

# CLIMATE INVESTMENT FUNDS

PPCR/SC.21/5  
November 15, 2017

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Meeting of the PPCR Sub-Committee  
Washington D.C.  
Tuesday, December 12 – Wednesday, December 13, 2017

Agenda Item 5

**PPCR STRATEGIC PROGRAM FOR CLIMATE RESILIENCE FOR GAMBIA**

## **PROPOSED DECISION**

The PPCR Sub-Committee, having reviewed the document PPCR/SC.21/5, *Strategic Program for Climate Resilience (SPCR) for Gambia* [endorses] the SPCR.

The Sub-Committee encourages the Government of Gambia and the MDBs to actively seek resources from other bilateral or multilateral sources to fund further development and implementation of the projects foreseen in the strategic plan.

**THE REPUBLIC**



**OF THE GAMBIA**

**Ministry of Environment, Climate Change & Natural Resources**

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**Ref: PB 33/200/PART III(120)**

**15<sup>th</sup> November, 2017**

**The Manager  
Climate investment Fund Administrative Unit  
World Bank Inc.  
1818 H Street N.W  
Washington D.C**

**Dear Mafalda Duarte,**

**Submission of the SPCR Report for The Gambia**

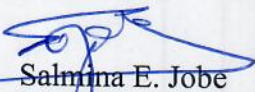
Following the gracious advancement of a \$1.5 million grant of entitled “**Investment Plan for Climate Resilience**” under the ‘**Pilot Programme for Climate Resilience (PPCR)**’ by your agency, I am glad to submit herewith, the final ‘**Strategic Programme for Climate Resilience (SPCR)**’ Report for The Gambia on behalf of the Government and people of this country. As you know well, the SPCR, as the main reference or source document for all subsequent actions to address climate change impacts, and constitutes the final output of a PPCR implementation undertaking.

It has a rewarding and useful exercise for us here and involved consultations at all levels of the Gambian society. Consequently, the strategic options defined and priorities set for the country to develop effective resilience outcomes stem directly from Gambians themselves.

We wish to here put on record our sincere gratitude to all those member banks of the MDB Group, their personnel and all other institutions that supported us in one way or the other in the successful execution of this project.

We now hope to make the best use of this SPCR in national planning and budgeting processes as well as use it as the basis for all external resource mobilization initiatives in the Climate Change arena. We therefore look forward continuing technical and financial support from partners like your bank.

Best regards

  
Salmina E. Jobe  
For: Permanent Secretary  
CC: Permanent Secretary, MOFEA  
CC: Task Manger, AfDB



**THE GAMBIA STRATEGIC PROGRAMME FOR CLIMATE  
RESILIENCE: PHASE 1**

**Strategic Programme for Climate Resilience (SPCR)  
Volume I: Main Report  
FINAL REVISED 30<sup>th</sup> August 2017**

## **Acknowledgements**

### **Project coordination at the MoECCNAR**

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### **Oversight over the SPCR preparation**

The SPCR preparation has been steered by a Technical Team consisting of climate change focal points from the following institutions: Ministry of Higher Education, Science and Technology; Ministry of Finance and Economic Affairs; Ministry of Transport Works and Infrastructure; Ministry of Health and Social Welfare; Ministry of Agriculture; Ministry of Petroleum and Energy; Ministry of Fisheries; National Environment Agency; Women's Bureau; Public Utilities Regulatory Authority; Gambia Tourism Board; National Youth Council; National Disaster Management Agency; National Roads Authority; Gambia Ports Authority; National Water and Electricity Commission; Department of Water Resources; Department of Forestry; National Agricultural Research Institute; University of The Gambia; Gambia Chamber of Commerce and Industry; The Association of Non-governmental Organisations; Renewable Energy Association of The Gambia; Kanifing Municipal Council; Early Warning Systems Project; National Coordinating Organisation for Farmers' Associations of The Gambia; Gambia Ecosystem Based Adaptation for Food Security Assembly; TRY Oyster Women's Association.

### **AGRER consultancy team**

Head, Environment Department:	Frank Feys
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We express our enormous thanks to all the participants – from government, donor, UN agency, private sector, civil society and community organisations - who played an invaluable role in the range of interviews, stakeholder meetings and regional bantabas that were held during the SPCR development process. Without your participation, the formulation of this cross-sectoral programme would not have been possible.

## Executive Summary

### Part 1: Background and rationale

#### Introduction

The Gambia is among a second round of countries selected to prepare their Strategic Programme for Climate Resilience (SPCR) under the Pilot Programme for Climate Resilience (PPCR), which forms part of the Climate Investment Funds. To that effect, a US\$1.5 million grant was provided to the Ministry of Environment, Climate Change and Natural Resources (MoECCNAR), as the national focal point for the PPCR, to support the preparation of the SPCR, through the African Development Bank (AfDB) and in collaboration with the World Bank (WB).

#### Participatory process and oversight

The Gambia's SPCR has been developed through constructive consultations between the country government, development partners and key stakeholders, including civil society, women, youth, indigenous peoples and the private sector. A multistakeholder Technical Team (TT), consisting of climate change Focal Points and alternates from 25 key institutions, was set up by the MoECCNAR to guide the preparatory process and ensure a country-driven SPCR.

Stakeholder/scoping consultations were held in the Greater Banjul Area (GBA), and regional consultations in the North Bank Region (NBR), Central River Region (CRR), Upper River Region (URR), Lower River Region (LRR), West Coast Region (WCR), as well as in the Banjul and Kanifing areas (see Volume II). The scoping and stakeholder consultations were extremely useful in identifying key gaps and priorities for the SPCR to ensure the proposed investment programmes respond strongly to stakeholder needs and priorities. The consultations also provided the opportunity for additional sensitisation on climate change risks and realities, as well as information sharing on the aims and approach of the SPCR.

#### Indicative thematic areas and cross cutting issues

The work carried out in the SPCR Phase 1 uses the vision, principles and goal of the National Climate Change Policy (NCCP) to guide the overarching approach, defining investments within the key climate resilience priorities as reconfirmed in the Aide Memoire of the First Joint Mission for the SPCR, 21 – 26 November 2016, which strongly resonate with the thematic priority areas in the NCCP:

1. **Climate resilient food and landscapes:** Agriculture, food security, forestry and natural resources, including water, biodiversity and wildlife
2. **Low emissions and resilient economy:** Energy, transport, infrastructure, and the key economic sectors of tourism and financial services
3. **Climate resilient people:** Health, education, equitable social development, migration and human settlements, including climate proof urban planning and waste management, climate information and early warning system
4. **Managing coastlines in a changing environment:** climate-aware Integrated Coastal Zone Management, including coastal erosion management
5. **Infrastructure and waste management:** developing climate proof infrastructure, sanitation and solid waste management

Cross cutting issues for the SPCR are:

- Capacity development, including coordination mechanisms and capacity, climate data and services (including short and medium term forecasting), human resources, outreach and awareness raising, and analytical and modelling capacity, ICT, CSO participation, project management, monitoring, evaluation, and reporting.
- Gender, youth, health, and tourism.

In response to feedback provided at the National Validation Workshop, additional cross cutting themes of poverty and indigenous knowledge have been emphasised in the SPCR, as well as the vulnerability of the disabled community. The SPCR team has further highlighted the vulnerability of children in The Gambia in general, as well as to the impacts of climate change.

### **Country context**

The Gambia is a small West African state of 11,360 km<sup>2</sup> situated along the Gambia River, surrounded by the Atlantic Ocean to the west, and Senegal along all other borders. Situated within the Soudan-Sahel region, the country experiences considerable inter-annual and inter-decadal climate variability. Rainfall is largely seasonal, the majority falling during the months of June to October. Located on the flood plain of the Gambia River, and flanked by savannah and low hills, the highest elevation is 53 metres above sea level. The country has 80 km of open ocean coast and approximately 200 km of sheltered coast within the tidal reaches of the River Gambia. Its rich biodiversity is however threatened by habitat destruction from urbanization, agricultural expansion, uncontrolled burning, and wood utilization, which has also led to degradation of ecosystem services.

The total population in 2013 was approximately 1.9 million, with an annual growth rate of about 3%, linked to a high birth rate and a decline in the infant mortality rate; around 40% of the population is between 13 and 30 years of age. The Gambia is one of the poorest countries in Africa, ranking 165th out of 187 countries in the Human Development Index (HDI) in 2013. According to the Programme for Accelerated Growth and Employment (PAGE) I, GDP per capita increased by an average of 4.5% per year from 2008 to 2011. The country retains a high ratio of external debt to GDP (around 43% in 2012). Despite reducing poverty by almost 10 percentage points over a seven-year period, to a national average of 48.4%, the rural poverty rate remains at 73.9%, compared to 32.7% in the urban areas (GoTG, 2017). This exacerbates the current rural-urban migration trend, which, together with population growth, places high demands on housing, sanitation, food, energy and other services in the urban areas, where currently 58% of the population resides. Unplanned urbanization is affecting human health and resulting in significant deterioration of ecosystem services. The Gambia shows the second highest share from West Africa of irregular migration, especially of youth, to Italy.

The adult total literacy rate is 52%. Despite gains in the education sector, there are concerns about quality and high dropout levels. The Gambia has made significant strides in putting in place the legislative and institutional framework to promote gender equality since 2012; however, socio-cultural practices continue to hinder meaningful participation of women in decision making, while their access to land and assets remains limited. There is a near-total absence of data on disability in The Gambia; concerning children, this means the number of children with disabilities and the range of their disabilities are largely unknown.

Agriculture remains the most important sector of the Gambian economy, contributing 32% of GDP, and providing employment and income for at least 75% of the rural population. Approximately 54%

of the land area in The Gambia is arable (540,000 ha), out of which about 39% (188,000 ha) is currently farmed, mainly by subsistence farmers, most of whom do not generate enough produce or income from farming activities and rely heavily on ecosystem goods and services from woodlands, savannas, wetlands, mangroves and rivers; the country relies on food imports, especially for the main staple food of rice. The tourism industry contributes 12% - 16% of GDP, supports over 35,000 direct and 40,000 indirect jobs, and generates US\$85 million in foreign exchange earnings. According to the PAGE II, services accounted for the remaining – and majority - percentage of GDP, with transport, communications, retail and finance being the main components.

Poor energy and transportation infrastructure have multiple economic, social and health-related impacts, and result in high logistical costs that burden the private sector and reduce its ability to create jobs. The country has experienced a number of external shocks, including the 2011 drought that reduced agricultural output and economic performance, and the outbreak of Ebola in 2014, which negatively affected the tourism industry.

Within this context, remittances have been increasing for over a decade at a rate of about 12% per annum, currently standing at about US\$181 million per annum, which represents about 22% of GDP. There is untapped potential within the Gambian private sector, which is dominated by Micro, Small and Medium Enterprises (MSMEs), mainly operating in the productive sectors, with 97% of businesses having less than 5 employees (formal or informal sector). The unemployment rate stood at 29.8% in 2012, with the youth unemployment at 38%. Female youth are less likely to be employed or in education, and more likely to be inactive (31% against 27% for male youth) (GBoS, 2012).

### **Observed and projected climate**

There is no doubt that temperatures across The Gambia have increased in recent years. The increasing trend of 0.5°C per decade since the 1940s set out in the Second National Communication (2012) translates to an increase of 3.5°C since then, which is likely more than observed. An estimate of 0.21°C per decade is provided by McSweeney et al. (2012), converting to an increase of about 1.0°C since 1960, the largest trend being in October-November-December at 0.32°C per decade. This is coupled with an increase of almost 8% in the number of 'hot nights' between 1960 and 2003. It is also certain that rainfall over the country has decreased in recent decades. Decreased rainfall between 1960 and 2006 at a rate of about 8.8 mm per month per decade has been observed (McSweeney et al., 2012). There is a justified concern about more frequent and intense heat waves (likely), and droughts and floods (more uncertain).

According to the IPCC Fifth Assessment (AR5) temperatures may increase between 7°C and less than 1.0°C, in the ensemble mean for interior Gambia by the end of the century, depending on the greenhouse gas emissions trajectory (RCP8.5 or RCP2.6). For rainfall under RCP8.5, the main pattern in the ensemble means is for decreases except in September-October-November. In the absence of more detailed projections studies (which are a recommendation of the SPCR), a low-regrets adaptation path should be followed. However, planning for the SPCR should bear in mind that temperature increases may well be on the higher end of the IPCC AR5 spectrum, given recent indications that the Earth on average could be 1.5 degrees Celsius warmer as early as 2026, relative to the 1850-1900 period (Henley and King, 2017).



### **Impacts and vulnerabilities: climate resilient food and landscapes**

The rainfall pattern over the last three decades of the 20th century, which has closely followed the average Sahelian pattern, has been one of devastating droughts alternating with periods of intense rainfall resulting in numerous flooding events. This pattern appears to have impacted the farming system by reducing the length of the growing period and introducing a mid-season dry spell. Combined with the impacts of overgrazing and deforestation this has been associated with an increase in the frequency and intensity of dust and sand storms eroding fertile soil and uprooting young plants, disrupting the flowering cycle in fruit trees and enhancing potential evaporation and evapotranspiration, and potentially increasing the spread of disease pathogens.

A one-metre rise in sea level would inundate 60% of mangrove forests, 33% of swamp area and 20% of rice growing areas, assuming no protection. Areas in the Upper River end of the country would also be affected, and saline water would infiltrate ground water aquifers. While a one-metre rise in sea level is at the top end of the IPCC AR5 projections, recent updated global sea level rise analyses indicate an upper extreme bound of 2.5 metres sea level rise by 2100, with one metre being seen as an intermediate scenario (NOAA, 2017). Moreover, recent research factoring in the role of waves found with 95% confidence that an added 5-to-10 centimetres will more than double the frequency of coastal flooding in the tropics (Vitousek et al., 2017).

Overall, predicted changes in climate and continuing inter-annual variability will present important short-term and long-term challenges to development efforts in The Gambia, with land use and land cover change, sea level rise, and coastal erosion presenting significant long-term challenges.

Agriculture in The Gambia is primarily rain-fed, with less than 2,000 ha of the 81,000 ha of irrigable land currently under irrigation (GoTG, 2017). Thus the sector is highly vulnerable to rainfall variability, with yields of some major crops fluctuating as much as 100% from year to year. Since the 1960s, yields have decreased as much as 30%, due to reduced rainfall as well as declining soil fertility from widespread land degradation (GOTG, 2003). Rice cropping under tidal irrigation in the lower stretches of the River Gambia is already facing considerable disruption due to increasing salinity. Temperature and moisture effects under a changing climate will likely reduce nitrogen uptake in the rangelands, reducing vegetation palatability and thus livestock productivity. In addition, an increased spread of animal diseases is expected, linked to climate-induced effects on disease transmission ecology and dynamics.

Forest and mangrove total biomass production is expected to be lower under increased temperatures, further threatening wildlife habitat and perpetuating the loss of valuable genetic resources. Multiple combined impacts on forests from human actions and climate change would have serious negative impacts on rural livelihoods, as fuelwood provides nearly 90% of all household energy needs, while forests also provide important potential revenue sources through ecotourism, forest-based enterprise development including wood and non-wood products.

Woodlands and mangroves will also be affected by sea level rise: a one-metre rise would potentially inundate 6,500 ha of woodland and 40,900 ha of mangrove areas within the North Bank, West Coast, and Central River regions. Other climate change-related impacts are linked to the frequent bushfire incidence, which would increase during future drought episodes. The critical impacts on biodiversity and wildlife are mainly connected to forest deterioration and eventual changes in the fish and bird populations, which are not fully or primarily under anthropogenic control.

Groundwater is the main source of drinking water for the population in the country, which is captured at depths of 30 m to 80 m. Recharge of the shallow to medium groundwater aquifer is directly dependent on precipitation during the wet season. Secondly, there is the intrusion of saline water further up the River Gambia with a reduction of the river water flow. The flooding of settlement areas, as a result of abundant rainfall, may also cause the contamination of the groundwater through open stored household waste and flooded septic tanks.

While climate change impacts on The Gambia's fisheries require further study, a 1-2°C rise in global air temperature, accompanied by a 10% reduction in precipitation, may cause a 40-70% drop in mean annual river runoff (Izrael, 1991). This could result in a complete change in the hydrological and salinity balance of the River Gambia estuary, in turn affecting fish species abundance, composition and distribution, and impeding the entry of larvae and juveniles of many marine species into the estuary, particularly the shrimp (*Penaeus notialis*), with impacts on the fisheries food chain.

#### **Impacts and vulnerabilities: managing coastlines in a changing environment**

As indicated, the coastal vulnerabilities to climate change result from rising sea levels, changing precipitation patterns and wet season rainstorm intensities. Generally accepted impacts include:

- Tidal flooding of low-lying areas along the open coast and up the river, with loss of important urban areas, port infrastructure, roads, fish landing sites, farmland, forestry and significant natural habitats;
- Saline intrusion into fresh water aquifers; and
- Shoreline erosion of the open coast with loss or damage to urban areas, roads, fish landing sites, historic and cultural sites and tourism assets.

Likely further impacts are increased erosion of storm runoff channels and increased rainwater flooding of urban and rural areas.

The potential impacts of climate change along the River Gambia will be both positively and negatively influenced by the Sambangalo Hydroelectric Dam. Proposed flow management plans may result in short-duration artificially-induced flood events during the wet season to support wetland agriculture and aquifer recharge, while also maintaining a minimum flow above the natural dry season rates. These changes would influence the natural habitat of the fresh and brackish water sections of the river, which traverses a very extensive low-lying agricultural basin, with impacts on artisanal fisheries and river margin vegetation.

At a national level the greatest predicted impact of climate change will be the effective loss of the capital city, Banjul. Much of the residential area of the city is extremely low lying and already at risk from tidal flooding; this situation will be exacerbated by expected sea level rise, putting most of the city and the access highway at risk of flooding. Ongoing shoreline erosion along the north shore of the city will soon impact on the government and commercial areas of the city. The 2003 beach nourishment of the shoreline (Haskoning, 2004) was intended to have a maximum 25 year design life to provide time for planning a robust and permanent solution to the coastal threat; observations of the beach suggest that the remaining life of the nourishment is likely to be less than 10 years, after which the buildings and roads along the shore will be under direct attack by waves.

### **Impacts and vulnerabilities: climate-resilient infrastructure**

Waste management poses a major challenge in The Gambia, particularly in the Greater Banjul Area (GBA) and the growth centres. The vulnerability of waste infrastructure to climate change depends on the geographical position and state of the disposal site, as well as on disposal methods and enforcement of regulations. Both of the major dumpsites, Bakoteh and Mile 2, are poorly managed, resulting in their vulnerability to climate-related impacts from flooding of low-lying areas, including spread of water-borne diseases such as malaria and cholera and contamination of the underground water system; and including unknown health impacts of air pollution resulting from continuous burning of the waste. Currently, solid waste is being dumped into the riverine areas, thus clogging drainage channels and greatly exacerbating the impacts of flash flooding linked to either climate variability or change. This would be exacerbated by any possible increases in rainfall intensity in the future. Regarding mitigation, inadequate waste data is a major issue concerning both GHG emissions and waste production, for both solid waste and wastewater.

Areas of standing water are often a daily problem during the wet season, in the GBA and the growth centres of the country, which are characterized by inadequately designed open drainage facilities, often without outlets, with minimal coverage of the main catchment area.

The unreliable nature of the electricity supplied in the GBA means that many businesses and the more privileged households use back-up generators. Only the latter make use of modern cooking and heating devices, meaning biomass use is still widespread in the GBA. Renewable energy technologies such as solar are used only in a limited fashion in the urban and semi-urban areas. The health impacts of indoor air pollution associated with heavy fuelwood use constitute significant personal, social and economic costs throughout the country, where access to electricity is very low. Regarding future electricity supply from the Sambangalo Dam, this may be extremely vulnerable to climate change, should the assumptions for dam operation with respect to climate trends not be accurate – see section 1.6.3 for details.

### **Multi-dimensional vulnerability context for people and systems**

The vulnerability and impact assessments developed in the SPCR illustrate the multi-dimensional vulnerability experienced by many people in The Gambia. It is not just the increasing temperatures, decreasing rainfall, and more erratic rainfall patterns of recent decades that drive vulnerability, significant as these changes are. The low-lying topography, combined with high dependence on subsistence rain-fed agriculture, and inadequate drainage and storm water management system in a context of rapidly expanding unregulated urban expansion has placed The Gambia among those countries most vulnerable to climate change

This vulnerability is linked to the country's widespread poverty and limited adaptive capacity to deal with the effects of such changes. Limited access to resources to make quick changes to lifestyles, especially with respect to food supplies, and low access to risk-spreading mechanisms, render many people highly susceptible to the current variability and future climatic changes.

The vulnerability analysis highlights the specific challenges faced by women and youth with respect to current and future climate risks. Women have disproportionately high responsibilities for farming activities in rural areas; responsibilities for family health and welfare; problems of access to land and to credit; and additionally experience more subtle forms of discrimination related to the paternalistic cultural traditions. In addition, women are more likely to lack identity numbers, and

thus experience difficulty in interventions such as crop index-based insurance, land acquisition and obtaining collateral necessary for investments. Youth face particular challenges relating to a lack of skills and/or a mismatch between skills developed through the education and training systems and those demanded by the job market, plus a lack of job opportunities. These issues, together with resource degradation, poor quality of services in rural areas, and a desire to be part of the modern urban world are driving a rapid rural-urban migration, as well as the irregular migration to Europe from both rural and urban areas.

A critical factor exacerbating social and environmental unsustainability is the uncontrolled nature of the urbanisation process, which is primarily apparent in the GBA, but also manifest in other urban centres. The exceedingly high rate of urbanisation is a result of an accelerated rural exodus due mainly to low returns from agriculture, and the concentration of economic activity in the urban areas. Climate variability is a key stressor hampering social development, associated with hazards affecting incomes, food and nutritional security, health status, and general wellbeing.

The tourism industry experiences climate vulnerability in multiple dimensions, including threats from sea level rise and coastal erosion, exacerbated through lack of clarity on / enforcement of development control within the Tourism Development Area and elsewhere. This leads to conflicts of interest, such as that experienced between stakeholders related to the destruction of part of the Bijilo forest. Examples of maladaptation, such as the unsuccessful beach nourishment in Banjul and the Senegambia area, highlight the importance of a coherent and well-planned approach to reducing vulnerability in key tourist areas along the coast.

### **Consolidated gap analysis**

Within this understanding of a multi-dimensional vulnerability context for people and systems in The Gambia, sections 1.5 and 1.6 of the main report present a gap analysis of climate information and services, and of adaptation and mitigation responses across sectors, in order to develop the analytical basis for identification of the SPCR investments. In the interests of brevity, this is not presented here, as key elements are summarised in the section on ‘Scope of the SPCR and key challenges addressed’ below.

### **Review of policies, strategies and legislation**

The policy and legislative framework of The Gambia is in need of significant updating, in order to fully incorporate and guide responses to current and future climate risks and change. Much relevant sectoral legislation does not reflect the realities of climate change risks; even where legislation refers to “the environment” this tends to be from the perspective of environmental impact assessment, rather than in the broader context of preparing for climate change. There is a lack of policy coherence, with many policies and strategies containing provisions that work against climate resilience; these also cause conflict between portfolios. New legislation in several sectors that addresses climate change risks – for example, on water resources management - has been held up as new democratic structures are put in place following the January 2017 regime change.

As an overarching statement in terms of mainstreaming climate change and sustainable development into national development planning, the draft PAGE II states that it mainstreams the Sustainable Development Goals (SDGs), the African Union Agenda 2063 and the Istanbul Plan of Action, towards sustainable and inclusive growth and prosperity. While this is positive, achieving this mainstreaming in concrete terms will depend on the nature of the sectoral policy and legislative

framework, as well as its implementation and enforcement. The draft National Climate Change Policy represents a significant step forward, with many progressive and necessary provisions designed to ensure a coherent and effective approach to reducing vulnerability to climate change and building adaptive capacity and resilience. Implementation of the NCCP, after formal approval by Cabinet, will require considerable investment and effort – and indeed this is the central subject of this SPCR.

### **Institutional assessment**

The Gambia is emerging from two decades of an extremely difficult working environment for the civil service, government agencies and civil society. As noted by the new regime, confidence in Government and in the rule of law needs rebuilding, which implies efforts towards systematic transformation of institutions, together with policy change. According to the draft PAGE II, the multiplicity of ministries, agencies, departments and functions has led to a bloated civil service and an absence of sufficient linkages and coordination between institutions and leadership, impacting on effective overall development planning and implementation coordination. High staff turnover has affected institutional capacity and retarded implementation of programmes (GoTG, 2017).

The NAP Stocktaking Report (2015) noted significant gaps with respect to climate change coordination: outdated policies, gaps in knowledge, weak mainstreaming into line ministry spending plans, weak capacity to plan and oversee implementation, high fragmentation of mandates, weak coordinating structures and weak knowledge management (GoTG/UNDP, 2015). This was confirmed by the Independent Institutional Assessment carried out to develop the NCCP, which further emphasised the need for clarification of roles, responsibilities and relationships between different institutions, to reduce duplication of efforts and conflicting mandates; as well as the insufficient numbers of staff professionally qualified in climate change mainstreaming in the different sectors. This remains largely still the case, while capacity gaps at the sub-national level are even more dramatic, making it difficult to channel untied climate finance to the local level.

In order to enhance coordination of the far-reaching climate change functions, a Climate Change Secretariat has been established in the MoECCNAR, but a special budget line needs to be created for effective and efficient operationalization of the NCCP that requires the timely meetings of the National Climate Committee (NCC) and its sub-committees and working groups. A National Platform on Disaster Risk Reduction and Climate Change Adaptation was established several years ago, and is currently being revitalised. The Platform is the technical arm of the National Disaster Management Council and its key mandate is to ensure that DRR and climate change interventions mutually reinforce each other.

Institutional arrangements at the sub-national level are equally important as the NCCP prioritises decentralised approaches to planning, implementation and monitoring, recognizing that climate impacts are likely to be extremely localised, and will require place-based and contextualised solutions. There are three tiers of local government: eight councils, 144 ward development committees (WDCs) and 1,500 village development committees (VDCs). Councils are advised by Technical Advisory Committees (TACs) chaired by the Governors and coordinating all development issues at the regional level, and WDCs are advised by Multi-disciplinary Facilitation Teams (MDFTs). WDCs direct the preparation of ward plans with assistance from MDFTs, and pass them on to the area council for approval. Although there are no formal institutional arrangements for climate

change at this level, some capacity building of TACs and MDFTs has taken place, and local-level committees exist for sectors such as natural resources, public health, agriculture and infrastructure.

To enhance coordination of the climate change function at the local level, and towards creating an enabling environment for community-based adaptation, the NCCP proposes a number of local level planning and institutional arrangements, to be consistent with the Local Government Act 2002. The decentralisation of climate change interventions at local level will require strengthening the capacity of the TACs and enhancing the skills of the MDFTs for effective and efficient implementation of climate change programmes at regional level. Further capacity building and awareness raising is also needed at Ward and Village level to enhance community-based adaptation measures.

There is substantial interest from NGOs in The Gambia to engage the government and work with the private sector to implement projects and finance capacity development, which has yet to be mobilized and harmonized in the country's efforts to respond to climate change. There is a potential for scaling up the role of NGOs in influencing policy and building awareness and knowledge of communities for community-based adaptation, including livelihood diversification to spread climate change risks and empower climate-vulnerable groups. This should also be accommodated in the national response to climate change, institutionalising partnership and dialogue between government and non-government. A stronger role for civil society could also create strong accountability mechanisms that can be used to measure implementation.

The private sector in The Gambia is a valuable potential partner for effective climate change response actions, including developing low-carbon technologies, products and services, and in providing green jobs. While a number of private sector organisations are engaging with a level of proficiency in these matters, in general increased awareness is required of how climate change affects profits, and how best to engage with what may be complex concepts for carbon markets. As noted in the NCCP, strong partnerships for implementation and monitoring of climate resilience interventions are required between local administrations, local government, membership organisations, cooperatives, service organisations, and the private sector.

### **Financial issues**

The Gambia is a heavily taxed economy constrained by inadequate budget, dependence on donor funding, and limited resources, which mean it is over-stretched by ambitious development plans. The country has significant climate finance needs: had it been fully implemented, The Gambia's climate change priority action plan for 2012–2015 would have cost almost US\$14.2 million (Camara, 2014); and, according to a national assessment of investment and financial flows completed in October 2011, The Gambia would need an additional US\$1.35 billion to implement priority actions to reduce greenhouse gas emissions from the energy sector and forest degradation and adapt to the impacts of climate change in the agriculture and water sectors by 2030 (Jarju and UNDP, 2011). Of this, US\$420.66 million would be for adaptation and US\$925.74 million for mitigation. While significant amounts of funding have been applied in country since that date, mainly to adaptation, there is no doubt that the outstanding financial envelope remains substantial – see section 2.4, which includes estimates for implementing the SPCR.

The Gambia's financial constraints are inherent in budgetary considerations dependent on public sources and public investments, and dependence on donor funding. Financial barriers in The Gambia are intrinsic in a heavily taxed economy that limits provision of financial incentives to the private

sector. Financial gaps in The Gambia are experienced in budget support, programmes and projects. Regardless of comprehensive planning and provisional budget and resource allocation, funding sources continue to be inadequate and limited. Most key economic sectors including agriculture, fisheries, livestock, tourism, water, education and energy have lacked adequate funding, resulting in poor and or inadequate provision of basic services.

The Gambian government has started a review of climate public expenditure and institutions, which will provide a key building block for developing a fiscal framework to assess the demand and supply of climate funds and available domestic and external sources of funds. To prioritise climate resilience appropriately, the government needs to allocate part of the national budget to climate change financing, ideally through the proposed Gambia Climate Change Fund. As noted in the PAGE II, it is Government's intention to create an enabling business environment and improve access to low-cost financing, to unlock the private sector's catalytic role. The potential for PPPs to play a role in enabling climate-resilient development in The Gambia, especially in the priority areas of agriculture, tourism, telecommunications, infrastructure and manufacturing, is a fertile area for consideration in the SPCR.

### **Monitoring, evaluation and reporting**

The Gambia lacks a coherent M, E and R system for climate change responses. The MoECCNAR does prepare and distribute an annual report at Cabinet retreats based on the annual work plan, but this only superficially touches on climate change interventions by projects under the Ministry, as opposed to a holistic approach that addresses climate change issues across all the sectors. Mainstreaming climate change into sectoral policies and strategies will enable the MoECCNAR to develop an M, E and R system with SMART indicators (i.e. indicators that are specific, measurable, available/achievable, relevant, and available in a timely manner). A key gap in terms of an overarching response to building climate resilience in the past was that sectoral expenditure on climate change related responses was not tracked; this will be overcome through the introduction of a climate-resilience budget coding and tracking system under the SPCR.

The draft PAGE II M & E system outlines a results framework with clear outcome indicators, which will be institutionalised by an Act of Parliament, setting out the required structures, policies and regulatory instruments and standards. Section 2.6 of the SPCR sets out proposals to enhance M, E & R of actions to build climate resilience, within the overarching national development framework.

## **PART 2: COUNTRY-DRIVEN STRATEGIC APPROACH TO CLIMATE RESILIENCE**

### **Long-term vision to achieve climate-resilient development trajectory**

The SPCR of The Gambia is a comprehensive transformational adaptation and mitigation investment plan, designed to reduce and manage the country's high vulnerability to climate variability and change, and in so doing, to secure catalytic financing from international and national climate financing sources. This is a building block in The Gambia's quest for a successful transition to a low-emissions climate-resilient development pathway.

The programmatic approach of The Gambia's SPCR entails a long-term, strategic arrangement of linked investment projects and activities to achieve large-scale, systematic impacts and take advantage of synergies and co-financing opportunities. As such, its starting point is the draft National Climate Change Policy developed in 2016, which represents The Gambia's determined and

systematic response to the interlinked climate threats to sustainable development, wellbeing and ecological integrity, as set out in Part 1.

Accordingly, the Policy defines the following **long-term vision** for The Gambia, which is taken forward in the SPCR:

**Achieve a climate-resilient society, through systems and strategies that mainstream climate change, disaster risk reduction, gender and environmental management, for sustainable social, political and economic development.**

The vision, developed through a strongly consultative process, suggests that an effective Gambian climate change response requires economic, social and environmental interventions that integrate mitigation and adaptation elements within a developmental framework. This is the meaning of climate-resilient development, in the Gambian context.

The **goal** of the Policy is, by 2025, to achieve the mainstreaming of climate change into national planning, budgeting, decision-making, and programme implementation, through effective institutional mechanisms, coordinated financial resources, and enhanced human resources capacity. In this regard, the SPCR defines a comprehensive programme for further enhancing the enabling environment that directly responds to the goal of the NCCP.

The Gambia's response to climate change is furthermore guided by **eleven policy principles**, as set out in the NCCP, which are consistent with the existing national policy framework, aligned to the United Nations Framework Convention on Climate Change, and informed by relevant international best practice. These principles were used, together with key requirements of the PPCR, to develop criteria through which the emerging investments for the SPCR were assessed and prioritised. The requirement for transformative and catalytic investments was a further overriding criterion, as was the ability to integrate the agreed crosscutting areas of gender, youth, health and tourism.

As the implementation strategy for the NCCP, the SPCR promotes mainstreaming of climate resilience, nested within national development goals and strategies. Thus the SPCR is designed to contribute to the realisation of the Vision 2020 goals, which aim to develop a well educated, trained, skilled, healthy, self-reliant and enterprising population, while guaranteeing a well-balanced ecosystem and a decent standard of living for everyone under a democratic system of government. The SPCR investment programmes are further aligned with the provisions on mainstreaming climate change and environmental sustainability in the draft PAGE II, and would contribute to the realisation of the National Adaptation Programme of Action (NAPA) and the Nationally Determined Contribution (NDC), which in themselves are reflected in the policy provisions of the NCCP.

### **Approach to the SPCR**

The SPCR has been designed to enable the implementation of the **long-term vision to achieve a climate resilient development trajectory**, and a **critical path** to accomplish it. This includes consideration of vulnerable economic sectors and social groups (including women, youth, indigenous peoples, and local communities), and ecosystems. The SPCR is seen as the **next step in developing the strategy that is needed to implement the National Climate Change Policy**. It has therefore been seen as an opportunity to develop the systemic and systematic approaches that all stakeholders of the NCCP preparation process agreed were needed.



The inter-linked challenges of reducing poverty, supporting sustainable livelihoods, and tackling climate change in The Gambia require a move away from doing business as usual, to a more transformative approach. This means moving away from the *ad hoc* project-based approach that has predominated in the past, to one in which Gambians across all sectors are able to co-create and implement sustainable and climate-resilient pathways. The first step was taken with the collaborative development of the long-term vision, as set out in the NCCP. This collaborative approach to defining the country's climate resilient development trajectory has been continued and extended by means of the extensive national and regional consultations carried out to develop the SPCR, as detailed in section 1.2 of this report.

Given the vision of the SPCR, it adopts the strategic approach set out in the NCCP:

- **Contextualised and decentralised**, promoting appropriate responses and national capacity and ownership;
- **Sustained and systemic**, promoting institutionalisation and coherence of climate change responses;
- **Evidence-based and innovative**, harnessing indigenous knowledge, science, research and technology for resilient and environmentally friendly solutions;
- **Opportunity-oriented**, viewing climate change as not only a threat to humankind, but also as an opportunity for sustainable agriculture, climate investments and innovations, resilient human settlements and clean energy;
- **Developmental**, prioritising responses that also have significant economic growth, job creation, public health, risk management and poverty alleviation benefits; and
- **Transformational**, favouring climate resilience measures that promote the transition to a lower-carbon, efficient, job-creating, equitable and competitive economy.

### Scope of the SPCR and key challenges addressed

The holistic programme of the SPCR has been developed to build on the findings of the Gap Analysis set out in Part 1 of this report, and to develop synergies and scale up existing programmes. The SPCR of The Gambia covers rural and urban resilience and their interlinkages, includes key land use planning and related coastal resilience activities, and develops the enabling environment for climate resilient development as set out in the NCCP. As such, the coverage is nationwide, and reaches across all sectors. A transformational arc, as further discussed below, connects the key investment areas, which have been derived from the thematic areas identified by means of stakeholder consultations, vulnerability assessment, gap analysis, and collaborative expert judgement.

Overall, the SPCR constitutes a comprehensive and ambitious programme to transition The Gambia onto a climate resilient development pathway, repeatedly endorsed and expanded by the GoTG and other stakeholders during the process. The SPCR adopts a **long term**, as well as a **strategic approach**. Regarding **timeframes**, the **SPCR covers a 25-year period**, divided into short-term (0-5 years), medium-term (6-10 years) and long-term (11-25 years) actions. The programmes set out in the four pillars, with details in the associated Concept Notes (Volume II), have been repeatedly endorsed by the range of stakeholders participating in the SPCR as essential for managing the response to climate change and optimising its developmental benefits. When seen over a 25-year period, the scope of the SPCR becomes manageable; however, it will require **careful sequencing and phasing** to ensure

that the **appropriate capacities are progressively enhanced to implement and manage the SPCR**. Given the need for good stakeholder participation in this, the further sequencing of investments and actions would most appropriately and optimally happen in the subsequent process to develop the Concept Notes into full-fledged investment programmes.

The SPCR holistic programme has been designed to address the following key challenges:

- **Incomplete and/or outdated enabling environment for climate resilience:** Despite positive developments concerning policies and institutions to promote climate resilience, some of which still remain in draft form, and project-based efforts to develop capacity and skills to respond to climate change, numerous critical aspects with respect to coordination, review and harmonisation of the policy and legislative framework, systematic capacity development and research for low carbon and climate resilient development, as well as enhancement of climate observations and services, and broad awareness building, remain to be dealt with. In addition, significant resource mobilisation is required to address the country's high levels of vulnerability to climate variability and change, as well as to build adaptive capacity and resilience. This comprises systems to deliver reliable and consistent funding and resource allocation for adaptation, disaster risk reduction, building resilience and for mitigation.
- **Outdated land use planning, and inadequate mapping and information systems to support national and coastal climate resilient land use planning and management:** The Gambia, like most nations, has undergone substantial and accelerating social, economic and environmental change. Rural-urban migration, population growth, commercial development, tourism, vehicle use and habitat degradation have radically altered the fabric of the country. Unfortunately, planning and enforcement has not kept pace with the changes, resulting in uncontrolled urban sprawl into valuable agricultural land, severe problems of waste management, inadequate infrastructure vulnerable to current climate variability and future climate risks, uncontrolled depletion of limited natural resources, loss of public open space, strains on water resources and loss of natural habitat. The Physical Planning Act was developed in 1984 and an urban Land Use Plan (for the Greater Banjul Area, Brikama, Basse and Farafenni) in 1985, intended to be updated on a rolling five-year programme, with substantial revision every fifteen years. The Plan was only reviewed in 1989, and it is now completely out of date and effectively obsolete. The urgent need for climate-integrated Land Use Planning is highlighted in the National Development Plan (PAGE II, 2016 Draft) and the National Climate Change Policy (2016 Draft), as well as in sectoral policies such as Agriculture and Natural Resources (2009), Tourism Development Master Plan (2007), Fisheries Strategic Action Plan (2012), Forest Policy (2010), Biodiversity and Wildlife Act (2003), Disaster Risk Reduction Strategic National Action Plan (2013) and others. Coastal protection measures, such as the ongoing beach stabilisation in the Senegambia area, have been implemented on an ad hoc basis with inadequate consideration of the wider implications for coastal zone management and the potential for more sustainable methods to achieve future coastal resilience.
- **Lack of climate resilient infrastructure, sanitation and solid waste management:** Waste management poses a major challenge in the Greater Banjul Area (GBA), and elsewhere in the country. Waste is collected and temporarily stored at community dumpsites from where it is eventually transferred to permanent dumpsites. This process is however inappropriate,

ad hoc, reactive, and unsystematic, exacerbating flooding problems, as drainage channels located are generally poorly maintained, with waste dumped into them, leading to blockage of the channels and accumulation of stagnant water. With increasing temperature and rainfall, this scenario is potentially a source for transmission of diseases such as malaria and cholera. Attitudinal change and law enforcement will be required to address waste management issues. Water resource management problems include saline intrusion due to increased extraction and insufficient recharge due to runoff. Many roads and bridges are vulnerable to sea level rise and flash floods, and previous interventions to climate proof them have proven unsustainable. Energy infrastructure suffers from numerous constraints resulting in a highly erratic power supply, due to inter alia ineffective planning of maintenance and repairs, and insufficient investment in renewable energy. Coupled with these infrastructural urban resilience challenges is the need to promote urban livelihoods opportunities, especially for women, youth, the disabled, and disadvantaged groups.

- **Multiple challenges to resilience in the rural areas, with linkages to urban vulnerability:** Drivers of rural vulnerability include the absence of capacity to overcome the impacts of climate change, particularly the shortening of the growing period with late onset and early cessation of rains; the growing migration flux of young people, the main workforce, towards the urban centres and abroad, enlarging the number of women-headed households; and inadequate technical support to adopt appropriate adaptive options. Frequent dry spells in the middle of the rainy season are already limiting farming activities such as ploughing, sowing and planting. The Multidisciplinary Facilitation Teams (MDFTs), which are essentially extension services, have an extension/farmer ratio of 1: to over 3,500, are not cost effective and lack technical knowledge about climate smart farming techniques, erosion protection and improving soil structure and fertility. While the policy target of 30% of the total land area being forested has been surpassed, the sustainability of the community management approach targeted for 75% of this is questionable. Forests are under severe threat with widespread cutting of trees for commercial purposes, fuelwood and charcoal, and regular encroachment when the fertility of farming grounds is exhausted. Further degradation of vegetation cover is taking place through freely moving cattle (transhumance) and small ruminants, while cattle production is constrained by scarcity of feed and water during the long dry season, and aggravated by rampant bush fires that consume most of standing hay, crop residues and by-products to feed cattle. The Forestry sub-sector could arrest and reverse degradation of lands along river banks and mangrove areas and protect others at risk of degradation from erosion, and in the process, expand land availability for increased rice production from tidal irrigation, and short cycle cash crops from uplands.

To address these challenges, the following pillars, corresponding to the SPCR priority investment programmes, have been identified:

**Pillar 1: Developing the enabling environment for climate resilience in The Gambia**

**Pillar 2: Climate-resilient land use mapping, planning and information systems**

**Pillar 3: Developing climate resilient infrastructure, services and energy systems**

**Pillar 4: Developing integrated approaches to build rural climate resilience in The Gambia**

The objectives of each of these pillars of the SPCR have been designed to address, in a strategic and catalytic way, the priority climate resilience and sustainability challenges identified. **Each of the SPCR pillars is associated with a detailed Concept Note** (see Volume II), which sets out background, justification, activities, budget and a provisional logical framework. Each Concept Note would need to be further developed, through detailed programming, into a full project proposal to be submitted for funding, in order to operationalize the associated pillar.

### **Strategic approach in the SPCR**

As well as being a long-term programme, the SPCR is also a strategic one, which addresses climate change priorities through key entry points, in order to progressively build foundations for subsequent actions and leverage the associated resources. Thus, developing the enabling environment, as detailed in Concept Note 1, contains a number of critical steps that initiate the transformational arc of the programme. Concept Note 2 contains the SPCR's comprehensive national land use planning process, which is urgently required to provide a rational and evidence-based framework for all further development in the country, including the critical coastal zone management area.

Concept Notes 1 and 2 of the SPCR thus contain many of the activities that will unlock the strategic and transformational nature of the programme, and they will need to be further developed and funded through multiple sources as a priority. Concept Notes 3 and 4 contain critical and no less urgent provisions, but many of these would be best addressed once the implementation of the investment programmes in Concept Notes 1 and 2 has been initiated.

It should be noted that steps to address the low participation of women in decision making at both community and national levels will be integrated across the components of all pillars.

### **Synergies with related programmes**

The SPCR has been designed to optimise synergies between the proposed investment programmes and other ongoing or planned investment activities by the government, development partners, and non-state actors. There are three overarching climate change-focused programmes with which the SPCR would have tight integration and synergies: the Low Emissions Climate Resilient Development Strategy (LECRDS); the National Adaptation Plan (NAP) process; and the Technology Needs Assessment (TNA). Additional synergies with other programmes are discussed in detail in section 2.2.3, with a summary of key selected complementary programmes in Annex 9.

The proposed investment programmes of the SPCR

### ***Pillar 1: Developing the enabling environment for climate resilience in The Gambia***

Pillar 1 consists of an integrated programme which includes policy review and legislative development; further development and strengthening of institutional coordination mechanisms at different levels; putting in place mechanisms to promote mobilisation of climate finance, including through the operationalization of the Gambia Climate Change Fund; support to a coherent programme on climate change capacity development and communication; furthering climate services investments; mainstreaming climate resilience into the national development agenda; and developing the monitoring, evaluation and reporting (M, E&R) systems for climate resilience.

The **project development objective** is to put in place an enhanced enabling environment for achieving low emissions, climate resilient development in The Gambia, through review and

development of key policies, legislation, and institutions; mainstreaming climate resilience into national development planning and implementation, and initiating and/or developing coherent systems and strategies for climate finance, capacity development and research, climate services, and a national system for M, E & R of climate resilience.

Pillar 1 consists of five main components:

*Component 1: Policy, legislative and institutional review and development*

*Component 2: Enhanced mobilisation of climate finance*

*Component 3: Climate change research, capacity development and communication*

*Component 4: Furthering climate services investments and systems*

*Component 5: Developing the climate resilience monitoring, evaluation and reporting system*

Please see **Concept Note 1** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

***Pillar 2: Climate-resilient land use mapping, planning and information systems***

The national Land Use Plan for The Gambia has not been reviewed or updated since 1989. In addition to being outdated, it does not integrate any climate change projections, of which sea level rise is arguably the most important given The Gambia's vulnerability. This significant national initiative includes parallel investment in human resources, equipment, technology, institutional structures and policy / procedure development to achieve a legacy of climate resilient land use planning self-sufficiency, including in the coastal zone.

Pillar 2 comprises a comprehensive national land use planning exercise, within the framework of a new Land Policy. This by definition includes the coastal zone. Over the past couple of decades international donor financing for coastal protection in The Gambia has been spent on ad hoc activities, often not implemented in full with respect to the associated technical recommendations. These ad hoc responses are inevitably not sustainable, and frequently do not even attain their expected (limited) lifespan. Thus any new plans for more coastal protection works have to derive from a comprehensive land use planning exercise, and can only be identified after significant in-country processes to reach consensus; this consultative process is proposed under CN 2.

The **project development objective** is to put in place the necessary steps to develop, implement and enforce a national Land Use Plan that recognises the need for climate resilience and balances the cross-sectoral aspirations of all relevant stakeholders. The Land Use Plan would provide an environment to achieve rational, efficient, economical and equitable use of resources in The Gambia, considering future growth and development. The Plan would specifically address the relocation of the government functions currently within Banjul, as well as provide a coherent vision and framework for addressing coastal resilience.

Pillar 2 consists of seven inter-linked components, with associated activities, as detailed below. Each component could run concurrently, with immediate commencement of some sectoral data gathering activities on receipt of funding and commencement of other activities on agreement of a management framework to coordinate activities.

*Component 1: Data gathering to inform climate resilient land use planning*

*Component 2: Establishment of a central information management system based on GIS*

*Component 3: Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the existing situation*

*Component 4: Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development, and governance*

*Component 5: Cross-sectoral updating, development and publication of relevant Policies and Acts taking account of climate resilience in addition to other national development objectives*

*Component 6: Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact*

*Component 7: Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions*

Please see **Concept Note 2** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

***Pillar 3: Developing climate resilient infrastructure, services and energy systems***

Pillar 3 of the SPCR consists of an integrated programme designed to enhance the climate resilience of the urban areas in The Gambia – namely the Greater Banjul Area (GBA) and the growth centres – while also covering infrastructural issues beyond the urban areas. Specific components include developing climate-resilient integrated waste management, addressing the associated need for climate resilient roads and drainage systems, and actions to climate proof water supply and sanitation infrastructure, as well as energy infrastructure. Livelihoods opportunities associated with renewable energy, waste management and urban agriculture will be supported, particularly for women, youth and disadvantaged groups, including differently abled people. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable.

The **project development objective** is to put in place a series of steps and develop systems to promote climate resilience in the urban areas of The Gambia, through actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes; and to promote associated livelihoods opportunities, particularly for women, youth and disadvantaged groups, including differently abled people.

Note that CN 3, while addressing many of the urban resilience challenges in The Gambia, is not purely urban, but has a national scope – for example, the roads and drainage elements apply to rural roads as well.

Pillar 3 consists of five main components:

*Component 1: Climate-resilient integrated waste management*

*Component 2: Climate-resilient water and sanitation*

*Component 3: Climate resilient roads and drainage infrastructure*

*Component 4: Climate resilient energy infrastructure*

*Component 5: Support to urban agriculture*

Please see **Concept Note 3** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

***Pillar 4: Developing integrated approaches to build rural climate resilience in The Gambia***

Pillar 4 of the SPCR constitutes a holistic programme of investment with an integrated set of components designed to support and develop the climate resilience of the rural and peri-urban areas in The Gambia. Specific components include developing the resilience of small scale farming against future climate impacts; addressing the “Sahelization” of ecosystems in The Gambia; rehabilitating and managing the buffering coastal ecosystems, and involving the private sector for promoting and strengthening the resilience of communities’ livelihoods in the Gambia. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable. The programme would also have a focus on the elderly and disabled, where appropriate, and include research and development as a crosscutting issue.

The **project development objective** is to develop systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia, through developing climate resilient small-scale agriculture and livestock, community-based approaches to forest and natural resource management, and promotion of resilient livestock, agro-forestry and fisheries value chains and markets.

Pillar 4 consists of four main components:

*Component 1: Enhancing the resilience of small-scale farming against future climate impacts*

*Component 2: Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small-scale farming, livestock and wildlife sub-sectors*

*Component 3: Supporting the planning, rehabilitation and management of buffering coastal ecosystems to build the resilience of fisheries and tourism development in The Gambia*

*Component 4: Private sector involvement for promoting and strengthening the resilience of communities’ livelihoods in The Gambia*

Please see Concept Note 4 in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

**Financing Plan**

In the context of a limited government budget that is largely dependent on the tax economy, alternative financial sources are inevitable for The Gambia to finance the SPCR. Therefore, the use of market mechanisms as well as enhanced resource flows of international climate finance, as stipulated in the National Climate Change Policy (2016), will be required to promote investment in climate-resilient and low carbon development.

The financing plan provides some indicative cost estimates for the SPCR programme implementation. This costing is broken down in Table 1 below according to these pillars, for the short, medium and long term.

**Table 1: Short, Medium and Long Term Cost Estimate for Financing SPCR**

Programme Components / Pillars of the SPCR	Total Cost (US\$)	Short Term (US\$) (0-5 years)	Medium Term (US\$) (6-10 years)	Long Term (US\$) (11-25 years)
Pillar 1: Developing the enabling environment for climate resilience	<b>28,850,000</b>	11,060,000	11,000,000	6,790,000
Pillar 2: Climate resilient land use mapping, planning and information systems	<b>45,000,000</b>	40,000,000	2,500,000	2,500,000
Pillar 3: Climate resilient infrastructure, services and energy systems	<b>169,000,000</b>	50,000,000	69,000,000	50,000,000
Pillar 4: Developing integrated approaches to build rural climate resilience	<b>73,000,000</b>	20,000,000	30,000,000	23,000,000
<b>Total Financing costs:</b>	<b>315,850,000</b>	<b>121,060,000</b>	<b>112,500,000</b>	<b>82,290,000</b>

**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts. The delineation into short-, medium- and long-term amounts is also subject to detailed programming and sequencing of investments.**

Some of the strategic interventions identified build upon existing development interventions with funding from the government, as well as development partners such as the Green Climate Fund (GCF), IFAD, UNEP, UNDP and others. In order to effectively address the identified strategic interventions, substantial amounts of additional funding will be required in the long term, given the significant existing adaptation deficits identified in the gap analysis. Climate change will exacerbate existing challenges resulting from fragile and degraded ecosystems, poor planning and insufficient environmental governance. The major mechanisms through which the necessary additional funds may be obtained include the following:

- **National budget:** The mainstreaming and integration of climate change issues into the national development agenda means that national budget allocations are necessary to support the implementation of existing climate change policy priorities. These national budget allocations will be tracked using budget coding and used to leverage the finances originating from external sources to cover the additionality related to climate change.
- **Dedicated funding from bilateral and multilateral sources:** The available sources of external funding for adaptation and mitigation are diverse and expected to increase, resulting from positive donor responses to recent political changes, and include for instance: the EU Global Climate Change Alliance Programme; the World Bank's Carbon Funds and Facilities; the Least Developed Countries Fund (LDCF) of the UNFCCC/GEF; the United Nation's Reduced Emissions from Deforestation and Forest Degradation (UN-REDD) Programme; Climate Investment Funds (CIFs) of the World Bank; the Special Climate Change Fund (SCCF) of the UNFCCC/GEF; the Adaptation Fund (AF) of the Kyoto Protocol (with secretariat at GEF and



World Bank acting as Trustee); the Green Climate Fund (GCF); and the Scaling up Renewable Energy in Low Income Countries Programme (SREP). In addition to those, numerous bilateral development partners have either set up their own climate change bilateral funds and programmes, and/or are mainstreaming climate change support into their development cooperation programmes.

- **Private sector finance and foreign direct investment (FDI):** Private sector players (both domestic and international) can provide investment mainly in the energy and forestry sectors, as well as industry in manufacturing and transport. Private sector sources may be supplemented by public–private partnership (PPPs) funds and grants or soft loans from multilateral financial institutions (MFIs).
- **Carbon markets:** Market-based mechanisms such as the Clean Development Mechanism (CDM) and the REDD+ Mechanism, as well as voluntary carbon market schemes, can provide funds for mitigation.
- **Payments for ecosystem services (PES):** PES is the practice of offering incentives to farmers or landowners in exchange for managing their land to provide ecosystem services, through for example conservation agriculture or ecotourism. PES programmes promote the conservation of natural resources in the marketplace, including, for instance, the integration of innovative financing through appropriate taxes, polluter-pays principle, levies and tariffs.

Annex 7 provides a summary of some of the financing sources and mechanisms.

Operationalizing the Gambia Climate Change Fund, as discussed under Pillar 1 and in the associated Concept Note 1, is a critical and early step in further developing the resource mobilisation strategy for the SPCR.

The costings are only indicative of the direction the country needs to take in implementing the NCCP through the SPCR Programme. It is likely that, owing to the unpredictability of the impacts of climate change and the existing gaps in financial data for the country's climate change needs, the required financial input might be higher than projected to transition the country onto a sustainable climate-resilient development path. Given the significant capacity constraints identified by the GoTG and numerous studies, expected challenges in coordinating the implementation of the SPCR investment programmes in a sustainable and effective fashion will need to be overcome, as set out in the capacity development provisions of Concept Note 1.

### **Implementation arrangements for the SPCR**

Given a certain amount of flux in the country at the moment, as a result of recent political changes, additional steps will need to be taken in order to fully develop the implementation arrangements for the SPCR. Thus, in the interim (i.e. the next four to six months), high-level oversight will need to be provided through the multi-stakeholder Technical Team set up to oversee the SPCR preparatory process. A priority was to formalise the NCCP, in order to have a concrete basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses – this has now been achieved, as the NCCP was adopted by Cabinet in early August 2017. In the interests of mainstreaming, it would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was

formalised and the key institutions – the National Climate Change Council (NCCC) and the Inter-Ministerial Committee on Climate Change (IMCCC) – were in place.

It will be necessary for the MoECCNAR to have a recurrent budget line to fund regular sittings of the NCCC, the IMCCC and the existing National Climate Committee (NCC), to move away from the frequently experienced situation, across different sectors, in which institutional mandates cannot be effectively achieved, as institutions have been reliant on ad hoc project funding.

The NCCP sets out the rationale for, and respective functions and attributes of the different institutions mentioned above. Thus the NCCC is tasked with governing the GCCF, which is proposed to be housed in the Ministry of Finance and Economic Affairs (MoFEA). The GCCF will play a central role in the implementation arrangements for the SPCR. Thus an additional critical step, to be taken at the first meeting of the National Climate Change Council, would be to establish a sub-committee to manage the GCCF. A key task for that committee would be to set in motion the process to operationalize the GCCF without delay.

As set out in the NCCP, the main objective of the GCCF shall be to integrate national and international sources of funding; facilitate the use of national systems and institutions in channelling resources, and in planning and implementing climate change responses; and in funding nationally-owned and driven programmes, that are consistent with Vision 2020 and other national development strategies. The SPCR defines the significant costed and time-bound investment programmes that will be put in place in The Gambia, in order to implement the NCCP, and as such, is in fact being seen as the National Climate Change Response Strategy and Action Plan for The Gambia.

The TACs and MDFTs at regional and district level are key institutions that will be involved in SPCR implementation and monitoring, playing a critical role in facilitating community-based adaptation in The Gambia, which will be the major mechanism for scaling up enhanced adaptive capacity and resilience. Ongoing, comprehensive and adequately resourced climate change capacity development for the TACs and MDFTs is thus a priority. In addition, as the NCCP requires, steps will need to be taken to enhance the ability of NGOs to play a stronger role in supporting community-based adaptation. An important step in developing the Long-Term Climate Change Capacity Development Strategy (LT-CCDS) of the SPCR programme (Concept Note 1) will be to discuss and agree the goals and activities with NGO and CBO stakeholders, and with the private sector, including the hospitality industry.

Each of the four investment programmes of the SPCR would undergo similar stakeholder and institutional mapping to formulate the optimal implementation arrangements required, under the umbrella of the NCCP. Given the likely increase in donor support, it would be important that donor coordination be assured at a higher level than project steering committees, to effectively circumvent duplication and overlap before projects addressing climate resilience are fully developed.

### **Results framework, monitoring, evaluation and reporting**

The SPCR includes a provisional overall results framework in Annex 11, consistent with the requirements of the CIF-PPCR, which summarises outcomes, including both transformation impacts as well as expected results. As the more detailed planning of the SPCR proceeds, in terms of developing the Concept Notes into detailed project proposals, the results framework will need to be updated, in line with revisions to the logical frameworks contained in each of the Concept Notes.

