock

**Project Area:** North Bank, Lower River, and Upper River Regions

**Beneficiaries:** Farmers, Women, Community organisations, Extension services, Non-State actors (up to 41,000 participants/dependents)

#### RATIONALE

Beef and dairy cattle as well as small-ruminant production in The Gambia is predominantly based on the free-range pastoral system. Accordingly, a substantial reduction in the productivity of natural pastures due to climate factors calls for the adoption of new approaches to livestock production.

#### DESCRIPTION

##### **Objectives**

The overall objective is to enhance livestock-based livelihoods-to counter the threat from climate change.

##### **Specific objectives**

- Preserving eco-systems;
- Reducing poverty;
- Increasing livestock productivity.

##### **Components/Activities**

- Bushfire Control;
- Feed resources conservation;
- Improved livestock watering;
- Demarcation of rangelands/ regeneration of rangelands;
- Establishment and management of fodder tree plantation including intensive feed gardens;
- Construction of compost pens & utilisation of compost;
- Promotion of fallowing.

##### **Inputs**

- Technical assistance (Rangeland use expert);
- Short cycle livestock (Improved poultry stock);
- Animal feed;
- Drugs/vaccines and kits;
- Watering points;
- Animal housing (especially short cycle species);
- Fencing (Intensive feed gardens etc);
- Regular vaccination of animals.

### **Short Term outputs**

- Increased awareness creation, motivation and mobilisation;
- Increased productivity of poultry meat and eggs for consumption and income generation;
- Increased soil fertility through organic fertiliser use and fallowing;
- Improved animal health;
- Diversified income generation and reduced poverty.

### **Potential long term outcomes**

- Food security and poverty reduction;
- Improved nutrition of children and mothers;
- Biodiversity conservation and reduced conflict between crop and animal farmers;
- Genetic improvements of local livestock species;
- Land regeneration and reclamation of marginal lands.

## **IMPLEMENTATION**

### **Institutional arrangements**

The Executing agency will be the Department of State for Agriculture (DOSA). Implementation will be done through the National Agricultural Development Agency (NADA) who will work with public, private, and civil society organisations and institutions at central, regional and local levels. To oversee the programme, a Project Coordinating Committee should be constituted by representatives of the major stakeholders (including the Project Steering of the National Adaptation Programme of Action). This body will report to the National Climate Committee. It is recommended that full-time, autonomous project managers and staff should be appointed or deployed.

### **Risks and barriers**

- Multiplicity of stakeholders and numerous intermediary bureaucratic levels of supervision often cause delays and lack of consensus;
- Inadequate representation of beneficiary communities/stakeholders at decision-making, management and exploitation stages may lead to poor local commitment or ownership of the projects;
- Inadequate funding or poor disbursement procedures.

### **Monitoring and Evaluation**

The National Agricultural Development Agency (NADA) is responsible for project monitoring, through its planning unit, the Department of Planning (DOP).

### **Indicators**

- Operational village/district land use plans;
- Improved dry season animal feeding;
- Increased animal productivity and health;
- Number of farmers trained/sensitised;
- Rangeland regeneration;
- Increased farmer incomes from livestock-based industries.

### **Means of verification**

- Monthly project reports;
- NADA/DOP annual reports/NASS;
- Monthly DVS reports, annual reports;

- National Statistics;
- Natural resources surveys, inventories.

**Duration**

5 years

**COST**

*Estimated at USD 2,800,000*

<b>ACTIVITY</b>	<b>COST (USD)</b>
Controlled use of fire, productivity improvement, and feed resources conservation	923 000
Improved watering	440 000
Demarcation of rangelands/ rangeland regeneration	840 000
Establishment and management of fodder tree plantation including intensive feed gardens	597 000
<b>TOTAL</b>	<b>2 800 000</b>

# GAMBIA

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## NAPA PRIORITY PROJECT 9

### RESTORATION/PROTECTION OF COASTAL ENVIRONMENTS

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**Sector:** Coastal Zone  
**Project Area:** Banjul and Kanifing Municipalities  
**Beneficiaries:** Coastal communities, businesses and visitors

#### RATIONALE

The coastal zone is the most heavily populated part of the country. It also has many ecologically sensitive areas, and contains most of the economic development infrastructure especially in the tourist industry. Coastal squeeze due to sea level rise is expected to have substantial negative impacts on ecosystems and economic activities in this area. Economic losses from a do-nothing standpoint could run into hundreds of millions of US dollars.

#### DESCRIPTION

##### **Objectives**

The overall objective is to strengthen integrated coastal zone management and the protection of physical infrastructure, economic and cultural assets located within the coastal zone

##### **Specific objectives**

- Improving coastal defences;
- Improving livelihood security;
- Preserving biological diversity and ecological assets.