Concept Note 1 would support the development of a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems. PAGE II envisages a legal and regulatory framework guiding planning and M & E activities, senior-level commitment and the means to engage all sectors within government. In addition, specific government budget lines where climate change interventions are identified would allow for budget tracking, tagging and coding. Effective linkages would be developed between the climate change M, E & R system and the climate change budget coding and scoring system.

The National Climate Change Council, to be established, would have responsibility for monitoring overall progress, and making mid-course corrections where necessary. The Planning Unit in collaboration with the Central Project Coordination Unit of the MoECCNAR would ensure that all climate change related projects and programmes submit reports in line with the M, E & R system to be developed.

### **PART 3: CONCEPT NOTES**

Four Concept Notes (CNs) have been developed, one for each of the integrated investment programmes defined for The Gambia under this SPCR. These are contained in Volume II of the SPCR report. Each CN provides for credible opportunities to mainstream gender, youth, health and tourism issues into project activities.

Each CN has the following structure:

- i. Title and brief summary of the investment
- ii. Background and justification
- iii. Project development objective
- iv. Link to national adaptation and /or mitigation objectives
- v. Project components and activities
- vi. Implementation arrangements
- vii. Estimated cost and provisional financing plan
- viii. Logical framework

It was not possible within the condensed timeframes of the SPCR preparatory process in The Gambia to develop a cost-benefit analysis for each CN, nor was it considered feasible for a number of the components. Cost benefit analyses could be included in the full project proposals that would be developed by the GoTG at a later stage, as a requirement for more detailed planning and resource mobilisation.

### **PART 4: ADDITIONAL ANALYTICAL STUDIES AND WAY FORWARD**

#### **Additional analytical studies**

The following key additional analytical studies, highlighted through the gap analysis process and defined by the consultations, have been identified:

1. Development of Climate Change Scenarios for The Gambia, based on the CMIP-5 and CORDEX-Africa data sets

2. Comprehensive analytical study to understand climate change impacts on health in The Gambia, using the Health Management Information System (HMIS) and climate data available in the country
3. Feasibility study to assess best available options for managing excess runoff and preventing flooding in The Gambia
4. Review of Climate Finance and Establishment of Emerging New Innovative Financing Mechanisms including: Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance to Attract Private Sector Participation in SPCR

Study 1, which will develop an updated set of climate scenarios for The Gambia, should be completed first, and without delay, as this is an essential input into Studies 2 and 3, and will provide valuable background for Study 4. A Terms of Reference is provided for each the four studies in Annex 8. The additional studies should be seen within the context of the proposals in the NCCP, which have been taken up in Concept Note 1 of this SPCR, to develop a National Research Framework on Climate Change.

### **Way forward**

Following the programming phase, the SPCR will be submitted for approval and endorsement of the investment plan, after which work will shift toward implementation and making the projects a reality. As indicated in section 2.5, the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses would most appropriately provide overarching oversight of the SPCR, and would furthermore need to provide final direction and agreement on the more detailed oversight arrangements for the SPCR investment programmes. The GoTG would as a priority need to formalise the draft NCCP, in order to have a concrete basis for initiating the required institutional mechanisms that will oversee the SPCR.

In the interim, the proposed SPCR nevertheless includes a number of immediate actions and ‘quick wins’, some of which are indicated in the ‘Next steps’ section (Part 4). Important quick wins lie in formalising the National Climate Change Policy (NCCP) and setting up the Gambia Climate Change Fund (GCCF), with associated budget coding and tracking registry, which will be a key mechanism for leveraging additional resources into the SPCR.

The SPCR will be financed with a blending mechanism to increase leverage effect and therefore impact. Thus the GoTG as a matter of priority would need to identify key financial partners and begin preliminary discussions with them in this regard. Establishing the climate resilience budget coding and tracking registry would assist with leveraging contributions from donors.

The next steps therefore include:

- When additional funds are available, should the extension for the SPCR development applied for by the MoECCNAR to the CIF be granted, carry out a sensitisation process, with adequate resources and time, for stakeholders in all of the regions on the SPCR documents and concepts, as part of expanding the existing National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR), which is an important activity in Concept Note 1.

- Obtain Cabinet approval of the NCCP, ideally before June 2017, so that this can be included in discussions of budget allocations for sitting of the key institutions, inter alia, for the 2018 financial year – this has been achieved, with the adoption by Cabinet of the NCCP in early August 2017.
- MoECCNAR to commission the additional analytical studies identified in the SPCR without delay, so that these can be inputs into further SPCR planning and early implementation.
- Establish the key institutions of the National Climate Change Council (NCCC) and the Inter-Ministerial Committee on Climate Change (IMCCC), under the NCCP.
- At the first meeting of the National Climate Change Council, establish a multi-stakeholder sub-committee of no more than 12 people with clear Terms of Reference to manage the Gambia Climate Change Fund (GCCF).
- Operationalise the GCCF and begin resource mobilisation through this mechanism.
- GoTG to adopt the climate-integrated SEA policy and guidelines, which are needed for use in the legislative and policy review actions of the SPCR, as well as for applying SEA to the entire SPCR, once further streamlining and phasing of the Concept Notes has taken place.

In the interim (i.e. the next four to six months), high-level oversight should be provided through the multi-stakeholder Technical Team set up to oversee the SPCR preparatory process, and discussions should continue with all stakeholders, including civil society, the private sector and development partners, on fine-tuning the SPCR and the Concept Notes. Initial discussions with potential funders on supporting aspects of the SPCR should be an immediate priority. The specific role of the NAP process in supporting a sub-set of planning-related interventions in the SPCR should also be clarified in the interim.

## Structure of the SPCR Report Volume I

- Sections 1.1 and 1.2 of Part 1 of the Volume I report set out the background and summarise the participatory process used to develop the SPCR.
- Section 1.3 summarises the country context, setting the scene for the discussion of the nexus between development and climate variability and change contained in section 1.4.
- Within section 1.4, section 1.4.2 sets out the observed and projected climate, based on available observations and the existing climate projections studies.
- Section 1.4.3 provides a discussion of the observed and projected impacts and vulnerabilities for the climate resilient food and landscapes thematic area. This includes agriculture (crops and livestock), food security, fisheries and aquaculture, forestry and natural resources, including water, biodiversity and wildlife.
- Section 1.4.4 provides a discussion of the observed and projected impacts and vulnerabilities for the thematic area concerning managing coastlines in a changing environment. This includes climate-aware Integrated Coastal Zone Management (ICZM) including coastal erosion management, and covers relevant River Gambia issues.
- Section 1.4.5 provides a discussion of the observed and projected impacts and vulnerabilities for the thematic area concerning climate-resilient urban and peri-urban infrastructure. This includes waste management, water supply and sanitation, roads and drainage infrastructure, as well as energy infrastructure.
- Section 1.4.6 synthesises information presented in sections 1.4.1 to 1.4.5, to provide an integrated discussion of the complex vulnerabilities of livelihoods, ecosystems, society and economy in The Gambia.
- Within this understanding of a multi-dimensional vulnerability context for people and systems in The Gambia, the sections 1.5 and 1.6 present a gap analysis of climate information and services, and of adaptation and mitigation responses, in order to develop the analytical basis for the SPCR.
- Sections 1.7 to 1.10 contain the status quo assessments of policies and strategies (1.7), institutions (1.8), financial issues (1.9), and monitoring, evaluation and reporting (1.10), to conclude Part 1.
- Part 2 of the SPCR report begins with section 2.1, which contains the long-term vision for climate resilience in The Gambia, followed by section 2.2 that sets out the programmatic approach to building climate resilience of the SPCR, which includes the scope of the SPCR and key challenges addressed, as well as synergies with other programmes.
- The underlying investment programmes are presented in some detail in section 2.3.
- Arrangements for resource mobilization are set out in section 2.4, which contains the Financial Plan for mobilising the necessary investments to fund the SPCR components.
- Section 2.5 considers the institutional arrangements for implementation of the SPCR with a particular focus on (a) mainstreaming, (b) embedding to the extent possible implementation into current institutional arrangements of the country's NCCP; and (c) institutional arrangements and capacity building measures.
- Section 2.6 covers the results framework, and approach to monitoring, evaluation and reporting.
- Part 3 of the Volume I report provides background on the Concept Notes.
- Part 4 of the Volume I report lists the additional analytical studies identified, and sets out concrete next steps.

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## List of Acronyms

ACPC	African Climate Policy Centre
AfDB	African Development Bank
ANR	Agriculture and Natural Resources
ASPA	Agribusiness Services and Producers Association
BCC	Banjul City Council
BOT	Build-Operate-Transfer
CBA	Community-based adaptation
CC	Climate Change
CIF	Climate Investment Funds
CPCU	Central Project Coordination Unit (of the MoECCNAR)
CSA	Climate Smart Agriculture
CSO	Civil society organisation
DIVA	Dynamic Interactive Vulnerability Assessment
DRR	Disaster risk reduction
DWR	Department of Water Resources
DPP	Department of Physical Planning
EbA	Ecosystem-based Adaptation
ECOWAS	Economic Community of West African States
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
EEZ	Exclusive Economic Zone
ENSO	El Niño/Southern Oscillation
EU	European Union
FDI	Foreign Direct Investment
GAFSP	Gambia Agriculture and Food Security Project
GAMWORKS	Gambia Agency for Management of Public Works
GBA	Greater Banjul Area
GBoS	Gambia Bureau of Statistics
GCAA	Gambia Civil Aviation Authority
GCCA	Global Climate Change Alliance
GCCI	Gambia Chamber of Commerce and Industry
GCF	Green Climate Fund
GCM	General circulation model
GCOS	Global Climate Observing System
GD	Gambian Datum (for topographic survey elevations)
GDP	Gross Domestic Product
GEF	Global Environment Fund
GIEPA	Gambia Investments and Exports Promotions Agency
GIS	Geographic Information System
GLFS	Gambia Labour Force Survey
GMD	Gambian Dalasi
GNAIP	Gambia National Agricultural Investment Programme
GoTG	Government of The Gambia
GTB	Gambia Tourism Board
GTHI	Gambia Tourism and Hospitality Institute
ICT	Information and Communications Technology
ICT4D	Information and Communications Technology for Development
IFAD	International Fund for Agricultural Development
IFMIS	Integrated Financial Management Information System
IITA	International Institute for Tropical Agriculture
ILO	International Labour Organization
IMCCC	Inter-ministerial Committee on Climate Change (proposed in the NCCP)
INDC	Intended Nationally Determined Contribution
IPCC	Inter-governmental Panel on Climate Change
IPPs	Independent Power Producers
ISO	International Organization of Standardization
ISRT	Inter-State Road Transit
ITCZ	Inter-Tropical Convergence Zone
IWM	Integrated waste management
IWRM	Integrated water resources management
KMC	Kanifing Municipal Council
LGA	Local Government Area

## The Gambia Strategic Programme on Climate Resilience Phase 1 (SPCR)

LPG	Liquefied Petroleum Gas
LT-CCCDs	Long-Term Climate Change Capacity Development Strategy (proposed in NCCP)
MDGs	Millennium Development Goals
MDFT	Multi-disciplinary Facilitation Team
MoA	Ministry of Agriculture
MoBSE	Ministry of Basic and Secondary Education
MoECCNAR	Ministry of Environment, Climate Change and Natural Resources
MoFEA	Ministry of Finance and Economic Affairs
MoHERST	Ministry of Higher Education, Research, Science and Technology
MoH&SW	Ministry of Health and Social Welfare
MoTIE	Ministry of Trade, Industry and Employment
MoU	Memorandum of Understanding
MoWTI	Ministry of Works and Transport Infrastructure
MSME	Micro Small Medium Enterprises
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NAWEC	National Water and Electricity Company
NCC	National Climate Committee
NCCCS&AC	National Climate Change Communication Strategy and Awareness Campaign
NCCC	National Climate Change Council (proposed in the NCCP)
NCCP	National Climate Change Policy
NDC	Nationally Determined Contribution (to the UNFCCC)
NEA	National Environment Agency
NEMA	National Environmental Management Act
NGO	Non-governmental organisation
NICI	National Information and Communications Infrastructure
NRA	National Roads Authority
OMVG	Organisation pour la Mise en Valeur du fleuve Gambie (Gambia River Basin Development Organization)
PAGE	Programme for Accelerated Growth and Employment
PARCC	Protected Areas Resilient to Climate Change – West Africa programme
PPCR	Pilot Programme for Climate Resilience
PPP	Public Private Partnership
PURA	Public Utilities Regulatory Authority
PV	Photovoltaic
RCOF	Regional Climate Outlook Forum
SDGs	Sustainable Development Goals
SME	Small Medium Enterprises
SPCR	Strategic Programme for Climate Resilience
T&D	Transmission and Distribution
TAC	Technical Advisory Committee
TANGO	The Association of Non-governmental organisations of The Gambia
TBC	To be confirmed
TDA	Tourism Development Area
TGNMS	The Gambia National Meteorological Services
TVET	Technical and Vocational Education and Training
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
V-CARTs	Village Centres for Agro-Forest Resources Transformation
VDC	Village Development Committee
WAPP	West African Power Pool
VISACAS	Village Savings and Credit Association
WB	World Bank
WDC	Ward Development Committee
WHYCOS	World Hydrological Cycle Observing System
WTO	World Trade Organization

## **Part 1 Background and Rationale**

### **1.1 Introduction**

The Gambia is among a second round of countries selected to prepare their Strategic Programme for Climate Resilience (SPCR) under the Pilot Programme for Climate Resilience (PPCR), which forms part of the Climate Investment Funds. To that effect, a US\$1.5 million grant was approved to support the preparation of the SPCR, through the African Development Bank (AfDB) and in collaboration with the World Bank (WB).

The Ministry of Environment, Climate Change and Natural Resources (MoECCNAR) is the national focal point for the PPCR, and the lead government agency to guide the elaboration of the SPCR process. The SPCR preparation grant received from the AfDB is channelled through the Ministry of Finance and Economic Affairs. Other key institutions involved in the PPCR process include the National Environment Agency, the Ministry of Agriculture, the National Disaster Management Agency (NDMA), the Ministry of Petroleum and Energy, the Department of Water Resources, the Department of Forestry, as well as most government ministries and departments, Non-Governmental Organisations (NGOs), Civil Society Organizations (CSOs), and the private sector.

The PPCR adopts a programmatic approach that supports governments to undertake consultations to develop the SPCR in a participatory manner, and aims to support strategic programmes nested in national development goals and strategies for use in climate investment programming. The PPCR is implemented in two phases. Phase 1 involves the preparation of an SPCR, while Phase 2 entails detailed elaboration of and implementation of the investment programmes. Typical activities of Phase 1 include climate risk vulnerability analysis, institutional analysis, awareness raising, capacity building, stakeholder consultations, and investment prioritization. The SPCRs of the second round pilot countries are to be designed to attract funding from a range of different sources of climate or development financing, including the Green Climate Fund (GCF).

The PPCR design recognizes that creating an enabling environment, including integration of climate resilience considerations into development/sectoral planning and strengthened institutions, is essential for successfully responding to climate risks by the public and private sector. The SPCR should therefore outline the government's agreed long-term vision to achieve a climate resilient development trajectory and a critical path to accomplish it, with consideration of vulnerable economic sectors, specific social groups (including women, youth, indigenous peoples, and local communities), and ecosystems. The SPCR thus summarizes the country-driven strategic approach to climate resilience, building on related relevant efforts, and defines the underlying investment programs proposed for support from different funding sources.

The development of the SPCR in The Gambia was launched with a Joint Scoping Mission (from 1-5 February 2016) of AfDB and World Bank and various stakeholders, under the auspices of the MoECCNAR, which identified five priority themes: (i) climate resilient agriculture and rural livelihoods; (ii) climate resilient coastal, transport, and urban infrastructure; (iii) water supply, sanitation, and waste management; (iv) capacity building; and (v) climate services value chain. These priority themes served as a basis for the launching the preparation of The Gambia's SPCR.

This main report is Volume I of a three volume SPCR report. Volume II contains the Concept Notes for the proposed SPCR investments, while Volume III contains Supplementary Material.

## 1.2 Participatory process to develop the SPCR

The programming phase of the SPCR is used to develop a plan that targets investments that reinforce national development priorities. The Gambia's SPCR has been developed through constructive consultations between the country government, development partners and key stakeholders, including civil society, indigenous peoples and the private sector. This inclusive approach has helped to further the understanding of climate change in society.

The work carried out in the SPCR Phase 1 uses the vision, principles and goal of the National Climate Change Policy (NCCP) to guide the overarching approach. However, while the NCCP concerns all sectors of development and society, the SPCR focuses on defining priority investments within the key climate resilience priorities as reconfirmed in the Aide Memoire of the First Joint Mission for the PPCR, 21 – 26 November:

1. **Climate resilient food and landscapes:** Agriculture, food security, forestry and natural resources, including water, biodiversity and wildlife
2. **Low emissions and resilient economy:** Energy, transport, infrastructure, and the key economic sectors of tourism and financial services
3. **Climate resilient people:** Health, education, equitable social development, migration and human settlements, including climate proof urban planning and waste management, climate information and early warning system
4. **Managing coastlines in a changing environment:** climate-aware Integrated Coastal Zone Management, including coastal erosion management
5. **Infrastructure and waste management:** developing climate proof infrastructure, sanitation and solid waste management

Cross cutting issues for the SPCR are:

- Capacity development, including coordination mechanisms and capacity, climate data and services (including short and medium term forecasting), human resources, outreach and awareness raising, and analytical and modelling capacity, ICT, CSO participation, project management, monitoring, evaluation, and reporting.
- Gender, youth, health, and tourism.

In response to feedback provided at the Validation Workshop, additional cross cutting themes of poverty and indigenous knowledge have been emphasised in the SPCR, as well as the vulnerability of the disabled community. The SPCR team has further highlighted the vulnerability of children in The Gambia in general, as well as to the impacts of climate change.

A multistakeholder Technical Team (TT) set up by the MoECCNAR has guided the preparatory process, to ensure a country-driven SPCR and to provide a high-level forum for stakeholder consultation. The TT was constituted through the nomination of climate change Focal Points and alternates from 25 key institutions. The MoECCNAR convened two meetings of the Technical Team during the two-month process to develop the SPCR; Technical Team members were also present at some of the regional consultations, as well as at the National Validation Workshop.

The following is a summary of the extensive consultations process held to develop the SPCR. Please see Annex 2, as well as the Inception Report and the Stakeholder Consultation Plan, for additional details.

Stakeholder/scoping consultations in the Greater Banjul Area (GBA) included meetings with women, youth, indigenous peoples, NGOs and CBOs, as well as government and private sector. Please see Annex 3 for the list of participants in the GBA. Additionally, the SPCR preparatory process included regional consultations held in each of the regions of North Bank Region (NBR), Central River Region (CRR), Upper River Region (URR), Lower River Region (LRR), West Coast Region (WCR); as well as a regional consultation for the Banjul and Kanifing areas. See Volume II for reports on the regional consultations, as well as participant lists. The scoping and stakeholder consultations were extremely useful in identifying key gaps and priorities for the SPCR; thus the SPCR investment programmes respond strongly to stakeholder needs and priorities. The consultations also provided the opportunity for additional sensitisation on climate change risks and realities, as well as information sharing on the aims and approach of the SPCR.

### **1.3 Country context**

The Gambia is a small West African state of 11,360 km<sup>2</sup> situated along the Gambia River, surrounded by the Atlantic Ocean to the west, and the country of Senegal along all other borders. Situated within the Soudan-Sahel, the meridional transition zone between the semi-arid Sahel with the Sahara Desert further north and the more southerly forest regions of West Africa, the country experiences considerable inter-annual and inter-decadal climate variability. Rainfall is largely seasonal, the majority falling during the months of June to October at the time of the most northerly departure of the Inter-Tropical Convergence Zone (ITCZ) across Africa. Much of the rainfall comes from squall lines (lines of intense thunderstorms) associated with systems that form over the Ethiopian Highlands under the influence of the sub-tropical jet stream emanating from the Indian monsoon and thence move westwards; these systems continue out across the Atlantic Ocean, some ultimately forming into hurricanes that may strike the Caribbean or North America. Given this, major factors determining inter-annual rainfall variations over The Gambia are changes in tropical sea surface temperatures in all three ocean basins, a system that includes influences from El Niño/Southern Oscillation (ENSO).

Located on the flood plain of the Gambia River, and flanked by savannah and low hills, the highest elevation is 53 metres above sea level (GoTG, 2012). The country has 80 km of open ocean coast and approximately 200 km of sheltered coast within the tidal reaches of the River Gambia. Its rich biodiversity is due to the combination of its geographical position and the central presence of the River Gambia (GoTG, 2014b). However, habitat destruction as a result of urbanization, cultivation, uncontrolled burning, and wood utilization has led to local species extinction and degradation of ecosystem services. Comparison of the most recent forest inventory against earlier records reveals a declining forest cover from 505,300 hectares in 1981/1982 to 423,000 hectares in the 2009/2010 forest inventory.

The total population in 2013 was approximately 1.9 million, with an annual growth rate of about 3%, linked to a high birth rate and a decline in the infant mortality rate; around 40% of the population is between 13 and 30 years of age (GBoS, 2013). Classified as a Least Developed Country (LDC), The

Gambia is one of the poorest countries in Africa, ranking 165<sup>th</sup> out of 187 countries in the Human Development Index (HDI) in 2013. The GNI per capita is US\$ 450.<sup>1</sup> According to the Programme for Accelerated Growth and Employment (PAGE) I, GDP per capita increased by an average of 4.5% per year from 2008 to 2011. The country retains a high ratio of external debt to GDP (around 43% in 2012).

Despite reducing poverty by almost 10 percentage points over a seven-year period, to a national average of 48.4%, many in the rural areas have not felt these gains: the urban poverty rate is 32.7%, compared to 73.9% in the rural areas (GoTG, 2017). Regional variations in the poverty headcount mean that some areas record extremely high levels: approximately nine out of every 10 households are multi-dimensionally poor in the Kuntaur Local Government Area (LGA), and deprived of over half of the basic needs; similarly, the Janjanbureh LGA has an average poverty headcount of about 85%.<sup>2</sup>

The significantly higher poverty rates in rural areas exacerbate the current rural-urban migration trend (58% urban population currently), which, together with population growth, places high demands on housing, sanitation, food, energy and other services. Unplanned urbanization is currently affecting human health and resulting in significant deterioration in ecosystem services. Moreover, The Gambia shows the second highest share from the West African Region of irregular migration, especially of the youth, to Italy, with 7,765 arrivals between January and August 2016 alone, representing a 40% increase from 2015.<sup>3</sup> Most migrants are reportedly male, between the ages of 18 and 47, and are averagely educated. The vast majority of migrants leaving the country, however, remain within the West African region.

The adult total literacy rate is 52%.<sup>4</sup> While the education sector has abolished all forms of fees and levies in public basic and secondary schools to promote access to education, there are concerns about quality and high drop-out levels: of those who started grade one in 2015, 54% will be expected to reach grade six, 43% grade nine and only about 21% to reach grade 12 (GoTG, 2016). The Gambia has made significant strides in putting in place the legislative and institutional framework to promote gender equality since 2012; however, socio-cultural beliefs and practices continue to hinder the full acceptance of women and their meaningful participation in decision making. Access to land and assets remains limited for women, requiring urgent action.

There is a near total absence of data on disability in The Gambia. Concerning children, this means the number of children with disabilities and the range of their disabilities is largely unknown. Poor nutrition, especially the high levels of stunting, is likely linked to increased disability levels. There is insufficient data on key groups of vulnerable children - migrant children within the Gambia and children living outside family care (Unicef, 2015).

Agriculture remains the most important sector of the Gambian economy, contributing 32% of GDP, and providing employment and income for at least 75% of the rural population. The tourism industry contributes 12% - 16% of GDP, supports over 35,000 direct and 40,000 indirect jobs, and generates US\$85 million in foreign exchange earnings. According to the PAGE II, services accounted for the remaining – and majority - percentage of GDP, with transport, communications, retail and finance being the main components. The fast-growing Information, Communication and

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<sup>1</sup> Source: IFAD, 2014 figures, Atlas method, <http://www.ruralpovertyportal.org/country/statistics/tags/gambia> accessed 13 April 2017.

<sup>2</sup> According to the Integrated Household Survey of 2010 and the Light Poverty study of 2014.

<sup>3</sup> [http://ec.europa.eu/europeaid/sites/devco/files/t05-eutf-sah-gm-02\\_-\\_migration.pdf](http://ec.europa.eu/europeaid/sites/devco/files/t05-eutf-sah-gm-02_-_migration.pdf) accessed 13 April 2017.

<sup>4</sup> Source: IFAD, 2012 figures, <http://www.ruralpovertyportal.org/country/statistics/tags/gambia> accessed 13 April 2017.

Telecommunications (ICT) sub-sector is a major contributor to the services sector. Trade has traditionally played an important role in the economy, with exports largely comprising re-exports; domestic goods account for only 5% of merchandise exports. The country remains an important supplier of foreign-manufactured goods and other essential items to the sub-region. Locally produced goods include groundnuts, and to a lesser extent cashews and fisheries exports.

Approximately 54% of the land area in The Gambia is arable (540,000 ha), out of which about 39% (188,000 ha) is currently farmed, mainly by subsistence farmers; less than 2,000 ha of the 81,000 ha of irrigable land are currently under irrigation (GoTG, 2017). Most rural households do not generate enough produce or income from farming activities to meet annual needs, and therefore rely heavily on ecosystem goods and services derived from woodlands, savannas, wetlands, mangroves and rivers to supplement their livelihoods (GoTG/UNEP, 2016). Despite good efforts, falling cereal production now accounts for only 60% of annual consumption requirements; thus the country relies on food imports, especially for the main staple food of rice.

Poor energy and transportation infrastructure have multiple economic, social and health-related impacts, and result in high logistical costs that burden the private sector and reduce its ability to create jobs. Although above average by Sub-Saharan African standards, the quality of road infrastructure is poor due to maintenance neglect; 82.5% of the network is in poor condition, with resultant high cost of vehicle maintenance (GoTG, 2017). The country has experienced a number of external shocks, including the 2011 drought that reduced agricultural output and economic performance, and the outbreak of Ebola in 2014, which negatively affected the tourism industry.

Within this context, remittances have been increasing for over a decade at a rate of about 12% per annum, currently standing at about US\$181 million per annum, which represents about 22% of GDP; they thus may have potential as long-term capital expenditure sources, particularly for large infrastructure projects (GoTG, 2017). There is untapped potential within the Gambian private sector, which is dominated by Micro, Small and Medium Enterprises (MSMEs), mainly operating in the productive sectors: 97% of businesses have less than 5 employees (formal or informal sector); small firms (5 to 9 employees) make up 2.2% of the private sector; while medium and large firms comprise less than 1% of firms.

The unemployment rate stood at 29.8% in 2012, with the youth unemployment at 38%. Female youth are less likely to be employed or in education, and more likely to be inactive (31% against 27% for male youth) (GBoS, 2012). Increasing joblessness and under-employment is linked to a sense of desperation and helplessness, driving many youth to seek opportunities elsewhere, including illegal migration to Europe. Almost 99% of all domestically employed Gambians are engaged in sectors with extremely low labour productivity; Finance and Insurance is the sector with the highest output per worker (GoTG, 2017). Combined with high poverty and fertility rates, this situation constitutes an extremely challenging development context.

Important transboundary issues considered in the development of the SPCR include the Gambia River Basin Development Authority (OMVG) and collaborative management of the Sambangalo Dam; as well as transfrontier conservation areas.

## **1.4 Nexus between development and climate variability and change**

### ***1.4.1 Introduction to the impacts and vulnerability assessment***

Section 1.4 provides an analysis of the nexus between development and climate variability and change in The Gambia, as a basis for the Gap Analysis that follows in sections 1.5 and 1.6, and upon which the SPCR is based.

Section 1.4.2 sets out the observed and projected climatic changes for The Gambia, after which key vulnerabilities for rural and urban livelihoods, ecosystems and economic sectors are discussed in sections 1.4.3 to 1.4.5. Existing information on climate change-related health impacts and vulnerabilities is integrated into the discussion, to the extent that this is possible, given the limited focus to date on this important cross cutting area. Section 1.4.6 concludes with an integrated summary of key climate-related impacts and vulnerabilities in The Gambia, within the context of the multiple stressor environment within which livelihood, ecosystem and economic vulnerabilities are experienced.

### ***1.4.2 Observed and projected climate***

#### ***Trends in temperatures and rainfall***

There is no doubt that temperatures across The Gambia have increased in recent years. No mention appears to have been made of temperature trends in the First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (2003), but the Second National Communication (2012) comments on an increasing trend of 0.5°C per decade since the 1940s, without suggesting a source for this. This translates to an increase of the order of 3.5°C over the intervening period, which is likely more than observed.

An estimate of 0.21°C per decade is provided by McSweeney *et al.* (2012), converting to an increase of about 1.0°C since 1960, the largest trend being in October-November-December at 0.32°C per decade. This work also provides the only estimate available of adjustments in temperature “extremes” – an increase of almost 8% in the number of “hot nights” (those in the top climatological 10%) between 1960 and 2003. Nevertheless the basic temperature trends suggested are higher than those calculated in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5), with one set of measurements illustrated giving an increase of about 0.8°C and two other sets about 0.5°C, both over the period 1901-2012. According to one of these data sets temperatures decreased over 1911-1940, increased somewhat over 1951-1980, and experienced strongest increases over 1981-2012.

Thus, while there is limited convergence on the rate of temperature change, and there are indications that calculated rates may be dependent on period, it is certain that increases have occurred and that these, according to the IPCC, may be attributed, to a substantial extent, to anthropogenic emissions with a high degree of confidence.

It is certain that rainfall over the country has decreased in recent decades. Graphics provided in the First National Communication to the UNFCCC suggest decreased rainfall in most, if not all, months between the two periods 1951-1980 and 1961-1990, most substantially in July and September; the Second National Communication appears to offer no information in this regard.

Decreased rainfall is noted also by McSweeney *et al.* (2012) between 1960 and 2006 at a rate of about 8.8 mm per month per decade; changes in rainfall “extremes”, such as flood-related or



droughts, may not be calculated according to these authors because of the limited observational data available. Estimates given in the IPCC AR5 are also restricted through limited data, but indications from there are that there has been a downward trend of between about 10 and 25 mm per year per decade over both 1901-2010 and 1951-2010. It should be noted that trends in rainfall as calculated can be substantially sensitive to the period selected for analysis, such is the natural background variability of rainfall on seasonal and inter-annual periods.

Rainfall in The Gambia is part of the Sahelian rainfall system, which has undergone a substantial change from the observed wetter years of the 1950s and 1960s to the well-known Sahelian drought that peaked in the 1980s; there has been some recovery since over the region as a whole. A main driver of changes in Sahelian rainfall has been adjustments in Atlantic Ocean sea surface temperatures associated with the multi-decadal circulation of the global ocean, something that has no immediate association with any recent anthropogenic activities. Thus much of the cause of these rainfall changes over The Gambia has been linked to changes in the overall climate system unrelated to anthropogenic emissions; it is not possible currently to identify whether or not these emissions have exerted any influence on recent trends.

### ***Projections of temperatures and rainfall***

The only approach available for producing climate change projections, other than direct scenario creation, is through the use of climate models run necessarily on powerful computers. There are an increasing number of such models of increasing sophistication. Unfortunately, increasing sophistication does not necessarily translate to improved projections with reduced uncertainties and a decrease in the ranges of temperature and rainfall projections produced; it is worth noting that over successive IPCC Assessments, projections have changed somewhat each time without reduction in general in the ranges of these values. The technical reasons are complex but the outcomes are that any projections need to be treated within a probabilistic rather than an absolute framework and that the greater the number of independent models used to create the probabilistic framework, the higher, in principle, the confidence that might be placed on the results.

In order to provide the greatest possible clarity at this stage on climate projections for The Gambia, a summary has been developed of most of the climate change projections. The nine known sets of projections (excepting those in earlier IPCC Assessments than the AR5) developed to date for country are presented in Annex 5. Annex 5 includes also comments on downscaling of the projections, which according to the IPCC AR5 most likely might assist only along the coastal zone of The Gambia. In general, the number of models used to derive the projections surveyed has increased over time, the greatest number being in the IPCC AR5. Thus, of all assessments summarised, there is no doubt that the richest source of information lies in the projections made for the IPCC AR5, a source still to be examined in detail for The Gambia.

In summary, there is consensus that temperatures will continue to increase, although only broad ranges can be offered as to the magnitude of any changes. Certainly the lower the emissions the less the temperature increase is likely to be, with success under the Paris Agreement limiting increases to perhaps around 1°C according to the IPCC AR5 ensemble mean. Failure of the Paris Agreement probably may expose the country to larger increases. Almost certainly other temperature-related parameters will adjust accordingly, including increases in the numbers of “hot” days and nights and the length of heat waves.

For rainfall the picture is less certain, with models projecting both increases and decreases without evident consistency; greatest changes are not necessarily under the highest emissions and do not necessarily increase through the century. There are suggestions that days/periods of higher rainfall may produce increased rainfall, and hence a higher flooding risk, but not all projections accord; both increases and decreases in drought frequencies are foreseen, with perhaps a slight bias towards increases.

Rainfall is a key parameter in adaptation planning, and the relative lack of consistency between the available projections, an issue not restricted to The Gambia, signifies a need to plan appropriately so as to avoid maladaptation. Prior planning for The Gambia often has been based on early projections in which reduced future rainfall, and increased frequencies both of droughts and floods, had been assessed. More recent projections do not remove those possibilities, but do not confirm that they are not necessarily correct. A detailed examination of the IPCC AR5 projections would assist, as noted above, and the proposed Study 1 in Annex 8 covers this. Until greater detail is available a low regrets approach to planning adaptation should be considered, taking into consideration the increasing awareness that adapting to current climate variability provides a significant first step towards adapting to future climate change.

Box 1 present summaries of the two most recent climate projections studies examined. Please see Annex 5 for additional detail on the earlier projections studies, and for a note on downscaling in The Gambia and Senegal.

**Box 1 Summary of recent climate projections studies for The Gambia**

***The IPCC AR5 (2013)***

- The IPCC provides a number of details of ensemble means and distributions for several parameters of projections from about 16 climate models (RCP2.6 and RCP6.0) to up to nearly 40 models (RCP4.5 and RCP8.5), but with no specific information for individual countries
- As a general rule, projected temperatures increase more with higher emissions (RCP2.6→RCP8.5) and later in time, reaching over 7°C in the ensemble mean for interior Gambia by the end of the century under RCP8.5 (less than 1.0°C under RCP2.6)
- For rainfall under RCP8.5 the main pattern in the ensemble means is for decreases except in SON

***PARCC Policy Brief (uses UKMO projections) (2016)***

- Downscaling by RCM of projections from 5 GCMs (unspecified) to end of Century
- Temperatures to increase in the range 3.0°C to 4.5°C, greatest inland
- Low confidence in rainfall projections but suggests a range of decreases of 40% to 60%, but to be used only with caution

Even at the regional scale, the most recent climate scenarios are only coherent where it concerns temperature evolution - with an expected increase for West Africa of between 1.5 and 4 °C by 2050. Night time (minimum daily) temperatures are expected to increase at a faster rate than day time (maximum daily) temperatures, and the number of heatwave days each year is also projected to increase significantly. The projected changes in rainfall trends by the 2050s are however far less certain: for large parts of West Africa, climate models do not agree on whether rainfall will increase

or decrease, and in many cases, models show significant trends in both directions ranging from -40% to +20% for example (Future Climate for Africa, 2016).

### ***1.4.3 Impacts and vulnerabilities: climate-resilient food and landscapes***

#### ***Baseline Climate Scenario of The Gambia***

Long-term weather records from the capital Banjul indicate a shift in the rainfall pattern, in part related to adjustments in the circulation of the Atlantic Ocean as noted in Section 1.4.2. According to one estimate from 1950 to 2006 annual rainfall amounts have decreased by about 30% at an average rate of 8.8 mm per month per decade between 1960 and 2006 (see 1.4.2). A possible decrease has been noted in the reduction in the length of the rainy season and also the quantity of rainfall amounts recorded in the month of August, particularly during the period 1968 to 1985 (the period leading to the peak of the Sahelian drought), and in the drought year of 2002. The rainfall pattern during the last three decades of the 20th century has been one of devastating droughts alternating with periods of intense rainfall resulting in numerous flooding events, closely following the average Sahelian pattern of rainfall variations. This rainfall pattern appears to have impacted the farming system by reducing the length of growing period (LGP), and to have introduced a mid-season dry spell that creates drought conditions for farming purposes even during years of normal rainfall.

There have been at least five significant intense drought episodes (1968, 1972, 1977, 1983 and 2002) between 1951-2007, the worst occurring in 1983. There was significant rainfall reduction in two of these events (1983: 479.50 mm and 2002: 577.95 mm respectively) when compared to the highest recorded rainfall of 1425.67 mm/year (occurred in 1958) (GoTG/UNDP, 2015). The observed drying together with other contributing factors, such as the human impacts of overgrazing and deforestation, has been associated with an increase in the frequency and intensity of dust and sand storms across the farm land and woodlands lands of the Gambia, with negative impacts on agriculture by eroding fertile soil and uprooting young plants, disrupting the flowering cycle in fruit trees and enhancing potential evaporation and evapotranspiration, and potentially increasing the spread of disease pathogens. Nonetheless this “Harmattan” dust from the Sahara has been found to contribute as much as 50% of the nutrients within the humid tropical rainforests of coastal West Africa (Stoorvogel et al., 1997).

#### ***Temperature and rainfall risks***

Temperature is projected to increase by between about 1°C and over 7°C in the various IPCC AR5 ensemble means for the interior of The Gambia by the end of the century, and any increase will almost certainly include an increase in the numbers of “hot” days and nights and the length of heat waves. However, planning for the SPCR should bear in mind that temperature increases may well be on the higher end of that spectrum. Recent research indicates that the Earth on average could be 1.5 degrees Celsius warmer as early as 2026, relative to the 1850-1900 period, due to a switch in the Interdecadal Pacific Oscillation (IPO), a natural cycle in the Pacific Ocean that may have provided a “temporary buffer” to the effects of greenhouse gas emissions, reducing extreme events such as heatwaves (Henley and King, 2017).

In addition, there is a possibility that there will be an increase in the inter-annual variability of rainfall amounts in the Gambia (see Section 1.4.2). As noted in Box 1, some projections suggest a

range of rainfall decreases of 40% to 60%, but under low confidence and thus to be used only with caution. Some GCMs project increasing rates of evapotranspiration. There is a justified concern that this may result in more frequent extreme events, namely more frequent and intense heat waves in the case of temperature (likely) and droughts and floods in case of rainfall (more uncertain). Flooding events include flash floods immediately following an abnormally heavy rainfall event, which are compounded by inadequate planning and storm water management infrastructure in urban areas. Catastrophic seasonal floods may also occur along the River Gambia after an above average rainy season. Adverse effects of changes in temperature and rainfall on forests include drying: modelling results suggest that The Gambia's forest cover will fit more into a dry forest and tropical dry forest categories which will have biodiversity impacts as well as impacts on sensitivity to fires and land degradation.

### ***Sea Level Rise risks***

With approximately 50% of the total land area being less than 20 m above sea level, and about 33% of the country below 10 m above mean sea level, The Gambia is one of the most vulnerable countries in Africa to the adverse impacts of climate change. Any substantial global warming-induced sea level rise could immerse the capital city, Banjul, as well as important agricultural areas.

According to the IPCC AR5 global mean sea level rise, as the 5% to 95% range across all projections, has a minimum of 0.26 m under the lowest emissions scenario to a maximum of 0.98 m under the highest emissions scenario; significant additions to these values through catastrophic events such as ice shelf collapse have to date been thought unlikely during this century. However, Dynamic Interactive Vulnerability Assessment (DIVA) model projections indicate significantly higher sea level rise in The Gambia than the IPCC predictions of 0.13 m in 2025, 0.35 m in 2050, 0.72 m in 2075 and 1.23 m in 2100 (in comparison with 1995 levels) (Brown et al., 2011). A one metre rise in sea level would inundate 60% of mangrove forests, 33% of swamp area and 20% of rice growing areas, assuming no protection. Areas in the Upper River end of the country would also be affected. Saline water would infiltrate ground water aquifers, especially considering that the Gambia sits on top of a shallow sand aquifer with depths of between 4 and 50 m (GoTG/UNDP, 2015).

While a one-metre rise in sea level is at the top end of the IPCC AR5 projections, recent updated global sea level rise analyses indicate an upper extreme bound of 2.5 metres sea level rise by 2100, with one metre being seen as an intermediate scenario (NOAA, 2017). Moreover, recent research factoring in the role of waves indicates that worldwide, rising sea levels driven by global warming are on track to significantly boost the frequency of coastal flooding, which is caused by severe storms and exacerbated when large waves, storm surge and high tides converge, by mid-century, especially in tropical regions: the study found with 95% confidence that an added 5-to-10 centimetres will more than double the frequency of flooding in the tropics (Vitousek et al., 2017).

The projected increasing in temperature and possibly rates of evapotranspiration coupled with a plausible increase in drought frequency and expected (and ongoing) sea level rise will certainly affect freshwater water resources quantitatively and qualitatively in the country. Small surface water bodies would be hardest hit but the River Gambia would be expected to suffer greater saline intrusion from lower recharge as surface evaporation increases as well as being impacted from any changes in rainfall patterns. Other potential negative impacts on surface water quality could be due to surface run-off of agricultural chemicals, which would be exacerbated by heavier rains with risks of eutrophication and health effects from nitrate leaching into drinking water. The burden of ill

health from increases in vector borne diseases is another risk, particularly in riverine locations further inland.

Overall, predicted changes in climate and continuing inter-annual variability will present important short-term and long-term challenges to development efforts in the Gambia, not least if the possible increases in the frequencies and intensities of short-term extreme climate events, such as windstorms, rainstorms, droughts and dust storms, occur. Land use and land cover change, sea level rise, and coastal erosion present significant long-term challenges.

### ***Vulnerability and Climate change impacts on natural resources in The Gambia***

The Gambia's climate is of a Sahelian nature, characterized by high variability in the amount and distribution of annual precipitation and clear increases in temperature in recent decades; there are recurrent drought episodes and dust storm events. Additionally, climate change impacts through sea level rise have been exacerbated by anthropogenic drivers that reduce the resilience of coastal ecological and geomorphological systems. The low-lying topography, combined with the high dependence on subsistence rain-fed agriculture, and inadequate drainage and storm water management system in a context of rapidly expanding un-regulated urban expansion has placed The Gambia among those countries most vulnerable to climate change according to the IPCC. In summary, the reasons for Gambia's vulnerability are manifold which mainly include:

#### ***Agriculture sector***

Agriculture accounts for approximately one-third of GDP, and meets about 50% of the national food requirements and 70% of the country's total exports, thus constituting a substantial part of The Gambia's foreign exchange earnings, according to the Gambia National Agricultural Investment Plan 2011-2015 (GNAIP) (GoTG, 2010). Agriculture is dominated by subsistence rain-fed crop production and traditional livestock rearing, with only about 6% of the irrigation potential having been used (GoTG, 2010). There are around 69,100 farm households with some 500,000-people engaged in farming. Currently, approximately 39% or 188,000 hectares (ha) of the total arable land is cultivated (GoTG, 2017). About 30% of the total cultivated area is devoted to the production of key crops, of which cereals make up 51.6%, with the remaining 48.4% under cash crop oil seeds, namely groundnut and sesame. Groundnut is the single most widely grown crop, occupying about 44% of the area, followed by millet at 32%. Yields are generally low, varying from year to year depending on rainfall. Horticultural production, which is a significant dry season farming activity, is presently an established key source of rural income, engaging over 65% of the agricultural labour force.

Agriculture is primarily rain-fed, with less than 2,000 of the potential 81,000 ha under irrigation (GoTG, 2017). The sector is thus highly vulnerable to variability in the amount and distribution of rainfall, with yield of some major crops fluctuating as much as 100% from year to year. Since the 1960s, yields of these crops have decreased as much as 30%, which is attributed to reductions in Sahelian rainfall, as well as low use of improved technologies and declining fertility of soils due to widespread land degradation (GOTG, 2003). Rice cropping taking place under tidal irrigation in the lower saline stretches of the river is already facing considerable disruption due to high levels of salinity. On the other hand, upland crop production of groundnuts is being affected by low soil fertility rates and an increasingly drier environment due to less rain, higher evapotranspiration and apparent increased frequency and intensity of "harmattan" related dust storms. Those climate change projections with scenarios of increases in drought frequency would, if correct, further

impose uncertainty in crop production in The Gambia, lowering crop yields unless appropriate irrigation technology is developed, coupled with climate-smart agriculture interventions.

### ***Livestock sub-sector***

Livestock production is an important activity carried out nationwide by almost all rural households. This sub-sector is estimated to contribute 5% to GDP, and possesses potential to increase this level significantly. The most valuable assets in the sub-sector are: Cattle totalling about 300,000 head; Small ruminants comprising sheep (160,000) and goats (230,000); and poultry, which is an important source of quality animal protein (especially due to its short production period). The demand for animal products in Sahel and West Africa is expected to increase by more than 250% by 2025 (SWAC-OECD/ECOWAS, 2008). Since regional production of animal products is less than demand, imports will need to grow for some countries in the region – hence the potential for export. The equine population (horses and donkeys) has dramatically increased in numbers and significance in view of their role as a source of animal traction and farm transportation; this has been enabled by the successful tsetse fly eradication.

Production of livestock is predominantly traditional. Some products, particularly commercial poultry, are not price-competitive with cheaper imports, primarily because of the relatively high costs of imported feeds and drugs. Cattle production has been constrained by similar factors: scarcity of feed and water during the long dry season, aggravated by rampant bush fires which consume most of the standing hay, crop residues and by-products to feed cattle; high incidence of diseases, including internal and external parasites; low genetic potential for milk production; inadequate access to, and high cost of inputs e.g. drugs, vaccines and credit; inadequate and inefficient infrastructure for processing; limited private sector involvement; weak extension and research services coupled with poor linkages with the private sector; weak or non-existent community-based organisations (CBOs) i.e. Livestock Owners Associations, which could enable their members to take full advantage of potential value chain opportunities.

There is significant potential for commercialization of livestock enterprises (cattle and short-cycle animals) to satisfy increasing demands for meat and dairy products from within the country, especially the tourist and entertainment industry and urban consumers, as well as exports to the sub-region. Livestock holds the potential to provide and improve on-farm power sources (mechanization and draught) available for land preparation and transportation of bulk produce from production to assembly areas. The 1993/94 Census found there were 77,559 animals (oxen, donkeys, horses, cows and mules) providing draught power, and 87,862 such animals were recorded in the NAS Survey in 1998.

Rangeland occupies 40% or 400,000 ha of the country's total area of which about 60% (or 240,000 ha) is used for pasture-practicing transhumance. Degradation and depletion of rangeland resources threatens the growth of the livestock sub-sector and exacerbates degradation of the natural resource base. The projected increase in temperature, evapotranspiration and, according to some climate models, simultaneous increase in extreme rainfall events (droughts and intense rainfall) will affect feed and water availability in the livestock sub-sector. Temperature and moisture effects under a changing climate will reduce nitrogen uptake in the rangelands, which translates to low palatability of the vegetation for animals and thus low productivity of livestock. In addition, due to soil compaction, overgrazing and forest overexploitation along the transboundary transhumance routes, land degradation will be accentuated, unless countermeasures are adopted.

Animal health, as well as human health, is directly and indirectly affected by climate change. According to the IPCC projections for some regions of Africa, and in particular those expected for The Gambia (see Section 1.4.1), with increasing temperatures as well as potential extreme precipitation events, an increase in the spread of animal diseases is expected. A specific problem will be the effects of climate change on the ecology and dynamics of disease transmission. Significant changes in host distribution, density and availability to existing pathogens resulting from climate change can translate into the onset of disease in animals and the man-animal interface. A pathogen can: (i) find access to new host territories and ecosystems; (ii) make the host more aggressive in places where hosts have become more abundant and / or immuno-compromised; or (iii) perform a series of host species jumps, as a possible response to enhance the host species mixture or contacts.

### ***Forestry sector***

Forest resources including mangroves cover from 350,000 ha to about 505,300 ha (43%) of the country, according to the Participatory Integrated Watershed Project (2004) and the GNAIP (GoTG, 2010). While the exact contribution of forestry to GDP is not established but assumed to be low - about 1% of GDP (although this is probably an underestimate as it does not account for forest ecosystem services – Natural Capital Accounting approach), it appears to be rapidly positioning itself to make significant contributions to poverty reduction in the country, in areas of its comparative advantage. An initial target of the GoTG was to achieve a forest cover of 30%, with 75% of the cover to be managed by communities and the private sector. In addition, government has declared 222,000 ha as forest reserves, 40,000 ha as forest parks, and 18,000 ha as community forests. More recently the Forestry Policy (2010-2019) advocates for the transfer of 200,000 ha of forestlands to communities. Significant efforts had been put into reducing bush fires, but the increasing demand for fuelwood and charcoal to meet domestic energy needs remains an important challenge to protecting forest cover. Earlier findings (Bojang et al., 2005) indicate that contraction of forest area and degradation of forest quality owes more to human activities than to other causes, but these impacts are likely to be magnified by climate change and variability, which will impact woodland ecosystems in many ways.

Forests are clearly under severe pressure from rural people who cut down trees for their use as fuelwood and charcoal, the major cooking fuels used by the majority of the population. Fish smoking is also a threat in fisher villages. Furthermore, there is regular encroachment into forests and virgin lands when the fertility of farming grounds is exhausted (mostly through inadequate land use and lack of technical knowledge on soil improvement, use of composting and mineral fertilizers, practice of rainwater harvesting, etc.), or when farmers want to increase their production. Farmers are largely not knowledgeable about agroforestry. Fortunately, from a deforestation point of view, the wood industry is not well developed in The Gambia. It is clear that the major anthropogenic source for forest degradation is the constant logging that takes place to supply 85% of the energy consumed by the Gambian population, which comes from woody biomass from the forests and rangelands. The dependency on forests to meet the cooking fuel needs of the population is so great that charcoal production in The Gambia has been steadily increasing over the years, reaching over 60,000 tons in 2014 alone (FAOSTAT, 2015). This represents a driving force for rapid depletion of the vegetation cover of the country. In the absence of any compensatory measures to reduce this continuous logging of forests and mangroves, climate change will have additional impacts, thus further imperilling wildlife habitat and perpetuating the loss of valuable genetic resources. It must

be noted that charcoal production is illegal in The Gambia. It is also not clear how much of the charcoal consumed in the country comes from beyond the borders.

In addition to fuelwood, forest products include timber, palm oil, wild fruits, honey, and woodcarvings. Forests also provide important potential revenue sources through ecotourism, forest-based enterprise development, as well as conferring habitats for wildlife and fish.

Direct climate change impacts will come through the effects of sea level rise. Should the rise be at the upper end of projections of about one metre then it would potentially inundate 6,500 ha of woodland and 40,900 ha of mangrove areas within the North Bank, West Coast, and Central River regions. Other climate change-related impacts are linked to the frequent bushfire incidence, which is experienced by 79% of the population in The Gambia at least once or more times per year. This reduces the stock of fallen deadwood that is a source of fuelwood, as well as the stocks of mother trees, thus reducing regeneration. The problem of bushfires is more serious in Upper River Region where 68,000ha of forest and 7,000ha of other wooded land are burnt every year (GoTG/MoFEN, 2010). Any future drought episodes will exacerbate climate change impacts on bushfire incidence. Total biomass production is expected to be lower under increased temperatures.

### ***Water resources***

Threats to water resources in connection with any reduction of rainfall through climate change are firstly the reduction in the recharge of aquifers, from which drinking water and water for small scale irrigation is obtained. Groundwater is the main source of drinking water for the population in the country, which is captured at depths of 30 metres to 80 metres. Recharge of the shallow to medium groundwater aquifer is directly dependent on precipitations during the wet season. Secondly, there is the intrusion of saline water further up the River Gambia with a reduction of the river water flow. The flooding of settlement areas, as a result of abundant rainfall, may also cause the contamination of the groundwater through open stored household waste and flooded septic tanks. The climate change-induced migration of the saline water front in the dry season makes the use of the River Gambia for irrigation in the dry season problematic. Heavy pumping of freshwater volumes upstream may be enhancing the migration of the saline front to beyond the 250 km mark at Kuntaur, which will undoubtedly affect rice tidal irrigation in the newly affected upstream stretches. Therefore, the combination of sea level rise, global warming and changes in rainfall patterns could impact freshwater resources quantitatively and qualitatively. Currently coastal aquifers are already at great risk of salinization under multiple threats, including over exploitation, lack of recharge, and possibly also shoreline retreat and sea level rise-induced saline intrusion. Any changes in rainfall and temperature will further alter the hydrological cycle components, including the evaporation rate, runoff and the presence of temporary water courses (bolongs), as well as groundwater recharge.

However, the greatest vulnerability of water resources in The Gambia currently arises largely from the increasing demand for water in the last few years. Rapid increase in urban population and economic activity over the last 20-year period are two of the factors responsible for the increase. The Gambia's annual freshwater withdrawal is estimated at 30.6 million cubic meters, about 0.38% of annual total renewable water resources. About 65% of water withdrawal goes to agricultural use. Overall, water use has increased by 50% between 1982 and 2000, with industrial (where tourism is included) and domestic water use registering the largest increase —725% and 385% respectively compared to just 12.3% increase in agricultural water use. The tourism industry contributes some 12% to the gross national product and is vital to the country's economy. This is almost as much as



the agricultural and livestock sector combined and it is expected to increase. Tourism is very seasonal with the main tourist period from November to March, when the bulk of the 66,000 to 90,000 visitors arrive, and consume the most water. The rainy season is fairly constant and runs from June to September. The average annual precipitation of 850 mm is likely to suffer from a great instability with potential significant increases and decreases. With projected increase in the number of tourist visitors and the peak demand and supply periods staggered, careful management of ground water abstraction is needed to ensure there is sufficient groundwater recharge.

Finally, threats to water resources in The Gambia in connection to climate change are expected to impact on the River Gambia flows through enhanced (up to 10%) evaporation losses (set at 11 m<sup>3</sup>/s) from the dam to be constructed at Sambangalo. These losses, attributable to both climate change and human intervention, are to be considered as a net reduction of average annual flow entering The Gambia. In addition, using this information on the maximum expected increase in open water evaporation, in conjunction with the mean ratio of actual to potential evapotranspiration at Sambangalo and Gouloumbo, a 2% reduction in groundwater recharge is likely by the year 2050.

### ***Fisheries sector***

The Gambia owns an Exclusive Economic Zone (EEZ) of 200 nautical miles and a territorial sea extending to 12 nautical miles from the geographical coastal area, with a continental estimated shelf area of about 4,000 square kilometres and an EEZ of nearly 10,500 square kilometres. The seas off The Gambia are located where two major oceanic currents converge along the coast of West Africa. One is the highly productive upwelling zone of the Canary Current Large Marine Ecosystem (CCLME). Cold and nutrient-rich water flows southward starting from the seas off Mauritania and Senegal, attaining maximum effect on the Senegambia plateau in March/April. The other is the eastward-flowing warm Guinea Current. The effects of these currents, together with the trade winds that blow dominantly from the Sahara Desert westerly out over the Atlantic, create intermittent upwelling along the coast of The Gambia. These upwellings, combined with the outflow of the River Gambia, provide the nutrients that fuel a bountiful marine ecosystem.

The fisheries sub-sector is divided into three categories: artisanal, aquaculture and industrial fisheries, the former producing the bulk of resources. Industrial production remains largely underdeveloped, and there is little participation of the aquaculture sub-sector (Gianluca Ragusa, 2014). Fish is an important part of the dietary intake, supplying about 40% of the total animal protein consumed in The Gambia. Fisheries also contribute about 3% of The Gambia's GDP (2012 figures).

The artisanal sub-sector is composed of both subsistence and traditional commercial fishers, and is conducted along the coast, inland, as well as along the River Gambia. It is estimated that over 200,000 industrial and artisanal fishermen and women processors engaged in the sector. The total catch landed from both the artisanal and industrial sub-sectors was estimated at nearly 40,000 tonnes in 2006, over 90% of which was from the artisanal fisheries. The vast majority (90%) of the catch from the industrial sector is exported, mainly to countries of the European Union. The catch profile includes sole, grunts, sea breams, carangids and cephalopods, as well as sardinella, red mullet, shads, catfish, jacks, carangids and snappers. As the climate of The Gambia is warm (up to 40°C), and given the limited ice supply and cold storage facilities at the landing sites, a large part of the artisanal catch that is not marketed immediately is therefore smoked or dried for preservation. This sector is the major producer of cured fish, as about 40% of the annual artisanal catch is

marketed and consumed smoked and/or dried (Njai & Njie, 1998). The fisheries sector has therefore a strategic importance in the Gambian economy and there is a need for planned adaptation to the expected impacts of climate change.

In the context of the fisheries, the estuary of the River Gambia provides support, protection and nurseries to the early life cycle stages of almost all commercially and ecologically important marine fish species, particularly shrimps which have mobility within the brackish zones of the river due to the hydrological variability between the dry and the flood seasons. Unlike the salinity regime, the water temperature regime in the estuary does not vary much vertically or horizontally. In addition, tropical regions like The Gambia, where climate and aquatic species are stenothermal (having a narrow range of temperature variation and tolerance), behavioural response to temperature is often minimal. Therefore, these earlier results identified salinity as the most important factor affecting the fish community structure in the River Gambia estuarine system. Earlier findings (Darboe, 2002) have shown that December-January marks the beginning of the reduction of fresh water discharge into the estuary, and therefore salinity recorded in April, four months later, indicated an increase in value and elaboration of estuary conditions further inland, but an extreme value of 40 parts per thousand (ppt) of salt in water, which is higher than the mean ocean salinity, which is generally in the range of 32 to 37 ppt. The Gambia is amongst the countries listed by the IPCC as most vulnerable to certain impacts of climate change, in particular any changes in drought frequencies and sea level rise. According to published literature (Izrael, 1991), a 1-2°C rise in global air temperature, accompanied by a 10% reduction in precipitation, may cause a 40-70% drop in mean annual river runoff. In the event of the above scenario, plausible in terms of the most recent projections, and according to results of surveys carried out in The Gambia and elsewhere, there may be a complete change in the hydrological and salinity balance of the River Gambia estuary, which would in turn affect fish species abundance, composition and distribution.

Additionally, higher salinity at the mouth of the River Gambia estuary caused by reduction of freshwater sources and enhanced by possible climate change-induced reduction of rainfall and simultaneous sea level rise may impede the entry of larvae and juveniles of many marine species into the estuary, particularly the shrimp (*Penaeus notialis*), to complete their earlier lifecycle processes. Furthermore, it has been observed that in periods of very high discharge the salinity level was reduced and extended downstream influencing the distribution of some species particularly *E. fimbriata*, *I. africana*, *P. notialis*, *Arius laticutatus* and *S. maderensis*.

One key issue for fish quality around the entire coastline of The Gambia is the human population pressure, as well as the expansion of tourist infrastructure and lack appropriate waste management, which potentiates the presence of undesirable levels of pollution in the nearshore waters. Therefore, there is a need for specialised expertise in fisheries laboratory work to determine the safety and wholesomeness of fish for domestic and export markets and to conduct experiments on product development, promotion and value addition.

Finally, the performance of both artisanal and industrial fisheries is marred by several constraints: lack of accessibility and affordability of concessionary credit, limited technical capacity, foreign dominance, high cost of pre-mix fuel and low use of suitable fishing technologies; only one fisheries port (which is inadequate) and lack of sufficient industrial on-shore facilities (fish factories) to encourage landing of high value fish catches from national waters; inadequate fish handling and storage facilities; and poor distribution and marketing systems and structures.

Given the above constraints and future challenges facing the artisanal and industrial sub-sectors, aquaculture is increasingly seen as a desirable livelihoods activity, particularly for communities further inland and to supply tourist facilities. The earliest freshwater aquaculture trials (fish farming) were carried out in the 1970s and involved the culturing of Tilapia fish in small family fishponds by farmers in their rice fields in the fresh water zone of the river. Currently, aquaculture development is being supported by the Department of Fisheries in co-operation with the Department of Agriculture. The pilot fish culture ponds at Sapu in Central River Region are part of the continuing GoTG efforts to assist farmers improve their incomes and nutritional status. More recently the Food and Agriculture Sector Development Project (FASDEP) in The Gambia, which was financed by the Global Agriculture and Food Security Program (GAFSP) Trust Funds with implementation supervised by the African Development Bank (AfDB), has aimed to improve nutritional standards in rural areas through fishpond farming schemes. In spite of the progress made with aquaculture, project beneficiaries are concerned about challenges that include poor fish harvests due to hard-to-recognise mortalities; poor stocking, as many of the fish that die do not actually come up to the surface; and the vulnerability of fingerlings to predators in the grow-out ponds (AfDB, 2017). Further problems affecting aquaculture development in The Gambia (FAO, 2012) include:

- Land tenure problems;
- Insufficiency and/or absence of financial resources to install breeding infrastructures, purchase fingerlings and establish a revolving fund;
- Insufficient training and information of extension staff;
- Insufficiency and/or absence of research and training structures;
- Inadequate management and development planning;
- High cost of construction of fish-farm infrastructures and necessary materials; and
- High cost of inputs (feed, fingerlings, etc.).

The major handicap in the sector is the poor implementation of the National Aquaculture Strategy, which calls for enhanced profitability of constructed fishponds through improved technical backstopping, supervision and market linkages.

### ***Parks, Wildlife and Biodiversity sector***

The Government attaches high priority to the preservation and management of national parks and wildlife, and is fully aware of the importance of conservation and sustainable use of the wildlife resource base to ensure biological diversity of species, genes and ecosystems, and to tap the potential of this sub-sector for the socio-economic development of the country. The natural resources base of The Gambia has been subjected to a wide variety of adverse human-induced impacts. The degree of environmental and natural resource threats varies in different ecosystems (from agricultural, fisheries, and forest to coastal and marine), depending on the intensity of and exposure to anthropogenic factors. In this respect, forest vegetation is exposed to widespread exploitation of forest resources for timber production and fuel wood. Urbanization, tourism and related industrial developments along the Atlantic coast of The Gambia have removed large areas of coastal vegetation, the habitat for many species that depend on coastal and marine biodiversity such as marine turtles, velvet monkeys, etc. (GoTG, 2014b).

The critical impacts on biodiversity and wildlife are mainly connected to forest deterioration and eventual changes in the fish and bird populations, which are not fully or primarily under anthropogenic control. A most severe threat is the encroachment into mangrove fields to make shelter for poor rural migrants as well as for intrinsic population growth — e.g. Ebo Town and Tallinding in the Kanifing Municipality.

Climate change-induced impacts on the Parks, Wildlife and Biodiversity sector include inundation of riverine locations due to sea level rise, and potential further degradation of mangrove areas, which have decreased significantly since the 1970s for various reasons. Between 1980 and 1993, over-utilization and increased salinity has led to a decrease in total surface area of mangroves by 650 ha per year (Jaiteh and Sarr, 2011). Similarly, any intensification of atmospheric dryness through augmentation of temperature and drought episodes, which, combined with livestock overgrazing and logging, is most likely to increase deforestation and desertification, will exert continuing and likely increasing pressure on availability of wildlife and maintenance of their natural habitat. In addition, frequent bush fires and drying of streams and other drinking points have significantly contributed to the disappearance of the natural habitats and indigenous traditional wildlife species.

The other major driving force responsible for environmental degradation and loss of wildlife and biodiversity is the largely ill-defined land ownership and over exploitation of natural resources, particularly those that are most marketable, which perpetuates environmental degradation. Close and open woodlands conversion for agricultural production plots particularly in the Central River Region (CRR) and Lower River Region (LRR), of which the last known rate of forest to farm conversions was 1.3% or 1,400ha/year. The impact of all these woodlands conversion into agricultural production plots is not only the ecosystems degradation but also the reduction of forest cover with consequent impoverishment of biodiversity and loss of species and genetic diversity. Near beach sand extraction for construction and other purposes, has recently intensified phenomena of soil erosion and destruction of natural habitat along the coast posing a serious threat to the tourism infrastructure, wildlife habitat and the livelihood of communities living along the coast. The rapid and chaotic urbanization process is an additional stressor.

#### ***1.4.4 Impacts and vulnerabilities: managing coastlines in a changing environment***

Section 1.4.4 provides a discussion of the observed and projected impacts and vulnerabilities for the thematic area concerning managing coastlines in a changing environment. This includes climate-aware Integrated Coastal Zone Management (ICZM) including coastal erosion management, and covers relevant River Gambia issues.

The Gambia's coastal zone consists of 80 km of open ocean coast and approximately 200 km of sheltered coast within the tidal reaches of the River Gambia. This coastal area is vulnerable to climate change impacts from rising sea levels, and any changes to precipitation patterns and wet season rainstorm intensities. Generally accepted impacts include:

- Tidal flooding of low-lying areas along the open coast and up the river, with loss of important urban areas, port infrastructure, roads, fish landing sites, farmland, forestry and significant natural habitats;
- Saline intrusion into fresh water aquifers; and

- Shoreline erosion of the open coast with loss or damage to urban areas, roads, fish landing sites, historic and cultural sites and tourism assets.

Likely further impacts are increased erosion of storm runoff channels and increased rainwater flooding of urban and rural areas.

The potential impacts of climate change along the River Gambia will be both positively and negatively influenced by the proposed Sambangalo Hydroelectric Dam, which will control flows in the river. Proposed flow management plans may result in short-duration artificially induced flood events during the wet season to support wetland agriculture and aquifer recharge, while also maintaining a minimum flow above the natural dry season rates. These changes would influence the natural habitat of the fresh and brackish water sections of the river, which traverses a very extensive low lying agricultural basin, with impacts on artisanal fisheries and river margin vegetation.

At a national level the greatest predicted impact of climate change will be the effective loss of the capital city, Banjul. Much of the residential area of the city is extremely low lying and already at risk from tidal flooding; this situation will be exacerbated by expected sea level rise, putting most of the city and the access highway at risk of flooding. Ongoing shoreline erosion along the north shore of the city will soon impact on the government and commercial areas of the city. The 2003 beach renourishment of the shoreline (Haskoning, 2004) was intended to have a maximum 25 year design life to provide time for planning a robust and permanent solution to the coastal threat; observations of the beach suggest that the remaining life of the nourishment is likely to be less than 10 years, after which the buildings and roads along the shore will be under direct attack by waves. Any solution for the capital city must not only allow for the existing and future tidal flood and erosion risks but must also recognise the need for substantial improvement of surface drainage, waste management, transport, water supply, power, sanitation, public spaces, etc. to provide for a healthy and efficient urban environment. The situation is complicated by the presence of the Port of Banjul located along the River Gambia shoreline of the city; the port is critical to the nation but is currently constrained by lack of storage space and poor ground transport links.

Beyond Banjul there is a widespread issue of ongoing coastal erosion that is predicted to increase in the future. Fish landing sites, high value residential / diplomatic properties, cultural sites and tourism assets are at risk. This risk has been recognised for over twenty years and there has been a longstanding theoretical presumption in principle against development of significant structures within 150 m of the shoreline to allow a buffer zone for erosion. Unfortunately this presumption has never been enshrined in policy, and inappropriate construction continues, particularly in the tourism development zones along the open coast, and within the government district of Banjul.

Almost all the supply of drinking water for the country, and much of the agricultural water supply is taken from the underlying aquifers. Abstraction near the coast has resulted in saline intrusion, reducing water quality and making some bore holes unviable. Population growth in the coastal zone is expected to put increasing pressure on the water resource with lowering water tables and higher saline intrusion, irrespective of any exacerbating adjustments resulting from climate change.

#### ***1.4.5 Impacts and vulnerabilities: climate-resilient infrastructure***

##### ***Waste management***

Waste management poses a major challenge in The Gambia, particularly in the Greater Banjul Area (GBA) and the growth centres. The three urban municipalities that make up the GBA, namely Banjul City Council (BCC), Brikama Area Council (BAC), and Kanifing Municipal Council (KMC), with a total population of 1,113,101 inhabitants according to the 2013 census (GBoS, 2013), produce in excess of 300,000 tons of waste annually; this figure could be as high as 400,000 tons. The increasing rate of production of waste in the GBA is linked to population growth and in-migration, business development and household consumption. According to the recently prepared five-year integrated waste management plan for the KMC, waste is categorized as municipal or residential waste, commercial waste, industrial waste, clinical waste, construction or demolition waste, electronic waste and liquid waste. Hazardous waste, however, is not addressed in this Plan, even though it is provided for in existing regulations.

The vulnerability of waste infrastructure to climate change depends on the geographical position and state of the disposal site, as well as its organization in terms of disposal methods and enforcement of relevant regulations.

Waste is collected and temporarily stored at community dumpsites, from where it is eventually transferred to permanent dumpsites. The process is largely *ad hoc*, reactive, and unsystematic, and is not guided or monitored by any clearly defined Waste Management Plan. Since neighbouring communities closed the dumpsite in March 2017 in protest at the environmental and health risks, the only dumpsite serving the GBA is the Banjul Mile 2 site, a much smaller site close to an ecologically sensitive area and within the Tanbi wetlands, which is a Ramsar site. Both Bakoteh and Mile 2 are poorly managed, resulting in their vulnerability to climate-related impacts from flooding of low-lying areas, including spread of water-borne diseases and contamination of the underground water system; and including unknown health impacts of air pollution resulting from continuous burning of the waste. Apart from the situation with respect to domestic waste, infectious / hazardous medical waste is dealt with in the hospitals using incinerators although this is not considered optimal yet. Where hospitals lack capacity for this, it is sent to the Medical Research Council (MRC) for safe disposal. Steps have been taken to recycle industrial waste wherever possible; these will need to be revisited and systems developed as industrial development continues. Sludge from septic tanks is discharged into stabilisation ponds in Kotu managed by Aqua Gambia Ltd.

In addition to the formal dumpsites, a number of illegal dumpsites exist in different locations throughout the GBA, with consequences similar to those posed by the formal sites. Riverine areas in Tallinding, Ebo Town, FajiKunda and Abuko are particularly affected by pollution due to indiscriminate and clandestine dumping of waste. Consequently, these could contribute to serious ground and surface water pollution through leachates and contaminants when they end up in the riverine areas, potentially affecting aquatic life and the livelihood of populations dependent on the wetlands.

According to the NAWEC Master Plan (2005), all of the rural growth centres require improved waste collection systems. The Plan states that in the rural municipalities, preference should be given to tractors equipped with hydraulic trailers, followed by donkey drawn carts and then skip trucks.

The impact of climate change on waste management depends on the factors noted above. Currently, solid waste is being dumped into the riverine areas, thus clogging drainage channels and greatly exacerbating the impacts of flash flooding linked to either climate variability or change. Given that

rainfall intensity may likely increase under climate change, the risks of flooding in the event of heavy rainfall would increase into the future, with disastrous consequences resulting not only from the actual flooding, but also from contamination of the general environment. These consequences include increased incidence of infectious diseases, destruction of dwellings causing considerable discomfort, scattering of waste over a wide area, as well as the possible contamination of shallow aquifers.

Regarding mitigation, inadequate waste data is a major issue regarding both GHG emissions and waste production, for both solid waste and wastewater. Nevertheless, the GoTG included in its NAMA the implementation of an Integrated Waste Management initiative for solid and liquid waste in the GBA. This is expected to reduce emissions significantly but is also associated with an estimated implementation cost of USD 68 million. The GoTG's 2015 INDC states, under waste management, that combined greenhouse gas emission reductions of 141 GgCO<sub>2</sub>e in 2020, 239.7 GgCO<sub>2</sub>e in 2025, and 413.7 GgCO<sub>2</sub>e in 2030 will be achieved through conditional methane capture, and waste recycling and composting.

The significant negative impacts (current and future) close to a disposal site may gradually spread to become a national problem as wider areas become affected. The waste problem, which constitutes a real public health problem, requires local solutions involving the range of actors. Given the lack of rigorous investigation into this area, it is currently not possible to state with any certainty what the public health problems associated with inadequate waste management in The Gambia are. However, this is likely to include skin rashes and irritations, possible disease outbreaks such as diarrhoea and cholera, and respiratory ailments.

### ***Water supply and sanitation***

Most established settlements and newly established ones (Bijilo, Brusubi) in the GBA get water from a supply network, comprising four wellfields, a water treatment plant at Sukuta, transmission mains, and 14 elevated water storage tanks with a capacity of 1.2 million cubic metres, operated by and held in trust for the government by the state-owned enterprise, NAWEC. The entity also operates similar infrastructure, albeit on a smaller scale in large provincial towns across the country (Njie, 2015). A few other larger settlements have water distribution systems based on similar engineering principles, funded by ODA and owned and managed by beneficiaries through devolution arrangements with the government.

Water supply at village level is the responsibility of the Department of Water Resources, while the National Water and Electricity Company (NAWEC) operates the urban water supply systems in the surroundings of the capital and the provincial growth centres. It has been recognised that the peri-urban poor are often the forgotten group: not considered "rural", they do not qualify for DWR's rural water supply programmes and they also have little chance to benefit from urban connections.

The National Water Policy calls strongly for an Integrated Water Resources Management (IWRM) approach, and clearly highlights the likelihood of future climate change-driven flood risks across the Gambia River Basin, noting that some 20% of the country's surface area consists of water, wetlands and tidal creeks. The Policy includes strong reference to both climate change and flooding, and clearly raises the issue of increased risks in the future in the face of climate change and sea level rise.

Water for domestic and other uses in the GBA is mainly sourced from below ground in deep and shallow aquifers. Adequate amounts of rainfall are required to recharge the underground aquifers,

and thus the current uncertainties over future rainfall (Section 1.4.2) create difficulties for estimates of groundwater recharge in coming decades; moreover, extraction levels of the groundwater need to be controlled for sustainability.

Collection of water is mainly the task of women and children, who obtain water from communal wells and standpipes, including open wells, uncovered boreholes or concrete-lined boreholes with hand pumps, often waiting in long queues.

In the GBA, two water resource management problems exist, both of which are essentially climate-induced:

- Salt intrusion due to increased extraction; and
- Insufficient recharge due to increased intensity of rainfall, as well as increased runoff from more hard surfaces linked to urban development.

For the former, existing boreholes need to be relocated away from possible salt intrusion areas whilst extraction rates are adequately monitored to ensure that appropriate levels are always maintained. For the latter, new boreholes need to be located away from heavily built up areas to minimize runoff and facilitate recharge of aquifers. In both cases, however, planning authorities should ensure that boreholes are adequately protected from encroachment.

Some of the soils in the Gambia River Valley are affected by salinization. During the rainy season, the salts are leached but during the dry months they remain saline. The flat topography of the country remains an unfavourable element. Soil leaching and lowering of the water table contribute to the salinity of groundwater, necessitating that existing wells be relocated away from possible salt intrusion areas, while extraction rates are adequately supervised to ensure that appropriate levels are always maintained. For the future, new boreholes should be located away from heavily constructed areas to minimize runoff, thus facilitating recharge of aquifers.

The GBA has only two sewerage systems: one which serves only Banjul, and is operated by NAWEC, whilst the second, located in Kotu and operated by Agua Gambia Ltd., which serves the hotel industry as well as individual properties with septic tanks in the GBA. The Kotu system includes stabilisation ponds for treatment of sewage. The Banjul system disposes of raw sewage by means of an ocean outfall through a diffuser located approximately 1 km offshore. For both systems, sewage is disposed of in parts of the coast that are highly vulnerable to coastal erosion. In the long term, it would be appropriate to move away from the current practice and provide waste water treatment before dumping it at sea.

In the Kanifing Municipality and the southern part of the GBA, the use of septic tanks is more common. In such areas, sewage is collected from septic tanks by tankers and deposited at the existing disposal plant in Kotu. Pit latrines constitute the most common form of individual excreta disposal method generally used in rural areas.

In the case of sewage disposal infrastructure, heavy rains may result in water and sand infiltration through the sewer covers. In the event of flooding, which may increase under climate change, pollution may be dispersed through leakage from sewer manholes, as well as from pits, with associated public health problems.

### ***Roads and drainage infrastructure***



Sustainable and well-maintained roads are important enablers of socio-economic development. The recurrent problem of road infrastructure in The Gambia is road maintenance, which depends to a large extent on the design and its use, with axle loads not very well considered. A major problem associated with drainage off roads is the relatively flat terrain in The Gambia. Other problems relate to encroachment and lack of buffers between roads and settlements, as well as lack of coordination between the Roads Authority, NAWEC and other departments. Designing roads to withstand current and future heavy rainfall events has budgetary implications, but is essential for performance of transportation infrastructure.

The GBA is served by a good network of roads supplemented by numerous bridges, which however have a long history of vulnerability to coastal erosion. The Banjul/Serekunda highway which runs westwards from Banjul parallel to the northern coast line of the GBA has in the past been threatened as erosion has reached less than 10 metres from the road. The Denton Bridge, across which the highway runs at Oyster Creek, is equally vulnerable. To protect this infrastructure, as well as other valuable shore front properties, beach nourishment was undertaken in 2004, but this has subsequently been heavily eroded and the pre-2004 situation is expected to return in less than 10 years.

In a similar vein, a section of the Kombo coastal road, close to the Tanji Bridge, has been threatened by erosion, necessitating protection using a rock revetment. With a possible increasing intensity of some rainfall events, similar flooding may occur causing the Tanji River or other water channels to further damage road infrastructure in the GBA.

In the floodplain of the Gambia River and its main tributaries there is a complex pattern of alluvial deposits and fluvial marine deposits. Inappropriate road construction on these substrates has led to damage to the road surfaces, which reduces their durability and impacts negatively on road safety.

The impacts of changes caused by floods, drought and erosion may entail significant additional project costs. Because the GBA is relatively flat, flooding caused by heavy rains leads to inundation of the roads, destruction of the road shoulders and undermining of the infrastructure foundations. Additional studies, evaluation, budgeting, and consultation on the part of construction companies are required to ensure climate-resilient infrastructure. More thorough consideration of current and future climate impacts in the design of projects should also contribute to a more ambitious quality of the works.

Drainage infrastructure keeps roads passable or conveys storm water to a disposal site. Without appropriate drainage, roads and bridges cannot be kept passable, leading to flooding especially in low-lying areas.

Existing facilities are limited to drainage systems in Banjul, Kanifing and Brikama and drainage canals constructed to serve some of the main roads. In most communities, there is no way to collect and eliminate rainwater and in many cases, drainage is insufficient or has not been provided. The provision of drainage services seems to be the responsibility of local councils even though there are no provisions under the Local Government Act 2002 for a council to provide drainage facilities. However, under the Act a local council is responsible for the upkeep and maintenance of all secondary roads under its jurisdiction presumably including the drainage facilities required to drain the road and to keep it passable. Also under the Act, a council's responsibility of providing local development may make it necessary to provide drainage facilities that may be required to convey

storm water to a receiving water body. In areas where there are no drainage channels, or where these are not properly maintained, water puddles and ponds may occur, posing particular nuisance and making vehicular movements and pedestrian access very difficult. Such areas of standing water are often a daily problem during the wet season. Unfortunately, drainage channels located in the GBA are generally poorly maintained resulting in the dumping of waste leading to blockage of the channels and accumulation of stagnant water. With increasing temperature and, according to some projections, rainfall, this scenario is potentially a source for transmission of diseases such as malaria and cholera.

The current situation in the remaining growth centres of the country is essentially the same, characterized by inadequately designed open drainage facilities, often without outlets, with minimal coverage of the main catchment area. At present, the only provincial centres with some drainage facilities are Bansang and Basse with 1.5 km each, and Janjangbureh with 3 km of drains network, which are apparently well interconnected. Many of the roads and drainage problems relate to poor physical planning and enforcement. Other problems are linked to a lack of alternate transportation systems to relieve pressure on the road system. The Ministry of Works is currently working with ECOWAS on a regional plan to develop a railroad system to facilitate trade and transport within West Africa.

### ***Energy infrastructure***

The Gambia's energy supply comes exclusively from four sources: fuelwood, petroleum products, butane gas and solar energy. Fuelwood is the most important energy source in the country and accounts for about 80% of the country's primary consumption. These high levels of fuel wood use have heavy implications for women and children, in terms of time spent collecting wood, as well as related opportunity costs. For example, when the supply of fuelwood is affected by drought, women and children in North Bank Region may walk up to 5 km and spend many hours gathering fuelwood (Lahmeyer International, 2006). The health impacts of indoor air pollution associated with heavy fuelwood use constitute significant personal, social and economic costs. Access to electricity outside the GBA is very low. Therefore, wind and solar PV are likely to remain the most appropriate renewable power options in The Gambia in the short term. There is currently no interconnection within the West African region. This will change when the OMVG hydroelectric project becomes operational, as it will connect up the four member states, and in turn allow them to access the West African Power Pool.

Energy infrastructure refers to NAWEC's entire electricity generation, transmission and distribution assets, comprising of power stations with an aggregate capacity of 101 MW produced by electro-mechanical generators. Power is distributed through an electricity grid comprising of 181 km long 33kV/11kV transmission network, step-down transformers, and finally 230V and 400V distribution lines. With increase in temperatures, sagging of overhead lines will become more serious leading to significant electricity transmission losses, resulting in subsequent power shortages and potentially triggering power outages.

Two small-scale wind turbine generating 100 to 150kW, at Batokunku and Brusubi, also provide surplus electricity to the power grid through commercial arrangements with NAWEC.

The Mandinary depot, serviced by oil tankers through a submarine pipeline, has a storage capacity of 150,000 metric tonnes. Petroleum products are lifted from the depot by operators with truck-

tankers and sold to consumers at retail stations countrywide. Increase in temperatures is likely to reduce handling capacity of fuel storage facilities.

The unreliable nature of the electricity supplied in the Greater Banjul Area means that many businesses and the more privileged households use back-up generators. Only the latter make use of modern cooking and heating devices, meaning biomass use is still widespread in the GBA. Renewable energy (RE) technologies such as solar are used only in a limited fashion in the urban and semi-urban areas; while rural dwellers rely more on RE, especially PV for the low voltage electricity required by most rural households for various applications, in addition to the heavy dependence on wood and charcoal for cooking.

Households and the transport sector are the biggest consumers of energy in The Gambia, with household fuelwood consumption reaching 796,252.7 metric tonnes in 2012, while petroleum consumption was around 150,000 tonnes between 2010 and 2012 (WAIS, 2015). Biomass consumption (wood-energy and agricultural residues) remains the main energy source for domestic and small-scale commercial sectors. Given the current consumption rate and high population growth, future shortages of fuelwood are inevitable and will result in the further depletion of natural forest cover, with serious negative environmental consequences.

The power supply in The Gambia is still largely inadequate, inefficient, and extremely unreliable, which had a negative impact on investment and production. This is one of the reasons for the excessive dependence within the city and major urban centres on firewood and charcoal, which reduce the country's forest resources and natural vegetation cover at an alarming rate, causing widespread environmental degradation

Vulnerability of the energy sector on the whole resides in various different effects, as set out in Njie (2016). Rising temperatures combined with any decreasing rainfall are likely to cause a decline in standing forest biomass, and hence the renewable volume of fuelwood. Delivery of petroleum products, the second most important source of energy in use, could suffer disruptions in supply related to extreme weather. The vulnerability of growing renewable energy solutions varies according to technologies, with wind turbines likely to be least affected, and solar PV efficiencies slightly reduced by dust coating of modules. Electricity supply infrastructure faces decreased thermal efficiency of power lines, and possibly damage to infrastructure. Higher temperatures degrade heat exchange efficiency of engines and encourage use of air-conditioning, resulting in higher fuel consumption and increased GHG emissions. Regarding future electricity supply from the Sambangalo Dam, this may be extremely vulnerable to climate change, should the assumptions for dam operation with respect to climate trends not be accurate – see section 1.6.3 for details.

#### ***1.4.6 Implications – climate and development nexus***

This section synthesises information presented in sections 1.4.1 to 1.4.5, to provide an integrated discussion of the complex vulnerabilities of livelihoods, ecosystems, society and economy in The Gambia.

The vulnerability and impact assessments presented above illustrate the multi-dimensional vulnerability experienced by many people in The Gambia. It is not just the increasing temperatures, decreasing rainfall, and more erratic rainfall patterns of recent decades that drive vulnerability, significant as these changes are. The low-lying topography, combined by high dependence on

subsistence rain-fed agriculture, and inadequate drainage and storm water management system in a context of rapidly expanding unregulated urban expansion has placed The Gambia among those countries most vulnerable to climate change

This vulnerability is linked to the country's widespread poverty and limited adaptive capacity to deal with the effects of such changes. Limited access to resources to make quick changes to lifestyles, especially with respect to food supplies, and low access to risk-spreading mechanisms, render many people highly susceptible to the current variability and future climatic changes.

The vulnerability analysis highlights the specific challenges faced by women and youth with respect to current and future climate risks. Women have disproportionately high responsibilities for farming activities in rural areas; responsibilities for family health and welfare; problems of access to land and to credit; and additionally experience more subtle forms of discrimination related to the paternalistic cultural traditions. Female-headed households in the rural areas, who are primary users and managers of biomass, will bear the brunt of climate change impacts. There is thus an imperative for a coherent approach to sustainable management and use of biomass, from several perspectives. In addition, women are more likely to lack identity numbers making them difficult candidates for, for example, index-based insurance in case of crop failure, land acquisition (because of traditional norms) and difficulties obtaining collateral necessary for investments.

Specific climate-related hazards have differential impacts on men and women. For example, droughts imply reduced water availability for drinking, cooking, hygiene, and also food insecurity, which in turn results in health hazards. Health consequences resulting from food insecurity and nutritional deficiencies disproportionately affect women and girls compared to men and boys. Additionally, women and girls often have the responsibility of water collection for the family, and droughts increase their burden as they would need to travel further to collect water (Yade, 2016). Given the importance of gender equality in attaining the Sustainable Development Goals (SDGs), it will be critical for further planning and implementation of the SPCR to deepen and institutionalise gender equality in all SPCR activities.

Youth face particular challenges relating to a lack of skills and/or a mismatch between skills developed through the education and training systems and those demanded by the modern job market, combined with a lack of job opportunities. Capacity development initiatives for youths are not always professionally run – for example, training is not always of a suitable quality, and youth may experience delays in acquiring certificates from training institutions. These issues, together with resource degradation, poor quality of service in rural areas, and a desire to be part of the modern urban world are driving a rapid rural-urban migration, as well as the irregular migration to Europe that has become prevalent amongst youth from the rural and urban areas.

A critical factor exacerbating social and environmental unsustainability is the uncontrolled nature of the urbanisation process, which is primarily apparent in the GBA, but also manifests in other urban centres. Since the 1970s, the city of Banjul and Kombo St. Mary have been characterised by fast growing urbanisation, fuelled by population growth and rural-urban movement. While Banjul has reached its physical limits for further growth, and is severely threatened by sea level rise effects, the Kombo St. Mary area continues to undergo severe urban sprawl, which has uncontrollably spilled into the Kombo North District. The exceedingly high rate of urbanisation to the GBA is a result of an accelerated rural exodus due mainly to low returns from agriculture as the major employment for most families and individuals in other parts of the country, and the concentration of economic

activity in the urban areas. The urbanisation process has occurred without any significant guidance or control by the authorities, resulting in increasingly haphazard land allocation, scattered urban sprawl into valuable agricultural land, depletion of mangroves and forests, increasing air, water and soil pollution, including pollution of the riverine areas with concomitant health and ecosystem risks, strain on water resources and social services in general, poor sanitation, and a growing deterioration in quality of life in those urban areas struggling with problems of overcrowding. While there is a need for scientific studies to identify and make linkages between these conditions and changes in disease epidemiology, it is likely that risks for malaria, cholera, and water- and air-borne diseases would increase. Urbanisation combined with increased temperatures will also result in increased demand for electricity.

Considering the important crosscutting area of health, assessments of the potential health impacts of climate change are needed to provide important information about future impacts on vulnerable areas and populations. A critical information gap is that health statistics that are compiled from public health facilities are not climate-indexed; consequently, the link between climate change and health is not clearly or scientifically established in The Gambia. Nevertheless, the National Social Protection Policy (NSPP) (2015) considers climate change to be amongst the key stressors hampering social development, as it is associated with hazards affecting incomes, food and nutritional security, health status, and general wellbeing.

It is clear from the foregoing sections that the tourism industry experiences vulnerability to climate variability and change from multiple dimensions. These relate to severe threats from sea level rise and coastal erosion, exacerbated through lack of clarity on / enforcement of development control, including within the Tourism Development Area. An example of the latter is the conflict of interest experienced between several stakeholders within the coastal zone, as seen in the destruction of part of the Bijilo forest. Examples of maladaptation, such as the unsuccessful beach renourishment in Banjul and the Senegambia area, highlight the importance of a coherent and well-planned approach to reducing vulnerability in key tourist areas along the coast.

Within this understanding of a multi-dimensional vulnerability context for people and systems in The Gambia, the sections 1.5 and 1.6 present a gap analysis of climate information and services, and of adaptation and mitigation responses, in order to develop the analytical basis for the SPCR.

## **1.5 Gap Analysis: climate information and analytical base**

Additional information regarding the gap analysis of the resources for and the provision of climate services carried out to develop the SPCR is provided in Volume III: Supplementary Material. The following section summarises previous relevant programmes and sets out the key conclusions from the gap analysis.

### ***1.5.1 Summary of Previous Work***

A number of projects have been undertaken in recent years providing gap analyses pertinent to supporting climate services and proposing actions to address these.

The first was the Technical Support Programme to The Gambia on Climate and Development, designed by Africa Climate Policy Centre (ACPC)/United Nations Economic Commission for Africa (UNECA), covering upgrades to the observing networks and their onward uses, and planned to be

undertaken in collaboration with a number of national and international institutes. It opened in 2012 and closed in 2014. An overview of the planned activities is provided in Volume III.

This project was intended to cover many of the missing technical aspects in providing climate services, in principle covering much of the area under this SPCR, but much of the work planned was never completed. Achievements include: all meteorological observations to 2012 were captured to camera but remain to be digitised; some capacity building was completed; four automated hydrological stations were installed; and a 9 km resolution forecast model is in the process of being installed at the Central Forecasting Office (CFO).

Next were two Situational Assessments of the Meteorology Division [of DWR] by the UKMO in 2012, one a SWOT analysis of the Division, the second on training needs; and a further report on Consultancy Services for the National Water Sector Reform Studies 2013. A summary of key points of the UKMO reports is given in Volume III, where a number of gaps are highlighted. The main pertinent aspect of the National Water Sector report is the recommendation for a restructuring of The Gambia National Meteorological Services (TGNMS), an alternate approach to that recommended in the Early Warning System (EWS) gap report reviewed below.

Key to the SPCR is the GoTG/GEF/UNEP LDCF NAPA Early Warning Project, originally designed to complement the ACPC project, of which the first phase is completed and Phase II is underway. Three documents have been seen:

- The report by John Peacock, a comprehensive coverage of systems in place in 2011 and their gaps; details and comments on progress are provided in Volume III
- The proposal document for Phase 2 of the project
- The PIF for Phase 2 of the project, with details given in Volume III. Also in Volume III are summaries taken from the EWS PIF of the project risk profiles and of the capacity assessments.

All three documents provide substantive information regarding the development of the EWS, and this gap analysis is built from that basis extended as necessary to cover climate services on the longer time scales.

In addition to the summary of the gaps as seen in planning the EWS project, consideration is also given in the PIF to the risks and capacity available; more details are provided in Volume III. In brief, the risk profile as assessed is:

- Lack of political will to support project – *low*
- Lack of financial stability for hydrometeorological services – *low/medium*
- Lack of coordination among government stakeholders – *medium*
- Unavailability of requisite human resources/lack of skilled human resources – *medium*
- Inability to communicate effectively with local communities – *medium*
- Limited capacity to effectively tackle all project components – *medium*
- Telecommunications challenges hamper implementation of the project – *high*
- Extreme climate events – *medium*

Most issues recognized were viewed as medium risk, the only high risk referring to telecommunications facilities. However, this risk profile may be too conservative; further development and implementation of the SPCR should consider this possibility.

For the capacity exercise the following categorisation was used, with results summarized in the table below, together with the sums of the priorities attached to capacity building within each category in terms of high/medium/low:

1. No evidence of capacity
2. Anecdotal evidence of capacity
3. Partially developed capacity
4. Widespread but not comprehensive capacity
5. Fully developed capacity

**Table 1 Capacity with respect to climate services**

Capacity	1	2	3	4	5	Priority h/m/l
Capacity of Agencies to produce information	1	4	7	1	0	9xh, 3xm, 1xl
Capacity of Agencies to package information	3	5	1	0	0	6xh, 3xm, 0xl
Capacity of Agencies to disseminate information	4	4	2	0	0	10xh, 0xm, 0xl
Capacity of Legislative and Governance frameworks	0	3	1	0	0	3xh, 1xm, 0xl
<b>TOTALS</b>	<b>8</b>	<b>16</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>28xh, 7xm, 1xl</b>

Of the 36 items related to capacity reviewed, 28 are given high priority for attention, and only one low priority. The conclusion that capacity building within the various Agencies is a high priority remains valid.

### **1.5.2 Results of the gap analysis of climate services**

The main framework under which this gap analysis of climate services is presented is that of legacy; that is the perspective of where the SPCR can offer legacy directly or, in cases that is not feasible, where SPCR might provide support that will assist in developing legacy. Areas in which contributions towards legacy might be achieved under the SPCR include:

- Human resources
- Physical resources
- Development of climate services

*Human Resources:* Without doubt the main gap in The Gambia is human resources, which relates to both numbers of staff and to their competencies at their appropriate levels. One aspect is that currently there is no research in any aspect of meteorology or climate; that conclusion also includes the University of The Gambia (UoTG). More broadly it is not only a matter of the staff numbers but also of their professional capacities, not least in the area of climate services, an issue not limited to a single Agency. Reasons for the high attrition rates in the meteorological field, as well as the limited number of women professionals, would need to be identified and addressed.

The SPCR may provide opportunities to address the human resource issue in a manner that offers inherent legacy in terms of climate resilience through facilitating:

- Climate and climate change education at all school levels
- Development of undergraduate and graduate training, both within The Gambia and externally
- Delivery of both general management and project management training
- Improving the knowledge basis of DWR staff
- Improving the knowledge basis of professional staff in all pertinent Government Ministries and the private sector, and enhancing their abilities to use climate services
- Sensitising the community to climate change and improving their abilities to use climate services
- Development of research on climate and climate change in The Gambia.

*Physical resources:* Physical resources fall into the categories of observing platforms, technical communications and visualisation systems, information storage systems, and Internet systems, with significant gaps in all.

*Observing systems:* An upgrade to observing systems is under way under the EWS project, but once fully implemented it will still leave network densities below WMO-recommended levels and inadequate for climate services.

The SPCR may provide opportunities to address the observations issue in a manner that offers inherent legacy in terms of climate resilience through providing equipment in collaboration with the EWS project, assuming on-going maintenance and supplies aspects are handled by the GoTG:

- Additional automatic weather and hydrological stations to the Global Climate Observing System (GCOS) and the World Hydrological Cycle Observing System (WHYCOS) standards, including at sites for research and change monitoring, with an appropriate range of instruments attached
- Additional automatic marine stations as required
- Upper air stations, ideally including at least one automated radiosonde stations
- Facilities for instrument calibration and repair
- Consideration of a rainfall-measuring radar
- Assist in accessing external climate records, including historical reconstructions

*Technical communications and visualisation systems:* It is essential that appropriate communications and visualisation systems providing near real time information are in place to support climate services throughout all development, production and reception locations.

The SPCR may provide opportunities to address dissemination of information beyond the Central Forecasts Office, in a manner supporting climate resilience, in collaboration with the EWS project, providing on-going maintenance and supplies aspects are confirmed, through:

- Upgrading and/or supplying satellite links at appropriate locations



- Supplying computers and visualisation software at Department of Water Resources (DWR), National Disaster Management Agency (NDMA), and other pertinent locations to be identified

*Information storage systems:* Archiving historical information, plus the substantial streams of information anticipated with commissioning of all equipment planned under the EWS Project and proposed under SPCR, requires appropriate database facilities, in terms of input, of automated quality control, of storage and of data extraction, a goal not available with current systems. For research and development, and for the provision of climate services, sectoral databases are required in addition, that may be accessed alongside a climate database.

As an extension to the opportunities listed in the previous section, the SPCR may provide support for a climate database, providing on-going maintenance and supplies aspects are confirmed, through:

- Provision of suitable computer facilities for a climate database
- Assessment of and essential support for sectoral databases
- Provision of visualisation software.

*Internet systems:* In environments in which, in much of the world, the Internet plays a fundamental and essential role, the lack of an efficacious system at DWR, and generally across the GoTG, represents a critical gap.

The SPCR may support efficient transfer of information and other communication pertinent to climate services and climate resilience, providing on-going maintenance and supplies aspects are confirmed and that the caveat noted immediately above is observed, noting current GoTG regulations regarding placement of information on the web, through:

- Implementation of a full internet service, with computers for individual staff with a requirement, at DWR
- Similar implementation of full Internet services at other pertinent government offices.

*Development of climate services:* Services currently provided include summaries of recent observations and forecasts up to the seasonal time scale. No services are provided covering climate change in any form; the main approach to climate change adaptation is through a variety of focussed projects, although occasional radio broadcasts inform listeners. There is currently inadequate monitoring and evaluation of the effectiveness of the meteorological EWS, and of climate information services in communities. There is scope to build on promising pilot projects on the part of NGOs, as well as government interventions, that blend indigenous and scientific knowledge to produce and climate services. Sensitisation of policy makers, including the Executive and the Legislature, on the importance of climate information services is required.

*The delivery side:* In terms of climate resilience there is a case for utilising short-term forecasts, although in the main these applications are perhaps better considered under disaster risk reduction (DDR) than under climate change adaptation (CCA). Hence this gap analysis is limited to delivery of information on seasonal time scales and upward.

Seasonal forecasts at present are created only at the annual Regional Climate Outlook Forum (RCOF) for West Africa in May; with a month lead time ahead of the start of the main rainfall season in June. An update is issued in July. The issues involved are considered in detail in Volume III. The production

of climate change scenarios presents similar issues to those of seasonal forecasts; scientists in The Gambia have produced climate change scenarios for the Second National Communication to the UNFCCC but difficulties are being experienced in developing projections for the Third Communication.

Opportunities are available, both pertinent to the legacy perspective of the SPCR:

- A framework in which to examine links between climate and activities in many areas, including water and food security, and health, and in which to examine applications of climate forecasts in these activity areas
- A framework in which to address understanding and use of probabilistic forecasts.
- Support to study advanced forms of delivering seasonal forecasts and in their implementation
- Support to use the IPCC data sets in the formulation of climate change projections
- Training in the scientific perspectives of producing seasonal forecasts and climate change scenarios
- Computer equipment and software necessary to undertake the research

*The reception side:* The reception side of climate services is extensive, covering government departments, the private sector, NGOs, CSOs, the media, the population in general, etc. Broadly speaking the needs can be broken into two areas, general sensitisation and specific capacity building for those with the need and the capability to implement climate change adaptation – this would include farmers, foresters and other resource users.

The SPCR might support, with inherent legacy:

- Upgrades to the media centre to enable its use in CCA sensitisation
- Developing sectoral programmes to design and implement CCA services, including:
  - Focussed training and awareness raising
  - Research into climate change impacts in The Gambia and into CCA options
  - Incorporation of CCA as required into revised GoTG sectoral policies (see also Section 1.7)
  - Development of sectoral CCA services, including incorporation into the National Platform for DRR and CCA

## **1.6 Gap Analysis: adaptation and mitigation responses and deficits**

### ***1.6.1 Background to the Gap Analysis***

This Gap Analysis on adaptation and mitigation responses and deficits was carried out by building initially on the three Gap Analyses developed for the NCCP, as well as existing studies and policy documents, after which it was supplemented by key informant interviews and regional

consultations. Insights gained were checked in an iterative fashion by means of these different methodologies.

The primary focus of the Gap Analysis is on adaptation, given the overriding needs in The Gambia. However, in line with the policy directions set out in the NCCP, it also considers an integrated approach to adaptation and mitigation where possible, and brings in mitigation priorities identified in the INDC, amongst other reports and policy statements.

### **1.6.2 Climate-resilient ANR and rural livelihoods, including livestock and rangelands**

#### ***Agriculture and small-scale farming***

Drivers of rural vulnerability for small-scale and family farms include the absence of capacity to overcome the impacts of climate change, particularly the increasingly shortening of the growing period with late onset and early cessation of rains; the growing migration flux of young people, the main workforce, towards the urban centres and abroad, enlarging the number of women headed households; and the deficient technical support to adopt adaptive options that would enhance resilience to the shortening of the growing period. As it is, frequent dry spells in the middle of the rainy season limit farming activities such as ploughing, sowing and planting before the arrival of the dry spell. The Multidisciplinary Facilitating Teams (MDFTs), which are essentially extension services, are presently monovalent, with an extension/farmer ratio of 1: to over 3,500, and not cost effective in their delivery performances; and lack technical knowledge about climate smart farming techniques for erosion protection and improving soil structure and fertility.

Soils in The Gambia are generally poor in organic matter and chemical fertility, requiring high inputs of manure and fertilizers to increase yields and quality. They can be subdivided into two main groups:

- i. Alluvial soil developed on alluvial material deposited by the River Gambia and its tributaries, and often affected by temporal or permanent wet conditions. Alluvial soils cover approximately 30% of The Gambia, but the related extension drops gradually from west to east. Most of these alluvial soils are hydromorphic with more than 80% silt plus clay throughout the profile, or are saline having been subjected to inundation by saline water; and
- ii. Continental Terminal soils located on the uplands, formed in the weathering products of the underlying Continental Terminal acid complex. They are well drained but have a low chemical fertility and cation exchange capacity (CEC), are poorly structured and have a hard to very hard consistency when dry.

Short duration rains coupled with poor water retention capacity and low inherent fertility has drastically reduced the productivity of upland soils (Jatta, 2013). Inadequate soil management practices further contribute to their impoverishment and loss of fertility. It is therefore necessary to develop good knowledge and characterisation of the local soils, in the form of an updated soil map, as well as to adopt healthy soil cultivation practices for each of the soil types, coupled with widespread use of organic matter to encourage structural improvement.

Adaptation efforts in the family farming / small-scale farming sector must address the following:

*Reduce dependence on groundnuts by encouraging agricultural diversification* - through Development of a National Plan for Crop Diversification, led by the Ministry of Agriculture, and to include the adoption of drought resistant crops with multiple gains and agroforestry crops production, which has potential both in terms of exports and for income generation for smallholder farmers; and multiple agronomic gains such as: (i) Horticulture, which seems a promising area of agricultural diversification that could reduce dependence on groundnuts; (ii) Cassava (*Manihot esculenta Crantz*), a source of food carbohydrates after rice and maize – drought tolerant; this attribute makes it the most suitable food crop during periods of drought and famine; it can be used as animal fodder and degradable plastic bags from starch); (iii) Beans - Pigeon pea (*Cajanus cajan L.*): good crop for marginal land used by resource-poor farmers; the grain is used for human and stock feed; also used as a windbreak and shade; good plant for restoration of fertility and is used in a rotation such as maize-groundnut; one of the most drought tolerant legume crops, with a wide range of rainfall tolerance; and (iv); The cashew tree (*Anacardium occidentale*): a tropical evergreen tree that produces the cashew nut and the cashew apple; The Gambia offers the ideal environment for cashew production in terms of arable land and climate. Cashew plantations in The Gambia are relatively young with production potential expected to rise significantly within the next decade. Cashew production costs are relatively low and the high quality of the raw nut from this area makes this a good alternative for crop diversification, with high potentials for promoting youth, women and elderly employability through a process of strengthening the marketing, organization, production, post-collection handling and promotion of the cashew value chain. Additional cash crops to be encouraged to reduce dependence on groundnuts are cotton, sesame, sugar cane and bananas, depending on the water availability and adequate soil conditions.

*Enact the Policy on Biodiversity and Biosafety* – to ensure that agricultural development enhances agrobiodiversity as well as biodiversity in surrounding areas and ecosystems.

*Enact Policy and guidelines to support the institutionalisation and expansion of Urban Farming practices* - targeting women and youth in particular, as a contribution towards food security and employability of young population migrated into urban areas.

*Establish an Agromet Advisory Services* - using climate-smart agriculture technologies and practices (agro-advisories) through mobile phones, which produces weather-based, crop-focused agrometeorological advisories to provide practical advice on when to plant, appropriate irrigation, which pesticides and fertilizers to use at the correct time, as well as other relevant agricultural support services. The advisories are produced by teams of multi-disciplinary agricultural, water and soil research scientists, who interpret weather forecasts in light of what these mean for the soils, hydrological specificities and the various crops and farming practices of the targeted regions.

*Reduce the impact of climate change on the major crops of groundnuts and maize* - through a suit of measures that include better water management strategies, improved technical support to the farming communities through an enhanced extension network, and the targeted support of the Agromet Advisory Services.

*Strengthen agricultural extension system* - to promote climate-smart agriculture; support and expand Climate Change Farmer Field Schools (CC-FFS), particularly to address local climate change induced constraints, e.g. (i) Adoption of early crop varieties to overcome the constraints of shortening crop growing period (CGP), such as rice early varieties (75 days); maize (75 days), cowpeas (75 days), etc.; (ii) Development of local composting units; (iii) Use of invasive species such

as water hyacinth (*Eichhornia crassipes*) as animal fodder and composting sources; (iv) Use of fast growing species for household fuel, animal fodder and enhancement of nutritional status of rural communities (e. g. *Moringa oleifera*); and (v) Support the institutionalisation of a “Farmers’ Needs Report” which will assist the Ministry of Agriculture to provide all farming inputs on time for each agriculture season ahead of the rainy season.

*Implement Agroforestry as a resilience measure for small -scale farming* — Integrating trees with crops to act as “nutrient pumps,” and “climate buffers” bringing nutrients that are too deep for crops and providing shade, wind breaker and litter source for water conservation.

*Promote climate smart agriculture practices and climate resilient varieties* – land use degradation measures including no-till agriculture, offseason cover crops, use of animal manure and biochar.

*Strengthen research for climate resilient agriculture* - strengthen the capacities of national agricultural research institute and other ANR related research stations (laboratories and human resources). Carry out research to develop new planting calendars for various crops and to introduce new short duration, drought tolerant, low input, salt tolerant and pest and disease resistant / tolerant varieties. Develop control strategies for newly introduced pests and diseases on crops. Strengthen research-extension linkage in general.

*Fertilizer efficiency* — Promote composting and organic matter utilization, encouraging the use of appropriate types/quantities of fertilizer depending on crop response functions, developed through research considering soil type and native soil fertility.

*Promote efficient rice water management* — With optimal management of water in a rice system, such as alternate wet and dry (AWD), methane emissions can be reduced without adversely impacting yield and potentially increasing yields. It may also prove to be a more efficient use of water in many locations. Adopt climate resilient irrigation techniques and system of rice intensification.

*Strengthen the value chain of agriculture products* – while simultaneously (i) Enhancing rural mobility (rural tracks and feeder roads); (ii) Developing produce cold storage capacity at local level using renewable solar/wind energy, as well as other forms of post-harvest storage, particularly for women; (iii) Establishing milling machines and micro-processing units, and (iv) Establishing national facilities and mechanisms for product certification and market extension targeting in particular the tourism industry; Investment in feeder roads and rural trails should include a rehabilitation programme for rural trails at regional and municipal levels, with maintenance and management plans to support organization and expansion of rural markets on “Cash-for-Work” scheme;

*Develop small scale and innovative customized cereal banks structures* - for community grain surplus storage, to act as a safety net for extreme climatic events;

*Promote youth centred “Spin-off” SMMEs for development of climate resilient value chains in each Region* - Strengthen agricultural value chains (crops and fruit trees including cashew nuts), while simultaneously enhancing rural infrastructure (e. g. fresh water points, renewable energy source), accompanied by technical capacity development;

*Promote Climate-Smart Villages in each of the Regions*, following FAO’s approach of climate smart agriculture - by equipping communities with tools to improve their resilience to climate change and other environmental challenges and fostering sustainable development, particularly of agriculture.

This would include (i) Nutrient smart approaches by enabling sustainable growth in agricultural production and mitigating the negative effects of chemical fertilizers on soil fertility through effective nutrient management; (ii) Tillage and ploughing smart by using draught animal power as a critical input to increased productivity of land and labour and therefore to sustainable agricultural production in low input systems; (iii) Water smart approaches by addressing water scarcity and uncertainty using simple water collection and irrigation methods; (iv) Energy smart by supporting environmentally sustainable energy use such as biogas plants and crop residue for household fuel which reduce the energy requirements; (v) Climate-smart services which includes advisories and tailored weather forecasts being delivered by mobile phones to plan planting, harvesting and other activities on the farm, as well as to enable farmers to buy index-based insurance for protection in the event of extreme weather (CCAFS, 2015); (vi) Finance smart by providing financial services like microcredit, micro-savings, and micro-insurance to establish, protect or expand a small, self-sustaining business motivating farming community individuals with otherwise inaccessible funds that will expand their business options while also reducing climate change induced risk.

### ***Livestock sub-sector***

Many areas of The Gambia with mixed crop-livestock systems with large number of animals may in the future see decreases in the quantity and quality of crop residues, putting further pressure on livestock feeding resources, increasing conflict between livestock keepers and farmers, and thus reducing food security. Crop residues are a key dry-season feed resource for ruminants and currently there is only limited information on possible climate change impacts on grassland production and quality. Changes in temperature, rainfall regime and CO<sub>2</sub> levels will affect grassland productivity and species composition and dynamics, resulting in changes in animal diets and possibly reduced nutrient availability for animals.

Adaptation measures in this sector include the following:

*Policy and Institutional mechanisms* - to enhance adaptation of livestock production systems to climate change and variability with long-term climate change adaptation planning addressing current livestock-based livelihood systems in the region that are best suited to climate change adaptation and provide food security and employment (e.g. promotion of poultry activities amongst young livestock keepers).

*Implement climate-smart livestock management practices* - that improve productivity or the efficient use of scarce resources to potentiate benefits with respect to food security.

*Implement technical and management options for mitigation* - in the livestock sector, leading to a reduction of greenhouse gas (GHG) emissions from livestock, e.g. sector efficient livestock feeding systems, such as drought-tolerant millet/sorghum, balanced feed rations and efficient manure management, composting and biogas utilization.

*Develop/strengthen Livestock Sector Institutional Policies* - for trans-border livestock control to prevent the emergence, spread and distribution of climate change induced livestock diseases via pathways such as increase in frequency of temperature heat waves, affecting developmental rate of pathogens or parasites, shifts in disease distribution that may affect susceptible animal populations, and effects on the distribution and abundance of disease vectors.

*Promote youth centred "Spin-off" SMMEs for development of climate resilient value chains* - Strengthen agricultural value chains (crops and livestock), while simultaneously enhancing rural

mobility, product certification, and market expansion targeting the tourism industry (e.g. goat cheese production using renewable solar energy based cooling rooms, biogas production for household fuel use, animal waste based composting and fertilizer production, etc.).

### **Forestry**

Further degradation of vegetation cover is taking place through freely moving cattle (transhumance) and small ruminants. Rapid population growth and urbanisation, for example in the Brikama area, have placed increased demand on forests for new settlements and/or expansion of existing ones, agricultural production, fuel wood, timber for construction and other forest produce. Cattle production is constrained by scarcity of feed and water during the long dry season, and aggravated by rampant bush fires that consume most of standing hay, crop residues and by-products to feed cattle. The Forestry sub sector could arrest and reverse degradation of lands along river banks and mangrove areas and protect others at risk of degradation from erosion, and in the process, expand land availability for increased rice production from tidal irrigation, and short cycle cash crops from uplands. Forestry could also increase the efficiency of the value chains of livestock, especially increasing off-take and processing of cattle in the rangelands of the country.

Adaptation options in this sector include the following:

*Implement long term ecosystem-based resilience and good agricultural practices* - Support and scale up ecosystem based adaptation (EbA), linked to community based adaptation programmes to arrest and reverse riverine and coastal mangrove degradation, and provide job opportunities, linked to: (i) Sustainable increase in tidal rice and short-cycle cash crops; (ii) Restoration of the buffering ecosystem surrounding the coastal dunes and riverine bank areas to control of traditional wildlife (hippos) grazing areas; (iii) Promotion of fast growing species for supply of household fuel material; (iv) Promotion of Efficient cook stoves using animal manure (dung) and or agriculture (rice husk) forest (debris) waste; and (v) strengthen and support community forests.

*Develop Land Use and Land Use Management Plans* - at Regional and Municipal level to: (i) Address the need of more properly demarcated grazing-based systems, with sufficient access to drinking water points to avoid further encroachment of forest and farming land; (ii) Update soil map, to serve as an input into climate-resilient land use planning and strategic environmental assessment (SEA).

*Implement long-term Monitoring and Management National Mechanisms* – supported by: (i) Establishment of a National Climate Change Centre for Information and Risk Management (CC-CIRM); (ii) Provision of a strong Remote Sensing Unit (equipped with appropriate advanced GIS (ArcGIS 9.2 or higher and Spatial Analyst Extension) to serve all the various Government Agencies dealing with Climate Change Vulnerability and Risk assessment/management and mapping; (iii) Establish an operational mobile innovative system using drone-based GIS technology to undertake detailed mobile mapping for real time monitoring purposes, which can significantly lower costs and reduce worker safety risk and assure repetition in time. This methodology can also be used in risk and vulnerability assessment, allowing for resource savings and a more accurate result in areas of forest management related to encroachment, forest fires, coastal monitoring including sand mining and planning; (iv) Sufficient trained remote sensing operators and researchers; (v) Training and equipment of National Forest Guards in each of the regions for monitoring/ enforcement of all forest management guidelines regarding encroachment, fire, logging, etc.; (vi) Motorized mobility

(motorcycles); and (vii) Community sensitization on climate change impacts and mitigation/adaptation measures.

*Policy driven promotion of ecotourism facilities to enhance forest management* - These ecotourism initiatives will benefit from fiscal incentives for attaching to them small-scale Village Centres for Agro-Forest Resources Transformation (Village CARTs), and physical and logistic infrastructures to allow the functioning of CARTs sector activities in each of the regions, for example (i) Creation of art crafts workshops; (ii) Construction and maintenance of the low-cost community infrastructures including facilities and equipment for production of native fruit jam; (iii) Support to establishment of beekeeping and honey production facilities; (iv) Support for establishment of native fruits liquor production facilities; (v) Construction and maintenance of the low-cost community infrastructures for small ruminant and poultry breeding; (vi) Mushroom farming and dry mushroom processing; and (vii) Poultry farming and egg production.

### ***Water sector***

Projections in The Gambia are for an increase in temperature, resulting therefore in an increase in evaporation and perhaps in evapotranspiration (latest climate change projections suggest that rainfall and evapotranspiration will most likely change in the same direction). There are large uncertainties on the impact of climate change on precipitation, and also in future variability in rainfall patterns, including adjustments in extreme events like intense precipitation or longer periods of dry weather. These two factors will contribute to disruption of the water cycle in The Gambia, which will affect the soil water holding capacity, leading to longer periods of water deficit and more frequent floods. This will affect rainfed farming, through increased variations in river runoff and groundwater recharge, as well as livestock feeding and watering (FAO, 2013a). Any action that reduces sensitivity and exposure to these hazards, or increases the capacity to respond or react, will have a positive impact on resilience of the Gambian farming communities.

Adaptation initiatives in this sector include the following:

*Establish a National Master Plan for Irrigation and Drainage Network for Riverine Areas to implement sustainable provision and usage of irrigation water to farming communities* - to accommodate water discharge management after the Futajalow Dam is built - which, supported by Land Use and Land Use Management Mapping, should include the construction of irrigation infrastructure, water harvesting structures, and training of farmers in efficient water use at the plot level, taking into account the expected limitations on groundwater recharge from projected climate change impacts.

*Increase adaptive capacity to strengthen resilience of the water sector* - by: (i) Creating national mechanisms to lessen the projected change in river salinity regime due to climate change, through implementation of a flow regulation system and by implementing water use regulations particularly related to the sustainability of the tourism Industry; (ii) Increasing adaptive capacity to lessen the projected drop in the underground water column, due to constrained groundwater recharge by climate change, through a cross-sectoral development strategy associated with a climate change-integrated River Basin Management Plan (surface and groundwater); (iii) Developing small-scale rainfall capture and water storage through rainfall water harvesting infrastructures (with maintenance and management plans) at community level, capitalizing on the projected increase in extreme rainfall events; and (iv) Developing an integrated flood protection plan based on a technical



assessment and on the climate change scenarios for rainfall projections, as well as a national flood risk map; combined with implementing a Flow Regulation System, either by instituting a diversion method to direct part or all of the river flow in the Gambia River Basin, or through the construction of protection dikes as an adaptation approach, particularly for rice cropping areas.