##### **Components/Activities**

- Topographic survey of the coastal strip and inshore area;
- Bathymetric survey of the coastal strip and foreshore area;
- Beach stabilisation;
- Construction or rehabilitation of groynes;
- Rehabilitation of wetlands;
- Awareness campaign on coastal issues;
- Comprehensive review of legal and policy instrument relating to coastal zone and wetlands;
- Rehabilitation of polder station (aka Pa Bokis) located on Bund Road.

##### **Inputs**

- Enhanced skills and adequate equipment and materials to implement coastal protection works;
- Adequate funds to undertake all the envisaged activities.

##### **Short Term outputs**

- The Bakau fish landing site and jetty will be protected which will ensure continuity of the livelihood activities carried out in that area;
- Rehabilitation of the Kotu stream will prevent flooding of homes and property in the area and restore rice cultivation;
- Minimise the frequency of dredging in the Banjul Port and ferry terminal areas.

### Potential long term outcomes

- A comprehensive legislation on coastal zone management developed;
- Regulatory system for enforcement and control of coastal zone put in place;
- Coastal zone management plan developed;
- Participation of all Stakeholders in the implementation of the plan;
- Improved livelihood security for stakeholders.

### IMPLEMENTATION

#### Institutional arrangements

The project should be implemented by the Coastal Management Unit (CZMU) of the National Environment Agency (NEA) in close collaboration with the Department of Technical Services. The Department of Water Resources (DWR) and Department of Physical Planning and Housing (DPPH) would also be involved in the implementation at the secondary level. The project shall be coordinated by a steering committee comprising Coastal Management Working Group and the National Climate Committee (NCC), Department of Parks and Wildlife Management (DPWM), Kanifing Municipal Council (KMC), Banjul City Council (BCC) and relevant NGOs. It will be implemented by the National Environment Agency (NEA) and monitored by the Department of Water Resources..

#### Risks and barriers

- The availability of suitable sand for beach nourishment both in terms of quantities and location needs to be established;
- The Gambian coastline is very short compared to its neighbour, Senegal;
- Therefore any long-term coastal protection works will be more effective with the participation of Senegal;
- There are parts of the Kotu stream that are already settled upon with residential properties, the rehabilitation of the stream will displace some people. Therefore the issue of resettlement and compensation will have to be considered;
- Availability of experts to implement proposed activities;
- The availability of adequate funding.

#### Monitoring and Evaluation

The indicators to be monitored are as follows:

- Beach profile –should indicate erosion or deposition along the coastline;
- Continuity and increase in tourists received in the country;
- Disappearance of destructive anthropogenic activities i.e. Cutting mangroves, sand mining, building on wetlands, littering, unwanted natural resource harvesting.

The National Environment Agency will be responsible for implementation with monitoring undertaken by Departments of Water Resources and Technical Services.

#### Duration

3 years

### COST

*Estimated at USD 2,300,000*

ACTIVITY	COST (USD)
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Topographic survey of the coastal strip and inshore area	50 000
Bathymetric survey of the coastal strip and foreshore area	80 000
Beach stabilization	110 000
Construction/Rehabilitation of groynes on the coastal strip from Ball Point to GPA	2 060 000
<b><i>TOTAL</i></b>	<b>2 300 000</b>



# GAMBIA

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## NAPA PRIORITY PROJECT 10

### INCREASING FISH PRODUCTION THROUGH AQUACULTURE AND CONSERVATION OF POST HARVEST FISHERY PRODUCTS

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**Sector:** Fisheries  
**Project Area:** Coastal and inland zones  
**Beneficiaries:** Fishing communities along the Atlantic seaboard, fish consumers in urban areas and provincial towns and villages provisioned by the artisanal fisheries sub-sector

#### RATIONALE

Local communities are currently experiencing fish supply shortage due to drought/abnormal rainfall pattern causing dessiccation of flood plains that support spawning and nursery of most freshwater fish species. Additionally, seasonal upwelling in the Gambia's coastal waters is likely to be perturbed by changes in sea surface temperature inducing the formation of thermocline leading to the confinement in the deeper layers of essential nutrients required for plankton growth. Mangrove ecosystems are also susceptible to inundation and salinity stress associated with sea-level rise. Current management practices/coping strategies fail however to adequately address sectoral challenges which consist of meeting rising demand for fish and marine products in a sustainable and profitable manner, especially in an environmental context less favourable for the renewal of resources.

In order to curb this stress, this project aims to strengthen management practices, and to increase fish productivity through aquaculture.