*Establish and scale up effective integrated drought, flood and ground water early warning systems - to enable effective risk reduction for both farmers and communities, as well as for protecting public health and safety, and infrastructure; Establish a groundwater based “Early Warning System” to monitor the status quo of the ground water, both in terms of quantity and quality of the various aquifers.*

### ***Parks, wildlife and biodiversity sector***

The natural resources base of The Gambia has been subjected to a wide variety of adverse human-induced impacts. Consequently, natural resources have degraded considerably to their present undesirable state. The three most persistent threats to protected area resources (National Parks and Nature Reserves) are logging, infrastructural developments, and land conversion. Unregulated and illegal hunting practices are also common throughout the entire country. Climate change impacts this sector particularly through the increasing dryness of recent decades and high temperature contribution to wild forest fires. In addition, climate change-induced sea level rise and unsustainable utilization practices, including mangrove cutting as an alternative for fuel wood in much of the Greater Banjul area and for fencing and roofing purposes in the North Bank Region, points to a grim future for biodiversity and its dependent human populations.

Adaptation efforts in this sector must be of an integrated nature due to the interlinkages with other sectors. These should be geared towards:

*Expansion of protected area boundaries - by establishing connectivity habitats around protected areas, into which species affected by climate change can disperse or migrate. Protected area management capacity should further be strengthened.*

*Implementing sustainable commercial and non-commercial use of non-timber forest products and other biodiversity resources.*

*Raising awareness - on the importance of biodiversity and ecosystem services for climate-resilient development.*

*Conducting an inventory of biodiversity, wildlife and biomass to be able to plan towards: (i) Addressing the human and wildlife conflict; (ii) Exploring the potential of marine turtle beach nesting for ecotourism; and (iii) Developing the ecotourism potential of the River Gambia.*

*Promoting a Youth Action Groups system – by empowering youths at village level to carry out community services linked to catchment rehabilitation, forest management, waste disposal and management, etc., contributing to socially and environmentally sound ways of living.*

### ***Fisheries sector***

In order to contribute to food security and foreign exchange revenues, as well as build resilience to climate change through adoption of adaptive and mitigation measures, the sustainable management of fisheries resources must be assured. This may be accomplished through:

*Sustainable adaptive management of fisheries resources* - through: (i) Strengthening the resilience of the resource base through sustainable management of fisheries, including avoiding endangered mammalian species and by-catches using appropriate fishing methods; (ii) Strengthening the Fisheries Department to integrate climate change risks into planning, and to improve its database on the issue of the different species available as well as their value, assessing the maximum sustainable yield versus maximum economic yield, under changing climatic conditions; (iii) Increasing collaborative research and information exchange among national and international research institutions to support a national inventory to map and assess various dimensions of the fish stocks and the impact of climate change on these; (iv) Promoting awareness of climate change risks and capacity building and strengthening of fishing communities in best practices such as co-management and a Code of Conduct for Responsible Fisheries; as well as participatory research and monitoring in the face of climate change impacts; (v) Developing response measures to deal with the impacts of increased wind and storm conditions, including through a seaworthiness and safety programme for fishing boats, and upgrading onshore fishing infrastructure to withstand more severe weather linked to climate change; and (vi) Promoting access to micro-finance facilities for artisanal operators constrained by high interest rates of loans, to increase the resilience against climate change impacts of industrial and artisanal fishermen and young women processors engaged in the sector.

*Strengthening the resilience of the Fisheries infrastructure against climate change impacts* by: (i) Upgrading all national Fishing Landing Points and Fish market and cold chain structures; (ii) Establishment and operationalization of post-harvest value chain units at each landing site including transportation means, fish handling and processing section, cold room, ice making plant, rodent-free store for smoked fish, smoke ovens, training hall with the availability of water and hygienic facilities; and (iii) Upgrading smoke ovens to modified altona oven which requires considerably more capital investment than the traditional banda system but uses approximately 40% less fuel and only one fourth the labour required by the banda per unit of fish processed.

### **Community Livelihoods**

*Establishment of Centres of Excellence for Skills and Product Development in the following sectors:* (i) Natural Resources Management; (ii) Fisheries; (iii) Food processing, including oyster production processing and certification; and (iv) Renewable energy (solar installation and maintenance).

*Establishment of Waste Management Plans at Municipal Level – National Recycling Training Programmes for youth.*

### **1.6.3 ICZM and River Gambia**

Coastal zone management in The Gambia has been undertaken on an *ad hoc* basis to date, with no formally recognised national plan. Prior to 2000, various local coast protection works were undertaken in response to specific flood and erosion problems. Between 2000 and 2004 the international consultancy Royal Haskoning undertook an extensive study that resulted in preparation of a Coastal Zone Management Handbook and several major engineering interventions, although with no consideration of future climate change. Recommendations for ongoing management activities were not picked up by the government, and as a result a further decade has passed with little progress towards a national plan. Aid projects undertaken through the UNDP, GCCA and others have considered climate change and have proposed broadly similar policy level

actions to develop coordination between various government bodies and other stakeholders, but again with no significant progress. The only aid-related coastal activity that has proceeded is the very recent (March 2017) UNDP/GEF funded commencement of work to provide short term protection to the Senegambia frontage, once again on an *ad hoc* basis with inadequate consideration of the wider implications for coastal zone management and the potential for more sustainable methods to achieve future coastal resilience.

Insufficient coastal process or geomorphological information is available to guide the development of coastal zone adaptation responses. The work of Haskoning (2000 and 2004) and the subsequent GCCA review by Coates and Manneh (2015) remain the most authoritative sources relating to the full open coast. In addition, NIRAS (2015) undertook modelling studies specific to the proposed engineering intervention at Senegambia on behalf of UNDP. Although useful, these reports do not provide the depth of information needed to support a coastal zone management plan for the open coast and certainly do not provide adequate information for the coastal stretch of the River Gambia.

As a starting point the following are required:

- Detailed topographic survey of Banjul including the highway and the Bund Road
- Definition of topographic contours for the full coastal zone (open coast and River Gambia) to determine areas at risk from flooding due to sea level rise
- Bathymetric survey for the full open coast and the river
- Tidal elevation, tidal current, river flow, water quality, wave and wind monitoring for several points up the river and at least two points along the open coast (purchase of some monitoring equipment and two inshore survey vessels, plus staff training, has been funded by UNDP, but as yet no field monitoring has been undertaken)
- Nearshore wave monitoring for two points along the open coast and one in the river mouth
- Wind monitoring for two points along the open coast and one at the port (existing but not consistently recorded or analysed)
- Tidal current measurement for the approaches to the River Gambia using drogues and point measurements
- Sediment distribution and geophysical survey of the full open coast and the lower reaches of the river
- Detailed sediment transport modelling for the approaches to the River Gambia, encompassing the coastal area from Bakau in the south to the Senegal border in the north
- Bi-annual beach and backshore monitoring, preferably using miniature drone technology (November and May)
- Land use and habitat survey of the backshore to a distance of at least 150 m or the 3 m GD contour, whichever is the greater, for the full open coast and River Gambia
- Survey of existing coast protection structures along the open coast.

As with all acquired geographical data, there is a requirement to store, analyse and distribute the results from these various surveys and monitoring campaigns using a well set up and accessible GIS

(Geographical Information System) combined with reporting of the analysed results. . Ideally the GIS would be a national system under a central control, with well-defined quality and compatibility standards for receiving and distributing information from and to stakeholders. It is noted that at present there are insufficient resources and capacity in The Gambia to upgrade or replace existing systems.

Beyond the requirement for field information, there is an urgent need to derive cross-sectoral policies and practices for ensuring future coastal resilience based on principles of sustainability, cost effectiveness and best practice within the Gambian context. Existing policies and practices are either outdated or do not exist at all. They need to be agreed and implemented across all relevant stakeholders and Ministries, giving due consideration to the needs of transport, infrastructure, waste management, tourism, mining, fisheries, agriculture, forestry, aquaculture / oyster culture, wildlife management, local culture, public recreation, etc.. Importantly, any proposed engineering interventions along the coast need to be considered holistically to ensure that funding is well directed for the long term benefit of the country and not to support individual stakeholders on an *ad hoc* basis; the principle of **managed coastal realignment** should always be considered as a preferable alternative to building costly defences. Managed realignment is the deliberate process of allowing the shoreline to find a new dynamically stable alignment, rather than attempting to control erosion or flooding by engineering interventions at specific sites. This approach to coastal management may cause the loss of property and assets along the shoreline, but will result in improved long-term sustainability and resilience, as well as re-establishment of a natural foreshore and backshore for the benefit of coastal habitats, tourism, local beach traders (mainly women) and informal public recreation (mainly urban young people with few alternative for open space).<sup>5</sup>

A notable gap in future management of the River Gambia is the lack of international agreement on water discharge from the Sambangalo Dam. Although reports from the dam developers OMVG<sup>6</sup> make note of the potential for controlled wet season releases to flood farmland beneficially along the river edge, there does not appear to be any detailed definition or agreement of the management process, and specifically there is no discussion of potential climate change impacts which may include prolonged drought periods when water in the dam will be prioritized to favour electricity production over agriculture or aquifer recharge. A key OMVG assumption for the dam operation is that there is a trend towards longer rainy seasons and more evenly spread rainfall, which is at odds with more generally accepted views of climate change that anticipate longer droughts, shorter rainy seasons and more intense rain storms.

#### **1.6.4 Infrastructure and services**

##### **Waste management**

While a number of studies carried out over the years have made numerous recommendations, waste management continues to be a major challenge. From collection, storage and disposal, all aspects of waste management are poorly managed, whilst existing dumpsites including the Bakoteh disposal site are public health hazards as well as being eyesores.

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<sup>5</sup> Managed realignment is appropriate in situations where the economic, environmental and social costs of providing a viable engineered solution are not justified by the benefits. The practice has been internationally recognised as an important coastal management method for over 25 years.

<sup>6</sup> Organisation pour la Mise en Valeur du fleuve Gambie (the Gambia River Basin Development Organization)

Poor management of the sector is due to a large extent to inadequate capacity of municipalities to address the problem. Urgent financial and human resources development, together with a substantial financial investment, is required to improve the sector.

Both Bakoteh and Mile 2 Dump sites are no longer capable of handling the volume of waste they were intended to handle, whilst Bakoteh has been rendered unhealthy and ineffective by the uncontrolled urban development and encroachment around it. It is therefore necessary to identify a new site, using multiple socially acceptable criteria that factor in climate change projections, which can replace both Bakoteh and Mile 2.

Apart from the formal sites, a number of illegal dumpsites exist, some of which are located on waterways. These should be completely eradicated once a new site has been identified and is operating, and based upon improved waste collection strategies that maximize entrepreneurial opportunities. Improved integrated waste management is inextricably linked to updating and enforcing land use planning in the GBA, and indeed throughout the country. For an enhanced urban environment, existing environmental and physical planning laws and regulations should be enforced, to eradicate inappropriate developments on waterways, amongst other issues.

In order to address adaptation and mitigation deficits, the following are proposed:

- Closure of existing sites such as Bakoteh, which are no longer serving their useful purpose;
- Take appropriate measures against illegal and clandestine dump sites – these need to be cleared, including blocked waterways especially those in the periphery of dwellings;
- Application of renewable energy and recycling waste to energy
- Establish comprehensive waste collection procedures and carry out ongoing sensitisation of the population on these procedures, as well as climate change and health related impacts.

The Kanifing Municipal Council (KMC) finalised a five-year integrated waste management plan designed to address all aspects of the waste stream, including household, commercial, industrial and healthcare waste, both solid and liquid. This is based on the general principle of waste minimisation from the source throughout the waste management chain, and includes eight components. The SPCR could usefully support relevant aspects of this, for example, component 1 that deals with public education and awareness raising on waste management issues; as well as activities dealing with re-use and recycling. The Plan notes that composting and recycling will be important strategies for minimisation, and targets a 75% diversion rate for waste from sources of generation to planned processing facilities, to be developed through partnerships with private sector investors.

### ***Water supply and sanitation***

Water supply in rural Gambia is the responsibility of the Department of Water Resources, while NAWEC operates the urban water supply systems. In addition to these, water supply is such a major cross-cutting activity that a number of other stakeholders are involved in its management, necessitating an integrated approach to water resources management strategy. Recent developments have resulted in a more supportive legal and institutional framework, as there is now an IWRM Policy, Strategy and Road Map. There is an evolving institutional framework that includes water user groups. However, all of this is project based, with no dedicated budget lines for reliable and ongoing support to institutions, which means they are not able to carry out their institutional mandates effectively.

The Banjul sewerage system currently suffers from both infrastructure and operational problems. These include blockages in the system, infiltration of rain water and sand through manhole covers, intermittent mains power supply to the two pumping stations and regular overflows to the environment chiefly at the pumping station.

The Kotu system on the other hand, suffers from discharge of raw sewage into the Kotu Stream due to defective sewer pipes, a lack of overflow storage capacity during pump/power failures, lack of an alarm system to alert operators that there is a problem with the pumps, and intermittent mains power supply to the pumping stations. In addition to these, fundamental equipment needed to adequately maintain and repair failures in the system is lacking.

Apart from these problems, some of them significant, the Banjul sewerage system is generally fulfilling its primary function of collecting and discharging sewage to the sea outfall. However, this in itself is undesirable, and without intervention to maintain the system to a satisfactory level its performance may continue to deteriorate.

It is anticipated that greater sewage flows will be generated through the introduction of an improved and more reliable water supply for the TDA. Even without this, the satisfactory collection and disposal of sewage from existing and future development of the TDA has always been an issue of significance for the tourism industry.

While not yet well understood in The Gambia, there are concerns that the impact of climate change on drinking water supply and wastewater management will have significant public health consequences, in the absence of adaptation responses. An immediate adaptation measure is to identify and take appropriate measures for wells, particularly those in coastal areas, which are at risk of, or affected by, saline contamination.

### ***Roads and drainage infrastructure***

In light of the relevant analysis in section 1.4, it is clear that the current practices adopted by various municipalities in dealing with drainage problems in the GBA and the growth centres are not sufficient to address the problem.

Today, the design of any project, especially road infrastructure, should no longer be done on the basis of the classical assumptions, namely traffic flows, axle weight, etc. Rather, all infrastructure should be designed to accommodate climate projections, using a low regrets approach. Although the National Roads Authority (NRA) runs a road maintenance unit, maintenance schedules are irregular and often carried out when significant damage has already been done. Due to its technical nature, capacity of road maintenance staff needs to be enhanced for maximum results.

An appropriate drainage facility should be an integral component of any road or bridge. Drains protect roads and bridges from damage due to storm water and run-off particularly during the rainy season. Unfortunately, most road and bridge constructions in the GBA do not include drain facilities.

Drainage challenges relate to lack of effective planning and management. Existing facilities are limited to a network of drains facilities that may be required to convey storm water to a receiving water body as well as drainage channels built to serve some of the major roads. In both cases, operation and maintenance of such drainage facilities is the responsibility of the relevant local government authorities. However, due to the acute budgetary constraints that characterize these institutions, maintenance activities are generally limited to minor structural repairs and removal of

sand and debris blocking the drainage system. To achieve the optimal from the drains, it is important to sensitise the general public on the purpose of the drains and the need to utilise them and avoid throwing waste into them. The drains should be adequately maintained at frequent intervals.

In areas where there are no drainage channels, significant ponding of water in streets occurs. To avoid the inconvenience and damages that accompany water ponding, local councils will need to put in place strategies that will ensure construction of sufficient drainage facilities.

An environmental impact assessment should be prepared for drainage projects where this is required in accordance with the 1999 EIA procedures and the 1999 EIA Guidelines, to comply with the National Environmental Management Act (1994).

The sustainability of road infrastructure must meet an unequivocal standard for climate resilience. Investments may therefore be costly both in terms of new work and maintenance; best practices must be taken into account, without being exhaustive. These include:

- An accompanying drainage system in the design and implementation of road projects; and
- Expedite road maintenance to reduce the rate of deterioration between the preparation of tender documents and awarding maintenance contracts.

### ***Energy infrastructure***

Energy Infrastructure in The Gambia suffers from numerous constraints resulting in a highly erratic power supply. This is due to various factors including ineffective planning of both maintenance and repair operations, leading to unreliable and unmanageable machines. Immediate plans to replace existing aged generators should be explored, to reverse the current drop in power supply capacity. Improved competition in the energy sector (transmission, power generation, management/operations and maintenance, loss control), would also be needed. From the SPCR perspective, the limited investment in the energy sector especially in the area of renewable energy, should be urgently addressed.

Human resources development together with a substantial financial investment is required to improve the sector. A clear replacement policy and standards for generators, transmission and distribution networks and associated equipment should be developed and implemented urgently. There is insufficient investment into renewable energy in the country. This should be incentivised by an appropriate regulatory framework, which should include standards for quality control and resilience. The human resources development could include establishing an engineering centre of expertise to plan, design and execute climate change projects in order to capitalize on engineering services offered by Gambian firms and consultants – this would go beyond energy to include other areas of climate resilience-related engineering services.

With respect to vulnerability to climate change, critical issues lie in the adverse environmental effects, with knock-on effects for climate resilience, created by the heavy reliance on fuel wood. This is exacerbated by inadequate investment in renewable energy options and the current lack of interconnection with the West Africa Power Pool. The production of biogas energy will require investment to ensure appropriate skills development for this technology, and collecting sufficient quantities of appropriate waste presents a challenge.

### **1.6.5 Land use planning and uncontrolled urbanisation**

The sections above focused predominantly on urban and peri-urban infrastructure with respect to waste management, although many of the issues are common to the rural areas as well. With respect to waste management and drainage, the situation is exacerbated by the uncontrolled urbanisation and haphazard land allocation noted in section 1.4.6. The claims and needs for land and the expansion of residential properties tend to be in conflict with other requirements for land; despite a comprehensive legislative and institutional environment for land use planning and land administration, significant social, health and environmental risks abound, related to urban sprawl into valuable agricultural land, depletion of mangroves and forests, and pollution of the riverine areas. Uncontrolled dumping in the riverine areas and drainage channels is already exacerbating increased flooding that is linked to climatic change. These risks have been significantly increased recently with the informal closure of the Bakoteh waste disposal site.

At the same time, coastal protection measures have been implemented in recent decades on an *ad hoc* basis with inadequate consideration of the wider implications for coastal zone management and the potential for more sustainable methods to achieve future coastal resilience. These coastal issues, which have crucial relevance for tourism development, also need to be considered within the context of land use planning for coastal resilience, and agreement reached on a holistic and coherent way forward for efficient and effective use of available resources in the coastal zone. Thus controlled utilization of the available land resources, throughout the country as well as within the coastal zone, is urgently required, to promote environmental sustainability, human health and climate resilience. To achieve the equitable use of such resources, policy guidelines for future urban development and an administrative machinery to implement them became imperative.

## **1.7 Policies and strategies**

As part of the planning process for the SPCR, a detailed review was carried out of the legislation, policies and strategies in The Gambia that directly or indirectly impact on climate change and climate resilience. This section contains a summary of the review, while the full text is contained in **Annex 6**.

The conclusion of the review is that the policy and legislative framework is in need of significant updating, in order to fully incorporate and guide responses to current and future climate risks and change. Much relevant sectoral legislation does not reflect the realities of climate change risks; even where legislation refers to “the environment” this tends to be seen in a more narrow environmental impact assessment context, rather than in the context of preparing for climate change. Many of the policies and strategies contain provisions that work against climate change (see Box 2 below), and there is a lack of policy coherence, which may cause conflict between portfolios, and work against equitable, efficient, effective and sustainable governance, particularly within the context of moving towards greater climate resilience in The Gambia. New legislation is pending – particularly as regards water resources management – which addresses climate change risks, but which has been held up pending the establishment of new democratic structures following the change in government of January 2017.

As an overarching statement in terms of mainstreaming climate change and sustainable development into national development planning and into the policy framework of The Gambia, the



draft PAGE II states that it mainstreams the Sustainable Development Goals (SDGs), the African Union Agenda 2063 and the Istanbul Plan of Action to ensure the achievement of sustainable and inclusive growth and prosperity. While this is positive, the ability to achieve this mainstreaming in concrete terms will depend on the nature of the sectoral policy and legislative framework, as well as its implementation and enforcement. The National Climate Change Policy represents a significant step forwards, with many progressive and necessary provisions designed to ensure a coherent and effective approach to reducing vulnerability to climate change and building adaptive capacity and resilience. Implementation of the NCCP, after formal Cabinet approval, will require considerable investment and effort – and indeed this is the central subject of this SPCR.

An examination of the sectoral policy and legislative framework reveals a situation in which much remains to be done to mainstream climate change, within a sustainable development approach. Existing legislation, where it mentions environment, mostly focuses on conservation and environmental impacts, with no mention of climate change (e.g. **Fisheries Act** of 2007; **Biodiversity and Wildlife Act** of 2003; **Renewable Energy Act** of 2013, **Minerals Act** of 1953, **Mines and Quarries Act** of 2005. The Mines and Quarries Act is particularly relevant, as the quarrying/sand mining in the coastal zone has direct and immediate impact on the area in question as well as, potentially, all along the coastal zone – particularly as this Act “extends to the land beneath the territorial sea, and the sea bed and the sub-soil of the continental shelf of The Gambia” (Section 2.1). The focus of the Act is more on the licence fee and permits than on environmental impact, let alone climate change. The **Petroleum Act** of 2004 and the **Petroleum Products Act** of 2016 limit themselves to environmental impact assessments, and obligations to avoid damage to “the environment”. The **Public Utilities Regulatory Act** of 2001, the **PURA Enforcement Regulations** of 2009, and the **Information and Communications Act** of 2009 make no mention either of the environment or of climate change, even though the utilities covered by the Act cover “provision and supply” of electricity, petroleum, gas and water; and “regulated public services” include, for example, energy services, water supply and sewerage. The only provision relating to climate is that the Authority must have regard to: “The need to make the best use of any natural resources of The Gambia (Section 24, sub-section 4.a)”, without further specification.

The **Renewable Energy Act**, while it does not explicitly discuss climate change, does have as its principle objectives to promote and enhance the use of renewable energy resources, which, if carried out in a sustainable fashion, would be expected to promote climate resilience. However, the Act does not discuss the impacts of continued use of biomass (including on forest cover; and health impacts) on climate change, but rather focuses on the use of biomass as a renewable energy resource. The Act calls for the adoption of a strategy for the sustainable use of biomass energy sources (a “**Biomass Strategy**”) with one year of the coming into force of the Act. Lack of technical and financial resources in the Ministry responsible have, thus far, stood in the way of the implementation of activities necessary to prepare this Strategy.

Environmental Acts, such as the **Environmental Quality Standards** of 1999, **Hazardous Chemicals Act** of 1994, **Plant Importation Act** of 1936, and even the **National Environmental Management Act** of 1994 focus on conservation, pollution control, and environmental impact studies, rather than incorporating any aspect related to climate change

Significant efforts have been made to mainstream climate change into three policies of the ANR sector: (i) the **Forestry Sub-Sector Policy** (2010-2019), noting the “inadequate consideration of

climate issues in the policy design”, was updated in 2013 to highlight the impacts of ongoing climate change on forests, and the critical need to reduce deforestation and enhance ecosystem resilience, in the face of climate change; (ii) the **Agriculture and Natural Resources Policy** (2009-2015), which was revised in 2013 to integrate climate change issues systematically, including highlighting risks to food and cash crops, as well as livestock, from future climate change effects, as well as negative impacts to natural ecosystems, with mangroves and grasslands being negatively affected; and (iii) the Climate Change-Integrated **Fisheries Strategic Action Plan** (2012-2015), which was reviewed to place more emphasis on anticipated climatic impacts on fisheries, and to propose a number of adaptation response measures. The **Education Policy**, discussed below, also includes significant reference to climate change. Significantly, although women and female-headed households are the main work-force in agriculture and should be a key focus of “rural resilience” efforts, gender is not significantly main-streamed into the existing ANR policy’s sub-sector policies and strategies, even though in its discussion on cross-cutting issues the Policy does recognize a number of key constraints facing women: access to land and land rights; lack of collateral to access credit, limited access to formal markets, lack of market information and access to inputs, etc.

### **Tourism**

The **Gambia Tourism Board Act** of 2011 repealed the **Tourism Authority Act**, established the **Gambia Tourism Board** (GTB) and provided for the **Tourism Development Areas (TDAs)**. The Act includes provisions in relation to licensing of hotels, nightclubs, casinos and restaurants, as well as for the designation and demarcation of TDAs, but makes no mention of any environmental responsibilities – whether by the GTB or by a leaseholder – and is completely silent on climate change. Given that much of the tourism development is located in vulnerable areas of the coastline, this is a significant omission. The Regulations accompanying the Act of 2011 make mention of building plans but these constitute no obligation neither do they mention climate-secure building codes. No requirements for environmental impact assessments are included in the Regulations; and no mention is made of climate proofing (whether related to sea-level rise, extreme weather events, flooding, etc.).

The **Tourism Policy** (undated – but presumably from around 1996) recognizes the need for review of tourism-related legislations as these “are either rendered obsolete by current exigencies or are too numerous and unwieldy, under the administrative authority of non-tourism Ministries and agencies”. However, the laws referred to are those dealing with taxation, service fees, expatriate employees, business registration, auditing and land rates, with no mention of climate change. The Policy draws attention to the need to eliminate the haphazard planning of the coastal area, landscape erosion, indiscriminate sand mining on the beaches, and environmental pollution by refuse dumping and control stray live-stock. In addition, the Policy notes that critical evaluation will be made by the Tourism Area Development Board to assess the environmental impact of new hotel building investments, so as to better control the spread and quality of structures that are being implanted in the TDA to safeguard environmental aesthetics. However, no mention is made of climate-change related issues such as, for example, sea-level rise, which would have a major impact on all tourism-related infrastructure along the coast. Equally, the **Tourism Development Master Plan** (2006) focuses more on product rather than on developing a sector resilient to climate change. The challenge at the time was seen as one of maintaining The Gambia’s tourism potential “by preserving and restoring key natural resources to as pristine a condition as possible”. No mention is made of the need to plan for climate change impacts on this key economic sector.

**Box 2 Policy provisions that work against climate resilience**

Much of the legislation in The Gambia pre-dates climate change awareness. The sectoral silos have hampered mainstreaming climate change, with the tendency to leave everything to do with environment and climate change to the MoECCNAR, without necessarily seeing these challenges as being cross sectoral. While climate change is now being addressed in new draft legislation (e.g. water resources) and in strategies (e.g. agriculture and natural resources; forestry), existing legislation – where it addresses the topic at all – is mostly restricted to environmental impact assessments of a very limited nature. Changes in this would require changes in the National Environment Management Act and its associated regulations to shift from assessing whether a project will have “any adverse impact on the environment” to proactively addressing climate change as part of the long-term, multi-sectoral impacts of an intervention, and to include provisions for enforcement. For example, there are presently numerous user conflicts between different stakeholders with respect to the management of coastal resources such as fisheries, mining of minerals (sand, ilmenite), agriculture and forestry. The Mines and Quarries Act focuses on licences and royalties with only one-sub-clause to “protect the environment of The Gambia” and another “requiring the restoration of land on which mining or quarrying operations have been conducted”. There is no sand mining master plan; no legal framework to protect the remaining mangroves and critical coastal habitats; no provision in land-use planning to keep vulnerable areas free of construction; a Minerals Act (1953) and Rules (1963) which still allows the holder of a mining right, to “deposit in the watercourse tailings from mining operations”,<sup>7</sup> but only prescribes “reasonable measures for the prevention or reduction of soil erosion”. As highlighted in the PAGE Mid-Term Review, the lack of favourable enabling environment with a well-defined and elaborated consistent policy framework predicated on seeking national interest is significantly reducing effectiveness of development in The Gambia. Unless a strong policy framework is put in place, all gains would ultimately be unsustainable.

**Health, Social Welfare and Education**

The health sector is regulated by the **Public Health Act** of 1989 which has no specific climate change focus, although provisions in the Act relate to the environment, and potentially also to climate change (purity of water supply, waste removal, control of mosquitos and other insects, inspection of the sanitary condition of beaches and, in general, the prevention, treatment, limitation and suppression of disease. The **National Health Policy** (2012-2020) equally does not integrate either environment or climate change as a crosscutting issue, apart from mentioning the potential effects of the environment on socio-economic growth, and making the link to the **National Environment Management Act** (of 1994). However, the MoH&SW is expecting funds shortly in order to revise the National Health Policy, specifically to incorporate climate change issues. The updated **Health Sector Emergency Preparedness and Response Plan Related to All Hazards** (2017-2019) does not mention climate change specifically, but does address a number of climate related hazards as well as underlining the cross-sectoral cooperation in addressing health sector hazards (drought, floods, bush fires, windstorms, locust invasions, environmental degradation and epidemics), many may be affected by climate change. The **National Strategy for Sanitation and Hygiene** (2011-2016), designed to implement the National Hygiene and Sanitation Policy (2009-2014), does not mention climate change but highlights how weak implementation of the Physical Planning Act results in the proliferation of illegal settlements and poorly planned infrastructure, with resultant health impacts.

The **National Social Protection Policy** (NSPP) (2015) considers climate change to be amongst the key stressors hampering social development, as it is associated with hazards affecting incomes, food and

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<sup>7</sup> See also: Concept Note: Identification of Development Program Priority Needs in terms of DRM, Urban Flood & Climate Resilience.

nutritional security, health status, and general wellbeing. Thus the Implementation Plan 2015-2020 of the NSPP includes mitigation and adaptation strategies and actions against climate change effects - for example, a feasibility study for crop weather-indexed insurance for vulnerable farmers, to strengthen social protection support during disaster emergencies and food price shocks.

The most recent education strategic plans and policies are contained in the **Education Sector Strategic Plan** (2014-2022) and the **Education Sector Policy** (20156-2030). The strategic plan clearly underlines the challenge that The Gambia is facing regarding the education of women and girls, and the **Education Policy** (2016-2030) aims at *“improving access to quality education for all, particularly girls, for greater gender equity”* (Section 2.2.4). As regards Science, Technology and Innovation, the Strategic Plan aims at focussing all potential capacities of science, technology and innovation to address *“poverty reduction, competitiveness, sustainable environmental management and industrial growth”*. A major element seen here is the recognition of The Gambia’s climate dependency, the need to better exploit available energy resources, including renewable energy, thus tackling the effects of deforestation. The Education Policy devotes an entire section to the environment and climate change, and calls for the integration of environmental education and climate change into school curricula. The Strategic Plan foresees the establishment of one TVET training institution per region - an important step to develop the necessary practical skills for responding to climate change.

### **Women**

The Education Policy has drawn attention to the gender imbalance in education, and the importance of working towards gender equity. The **Women’s Act** of 2010 addresses the legal provisions for the advancement of Gambian women, including enforcement of the UN Convention on the Elimination of all forms of Discrimination against Women (CEDAW), the African Charter on Human and Peoples’ Right on the Rights of Women in Africa. The Act further makes special provision regarding the rights of women in rural communities, including the rights of women *to have access to agricultural credit and loans, marketing facilities, appropriate technology, and equal treatment in land and agrarian reform, as well as in land resettlement schemes*. (Section 33.2.e). In particular, as regards the environment – and by extension to climate change – the Act enshrines the right of every woman to live in a healthy and sustainable environment (Section 51.1), and calls for greater participation of women in the planning, management and preservation of the environment and the sustainable use of natural resources at all levels; as well as for protection and development of women’s indigenous knowledge systems. The Gender and Women Empowerment Policy 2010-2020 calls for effective mainstreaming of gender perspectives into emerging crises such as climate change, disaster management, and the food and fuel crises.

Concerted efforts will be needed to achieve the gender equality provisions in the Act and the Policy, given that civic participation, land ownership, etc., still favours men. Customary biases often mean that women do not exercise their land rights, neither do they have the financial resources, knowledge, and capacity to go against social norms. Management systems are weak, resources to address gender bias are extremely limited and there is significant community antagonism to women’s equal rights. A shift is therefore required in the thinking, attitudes, and understanding of men and women as well as officials and decentralised government structures and traditional authorities.

### **Disaster management and DRR**

The **Strategic Action Plan for the Disaster Management Programme** (2008-2011) notes, in its introduction that, climate change will have repercussions as it can lead to: *desertification, rising sea levels, rapid shifts in vegetable zones, lower agricultural production and a greater shortage of fresh water*. Such repercussions will affect particularly the poorest who will be worst hit – which includes women and children, the physically challenged, and other marginalised groups. The Strategic Action Plan updates the **National Disaster Management Act** (of 2008), which, while already focussing on “prevention, preparedness, response, mitigation and recovery” did not fully integrate climate change as an ongoing preparatory factor. It is clear that with chronic vulnerabilities and changing risk patterns disaster management strategies will increasingly need to focus on being prepared. The 2008-2011 Strategic Plan was updated in 2013, as the **Strategic National Action Plan (2014-2017) – Strengthening Disaster Risk Reduction and Management in The Gambia**. This Plan specifically recognized the need to integrate climate change adaptation with disaster risk management, and is committed to develop risk assessment and risk modelling tools to develop innovative and sustainable strategies of disaster risk financing.

#### **Local government, land and physical planning**

Key areas for intervention in order to promote resilient development include the enforcement of DRR measures in land-use planning and building regulations and standards. At present, these are all inadequate, being based on legislation dating back to the 1990s. Action to update and climate proof building standards, energy codes, etc., is being undertaken jointly between the Ministry of Local Government and The Gambia’s Standards Bureau. However, work has only recently started on this and the process is still in its early stages. The process will need validation as well as integration into legal frameworks such as the **Local Government Act** and the **Physical Planning and Control Act**.

The relatively comprehensive legislative environment for physical planning and local government requires review and updating to mainstream climate change within the context of sustainable development; and to ensure that provisions and enforcement are in place to control the widespread problems of settlement and illegal waste dumping in drainage channels that are exacerbating flooding in the GBA and elsewhere. For example, the Physical Planning Act is silent on environmental impacts and makes no mention of climate change.

Land use plans for the Greater Banjul Area and the growth centres, where such plans were made, are outdated and insufficiently enforced. The first GBA Land Use Plan has become grossly out of date since its preparation in 1985, due to the unprecedented changes that have taken place since then, including haphazard settlements in the Kombos, often as low density sprawl into agricultural land and riverine areas, exacerbating forest depletion and reducing flood absorption ecosystem services, amongst numerous other significant problems. Such considerations equally apply throughout The Gambia. Urban (GBA and rural growth centres) and rural resilience are inextricably linked, especially as the GBA continues to absorb the influx of rural migrants. Land use plans are necessary not only to allow for the provision of basic urban services (electricity and water supply, roads, drainage and sewerage, etc.) but also to control encroachment and illegal land allocation (by, for example, traditional authorities) into the wetlands, mangroves and swamps included in and surrounding GBA – areas which will be the first to be impacted by any sea-level rise.

The 99-year **Tourism Development Area (TDA) Lease** (signed 11<sup>th</sup> June 2015) granted to the Gambia Tourism Board for the demarcated TDA also needs to form part of the necessary Land Use Planning exercise for the country, as a matter of urgency. Even though the Lease is from 2015, no mention is

made in the lease of potential environmental impacts, of impacts on the coastal zone as a result of climate change, sea-level rise or coastal engineering works.

### ***Water resources***

Presently The Gambia's water resources are covered by outdated legislation, such as the **National Water Resources Council Act** of 1979. Three new Draft Bills awaiting formal approval and enactment have been prepared which address The Gambia's water resources within the context of climate change. These Acts will, at the same time, repeal and replace the **National Water Resources Council Act**. The principal piece of legislation will be the new **Water Act**, and will be supported by a **National Water Resources Management Authority Act** and a **Meteorological Authority Act**. The **Water Act** will provide the enabling environment for Ministries and Government agencies: *to collaborate comprehensively in safeguarding the waters of The Gambia within a common legal framework with guiding principles*. The Act will ensure protection and management of the nation's water resources, look to the needs of future generations and promote the efficient and sustainable use of the resource for the future. The Act will enshrine the polluter pays principle, the equal treatment of women, and public participation in decision-making.

The Water Act also includes provisions relating to transboundary waters, notably the international agreements concerning The Gambia River, and the United Nations Convention on the non-navigational uses of International Watercourses. The management of The Gambia River is governed by a convention signed between The Gambia, Guinea and Senegal (signed in 1978) and updated to include Guinea-Bissau. The Convention does not mention climate change, and has been criticized for giving weight to navigation to the detriment of other types of water use. Furthermore, the OMVG Convention establishes a mandate for the Permanent Water Commission to allocate water rights only in regards to agricultural, industrial and transportation water uses. In so doing, the convention ignores that allocation decisions should also take into account environmental flows necessary for maintaining in-stream water uses, in addition to other types of water utilization (Garane, 2008).

The discussion is particularly pertinent now given the major infrastructural works planned for the River Gambia – notably the Sambangalo Dam, which will impact on at least two major areas related to The Gambia's response to climate change. Firstly, the provision of renewable energy through hydroelectricity, and the connection to the West Africa Power Pool, will reduce The Gambia's reliance on fossil fuels to produce electricity. Secondly, the potential to regulate water flow from the dam will have impacts downstream on irrigation and flood control regimes, including potential recession of the saline front during the dry season, as well as impacts on the mangrove swamps and downstream wetlands. Within this context, the OMVG Convention may require updating so that institutional arrangements are put in place to manage the downstream environmental impacts (irrigation, flood control, river flow, etc.), as well as to integrate the most robust climate change scenarios (as indicated in section 1.6.3).

### ***Strategic environmental assessment***

The Gambia has taken steps to introduce strategic environmental assessment (SEA) as an integral part of environmental and climate policy, with the drafting of a National SEA Policy (2017-2021) with accompanying Guidelines and Procedures. The draft SEA Policy is aligned with and falls under the framework of the National Environment Management Act, (NEMA) 1994, and the Environment Impact Assessment (EIA) Regulations, 2014. An advantage of the SEA approach is inclusiveness and

participation in decision-making. Going forward, this will be one of the key aspects of the enabling environment developed by the SPCR, in terms of ensuring ownership, understanding and involvement of all relevant stakeholders. In addition to transparency, the SEA Policy would ensure that environmental considerations are incorporated at early stages of planning and decision making, and that alternative scenarios and interventions are considered at an early stage.

As with the water resources legislation discussed above, approval of the Draft Policy, together with its guidelines and regulations, have been delayed as a result of the change in government, and are awaiting formal approval. The need for the application of SEA in national planning processes is becoming increasingly important as pressures on the environment and natural resource base multiply. SEA will also be important for control of trans-boundary environmental issues such as climate change and shared natural resources like water bodies. The SEA Guidelines and Procedures apply to all policies, plans and programmes in the country that fall within the scope of the SEA Policy, and have a legal basis in terms of the NEMA and the EIA Regulations. However, for various reasons, including lack of capacity at NEA and no sitting of the National Environmental Management Council (NEMC) since 1994, most sectors have been not been complying with the Act. The SEA Policy proposes a number of concrete actions, including capacity building, to address this.

## 1.8 Institutional assessment

The Gambia is emerging from two decades characterised by state repression and human rights violations (Human Rights Watch, 2015). At the level of the civil service and government agencies this resulted in a difficult working environment, characterised by arbitrary dismissals, corruption and circumventing of procedures. Media oppression was prevalent. As stated in the Draft PAGE II, “human Rights institutions in the Gambia remain weak and lack capacity to implement the reforms guaranteeing the basic human rights” (GoTG, 2017:22). As a result, as noted by the new regime, confidence in Government and in the rule of law needs rebuilding. Towards this, The Gambia has undertaken to establish a Truth and Reconciliation Commission, based on the South African experience, in an attempt to rebuild confidence and heal wounds. It is a major task for the new government to tackle these perceptions through a more open and transparent form of government. Building confidence requires efforts towards systematic transformation of institutions, together with policy change. The impact will be assisted through prudent implementation of the Financial Management Act and support to cost-effective and efficient implementation of the Integrated Financial Management Information System (IFMIS), which is a tool launched by the public sector for managing public funds.

Although not directly related to the challenges faced by officials in the performance of their functions, the **Mid-Term Review of the Istanbul Programme of Action** (Republic of The Gambia, 2016) noted a number of challenges, obstacles and constraints faced by government institutions as a result of an absence of policy coordination, overlapping mandates, poor inter-sectoral coordination – and weak institutional capacity. The Review noted that: *poor inter-sectoral or institutional communication is systemic and this lack of capacity needs addressing for need of more effective overall development planning and implementation coordination.*

According to the (Draft) PAGE 2, the multiplicity of ministries, agencies, departments and functions has led to a bloated civil service and an absence of sufficient linkages and coordination between

institutions and leadership. In addition, the size of the civil service has also continued to expand. Excluding the security sector, civil service size increased by 40% between December 2011 and April 2015 (p45; sections 179 – 180). This has fiscal implications on overall government spending. This, combined with a decrease in development partner contributions and access to concessionary funding as a result of an unstable foreign policy, resulted in a civil service that was neither properly resourced nor properly remunerated. It will be up to the new government to review and implement a civil service restructuring programme to build a leaner and more efficient civil service. In parallel, the positions of the many civil servants who were arbitrarily dismissed and even jailed by the former regime, and who had had their rights violated (including, for example, pension rights, etc.) will need to be tackled. High staff turnover has affected institutional capacity and retarded implementation of programmes (GoTG, 2017).

Regarding effective coordination and implementation of climate change-related interventions, the NAP Stocktaking Report (2015) noted as significant gaps the following: outdated policies, gaps in knowledge, weak mainstreaming into line ministry spending plans, weak capacity to plan and oversee implementation, high fragmentation of mandates, weak coordinating structures and weak knowledge management (GoTG/UNDP, 2015).

An example of fragmented mandates and weak coordination can be found in the arena of tourism management. As is the case for many developing countries, tourism in The Gambia is characterised by massive leakages and limited linkages in the national economy. There is thus a real need for a more integrated approach, including through better coordination between stakeholders in the industry. Within the coastal zone, the TDA is under the authority of the GTB, thus making them stakeholders on coastal zone management. However, this need for coordination extends beyond the coastal areas, given that the GTB has highlighted the need to shift from beach-based mass tourism to inland cultural tourism and ecotourism.

The Independent Institutional Assessment carried out to develop the NCCP identified a series of institutional challenges relating to the array of institutions with overlapping roles, responsibilities and legislation dealing with climate change. The institutional framework for climate change was seen as lacking policy guidance and ownership by key sectors, as it was still seen as sectoral rather than cross-cutting and, at the time, not having achieved high-level buy-in and participation. Roles, responsibilities and relationships between different institutions still needed clarifying to reduce duplication of efforts and conflicting mandates. Moreover, although the size of the civil service may have expanded, human resource capacity was very limited in those line ministries and institutions where climate integration was necessary (Sharma, 2016). The lack of professionally qualified staff in the different sectors, capable of identifying and implementing a more mainstreamed climate change/climate resilience approach, was compounded by the lack that climate change is not taught either in the school curricula nor as part of university undergraduate courses. Neither are there many opportunities for research, training, education and scientific support in specialised fields related to climate change. Capacity gaps at the sub-national level are even more dramatic, making it difficult to channel untied climate finance to the local level.

At the national level, institutional arrangements are still guided by legislation that does not incorporate current climate change risks and the need for coordinated responses to these, although the NCCP, the (Draft) Water Bill, and the (Draft) SEA Policy have all moved towards updating institutional arrangements, the NEMA Act of 1994 still remains one of the central pieces of



legislation dealing with the environment. The NEMA established the National Environment Management Council (NEMC), which reportedly does not meet frequently, as well as the National Environment Agency (NEA), which is, by law, the principle body responsible for the “management of the environment”. Of course, as is well recognised, the ambit of climate change must of necessity go far beyond the reach of environmental matters, to encompass an overarching sustainable development approach, into which climate risks are integrated. In order to enhance coordination of the far-reaching climate change functions, a Climate Change Secretariat has been established in the MoECCNAR. The National Climate Committee (NCC) continues to function, and has a number of sub-committees and working groups. The NCC meets on a quarterly basis when support is available from projects, particularly the National Communications to the UNFCCC. With the establishment of a climate change secretariat at the MoECCNAR, a special budget line needs to be created for effective and efficient operationalization of the NCCP that requires the timely meetings of the NCC.

Disaster management and enhancing disaster risk reduction (DRR) are closely linked to efforts to mainstream climate change adaptation; climatic events such as droughts, floods and other forms of extreme weather are often climate-change related events. The National Disaster Management Agency (NDMA) has as its mission as defined in the Act to set up a formal structure for integrated and coordinated disaster management, focussing on prevention, preparedness, response and mitigation. Three of these four responsibilities are a form of mainstreaming climate resilience while only the responsibility for response is exclusively focussed on managing a state of disaster. Notwithstanding, the Act has overriding effect over other Acts, making the NDMA an extremely powerful body. A National Platform on Disaster Risk Reduction and Climate Change Adaptation was established several years ago, and is currently being revitalised. The Platform is the technical arm of the National Disaster Management Council and its key mandate is to ensure that DRR and climate change interventions mutually reinforce each other. This necessitated the review of the National Disaster Management Act of 2008 and harmonising the National Disaster Policy and Strategy. The revised Bill if enacted will align the legal and institutional framework of DRR with the National Climate Change Policy.

Institutional arrangements at the sub-national level are equally important as the NCCP prioritises decentralised approaches to planning, implementation and monitoring, recognizing that climate impacts are likely to be extremely localised, and will require place-based and contextualised solutions. The Ministry of Local Government and Lands oversees local government affairs. There are three tiers of local government: eight councils, 144 ward development committees (WDCs) and 1,500 village development committees (VDCs). Councils are advised by Technical Advisory Committees (TACs), and WDCs are advised by Multi-disciplinary Facilitation Teams (MDFTs). WDCs direct the preparation of ward plans with assistance from MDFTs, and pass them on to the area council for approval. Although there are no formal institutional arrangements for climate change at this level, some capacity building of TACs and MDFTs has taken place through workshops and training. Local-level committees exist for sectors such as natural resources, public health, agriculture and infrastructure.

To enhance coordination of the climate change function at the local level, and towards creating an enabling environment for community based adaptation, the NCCP proposes a number of local level planning and institutional arrangements to promote climate change mainstreaming and implementation of climate-resilient development activities. These arrangements are to be consistent with the Local Government Act 2002, which designates area councils as the planning authorities that

‘may plan and implement any programme or project for developing the infrastructure, improving social services, developing human and financial resources and for the general upliftment of the community.’ These plans are required to include ward development plans, which in turn are composed of village and sub-ward development plans.

The Technical Advisory Committee (TAC) chaired by the Governors of the regions coordinates all development issues at the regional level. The decentralisation of climate change interventions at local level will require strengthening the capacity of the TAC and enhancing the skills of the MDFTs for effective and efficient implementation of climate change programmes at regional level. Further capacity building and awareness raising is also needed at Ward and Village level to enhance community-based adaptation measures.

At the programme / project level, project steering committees (PSCs) include a wide range of stakeholders, reflecting the cross cutting nature of the local development and climate change mandates. For example, the project implementation structures of the Nema/Chosso programme, and of the IDB project ‘Building resilience to recurring food insecurity in The Gambia’, include a broad range of stakeholders, co-opting producer organisations and private sector, as well as government stakeholders, including the Ministry of Youth and Sports, as well as the Ministry of Environment, Climate Change, Water and Wildlife. Beneficiaries would need to be represented on PSCs, for ground truthing, accountability and to ensure locally and culturally compatible development.

Finally, even with the development partners involved in supporting and mainstreaming climate change, a certain amount of over-lapping of mandates exists. This is partly related to the over-lapping mandates of different government agencies working on climate-change related interventions, who receive support from different development partners with, as a result a certain amount of what was seen by some informants as encroachment. This arises when donors provide funds to implementing agencies such as FAO, UNICEF, WFP etc. to implement projects without adequate communication at all levels. Sectors are normally represented by focal persons and lack of proper communication within sectors and projects leads to overlap in interventions. One example provided to the SPCR team was with respect to the FAO / Nema seed multiplication support in CRR. Such issues can lead to confusion at the intervention level when approaches to implementation and to what may constitute climate resilient development vary. Donor coordination is required at a higher level than PSCs, to effectively circumvent duplication and overlap before projects are fully developed.

The biomass value chain and the clean cooking stove debate is another area of policy and implementation overlap and confusion, with a number of governmental and non-governmental institutions involved but pulling in different directions. In The Gambia over 90% of households use biomass, in the form of wood (from forests or mangroves) or charcoal, for cooking. The Global Alliance for Clean Cook stoves estimates that 78% of households use wood for cooking, and 13% use charcoal – while the use of clean cook stoves (whether for firewood or charcoal) is low. By contrast the incidence of disease as a result of household air pollution is significant. Officially, charcoal production is banned and deforestation in The Gambia is seen as a major climatic factor – while it is clear that cutting of timber for fuelwood and charcoal is still ongoing in The Gambia, biomass value chains also extend into Senegal – making this a cross-border, trans-boundary value chain.

Attempting to reduce deforestation and reduce mangrove removal without addressing the growing demand for biomass in cooking will have little chance of success – yet continued negative impacts on the mangrove resource impacts directly on The Gambia’s sea and river defences. Principal government ministries responsible here would be the Ministry of Agriculture and the MoECCNAR. However, introduction of improved cook stoves falls under Community Development in the Ministry of Local Government; while the development of a Biomass Strategy falls under the portfolio of the Ministry of Energy. In addition, decentralised local governments also have responsibilities for the sustainable management of forest resources. In parallel the Gambia Renewable Energy Centre (GREC) supports renewable energy research; while the Ministry of Energy is looking at LPG as a long-term solution to household energy, despite the dangers of transporting LPG inland. Meanwhile the Ministry of Health is also involved because of the morbidity related to household air pollution. And finally, female-headed households in the rural areas, who are primary users and managers of biomass, will bear the brunt of climate change impacts. There is thus an imperative for a coherent approach to sustainable management and use of biomass, from several perspectives.

Women are more likely to lack identity numbers making them difficult candidates for, for example, index-based insurance in case of crop failure, land acquisition (because of traditional norms) and difficulties obtaining collateral necessary for investments.

Land administration and physical planning issues provide another area in which greater institutional effectiveness is required. The UN-Habitat Banjul Urban Profile (2012) noted as major challenges for the implementation of basic urban services in the Greater Banjul Area:

- Corruption by City Council officials
- Tax evasion by business owners resulting in revenue shortages

As well as uncontrolled land encroachment, including encroachment into wetlands, numerous problems exist in relation to land administration, outdated maps and the absence of a physical plan. While records of land acquisitions are kept, these are not related to maps or an urban cadastre. In addition, many plots are not registered at all, to avoid paying registration costs, and are usually allocated by traditional leaders who cannot obtain documentation for the land “sold”; many of these plots encroach not just on wetlands, but on rights-of-way, urban drainage systems, and areas where waste is deposited illegally.

The main actors in land administration in The Gambia comprise of both formal and informal institutions. The formal Institutions include the Ministry of Lands and Local Government (and the Technical Departments under it), the Gambia Tourism Board, and the Local Government Authorities, whilst the informal institutions comprise of the District Authorities and the Village Heads (Alkalos). The Ministry of Lands and Local Government is the final approving authority for all planning and land transactions undertaken and processed by its technical departments. The Land Administration Board reports to the Minister through the Director of Lands and Surveys.

The Department of Lands and Surveys is responsible for the day-to-day administration of the State Lands Act, the Survey Act, the Land Acquisition and Compensation and the Rating and Valuation Act. The Department is mandated to: (i) demarcate all layout plans; (ii) prepare lease plans; (iii) maintain the National Geodetic Survey Framework; (iv) prepare cadastral (registration) plans for adjudication on land titles; (v) prepare base maps for valuation purposes; (vi) prepare various types of thematic maps; and (vii) carry out property valuations for rating and compensation purposes. The Department

acts as the secretariat of the Land Administration Boards and processes all applications for land, leases and assignments.

The Department of Physical Planning and Housing is responsible for (i) the preparation of physical development and land use plans at national, district and local levels; (ii) control of land development at national, district and local levels; (iii) control and coordination of land use at national, district and local levels; (iv) implementation of the National Housing Policy; (v) approval of all applications for development permits; and (vi) acts as the secretariat of the six Divisional Planning Authorities as well as the National Planning Board. The Offices of the Commissioners processes and prepares all applications for leases within their jurisdiction, with the Governor being the chairperson of the Regional Physical Planning Authority. The Local Government Authorities are not directly involved in any form of land administration other than the maintenance of a register of all properties in their jurisdiction for rating purposes. Since its establishment by the Gambia Tourism Authority Act, the Gambia Tourism Authority, now the Gambia Tourism Board, took over the mandate to process and approve all applications for land in the Tourism Development Area (TDA) for tourism and other tourism related purposes.

Concerning customary land management institutions, according to the Lands (Provinces) Act, customary land is vested in the District Authority (District Tribunal), which is chaired by the District Chief, and approves all applications for conversion of customary tenure to leasehold. It also considers and approves all applications for transfer of ownership of land within its jurisdiction. The District Tribunal presides over all cases relating to land disputes and ownership. The Alkalo (Village Head) oversees the management of all customary land in the village on behalf of the District Authority. In addition to allocating village land, the Alkalo also approves all allocation and transfers made by Kabilo heads, and collects land rates on behalf of the Council. Given that the majority of properties fall under this category, the Alkalos perform significant land management functions in the country.

With the enactment of the Lands Commission Act in 2007, the Land Administration Board was dissolved and any of its functions and responsibilities not included in the functions of the Commission transferred to the Department of Lands and Surveys. The Physical Planning and Development Control Act provided for the setting up of a National Physical Planning Board, as well as a Regional Physical Planning Authority for Banjul and Kombo Saint Mary and for each Region.

Despite the comprehensive institutional environment for land administration, growing problems with land allocation were encountered. In recognition of this, and by provision of the 1997 Constitution of The Gambia, the Land Commission Act was enacted in 2007 to provide for the establishment of the Lands Commission to mitigate the problems of land allocation and improve land administration in The Gambia.

Considering the complexity of challenges such as those posed by the growing biomass problem, as well as those related to land administration, the need for not only integration of climate change resilience into institutional mandates, but also an alignment of policies, mandates and interventions all pulling in the same direction is apparent.

For the coastal zone, the forthcoming EU-funded GCCA+ programme will provide support to establish an Integrated Coastal Zone Management (ICZM) Secretariat coupled with assistance to create an ICZM Programme under the NEMA 1994 and creation of a National Advisory Committee

(NAC). It will also support a range of steps to enhance institutional capacity at the decision-making level – see Annex 9 for more information.

The importance of communicating messages is underscored by every project, programme and institution involved with promoting climate resilience in The Gambia. Communications is an area regulated by the Public Utilities Regulatory Authority (established under the PURA Act of 2001). The Authority regulates and licences information and communications through the Information and Communications Act of 2009 – covering broadcasting services, Internet and fixed and mobile networks, etc. However, the Authority may in some cases be more reactive than proactive, more focussed on responding to complaints than on ensuring that access to information is improved. Cellular network coverage is a case in point. Cellular phone ownership is extremely high in The Gambia, with figures quoted of 119 cell phones per 100 households. However, these figures may be misleading as many Banjul residents own three cellular phones because the three main networks all have zones of poor coverage, even in the urban areas, while many rural areas have very poor coverage from even one network. There is an opportunity here to focus on improving communications to the public rather than on regulating providers – for example requiring that they use the same infrastructure to provide stable nation-wide coverage (and then competing on rates and services). Stable nation-wide coverage would provide a solid information-sharing platform available to all Gambians. In October 2016, PURA launched its Quality of Service Monitoring Network, through the West African Regional Communication Infrastructure Project (WARCIP). This system is designed to help PURA improve quality of services of the priority areas of mobile coverage and Internet services.

A stable information sharing platform could also provide the basis for mobile phone-based money transfer, financing and micro-financing services (following the example of M-Pesa from East Africa). Branchless banking services, through M-Pesa, provide access in rural areas, opening up micro credit opportunities to women and have been used in the successful M-KOPA Solar programme connecting (rural) homes with affordable solar power. Recent research in West Africa (Thebaud, 2017) has shown that herders in the livestock value chain in West Africa all had cell-phones, using these for market and grazing information, keeping in touch with relatives, etc. In addition, even for those alphabetically-challenged, the levels of skill for numeracy as well as literacy were rather high (the later aided by an SMS-literacy app).

Well thought-through public private partnerships, focussed on developing climate resilient approaches in all sectors, would require a regulatory authority that supports this, and government institutions that link, coordinate and show leadership. Legislation (Acts and regulations) will need to be updated to support this, particularly to ensure nation-wide coverage and compliance with fiscal regulations pertaining to branchless banking services.

A similar situation exists with the other major utilities regulated by PURA, particularly NAWEC. Neither PURA, nor the line ministries, nor the local authorities, nor the GTB are yet rising to the challenge to make water supply, sewerage and electricity more climate resilient – or even enforce existing regulations. The opportunities that exist for developing public-private partnerships in renewable energy are making slow headway in the face of reluctance from NAWEC to lose a quasi-monopoly position, with PURA appearing to focus more on the politically-sensitive issues of consumer tariffs rather than on developing climate-resilient approaches.

### ***Civil society and private sector***

As recognised in the NCCP, there is substantial interest from NGOs in The Gambia to engage the government and work with the private sector to implement projects and finance capacity development, which has yet to be mobilized and harmonized in the country's efforts to respond to climate change. There is a potential role for non-government organisations to become more involved at national and sub-national level to implement climate change responses on the ground, focussing on livelihood diversification as an approach to spread climate change risks and to empower climate vulnerable groups, and using their position to advocate on behalf of these groups. There is an ongoing role of advocacy and sensitisation, both influencing policy and building awareness and knowledge of communities on climate change. This should also be accommodated in the national response to climate change, institutionalising partnership and dialogue between government and non-government. A stronger role for civil society could also create strong accountability mechanisms that can be used to measure implementation.

A number of NGOs and CBOs in The Gambia have gained valuable experience in piloting climate change projects, which can be assessed and built on. Entry points include umbrella organisations like TANGO (The Association of Nongovernmental Organizations), but also, for example NACOFAG (the National Coordinating Organisation of Farmers Associations) and FANDEMA (working with women in skills training), as well as international NGOs active in The Gambia (such as Action Aid). Youth represent a vitally important sector in the response to climate change, and youth organisations are vocal in calling for their meaningful participation in planning and implementation of climate change responses. As recognised in the NCCP, youth entrepreneurs and leaders should be engaged in policy development and review initiatives, as well as in capacity development, monitoring and tracking progress.

The private sector in The Gambia is a valuable potential partner for effective climate change response actions, including developing low-carbon technologies, products and services, and in providing green jobs. While a number of private sector organisations are engaging with a level of proficiency in these matters, in general increased awareness is required of how climate change affects profits, and how best to engage with what may be complex concepts for carbon markets. A critical issue for the GoTG in the further development and implementation of the SPCR will be how best to forge and maintain effective partnerships with business and industry, to ensure that their capacity is harnessed in driving the transition to a climate-resilient, equitable and internationally competitive, lower-carbon economy and society. Some legislation already exists, for example the Renewable Energy Act provisions for fiscal incentives (e.g. exemption from corporate tax; exemption from VAT; exemption from import tax); these can be built upon and replicated in other sectors to support a transition to a low-carbon climate-resilient economy. An important partner here is the Gambia Chamber of Commerce and Industry (GCCCI), in terms of facilitating business development and trade promotion.

The role of **academia and research institutions** will be critically important in the SPCR, particularly with respect to climate change research, capacity development and communication. Concept Note 1 of the SPCR provides detail on this, with respect enabling coherent and focused research for climate resilient policy and practice through the Gambia National Research Framework on Climate Change (GNRF-CC), which is a provision in the NCCP. This will be initiated through discussions with the University of The Gambia and relevant public and private institutions, including the National Agricultural Research Institute (NARI), the Renewable Energy Association of The Gambia (REAGAM), the Gambia Chamber of Commerce and Industry (GCCCI), the Ministry of Higher Education, Research,

Science and Technology (MoHERST), amongst others. A National Climate Change Research Centre would be established, and the National Climate Committee encouraged to include R&D in its discussions and proposals for support. The National Climate Change Research Centre would inter alia generate data and support policy and decision making processes on integrating and mainstreaming climate resilience into the national development agenda, including through economic analysis of adaptation, mitigation and resilience building approaches and initiatives. The National Climate Change Research Centre will develop a strategy, framework and regularly develop lessons learned reports on the implementation of the SPCR.

The NCCP notes that strong partnerships for implementation and monitoring are required between local institutions, including local administrations, local government, membership organisations, cooperatives, service organisations, and the private sector. This SPCR will include provisions to promote the achievement of such partnerships. An important further linkage will be the new institutions and mechanisms that build safety nets for vulnerable groups and poor people at the local level, which the National Social Protection Policy states will be encouraged and incentivized. These include cooperatives, insurance products, self-help groups, and microcredit institutions and insurance products tailored for the poor.

## **1.9 Financial issues**

The Gambia is a heavily taxed economy constrained by inadequate budget, dependence on donor funding, limited resources and over-stretched by ambitious development plans. The country has significant climate finance needs: had it been fully implemented, The Gambia's climate change priority action plan for 2012–2015 would have cost almost US\$14.2 million (Camara, 2014); and, according to a national assessment of investment and financial flows completed in October 2011, The Gambia would need an additional US\$1.35 billion to implement priority actions to reduce greenhouse gas emissions from the energy sector and forest degradation and adapt to the impacts of climate change in the agriculture and water sectors by 2030 (Jarju and UNDP, 2011). Of this, US\$420.66 million would be for adaptation and US\$925.74 million for mitigation. While significant amounts of funding have been applied in country since that date, mainly to adaptation, there is no doubt that the outstanding financial envelope remains substantial – see section 2.4, which includes estimates for implementing the SPCR.

Note that climate finance refers to funding for adaptation, disaster risk reduction, building resilience, and mitigation. At the moment, available climate financing targets adaptation, disaster risk reduction and resilience, while mitigation will need more financial resources in both the medium and the long run. In order to address financial constraints, remove financial barriers and bridge financial gaps, the government continuously draws down on public sources and public investments supplemented by donor funding, which has been shrinking. This has compelled the government to work harder to initiate innovative financing mechanisms with potential to leverage private sector investment and provide incentives to support mitigation projects. However, this downward trend is likely to reverse given recent political transformation, with the new democratic leadership engaging with donors on the renewal of bilateral support. Early in March 2017, the EU indicated renewal and expansion of financial support to the country. More donors are expected to reconsider their support and help to bridge financial gaps in the country. The institutional transformation is enabling policymakers and practitioners to design elements of the financial landscape necessary to fund the

country's transition to green, low emissions climate-resilient and sustainable development. Initiatives by UNDP, IFAD and the Green Climate Fund do embrace elements of green economy and climate resiliency, which could be expanded.

### **1.9.1 Financial Constraints**

The Gambia's financial constraints are inherent in budgetary considerations dependent on public sources and public investments, and dependence on donor funding. The donor funding has been shrinking in the last decade as a result of political risk, poor governance and ineffective financial management systems. The financial constraints have largely impacted the country's public funds and main sources from international, multilateral, bilateral and national investments. The financial constraints have also affected the Multilateral agencies such as the United Nations and the European Union that play major roles in mobilising resources, with many projects funded from the Least Developed Countries Fund (LDCF) and GEF Trust Fund. The financial constraints also result from high inflation, depreciating value of local currency and economic breakdown. However, international public finance will continue to be the main source of climate financing in The Gambia in both the medium and long-term. At the same time, the aim is that the financial constraints will be resolved in the near future, with support from the private sector tapping into the carbon market to finance low emission climate resilient sustainable development and green investments. The country is diversifying sources of financing, encouraging private sector participation, and providing limited incentives for private sector investment.

According to the Commonwealth Local Government Forum (undated), there is very little revenue sharing or transfer from central to local government despite the devolution of core services such as health, education and roads. Despite the legal framework for decentralisation stipulating that 25% of a Council's budget should be in the form of transfers from central government to local government, there is no general policy of revenue-sharing and the specific grants are very small, making only 0.1% contribution to local government revenue overall. Local governments are by and large expected to raise their own resources through local taxes. Any funding that is channelled to the village level tends to be project-based and already tied to sectoral goals, leaving little flexibility for planning and decision-making at the local level. According to officials in the Department of Development Planning in MoFEA, discussions were underway on a formula to determine the share of allocations for each Council (Sharma, 2015).

### **1.9.2 Financial Barriers**

Financial barriers in The Gambia are intrinsic in a heavy tax economy regime that limits provision of financial incentives to the private sector. The private sector requires tax breaks, tax holidays, and tax rebates in order to lower costs and realize high profit margins. However, the country's dependence on tax as a source of public revenue prevents an adequate flow of funds and limits incentives for private sector participation. In addition, the most common financial instrument used in The Gambia is the grant, with most of the country's climate change interventions financed through grants from the Least Developed Country Fund. These are tied funds and do not offer incentives for the private sector. Other financial instruments include co-financing from national funds and concessional loans with limited private sector engagement. The country has experienced a deepening current account deficit, resulting in the government increasing taxes to generate revenue, and thus setting in place a recurring financial constraint. The emerging financial instruments to be supported by the SPCR and others will play a key role in creating mechanisms that will remove financial barriers and enhance



potential opportunities to leverage private sector investment in climate change projects. The removal of financial barriers requires the government's support to policy incentives such as feed-in tariffs for renewable energy, tax incentives and clean energy subsidies, and risk management instruments such as insurance (which could be index-based insurance for crops, as well as insurance for infrastructure) and guarantees to help mitigate the risk associated with low carbon emissions and climate-resilient investments.

### ***1.9.3 Financial Gaps***

Financial gaps in The Gambia are experienced in budget support, programmes and projects. Regardless of comprehensive planning and provisional budget and resource allocation, funding sources continue to be inadequate and limited. Most key economic sectors including agriculture, fisheries, livestock, tourism, water, education and energy have lacked adequate funding, resulting in poor and or inadequate provision of basic services. In order to bridge the financial gaps, the International Fund for Agricultural Development (IFAD) and African Development Bank (AfDB) have supported livestock and horticulture development with a US\$15.9 million grant (amongst other IFAD investments over the past 10 years); the AfDB financed a US\$7.92 million loan for a rural water supply and sanitation project. Government agencies and departments often support multilateral and bilateral intermediaries through co-financing, disbursing resources and implementing projects. The Department of Water Resources implemented the US\$2.6 million grant AfDB funded national water sector reform project. Private sector intermediaries to some limited extent bridge the financial gaps by operating within the climate finance landscape to access funds for investment in carbon saving and sustainable development. Examples include solar power and cooking stoves investments, with the Gambia Green Vision International looking into promoting green buildings, and several NGOs working with communities to diffuse improved cooking stoves. GreenTech Vision successfully completed a project supported by the UNDP Small Grants Programme to introduce and spread briquettes, fuel efficient stoves and alternative fish smoking technologies in the communities of Tanji, Sanyang and Gunjur. Further, financial gaps can be bridged through partnership between the government with the tourism industry supporting Carbon Offset Service and Serenity Holidays.

Thus a private company, drawing down the voluntary carbon market to invest in tree planting initiatives, biomass cooking stoves and solar projects could generate revenues to bridge financial gaps. In addition, climate smart agriculture, climate resilient initiatives and adaptation will generate additional revenues, since they have potential to be leveraged by donor funding. The financial gaps can also be perceived as a result of the country's lacking both the finances and the technical knowledge it needs to adapt to the changing environment. As a result, the financial gaps can be bridged through The Gambia seeking assistance from the development partners to provide technical expertise and fund climate change projects, and through an expanded and coherent capacity development programme for addressing climate change.

Micro finance, small- and medium-scale financial institutions operate as non-bank financial institutions under Section 41 of The Central Bank of The Gambia Act No.14 of 2005, which allows them to provide services by undertaking non-bank financial intermediation and raising capital, deposits and advancing credits and loans from and to the public.

Micro finance objectives are to provide financial advisory services, products and information services to Gambians, in particular those with low income and working at the lower end of the economic pyramid. Key targets are women with small businesses such as selling vegetables in the market,

farmers, fishermen, small retailers in commercial services such as cement, builders, tailors, and taxi drivers, amongst other small business owners and operators, as supported by the Nema/Chosso programme.

The accessibility, convenience and flexibility of micro finance have led to a growing footprint that has potential to change the lives of local people, improve social and economic livelihoods and maximize potential for growth and development. Globally, micro finance is considered to be an important enabler of resilience and adaptation for poor people, and thus has a role to play in the SPCR.

#### ***1.9.4 Summary of Financial Issues***

The Gambian government has started a review of climate public expenditure and institutions. This will provide a key building block for developing a climate fiscal framework to assess the demand and supply of climate funds and available domestic and external sources of funds. This will support national efforts to enhance climate change planning and budgeting. To prioritise climate change interventions appropriately, the government needs to allocate part of the national budget to climate change financing. This should flow via a national climate change fund as stipulated in the 2016 National Climate Change Policy (NCCP), which will serve as a national intermediary and provide the opportunity to scale up resource inflows and leverage or complement international and private sector sources. Also on the positive side, the Ministry of Finance has recently been accredited as the National Designated Authority (NDA) for the Green Climate Fund, and actions have been initiated to develop readiness in this regard, supported by a grant from the GCF.

As noted in the PAGE II, it is Government's intention to create an enabling business environment and to improve access to low cost financing, to promote the catalytic role of the private sector for sustainable and inclusive economic growth and development. Public private partnerships (PPPs) are to be created, especially in the priority areas of agriculture, tourism, telecommunications, infrastructure and manufacturing. As the PAGE II notes, PPPs could promote "sustainable inclusive growth using a number of growth nodes from agriculture to trade, private sector development, climate change, ICT, etc., as well as addressing some of the bottlenecks in transport and energy that impinge the development of the private sector to grow and create jobs." The potential for PPPs to play a role in enabling climate resilient development in The Gambia is a fertile area for consideration in the SPCR.

#### **1.10 Monitoring, evaluation and reporting**

The Gambia has lacked a coherent M, E and R system for climate change response in the past. The MoECCNAR does prepare and distribute an annual report at Cabinet retreats based on the annual work plan. However, the report superficially touches on climate change interventions by projects under the Ministry, as opposed to a holistic approach that addresses climate change issues across all the sectors. Mainstreaming climate change into sectoral policies and strategies will enable the MoECCNAR to develop an M, E and R system that responds to climate change with SMART indicators (i.e. indicators that are specific, measureable, available/achievable, relevant, and available in a timely manner). The MoECCNAR has recognised the importance of developing such a system, and the NCCP contained several provisions to achieve this. These have not yet been implemented, and will be the subject of a component of one of the SPCR's investment programmes.

A key gap in terms of an overarching response to building climate resilience in the past was that sectoral expenditure on climate change related responses was not tracked; this will be overcome through the introduction of a climate resilience budget coding and tracking system under the SPCR. A further gap was with respect to a system that could bring together the climate change related results of donor-funded and NGO programmes.

Regarding the status of national development M & E and reporting, the PAGE 2012 – 2015, which was the successor to the Poverty Reduction Strategy Paper II (PRSP II), included a monitoring system based on tracking indicators included within the Result Measurement Framework (RMF), as well as the requirement for Annual Progress Reviews (APRs). The RMF was to go beyond conventional M & E to also identify and track the causes of success or failure of PAGE implementation.

Moving forward, the Draft PAGE II M & E system outlines a result framework with clear outcome indicators. This will be used to measure performance and results achieved against targets. An Act of Parliament, setting out the required structures, policies and regulatory instruments and standards, will institutionalise the M & E system. Section 2.6 sets out proposals to enhance M, E & R of actions to build climate resilience, within the overarching national development framework.

## **PART 2 Country driven strategic approach to climate resilience**

### **2.1 Long-term vision to achieve climate-resilient development trajectory**

The SPCR of The Gambia is a comprehensive transformational adaptation and mitigation investment plan, designed to reduce and manage the country's high vulnerability to climate variability and change, and in so doing, to secure catalytic financing from the PPCR and other international and national climate financing sources. This is a building block in The Gambia's quest for a successful transition to a low-emissions climate-resilient development pathway.

The programmatic approach of The Gambia's SPCR entails a long-term, strategic arrangement of linked investment projects and activities to achieve large-scale, systematic impacts and take advantage of synergies and co-financing opportunities. As such, its starting point is the National Climate Change Policy developed in 2016, which represents The Gambia's determined and systematic response to the interlinked climate threats to sustainable development, wellbeing and ecological integrity, as set out in Part 1.

Accordingly, the Policy defines the following long-term vision for The Gambia:

**Achieve a climate-resilient society, through systems and strategies that mainstream climate change, disaster risk reduction, gender and environmental management, for sustainable social, political and economic development.**

The vision suggests that an effective Gambian climate change response requires economic, social and environmental interventions that integrate mitigation and adaptation elements within a developmental framework. This is the meaning of climate-resilient development, in the Gambian context.

The long-term vision of the NCCP, and thus of the SPCR that will provide the mechanism and investments for implementation of the NCCP, was developed through a strongly consultative process, and represents a consensus achieved across the range of stakeholder groupings, at national and sub-national levels, across the regions of the country.

The **goal** of the Policy is, by 2025, to achieve the mainstreaming of climate change into national planning, budgeting, decision-making, and programme implementation, through effective institutional mechanisms, coordinated financial resources, and enhanced human resources capacity. In this regard, the SPCR defines a comprehensive programme for further enhancing the enabling environment that directly responds to the goal of the NCCP.

The Gambia's response to climate change is furthermore guided by eleven policy **principles**, as set out in the NCCP, which are consistent with the existing national policy framework, aligned to the United Nations Framework Convention on Climate Change, and which have been informed by relevant international best practice. These principles were used, together with key requirements of the PPCR, to develop criteria through which the emerging investments for the SPCR were assessed and prioritised – see Annex 4. This was carried out in broad terms only during meetings of the Technical Team overseeing the SPCR process, as there was unanimous agreement on the investment

programmes. Further prioritisation of specific elements of the investment programmes will be conducted during detailed planning, using the set of 13 criteria.

As the implementation strategy for the NCCP, the SPCR promotes mainstreaming of climate resilience, nested within national development goals and strategies. This is the main thrust of the NCCP, which was developed to reflect national priorities in the Programme for Accelerated Growth and Employment (PAGE) 2012-2015; these revolved around sustainably exploiting agriculture, tourism, infrastructure and other natural resources; and consolidating and extending the gains registered in the health and education sectors. Climate change was included within the PAGE as a crosscutting issue, together with environment, disaster risk reduction and gender equality.

Moreover, the Policy was designed so that its implementation, which will be via the SPCR, would contribute to the realisation of the Vision 2020 goals, which aim to develop a well-educated, trained, skilled, healthy, self-reliant and enterprising population, while guaranteeing a well-balanced ecosystem and a decent standard of living for everyone under a system of government based on the consent of the citizenry.

The SPCR programme objective and activities are additionally aligned with the relevant provisions on mainstreaming climate change and environmental sustainability in the draft PAGE II, currently under development, and would contribute to the realisation of the priorities identified in the National Adaptation Programme of Action (NAPA) and the Intended Nationally Determined Contribution (INDC), which in themselves are reflected in the policy provisions of the NCCP.

## **2.2 Programmatic approach to building climate resilience**

### **2.2.1 Approach to the SPCR**

The Strategic Program has been designed to enable the implementation of the **government's long-term vision to achieve a climate resilient development trajectory**, and a critical path to accomplish it. This includes consideration of vulnerable economic sectors and social groups (including women, youth, indigenous peoples, and local communities), and ecosystems. The SPCR is seen as the **next step in developing the strategy that is needed to implement the National Climate Change Policy**. It has therefore been seen as an opportunity to develop the systemic and systematic approaches that all stakeholders of the NCCP preparation process agreed were needed, to move away from project-by-project activities that have limited potential to effect national or sector wide transformations. The SPCR builds on all related relevant efforts and programmes, past and ongoing, as discussed below.

In line with the draft PAGE II (2017-2020), the SPCR provides for several climate resilient development pathways to achieve sustainable and inclusive growth, reduce poverty, reduce inequality and attain prosperity. This clearly needs to be within the ecological boundaries of The Gambia's natural environment, as specified in the legislative framework. The SPCR aims to contribute to the implementation of the PAGE II by ensuring efficient and effective management and use of resources.

The inter-linked challenges of reducing poverty, supporting sustainable livelihoods, and tackling climate change in The Gambia require a move away from doing business as usual, to a more transformative approach. This means moving away from the *ad hoc* project-based approach that has

predominated in the past, to one in which Gambians across all sectors are able to co-create and implement sustainable and climate-resilient pathways. The first step was taken with the collaborative development of the long-term vision, as set out in the NCCP. This collaborative approach to defining the country's climate resilient development trajectory has been continued and extended by means of the extensive national and regional consultations carried out to develop the SPCR, as detailed in section 1.2 of this report.

Given the vision set out for a climate-resilient society in The Gambia, the SPCR further adopts the strategic approach set out in the NCCP, and which is implicit within the Policy Objectives:

- **Contextualised and decentralised**, promoting appropriate responses and national capacity and ownership;
- **Sustained and systemic**, promoting institutionalisation and coherence of climate change responses;
- **Evidence-based and innovative**, harnessing indigenous knowledge, science, research and technology for resilient and environmentally friendly solutions;
- **Opportunity-oriented**, viewing climate change as not only a threat to humankind, but also as an opportunity for sustainable agriculture, climate investments and innovations, resilient human settlements and clean energy;
- **Developmental**, prioritising responses that also have significant economic growth, job creation, public health, risk management and poverty alleviation benefits; and
- **Transformational**, favouring climate resilience measures that promote the transition to a lower-carbon, efficient, job-creating, equitable and competitive economy.

### ***2.2.2 Scope of the SPCR and key challenges addressed***

The holistic programme of the SPCR has been developed to build on the findings of the Gap Analysis set out in Part 1 of this report, and to develop synergies and scale up existing programmes, as will be detailed below. The SPCR of The Gambia covers rural and urban resilience and their interlinkages, includes key land use planning and related coastal resilience activities, and develops the enabling environment for climate resilient development as set out in the NCCP. As such, the coverage is nationwide, and reaches across all sectors. A transformational arc, as further discussed below, connects the key investment areas, which have been derived from the thematic areas identified by means of stakeholder consultations, vulnerability assessment, gap analysis, and expert judgement.

Through the discussions with the Technical Team, it was agreed to use the policy principles as set out in the National Climate Change Policy as the criteria to prioritise investments, as these were developed through consultation and by consensus in the process to formulate the NCCP in 2015 / 2016. These criteria are set out in Annex 4. The requirement for transformative and catalytic investments was a further overriding criterion, as was the ability to integrate the agreed cross cutting areas of gender, youth, health and tourism.

The SPCR holistic programme has been designed to address the following key challenges:

- **Incomplete and/or outdated enabling environment for climate resilience:** Despite positive developments concerning policies and institutions to promote climate resilience, and project-based efforts to develop capacity and skills to respond to climate change, numerous critical aspects with respect to coordination, review and harmonisation of the policy and legislative framework, systematic capacity development and research for low carbon and climate resilient development, as well as enhancement of climate observations and services, remain to be dealt with. A number of recently developed laws, policies and strategies that do integrate climate change considerations and aim to actively promote, coordinate and facilitate implementation of climate resilient development remain in draft form. There are many areas in which enforcement of existing Acts and policies is required. And there remains the urgent need to communicate the realities of climate change to Gambians. A comprehensive and ongoing communication programme to make all Gambians aware of the issues, as well as their role in addressing them, is needed. In addition, significant resource mobilisation to address the country's high levels of vulnerability to climate variability and change, as well as to build adaptive capacity and resilience. Systems to deliver reliable and consistent funding and resource allocation for adaptation, disaster risk reduction, building resilience and for mitigation are needed.
- **Outdated land use planning, and inadequate mapping and information systems to support national and coastal climate resilient land use planning and management:** The Gambia, like most nations, has undergone substantial and accelerating social, economic and environmental change. Rural-urban migration, population growth, commercial development, tourism, vehicle use and habitat degradation have radically altered the fabric of the country. Unfortunately, the government has not kept pace with the changes, resulting in uncontrolled urban sprawl into valuable agricultural land, severe problems of waste management, inadequate infrastructure, uncontrolled depletion of limited natural resources, loss of public open space, strains on water resources and loss of natural habitat. Effective policy guidelines for future development and the administrative machinery to implement them are imperative for national development; the need for resilience to the impacts of climate change adds a level of urgency given The Gambia's position as the 10<sup>th</sup> most at-risk nation and the expectation that the capital city, Banjul, will be effectively lost to erosion and flooding due to sea level rise within a generation. These issues, apart from sea level rise, were recognized in the 1980s, and resulted in the Physical Planning Act of 1984 and an urban Land Use Plan (for the Greater Banjul Area, Brikama, Basse and Farafenni) produced in 1985 with the technical assistance of GTZ (German Agency for Technical Cooperation). It was intended that the Plan and the associated maps should be extended and updated on a rolling five-year programme, with substantial revision every fifteen years. The Plan was reviewed in 1989 following a period of public consultation. No further reviews were undertaken, and the Plan is now completely out of date and effectively obsolete despite a revision of the Act to become the Physical Planning and Development Control Act of 1990. The urgent need for climate-integrated Land Use Planning is highlighted in the National Development Plan (PAGE II, 2016 Draft) and the National Climate Change Policy (2016 Draft), as well as in sectoral policies such as Agriculture and Natural Resources (2009), Tourism Development Master Plan (2007), Fisheries Strategic Action Plan (2012), Forest Policy (2010), Biodiversity and Wildlife Act (2003), Disaster Risk Reduction Strategic National

Action Plan (2013) and others. Coastal protection measures, such as the ongoing beach stabilisation in the Senegambia area, have been implemented on an *ad hoc* basis with inadequate consideration of the wider implications for coastal zone management and the potential for more sustainable methods to achieve future coastal resilience.

- **Lack of climate resilient infrastructure, sanitation and solid waste management:** Waste management poses a major challenge in the Greater Banjul Area (GBA), and elsewhere in the country. Waste is collected and temporarily stored at community dumpsites from where it is eventually transferred to permanent dumpsites. This process is however inappropriate, *ad hoc*, reactive, and unsystematic. Inadequate waste management in the GBA and elsewhere in the country is exacerbating flooding problems, as drainage channels located are generally poorly maintained, with waste dumped into them, leading to blockage of the channels and accumulation of stagnant water. With increasing temperature and rainfall, this scenario is potentially a source for transmission of diseases such as malaria and cholera. Attitudinal change and law enforcement will be required to address waste management issues. Water resource management problems that are essentially climate-induced include saline intrusion due to increased extraction; and insufficient recharge due to runoff. Many roads and bridges are vulnerable to sea level rise, and previous interventions have proven unsustainable. Energy Infrastructure in The Gambia suffers from numerous constraints resulting in a highly erratic power supply. This is due to various factors including ineffective planning of both maintenance and repair operations, and insufficient investment in renewable energy. Coupled with these urban resilience challenges relating to infrastructure and services is the need to promote urban livelihoods opportunities, particularly for women, youth and disadvantaged groups.
- **Multiple challenges to resilience in the rural areas, with linkages to urban vulnerability:** Drivers of rural vulnerability include the absence of capacity to overcome the impacts of climate change, particularly the increasingly shortening of the growing period with late onset and early cessation of rains; the growing migration flux of young people, the main workforce, towards the urban centres and abroad, enlarging the number of women headed households; and the deficient technical support to adopt adaptive options that would enhance resilience to the shortening of the growing period. As it is, frequent dry spells in the middle of the rainy season limit farming activities such as ploughing, sowing and planting before the arrival of the dry spell. The Multi-disciplinary Facilitation Teams (MDFTs), which are essentially extension services, have an extension/farmer ratio of 1: to over 3,500, are not cost effective, and lack technical knowledge about climate-smart farming techniques, erosion protection, and improving soil structure and fertility. Soils in The Gambia are generally poor in organic matter and chemical fertility, requiring high inputs of manure and fertilizers to increase yields and quality. Concerning forestry and land management, the current Forest Policy envisages that 30% of the total land area should be covered by forests, and that 75% of this should be sustainably managed by communities. While the policy target for the area has been surpassed, the sustainability of this management approach is questionable. Communities are increasingly struggling to ensure multiple use of forests and forest resources/products for food and nutrition security, incomes, employment and investment. In addition, forests are under severe attack with widespread cutting of trees both for commercial purposes and charcoal or other household fuel purposes. There is



regular encroachment into forests and virgin lands when the fertility of farming grounds is exhausted, mostly through inadequate land use and lack of technical knowledge on soil improvement, use of composting and mineral fertilizers. Further degradation of vegetation cover is taking place through freely moving cattle (transhumance) and small ruminants. Rapid population growth and urbanisation, for example in the Brikama area, have placed increased demand on forests for new settlements and/or expansion of existing ones, agricultural production, fuel wood, timber for construction and other forest produce. Cattle production is constrained by scarcity of feed and water during the long dry season, and aggravated by rampant bush fires that consume most of standing hay, crop residues and by-products to feed cattle. The Forestry sub sector could arrest and reverse degradation of lands along river banks and mangrove areas and protect others at risk of degradation from erosion, and in the process, expand land availability for increased rice production from tidal irrigation, and short cycle cash crops from uplands. Forestry could also increase the efficiency of the value chains of livestock, especially increasing off-take and processing of cattle in the rangelands of the country.

To address these challenges, the following pillars, corresponding to the SPCR investment programmes, have been identified:

**Pillar 1: Developing the enabling environment for climate resilience in The Gambia**

**Pillar 2: Climate-resilient land use mapping, planning and information systems**

**Pillar 3: Developing climate resilient infrastructure, services and energy systems**

**Pillar 4: Developing integrated approaches to build rural climate resilience in The Gambia**

The objectives of each of these pillars of the SPCR have been designed to address, in a strategic and catalytic way, the priority climate resilience and sustainability challenges identified:

**Pillar 1: Developing the enabling environment for climate resilience in The Gambia:** The project development objective is to put in place an enhanced enabling environment for achieving low emissions, climate resilient development in The Gambia, through review and development of key policies, legislation, and institutions; mainstreaming climate resilience into national development planning and implementation, and initiating and/or developing coherent systems and strategies for climate finance, capacity development and research, climate services, and a national system for M, E & R of climate resilience.

**Pillar 2: Climate-resilient land use mapping, planning and information systems:** The project development objective is to put in place the necessary steps to develop, implement and enforce a national Land Use Plan that recognises the need for climate resilience and balances the cross-sectoral aspirations of all relevant stakeholders. The Land Use Plan would provide an environment to achieve rational, efficient, economical and equitable use of resources in The Gambia, considering future growth and development. The Plan would specifically address the relocation of the government functions currently within Banjul, as well as provide a coherent vision and framework for addressing coastal resilience.

**Pillar 3: Developing climate resilient infrastructure, services and energy systems:** The project development objective is to put in place a series of steps and develop systems to promote climate

resilience in the urban areas of The Gambia, through actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes; and to promote associated livelihoods opportunities, particularly for women, youth and disadvantaged groups, including differently abled people.

**Pillar 4: Developing integrated approaches to build rural climate resilience in The Gambia:** The project development objective is to develop systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia, through developing climate resilient small-scale agriculture and livestock, community-based approaches to forest and natural resource management, and promotion of livestock, agro-forestry and fisheries value chains and markets.

These pillars are described in greater detail in section 2.2.4. Concept Notes for each of the pillars have been developed, and are contained in Volume II.

### ***2.2.3 A transformational and catalytic programme***

The implementation of low-carbon, climate resilient development in The Gambia requires a transformational and paradigm shift. This transformational shift is required because despite uncertainty on the exact nature of some of the impacts of climate change, “business as usual” is no longer an option to yield results under an increasingly variable climate. Such transformation requires necessary linkages with learning, leadership, empowerment and collaboration within and across groups, sectors, organizations and institutions. The new institutions proposed under the NCCP, and adopted as necessary under the SPCR, will further this agenda – in particular the multistakeholder National Climate Change Council and the Inter-Ministerial Committee on Climate Change.

Paradigm shift is essential for the key economic and productive sectors of the country to be transformed to a low-carbon climate-resilient development pathway. The realization of this transformation is feasible due to the new political dispensation in The Gambia. The political buy-in is critical because it is at the political level where decisions, rules, regulations, agreements, incentives and priorities are discussed, negotiated and decided.

While the successful implementation of the SPCR relies to some extent on technical measures such as infrastructure and technological innovations, the soft policy measures such as climate services, behavioural changes, improved soil, water and crop management, ecosystem restoration and improved extension services will be key drivers of the transformational change required.

Some of the main expected catalytic effects of SPCR can be summarised as follows:

- Climate-integrated land use planning, within a coherent National Land Policy, will underpin and guide all future development in The Gambia in a manner consistent with climate resilience.
- Assistance to develop national mapping and GIS systems, as well as national capacity for climate-integrated SEA, will further the reach of this systemic investment.
- The operationalization of the Gambia Climate Change Fund will be catalytic in the sense of leveraging in additional resources to address climate change, and through its provision of climate finance to the local level.

- Investment to close the gaps in climate observations and develop user-oriented climate services will ensure a sound basis for Local Climate Change Action Plans.

Overall, the SPCR constitutes a broad and ambitious programme to transition The Gambia onto a climate resilient development pathway. The comprehensive nature of the SPCR was repeatedly endorsed and expanded by the GoTG and other stakeholders during the process to develop the SPCR. The SPCR adopts a long term, as well as a strategic approach. Regarding timeframes, the SPCR covers a 25-year period, divided into short-term (0-5 years), medium-term (6-10 years) and long-term (11-25 years) actions. The programmes set out in the four pillars, with details in the associated Concept Notes, have been repeatedly endorsed in numerous reports and policy documents as essential for managing the response to climate change and optimising its developmental benefits, as well as by the range of stakeholders participating in the SPCR. When seen over a 25-year period, the scope of the SPCR becomes manageable; however, it will require careful sequencing and phasing to ensure that the appropriate capacities are progressively enhanced to implement and manage the SPCR. Given the need for good stakeholder participation in this, the further sequencing of investments and actions would most appropriately and optimally happen in the subsequent process to develop the Concept Notes into full-fledged investment programmes.

As well as being a long-term programme, the SPCR is also a strategic one, which addresses climate change priorities through key entry points, in order to progressively build foundations for subsequent actions and leverage the associated resources. Thus, developing the enabling environment, as set out in Pillar 1, contains a number of critical steps that initiate the transformational arc of the programme. These include formalising the National Climate Change Policy (NCCP), which contains numerous provisions that provide the mandate firstly for setting in place enhanced coordination to manage the comprehensive response to climate variability and change, and secondly for progressively building associated capacities and institutions in a systemic fashion, underpinned by enhanced climate observations and targeted research for evidence-based decision making. Setting up the Gambia Climate Change Fund (GCCF), with associated budget coding and tracking registry, which will be a key mechanism for leveraging additional resources into the SPCR. Concept Note 2 contains the SPCR's comprehensive national land use planning process, which is urgently required to provide a rational and evidence-based framework for all further development in the country, including the critical coastal zone management area.

Concept Notes 1 and 2 of the SPCR thus contain many of the activities that will unlock the strategic and transformational nature of the programme, and they will need to be further developed and funded through multiple sources as a priority. Concept Notes 3 and 4 contain critical and no less urgent provisions, but many of these would be best addressed once the implementation of the investment programmes in Concept Notes 1 and 2 has been initiated.

### ***Cost benefit analysis***

Cost effectiveness and cost-benefit analysis (CBA) for the SPCR Investment Plan will require input from feasibility studies to be undertaken when further developing the Concept Notes for each of the project components. Thus this CBA will need to be carried out in the subsequent detailed project planning phase of the SPCR.

The following will be required to provide an adequate CBA for the SPCR:

1. Specify the set of alternative projects.
2. Decide whose benefits and costs count (standing).
3. Catalogue the impacts and select measurement indicators.
4. Predict the impacts quantitatively over the life of the project.
5. Monetize (attach dollar values to) all impacts.
6. Discount benefits and costs to obtain present values.
7. Compute the net present value of each alternative: The net present value (NPV) equals the present value of benefits minus the present value of costs:  $NPV = PV(B) - PV(C)$ . Choose the alternative with the largest NPV. The alternative with the largest NPV at least represents a more efficient allocation of resources, but one cannot say it is the most efficient allocation, because not all possible alternatives are necessarily analyzed in the CBA.
8. Perform sensitivity analysis.
9. Make a recommendation - normally one would recommend the alternative with the highest NPV, but should also take into account the sensitivity analysis.

### ***Synergies with related programmes***

The transformational nature of the SPCR investment programmes and the interlinkages between them will support The Gambia's vision and goals of moving to a low emissions and climate resilient development path, as outlined in the NCCP. The SPCR has been designed to optimise synergies between the proposed investment programmes and other ongoing or planned investment activities by the government, development partners, and non-state actors.

There are three overarching climate change-focused programmes with which the SPCR would have tight integration and synergies: the Low Emissions Climate Resilient Development Strategy (LECRDS); the National Adaptation Plan (NAP) process; and the Technology Needs Assessment (TNA).

An important current initiative central to the work of the SPCR is the UNDP-funded process to develop a **Low Emissions Climate Resilient Development Strategy** (LECRDS) for The Gambia. When developed and implemented, the expectation is that this would assist to move The Gambia from its brown development pathway to a green growth path, particularly with respect to the planned urban and rural electrification and transport sector modernization. The **LECRDS** would also assist The Gambia to achieve the objectives of the Nationally Determined Contributions submitted to the UNFCCC under the Paris Agreement. Since the development of the LECDRS Background Paper, The Gambia was selected to be one of the second round of countries to prepare a SPCR. Given the overarching mandate for the SPCR, it is critical that the LECDRS forms part of, and is synergistic with, the strategy and investment programmes that will be designed for the SPCR. To this end, the SPCR team has collaborated with the LECDRS coordinator to refine the ToR for the LECDRS assignment, so that this is synergised with the SPCR. Thus the LECDRS will be a focus on the identified priority brown development aspects not covered in the SPCR investment programmes. These are still to be fully determined, pending review and validation of the SPCR. The focused LECDRS roadmap that is developed would form part of the ongoing and integrated process to implement the SPCR in The Gambia.

The process to develop a **National Adaptation Plan (NAP)**, with funding from UNDP, was initiated in The Gambia in 2015. A **NAP** roadmap was developed based on discussions with key stakeholders, which covers a two-year implementation period that aims to address capacity and capability gaps along the whole spectrum of policy planning, review, development and outreach. Given that the SPCR has been designated by the GoTG as the overarching strategy for the implementation of the NCCP, and covers both adaptation and mitigation planning and development, it is essential that the NAP is further planned and implemented under the umbrella of the SPCR, and not as a parallel process. Preliminary discussions have been held between the SPCR team and the NAP coordinator, and further details on the specific elements to be covered within the NAP, to feed into the SPCR implementation, will be agreed.

Towards the end of 2015, The Gambia embarked on a project for **Technology Needs Assessment (TNA)** for mitigation and adaptation, with the final documents expected in 2017. The SPCR already includes a number of relevant technology enhancement measures, such as support to renewable energy and entrepreneurial opportunities in that regard; it would need to further integrate key findings of the TNA, during detailed planning of the specific investment programmes.

In addition to the above, the SPCR is directly supporting the implementation of the NAMA and the (former) INDC, now known as the NDC (Nationally Determined Contribution), by including several of the planned actions of those initiatives, as set out in Annex 9.

There are also existing sectoral programmes and projects, as well as new investments in the pipeline, with which the SPCR is developing complementary linkages. Some of these initiatives are:

- The forthcoming Euro 5.3 million EU-funded GCCA+ programme 'Climate Resilient Coastal Zone Planning for The Gambia', with which there will be many synergies; the GCCA+ programme will support the establishment of an Integrated Coastal Zone Management (ICZM) Secretariat coupled with assistance to create an ICZM Programme under the NEMA (1994) and creation of a National Advisory Committee (NAC), as well as a range of steps to enhance institutional capacity at the decision-making level for ICZM;
- Green Climate Fund Programme 'Ecosystem-based Adaptation in The Gambia River Basin': As the SPCR will intervene to develop value chains for various products, there is an obvious linkage with component b) of the EbA programme. When the relevant SPCR CN is being developed into the detailed funding proposal, further discussions will be held with the EbA project, to determine most synergistic areas of intervention in markets and value chain development.
- The *Chosso* project - Strengthening of Climate Resilience of the National Agricultural Land and Water Management Development project (NEMA): detailed complementarity and supportive actions between this and the investment reflected in the SPCR's rural resilience Concept Note 4 will be developed.
- Integration with Disaster Risk Reduction and Early Warning Systems interventions: Concept Note 1 contains provisions for complementing ongoing activities to ensure that an effective and integrated system of drought, flood and ground water early warning systems is established to enable effective risk reduction for user groups and communities, as well as for protecting public health and safety, and infrastructure; Concept Note 2 sets out a comprehensive climate risk integrated land use planning exercise that would fundamentally

underpin more effective DRR; and, furthermore, the rural and urban resilience interventions being developed under the SPCR would ensure that climate change adaptation is integrated into DRR in accordance with the NCCP and the revised National Disaster Management Policy.

- Several energy sector instruments geared toward promoting low carbon development and reducing carbon emissions for sustainable social and economic development, including renewable energy and energy efficiency, including (i) Renewable Energy Initiative for Africa; (ii) Feed in Tariff; (iii) Renewable Energy Policy; (iv) Green Mini Grid (AFDB); the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) Strategic Investment Plan; and the Rural Electrification NAMA and PPP for Solar PV.

There are additional donor-funded programmes and projects under development that would need to be integrated into further detailed programming of the SPCR, such as the range of EU-funded projects in the pipeline. In addition to the GCCA+, these include (i) a Food Security, Agriculture and Nutrition project with FAO, which will include development of value chains and micro finance for smallholder farmers, as well as access roads – this has clear synergies with Concept Note 4; (ii) Euro 23 million earmarked for Inclusive Sustainable Growth and job creation under the National Indicative Programme (NIP) of the 11<sup>th</sup> European Development Fund (EDF), which may include youth vocational training schemes, developing the enabling environment for private sector and investors, and supporting existing and start-ups businesses through small grants and specific dedicated lines of credits and instruments adapted to the rural economy and services and to respond to returnees and the diaspora needs; (iii) Euro 22 million earmarked under the NIP of the 11<sup>th</sup> EDF for actions to support renewable energy generation and hybridisation of mini-grid electrical networks, as well as support to address issues relating to sanitation and effective management of waste; and (iv) a number of projects providing rural resilience support, such as post-crisis response and food fortification schemes.

Please see Annex 9 for further details on **selected** key complementary programmes and the way in which the SPCR will build on previous achievements, fill gaps, or develop synergies in implementation. This will need to be an ongoing process as the SPCR moves to detailed programming, necessitating good coordination and joint planning with ministries, donors and other key stakeholders.

### ***Community based adaptation***

The NCCP recognised that creating a strong enabling environment for community-based adaptation would need to be a cornerstone of The Gambia's concerted response to climate change. It is well recognised in Africa that secure land tenure and access rights are essential for enabling community-based adaptation, as well as harnessing any related mitigation co-benefits. The NCCP called on the GoTG to initiate a process to identify and act upon key constraints to community-based adaptation, including land tenure and access rights. This process has essentially begun during this SPCR preparatory phase, underpinned by extensive regional consultations. Multiple lines of support for community-based adaptation are included in the SPCR investment programmes. In summary, some of the most important interventions to support CBA are:

- Enabling of participatory Local Level Adaptation Plans, as included in Concept Note 1

- Strengthening the understanding of and ability to support CBA of local government and key boundary agents such as NGOs and CBOs, as included in the capacity development interventions in Concept Note 1
- Provision of climate finance to the local level through the Gambia Climate Change Fund, as included in Concept Note 1
- Support to increased and diversified livelihood options, as covered in Concept Note 4
- Enhanced and user-friendly provision of climate services to user groups, as covered in Concept Note 1

### ***Local Climate Change Action Plans***

The SPCR will support the formulation, implementation, monitoring and regular updating of ward- and village-level Local Climate Change Action Plans, as envisaged by the NCCP, and in line with international best practice. The planning, implementation, monitoring and updating processes will be community-led and driven, to promote better integration and more sustainable, long-term outcomes, while national and local government will play a supportive and facilitative role.

Funding for the Local Climate Change Action Plans (LCCAPs) will be channelled from the Gambia Climate Change Fund (GCCF) to the Council level. The SPCR will support piloting of the LCCAPs in two of the regions, to assist with developing the procedures for channelling of and access to the funds from the GCCF, as well as the process through which national and local governments will ensure that the content of the plans is reflected in policies and plans at other levels, including in climate change-integrated regional development plans. The SPCR will support investigation and implementation of an agreed mechanism, such as a sub-committee at the ward, sub-ward and village levels, through which the local governments may become custodians of the funds channelled from the GCCF.

As recognised by the climate change-integrated Forestry Strategy, such local plans provide a mechanism for integrating local people's livelihood strategies into the design and review of development plans, sector-specific and spatial planning, environmental and climate assessments, as well as into project development and proposal formulation.

### ***Capacity development***

As noted in Concept Note 1, this is required across the board and at different levels. Particular effort is required at the local level, in order to develop the enabling environment for community based adaptation. As identified in the NCCP, additional capacity building efforts will be necessary for Area Councils, Ward Development Committees (WDCs), Sub-Ward Development Committees (SDCs), Village Development Committees (VDCs), Technical Advisory Committees (TACs) and Multi-Disciplinary Facilitation Teams (MDFTs), and for Regional, Ward and Village-level Disaster Management Committees, to enable them to facilitate the planning and implementation of the Local Climate Change Action Plans, and to meet their responsibilities as set out in the NCCP.

## **2.3 Underlying investment programmes**

The SPCR describes a sequence of steps and phases to continue and deepen the process used by the Ministry in developing the NCCP, in order to develop the NCCP implementation strategy. This is complemented by specific investment proposals to attract funding from other sources, including the

Green Climate Fund (GCF), in addition to any resources that may become available in the PPCR. Additional detail on each of the four underlying investment programmes is provided in the following sections.

### **2.3.1 Pillar 1: Developing the enabling environment for climate resilience in The Gambia**

The project development objective is to put in place an enhanced enabling environment for achieving low emissions, climate resilient development in The Gambia, through review and development of key policies, legislation, and institutions; mainstreaming climate resilience into national development planning and implementation, and initiating and/or developing coherent systems and strategies for climate finance, capacity development and research, climate services, and a national system for M, E & R of climate resilience. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components.

Pillar 1 consists of five main components:

#### **Component 1: Policy, legislative and institutional review and development**

This component includes a sequence of activities to develop the policy, legislative and institutional environment, as an important enabling framework for climate-resilient development. It builds on recent momentum, with the formulation of the National Climate Change Policy (NCCP) in 2016, the strengthening of the key institution concerned with coordination of climate change responses in the country, the MoECCNAR, the enhanced coverage by the draft PAGE II of climate change, DRR, gender and sustainable development issues, and the approval of the Ministry of Finance as the National Designated Authority (NDA) for the Green Climate Fund (GCF) in the country. Despite these positive developments, numerous critical aspects with respect to coordination, review and harmonisation of the policy and legislative framework, systematic capacity development and research for low carbon and climate resilient development, as well as enhancement of climate observations and services, remain to be dealt with.

Critical steps and activities identified are the following:

- Promulgate the draft NCCP (completed in early August 2017) and develop a Climate Change Act, to further develop the enabling environment for planning, coordinating, implementing and enforcing the cross-sectoral climate change functions/issues;
- Enact key policies and pieces of legislation still in draft form, such as the Policy on Biodiversity and Biosafety, the draft amendment of the 2008 Disaster Risk Reduction (DRR) Act and the Draft DRR Strategy and Action Plan;
- Comprehensively integrate climate change into National Development Plans – while the draft PAGE II does include many provisions in this regard, the Ministry of Finance and Economic Affairs has indicated willingness that this be taken further;
- Carry out an economic analysis study on the proposed resilience building, adaptation, and mitigation activities set out in the SPCR or parts of it;
- Develop a comprehensive framework for integrating climate risks and resilience into key policies, legislation, regulations and strategies, and to ensure harmonisation within the policy and legislative framework as regards gender, environmental sustainability, climate change and disaster risk reduction; and ensure that national planning legislation makes it



mandatory for other sector planning legislation to include the integration of these elements into sector policies and plans; this would entail identifying short-, medium- and long-term priorities for review;

- Revise selected key policies, legislation, regulations and strategies to mainstream gender, climate change, DRR and environmental sustainability within the context of sustainable development (short- and medium-term priorities); immediate sector priorities identified during the SPCR planning phase include Health, ANR, Education, the Gender and Women Empowerment Policy, the Local Government Act, and the Biomass strategy; regarding overarching policy, review of the NEMA is required, while review of the critical land use planning framework is covered as a priority in Concept Note 2;
- Review and approve the (Draft) National Strategic Environmental Assessment Policy and its Guidelines and Procedures as part of an amendment of NEMA; and subsequently to strengthen capacity of both government institutions and the private sector to carry out SEAs and to integrate SEA into policies, plans and programmes.
- Support enforcement of the legislation by strengthening the capacity of implementing institutions, enhancing effective and efficient coordination, administration and management to identify, minimize, avoid and eradicate duplication of efforts.
- Advocacy to ensure the UNFCCC Focal Point is located within the Climate Change Secretariat, for optimal effectiveness;
- Constituting the National Climate Change Council (NCCC), with an executive sub-committee to manage the GCCF;
- Setting up the Inter-ministerial Climate Committee (IMCC), as the technical body tasked with assisting the NCCC to perform its functions, *inter alia*;
- Further developing and strengthening the decentralised institutional mechanisms for effective and streamlined climate change and DRR responses; and
- Resolving overlapping mandates with respect to renewable energy, especially biomass and cook stoves, and the biomass value chain – this will support related activities covered under Concept Note 4.

### **Component 2: Enhanced mobilisation of climate finance**

This component includes necessary activities for enhanced mobilisation of climate finance, including the establishment of the Gambia Climate Change Fund. In addition, both tariff and non-tariff incentives would attract direct private sector investments into the development, protection and management of the environment and into developing climate resilience. Part of effective resource mobilization is to identify and eliminate barriers propagated by small institutions or initiatives working in isolation, in order to develop a more coherent approach to climate finance mobilisation under the proposed Gambia Climate Change Fund. Ways to support emerging innovative financial mechanisms such as polluter pays approaches, carbon tax, carbon credits, and green labels will be explored and implemented, to enhance the flow of non-government revenue based sources.

Key steps and activities include the following:

- Operationalise the Gambia Climate Change Fund;

- Commission an impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels;
- Develop the climate change budget coding and tracking registry, linked to gender responsive budgeting;
- Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives;
- Develop micro finance products and provide support to local government, farmer organisations and cooperatives, other user groups and entrepreneurs to access and use climate finance at local levels; and
- Support the piloting and subsequent scaling up of Local Climate Change Action Plans (LCCAPs) to assist with developing the procedures for channelling of and access to the funds from the GCCF, as well as the process through which national and local governments will ensure that the content of the plans is reflected in policies and plans at other levels

***Component 3: Climate change research, capacity development and communication***

A comprehensive and ongoing communication programme to make all Gambians aware of the issues, as well as their role in addressing them, is needed. Currently there is no research centre or research institution in The Gambia to undertake climate change in the context of economic development. Moreover, capacity development interventions across the sectors for an enhanced response to climate change have in general been implemented under projects, resulting in duplication and/or lack of effectiveness; there is thus the need for a more coherent approach to climate change capacity development.

Key steps and activities under this component would include:

- Establish and resource the Gambia National Research Framework on Climate Change (GNRF-CC) and The Gambia Climate Change Research Centre;
- Expand and systematise the National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR) that exists within the MoECCNAR, and provide a dedicated budget line for reliable and consistent resourcing;
- Convene a sequence of Climate Change Multi-Sectoral Forums (CCMSF), to include civil society, the private sector, and all stakeholder groups, As an input to the process to develop both the NCCCS&AR and the GNRF-CC;
- Undertake research and build capacity inclusive of women, children, youth and people with disabilities on best practices for effective and efficient communications on climate change, including translating and interpreting research findings in local languages;
- Formulate a Long-term Climate Change Capacity Development Strategy (LT-CCDS), to underpin the implementation of the SPCR, which would spell out phased and concrete steps to integrate climate change into Lower Basic, Basic and Higher education curricula for government and madrasah institutions, as well as into tertiary education curricula, building on existing initiatives, as part of education for sustainable development (ESD); as well as an institutionalised climate change training programme across the sectors, to include conflict management training and dialogues to address conflictual issues;

- Design and implement an ongoing and sustained strategy to strengthen the capacity of the Climate Change Secretariat, to include training on key areas such as programme coordination, project management, proposal development and M, E and R; capacity development for sectoral departments involved in the IMCCC, including leadership training and team building;
- Develop incentives for retention of climate change capacity, linked to an active system of mentoring (as part of the LT-CCCDs) to retain and build on human resources capacity to coordinate and respond to climate change; and
- As a priority of the LT-CCCDs, design and implement a dedicated component for capacity development and sensitisation for the Ministry of Tourism, the Gambia Tourism Board (GTB) and other tourism stakeholders, to enable better engagement in the hospitality industry with climate resilience challenges.

***Component 4: Furthering climate services investments and systems***

This component covers development of climate observations databases, all observations systems, data management, and acquisition of related hardware and software required for climate resilience in The Gambia. Communications and processing systems necessary for the development, production and dissemination of climate services in the interests of climate resilience are included. The scope covers data for all pertinent Departments and Agencies of the GoTG, plus any other essential non-governmental organisations where justified following a review.

Specific steps and activities under this component, in all cases covering meteorological, hydrological and marine systems, and to be coordinated with the EWS II Project, would be the following:

- Determine, alongside the EWS II Project, the outstanding observations platforms needed to satisfy GCOS, GUAN, WHYCOS and marine observations and required for research in the interests of climate resilience;
- Consider the case for installation of a rainfall-measuring radar installation, together with all essential support facilities, and proceed on the outcome;
- Undertake a gap analysis of sectoral observations required for monitoring and research in climate resilience;
- Upgrade to need facilities for instrument calibration and repair for observations systems; as well as necessary observations real-time delivery systems;
- Provide resilient database equipment for all observations sets, climate and sectoral, including quality control, input and output facilities, and visualisation software, to develop long-term on-line digitised records;
- Support completion of DARE activities in DWR and provide support for sectoral DARE, in all cases producing digitised records in the databases;
- Implement a full internet service and up-to-date computer facilities and software necessary for all work under climate resilience at DWR, other GoTG Agencies and research facilities involved with climate services;

- Take steps to integrate women, youth and people with disabilities in the meteorological services, since they are the most vulnerable to the effects of climate change; and

Establish and scale up effective integrated drought, flood and ground water early warning systems - to enable effective risk reduction for user groups and communities, as well as for protecting public health and safety, and infrastructure; this would include establishing a groundwater based EWS to monitor the status quo of groundwater, both in terms of quantity and quality of the various aquifers.

***Component 5: Developing the climate resilience monitoring, evaluation and reporting system***

The main focus of this component would be to develop a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems. PAGE II envisages a legal and regulatory framework guiding planning and M&E activities, senior-level commitment and the means to engage all sectors within government. The SPCR M&E would fit into this system developing both a results framework, as well as an M&E reporting system supporting the SPCR and the mainstreaming climate resilient development. In addition, specific government budget lines where climate change interventions are identified would allow for budget tracking, tagging and coding.

Specific steps and activities of this component thus include:

- Develop a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems, with indicators to allow for monitoring to be disaggregated by gender and with respect to youth, the elderly, differently-abled people, and marginalised groups.

Please see **Concept Note 1** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

***2.3.2 Pillar 2: Climate-resilient land use mapping, planning and information systems***

The project development objective is to put in place the necessary steps to develop, implement and enforce a national Land Use Plan that recognises the need for climate resilience and balances the cross-sectoral aspirations of all relevant stakeholders. The Land Use Plan would provide an environment to achieve rational, efficient, economical and equitable use of resources in The Gambia, considering future growth and development. The Plan would specifically address the relocation of the government functions currently within Banjul, as well as provide a coherent vision and framework for addressing coastal resilience.

The national Land Use Plan for The Gambia has not been reviewed or updated since 1989. In addition to being outdated, it does not integrate any climate change projections, of which sea level rise is arguably the most important given The Gambia's vulnerability. Investment is required in a significant national initiative with parallel investment in human resources, equipment, technology, institutional structures and policy / procedure development to achieve a legacy of climate resilient land use planning self-sufficiency, including in the coastal zone, but with short term support from international experts, training centres and contractors. The project activities could begin concurrently and immediately, and would run over a period of at least five years initially with ongoing review and updating on a continuous rolling programme. Steps to address the low

participation of women in decision making at both community and national levels will be integrated across the components.

It is important to note that Pillar 2 comprises a comprehensive national land use planning exercise, within the framework of a new Land Policy. This by definition includes the coastal zone. The main problem with coastal protection over the past couple of decades is that international donor financing for The Gambia has been spent on *ad hoc* activities, often not implemented in full with respect to the associated technical recommendations. These ad hoc responses are inevitably not sustainable, and frequently do not even attain their expected (limited) lifespan. Thus any new plans for more coastal protection works have to be developed within a comprehensive land use planning exercise, and can only be identified after significant in-country processes to reach consensus on the way forward. This consultative process is proposed under CN 2.

Given lack of sustainability and failure of previously implemented coastal protection works, the SPCR advocates for a managed realignment process, to be further discussed and consensus developed in this regard through the strongly participatory national land use planning process. Many activities for developing coastal resilience are included in the SPCR – such as the many baseline studies in CN 2. These will complement the oceanographic survey to be carried out under the EU-funded GCCA+ programme, and provide the needed information for coherent coastal zone management, together with the GCCA+ coastal protection activities.

The most significant coastal protection issue resides in the city of Banjul, which is specifically and frequently discussed in Volumes 1 and 2 of the SPCR. Land use planning is fundamental to improving coastal resilience, as is set out in the holistic Concept Note 2, and the coast is part of the whole. The first component of CN 2 contains a range of necessary coastal surveying / monitoring actions.

Pillar 2 consists of eight inter-linked components, with associated activities, as detailed below. Each component could run concurrently, with immediate commencement of some sectoral data gathering activities on receipt of funding and commencement of other activities on agreement of a management framework to coordinate activities.

***Component 1: Data gathering to inform climate resilient land use planning***

There is insufficient data of a good quality from most, if not all, sectors to inform planning. Data that have been gathered are of variable quality, inconsistent temporally and spatially and poorly managed making analysis difficult or impossible. Existing and new data would be gathered under this component and collated with appropriate protocols and metadata to define method of measurement, dates, responsible body, quality, repetition interval, security, etc. Land use planning covers all areas of the country and most sectors of government; for convenience, this project categorizes the data requirements into coastal, urban, rural and cross-sectoral. The boundaries between these categories are not fixed and overlaps are expected. Concept Note 2 provides lists of the specific data to be gathered.

***Component 2: Establish a central information management system based on GIS***

All data, information and metadata should be retained and managed within a single national GIS. GIS provides a platform for collating, storing and analysing geospatial data and information, and the facility for presentation in thematic map formats at scales appropriate to the input information and the user's needs. Use of information may range from informing government on long term socio-economic planning to providing map based teaching materials for primary education.

Central control of a national capability would ensure that quality standards can be maintained, that data formats are compatible, data security can be maintained where required and that distribution to users is efficient at a cost that ensures widespread access (for example, to schools, universities, NGOs, government departments and commercial bodies). Extensive investment in human resources, technology and office space would be required, with support from international contractors and training centres.

At present, there are two national centres of significant GIS capability, one at the NEA and one at the Gambian Bureau of Statistics (GBoS). The NEA has a programme to continually expand their capability and the extent of the system to deliver output to bodies such as the Tourism Board and the Department of Physical Planning, but they are a **very** considerable distance from having the capacity or depth of knowledge to deliver this proposed project. It may be that a centralized GIS capability should be housed by a different Department and Ministry, drawing initially on the human resources within the NEA and GBoS plus other departments; given that the central objective is to produce and implement a national Land Use Plan then it is logical that responsibility should be with the Department of Physical Planning.