#### DESCRIPTION

##### **Objectives**

The main objective of the project is to make a positive contribution to poverty reduction, livelihood security, and national food security.

##### **Specific objectives**

- Optimal exploitation of resources;
- Reducing climate/weather hazards and making fisheries a profitable economic venture;
- Reducing demand and supply disequilibria of fish and fish products;
- Exploring alternative measures of fish production;
- Produce fish for rural consumption through aquaculture.

##### **Components/Activities**

- Procurement of services and supplies;
- Training of fisherfolk and processors;
- Training/sensitisation of rural communities on techniques of fish culture;
- Aquaculture.

##### **Inputs**

- Fish storage and processing infrastructure;
- Plankton sampling equipment;
- Awareness creation and capacity building;
- Aquaculture infrastructure (fish ponds);
- Fish feed ingredients including high yielding inputs (lime, organic fertilizer, etc.);

- Fish fingerlings (brood stock);
- Laboratory re-agents (pond water quality).

### **Short Term outputs**

- Reduced pressure on capture fisheries;
- Improved fresh fish quality through icing and chill storage;
- Reduced pressure on fuelwood resources;
- Improved fish availability and affordability;
- Increased economic activity for rural population;
- Increased economic activities at fish landing sites including non-fishing;
- Related activities such as restaurants, petty trading, etc..

### **Potential long term outcomes**

- Sustainable increase of fish supply;
- Environmental awareness and protection;
- Improved health condition of rural communities;
- Increased private investment in fish production through aquaculture;
- Stability of fish prices;
- Improved livelihoods security and personal safety at sea.

## **IMPLEMENTATION**

### **Institutional arrangements**

A Project Management Committee (PMC) will be established to manage the project. The PMC will comprise representatives of the Department of State for Fisheries and Water Resources (DOSF&WR), the municipalities of Banjul and Kanifing and the donor community. Fishing communities in the two project locations will jointly manage the daily activities of the project. DOSF&WR with its line departments will provide technical backstopping and managerial support and weather forecasts. The PMC will report to the National Climate Committee.

### **Risks and barriers**

- Disregard for use of sea safety equipment and inappropriate interpretation of weather forecasts/warnings;
- Slow pace of attitudinal change from traditional to conventional fishing and related activities (methods and techniques);
- Coastal and marine pollution.

### **Monitoring and Evaluation**

The PMC will meet on a quarterly basis and reports of the meetings will be produced. The performance of the project will be evaluated on an annual basis by an independent evaluator assisted by two persons who shall be selected by the PMC. Project performance will be assessed based on the following measurable indicators:

- Percentage increase in fish supply (as a result of reduction in post harvest losses, increase in use of ice in fisheries, utilisation of chill/cold storage facilities);
- Percentage reduction in fuelwood consumption for fish smoking (as a result of improved technology);
- Percentage reduction in sea accidents, loss of lives and equipment (as a result of increased use of sea safety equipment; improved awareness of importance of weather forecasts/reports);
- Percentage increase in non-fishing business activities at project sites (petty trading, restaurants etc.);
- Percentage increase in fishing economic units as well as processors, fish traders, boat builders and mechanics;
- Improved livelihoods of fisherfolk families (improved earnings, health and welfare).

**Duration**

4 years

**COST***Estimated at USD 300,000*

<b>ACTIVITY</b>	<b>COST (USD)</b>
<b>Component I: Aquaculture</b>	
Baseline study of fish situation in project area prior to project implementation	5 000
Sensitization and training of communities on the techniques of fish culture	10 000
Site selection for aquaculture ponds	5 000
Construction of ponds	25 000
Fingerlings for stocking	15 000
Feed ingredients and feed formulation	10 000
Farm management including administration	25 000
High yield inputs (fertilizer, lime, etc.)	10 000
Laboratory equipment and reagents	15 000
Field visits	10 000
Protective gear	5 000
Maintenance of farm machinery (generator, pumping machine)	25 000
<b>Sub-total</b>	<b>160 000</b>
<b>Component II: Post harvest Conservation</b>	
Fish smoking houses with individual ovens	50 000
Storage facilities for processed fish (dried/smoked)	15 000
Ice making plant and chill storage facility (5-ton capacity each)	25 000
Insulated fish boxes (20 kg capacity each)	10 000
Ice boxes/containers for fresh fish storage (500 kg capacity each)	10 000
Construction of fishing canoes for fishermen training program and equipping the canoes (outboard motors, fishing nets and accessories)	10 000
Support to weather forecasting office	25 000
<b>Sub-total</b>	<b>140 000</b>
<b>TOTAL</b>	<b>300 000</b>