***Component 3: Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the existing situation***

The first output from the data collection and GIS development components would be land use maps and cadastral maps for the existing situation. Land use classes determined for the 1985 Land Use Plan are still relevant, but should be expanded to include features relevant to modern Gambia as set out under cross-sectoral land use information in Component 1 above.

The maps would be highly detailed, with working scales of 1:1250 for urban areas, 1:2500 for suburban areas and 1:5000 for rural areas. Having produced the initial series, the maps would then be subject to continuous future updating to remain current. All relevant stakeholders would be involved in the national land use planning exercise. As major participants in land administration, the Governors will be the leading implementers of the land use plans at regional levels; their importance in the process cannot therefore be overemphasized.

***Component 4: Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development, and governance***

Gambia does not have a Land Policy. By virtue of its colonial past, land tenure in The Gambia is based on a dual system – statutory and customary. The statutory system governs the freehold and leasehold titles both of which were introduced by the British and are based on English law. The customary tenure evolved from the traditions and practices of the indigenous communities that allow communities to distribute or sell land, but discriminates against women heads of household who constitute the majority in rural areas. Freehold and leasehold are most prevalent in the Banjul and Kombo St. Mary Regions and within the west coast Tourism Development Area, while customary tenure is most common in the Provinces. The different statutes that regulate the management of these lands are the State Lands Act 1992 and the Lands (Provinces) Act.

The goal of a National Land Policy should be to ensure efficient, equitable and optimal planning, utilization and climate-resilient management of Gambia's land resources for poverty reduction, wealth creation, environmental enhancement and overall socio-economic development.

Responsibility for the Policy would lie with the Ministry of Local Government and Lands, but action would require cross-sectoral consultation and negotiation between stakeholders.

***Component 5: Cross-sectoral updating, development and publication of relevant Policies and Acts taking account of climate resilience in addition to other national development objectives***

Government Acts, Policies, Procedures and Guidelines need to be reviewed and, where required, updated to account for climate resilience, youth / gender issues and other national development objectives that are relevant to Land Use Planning. Policy review and updating would be a complementary activity with component 1 of Concept Note 1 of this SPCR. Cross-sectoral actions include:

- Policy Formulation: to identify through systematic stakeholder consultation appropriate policies through surveys and analyses of physical development related issues so that guidelines and parameters can be set and used to direct future decisions related to land use and development, including issues relating to compulsory purpose to release land for alternative purposes and monitoring / enforcement procedures;
- Development control: to identify the requirements of development projects and to control the possible conflicts resulting from different land uses and claims and from utilization of natural and other resources; and
- Development planning: to estimate future requirements for ongoing developments especially regarding population growth, and to identify and specify projects and plans for physical development, resulting in investment proposals to be included in the overall public investment planning.

Within the coastal zone there are specific actions required to address coastal resilience regarding existing and future flooding and erosion:

- The first and most significant is to prioritize the **relocation of government functions in Banjul to a planned new enclave** at a location that would best serve the nation and act as a best practice example of urban planning, the use of climate resilient building codes and the development of sustainable public transport. This action would release land in Banjul for expansion of the port, recognizing that Banjul is subject to both erosion and flooding and that the port would need to protect its facilities;
- The second is to **achieve coastal resilience along the open and river coasts by establishing a formal land use Policy for set-back**, with associated procedures and powers for implementation and enforcement. The set-back distance should be defined on a site-specific basis recognizing the spatial variation of flood / erosion risk and any associated land use issues. The Policy should enshrine the principle that coastal resilience is normally best achieved through adaptation to natural processes and not through engineering intervention, a process generally referred to as managed realignment. The specific issue of responsibility for removal / relocation of existing assets from within the set-back would need to be addressed in Policy to ensure that natural shoreline eco-systems can evolve and the foreshore remains freely available for public recreation, fishing and other customary activities.

***Component 6: Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact***

The National Land Use Plan would be a combination of a Policy, procedural documents, guidance documents, cadastral maps, land use maps, supporting reports and data bases. The preparation of the Plan would be the responsibility of the Ministry of Lands and Regional Governments and the Department of Physical Planning and Housing, but would be informed by consultation with cross-sectoral stakeholders addressing the wide ranging and often conflicting issues. The Plan would provide an environment to achieve a climate resilient, rational, efficient, economical and equitable use of resources, thereby enhancing the following:

- The presentation of data relating to the stock of physical structures and associated land use as well presentation of data relating to socioeconomic and environmental characteristics;
- Identification and estimation of present and future land requirements for expansion, in addition to new facilities and changes in land use;
- Preparation of plans for new facilities, land use changes, expansions as well as measures to alleviate possible shortcomings with respect to their locations, and integration into the existing environment;
- Coordination of building plans and intended land uses of public and private sector investors to achieve an optimal compromise acceptable to both the individual sector and the community; and
- Implementation, monitoring and enforcement of the physical development Plan.

**Component 7: Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions**

The development and implementation of a National Land Use Plan should not be a time framed project. Planning should be ongoing, and constantly responding to new demands and challenges that may arise from socio-economic or political evolution and from changes to the natural environment as anticipated under climate change scenarios. Although certain aspects of the project would be weighted to the early years, such as agreement of management structures, policy development, provision of a suitable work environment, recruitment and training of staff and purchase of equipment, it should be seen as ongoing with a rolling programme of review, updating, maintenance, monitoring and enforcement.

Please see **Concept Note 2** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

***2.3.3 Pillar 3: Developing climate resilient infrastructure, services and energy systems***

Pillar 3 of the SPCR consists of an integrated programme designed to enhance the climate resilience of the urban areas in The Gambia – namely the Greater Banjul Area (GBA) and the growth centres – while also covering infrastructural issues beyond the urban areas. Specific components include developing climate-resilient integrated waste management, addressing the associated need for climate resilient roads and drainage systems, and actions to climate proof water supply and



sanitation infrastructure, as well as energy infrastructure. Livelihoods opportunities associated with renewable energy, waste management and urban agriculture will be supported, particularly for women, youth and disadvantaged groups, including differently abled people. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components.

The project development objective is to put in place a series of steps and develop systems to promote climate resilience in the urban areas of The Gambia, through actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes; and to promote associated livelihoods opportunities, particularly for women, youth and disadvantaged groups, including differently abled people.

Note that CN 3, while addressing many of the urban resilience challenges in The Gambia, is not purely urban, but has a national scope – for example, the roads and drainage elements would apply to rural roads as well.

Pillar 3 consists of five main components:

***Component 1: Climate-resilient integrated waste management***

Key activities and steps identified are the following:

- Building on the good practice gained by the KMC in developing the municipal Integrated Waste Management Strategy, develop, implement and enforce a coherent national integrated waste management framework, to include a National Integrated Waste Management Policy, Strategy and an Act with Regulations;
- Allocate resources for capacity development for integrated waste management in The Gambia, and implement a comprehensive capacity development programme;
- Conduct a waste survey in GBA and Growth Centres to identify opportunities for recycling businesses, particularly to target women and youth, as well as for opportunities for production of biogas; should this be feasible, a power plant to generate energy from waste should be established;
- As a matter of urgency, implement a participatory process to identify socially and environmentally acceptable waste dump sites in the GBA; this should form part of the land use planning exercise as covered in Concept Note 2;
- Develop standards and design and implement dumpsites and landfills in the GBA to appropriate standards, with access roads, embankments, fencing, drainage, weigh scales and scale house as appropriate;
- Assess the equipment for proper waste collection in each municipality or growth centre (e.g. waste compactors, bulldozers, back hole/with front loader and dump trucks, skip buckets, trailers etc.);
- Once appropriate waste sites have been identified and initiated, and municipal household collections are in place in the KMC, based on a segregation plan supported by appropriate

training, close all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites;

- Support the implementation of the National Health Care Waste Management Plan, which would include clinical waste incinerators that can generate energy, as well as other steps for management and disposal of medical and clinical waste;
- Identify sewage treatment plants (e.g. Kotu treatment plant) in all the regions of the Gambia; and
- Design and implement a nation-wide awareness raising campaign to sensitise the public about the rationale for integrated waste management, and climate resilient infrastructure and services; this should include *inter alia* the health impacts of illegal waste dumping, the need to keep drains free of waste and climate-related increased flooding risks.

### **Component 2: Climate-resilient water and sanitation**

Key activities and steps identified are the following:

- Implement the Integrated Water Resources Management (IWRM) strategy, to include rain water harvesting systems;
- Update the SNC Lavalin NAWEC Water and Sanitation Master plan up to 2030, fully integrate climate change, gender and environmental sustainability issues, and implement the plan – this should entail *inter alia* the location of new boreholes away from heavily built up areas to minimize runoff and facilitate recharge of aquifers;
- Develop a Rural Water Supply and Sanitation Programme to attain 100% coverage in the Gambia, link rural water supply to that in the peri-urban areas, strengthen the capacity of communities to govern water supply systems, and put in place a robust and sustainable village water supply maintenance mechanism;
- Increase the density of observation boreholes to monitor the groundwater extraction rates and need for relocation of boreholes due to salt water intrusion;
- Develop and decentralize sewerage systems and sewage treatment plants in all regions of The Gambia, and support the implementation of community-led total sanitation and hygiene; and
- Develop appropriate regulations and standards for both water supply and sanitation, and strengthen and decentralize the laboratory services.

### **Component 3: Climate resilient roads and drainage infrastructure**

Key activities and steps identified are the following:

- Review and modify existing policies, laws, regulations and strategies on roads and bridges to ensure climate resilient standards are applied, including appropriate drainage systems along their corridors;
- Develop a national drainage master plan, which fully integrates climate change, gender and environmental sustainability issues;
- Update and design the Kotu stream drainage system from Lamin to Badala Park and those of Brikama, Barra, Soma, Bansang, Basse and Farafenni; and design and implement drains for all major roads in the GBA including Kombo Coastal Roads;

- Provide a comprehensive institutional framework (National Roads Authority, Municipal Councils, National Disaster Management Agency, Department of Water Resources, etc.) for the maintenance of urban drains; and
- Include development of river transport in the new transport policy – which is currently at the invitation to tender stage.

#### ***Component 4: Climate resilient energy infrastructure***

Key activities and steps identified are the following:

- Develop the renewable energy regulatory framework and expedite the feed-in- tariff study and develop further incentives to encourage entrepreneurial opportunities and private sector participation in renewable energy;
- Install solar and wind mini-grids to compliment NAWEC's generating capacity, develop an alternative energy source for all general hospitals, district hospitals and major and minor health centres, and install solar powered street lights in the GBA and the Growth Centres;
- Investigate the feasibility of a wave energy system and low-flow underwater turbine technology, and implement if feasible;
- Scale up the Renewable Energy Fund initiated by PURA, and further support SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered systems to boost the sector;
- Institute urgent human resources development (technical capacity for building, installing and maintaining renewable energy systems) together with a substantial investment of material resources into renewable energy; this should include researching and replicating successfully implemented renewable energy projects;
- Implement the National Energy Efficiency Action Plan, which should include developing energy efficiency measures, incentivising the replacement of incandescent bulbs with energy saving bulbs like LED; developing standards for electrical and solar equipment, and supporting the development of mass production techniques for energy efficient stoves;
- In conjunction with the investment programme set out in Concept Note 2, map out and acquire land for renewable energy installations in the country;
- Monitor emissions from vehicles and take steps to reduce them, including through the development of appropriate standards and regulations; and
- Design and implement a nation-wide awareness raising and sensitisation campaign on the climate change and health related aspects of fossil fuels and energy inefficiency, and the substantial adaptation, mitigation and developmental benefits of renewable energy.

#### ***Component 5: Support to urban agriculture***

Key activities and steps identified are the following:

- Support key stakeholders, including the Urban Agriculture Department, NARI, the UoTG and relevant NGOs and CBOs to identify, research and disseminate integrated systems at different scales for climate resilient urban farming.
- Support the establishment of urban agriculture producers associations and develop appropriate systems of extension and farmer-to-farmer learning.

Please see **Concept Note 3** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

### **2.3.4 Pillar 4: Developing integrated approaches to build rural climate resilience in The Gambia**

Pillar 4 of the SPCR constitutes a holistic programme of investment with an integrated set of components designed to support and develop the climate resilience of the rural and peri-urban areas in The Gambia. Specific components include developing the resilience of small scale farming against future climate impacts; addressing the “Sahelization” of ecosystems in The Gambia; rehabilitating and managing the buffering coastal ecosystems, and involving the private sector for promoting and strengthening the resilience of communities’ livelihoods in the Gambia. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components. The programme would also have a focus on the elderly and disabled, where appropriate, and include research and development as a crosscutting issue.

The project development objective is to develop systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia, through developing climate resilient small-scale agriculture and livestock, community-based approaches to forest and natural resource management, and promotion of resilient livestock, agro-forestry and fisheries value chains and markets.

Pillar 4 consists of four main components:

#### **Component 1: Enhancing the resilience of small-scale farming against future climate impacts**

Key activities and steps identified are the following:

- Develop plan and put in place a National Programme for Crop Diversification led by the Ministry of Agriculture, as a tool to spread crop failure risks and enhance resilience of small scale/commercial farming, including the adoption/development of climate resilient crop varieties that are adaptable to varying soil water (drought/flood) and climatic conditions;
- Strengthen stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming;
- Strengthen technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools (CC-FFS), amongst other measures, for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter);
- Strengthen and/or operationalize of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability; and
- Strengthen the capacities of the National Agricultural Research Systems, including the updating of Agro-Ecological Zoning and Soil Mapping.

#### **Component 2: Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small-scale farming, livestock and wildlife sub-sectors**

Key activities and steps identified are the following:

- Climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management (intercropping fruit or native trees within the farming plots crops to act as “nutrient pumps,” bringing nutrients that are too deep for crops);
- Promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry to act as “climate buffers” providing shade, wind breaker and litter source for water conservation, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation;
- Promoting strategically placed drinking points/ponds deep in forest protected areas (“traditional flora and wildlife regeneration traps”) for offsetting the disappearance of the natural habitats and indigenous traditional flora and wildlife species due to frequent bush fires and drying of streams.
- Establishment a regional network of rural water supply system coupled with construction of strategically placed plunge dips structures to support livestock animals for preventing against ticks, flies, mites, lice and other external parasites expected to increase under the projected warmer climate and new management practices such as artificial insemination, castration, inoculation, dehorning and weighing;
- Climate-smart livestock management practices addressing multiple gains of adaptation (expansion of water supply and drinking points, green expansion, livestock diversification, creation of livestock centres through feed diversification and breed improvement for meat, milk, and disease tolerance etc.) and mitigation (developing National Programme for Biogas Production and Utilization through on-farm anaerobic digestion of manure as an integrated adaptation-mitigation measure);
- Development of National Planning of Grazing Zones and management of grazing activities with Improvement of stock feeds to avoid overgrazing issues (goats/sheep); and
- Diversification of the small-scale livestock sector with adoption of small ruminants and poultry activities and Incentives for developing milk collection centres that use solar cooling powered energy.

***Component 3: Supporting the planning, rehabilitation and management of buffering coastal ecosystems to build the resilience of fisheries and tourism development in The Gambia***

Key activities and steps identified are the following:

- Develop Regional Programmes for Ecotourism, to include supportive pathways into ecotourism, for buffer control of protected forest and riverine locations with clear identification of potential sites and natural conditions. This will be used by the Gambia Tourist Board to attract external investment on ecotourism;
- Initiation of a national programme addressing the rehabilitation of ecosystems bordering the coastal dunes and riverine areas to be used as a buffer between the coastal zone and the community villages particularly in the West Coast Region (land reclamation operations on

fish landing sites and old sand mining sites using palm trees, mangroves and other native shrubs); and

- Implement long-term Monitoring and Management National Mechanisms through the establishment of a National Climate Change Centre for Information and Risk Management (CC-CIRM) comprised of a robust Remote Sensing Unit and an operational mobile innovative system using drone-based GIS technology.

***Component 4: Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia***

Key activities and steps identified are the following:

- Promote youth- and women-centred “Spin-off” SMEs for development of climate resilient agricultural, livestock, forestry and fisheries value chains in each of the Gambian Regions, supported by policy intervention and the establishment of the Gambia Climate Change Fund (covered in Concept Note 1);
- Establish Waste Management Plans at Regional and Municipal Level, in conjunction with Concept Note 3, linked to National Recycling Training Programmes for youth and women. This will be linked to the Centres for Skills Development (see below) and “spin-off” programmes;
- Establish (physical and logistical infrastructures) a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs), following the Global Eco-village Network approach;
- Establish a network of Centres for Skills Development (CSDs) to assist youth and women associations, as well as disabled people, the elderly and other disadvantaged groups, in developing skills for alternative income generating activities to curb migration and intense degradation of the environment, in particular the coastline through mangrove cutting and sand mining. This would include civil construction, bricklaying, welding, electrical technicians, motorcar mechanics, plumbing, fish net mending techniques, boat construction/repair/maintenance, carpentry, etc. This implies also establishing Centres of Excellence for Skills and Product Development for the following sectors:
  - Natural Resources Management (this will support the rational use of Forest Resources)
  - Fisheries (based on/expanding the TRY Oyster Association model)
  - Food processing, production and certification
  - Renewable energy (based on existing initiatives such as the FANDEMA Association - solar installation and maintenance); and
- Strengthen the resilience of the Fisheries Sector and community livelihoods by supporting aquaculture and upgrading all eight national Fish Landing Points, including fish markets and cold chain structures, as well as establishing post-harvest value chain units at each landing site.

Please see **Concept Note 4** in Volume II for background justification, additional information, costing of components, and the provisional project logical framework.

## 2.4 Financing Plan

In the context of a limited government budget that is largely dependent on the tax economy, alternative financial sources are inevitable for The Gambia to finance the SPCR. Therefore, the use of market mechanisms as well as enhanced resource flows of international climate finance, as stipulated in the National Climate Change Policy (2016), will be required to promote investment in climate-resilient and low carbon development. Note that climate finance refers to funding for adaptation, disaster risk reduction, building resilience, and mitigation. In view of the SPCR programmes and indicative costs for the implementation stated above, and to support priority actions under the implementation of the NCCP, an adequate financing plan is required to ensure a proactive and effective approach to implementation.

The four main pillars of the SPCR investment strategy are: (i) Developing the enabling environment for climate resilience; (ii) Climate resilient land use mapping, planning and information systems; (iii) Climate resilient urban infrastructure and development; and, (iv) Developing integrated approaches to build rural climate resilience. The financing plan provides some indicative cost estimates for the SPCR programme implementation. This costing is broken down in Table 2 below according to these pillars, for the short, medium and long term.

**Table 2: Short, Medium and Long Term Cost Estimate for Financing SPCR**

<b>Programme Components / Pillars of the SPCR</b>	<b>Total Cost (US\$)</b>	<b>Short Term (US\$) (0-5 years)</b>	<b>Medium Term (US\$) (6-10 years)</b>	<b>Long Term (US\$) (11-25 years)</b>
Pillar 1: Developing the enabling environment for climate resilience	<b>28,850,000</b>	11,060,000	11,000,000	6,790,000
Pillar 2: Climate resilient land use mapping, planning and information systems	<b>45,000,000</b>	40,000,000	2,500,000	2,500,000
Pillar 3: Climate resilient infrastructure, services and energy systems	<b>169,000,000</b>	50,000,000	69,000,000	50,000,000
Pillar 4: Developing integrated approaches to build rural climate resilience	<b>73,000,000</b>	20,000,000	30,000,000	23,000,000
<b>Total Financing costs:</b>	<b>315,850,000</b>	<b>121,060,000</b>	<b>112,500,000</b>	<b>82,290,000</b>

**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts. The delineation into short-, medium- and long-term amounts is also subject to detailed programming and sequencing of investments.**

The Gambia's need for climate financing as an addition to the ordinary development financing is necessitated by the threat that climate change poses to both development and environmental sustainability. The adverse effects of climate change constitute a significant risk to lives and livelihoods of people, particularly the poor and the vulnerable; these effects could reverse any economic progress made. Thus adequate and sustainable financing needs to be mobilised for the country to move forward along a sustainable and resilient development path. The estimates provided in this strategy are considered minimal compared to the apparent needs of the country. The estimates provide a critical starting point that will open the door to more accurately establishing the real needs in the unpredictable environment of climate change.

Some of the strategic interventions identified in this strategy build upon existing development interventions with funding from the government, as well as development partners such as the Green Climate Fund (GCF), IFAD, UNEP, UNDP and others. In order to effectively address the identified strategic interventions, substantial amounts of additional funding will be required in the long term, given the significant existing adaptation deficits identified in the gap analysis. Climate change will exacerbate existing challenges resulting from fragile and degraded ecosystems, poor planning and insufficient environmental governance. The major mechanisms through which the necessary additional funds may be obtained include the following:

- **National budget:** The mainstreaming and integration of climate change issues into the national development agenda means that national budget allocations are necessary to support the implementation of existing climate change policy priorities. These national budget allocations will be tracked using budget coding and used to leverage the finances originating from external sources to cover the additionality related to climate change.
- **Dedicated funding from bilateral and multilateral sources:** The available sources of external funding for adaptation and mitigation are diverse and expected to increase, resulting from positive donor responses to recent political changes, and include for instance: the EU Global Climate Change Alliance Programme; the World Bank's Carbon Funds and Facilities; the Least Developed Countries Fund (LDCF) of the UNFCCC/GEF; the United Nation's Reduced Emissions from Deforestation and Forest Degradation (UN-REDD) Programme; Climate Investment Funds (CIFs) of the World Bank; the Special Climate Change Fund (SCCF) of the UNFCCC/GEF; the Adaptation Fund (AF) of the Kyoto Protocol (with secretariat at GEF and World Bank acting as Trustee); the Green Climate Fund (GCF); and the Scaling up Renewable Energy in Low Income Countries Programme (SREP). In addition to those, numerous bilateral development partners have either set up their own climate change bilateral funds and programmes, and/or are mainstreaming climate change support into their development cooperation programmes.
- **Private sector finance and foreign direct investment (FDI):** Private sector players (both domestic and international) can provide investment mainly in the energy and forestry sectors, as well as industry in manufacturing and transport. Private sector sources may be supplemented by public-private partnership (PPPs) funds and grants or soft loans from multilateral financial institutions (MFIs).
- **Carbon markets:** Market-based mechanisms such as the Clean Development Mechanism (CDM) and the REDD+ Mechanism, as well as voluntary carbon market schemes, can provide funds for mitigation.



- **Payments for ecosystem services (PES):** PES, also known as payments for environmental services (or benefits), is the practice of offering incentives to farmers or landowners in exchange for managing their land to provide some sort of ecological service, conservation agriculture, ecotourism, land easement or lease. PES programmes promote the conservation of natural resources in the marketplace. This can include, for instance, the integration of various innovative financing and payment schemes or incentives through appropriate taxes, polluter-pays principle, levies and tariffs.

Annex 7 provides a summary of some of the financing sources and mechanisms.

Operationalizing the Gambia Climate Change Fund, as discussed under Pillar 1 and in the associated Concept Note 1, is a critical and early step in further developing the resource mobilisation strategy for the SPCR.

A further consideration could be involving the Central Bank in discussions on the financing plan for the SPCR, to consider *inter alia* whether interest rates could be lowered for private banks to incentivise lending to business to promote climate resilience and green economy interventions; a quantitative easing policy to support such initiatives could be considered.

The New Delhi Work programme recognizes the need for adequate financial and technical resources to ensure effective implementation of activities of Article 6 of the UNFCCC. Since The Gambia contributes very little to greenhouse gas (GHG) emissions but is highly vulnerable to climate change impacts, more resources are allocated to adapting to climate impacts in the short and medium term. In the long-term, the country will need to allocate more resources to mitigation because with the high level of development, population growth and oil extraction and use, GHG emissions will be higher.

As noted in section 1.9, according to a national assessment of investment and financial flows completed in October 2011, The Gambia would need an additional US\$1.35 billion to implement priority actions to reduce greenhouse gas emissions from the energy sector and forest degradation and adapt to the impacts of climate change in the agriculture and water sectors by 2030 (Jarju and UNDP, 2011). The climate change financing represents approximately 12% of the country's Gross Domestic Product (GDP) per annum over the next fifteen years (GDP at market prices as of 2013). Of this financing, adaptation costs will account for approximately 10% and mitigation costs for 2% of the annual GDP. It should be noted up front that a significant share of these estimated financial resource needs will be required and channelled at the local level, where a majority of community members are vulnerable to climate change effects. Priority actions under the SPCR strategy will materialize, following the National Climate Change Policy principle of community-based actions to address climate change and its impacts, and the requirements for the Gambia Climate Change Fund to channel at least 50% of all climate finance received from national and international sources to local communities, with an initial focus on capacity development.

The cost estimates are above the range of the average projected adaptation estimates for the Sub-Saharan Africa countries (at 1.7%–1.8% of their GDP per annum) and are also more than the World Bank (2006) estimates range of 2-10% of Gross Domestic Investment (GDI). The mitigation costs were estimated using the Integrated Assessment models (IAMs) - the FUND and PAGE models that estimate that the mitigation costs will range between 1.5 - 10% of annual GDP. The Gambia's mitigation costs are above these averages. However, it should be noted that for some interventions,

there may be no clear divide between climate change finances that address purely adaptation and building resilience, or mitigation concerns. This is because some adaptation/resilience and mitigation measures are mutually reinforcing and deliver co-benefits for adaptation, resilience and mitigation. For example, adaptation measures in sustainable land management can mitigate climate change if they include conservation agriculture and forestry.

The costings are only indicative of the direction the country needs to take in implementing the NCCP through the SPCR Programme. It is likely that, owing to the unpredictability of the impacts of climate change and the existing gaps in financial data for the country's climate change needs, the required financial input might be higher than projected to transition the country onto a sustainable climate-resilient development path. Given the significant capacity constraints identified by the GoTG and numerous studies, expected challenges in coordinating the implementation of the SPCR investment programmes in a sustainable and effective fashion will need to be overcome, as set out in the capacity development provisions of Concept Note 1.

## **2.5 Implementation arrangements for the SPCR**

Given a certain amount of flux in the country at the moment, as a result of recent political changes, combined with an existing dynamic institutional environment, additional steps will need to be taken in order to fully develop the implementation arrangements for the SPCR. Thus, in the interim (i.e. the next four to six months), high-level oversight will be provided through the multi-stakeholder Technical Team set up to oversee the SPCR preparatory process. A priority for the GoTG was to formalise the draft NCCP, in order to have a concrete basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses, as set out in section 1.8 above. This has now been achieved, as the NCCP was adopted by Cabinet in early August 2017. In the interests of mainstreaming, it would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was formalised and the key institutions – the National Climate Change Council (NCCC) and the Inter-Ministerial Committee on Climate Change (IMCCC) – were in place.

It will be necessary for the MoECCNAR to have a recurrent budget line to fund regular sittings of the NCCC, the IMCCC and the existing National Climate Committee (NCC), to move away from the frequently experienced situation, across different sectors, in which institutional mandates cannot be effectively achieved, as institutions have been reliant on ad hoc project funding.

The NCCP sets out the rationale for, and respective functions and attributes of the different institutions mentioned above. Thus the NCCC is tasked with governing the GCCF, which according to the NCCP shall be housed in the Ministry of Finance and Economic Affairs (MoFEA).

The GCCF will play a central role in the implementation arrangements for the SPCR. Thus an additional critical step, to be taken at the first meeting of the National Climate Change Council, would be to establish a sub-committee to manage the GCCF. A key task for that committee, with technical assistance of an international expert who has been involved in establishment of other national climate change funds, would be to set in motion the process to operationalize the GCCF without delay.

As set out in the NCCP, the main objective of the GCCF shall be to integrate national and international sources of funding; *facilitate the use of national systems and institutions in channelling resources, and in planning and implementing climate change responses*; and in funding nationally-owned and driven programmes, that are consistent with Vision 2020 and other national development strategies. The GCCF further provides the means to attract and channel appropriately the resources needed for implementing the mitigation commitments as set out in the NDC and the NAMAs, as well as the country's adaptation needs as initially prioritised in the NAPA, expanded on in a range of plans and documents, and, as envisaged in the NCCP, to be 'collated and developed into costed and time-bound programmes through the National Climate Change Response Strategy and Action Plan process'. The SPCR defines the significant costed and time-bound investment programmes that will be put in place in The Gambia, in order to implement the NCCP, and as such, is in fact being seen as the National Climate Change Response Strategy and Action Plan for The Gambia.

The TACs and MDFTs at regional and district level are key institutions that will be involved in SPCR implementation and monitoring, through their role as planners and facilitators of the development process at sub-national levels. They will thus play a critical role in facilitating community-based adaptation in The Gambia, which will be the major mechanism for scaling up enhanced adaptive capacity and resilience. Ongoing, comprehensive and adequately resourced climate change capacity development for the TACs and MDFTs is thus a priority. In addition, as the NCCP requires, steps will need to be taken to enhance the ability of NGOs to play a stronger role in supporting community-based adaptation. An important step in developing the Long-Term Climate Change Capacity Development Strategy (LT-CCCDs) that forms part of the SPCR programme to enhance the enabling environment for climate resilience (Concept Note 1) will be to discuss and agree the goals and activities of these capacity development interventions with NGO and CBO stakeholders; discussions will also be convened on how to establish effective public-private-civil society partnerships for implementing climate-resilient development. The private sector, including the hospitality industry, will be important targets for climate change capacity development; specific directions and modalities for this would be developed during elaboration of the LT-CCCDs.

As noted above, once the NCCC and the IMCCC were initiated and the GCCF in operation, additional details on project-level oversight of the SPCR investment programmes would be developed. For example, in the areas of land use mapping and planning within the coastal zones (which forms part of the climate resilient land use mapping, planning and information systems investment set out in Concept Note 2), the management structures, policies and procedures for coastal zone management have already been recommended by previous funded projects, as have many of the required field survey programmes, modelling studies and GIS requirements; these areas are the responsibility of the National Environment Agency (NEA) with support from the existing Coastal and Marine Environment Working Group (CMEWG). Land use mapping and planning, including the coastal zone, is the responsibility of Ministry of Lands and Regional Governments and the Department of Physical Planning and Housing, who will need to work closely with the NEA regarding data management and mapping using GIS. Essential and early tasks will include identifying, recruiting and training a significant number of staff at all levels from ministerial leadership to administrative support, acquiring office space and identifying appropriate equipment from work stations to survey vessels.

Each of the four investment programmes of the SPCR would undergo similar stakeholder and institutional mapping to formulate the optimal implementation arrangements required, under the

umbrella of the national-level institutional framework for coordination of climate change responses that has been spelled out in the NCCP. Given the likely increase in donor support, it would be important that donor coordination be assured at a higher level than project steering committees, to effectively circumvent duplication and overlap before projects addressing climate resilience are fully developed.

## **2.6 Results framework, monitoring, evaluation and reporting**

The SPCR includes an overall results framework, consistent with the requirements of the CIF-PPCR, which summarises outcomes, including both transformation impacts as well as expected results.

The results framework, which covers the totality of the four planned SPCR investment programmes, is contained within **Annex 11**. As the more detailed planning of the SPCR proceeds, in terms of developing the Concept Notes into detailed project proposals, the results framework will need to be updated, in line with revisions to the logical frameworks contained in each of the Concept Notes.

The results framework is a critical tool for monitoring the achievements of the SPCR. This section of the SPCR further contains provisions for a Monitoring, Evaluation and Reporting (M, E&R) system to support the implementation of the SPCR and mainstream climate resilience into the overarching systems of The Gambia, and to report on the results of the investment programme and the effectiveness of its financing.

In view of the importance of integrating a rigorous monitoring, evaluation and reporting system as a means to measure performance to realise the desired targets, the Draft PAGE II M & E system outlines a result framework with clear outcome indicators. This will be used to measure performance and results achieved against targets. An Act of Parliament, setting out the required structures, policies and regulatory instruments and standards, will institutionalise the M & E system.

It is imperative that the Monitoring, Evaluation and Reporting Framework of the SPCR is aligned with the M & E system of the PAGE II to provide a clear link between the National Development Plan and the climate resilience programme. This will also enable the planning unit of MoECCNAR to put in a place a climate change programme monitoring and evaluation framework for reporting to the Directorate of Planning responsible for the national development planning process.

The NCCP calls for a robust and participatory climate change monitoring and evaluation system to be developed, to undertake regular monitoring and rigorous evaluation of climate change programmes and other responses. The purpose of this would be to monitor progress towards the delivery of policy objectives, and to identify the impact of implemented actions. Design of the Climate Change Monitoring and Evaluation System should take into account the need for integration with the proposed national monitoring and evaluation system, as well as harmonisation with the evolving social protection M & E frameworks, which seek to understand the degree to which social protection measures are building beneficiaries' resilience to different kinds of risks, including climate risks.

Component 5 of Concept Note 1: Developing the enabling environment for climate resilience in The Gambia would result in the development of a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems. PAGE II envisages a legal and regulatory framework guiding planning and M & E activities, senior-level commitment and the means to engage all sectors within government. The SPCR M&E would fit into this system developing

both a results framework – with the preliminary one provided in Annex 11 - as well as an M&E reporting system supporting the SPCR and mainstreaming climate resilient development. In addition, specific government budget lines where climate change interventions are identified would allow for budget tracking, tagging and coding. Effective linkages would be developed between the climate change M, E & R system and the climate change budget coding and scoring system.

Climate change indicators will be formulated to track resilience and measure progress with adaptation and mitigation over different time scales and at different administrative levels. Disaggregated indicators and outcomes will be tracked, including age- and gender-disaggregation, to ensure correct targeting and to guide responses towards assisting the poorest and most vulnerable people and groups.

The National Climate Change Council has responsibility for monitoring overall progress, and making mid-course corrections where necessary. To this end, an institutionalised learning mechanism shall be established, to close the feedback loop between M&E and implementation, to promote adaptive management and action learning.

It is important that the M, E & R process is driven by the capacity and ability of key stakeholders to participate, assess and even set the parameters of the M & E system. The Planning Unit in collaboration with SPCU of MoECCNAR will ensure that all climate change related projects and programmes submit reports in line with the M, E & R system to be developed.

An efficient reporting system will be designed to allow for transparency and civil society engagement, as well as for international reporting. It is envisaged that annual reports be prepared on SPCR progress, together with a summary brochure that can be translated into local languages, with further dissemination of key messages through the means of traditional communicators, radio and television. This will be an important part of the expanded and systematised National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR), located within the MoECCNAR, and included as a project component in Concept Note 1: Developing the enabling environment for climate resilience in The Gambia.

Capturing of lessons learned will be an important part of the SPCR, and will be an integral component of the multi-level M, E & R system for climate resilience to be developed, as set out in Component 5 of Concept Note 1. Moreover, this will be linked to the work of the National Climate Change Research Centre (Component 3 of Concept Note 1), which will develop a strategy, framework and regularly develop lessons learned reports on the implementation of the SPCR. The aim will be to enable learning-by-doing and sharing of lessons at country, regional and global levels.

As the NCCP notes, there is an important potential role for civil society and the private sector in monitoring, evaluation and reporting on the achievements of the SPCR. Umbrella organisations such as the Association of Nongovernmental Organizations (TANGO) and the Gambia Chamber of Commerce, Industry, Agriculture and Employers' Association (GCCCI), as well as individual NGOs and enterprises with expertise in the field could take the lead in tracking climate change expenditure in the national budget, when budget tracking, tagging and coding systems are established by the Ministry of Finance. Such roles should be implemented with a strong focus on gender equality and informed inclusion of women, and should furthermore ensure optimal participation of youth in tracking progress with the SPCR.



## **PART 3 Concept Notes**

Four Concept Notes (CNs) have been developed, one for each of the integrated investment programmes defined for The Gambia under this SPCR. Each CN uses the template set out below, and specifically provides for credible opportunities to mainstream gender, youth, health and tourism issues into project activities.

- 1. Title and brief summary of the investment**
- 2. Background and justification**
- 3. Project development objective**
- 4. Link to national adaptation and /or mitigation objectives**
- 5. Project components and activities**
- 6. Implementation arrangements**
- 7. Estimated cost and provisional financing plan**
- 8. Logical framework**

While the ToR included the request to include a brief cost benefit analysis in the CNs, if feasible, this was firstly not possible within the condensed timeframes of the SPCR preparatory process in The Gambia, and secondly was not considered feasible for a number of the components. Cost benefit analyses could be included in the full project proposals that would be developed by the GoTG at a later stage, as a requirement for more detailed planning and resource mobilisation.

The four Concept Notes, with their associated logical frameworks, are contained in Volume II of this SPCR report.

## **Part 4 Additional analytical studies and way forward**

### **4.1 Additional analytical studies**

The SPCR team has defined a workable set of additional analytical studies, based on discussions with MoECCNAR, the Technical Team, and others stakeholders consulted. In response to the ToR, and consistent with the Technical Proposal, the focus of the additional studies is on research, study and assessment required to complete the SPCR process. While it was initially proposed that some priority activities would of necessity be undertaken during the strategy preparation, and the remainder during the SPCR implementation, the shortened time of the SPCR preparation phase has meant that this was not possible.

The following key additional analytical studies, highlighted through the gap analysis process and defined by the consultations, have been identified:

1. Development of Climate Change Scenarios for The Gambia, based on the CMIP-5 and CORDEX-Africa data sets
2. Comprehensive analytical study to understand climate change impacts on health in The Gambia, using the Health Management Information System (HMIS) and climate data available in the country
3. Feasibility study to assess best available options for managing excess runoff and preventing flooding in The Gambia
4. Review of Climate Finance and Establishment of Emerging New Innovative Financing Mechanisms including: Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance to Attract Private Sector Participation in SPCR

Study 1, which will develop an updated set of climate scenarios for The Gambia, should be completed first, and without delay, as this is an essential input into Studies 2 and 3, and will provide valuable background for Study 4. A Terms of Reference is provided for each the four studies in **Annex 8**.

All three of these additional studies are to be funded from the existing budget that the MoECCNAR received from the CIF for the purposes of developing the SPCR. The exact cost of each study is to be finalised as the Ministry begins the process to recruit the service providers. The additional studies are to be carried out during the extension of Phase 1 of the SPCR, which has now been extended to November 2017.

The additional studies should be seen within the context of the proposals in the NCCP, which have been taken up in Concept Note 1 of this SPCR, to develop a National Research Framework on Climate Change, to guide research efforts in a coordinated and systematic manner, and to develop scientifically sound and policy relevant knowledge.



## 4.2 Way forward

Following the programming phase, the SPCR will be submitted for approval and endorsement of the investment plan, after which work will shift toward implementation and making the projects a reality. As indicated in section 2.5, the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses would most appropriately provide overarching oversight of the SPCR, and would furthermore need to provide final direction and agree on the more detailed oversight arrangements for the SPCR investment programmes. The GoTG as a priority needed to formalise the draft NCCP, which was adopted by Cabinet in early August 2017, in order to have a concrete basis for initiating the required institutional mechanisms that will oversee the SPCR, as a comprehensive step in mainstreaming climate risks and responses into planning and development at different levels.

In the interim, the proposed SPCR nevertheless includes a number of immediate actions and ‘quick wins’, some of which are indicated in the ‘Next steps’ section (Part 4). Important quick wins lie in formalising the National Climate Change Policy (NCCP) (this was adopted by Cabinet in early August 2017) and setting up the Gambia Climate Change Fund (GCCF), with associated budget coding and tracking registry, which will be a key mechanism for leveraging additional resources into the SPCR.

The SPCR will be financed with a blending mechanism to increase leverage effect and therefore impact. Thus the GoTG as a matter of priority would need to identify key financial partners and begin preliminary discussions with them in this regard. The AfDB, EU and GCF are important avenues for resource mobilisation; establishing the climate resilience budget coding and tracking registry will further leverage their contributions, as well as those of other donors and the private sector.

It is proposed that strategic environmental assessment (SEA) should be undertaken for the entire SPCR, provided the necessary resources are forthcoming. A first step would be to have the necessary discussions, in country, on how to phase and prioritise the CNs, in order to develop project proposals. This might lead to some streamlining of the SPCR, after which SEA could be applied.

The next steps therefore include:

- With the available funds, should the extension of the Phase 1 preparatory stage of the SPCR development applied for by the MoECCNAR be granted, carry out a sensitisation process, with adequate resources and time, for stakeholders in all of the regions on the SPCR documents and concepts; this should include producing a popular booklet on the SPCR for further translation into local languages. Such a process should be seen as part of expanding the existing (although not formally titled) National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR), which is an important activity in Concept Note 1, and for which a dedicated budget line will need to be provided in the near future for reliable and consistent resourcing.
- Obtain Cabinet approval of the NCCP, ideally before June 2017, so that this can be included in discussions of budget allocations for sitting of the key institutions, *inter alia*, for the 2018 financial year – this step has been concluded, as the NCCP was adopted by Cabinet in early August 2017.
- Establish the key institutions of the National Climate Change Council (NCCC) and the Inter-Ministerial Committee on Climate Change (IMCCC), under the NCCP.

- At the first meeting of the National Climate Change Council, establish a multi-stakeholder sub-committee of no more than 12 people with clear Terms of Reference to manage the Gambia Climate Change Fund (GCCF).
- Operationalise the GCCF and begin resource mobilisation through this mechanism.
- GoTG to adopt the climate-integrated SEA policy and guidelines, so that SEA procedures are in place for use in the legislative and policy review actions of the SPCR, as well as for applying SEA to the entire SPCR, once further discussions on streamlining and phasing the Concept Notes have taken place.
- MoECCNAR to commission the additional analytical studies identified in the SPCR without delay, so that these can be inputs into further SPCR planning and early implementation.

In the interim (i.e. the next four to six months), high-level oversight will be provided through the multi-stakeholder Technical Team set up to oversee the SPCR preparatory process, and discussions should continue with all stakeholders, including civil society, the private sector and development partners, on fine-tuning the SPCR and the Concept Notes. Initial discussions with potential funders on supporting aspects of the SPCR should be an immediate priority. The specific role of the NAP process in supporting a sub-set of planning-related interventions in the SPCR should also be clarified in the interim.

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## Annex 1 Aide Memoire for the First Joint Mission



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*Final Aide Memoir*

### **Aide Memoir The Gambia: First Joint Mission for the Pilot Program on Climate Resilience (PPCR) 21 – 25 November, 2016**

#### **1.0 INTRODUCTION**

1.1 The First Joint Mission to support the Government of the Gambia in developing its Strategic Plan for Climate Resilience (SPCR) was undertaken from November 21 to 25, 2016. Under the leadership of Government of the Gambia (GoTG) on one hand, the mission included representatives of the African Development Bank (AfDB), World Bank (WB) and Climate Investment Funds- Administrative Unit (CIF-AU) on the other hand. This mission's activities were coordinated by the PPCR focal institution, the Ministry of Environment, Climate Change and Natural Resources. The objectives of the mission were to (i) finalize and firm up the SPCR's priority activities and key analytical studies to inform the SPCR, (ii) finalizing the recruitment of the consulting firm to start preparing a draft SPCR and (iii) defining the next steps in developing the SPCR.

1.2 The MDB mission team members included Mr. Olagoke Oladapo, Chief Agricultural Economist & Mission Leader, Ms. Siham Mohamed-Ahmed, Principal Natural Resources Management Expert, Mr. Mark Eghan, Agricultural Economist, all from the African Development Bank; Mr. Remi Kini, Resident Representative and Ms. Kazi Fateha Ahmed, Climate Change Analyst from the World Bank, and Mr. Kouassi Emmanuel Kouadio, Monitoring and Evaluation Expert from CIF-AU.

1.3 The mission paid courtesy call on Hon. Pa Ousman Jarju, Minister of Environment, Climate Change and Natural Resources (MECCNAR). The mission consulted extensively on the key priority areas of the SPCR and the preparedness of the partners to support the process. The Mission met with Resident Development partners such as the UNDP, FAO and EU delegation to The Gambia.

1.4 The mission team wishes to thank the Honorable Minister, Pa Ousman Jarju, and the technical team in the Ministry and other relevant government agencies for their support, diligence and assistance during the mission. The Aide Memoire presents highlights of the mission's findings which were discussed at a wrap-up meeting chaired by the Honorable Minister of Environment, Climate Change and Natural Resources. The regulations of the Climate Investment Funds require public disclosure of mission Aide Memoires. The disclosure of this Aide Memoire was discussed



and agreed with the Government of The Gambia during the closing wrap-up meeting. The Aide Memoire will be publicly disclosed by the CIF Administrative Unit.

## 2.0 BACKGROUND INFORMATION

2.1 Following the scoping mission in February 2016, the African Development Bank as the Lead MDB, and working with the World Bank and the CIF-AU provided guidance to the Government in implementing the agreed next steps during the last mission. These included: a) the submission of the request for the grant to the CIF AU on 27 April 2016 and approval by the PPCR sub-committee on 11 May 2016; b) the receipt of the commitment letter from the trustees on 8 June 2016 which triggered the formal approval by AfDB management in accordance with its extant policy; c) the signing of the grant agreement between AfDB and GoTG on 18 October 2016, d) the publication of the Expression of Interest in the UN Business Development News and Local newspapers soliciting for the interest of consulting firms to help prepare a detailed Strategic Program on Climate Resilience (21 October 2016). Although due to some unforeseen reasons, there were slippages in the implementations of the agreed recommendations the Mission essentially charted the way forward in the SPCR process with the outcome listed in the following paragraphs.

## 3.0 MISSION'S KEY FINDINGS

3.1 **Status of the SPCR process:** Although this process is behind schedule, The Government of the Gambia (GoTG) reaffirmed its readiness and commitment to finalize the SPCR for submission to the May 2017 meeting of the PPCR Sub-Committee. To this end, the following critical paths towards preparation of the Gambia SPCR were reviewed and agreed with the mission:

- ✦ **Shortlist of firms:** A draft evaluation report of the firms that expressed interest in the preparation of SPCR was shared with the mission. The mission reviewed the submission and observed that the process was rigorous, transparent and due diligence was followed by the evaluating team. The mission granted in principle, a provisional "no objection" for the shortlisting of the following firms and these would be invited to submit their technical and financial proposals:
  - Le Groupe-conseil baastel sprl, Belgium
  - Met Office & Deltares, UK
  - Antea Group & PIK, Belgium
  - Agrer, France
  - BRL ingeniere, France
  - Tefa Global Solutions, The Gambia
- ✦ **Opening of the Special Account:** In order to facilitate the release of funds for the running expenses of the climate change secretariat and other miscellaneous activities towards the





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development of the SPCR, and the coordination of the activities leading to this in line with the grant agreement, the mission was informed of the opening of the special account to receive the proceeds of the PPCR Investment Plan Preparation Grant (IPPG). A copy of the letter sent by the Accountant General Office to the MECCNAR was received by the Mission. The mission however recommended that the letter should come with a cover memo from the MECCNAR as well as the authorized signatories to the special account. This should be submitted to the *AfDB not later than 2 December 2016*. The mission re-affirmed to the Government the need to follow the PPCR guidance note to ensure that only eligible expenses are incurred to avoid audit queries.

- ✦ **Terms of Reference for the engagement of the SPCR consultant:** The consultant terms of reference were submitted to the Government prior to the mission. A joint review of the document was undertaken with the mission and necessary changes were incorporated. The draft final of the ToRs was re-submitted and it was generally considered adequate enough for incorporation into the *Request for Proposal* that would be sent to the shortlisted consultants. The mission agreed that the RFP should be sent to the consultant *not later than 30 November 2016*. AfDB would assist in finalizing the RFP early enough in order to meet the November 30<sup>th</sup> deadline.

3.2 **Review of the Procurement Plan and Workplan & Budget Request:** The mission supported the Government team in preparing and reviewing the work-plan and budget as well as the procurement plan. A provisional no objection was granted to the procurement plan, the workplan and budget such that it would help trigger the submission of the Disbursement Request. The draft disbursement request was reviewed and should be finalized for submission *not later than 5 December 2016*:

3.3 **Climate Resilience Priorities:** The mission reviewed the identified key climate resilient priority areas with the Government team and **re-confirmed** (as agreed during the scoping mission) to the following five main clusters:

1. **Climate resilient food and landscapes:** Agriculture, food security, forestry and natural resources, including water, biodiversity and wildlife;
2. **Low emissions and resilient economy:** Energy, transport, and the key economic sectors of tourism and financial services;
3. **Climate resilient people:** Health, education, equitable social development, migration and human settlements including climate proof urban planning and waste management, climate information and early warning system;
4. **Managing the coasts in a changing environment:** climate-awareness Integrated Coastal Zone Management including coastal Erosion management.



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**5. Infrastructure and Waste Management:** Developing climate proof infrastructure, sanitation and solid waste management.

**3.4 Stakeholders' Consultations:** The Mission re-affirmed the need for extensive stakeholders' engagement in order to ensure that the developed SPCR is all inclusive to meet the national priorities and aspiration of the Government of the Gambia in building a climate resilient economy. The mission recommended the regular convening of the meetings of the climate change secretariat and the technical team, such that it would be driving the SPCR agenda especially by providing necessary support to the consultants that would be engaged. All cooperating institution must appoint a focal person. The mission had interaction with the Green Climate Fund (GCF) Focal Person who doubles as the Director of Budget at the Ministry of Finance. The mission was reassured by GCF focal person that the GCF Secretariat is working closely and in synergy with the MECCNAR. This was further corroborated by the Honorable Minister who confirmed that the current set of projects submitted for GCF consideration has inputs from the MECCNAR. The mission was reassured that the SPCR would be building on these projects submitted to GCF and there would be ample opportunity that the SPCR proposed projects would be presented for GCF consideration by the Government of the Gambia.

**3.5 Coordination Arrangements:** As a result of the issue in 3.4 above, the mission observed that the National Focal Person may have been overwhelmed as he is involved in other critical duties in the Ministry. The mission recommended the appointment of a Co-Focal Person who will be working jointly with the Focal Person in driving the PPCR agenda. The nominated Co-Focal Person should be confirmed to the AfDB *not later than 10 December 2016*.

**3.6 Engagement with Partners:** The mission interacted with the main partners' resident in the Gambia including the UNDP, The FAO and the European Union. All the partners pledged their support to the process and promised to make available to the consultant that would be engaged relevant information and existing programs related to building resilience to the climate factors in the Gambia. It was agreed that the resident partners will also constitute a working group in support of the PPCR process until completion. This partners' working group will work with the Focal Persons and the technical team to ensure that the SPCR is finalized timely for processing and submission to the PPCR-Sub-Committee for the May 2017 meeting. With respect to the EU, the mission was informed there is still likelihood of securing funds to implement projects that would be emanating from the developed SPCR.

#### **4. AGREED ACTIONS AND NEXT STEPS**

The Government agreed and re-confirmed its willingness to present the SPCR to CIF Sub-committee in May 2017 for approval. The following table shows a tentative timeline for the SPCR preparation processes, in order to meet the first feasible date for CIF approval in May 2017. The



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indicative timeline will require close collaboration and strong commitment of the parties involved for successful implementation.

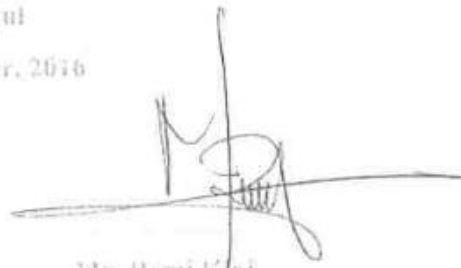
Activity	Responsible Party(ies)	Proposed timing / deadline
Finalization of the shortlist and the RFP	GoTG, Lead MDBs	November 30 2016
Submit details of the special account to the Lead MDB	GoTG	December 2, 2016
Sending out the Request for Proposal to the shortlisted firm	Lead MDB Focal Point	Dec 2 2016
The nomination Co-Focal	GoTG	December 10 2016.
Deadline for the submission of the RFP	GoTG	December 16 2016
Evaluation of the RFP submitted and submission of the evaluation report to the AfDB for no objection	GoTG	December 22 2016
Granting of no objection by AfDB	Lead MDB	January 5 2017
Collation , assemblage of all relevant document and study reports	GoTG	January 15 2017
Negotiation and formal appointment of the consultant	GoTG	January 17 2017
ToR for independent reviewers	MDB & GoTG	January 15 2017
Consultants' field work commences	engaged consultants	January 25 2017
Draft SPCR Report from consultants	engaged consultants	March 10 2017
Review and Feedback on the draft report	GoTG, MDB support and Partners	March 17 2017
National Stakeholders' validation of the SPCR	GoTG, MDB support and Partners	March 24 2017
Second Joint Mission	GoTG with MDB support	To coincide with the national stakeholders March 24 2017
Finalization of the draft SPCR and	GoTG/engaged consultants	March 31 2017

Submission to independent reviewers	GoT/GoLand MDD	April 1 2017
Feedback from the independent reviewer	Reviewer	April 15 2017
Finalization and submission of the final SPCR to PPCR Sub Committee	GoTG	April 25 2017
Presentation of the SPCR by the Government to the Sub Committee	GoTG	End May 2017

Prepared in Banjul  
Friday, 25th November, 2016



Mr. Oligoke Oladapo  
Chief Agricultural Economist  
African Development Bank  
Abidjan



Mr. Remi Koni  
Resident Representative  
World Bank  
Banjul



Mr. Ousman Sowe  
Permanent Secretary  
Minister of Environment, Climate Change and Natural Resources  
Banjul



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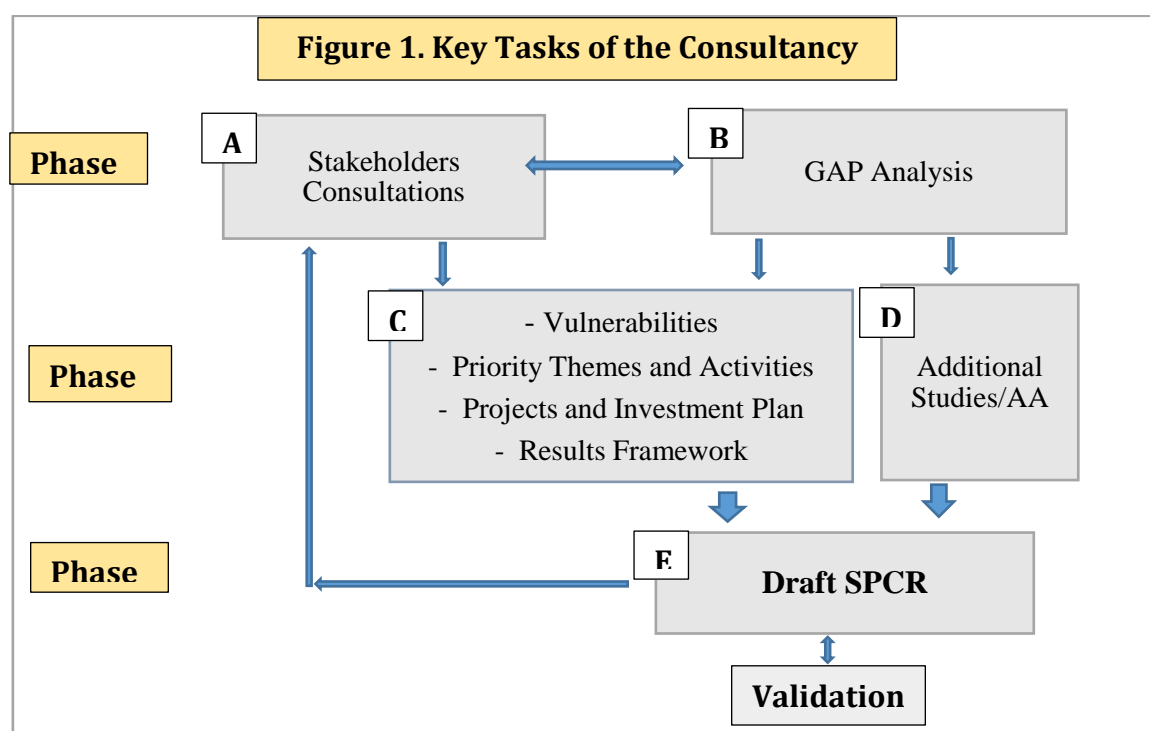
**Annex 1. List of persons met**

No.	NAME	INSTITUTION	DESIGNATION
1	Pa Ousman Jarju	MECCNAR	Hon. Minister
2	Ousman Sowe	MECCNAR	Permanent Secretary
3	Alagie Manjang	MECCNAR	Dep. Perm. Sec.
4	Bubacar Jallow	MECCNAR	PPCR Focal Person
5	Illo Jallow	MECCNAR	Dep. Perm. Sec.
6	Salmina Jobe	MECCNAR	Director, PCU
7	Ade Mamonyane Lekoetje	UNDP	Res. Representative
8	Darrell Sexstone	EU Delegation to The Gambia	Programme Manager
9	Raymond Jatta	FAO	M&E Specialist
10	Yankuba Sawo	FAO	Programs Officer
11	Sirra Njie	FAO	Fisheries Specialist
12	Mustapha Ceesay	FAO	Agronomist
13	Bai Madi Ceesay	Ministry of Finance/	Director of Budget/ GCF Focal person
14	Abdoulai Mbye	NEMA	Procurement Specialist
15	Modou Njie	NEMA	Accountant
16	Sait Touray	NEMA	Accountant
17	Sang Mendy	P2RS	Accountant

## Annex 2 Additional information on stakeholder consultation

Having been closely involved in the National Climate Change Policy (NCCP) preparation process, AGRER and its team were able to provide a participatory and workable approach to the SPCR preparation process, reflecting international best practice as well as being tailored to the needs and capabilities of the country.

Figure 1 summarises the key tasks of the consultancy, as set out in the TOR and in Agrer’s Technical Proposal.



The process to develop the SPCR followed a thoroughly participatory approach, involving the key stakeholders in every step of the process. This was to not only ensure country ownership of the strategy, but also to start to build the technological and financial capacity, as well as institutional abilities and human technical capabilities, to implement the strategy.

**Table 1 Methodology employed in the SPCR Phase 1**

Phase	Key Tasks	Methodology
Phase 1	A. Stakeholder consultations	Document review, stakeholder mapping, institutional assessment, one-on-one consultations, focus groups, project and site visits in the Greater Banjul Area, one multistakeholder Technical Team workshop
	B. Gap Analysis	
Phase 2	C. Investment	Document review, one-on-one consultations, focus groups,

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	Programme Design D. Complementary Activities	project and site visits in the Greater Banjul Area and in the regions, expert judgment, financial costing, multistakeholder Technical Team workshop and / or two-day retreat
<b>Phase 3</b>	E. Drafting the SPCR	Final round of document review, follow-up one-on-one meetings and focus groups if needed, expert judgment, financial costing, national multistakeholder validation workshop

Prior to the arrival of the AGRER consulting team in The Gambia, the MoECCNAR had already set up a Technical Team to oversee and guide the process of the SPCR and to provide a high-level forum for stakeholder consultation. The Technical Team was constituted through the nomination of climate change Focal Points and alternates from 25 key institutions. The MoECCNAR was to regularly convene meetings of the Climate Change Secretariat and the Technical Team, such that it would be driving the SPCR agenda, especially by providing necessary support to the consultants.

The vehicle of the Technical Team builds upon the NCCP design process, as guided by the Ministry and implemented by AGRER. This was based on broad-based consultations under the guidance of a Technical Working Group (TWG), consisting of key members of the National Climate Committee (NCC), which supervised eight Task Teams, each intended to collect and assess data and information and to produce a subject matter report to feed into the policy design process. Most of the institutions on the current Technical Team and a number of the individuals were in fact on the TWG that guided the NCCP process. Thus this represents an important source of institutional memory and continuity, which was continued and strengthened in order oversee the SPCR, which in turn will form part of the strategy to implement the NCCP.

The stakeholder consultations included meetings with women, youth, indigenous peoples, NGOs and CBOs, as well as government and private sector.

### **Lessons Learned Note: Stakeholder Consultations**

As noted in the Stakeholder Consultation Plan, the consultation process to develop the Strategic Programme on Climate Resilience (SPCR) would be evaluated by monitoring and reporting on the activities throughout the consultation process (formative method) and after the consultations have concluded (summative method). This Lessons Learned Note is provided in order to document best practices and lessons learned to inform future consultation initiatives. This would assist the MoECCNAR in its ongoing efforts to increase participation of clients, stakeholders, and partners in a bottom-up approach to decision-making processes.

The consultancy team endeavoured to promote effective evaluation of the stakeholder consultation process by (i) taking notes and recording lessons on the steps undertaken during the stakeholder consultation process; and (ii) making observations on what could be improved. Key lessons learned are provided according to different elements of the stakeholder consultations process. In all instances, the MoECCNAR was responsible for organising meetings of the TT and other workshops, which included venue, logistics, and sending out invitations to participants and engaging in discussions and consultations. The MoECCNAR was also tasked with assisting the consultants to set up meetings with government ministries and departments, through the formal letter delivery process.

### **Scoping, initial stakeholder consultations, and follow-up meetings in the GBA**

The Scoping consultations were intended to: (i) inform stakeholders of the selection of The Gambia to receive support from the CIF-PPCR, and to present the program and timetable for preparation of the SPCR; and (ii) to identify priority themes and potential investments. This was achieved through the consultations. In addition, these meetings were important for awareness raising and capacity building on the SPCR process, as well as to begin to deepen the Gap Analyses developed during the NCCP process, and further develop existing vulnerability analyses.

*Key success factors included the following:*

- The change in political dispensation in The Gambia has led to a new openness, transparency and sense of being proactive on the part of key stakeholders, which imbued the meetings with a sense of goodwill and possibility for real change.
- The consultancy team included significant institutional memory as part of the team – which was a combination of international and national expertise and experience in The Gambia. This allowed the team to overcome the “information gap” referred to below.

*Key challenges included the following:*

- The team experienced numerous problems in obtaining meetings with key stakeholders due to problems with the formal GoTG ‘request for a meeting’ letter delivery process. Specifically, these included the slow process in preparing the letters, lack of capacity to expedite delivery of the letters, and slow responses in fast-tracking delivery of the letters.
- In some cases, meetings had been set up, but on arrival at the Ministry concerned, the team was advised that the contact person had travelled or was otherwise unavailable, despite the meeting having been confirmed. This happened on more than one occasion at some of the key ministries / institutions.



- The consultants experienced considerable delays in obtaining the necessary documentation for review – policies, laws, regulations, strategies and other reports. Much of this was not available at all in digital form, and the team was sometimes given incomplete versions of documents. Numerous follow-ups were required in several cases to obtain key information.

### **Interactions with the Technical Team**

An enlarged Technical Team Workshop was held on Friday 24<sup>th</sup> March 2017, to formally introduce the consultancy team to the TT, and to discuss emerging issues within the key priority areas, as well as the criteria for prioritisation of SPCR investments. The draft Stakeholder Consultation Plan (SCP), which had been developed through extensive discussions with the MoECCNAR and within the consultancy team, was validated. This was followed by a second meeting of the TT on 31<sup>st</sup> March 2017. The MoECCNAR held a two-day retreat for the TT on 4-5 May 2017, to discuss in greater detail the draft SPCR and provide further comments to the consultants.

*Key success factors included the following:*

- Positive and iterative interactions with the TT, both in TT workshops as well as in one-on-one / departmental meetings, contributed to the satisfactory undertaking of the assignment by the consultancy team within the tight time frames.
- The high level of professional participation in the review of evolving issues and components of the draft SPCR strategy provided opportunities for interaction, exchange of ideas and information dissemination and awareness creation in The Gambia.

*Key challenges included the following:*

- Various logistical challenges were experienced in the different TT meetings, with audio-visual equipment and/or venue size, which hampered easy flow of communication at times.
- Time management was inadequate, with late starts being the norm, and more time required for effective and detailed intervention and efficient deliberations and productive interventions. The TT meetings were scheduled for Fridays, which is a half-day in The Gambia; this constricted the time available for discussions.
- While it was positive that the MoECCNAR convened a two-day retreat for the TT to engage in greater depth on the draft SPCR and provided comprehensive written positive comments, holding the retreat prior to the National Validation Workshop, as had originally been discussed and agreed with the consultants, would have allowed for greater interaction between the consultants and the TT. Therefore greater cross-fertilisation of ideas and more strategic engagement on the feasibility of various SPCR components, as well as the overall strategy, would have been achieved. The written comments provided were not always clear in meaning or strategic thrust, and in some cases resulted in the addition of many activities to components in the Concept Notes – while the SPCR is required to be comprehensive, it is also required to be strategic.

### **Regional consultations**

The first round of the Regional Consultations commenced with field visits to specific project sites in North Bank, Central River Region, Lower River Region and West Coast in the week of 27-31 March. This was followed by Regional Stakeholder Consultation workshops in all of the five regions, held

from 11<sup>th</sup> to 15<sup>th</sup> April 2017, and a combined consultations workshop for the two municipalities in the GBA, which was held on 21<sup>st</sup> April 2017.

*Key success factors included the following:*

- High turnout of participants including women and youth representatives, which can be attributed to people's awareness about the severe impacts of climate change being felt at community level and their desire for solutions; as well as the inadequacies of previous interventions.
- Separating the workshop discussions into two groups, with government workers in one group; while CBOs, NGOs, women's and youth groups formed another, provided a conducive environment for frank exchange of ideas and proposals. This was further facilitated by the environment of openness in the new Gambia, in which people are ready to frankly express their concerns.

*Key challenges included the following:*

- The short duration of the regional consultations did not allow enough time for discussion in the plenary.
- The tightly packed schedule of the regional consultations, due to the reduced timeframes for Phase 1 of the SPCR, created a pressured working environment for the MoECCNAR and the consultancy team, as the team needed to travel at the end of each regional consultation to the overnight stop for the following day's workshop. This meant that the team did not have enough time after each workshop to de-brief and develop detailed workshop consultation reports.

### **National Validation Workshop**

The draft SPCR was discussed and validated at a National Multistakeholder Presentation and Validation Workshop held in the Greater Banjul Area on 26<sup>th</sup> April 2017, which included more than 130 representatives from all of the regions and across the sectors and groupings.

*Key success factors included the following:*

- Despite some delay in sending out the invitations to the Validation Workshop, it was extremely well attended, indicating a sense of excitement and commitment across the range of stakeholder groupings to the SPCR. This could be attributed to some extent to the comprehensive stakeholder consultations that has preceded the workshop, despite the condensed timeframes.
- There was a high level of professional interaction, exchange of ideas, constructive input and feedback into the SPCR strategy, including positive deliberations on potential partnership development with the private sector, including government support in removal of barriers and stimulation of investments.

*Key challenges included the following:*

- Due to the delay in starting the workshop while waiting for the arrival of dignitaries, there was insufficient time for the breakout group sessions to discuss each of the four Concept Notes. This meant that the level of engagement with the project investments was not always

as deep as the consultants had hoped it would be. Nevertheless, valuable insights and ground-truthing were obtained.

- The main room at the venue became very crowded, due to a larger number of participants than had been expected, which to some extent reduced the ability of some people to participate actively in the discussions.
- Running the Validation Workshop over a two-day period, and preceding it with a meeting of the Technical Team as had originally been envisaged by the Ministry, would have allowed for a more strategic engagement with the components of the SPCR – with respect to the critical areas of capacity development, phasing, and sequencing.

#### **Summary: Key recommendations for future consultations**

In general, it was apparent that the transformation in institutional leadership and management in The Gambia was beginning to result in bridging the gaps for collaboration and development of partnerships with the private sector, civil society, and community based organizations. This bodes well for the important SPCR tasks of leveraging resources and developing capacity for climate resilient development in the country.

In summary, it is recommended that in future:

- The Project Management Unit (PMU) at the MoECCNAR should have a designated and adequately trained project support team member or assistant with full understanding of the operations of the private sector, government institutions, NGOs, with respect to delivery mechanisms of letters and arranging of meetings in advance and at short notice;
- The PMU should maintain open communication channels among all key implementing agencies, including the consulting team, to enhance expeditious delivery of the assignment and to avoid unnecessary delays which lead to wasted time;
- It is important for the PMU to maintain constant and effective communications with the funding agency, as a further key stakeholder; in addition to building good relationships, this would also facilitate timely agreement on any necessary fine-tuning of deliverables or timeframes, so that the consulting team can work efficiently and effectively;
- A great deal of time could be saved in future if all documentation (policies, strategies, laws, regulations and other key reports) was available in digital form. The consultants have compiled a digital library on Dropbox, which includes an almost complete set of all the relevant legislation, regulations and reports pertinent to the SPCR exercise. This will need to be taken over, maintained and added to on an ongoing basis by the MoECCNAR;
- Future large national validation workshops should be run over a two-day period, to allow for sufficient time for substantive discussions and consensus building; and attention should be paid to selecting appropriately sized venues;
- Stakeholder consultations should be perceived as a process to contribute to sensitization and awareness raising; as such, they should be driven to maintain the necessary momentum to enhance sustainability, confidence and building trust among the stakeholders on potential opportunities and benefits of the SPCR; and

- When additional funds are available, should the extension applied for by the MoECCNAR be granted, it would be appropriate to sensitive stakeholders in all of the regions on the SPCR documents and concepts for feedback; this should include producing a popular booklet on the SPCR for the regional sensitisation workshops and for further translation into local languages. Such a process should be seen as part of expanding the National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR) that exists within the MoECCNAR, which is an important activity in Concept Note 1, and for which a dedicated budget line will need to be provided.

### Annex 3 Stakeholders consulted in the GBA

The following is the list of stakeholders consulted during March and April 2017 in the Greater Banjul Area, for the SPCR Phase 1 process.

NO.	NAME	SEX	INSTITUTION	DESIGNATION	MOBILE	EMAIL
1	Hon. Lamin Dibba	M	MoECCNAR	Minister	xxx	xxx
2	Salimina Jobe	M	MoECCNAR	Dir. MECCANR	9849966	sjobedemba@gmail.com
3	Bubacarr .Z. Jallow	M	MoECCNAR	PCCO. MECCANR	3653113	bubazj@gmail.com
4	Mariama Ndow	F	MoECCNAR	Planner		
5	Lamin .S. Jammeh	M	MoECCNAR	CCO	3754565	Lamins1@live.com
6	Ousman .B. Cham	M	MoECCNAR	M & E	7222204	Obcham1@gmail.com
7	Aji Fatou Gaye	F	GCCI	GCCI	3350341	agaye@gcci.gm
8	Sarata Conateh	F	GCCI	GCCI	9985747 3185747	Sconateh@gcci.gm
9	Beatrice .A. Mboge	F	GCCI	GCCI	3906144 9806144	mboge@gcci.gm
10	Amadou Taal	M	Worldview / TANGO	Director	xxxx	xxxx
11	Momodou .J. Suwareh	M	NEA	Ex. Dir. NEA	xxxx	momodoujama@yahoo.co.uk
12	Omar Ceesay	M	NEA	PO	xxxx	Omaragg22056@hotmail.com
13	Muhamed Leoy A Gomez	M	NEA	SPO E&C	7195326	Speedy1_507@hotmail.com
14	Lamin Komma	M	NEA	NEA	9939748	Kommaa16@yahoo.com
15	Aruna Jobe	M	NEA	NEA	xxxx	arunajobe@gmail.com
16	Almamy Camara	M	UNDP	Prog. Specialist	xxxx	Almamy.camara@undp.org
17	Abass Konteh	M	UNDP	Prog. Associate	xxxx	Abass.konteh@undp.org
18	Mariatou Njie	F	FAO	Assist. FAO. Rep	3365501	Mariatou.njie@fao.org
19	Sambou Nget	M	FAO	Prog. Specialist	9913471	
20	Alieu S Nyang	M	EUD	EUD	3960560	Alieu-samba.nyang@eeas.eurape.eu
21	Ndella Faye Colley	F	ActionAid the Gambia	ActionAid	xxxx	Ndellafaye.colley@actionaid.org
22	Omar Badjie	M	ActionAid	Director	99869721	Omar.badjie@actionaid.org
23	Almamo Barrow	M	ActionAid	Head Programmes	Xxxx	Almamo.barrow@actionaid.org
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## Annex 4 Criteria used in SPCR development

The set of criteria used in the development of the SPCR investment programmes consist of the 11 principles of the National Climate Change Policy, set out below, and the following additional two criteria:

- Is the proposed investment transformative and catalytic?
- Is the proposed investment able to integrate the agreed crosscutting areas of gender, youth, health and tourism?

Further prioritisation of specific elements of the four main investment programmes of the SPCR will be carried out during detailed planning, using the set of 13 criteria.

### Principles set out in the National Climate Change Policy

As stated in the National Climate Change Policy (2016), The Gambia's response to climate change is guided by eleven principles, which are consistent with the existing national policy framework, aligned to the United Nations Framework Convention on Climate Change, and have been informed by relevant international best practice.

- i. *Equity and social inclusion*: striving for a balance and fairness for all stakeholders, taking into account the need to address disproportionate vulnerabilities, capabilities, responsibilities and disparities, in a way that promotes social cohesion.
- ii. *Inter-generational equity*: responding to climate change for the benefit of the present and future generations of Gambians.
- iii. *Cooperation*: promoting a supportive and enabling system for participation and ownership by all stakeholders.
- iv. *Precautionary and preventive*: minimizing the known causes of climate change and offsetting predicted impacts through risk-averse approaches.
- v. *Polluter pays*: those responsible for emitting pollutants that affect the climate system should pay the costs for remedying such pollution and supporting consequent adaptive responses.
- vi. *Sustainable development*: recognizing the developmental needs of The Gambia and encouraging sustainable growth that does not adversely affect the environment.
- vii. *Environmental justice*: addressing social inequalities, particularly relating to gender, age, infirmity and socioeconomic status, which would be aggravated by climate change, and enabling access to justice for all.
- viii. *Informed participation*: enabling stakeholder participation in decision-making and enhanced action at all levels, through capacity building and enhanced communication of climate change impacts and responses.
- ix. *Evidence-based*: climate change responses should be guided by proactive planning that is based on credible scientific information.
- x. *Innovation*: research and technology for innovative and effective responses will be prioritised.

- xi. *Duty to maintain a decent environment*:<sup>8</sup> emphasizing the inter-linkage between environmental integrity and climate resilience

These guiding principles inform the National Climate Change Policy, which underpins the country's overarching legal framework for responding to climate change. The principles should thus be taken into consideration in any future sectoral policy review processes.

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<sup>8</sup> Principle drawn from National Environment Management Act (1994)

## **Annex 5 Summary of climate change projections studies for The Gambia**

In order to provide the greatest possible clarity at this stage on climate projections for The Gambia, a summary has been developed of most of the climate change projections (excepting those in earlier IPCC Assessments than the AR5) developed to date for country.<sup>9</sup> In general the number of models used to derive the projections surveyed has increased over time, the greatest number being in the IPCC AR5. Thus, of all assessments summarised, there is no doubt that the richest source of information lies in the projections made for the IPCC AR5, a source still to be examined in detail for The Gambia.

In the following bullet-point notes are provided for most climate change projections (excepting those in earlier IPCC Assessments than the AR5) for The Gambia in order of publication. One of the uncertainties lies in future anthropogenic emissions, and in this regards various scenarios have been used widely. As a summary below, those labelled RCPn.n are from the IPCC AR5, the others from earlier IPCC Assessments:

- RCP8.5 is a high emissions scenario roughly equivalent to A2 (note that, until the last few years, observed emissions were closely represented by A2 and RCP8.5, but recent decreases have moved the observed curve closer to RCP6.0)
- RCP6.0 is a lower emissions scenario, roughly between B2 and A1B
- RCP4.5 is lower still, roughly equivalent to B1, the lowest emissions scenario used in the IPCC AR4 and earlier
- RCP2.6 is the lowest emissions scenario used in the IPCC AR5, and the main one according to the IPCC that offers an opportunity to meet the Paris Agreement

### ***First National Communication to the UNFCCC (2003)***

- Used the earliest approach to modelling climate change through running the models to equilibrium at historic levels of atmospheric CO<sub>2</sub> and at double those concentrations and comparing results
- Used 5 models at versions available around 1990, but rejected one on the basis that the remaining 4 better simulated the climate of The Gambia
- Temperature to rise by 2075 by between 3°C and 4.5°C
- Rainfall projections for 2100 compared to 1961-1990 cover -59%, -17%, -15%, +15% and +29%
- Little change in solar radiation
- Sea level rise values quoted from the IPCC AR1, using a baseline of 0.2m, and projected values by 2100 of 0.5m, 1.0m and 2.0m (presumably from different models/assumptions).

### ***weAdapt.org (2009, updated 2016)***

- Provide charts of monthly projections for 2046-2065 for an unspecified area, presumably the entire country
- Use a number of unidentified climate models (presumably as prepared for an IPCC Assessment)

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<sup>9</sup> This summary was developed by Dr. Michael Harrison.

- Temperature increases in the range 1.0°C to 4.0°C
- Rainfall seasonality unaffected
- In June little change or decrease in rainfall, in July “moderate” increase, possible increase in October, otherwise disagreement on sign of change

***Second National Communication to the UNFCCC (2012)***

- Used 13 climate models with outputs then processed through the MAGICC/SCENGEN models to extract further details, but used only those 3 climate models with best correlation to historical Gambian climate to produce the final projections
- Emissions scenarios used not identified
- Annual temperature increases by 2100 according to the three selected models are 3.1°C, 3.9°C and 3.4°C
- Projections of annual rainfall listed at about 20-year intervals from 2010 to 2100 for the three selected models are 0% becoming -2%, -4% decreasing to -54%, and -1% to -9%, with decreases most notable in JAS
- Similarly, for potential evapotranspiration the three selected models project +3% to +19%, +7% to +45%, and +2% to +15%
- No projections of sea level rise given

***McSweeney et al. (2012)***

- Uses all models (about 20) as per the main body of results in the IPCC AR4 with emissions scenarios A2, A1B and B1, but does not differentiate results between the emissions scenarios
- Projects temperature increases between 1.1°C and 3.1°C by the 2060’s and between 1.8°C and 5.0°C by the 2090’s, with a range across each emissions scenario of 1.0°C to 2.0°C
- Faster warming inland than near coast
- “Substantial” increases in the numbers of “hot” days and nights, more so in the east than the west, and concomitant decrease in the numbers of “cold” days and nights
- Rainfall projections vary in sign but with a bias towards reductions; range of -23% to +18% by 2090’s, with main changes in JAS of -53% to +74%
- Increased proportion of rainfall in “heavy” events, mainly in rainfall season, but wide spread of values across models
- Sea level rise along coast by 2090’s compared to 1980-1999 projected as 0.13m to 0.43m under B1, 0.16m to 0.53m under A1B, and 0.18 to 0.56m under A2

***Climate System Analysis Group, University of Cape Town (recent for the IPCC AR5 models but date not given)***

- Two sets of projections by month for stations with adequate historical data (Banjul/Yundum only in the case of The Gambia), one for 10 of the climate models as per the main body of results in the IPCC AR4 using statistical downscaling and emissions scenarios A2 (highest) and B1 (lowest), the second those in the IPCC AR5 using numerical downscaling and emissions scenarios RCP4.5 and RCP8.5 (highest)
- For the IPCC AR4 the rainfall-only projections results are displayed in the form of monthly histograms illustrating the 10-90% range together with lines for each individual model

(unidentified), for 2046-2065 and 2081-2100, but interpretation is left to the viewer with no overall statistics provided; both increases and decreases are present, with perhaps a stronger bias towards decreases under A2 and greatest changes in general at the height of the rainfall season and in the later period

- For the IPCC AR5 projections the display is similar, covers 2040-2060, but includes many more variables, too numerous to cover in detail here:
  - Perhaps rainfall decreases are greater under RCP4.5 than RCP8.5, with all models suggesting decreases in numbers of wet days during the height of the rainfall season, although perhaps a third of the models overall suggest increases in rainfall will occur
  - As is to be expected all models suggest increased temperatures, most so in winter, although with a spread of values

### ***The IPCC AR5 (2013)***

- The IPCC provides a number of details of ensemble means and distributions for several parameters of projections from about 16 climate models (RCP2.6 and RCP6.0) to up to nearly 40 models (RCP4.5 and RCP8.5), but with no specific information for individual countries
- As a general rule projected temperatures increase more with higher emissions (RCP2.6→RCP8.5) and later in time, reaching over 7°C in the ensemble mean for interior Gambia by the end of the century under RCP8.5 (less than 1.0°C under RCP2.6)
- For rainfall under RCP8.5 the main pattern in the ensemble means is for decreases except in SON

### ***PARCC Policy Brief (uses UKMO projections) (2016)***

- Downscaling by RCM of projections from 5 GCMs (unspecified) to end of Century
- Temperatures to increase in the range 3.0°C to 4.5°C, greatest inland
- Low confidence in rainfall projections but suggests a range of decreases of 40% to 60%, but to be used only with caution

### ***Summary***

In summary, there is consensus that temperatures will continue to increase, although only broad ranges can be offered as to the magnitude of any changes. Certainly the lower the emissions the less the temperature increase is likely to be, with success under the Paris Agreement limiting increases to perhaps around 1°C according the IPCC AR5 ensemble mean. Failure of the Paris Agreement probably may expose the country to larger increases. Almost certainly other temperature-related parameters will adjust accordingly, including increases in the numbers of “hot” days and nights and the length of heat waves.

For rainfall the picture is less certain, with models projecting both increases and decreases without evident consistency; greatest changes are not necessarily under the highest emissions and do not necessarily increase through the century. There are suggestions that days/periods of higher rainfall may produce increased rainfall, and hence a higher flooding risk, but not all projections accord; both increases and decreases in drought frequencies are foreseen, with perhaps a slight bias towards increases.

### ***Note on downscaling, The Gambia and Senegal***

The physical size and shape of The Gambia limits the ability of Global Climate Models, with their grid spacing typically of order 100km, to resolve the country. Naturally downscaling might be considered a valuable approach to providing improved spatial (and temporal) detail, and has been used in the Second National Communication, CSAG and PARCC assessments reviewed above. Numerical downscaling through Regional Climate Models (RCMs), as used in most of these assessments, is still challenged in terms of quality by empirical downscaling, as used in the earlier CSAG assessment. In both cases the quality of any downscaling is directly related to the quality of the GCM projections used as inputs for the downscaling. The view presented in the IPCC AR5 is that the RCMs are still in developmental stage, but may provide additional information in regions of marked orography (not relevant in The Gambia) and near coastlines (possibly relevant). The experience of the consultant in contrasting projections from the CMIP5 (GCM) and CORDEX (RCM) data sets (as used in the IPCC AR5) in a *limited* number of regions, some over Africa, is that the RCMs add little in terms of temperature projections, whereas questions have been raised regarding the rainfall projections from the RCMs, including over one area of marked orography. That is only a single view and ideally requires further research to provide confirmation.

An alternate approach, consistent with the size of The Gambia and with the resolution of the GCMs, is to consider a larger area, a first logical step being to consider Senegal alongside The Gambia in a single analysis. In that context it is useful to note the projections as used in the Third National Contribution to the UNFCCC of Senegal (2015). Based on the high emissions A1 family of scenarios (A1FI – fossil fuel intensive generation, A1T – technologically-driven, i.e. renewables, generation, and A1B – balanced generation between fossil fuels and renewables), with downscaling via an RCM, temperatures will increase particularly in the latter part of the century by up to 6°C in July in the interior, while rainfall will be reduced by mid-century by up to 2.5 mm/day, and more so later on.

## Annex 6 Review of policies, strategies and legislation

As part of the planning process for the SPCR, a detailed review was carried out of the legislation, policies and strategies in The Gambia that directly or indirectly impact on climate change and climate resilience. This Annex contains the full text of the review, while a summary is contained in section 1.7 of Volume I.

The conclusion of this review was that the policy and legislative framework is in need of significant updating. Important next steps would be to formalise the draft National Climate Change Policy, and to deepen the integration of climate change and environmental sustainability into the draft PAGE II, not least by providing sufficient resources for implementation of mainstreaming actions. Much relevant sectoral legislation does not reflect the realities of climate change risks; even where legislation refers to “the environment” this tends to be seen in a more narrow environmental impact assessment context, rather than in the context of preparing for climate change. Many of the policies and strategies contain provisions that work against climate change (see Box 2 below), and there is a lack of policy coherence, which may cause conflict between portfolios, and work against equitable, efficient, effective and sustainable governance, particularly within the context of moving towards greater climate resilience in The Gambia. New legislation is pending – particularly as regards water resources management – which addresses climate change risks, but which has been held up pending the establishment of new democratic structures following the change in government of January 2017.

As an overarching statement in terms of mainstreaming climate change and sustainable development into national development planning and into the policy framework of The Gambia, the draft PAGE II states that it mainstreams the Sustainable Development Goals (SDGs), the African Union Agenda 2063 and the Istanbul Plan of Action to ensure the achievement of sustainable inclusive growth and prosperity. While this is positive, the ability to achieve this mainstreaming in concrete terms will depend on the nature of the sectoral policy and legislative framework, as well as its implementation and enforcement. The National Climate Change Policy represents a significant step forwards, with many progressive and necessary provisions designed to ensure a coherent and effective approach to reducing vulnerability to climate change and building adaptive capacity and resilience. Implementation of the NCCP, after it is formally approved by Cabinet, will require considerable investment and effort – and indeed this is the central subject of this SPCR

An examination of the sectoral policy and legislative framework reveals a situation in which much remains to be done to mainstream climate change, within a sustainable development approach. Existing legislation, where it mentions environment, mostly focuses on conservation and environmental impacts, with no mention of climate change (e.g. **Fisheries Act** of 2007; **Biodiversity and Wildlife Act** of 2003; **Renewable Energy Act** of 2013, **Minerals Act** of 1953, **Mines and Quarries Act** of 2005. The Mines and Quarries Act is particularly relevant, as the quarrying/sand mining in the coastal zone has direct and immediate impact on the area in question as well as, potentially, all along the coastal zone – particularly as this Act “extends to the land beneath the territorial sea, and the sea bed and the sub-soil of the continental shelf of The Gambia” (Section 2.1). The focus of the Act is more on the licence fee and permits than on environmental impact, let alone climate change. The **Petroleum Act** of 2004 and the **Petroleum Products Act** of 2016 limit themselves to environmental impact assessments, and obligations to avoid damage to “the environment”. The

**Public Utilities Regulatory Act** of 2001, the **PURA Enforcement Regulations** of 2009, and the **Information and Communications Act** of 2009 make no mention either of the environment or of climate change, even though the utilities covered by the Act cover “provision and supply” of electricity, petroleum, gas and water; and “regulated public services” include, for example, energy services, water supply and sewerage. The only provision relating to climate is that the Authority must have regard to: “The need to make the best use of any natural resources of The Gambia (Section 24, sub-section 4.a)”, without further specification.

The **Renewable Energy Act**, while it does not explicitly discuss climate change, does have as its principle objectives to promote and enhance the use of renewable energy resources, which, if carried out in a sustainable fashion, would be expected to promote climate resilience. However, the Act does not discuss the impacts of continued use of biomass (including on forest cover; and health impacts) on climate change, but rather focuses on the use of biomass as a renewable energy resource. The Act calls for the adoption of a strategy for the sustainable use of biomass energy sources (a “**Biomass Strategy**”) with one year of the coming into force of the Act. Lack of technical and financial resources in the Ministry responsible have, thus far, stood in the way of the implementation of activities necessary to prepare this Strategy.

Environmental Acts, such as the **Environmental Quality Standards** of 1999, **Hazardous Chemicals Act** of 1994, **Plant Importation Act** of 1936, and even the **National Environmental Management Act** of 1994 focus on conservation, pollution control, and environmental impact studies, rather than incorporating any aspect related to climate change

Significant efforts have been made to mainstream climate change into three policies of the ANR sector: (i) the **Forestry Sub-Sector Policy** (2010-2019), noting the “inadequate consideration of climate issues in the policy design”, was updated in 2013 to highlight the impacts of ongoing climate change on forests, and the critical need to reduce deforestation and enhance ecosystem resilience, in the face of climate change; (ii) the **Agriculture and Natural Resources Policy** (2009-2015), which was revised in 2013 to integrate climate change issues systematically, including highlighting risks to food and cash crops, as well as livestock, from future climate change effects, as well as negative impacts to natural ecosystems, with mangroves and grasslands being negatively affected; and (iii) the Climate Change-Integrated **Fisheries Strategic Action Plan** (2012-2015), which was reviewed to place more emphasis on anticipated climatic impacts on fisheries, and to propose a number of adaptation response measures. The **Education Policy**, discussed below, also includes significant reference to climate change. The SPCR team was informed that a new ANR policy was being drafted which would continue the systematic integration of climate change; but no drafts of this were available on which to comment. Significantly, although women and female-headed households are the main work-force in agriculture and should be a key focus of “rural resilience” efforts, gender is not significantly main-streamed into the existing ANR policy’s sub-sector policies and strategies, even though in its discussion on cross-cutting issues the Policy does recognize a number of key constraints facing women: access to land and land rights; lack of collateral to access credit, limited access to formal markets, lack of market information and access to inputs, etc.

More recent programmes within the agriculture and natural resources sector have started to specifically address both women and youth, as well as climate resilience, for example:

- **Strengthening Climate Resilience of the National Agricultural Land and Water Management Development Project (ASAP) – Chosso**; under the IFAD-initiated National



Agricultural Land and Water Management Development Project (Nema). Nema seeks to reduce the rural poverty of women and young people by increasing their incomes from improved productivity based on sustainable land and water management practices.<sup>10</sup>

- **Building Resilience to Recurring Food Insecurity in The Gambia** (the Islamic Development Bank's), which does focus specifically on women, on youth and on building resilience to Climate Change and enhanced food security.<sup>11</sup>

### **Tourism**

The **Gambia Tourism Board Act** of 2011 repealed the **Tourism Authority Act**, established the **Gambia Tourism Board** (GTB) and provided for the **Tourism Development Areas (TDAs)**. The Act includes provisions in relation to licensing of hotels, nightclubs, casinos and restaurants, as well as for the designation and demarcation of TDAs, but makes no mention of any environmental responsibilities – whether by the GTB or by a leaseholder – and is completely silent on climate change. Given that much of the tourism development is located in vulnerable areas of the coastline, this is a significant omission. The Regulations accompanying the Act of 2011 make mention of building plans but these constitute no obligation neither do they mention climate-secure building codes. However, the Regulations mention both the responsibility of the Department of Physical Planning (Sections 7 and 8) in approving plans (in accordance with Physical Planning Regulations) and the obligation that projects within the TDA be connected to the underground water and sewerage system provided by NAWEC, and that pipe sizes and materials be in accordance with NAWEC recommendations and regulations (Section 39). Therefore, changes in Physical Planning regulations and NAWEC regulations would also apply to future building and construction works. The regulations do specify requirements pertaining to erosion control and drainage (Section 13) but only to “stabilise ground surfaces at the risk of wind, runoff or wave erosion”, and to maintain major drainage channels “in conformity with public health regulations”. No requirements for environmental impact assessments are included in the Regulations; and no mention is made of climate proofing (whether related to sea-level rise, extreme weather events, flooding, etc.).

The **Tourism Policy** (undated – but presumably from around 1996) recognizes the need for review of tourism-related legislations as these “are either rendered obsolete by current exigencies or are too numerous and unwieldy, under the administrative authority of non-tourism Ministries and agencies”. However, the laws referred to are those dealing with taxation, service fees, expatriate employees, business registration, auditing and land rates, with no mention of climate change. The Policy draws attention to the need to eliminate the haphazard planning of the coastal area, landscape erosion, indiscriminate sand mining on the beaches, and environmental pollution by refuse dumping and control stray live-stock. In addition, the Policy notes that critical evaluation will be made by the Tourism Area Development Board to assess the environmental impact of new hotel building investments, so as to better control the spread and quality of structures that are being implanted in the TDA to safeguard environmental aesthetics. However, no mention is made of climate-change related issues such as, for example, sea-level rise, which would have a major impact on all tourism-related infrastructure along the coast.

Equally, the **Tourism Development Master Plan** (of 2006) focuses more on product development in a more-or-less static “business-as-usual” situation rather than on developing a sector resilient to

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<sup>10</sup> IFAD Design Mission February 2015

<sup>11</sup> IDB Project appraisal report 2013

climate change. The challenge at the time was seen as one of maintaining The Gambia's tourism potential "by preserving and restoring key natural resources to as pristine a condition as possible". The Master Plan notes that there are opportunities to use tourism to leverage funds for environmental investment and management, not just for the industry, but for improved living conditions throughout the country. However, the Policy also notes that while: "The basic legal and institutional instruments for effective environmental management are mostly in place. (and) The same can be said of the laws and institutions that control forests and wildlife habitats. (However) The need for action arises mainly from the inability of concerned institutions to carry out their assigned functions" (p.64). No mention is made of climate change, its potential impact, or the need to make plans for the potential impact of climate change on what is one of The Gambia's main economic sectors.

**Box 2 Policy provisions that work against climate resilience**

Much of the legislation in The Gambia pre-dates climate change awareness. The sectoral silos have hampered mainstreaming climate change, with the tendency to leave everything to do with environment and climate change to the MoECCNAR, without necessarily seeing these challenges as being cross-sectoral. While climate change is now being addressed in new draft legislation (e.g. water resources) and in strategies (e.g. agriculture and natural resources; forestry), existing legislation – where it addresses the topic at all – is mostly restricted to environmental impact assessments of a very limited nature. Changes in this would require changes in the National Environment Management Act and its associated regulations to move from a requirement that an environmental impact assessment determines whether a project will have "any adverse impact on the environment" to a requirement to specifically address climate change as part of the long-term, multi-sectoral impacts of an intervention, and to include provisions for enforcement. For example, there are presently numerous user conflicts between different stakeholders with respect to the management of coastal resources such as fisheries, mining of minerals (sand, ilmenite), agriculture and forestry. The Mines and Quarries Act focuses on licences and royalties with only one-sub-clause to "protect the environment of The Gambia" and another "requiring the restoration of land on which mining or quarrying operations have been conducted". There is no sand mining master plan; no legal framework to protect the remaining mangroves and critical coastal habitats; no provision in land-use planning to keep vulnerable areas free of construction; a Minerals Act (1953) and Rules (1963) which still allows the holder of a mining right, to "deposit in the watercourse tailings from mining operations".<sup>12</sup> but only prescribes "reasonable measures for the prevention or reduction of soil erosion".

The same applies to the integration of Disaster Risk Management – even though provisions are included for the NDM Act to have "over-riding effect", this provision is more likely to be used during the management of a disaster than as an ongoing principle in disaster preparedness, anticipation and mitigation.

As highlighted in the PAGE Mid-Term Review, the lack of favourable enabling environment with a well-defined and elaborated consistent policy framework predicated on seeking national interest is significantly reducing effectiveness of development in The Gambia. Unless a strong policy framework is put in place, all gains would ultimately be unsustainable.

**Health and Social Welfare**

The health sector is regulated by the **Public Health Act** of 1989 which has no specific environment or climate change focus, although a certain number of provisions in the Act relate to the environment, and potentially also to climate change (purity of water supply, waste removal, control of mosquitos

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<sup>12</sup> See also: Concept Note: Identification of Development Program Priority Needs in terms of DRM, Urban Flood & Climate Resilience.

and other insects, inspection of the sanitary condition of beaches and, in general, the prevention, treatment, limitation and suppression of disease. The **National Health Policy** (2012-2020) equally does not integrate either environment or climate change as a cross-cutting issue, apart from mentioning the potential effects of the environment on socio-economic growth, and making the link to the **National Environment Management Act** (of 1994). However, the MoH&SW is expecting funds shortly in order to revise the National Health Policy, specifically to incorporate climate change issues. The potential health impacts of climate change such as vector-borne and zoonotic diseases (malaria, yellow fever, dengue, etc.), water-borne diseases (cholera, schistosomiasis, etc.) and weather-related morbidity and mortality (as a result of extreme weather events) are not integrated into policy. The updated **Health Sector Emergency Preparedness and Response Plan Related to All Hazards** (2017-2019) does not mention climate change specifically, but does address a number of climate related hazards as well as underlining the cross-sectoral cooperation in addressing health sector hazards (drought, floods, bush fires, windstorms, locust invasions, environmental degradation and epidemics), many of which could be construed as being climate-change related.

The National Strategy for Sanitation and Hygiene (2011-2016), designed to implement the National Hygiene and Sanitation Policy (2009-2014), does not mention climate change but many of its provisions would serve to promote climate resilience, such as safe treatment of waste water and enhanced drainage systems. It highlights how weak implementation of the Physical Planning Act results in the proliferation of illegal settlements and poorly planned infrastructure, with resultant health impacts.

The National Social Protection Policy (NSPP) (2015) considers climate change to be amongst the key stressors hampering social development, as it is associated with hazards affecting incomes, food and nutritional security, health status, and general wellbeing. Thus the Implementation Plan 2015-2020 of the NSPP includes mitigation and adaptation strategies and actions against climate change effects. For example, the Implementation Plan includes undertaking a feasibility study to investigate establishing crop weather-indexed insurance for vulnerable farmers, as an important step in strengthening social protection support during disaster emergencies and food price shocks.

### **Education**

Education, at Basic, Secondary and Tertiary level falls under the Ministry of Basic & Secondary Education and of Higher, Education, Research and Technology. The most recent strategic plans and policies are contained in the **Education Sector Strategic Plan** (2014-2022) and the **Education Sector Policy** (2015-2030). The strategic plan clearly underlines the challenge that The Gambia is facing regarding the education of women and girls - for example, while representing 51% of the country's population, they represent only 31% of students enrolled in public tertiary and higher education. Traditional norms, early marriage, teenage pregnancy, sexual harassment, etc. all impact on this. As a consequence, the **Education Policy** (2016-2030) aims at *"improving access to quality education for all, particularly girls, for greater gender equity"* (Section 2.2.4). As regards Science, Technology and Innovation, the Strategic Plan aims at focussing all potential capacities of science, technology and innovation to address *"poverty reduction, competitiveness, sustainable environmental management and industrial growth"*. A major element seen here is the recognition of The Gambia's climate dependency, the need to better exploit available energy resources, including renewable energy, thus tackling the effects of deforestation. However, the Strategic Sector Plan does not really address climate change nor the environment (apart from the passing reference to deforestation).

By contrast, the Education Policy is much more emphatic on the subject of environment and climate change, devoting a whole section on this topic, and underlining the emerging environmental issues that require educational sector intervention. The Education Policy calls for provision to be made to integrate environmental education into school curricula, among other legal frameworks for environmental planning, management and decision-making. The Policy (Sections 7.30) notes that:

*There is urgent need for young people to be equipped with the necessary knowledge, skills and attitudes to be able to address the challenges triggered by climate change resulting to global warming and sea level rise; coastal and marine degradation, loss of biodiversity, and issues of waste and waste management.*

*Considering the need to prepare the youth for adaptation to the effects of climate change, and to engage them with a view to a proactive, conscious and relevant response to the profound changes taking place on the West African coastline, the education sector will partner with the relevant stakeholders to push forward environmental education, including its integration in school curricula.*

The policy also underlines the need for partnerships with national, regional and international bodies to develop both curricula and pedagogical approaches to address these issues. The policy also focuses on pre-service and in-service training on these subjects; school agriculture as a basis for understanding the importance of agriculture as well as providing inputs into the school-feeding programme, providing technical and vocational training to meet the emerging needs of the labour market, as well as

*encouraging and facilitating the universities and other training institutions to develop and offer training courses in the area of natural resources management and other courses that are relevant for improving positive human- environmental interactions. (Section 7.30.7)*

The Strategic Plan for Education foresees the establishment of one TVET training institution per region, based on experience from the field, from training institutions (such as the Songhai agricultural training project model) reviewing their experience, and developing a curriculum based on the results of this analysis.

### **Women**

The Education Policy has drawn attention to the gender imbalance in education, and the importance of working towards gender equity. The **Women's Act** of 2010 addresses the legal provisions for the advancement of Gambian women, including enforcement of the UN Convention on the Elimination of all forms of Discrimination against Women (CEDAW), the African Charter on Human and Peoples' Right on the Rights of Women in Africa. In addition to the Act guaranteeing women equality and justice before the law, the Act also recognizes every woman's right to movable and immovable property, underlines Government's obligation to mainstream gender in planning and programming of all activities, and to adopt temporary special measures in favour of women aimed at accelerating equality. The Act further makes special provision regarding the rights of women in rural communities, including the rights of women *to have access to agricultural credit and loans, marketing facilities, appropriate technology, and equal treatment in land and agrarian reform, as well as in land resettlement schemes.* (Section 33.2.e).

In particular, as regards the environment – and by extension to climate change – the Act enshrines the right of every woman to live in a healthy and sustainable environment (Section 51.1) and further:

Section 51.2: *The Government shall take appropriate measures to:*

- (a) Ensure greater participation of women in the planning, management and preservation of the environment and the sustainable use of natural resources at all levels;*
- (b) Promote research and investment in new and renewable sources and appropriate technologies, including information technologies and facilitate women's access to, and participation in, their control;*
- (c) Protect and enable the development of women's indigenous knowledge systems;*
- (d) Regulate the management, processing and disposal of domestic waste; and*
- (e) Ensure that proper standards are followed for the storage, transportation and disposal of toxic waste.*

The Gender and Women Empowerment Policy 2010-2020 provides guidance for the achievement of gender equity and equality in the country and through its implementation Plan, sets indicators and a framework to assist sectoral departments, partners, and other stakeholders to mainstream gender from a rights-based approach into their planning and programming and implementation processes. The Policy calls for effective mainstreaming of gender perspectives into emerging crises such as climate change, disaster management, and the food and fuel crises.

Concerted efforts will be needed to achieve the gender equality provisions in the Act and the Policy, given that civic participation, land ownership, etc., still favours men. Customary biases often mean that women do not exercise their land rights, neither do they have the financial resources, knowledge, and capacity to go against social norms. Management systems are weak, resources to address gender bias are extremely limited and there is significant community antagonism to women's equal rights. A shift is therefore required in the thinking, attitudes, and understanding of men and women as well as officials and decentralised government structures and traditional authorities. The attainment of gender equity with regard, for example, to land rights (as well as other rights provided for under the Act) consequently depends not only on legal recognition of those rights but also on overcoming social and cultural constraints.<sup>13</sup>

### ***Disaster management and DRR***

The **Strategic Action Plan for the Disaster Management Programme** (2008-2011) notes, in its introduction that, climate change will have repercussions as it can lead to: *desertification, rising sea levels, rapid shifts in vegetable zones, lower agricultural production and a greater shortage of fresh water*. The Plan notes that the repercussions will affect particularly the poorest who will be worst hit – which includes women and children, the physically challenged, and other marginalised groups. The **Strategic Plan** (2008-2011) has developed an overall vision, as follows: *Assurance of safer and resilient communities in which the impact of hazards would not hamper development and the ecosystem and provision for a better quality of life will be achieved through effective emergency and disaster services; with, as policy goal: to ensure a proper and effective mechanism for disaster mitigation and preparedness that will save lives and livelihoods in the country.*

The Strategic Action Plan updates the **National Disaster Management Act** (of 2008) which, while already focussing on “prevention, preparedness, response, mitigation and recovery” did not fully

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<sup>13</sup> Source: NAP-GSP Stocktaking Report, 2015. p11.

integrate climate change as an ongoing preparatory factor. It is clear that with chronic vulnerabilities and changing risk patterns disaster management strategies will increasingly need to focus on being prepared. As noted:<sup>14</sup>

*The Gambia is among the most vulnerable countries to climate variability and change due to its geographic location, low deltaic floodplain, and hydro-meteorological influence of erratic rainfall and other extreme climatic events. Each year these flood hazards impact building infrastructure, as well as agricultural crops and result in loss of human lives. Increased risks to severe flooding, more frequent extreme weather events, salt intrusion due to erratic rainfall pattern, increased temperature and a potential sea level rise pose new risks to the urban infrastructure, particularly to the coastal areas. In 2010, the capital city of Banjul and its surrounding, including the Kanifing Municipality (KM) and WCR as well as other major towns in The Gambia experienced extensive severe flooding. Climatic events like flooding have in recent years become less predictable and more severe in terms of impacts and frequency.*

In this context, the **National Disaster Management Act** is particularly important because this Act has an over-riding effect on any other law for the time being in force (Section 120) as part of the Government's overall disaster management measures.

The 2008-2011 Strategic Plan, was updated in 2013, as the **Strategic National Action Plan (2014-2017) – Strengthening Disaster Risk Reduction and Management in The Gambia**. This Plan specifically recognized the need to integrate climate change adaptation with disaster risk management, and is committed to develop risk assessment and risk modelling tools, including drawing on technical assistance from international partners (World Bank, ECOWAS, ISDR and the Africa Risk Capacity agency and in close collaboration with the private sector and insurance industry) to develop innovative and sustainable strategies of disaster risk financing.

Key areas for intervention in order to promote resilient development include the enforcement of DRR measures in land-use planning and building regulations and standards. At present, these are all inadequate, being based on legislation dating back to the 1990s.

#### ***Local government, land and physical planning***

Building codes and regulations fall under the Ministry of Local Government and its Physical Planning Department, and are part of a series of measures requiring urgent action to underpin climate resilience. Action to update and climate proof building standards, energy codes, etc., is being undertaken jointly between the Ministry of Local Government and The Gambia's Standards Bureau. However, work has only recently started on this and the process is still in its early stages. The process will need validation as well as integration into legal frameworks such as the **Local Government Act** and the **Physical Planning and Control Act**.

There are three main sources of land law in The Gambia: (i) general law i.e. the English common law; (ii) customary law; and (iii) local land legislation including the Lands (Registration of Deeds), the repealed Lands (Banjul and Kombo Saint Mary's) Act, the Lands (Provinces), the State Lands Act, and regulations, Land Acquisition and Compensation Act and the Physical Planning and Development Control Act.

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<sup>14</sup> Source: The Identification of The Gambia's Development Program Priority Needs in Terms of Disaster Risk Management, Urban Flood and Climate Resilience, May 2016

The rules of land tenure in The Gambia differ between the GBA (Banjul and Kombo Saint Mary area) on the one hand, and the provinces on the other. In the former, the system is influenced to a significant extent by rules of English land law, while in the latter it is based predominantly on traditional norms and practises.

Prior to the enactment of the State Lands Act in 1991, the holding and management of land in Banjul and Kombo Saint Mary's Division was regulated by the Lands (Banjul and Kombo Saint Mary's) Act. The Act gave the Minister the responsibility for making leasehold grants within Banjul and Kombo Saint Mary. Even though the Act did not stipulate the maximum term for which grants could be made, administrative practice had been to grant leases of twenty-one years renewable for a further term of twenty-one years for residential purposes. Grants of land in fee simple i.e. for an unlimited period of time could only be made with the consent of Parliament, except where the State had previously acquired the grantee's freehold land, in which case the Minister could compensate such a dispossessed owner with a similar freehold estate.

There was no provision in Lands (Banjul and Kombo Saint Mary's) Act vesting lands in Banjul and Kombo Saint Mary to the State. However, it made the State the paramount owner of land in the area, even though this operated side by side with lands held under customary tenure and a few freehold titles pre-dating the Act.

While this is a relatively comprehensive legislative environment, there is a need for review to mainstream climate change within the context of sustainable development; and to ensure that provisions and enforcement are in place to control the widespread problems of settlement and illegal waste dumping in drainage channels that are exacerbating flooding in the GBA and elsewhere. The **Local Government Act** (of 2002) and the **Physical Planning and Control Act** (of 1990), together with related legislation (**State Lands Act** of 1990, the **Surveys Act** of 1990, the **Land Acquisition and Compensation Act** of 1994, and their various regulations), as well as the **Local Government Finance and Audit Act** of 2004, are all essential but completely outdated legal texts. The Local Government Act makes provisions for local government powers and functions, including sections relating to natural resources (environmental protection, protection of forest, fisheries and water resources in their areas of jurisdiction – Section 71) but also as regards geography and demography as sea-level rise has the “potential to change the landmass of The Gambia and this may ... have a bearing on future local government boundaries, and the growth and distribution of economic centres”<sup>15</sup>.

Thus, the Physical Planning Act provides the legal basis for the Banjul Physical Plan, which was supposed to be updated every 5 years. In fact, only one physical plan was ever made for Banjul, which actually covers the Greater Banjul Area and the TDA, but this plan dates back to 1990, and is completely out of date. The first GBA Land Use Plan has become grossly out of date since its preparation in 1985, due to the unprecedented changes that have taken place since then, including haphazard settlements in the Kombos, often as low density sprawl into agricultural land and riverine areas, exacerbating forest depletion and reducing flood absorption ecosystem services, amongst numerous other significant problems.

The Physical Development Plan itself was not found by the SPCR team, only the 1990 Land Use Map, which, in addition to being out of date, is not very accurate (certainly not reflecting present land-use). The Physical Planning Act makes provision for the designation of planning areas, the

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<sup>15</sup> Source: Addressing Sea & River Defence Risk Management – Law and Policy Review. NEA, October 2014. (p.30)

establishment of planning authorities and the formulation of physical development plans, which must “ensure a well-balanced environment and good living conditions” (Section 8.1). The Act is silent on environmental impacts and makes no mention of climate change. The Physical Development Plan aimed at controlling urban development of the GBA covers the following areas: the City of Banjul, Kanifing Municipality, Kombo North and Part of Kombo South District. Similar Physical Development Plans were also prepared for the three growth centres including the Municipality of Brikama. These plans require urgent review in order to update and align them with current challenges and demands. The Local Government Act of 2002 does mention local government responsibilities for natural resources: “management, protection and conservation of the environment (Section 71.1.a) as well as addressing and regulating certain environment related activities: environmental education; exploitation of forest resources; conservation of areas with high ecological value; implementing biodiversity action plans; rational use of water resources; combatting soil erosion; etc. (Section 71.2).

Neither the **Local Government Act** nor the **Physical Planning and Control Act** address climate change – and both need to be updated in order to address the requirements for the preparation of a Greater Banjul Land Use Plan. The most recent overview of the Banjul Urban Profile is found in the UN-Habitat study of 2012<sup>16</sup>. This report, when discussing the Banjul urban profile underlines the importance of the three planning areas: Banjul itself, the Kanifing Municipal Council and Brikama Town in the Western region. This demarcation of the Greater Banjul area underlines both the facts that Physical Planning (as defined by the Act) and Local Government (as defined by the Act) are the determining foundations on which to build a land use plan for the GBA.

In parallel, it may be noted that such considerations equally apply to all other land use planning exercises throughout The Gambia – and underline the importance of revising such legislation to make it more appropriate to deal with present day demands – including the need to mainstream resilience to climate change. The two – urban (GBA and rural growth centres) and rural resilience – are inextricably linked as especially Banjul continues to absorb the influx of rural migrants.

As regards GBA, physical planning is hampered by a number of key factors. Master Plans are outdated, problems exist with regard to land registration and acquisition, and land encroachment has become uncontrollable, despite the existence of the **State Lands Act** of 1990 – equally outdated, with no mention of climate change. (For example, while the State Lands Act provides for 99-year leases, the Act makes no mention of what potential effects sea-level rise could have on the land-areas being leased. Furthermore, while the State Lands Act does reserve to the State the right to enter land for certain purposes, such as “removing stone, soil or other substances for construction or repair” no requirement is put on the State to take into consideration the potential environmental impacts of such – Section 15.1.b – or, at least, not under the auspices of the State Lands Act.)

Physical Development Plans were supposed to be introduced to ease land administration, with zoning for different purposes (e.g. residential, commercial, agricultural), however the last revision of these maps took place in 1989. Land use plans are necessary not only to allow for the provision of basic urban services (electricity and water supply, roads, drainage and sewerage, etc.) but also to control encroachment and illegal land allocation (by, for example, traditional authorities) into the wetlands, mangroves and swamps included in and surrounding GBA – areas which will be the first to be impacted by any sea-level rise.

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<sup>16</sup> Gambia: Banjul Urban Profile. UN-Habitat, 2012



The 99-year **Tourism Development Area (TDA) Lease** (signed 11<sup>th</sup> June 2015) granted to the Gambia Tourism Board for the “parcel of land situated at Kombo Mary Division, Kombo North District and Kombo South District of West Coast Region..... etc., ... containing an area of four thousand, one hundred and twenty hectares, or thereabouts” (First Schedule of the Lease) borders the area known as the GBA. As such, the area also needs to form part of the necessary Land Use Planning exercise for the GBA as a matter of urgency. Even though the Lease is from 2015, no mention is made in the lease of potential environmental impacts, of impacts on the coastal zone as a result of climate change, sea-level rise or coastal engineering works. The Lease was granted in accordance with the **State Lands Act** of 1990; no other legislation, environmental or otherwise, is referred to in the Lease – virtually the sole environmental provision contained therein is “to preserve existing trees as much as possible” (Paragraph 12, Second Schedule).

### **Water resources**

Presently The Gambia’s water resources are covered by outdated legislation, such as the **National Water Resources Council Act** of 1979. Under this Act (Section 10), provision is made, amongst others:

- *To promote the centralised inventory and management of all water resources in the country*
- *To promote the most rational use of the available water resources, including the abatement of its harmful effects such as flooding, soil erosion, siltation and salinization*
- *To promote the preparation of sectoral water plans, sub-basin plans, basin and master water plans to serve as terms of reference for allocating sectoral uses of water,*
- *Etc.*

Three new Draft Bills awaiting formal approval and enactment have been prepared which address The Gambia’s water resources within the context of climate change. These Acts will, at the same time, repeal and replace the **National Water Resources Council Act**. The principal piece of legislation will be the new **Water Act**, and will be supported by a **National Water Resources Management Authority Act** and a **Meteorological Authority Act**. The Water Resources Board (Section 9 – functions and powers) will be: *the principal body for water resources management, development, conservation and protection in The Gambia*; and will, amongst other responsibilities: *ensure water resources management activities in the country including projects at all levels from village, municipal, regional to national and transboundary are properly integrated and coordinated.*

Following on from a repeal of the Act of 1979, a Meteorological Authority shall be established which will be: *the principal body responsible for the establishment, maintenance and operation of equipment and systems for the collection of meteorological information in The Gambia* (Part II, Section 2). The Board will be: *an independent public enterprise ... for the provision meteorological services of an internationally recognized standard to government, the public and the private sector* (Part I).

The **Water Act** will provide for the enabling environment for Ministries and Government agencies: *to collaborate comprehensively in safeguarding the waters of The Gambia within a common legal framework with guiding principles.* The Act will ensure protection and management of the nation’s water resources, look to the needs of future generations and promote the efficient and sustainable

use of the resource for the future. The Act will enshrine the polluter pays principle, the equal treatment of women, and public participation in decision-making

The Act also includes provisions relating to transboundary waters, notably the international agreements concerning The Gambia River, and the United Nations Convention on the non-navigational uses of International Watercourses.

The management of The Gambia River is governed by a convention signed between The Gambia, Guinea and Senegal (signed in 1978) and updated to include Guinea-Bissau. In the Convention, the river is declared a river of regional interest within the national territories of the riparian states. The convention is also clear that: *No project which is likely to bring about serious modifications on the characteristics of the river's regime, on its navigation conditions, the agricultural and industrial exploitation of the river, the sanitary state of the waters, the biological characteristics of its fauna and its flora, as well as its water level, will be implemented without the prior approval of the contracting States* (Article 4).

The Convention does not mention climate change, and has been criticized for giving weight to navigation to the detriment of other types of water use. Thus, the Convention does not seem to apply to groundwater connected to the basin's surface waters and fails to incorporate substantive obligations related to harm prevention and equitable use. In addition, the convention does not codify and detail a data-sharing obligation and contains no provisions on environmental protection. Furthermore, the OMVG Convention establishes a mandate for the Permanent Water Commission to allocate water rights only in regards to agricultural, industrial and transportation water uses. In so doing, the convention ignores that allocation decisions should also take into account environmental flows necessary for maintaining in-stream water uses, in addition to other types of water utilization.<sup>17</sup>

The discussion is particularly pertinent now given the major infrastructural works planned for the River Gambia – notably the Sambangalo Dam, which will impact on at least two major areas related to The Gambia's response to climate change. Firstly, the provision of renewable energy through hydroelectricity, and the connection to the West Africa Power Pool, will reduce The Gambia's reliance on fossil fuels to produce electricity. Secondly, the potential to regulate water flow from the dam will have impacts downstream on irrigation and flood control regimes, including potential recession of the saline front during the dry season, as well as impacts on the mangrove swamps and downstream wetlands. There are also potential impacts on tourism, notably in relation to the Niokolo-Koba National Park (in Senegal) and hence on transboundary tourism. Within this context, the OMVG Convention may require updating so that institutional arrangements are put in place to manage the downstream environmental impacts (irrigation, flood control, river flow, etc.), as well as to integrate the most robust climate change scenarios (as indicated in section 1.6.3).

### ***Strategic environmental assessment***

The Gambia has taken steps to introduce strategic environmental assessment (SEA) as an integral part of environmental and climate policy, with the drafting of a National SEA Policy (2017-2021) with accompanying Guidelines and Procedures. The SEA Policy is aligned with and falls under the framework of the National Environment Management Act, (NEMA) 1994, and the Environment Impact Assessment (EIA) Regulations, 2014. The great advantage of an SEA approach is inclusiveness

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<sup>17</sup> Source: Amidou Garane: UN Watercourses Convention: Applicability and Relevance in West Africa, 2008

and participation in decision-making. Going forward, this will be one of the key aspects of the enabling environment developed by the SPCR, in terms of ensuring ownership, understanding and involvement of all relevant stakeholders. In addition to transparency, the SEA Policy would ensure that environmental considerations are incorporated at early stages of planning and decision making, and that alternative scenarios and interventions are considered at an early stage.

As with the water resources legislation discussed above, approval of the Draft Policy, together with its guidelines and regulations, have been delayed as a result of the change in government, and are awaiting formal approval. The need for the application of SEA in the national planning processes is becoming increasingly important as pressures on the environment and natural resource base multiply.

The specific objectives of SEA in The Gambia are to:

- Promote sustainability at national and regional levels in all sectors
- Ensure linkage between environment, social and economic considerations at all levels of decision making
- Ensure potential environmental impacts of strategic actions are critically analysed from the inception stage to allow ease in change
- Address limitations of project level environmental impact assessments that are carried out before implementation and mostly tied to mitigation than prevention
- Ensure that all relevant stakeholders are involved in the decision-making process, from the executive members of government to the general public
- Promote compliance to the National Environment Management Act, 1994, that requires the “integration of environmental considerations, in all development strategies and related activities”
- Control trans-boundary environmental issues such as climate change and shared natural resources like water bodies.

The SEA Guidelines and Procedures apply to all policies, plans and programmes in the country that fall within the scope of the SEA Policy, and have a legal basis in terms of the NEMA and the EIA Regulations. The NEMA established the NEMC as the principal policy-making body for the environment and natural resources management; created the NEA as its executing arm and empowered it to instruct the seizure or closure of an activity which negatively affects the environment, as well as to carry out inspections, studies, and monitoring to ensure compliance with established environmental legislation and conventions.

However, for various reasons, including lack of capacity at NEA and no sitting of the NEMC since 1994, most sectors have been not been complying with the Act. The SEA Policy proposes a number of concrete actions, including capacity building, to address this. Steps will also need to be taken to revitalise the NEMC and ensure it can fulfil its mandate.

## **Annex 7 Innovative and emerging financial mechanisms**

The Gambia Strategic Programme on Climate Resilience Phase 1 (SPCR)

Finance Mechanism (Multilateral/ Bilateral/ Other)	Adaptation, Resilience and/or Mitigation Focus
<b>Climate Investment Funds (CIFs) World Bank (PPCR, SREP, CTF, FIP)</b>	The CIF includes the Clean Technology Fund (CTF) – which supports the rapid deployment of low-carbon technologies - and Strategic Climate Fund (CTF), which includes the Scaling up Renewable Energy in Low Income Countries Programme (SREP) – supporting investments in a few low-income countries for energy efficiency, renewable energy & access to modern sustainable energy; Forest Investment Program (FIP) – which seeks to reduce emissions and up-scale investment for reduced deforestation and forest degradation and to promote sustainable forest management, and; finally, the Pilot Project for Climate Resilience (PPCR) – which aimed to integrate climate resilience in national development planning consistent with poverty reduction and sustainable development goals.
<b>INDC (Intended Nationally Determined Commitment)</b>	Intended Nationally Determined Contribution (INDC) in response to decisions adopted at the 19th and 20th sessions of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC); that invite Parties to communicate to the Secretariat their INDCs, towards achieving the objective of the UNFCCC as set out in Article 2 of the Convention. The Gambia's INDC builds on the participatory multi-stakeholder and cross-sectoral consultative processes during the development of NAPA, 1st and 2nd National Communications at national and sub-regional levels. The contribution will also contribute towards the delivery of the Constitution of The Gambia and the attainment of Vision 2020.
<b>NAMAS (National Appropriate Mitigation Actions)</b>	Bali Action Plan calls for verifiable nationally appropriate mitigation actions (NAMAs) by developing country Parties in the context of sustainable development NAMAs are supported and enabled by verifiable technology, financing, and capacity-building support from industrialized and developed countries; Developing countries submit climate plans (e.g., low-carbon growth strategies) that list their intended NAMAs and associated requests for support NAMAs could be grouped to achieve broader objectives, such as sectoral program goals and reductions from deforestation and degradation (REDD)
<b>REDD+(Reduced Deforestation and Land Degradation)</b>	REDD-plus ('reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries'). There has been broad support for a phased approach to REDD-plus, which would start with readiness activities, followed by implementation of policies and measure, finally moving on to performance-based REDD-plus. For example REDD-plus could be funded from voluntary sources (through the World Bank) in the first phase, moving on to a mix of public funding sources and carbon markets in the final phase.
<b>Forest Carbon Partnership Facility (FCPF) World Bank</b>	The fund assists developing countries in their efforts to reduce emissions from deforestation and forest degradation, and support forest carbon stock conservation and sustainable management of forests and enhancement of forest carbon stocks (REDD+). The FCPF is comprised of a Readiness Fund, which aids countries in setting up national systems and arrangements for REDD+, and a Carbon Fund, which is to operationalize the REDD+ programs and deliver results in the form of social and environmental benefits, as well as emissions reductions to financial contributors.
<b>Global Environment Facility (GEF) GEF Secretariat, World Bank, UNEP, UNDP, UNIDO, AfDB</b>	The GEF Trust Fund supports energy efficiency and renewable energy mitigation projects, as well as enabling activities for technical assistance and mainstreaming climate change. The GEF also includes the Least Developed Countries Fund (LDCF) - which funds the preparation and implementation of the National Adaptation Plans of Action (NAPAs) - and the Special Climate Change Fund (SCCF) - which supports projects in adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification.
<b>International Climate Initiative (ICI) Private Sector: BMU/German government</b>	ICI funds mitigation, adaptation and climate change projects with biodiversity co-benefits, and places emphasis on climate change projects that catalyse other funding streams, especially from the private sector. For example, the fund's African Carbon Asset Development Facility (ACAD) seeks to improve financial institutions' ability to identify, appraise, and transact viable carbon opportunities.
<b>International Climate Fund (ICF) Private Sector: DfID/UK Government], GEF, UNDP, WHO</b>	The fund supports low carbon growth and adaptation in developing countries by demonstrating low-carbon growth, supporting countries with international negotiations, and capitalizing on opportunities for private sector partnerships, innovation, and sustainable development. In parallel the fund seeks to mainstream climate change into the UK's development aid programming.
<b>ClimDev Africa Programme Special Fund (CDSF) UNECA, AUC, and AfDB</b>	The fund provides assistance for the generation and wide dissemination of climate change information in Africa; capacity enhancement of policy makers and policy support institutions for integrating climate change into development programs; and implementing pilot adaptation practices.
<b>Adaptation Fund (AF) GEF as Secretariat, World Bank, part of funding from CDM CERs]</b>	Established under the Kyoto Protocol, the AF is financed with a share of certified emissions reductions from CDM projects and a limited set of other donors. It funds adaptation activities for communities, countries and sectors, and implementing agencies include national entities approved by the AF Board.
<b>Green Climate Fund (GCF)</b>	The fund began with a Fast Track commitment of US\$ 100 billion by the European Union (EU). The GCF Board is considering the design of the fund in terms of governance structure, procedures, policies, funding mechanisms, potential safeguards and other key elements.
<b>Africa Enterprise Challenge Fund (AECF): Renewable Energy &amp; Adaptation to Climate Technologies (REACT) Private Sector: UK Aid, DANIDA, AusAID, MNFA, IFAD, WFP, FAO, IRENA</b>	REACT is a competitive funding window that provides grants, co-financing, loans and risk management to encourage private sector companies to compete for investment support for their new and innovative business ideas in low-cost, clean energy for rural households and businesses, products and services for rural farmers, and improving access to climate-relevant funding.
<b>ECOWAS and East African Development Bank under UNFCCC-CDM Carbon Market and Carbon Fund</b>	Working in the free-trade area established by ECOWAS in collaboration with East African Development Bank and CDM/UNFCCC, the fund seeks to build capacity and attract investors to purchase carbon offsets from agricultural, forestry and land-use projects; suitable for project developments registered under the CDM.

## **Annex 8 Terms of Reference for the additional analytical studies identified**

### **Study 1: Development of Climate Change Scenarios for The Gambia**

#### **Terms of Reference**

##### **Rationale**

A number of stakeholders consulted to date in the SPCR Phase 1 planning process, including Department of Water Resources and the Meteorological Services, have highlighted the urgent need to develop updated climate change projections / scenarios for The Gambia, for the near-, medium- and long-term, to inform planning for the SPCR – and indeed all other relevant planning processes. Currently, the scenarios being used are those from the Second National Communication to the UNFCCC (2012), which are based on even older models – from 2002 or earlier.

As there have been significant improvements in climate modelling over the past 15 years, there is an urgent need to develop updated projections upon which to further develop the integrated investments for the SPCR. The updated scenarios will also be of great value for the ongoing development of the Third National Communication (TNC) to the UNFCCC, as the Vulnerability and Adaptation Assessment has not yet been concluded.

##### **Activities of the consultancy**

The consultant will develop climate change scenarios for periods centred around 2025, 2055 and 2090 for an area covering The Gambia and, where necessary given the locations of the data grid points on which the scenarios will be based, parts of surrounding Senegal and the Atlantic Ocean.

The scenarios will be based on:

- All projections available within the CMIP5 data set for all of RCP2.6, RCP4.5, RCP6.0 and RCP8.5
- All projections available within the CORDEX-AFRICA data set for both RCP4.5 and RCP8.5 (no projections are available for RCP2.6 and RCP6.0)

The basis of the scenarios will be calculations using self-organising maps (soms) on one of: a) temperature and rainfall projections; b) temperature and rainfall less evaporation projections. Note: limited experience to date suggests that results from both possible approaches are similar, at least when used with CMIP5.

The scenarios will include consideration of up to about 10 pertinent climate extremes of the 27 defined by the IPCC covering both temperature and rainfall. Note: these are available only for the CMIP5 data set.

The consultant will present a comprehensive written report covering the methodology, the results, the recommended scenarios (of which, typically, there are two based on previous similar assessments), and the uncertainties involved in the approach; the report will include also a comparison with the projections produced by the Climate Systems Analysis Group at the University of Cape Town.

**Duration of consultancy and envisaged delivery date**

The consultancy would require between seven and ten working days by highly qualified climatological experts. Given the highly technical nature of the study, the MoECCNAR will engage in discussions with potential service providers to further develop this ToR, prior to commissioning this analytical study.

The envisaged delivery date would be ideally be in May 2017, in order to be of maximum use to the SPCR and the Third National Communication processes.

**Required skills and experience**

- Minimum of 10 years of demonstrated experience and knowledge in the developing and analysing climate projections
- Masters or PhD qualification in climatology
- Demonstrable regional African experience in the policy application of climate projections and scenarios
- Language: Excellent written and spoken English

## **Study 2: Comprehensive analytical study to understand climate change impacts on health in The Gambia, using the Health Management Information System (HMIS) and climate data available in the country**

### **Terms of Reference**

#### **Background to the analytical study**

While there has been little research into the detailed climate change impacts on health in The Gambia, major concerns relate to climate-sensitive diseases, such as malaria, which is endemic and peaks in the rainy season. Climate change impacts on the environment could alter breeding habitats of disease vectors and vector-borne transmission pathways, and endanger the survival of floristic species essential for traditional/alternative medicine. Heat-related impacts on human health and productivity are projected to be significant in Africa, while changes in nutritional quality of crops may exacerbate malnutrition levels.

As the National Social Protection Policy of The Gambia points out, existing economic, environmental and health risks have translated into high levels of food and nutrition insecurity (GoTG, 2014). Only 18% of Gambian households are considered to be food secure (WFP, 2012), while the national malnutrition prevalence rate of 9.9% verges on emergency level in terms of severe malnutrition (NaNA, 2013). High and persistent vulnerability to health shocks is exacerbated by physical and financial limitations that impede access to healthcare, as well as the limited medical insurance system (GoTG, 2014a). Moreover, differential social vulnerabilities exacerbate the exposure of people to climate risks, as well as to discrimination and poverty. The National Social Protection Policy identifies the following particularly vulnerable population sub-groups: extremely poor individuals and households, vulnerable children, the elderly, people with disabilities, the chronically ill, individuals and families affected by HIV, vulnerable women and youth, refugees and migrants, and prison inmates and their families (GoTG, 2014a).

#### **Tasks**

The Gambia SPCR Programme requires the service of an experienced climate change and health vulnerability and impact assessment specialist to provide technical advice and inputs in order to strengthen detailed planning for the SPCR investment programmes, as well as to provide actionable policy relevant information to be integrated into policy and practice in The Gambia.

The main objectives of the consultancy will be to conduct a comprehensive analytical study to develop an enhanced understanding of the likely impacts on health of the population and on the health systems themselves, within the context of existing social vulnerabilities, and the priorities of the social protection and social welfare policy framework.

Specifically, the consultant will:

- Undertake an evidence-based analysis of health vulnerability to recent observed climate trends, including increased temperatures, reduced rainfall, more erratic rainfall regimes, and urban flooding that while it may increasingly have a link to climatic changes, is currently exacerbated by poor urban management and land use planning;
- Use existing climate observations and data from the Health Management Information System (HMIS) to conduct the above;



- Make use of the new climate projections for The Gambia, to be completed under analytical study 1 commissioned by the SPCR, to develop a climate and health impact and vulnerability assessment for future projected climate change in The Gambia; and
- Develop recommendations for best available short-, medium- and long-term adaptation options to reduce the impacts of current climate variability and future climate change on health and health systems in The Gambia, taking into account existing socioeconomic, governance and institutional conditions.

It is expected that the consultant work closely with The Gambia SPCR Programme team, the Planning Department at the Ministry of Health and Social Welfare, and all relevant stakeholders; stakeholder engagement will need to extend beyond the Greater Banjul Area into the regions.

The consultant should ensure that the work carried out and recommendations made are fully consistent with the vision, goal, policy principles and policy objectives of the National Climate Change Policy (NCCP), as well as its further contents.

This consultancy, using desktop scoping, detailed stakeholder and key informant methodologies, technical modelling of health and climate change impacts, and expert judgement, will result in a report covering all of the above, with clear and actionable recommendations.

#### **Required skills and experience**

The consultancy team would ideally be comprised of two people who between them possessed the following necessary skills and experience;

- Minimum of 10 years of demonstrated experience and knowledge in the field of climate impact and vulnerability assessment.
- Minimum of 10 years of demonstrated experience and knowledge in the field of health systems management and planning, or related field.
- Language: Excellent written and spoken English.

### **Study 3: Assessment and identification of main runoff channels in the Greater Banjul Area and beyond**

#### **Terms of Reference**

##### **1. Background to the analytical study**

Despite existing flooding problems during the rainy season and the possibility of increased intensity of some rainfall events under climate change, no proper drainage system is in place in The Gambia. The overall impact of such a lack of facilities on agriculture, settlements and roads is severe. The damages to agriculture include the complete loss of harvests of rice and other crops, should fields become fully flooded. The impact on health is also important: indeed, in the case of heavy rain, the natural drainage system is often overwhelmed, due to settlements in inappropriate locations, waste dumping into existing riverine areas and formal drainage channels, and/or lack of any drainage infrastructure. In that case, rainwater becomes mixed with sewage and waste, drastically increasing the possibility of contracting diseases such as malaria, cholera and infant diarrhoea. The impact on health of such flooding is increased by the fact that the victims are commonly the poorest and most vulnerable populations who are living in densely populated areas, and who may have low levels of hygiene knowledge.

The proposed study will identify the main drainage channels in the Greater Banjul Area and further afield, and recommend measures necessary to either retain some of the water lost into the River Gambia or into the ocean. In addition, it will also identify these runoff channels so that they can be incorporated into infrastructural projects such as road construction and buildings.

##### **2. Tasks**

The Gambia SPCR Programme requires the services of an experienced topographic surveyor, hydrologist and water engineer to assess and identify the main runoff channels in the Greater Banjul Area and further afield (exact scope of the study will be identified depending on budget available) in order to strengthen detailed planning for the SPCR investment programmes.

The main objectives of the consultancy will be to conduct a comprehensive survey of the drainage channels, thereby identifying where they start and terminate as well as quantifying the average amount of water transported through them annually. In addition, the consultant is expected to recommend the required civil works to either retain some of the water or channel the water to the nearest water body to avoid flooding in low-lying areas or damage to roads and other infrastructure.

Specifically, the consultant will:

- Undertake a topographic survey along the main runoff channels in the Greater Banjul Area and further afield to determine their origin, termination points, channel depth, length and width.
- Undertake water flow measurements during the rainy season to establish the average quantity of water transported through the channels.
- Identify the main roads the channels pass through and recommend the type of intervention required for easy passage.
- Propose water retention schemes required at strategic points.

- Identify areas where the storm water can be rerouted to avoid damage to infrastructure and farmlands.
- Develop an estimate of the works required to enable flow through these channels with minimal damage to public and private infrastructure and the required retention structures.
- Propose improvement of the drainage system in crucial specific locations. This will include cost-efficient rehabilitation of identified main channels and the creation of essential facilities.

It is expected that the consultant will work closely with The Gambia SPCR Programme team, the National Roads Authority, Department of Water Resources, Department of Physical Planning and all relevant stakeholders; stakeholder engagement will need to extend beyond the Greater Banjul Area into the West Coast Region.

The consultant should ensure that the work carried out and recommendations made are fully consistent with the vision, goal, policy principles and policy objectives of the National Climate Change Policy (NCCP), as well as its further contents.

### **3. Required Qualification, skills and experience**

The consultancy team would ideally be comprised of three people who between them must have the following necessary qualifications, skills and experience:

- Topographic Surveyor: Minimum of a Master's Degree in Surveying with 10 years of demonstrated experience and knowledge in the field of surveying.
- Hydrologist: Minimum of Bachelors Degree in Hydrology and 10 years of demonstrated experience and knowledge in the field of hydrology.
- Water Engineer: Minimum of Master's Degree in Water Engineering and 10 years' experience in the field of water engineering
- Language: All three experts must have excellent written and spoken English skills.

### **4. Duration of Assignment**

The consultancy will be for three months and should preferably start at the beginning of the rainy season in The Gambia (end of June) to enable flow measurements during the season.

**Study 4: Review of Climate Finance and Establishment of Emerging New Innovative Financing Mechanisms including: Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance to Attract Private Sector Participation in SPCR**

**BACKGROUND**

The Gambia is a country rich in renewable natural resources including water, biodiversity, solar radiation, wind, and fertile soil. The climate resilience and sustainable development of the country will depend to a large degree on its capacity to efficiently and sustainably manage its natural resources - in particular, water, land, and forests - for the benefit of all dependent communities. The replenishment, maintenance, and improvement of these resources will rely on their proper management.

However, funding for measures to improve climate resilience, including the sustainable and equitable management of natural resources, is a significant challenge in Africa in general, and The Gambia in particular. The Strategic Programme for Climate Resilience (SPCR) in The Gambia has identified the need to incentivise and leverage in additional private sector participation (PSP) to assist with resource mobilisation for addressing climate change. There are new and emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance that provide strategic solutions and can attract PSP in the SPCR Programme.

These new innovative financial mechanisms are not yet significantly developed in Africa, although some projects are currently underway. Carbon Finance, REDD+, and PES represent promising financial instruments with the ability to address challenges to sustainable natural resource based development and climate resilience in Africa. The instruments have the potential to help raise new sources of sustainable finance, improve the efficiency of conservation actions, secure the flow of environmental services for businesses and infrastructure that rely on it, and ultimately benefits for poor, rural populations.

For this consultancy, new innovative financial instruments are defined as contractual agreements between at least one environmental service (ES) beneficiary and one ES producer (or an intermediary acting between them), by which the former transfers resources to the latter, providing the ES producer adopts specific practices on the land or resources she/he controls or possesses, to enhance the production of a specific ES.

In SPCR programming, we categorize innovative financing for ES and Renewable Resources into broad-based categories of ecosystem services: watershed services; carbon sequestration and storage; and biodiversity conservation; and energy sources—solar, wind, hydro, and bagasse (methane from waste).

1. A proposed innovative financing instrument is a key step in the ongoing process of identifying financial gaps and barriers and leveraging in additional sources of finance to bridge funding gaps in the SPCR in The Gambia.
2. The proposed objective of a financial mechanism in The Gambia for the SPCR programme will be to address the drivers of natural capital degradation, promote wellbeing to support a number of local communities' projects, and enhance resilience to climate variability and change.

To help increase the success of these two approaches in The Gambia's SPCR, expert advice, input, and solutions are sought regarding the legal, policy, financial, and institutional frameworks relevant to: new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance. The study should also examine the feasibility of climate resilience-related insurance products, which could be index-based insurance for crops, as well as the potential for insurance for key infrastructure. The information generated by the Consultant will be used to contribute to strengthening The Gambia Climate Change Fund and assisting to establish the institutional framework and implementation plan for the SPCR projects.

## **TASKS**

The Gambia SPCR Programme requires the service of an experienced Climate Finance specialist to provide technical advice and inputs.

The main objectives of the consultancy will be to conduct an analysis of the legal, financial, and institutional systems and policy frameworks in The Gambia relevant to: new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance at the national and sub-national levels, to determine the potential for sourcing funds and attracting private sector participation in SPCR.

The consultant will use the information from the analysis to:

1. Suggest mechanisms by which SPCR program could be initiated within the current legal, institutional, financial, and policy landscapes of both national and regional establishments; and,
2. Recommend avenues by which the climate change policy, institutional, financial, and legal landscape could be improved to increase the sustainability and viability of the new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance in The Gambia.
3. Provide advice on the feasibility in The Gambia of climate resilience-related insurance products, which could be index-based insurance for crops, as well as the potential for insurance for key infrastructure

The consultant will complement his/her desktop study with the Political Economy Assessment (PEA), or a similar, field research methodology. The PEA methodology is used by donors to explore not simply how things happen in a country but why the outputs of the methodology are a written assessment with recommendations for project design.

It is expected that the consultant work closely with The Gambia SPCR Programme team, all stakeholders, outreach and areas related to the PEA (one anticipated week of stakeholder engagement in the Greater Banjul Area and a second week of stakeholder engagement in the regions).

The consultant should ensure that the work carried out and recommendations made are fully consistent with the vision, goal, policy principles and policy objectives of the National Climate Change Policy (NCCP), as well as its further contents.

This consultancy, using both a desktop scoping and the PEA methodology, will result in the following documents:

1. Review of new and emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance
2. Review of legal, institutional, financial, and policy landscape with actionable recommendations for the SPCR in The Gambia.

Given that SPCR Programme is aiming to develop an investment strategy (with potential investors targeted for climate resiliency programmes in The Gambia) and based on the outcomes of the review:

1. The consultant will draw conclusions and formulate strategies for moving forward with new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief; Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance; based on the review, report and the gaps/weaknesses assessment;
2. The consultant will explicitly identify legal, policy, financial, and institutional barriers, constraints and opportunities as they relate to the SPCR Programme; and
3. The consultant will provide actionable advice for overcoming identified financial barriers and constraints and maximizing on opportunities.

#### **EXPECTED OUTPUTS/DELIVERABLES, PAYMENT AND REPORTING**

The consultant will provide the following outputs within the proposed phased approach, with final deliverables submitted to The Gambia SPCR Programme by agreed deadline in 2017. Below are the suggested deliverables.

- Inception Report to include work plan and methodology needed for the documents/outputs
- Stakeholder engagement at both national and regional levels
- First drafts of the documents: SPCR Programme team will provide feedback on the reports within agreed business days, which must be incorporated by the Consultant to ensure that the deliverable meets the requirements of the SPCR Programme

Submission of final reports to SPCR Programme Team Within agreed time of receiving feedback from the SPCR

#### **COMPETENCIES**

- Demonstrated strategic, technical and intellectual skills in the substantive area of economic valuation of natural resources and ecosystem service and climate finance; familiarity with new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief, Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle; REDD+ and Carbon Finance; strong understanding of the legal, institutional, and policy landscapes that facilitate successful new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief, Payments for Ecosystem Services (PES); mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance;

- Demonstrated ability to engage with stakeholders in one-on-one meetings and to ground truth desktop findings with stakeholders (experience with PEA methodology or a similar field based data collection methodology is preferred);
- Demonstrated ability to facilitate stakeholder engagement in a workshop setting as it relates to new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief, Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance scoping study (experience with PEA methodology or a similar field based data collection methodology is preferred);
- Demonstrated ability to obtain and distil information from multiple sources into clear, succinct, and logical documents;
- Demonstrated ability to work in an independent manner;
- Demonstrated ability for managing timely and effective delivery of both quantity and quality before the deadlines;
- Sound analytical and organizational skills;
- Excellent writing skills with a demonstrated ability for authoring detailed and extensive deliverables in a short time frame.

#### **REQUIRED SKILLS AND EXPERIENCE**

- Minimum of 10 years of demonstrated experience and knowledge in the field of climate finance, environmental economics, payments for ecosystem mechanism development and/or ecosystem service valuation;
- Extensive international experience in and knowledge of the new emerging financial innovative mechanisms including: tax breaks, tax holidays and tax relief, Payments for Ecosystem Services (PES), mechanisms to implement the Polluter Pays Principle, REDD+ and Carbon Finance, legal and policy frameworks that support programmes at the international, national and regional level;
- Language: Excellent written and spoken English

## **Annex 9 Selected complementary climate change programmes**



The Gambia Strategic Programme on Climate Resilience Phase 1 (SPCR)

	Programme/ project title	Objective / description	Implementing agency	Funding agencies	Status	Proposed linkages with SPCR
<b>1.</b>	<b>Coastal zone</b>					
<b>1.1</b>	<b>GCCA+ 'Climate Resilient Coastal Zone Planning for The Gambia'</b>	<p><b>1: Improving planning and climate resilience in the coastal zone</b></p> <p>1a – Undertake coastal and hydrodynamic surveying, with data management using GIS.</p> <p>1b - Prepare “tools” needed by decision makers, engineers and planners to:</p> <ul style="list-style-type: none"> <li>• incorporate climate-resilience into zoning land-uses</li> <li>• analyse and design for climate threats and vulnerabilities</li> <li>• develop climate-resilient zoning criteria</li> <li>• enforce building standards, set-back distances, waste management, drainage and flood control</li> <li>• develop engineering codes of practice for residential settlements located along the coast.</li> </ul> <p>1c – Implement several demonstration projects such as drainage improvement for highways and settlement areas; establishing appropriate vegetation to increase backshore stability (palms, ground cover); waste management to improve drainage and flood control; use of alternative building materials to reduce reliance on sand mining.</p> <p><b>2: Enhancing institutional governance</b></p> <p>2a – Support to establish ICZM Secretariat coupled with assistance to create an ICZM Programme under the NEMA 1994 and creation of a National Advisory Committee (NAC).</p> <p>2b - Support to enhance institutional capacity at the decision-making level, such as:</p> <ul style="list-style-type: none"> <li>• encouraging the private sector to help fund coastal adaptation approaches and capacity</li> </ul>	GoTG/NEA	EU	Final planning stages; TA tender to be launched early 2018	The land use planning coastal resilience components of the SPCR, as set out in concept Note 2, will build on the GCCA+ activities, to maximise synergies and prevent any duplication. The GCCA+ activities are specifically focused on coastal issues and Integrated Coastal Zone Management, while the SPCR integrates the coastal zone together with urban and rural areas as a holistic package for land-use planning in The Gambia. The two programmes emphasise the need for definition and enforcement of rational setback zones as a key to achieving climate resilience. The GCCA+ proposes a number of small scale and local initiatives that should be developed within the wider SPCR land use planning programme that will be developed from the top down in consultation with local groups.

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		<p>building initiatives</p> <ul style="list-style-type: none"> <li>• creating awareness about coastal adaptation techniques and how planning “tools” can be used</li> <li>• creating action plans for institutional capacity-building at national, sub-national and village levels</li> <li>• formalizing ICZM delivery programmes (and associated training programmes) either at the UTG (or complimentary educational establishments)</li> <li>• support graduate training and accreditation in climate change adaptation, climate financing, coastal engineering, disaster risk management, etc.</li> </ul> <p>2c - support to improve the training and delivery of “champions” for enforcing and implementing the ICZM “tools” at the local level. This approach could be linked to Village Development Plan preparation through Village Development Councils.</p>				
1.2	<b>UNDP Coastal Resilience project</b>	<p>1 - Policy and institutional development for climate risk management in coastal zones;</p> <p>2 – Physical Investments in coastal protection against climate change risks (this element has resulted in a USD 4 M investment in the Phase 1 protection of the Senegambia frontage, with a design life of 5 years and a which has been assessed by the SPCR team to have a failure probability of about 40% within the 5 years; Phase 2 of this intervention has not been funded but is expected to cost at least USD 20 M and is predicted to cause increased erosion of the adjacent shorelines. UNDP consider the intervention to be a template for further protection measures along the coast to be funded by the international aid community);</p> <p>3 – Strengthening livelihoods of coastal communities</p>	UNDP/ NEA	GEF	Phase 1 under implementation	<p>The UNDP project developed the concept of Sea and River Risk Management which is complementary to and in line with the principles of the SPCR land use planning proposal (Concept Note 2). The concept of climate resilience along the sea and river coast is achieved through investment in monitoring, defining risk zones and avoiding development (or relocating existing assets) within those zones.</p> <p>However, the UNDP project appears to contradict this</p>

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		at risk from climate change				<p>principle by advocating expensive engineered interventions to protect existing private/ commercial assets, basing decisions on misinterpretation of historical coastal process information and inadequate cost-benefit analysis that do not consider managed realignment as an option. The SPCR does not support this approach.</p> <p>The UNDP project also advocates decentralization of land use planning, giving decision making strength to local communities. The SPCR project cautions that this decentralisation needs to be preceded by a national land use plan, developed through strong consultation and participation, to achieve economic, social and environmental climate resilience. Local level land use planning would need to be carried out within the framework of this national planning, to allow for coherent and sustainable land use within the coastal zone and elsewhere.</p>
1.3	<b>GCCA Component 1</b>	<ul style="list-style-type: none"> <li>- Strengthening capacity to plan for and respond to climate change impacts in coastal areas:</li> <li>- Support for setting up, participating and providing expert inputs into a Technical Working Group and a coastal forum and support</li> </ul>	NEA/ MoECCNAR	EU	Project closed	The GCCA Component 1 study produced a Vulnerable Site Options report that set out viable, sustainable and climate resilient management options

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		<p>establishment of the ICZM process;</p> <ul style="list-style-type: none"> <li>- Implement a feasibility study in coastal protection measures for the open coast, focusing on areas at risk;</li> <li>- Support and review study outputs on viable alternatives to sand mining for use in the construction sector.</li> </ul>				<p>for the full open coast of The Gambia. The report specifically endorsed the principles of relocating the government functions of Banjul to a new enclave away from flood / erosion risk areas and implementing managed realignment of all other at-risk assets along the coast. The report strongly discouraged any use of public funding to protect private or commercial development along the shoreline. These principles are reinforced by the SPCR land use planning proposal.</p>
<b>2.</b>	<b>Terrestrial resources and forestry</b>					
<b>2.1</b>	<b>Green Climate Fund Programme 'Ecosystem-based Adaptation in The Gambia River Basin'</b>	<p>A programme for a large-scale Ecosystem-based Adaptation in The Gambia River Basin for developing a climate resilient, and natural resource based economy.</p> <p>The programme is aimed at restoring is aimed at restoring degraded forests and agricultural landscapes in The Gambia with climate resilient plants, establishing natural resource-based business, and strengthening capacity and policies to implement eco-based adaptation systems. The programme will achieve: better health, adequate food and water security; improved livelihoods of people and local communities; restored landscapes and ecosystem services; generate gender benefits through adoption of a target for gender equality and gender that will promote the economic empowerment and increased</p>	<p>UNEP in collaboration with MoECCNAR</p>	<p>Green Climate Fund (GCF)</p> <p>The Government of the Gambia</p>	<p>First Phase of implementation on awareness raising and capacity building;</p>	<p>The project will comprise three components: a) large-scale EbA to build a climate-resilient natural resource base; b) development of markets for natural resource-based businesses; and c) policy support, institutional strengthening and knowledge generation to support large-scale implementation of EbA.</p> <p>As the SPCR will intervene to carry out restoration of degraded forests and agricultural landscapes with climate-resilient plant species that provide goods for consumption or sale; and b) facilitating the establishment of</p>

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		<p>decision-making of women, the youth and people with disability.</p> <p>The programme will also achieve UN Sustainable Development Goal Number 11 that focuses on issues of Sustainable Cities and Communities</p>				<p>commercially viable natural resource-based businesses to be managed by community-based organizations and developing value chains for various products, there is an obvious linkage with components a) &amp; b) above. When the CN is being developed into the detailed funding proposal, further discussions will be held with the EbA project, to determine most synergistic areas of intervention in markets and value chain development.</p>
2.2	<p><b>Chosso - Strengthening of Climate Resilience of the National Agricultural Land and Water Management Development project (Nema)</b></p> <p><b>A grant funded by IFAD's Adaptation for Smallholder Agriculture</b></p>	<p>The Chosso programme complements and optimises the effectiveness of the project baseline (known as <i>Nema</i>) in addressing climate-related threats to smallholder agriculture in the country. Both <i>Nema</i> and <i>Chosso</i> have their roots in the needs and local knowledge of smallholders. The word <i>Chosso</i> refers to a traditional early warning system used to inform the community members when the quality of the river water is degraded. <i>Nema</i> refers to the prosperity that the project interventions intend to bring to rural communities in terms of increasing productivity and value addition of rice and vegetable cultivation.</p> <p>Chosso is designed to be inclusive, consultative and highly participatory. IFAD is working in partnership with the Ministries of Agriculture, Finance and Environment &amp; Climate Change. <i>Chosso</i> will support many different innovative activities, including: community water-harvesting techniques, community</p>	Ministry of Agriculture and NEMA	IFAD The Gambia Government	Under implementation Nema: 2012-2019 Chosso: 2015-2019	<p>The Chosso project includes upland rainwater harvesting and youth irrigation management capacity in the Water Management for Rice Cultivation subcomponents, as well as tree planting and mangrove restoration in the Community Agroforestry Subcomponent. Therefore, there is a clear linkage to SPCR intervention areas related to “Strengthen stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming” and “Climate-smart ecosystem-based approach to protection, management, conservation,</p>

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	<b>(ASAP) programme</b>	<p>agroforestry, and climate-proof infrastructure. It will also scale up best practices in mangrove restoration; community woodlots and smallholder climate information services, in order to improve the productivity of scarce agricultural lands through enhancement of watersheds.</p> <p>Climate Resilient Agriculture and Adaptation farming activities include Conservation Agriculture and overcoming the challenges to adoption and scaling-up of this climate-smart technology based on the three principles of minimum soil disturbance, permanent organic soil cover and crop rotation.</p> <p>Climate games are being promoted as an innovative learning approach. The games are a simulation of reality where players experience the daily anxiety faced by smallholder farmers in the face of increasing climate-related disasters. Using dice to signify climate threats, and beans to signify currency, participants have to decide what to invest their capital in - 'normal' development versus drought or flood protection - within a simulated three decades of farming seasons.</p>				<p>restoration of traditional farming ecosystems to promote water retention, conservation and soil management (intercropping fruit or native trees within the farming plots) to act as "nutrient pumps," bringing nutrients that are too deep for crops".</p> <p>Finally, the Nema interventions on 2.3.2 Early climate risk information/weather forecasting, generation and dissemination of key weather and climate information to smallholders are also linked to the SPCR's "Strengthening and/or operationalization of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under extreme climate variability", as set out in Concept Note 4, which will build on the Nema's achievements.</p>
<b>3.</b>	<b>Water resources</b>					
<b>3.1</b>	<b>National Water Sector Reform project</b>	<p>Develop supportive legal and institutional environment for integrated water resources management (IWRM), developing IWRM strategies, and strengthening and improving data and information systems. This would also facilitate provision of water supply and sanitation at country level in order to achieve the MDGs as well as the African Water Vision.</p>	DWR	African Water Facility /AfDB /GoTG	Concluded.	<p>The SPCR builds on the outcomes of the NWSR project, and advocates for full implementation of the IWRM Strategy in the country. See Concept Note 3 for additional supportive activities, including steps to make water and sanitation infrastructure climate</p>

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						resilient.
<b>4.</b>	<b>Tourism</b>					
<b>4.1</b>	<b>People's Coast</b>	This was a programme of Eco-Village Design Education (EDE) used to engage communities in the ecotourism area to show that tourism can be harnessed to bring benefit to local situations and build resilience through regeneration of the environment, culture, social cohesion and economic sustainability.	Sandele	COMCEC/GoTG/MoTC & GTB	Concluded May 2015	The SPCR will build on this by supporting regional ecotourism programmes and eco-village development projects – see Concept Note 4.
<b>4.2</b>	<b>Niumi National Park Ecotourism Project</b>	A public / private / community development project to enhance conservation and develop ecotourism facilities, including a community ecotourism camp and tourism enterprise development, in the Niumi National Park, which is part of a transboundary conservation area, in North Bank Region. There will be a	GTB	Donor funding sought; GoTG/GTB /private sector	Proposal development stage; will run from 2017 - 2019	The SPCR will build on this by supporting regional ecotourism programmes and eco-village development projects – see Concept Note 4. Further discussions would be needed, but the SPCR could support some components of the Niumi Park project.
<b>5.</b>	<b>Planning for climate resilient development – (includes key mitigation programmes)</b>					
<b>5.1</b>	<b>Nationally Determined Contribution (NDC) (2015)</b>	<p>Sets out GoTG's voluntary commitments to reduce GHG emissions, under the UNFCCC. Excluding LULUCF and for Low Emissions Scenario, overall emissions will be reduced by about 44.4% in 2025 and 45.4% in 2030.</p> <p><i>Unconditional activities</i> comprise:</p> <ul style="list-style-type: none"> <li>- Afforestation (Plant trees on communal lands to increase forest coverage)</li> <li>- Renewable energy (Install solar PV, wind power and hydro-electric power plants)</li> </ul> <p><i>Conditional activities</i> – for which international funding and/or technology transfer will be needed – comprise:</p> <ul style="list-style-type: none"> <li>- <i>Nerica</i> upland rice: Reduce methane emissions</li> </ul>	GoTG, coordinated by MoECCNAR	Various – funding is being sought	Submitted to the UNFCCC in 2015, for period 2021-2025. Implementation of unconditional contributions e.g. afforestation underway; funding is	The SPCR includes many activities within its investment areas to further the implementation of the INDC, covering afforestation in various forms (see Concept Note 4), renewable energy (CNs 3 and 4), the various energy efficiency measures set out in the NDC (CN3), as well as the waste management-related components of the NDC (CN3). Thus the SPCR to a large degree has adopted most of the NDC components and integrated these within its overarching

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		<p>from flooded rice fields by replacing them with efficient dry upland rice</p> <ul style="list-style-type: none"> <li>- System of rice Intensification: Reduce methane emissions through water management, less flooded areas, reduced fertilizer usage</li> <li>- Reduce transmission losses: Refurbish and upgrade the national grid (from 33Kv to 132Kv) to reduce losses</li> <li>- Efficient lighting: Substitute incandescent light bulbs and raise awareness in the residential sector</li> <li>- Solar water heating: Install solar water heating facilities on public buildings and support them for hotels and the residential sector</li> <li>- Extended Renewable Energy and Energy Efficiency: Energy saving appliances and additional hydro-electric, solar PV and wind power capacities</li> <li>- Efficient Cook-stoves: Reduce firewood and charcoal consumption and the overuse of forest resources</li> <li>- Vehicle Efficiency Standards: Reduce fuel consumption through efficiency standards</li> <li>- Methane Capture and Flaring: Remove methane emissions from landfills</li> <li>- Recycling and Composting: Reduce methane emissions from anaerobic decomposing of organic matter by composting and reduce waste generation by recycling</li> </ul>			being sought for other activities.	framework and investment programmes.
5.2	<b>Nationally Appropriate Mitigation Actions (NAMA)</b>	<p>The Gambian NAMA consists of a list of eight priority mitigation projects and two mitigation/adaptation projects:</p> <ol style="list-style-type: none"> <li>1. Develop a Low Carbon Development Strategy (LCDS) of The Gambia;</li> <li>2. Increase energy production from renewable</li> </ol>				As for the NDC set out above, the SPCR has to a large extent included many of the NAMA activities within the proposed investment programmes. Specifically, concerning the LCDS, the SPCR already



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		<p>sources (Solar &amp; wind)</p> <p>3. Promote the use of energy-efficient cooking stoves</p> <p>4. Reduce energy consumption by reducing transmission and distribution system losses to 15% by 2030</p> <p>5. Improve storage facilities and promote the use of post-harvest technologies</p> <p>6. Restore degraded grazing land through the multiplication and popularization of forage seed planting of multipurpose seed in grazing areas</p> <p>7. Promote and integrated crop-livestock system by planting nitrogen fixing crops and encourage spot and zero burning practices</p> <p>8. Promote the cultivation of high-yielding rice</p> <p>9. Restore and rehabilitate degraded forest lands, protect and conserve wetlands, and develop greenbelts around human settlements, national forests, wildlife parks and protected areas through afforestation and reforestation activities.</p> <p>10. Integrated Management of urban and peri-urban solid and liquid waste.</p>				<p>constitutes the overarching strategy for the implementation of the NCCP and thus for The Gambia's coordinated response to climate change; as stated in 5.4, the LECCRDS will pick up key brown economy issues not covered by the four SPCR programmes.</p> <p>NAMA projects 2, 3 and 10 are largely covered by the activities developed for Concept Note 3 of the SPCR.</p> <p>NAMA projects 5, 6, 7 and 9 are largely covered by the activities developed for Concept Note 4 of the SPCR.</p>
5.3	<b>National Adaptation Planning (NAP)</b>	<p>The National Adaptation Planning process is a global initiative supported by UNDP. In The Gambia, a Stocktaking Report was developed in mid-2015, prior to the development of the National Climate Change Policy and the implementation of the SPCR planning process. Thus the Roadmap presented in this report will need to be updated to reflect the significant developments since that time.</p>	<p>DWR/ MoECCNAR, via UNFCCC Focal Point</p>	<p>UNDP</p>	<p>Stocktaking Report and Roadmap developed. Funding not yet received for the remainder of the process.</p>	<p>It will be critical for the NAP to be developed within the broader framework of the SPCR, to avoid parallel processes. Preliminary agreement is that the NAP would pick up some of the key planning-related areas identified in the SPCR, which are reflected in the NAP Stocktaking Report. Further discussions will be</p>

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						needed to identify the specific SPCR activities that the NAP will cover.
5.4	<b>Low emissions climate resilient development strategy (LECRDS)</b>	Still under development.	MoECCNAR coordinating , via UNFCCC Focal Point	UNDP	Revised ToR developed, contracting expected in May/June 2017.	The LECRDS is being designed to pick up and develop strategic interventions for key brown economy issues not covered by the four SPCR programmes.
5.5	<b>GCCA Component 2</b>	The key outcome of the GCCA Component 2 was the development of a draft National Climate Change Policy (NCCP), which sets out the overarching policy directions for a coherent and integrated response to climate change in The Gambia. This was based on a strongly participatory process and the development of a number of Gap Analyses and specialist reports, including an Independent Institutional Assessment.	DWR / MoECCNAR	EU	Completed 2016	The SPCR follows directly from the NCCP, in that it is the overarching climate resilient development strategy being developed to implement the policy provisions and achieve the goal and policy objectives of the NCCP. The vision developed in the NCCP is thus the guiding vision for the SPCR. A critical first step for the SPCR will be to ensure that the NCCP, which is still in draft form, is formalised, and the institutions and structures, including the Gambia Climate Change Fund (GCCF), which are provided for by the NCCP, are set in place. The National Climate Change Council and the Inter-Ministerial Committee on Climate Change will be the instrumental structures for oversight and coordination of the SPCR, respectively.
<b>6.</b>	<b>Climate finance</b>					

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6.1	<b>UNDP Climate Change Adaptation programming</b>	<p>Key areas covered are:</p> <ul style="list-style-type: none"> <li>- Address climate information gaps, and also to enhance capacity for key stakeholders in government to use and update this climate information data for mainstreaming adaptation into national and sectoral planning;</li> <li>- Undertake vulnerability mappings in sectors and cross-cutting areas;</li> <li>- Appraise and prioritization of sectoral options;</li> <li>- A review of institutional arrangements for promoting the integration of climate change policies priorities into budgetary and expenditure management;</li> <li>- A review of the integration of climate change objectives within the budgetary process, including as part of budget planning, implementation, expenditure management and financing;</li> <li>- NAP stock-taking and preparation of a road-map;</li> <li>- Laying the ground for a Climate Public Expenditure and Institutional Review (CPEIR).</li> </ul>	MoECCNAR	UNDP	Ongoing	<p>The SPCR will build upon a number of the proposed / implemented activities of the UNDP climate change adaptation programming, including the financial and budgetary areas. The SPCR will do this by specifically implementing a climate change budget coding and tracking system, and the Gambia Climate Change Fund. Both of these activities are designed to leverage additional funding, including by consolidating and making visible the investments of the GoTG in climate resilience planning and implementation.</p>
6.2	<b>Green Climate Fund (GCF) Readiness Programme</b>	<p>The Green Climate Fund Readiness Programme builds countries' capacity to access the Green Climate Fund, through preparing countries to plan for, manage, disburse and monitor climate financing.</p> <p>The GCF Readiness Programme helps strengthen national climate finance institutional frameworks, assists in identifying climate change activities with high funding priority for the countries, and facilitates increased investment of the private sector in climate relevant areas.</p> <p>Climate finance readiness reflects a country's capacity to:</p>	NDA of The Gambia (i.e. the MoFEA)	GCF	Current (initiated in March 2017)	<p>It would be critical that the GCF process in TG is fully anchored in the SPCR, which is The Gambia's overarching strategy to implement the NCCP, particularly with respect to identifying climate change activities with high funding priority for the countries, and facilitating increased investment of the private sector. The GCF has common synergies with the SPCR in support of capacity building and mainstreaming cross-cutting</p>

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		<ul style="list-style-type: none"> <li>• plan for programme requiring funding</li> <li>• access funding,</li> <li>• deliver climate finance, and</li> <li>• monitor, evaluate and report on expenditures.</li> </ul>				<p>issues in particular, gender, women, youth and people affected by the programme (PAP) in addition to indigenous communities most vulnerable to effects of climate change</p> <p>The GCF activities reflecting on a country's capacity to plan for, access, deliver, monitor and report on climate finance is in line with SPCR support to tracking and coding climate resilience expenditures within the national budget.</p>
<b>7.</b>	<b>Climate observations, monitoring, and climate services</b>					
<b>7.1</b>	<b>First National Communication to the UNFCCC</b>	Standard UNFCCC process to assess the status of national climate resources, production of an emissions inventory, vulnerability assessment, and to identify priority adaptation/mitigation actions	DWR		Delivered to UNFCCC in 2003	Perhaps to be viewed as the earliest project that laid the basis for the SPCR. The climate change projections presented in this document have been referenced in various reports.
<b>7.2</b>	<b>Second National Communication to the UNFCCC</b>	As above (7.1)	DWR	GEF	Delivered to the UNFCCC in 2012	Update of 7.2; new climate change projections produced.
<b>7.3</b>	<b>Third National Communication to the UNFCCC</b>	As above (7.1)	DWR	GEF/UNEP	In progress. Emissions inventory completed.	Update of 7.3.
<b>7.4</b>	<b>UNECA/ACPC Technical Support Programme to The Gambia</b>	<p>Main objectives:</p> <ul style="list-style-type: none"> <li>• Strengthening the climate data, information, science, knowledge and capacity base in The Gambia</li> <li>• Improving coordination and synergy building</li> </ul>	DWR, many GoTG Ministries, numerous UN and	UNECA, ACPC	Closed in 2014 on withdrawal of funding with only	A programme of modernisation and upgrading of meteorological and hydrological resources taken over by the EWS project (7.5).

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	<b>on Climate and Development</b>	among partners and institutions engaged in implementation of climate change and development activities in The Gambia.	other bodies		partial completion of work.	
<b>7.5</b>	<b>GoTG/GEF/UNEP LDCF Project for Strengthening of The Gambia's Early Warning System, Phases I and II</b>	<p>Planned outcomes of Phase II:</p> <ol style="list-style-type: none"> <li>1. The Gambia National Meteorological Services is supported in its transition to becoming a financially sustainable Meteorological Agency</li> <li>2. Hydro-meteorological infrastructure is upgraded/installed and maintained that will cover the full needs for 'optimal performance of EWS' as identified by recent needs assessment reports in the Gambia</li> <li>3. A critical mass of skilled human resources is able to operate the Gambia Early Warning System and perform medium and long-term climate adaptation planning beyond the project</li> <li>4. Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans</li> </ol>	DWR	GEF/LCDC/UNEP/UNDP	Phase I completed; Phase II in progress	A substantial project of modernisation and upgrading of meteorological and hydrological resources. The SPCR will continue to develop the modernisation and upgrading in areas not covered by the EWS Project. The EWS project covers time scales of only a few days, thus the SPCR needs to introduce additional resources required for the longer ranges. Original project design supported by three gap analyses, one by Mr. John Peacock and two by the UKMO.

## Annex 10 Priority research needs identified in the National Climate Change Policy

The draft National Climate Change Policy (2016) identified the following as some of the priority research needs to be included in the National Research Framework on Climate Change, based on the Gap Analyses carried out during the policy development process:

- *Economics of climate change*: a study should be commissioned to understand the economics of climate change in The Gambia. A systematic assessment focused on short- and medium-term priorities at sector and cross sector levels should be implemented to quantify the impacts of climate change, particularly for health burdens, agriculture and food security, water and flood risks, and ecosystem services. Such a study should investigate the impacts and economic costs of climate change; the costs of adaptation; and the potential for low carbon growth.
- *Water*: research to develop a thorough understanding of the river basin hydrology and hydrogeology, to inform systematic control of water abstraction from surface and groundwater sources, as well as impounding above a prescribed minimum volume. This research should be used to develop a River Basin Management Plan that balances available resources with projected demand under a given climate change scenario, addressing also the transboundary issues.
- *Fisheries*: research to understand the fish community structure in The Gambia estuary, as an important tool in the management of the fisheries of the estuary; determine and assess direct and indirect ecological, social and economic impacts of climate change, including sea level rise, on fisheries resources, associated ecosystems, fishing communities and aquaculture; develop multi-species bio-economic models to understand more accurately the realistic impact of climate change on the ecosystem and the fisheries resources; identify and assess localised priority fisheries sector adaptation measures, appropriate at different scales (fishers, fishing communities, and sector-wide).
- *Forests*: enhanced understanding of the impacts of climate change on forest resources; and research and development on alternative socio-economic uses of forest resources (e.g. medicinal trees and herbs).
- *Health*: assessments of the range of potential health impacts of climate change, to provide important information about future impacts on vulnerable areas and populations, and to inform the selection of appropriate adaptation options.
- *Energy*: research on (i) energy consumption patterns and supply problems; (ii) non-economic drivers of fuelwood economy; (iii) conditional requirements for feasibility of renewable fuelwood supplies; (iv) energy sector contributions and costs to the Gambian economy; (v) spatial and temporal distributions of wind velocities at utility scale turbine heights; and (vi) feasibility of biomass as feedstock for electricity generation.
- *Infrastructure*: (i) disaggregation of technical and non-technical electricity transmission losses and marginal costs of loss reduction; (ii) runoff, sediment transport and control in urban catchments; (iii) safety of recycling of sediments from eroded catchments; (iv) interaction between

coastal morphodynamics and coastal engineering; and (v) contamination of bottom estuary and coastal sediments at sewage outfalls.

- *Tourism:* (i) stakeholder familiarity facts on climate change; (ii) tourists' perceptions of climate impacts; (iii) long-term prospects of beach resort tourism; (iv) cultural impacts of tourism in small communities; (v) optimal use of surplus (bed) capacity in lean season; (vi) second/alternative choice destination of tourists and their attractions; and (vii) qualifying and amplifying factors behind customer satisfaction, loyalty and financial performance of sector.
- *Financial services:* (i) geographical and temporal dimensions of weather and climate related damages, losses and insurance coverage; (ii) climate amplification of risks faced by financial service providers and clients; (iii) households' risk-taking behaviour within the context of disaster relief and insurance; and (iv) feasibility studies on introducing new insurance products for frequent uninsured climate-related damages and losses.
- *Enterprise development:* research on innovative mitigation and adaptation technologies that could serve as an entry point for small and medium enterprises (SMEs) to invest in as a profitable enterprise.

Implementation of the National Research Framework on Climate Change should assist with meeting the goal set out in the Second National Communication to the UNFCCC: By 2025, Gambian researchers and scientists should be in a position to conduct joint/collaborative research in a broad spectrum of thematic areas.

## Annex 11 Results-based Logical Framework for the SPCR of The Gambia

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>GOAL</b> Achieve the mainstreaming of climate resilience into national planning, budgeting, decision-making, and programme implementation, through effective institutional mechanisms, coordinated financial resources, and enhanced human resources capacity, across the public and private sectors.</p>	<p><b>IMPACT</b> Integration of climate resilience considerations into development/sectoral planning and strengthened institutions, for responding to climate risks by the public and private sector</p> <p>Effective mechanisms for regular monitoring, evaluation and reporting on "Meeting the targets and goals of the SPCR"</p>	<p>All population in The Gambia</p>	<p><u>Indicator</u> Successful and sustained enabling environment and responses to climate change</p> <p><u>Sources:</u> National and international statistics and reports</p> <p>Project reporting and evaluation</p>	<p>The indicative targets and timeframes for the SPCR will be formulated as the Concept Notes are developed into a full project proposals, and detailed programming is synergised with complementary initiatives.</p>	<p>Impacts of climate change do not outpace project resilience/adaptation /mitigation responses (this will be alleviated by the project's interventions targeted to build resilience)</p>
<p><b>Project purpose:</b> <i>To develop SPCR Investment Strategy for the government's long-term vision to achieve a climate resilient development inclusive of vulnerable economic sectors targeting social groups amongst women, youth, indigenous peoples, local communities, and</i></p>	<p><b>Outcomes:</b> Better understanding and knowledge of the state of government's long-term vision to achieve a climate resilient development inclusive of vulnerable economic sectors targeting social groups amongst women, youth, indigenous peoples, and local communities, and ecosystems resilience</p>	<p><b>Beneficiaries:</b> National Government, Sector Ministries, Regional Provinces, Technical Teams and local population</p>	<p><b>Outcome indicators:</b> National Government, Regional Provinces and Sector Ministries annually report on the status of government's long-term vision to achieve a climate resilient development</p>	<p><b>Progress anticipated in the medium term:</b> Annual National Government, Sector Ministries and Regional Provinces report on government's long-term vision to achieve a climate resilient development</p>	<p><b>Assumption statement:</b> Acceptance of the report content</p>



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<i>ecosystems resilience.</i>					
HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Pillar 1: Developing the enabling environment for climate resilience</b>	Improved enabling environment for climate resilience	National Government, Regional Provinces, Sector Ministries and M&E Units,	SPCR strategy programs and action plans adopted by National Government and Regional Provinces  <u>Sources:</u> Project reporting and Evaluation	The indicative targets and timeframes will be formulated as Concept Note 1 is developed into a full project proposal.	Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)
<b>Component 1.1:</b> Policy, legislative and institutional review and development	Improved policy, legislative and institutional capabilities and abilities	National Government, Sector Ministries and M&E Units	Policy, legislative and institutions adopted by National and regional governments  <u>Sources:</u> Project reporting and Evaluation  Number of regional governments monitoring, assessing, and reporting to National Climate Change Authority on climate resilience measures. <u>Sources:</u> Project Reporting and Evaluation	National Policy indicators, governance and monitoring compatible with global monitoring systems.	Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)

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<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
1.1.1 Promulgate the draft NCCP and develop a Climate Change Act;	1.1 Climate Change Act prepared	National Government, Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Approved NCCP and formalised Climate Change Act.	Official set up of The Gambia National Climate Change Fund, Set up of National Climate Change Commission	Restrictions in dissemination of the Climate Change Act as a government document
1.1.2 Comprehensively integrate climate change into National Development Plans	1.2 National Development Plans prepared	National Government, Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Climate change integrated into National Development Plans	TBC	Limited circulation of Development plans create information gaps
1.1.3 Revise key legislation and their related regulations and strategies to mainstream climate change	1.3 Revised legislations, regulations and strategies	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Revised climate change-integrated legislation, regulations and strategies	TBC	Political will is present to revise legislation
1.1.4 Develop a comprehensive framework for integrating climate risks and resilience into key other and sectoral policies and regulatory standards	1.4 Developed framework for integrating climate risks and resilience sectoral policies and regulatory standards	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Comprehensive framework for integrating climate risks and resilience into key other and sectoral policies and regulatory standards	TBC	Limited circulation creates information gaps
1.1.5 Review and approve the (Draft) National Strategic Environmental Assessment Policy and its Guidelines and Procedures	1.5 Approved National Strategic Environmental Assessment Policy and its Guidelines and Procedures	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	National SEA Policy and Guidelines	TBC	Sufficient capacity is in place for the review and approval process
<b>Component 1.2:</b> Enhanced mobilisation of climate finance	National Climate Change Fund Established  Capacities established for climate change resilience/adaptation assessment and	National and Regional Governments, Sector Ministries, Farm Organizations, private sector and consultants,	Number of Regional governments accessing climate finance and implementing climate resilience programs <u>Sources:</u> Project reporting and evaluation	Climate Fund Governance and M&E systems assessment reports validated at county and national levels by end month 7 and regional level by end months 8	National and Regional level stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)

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	<p>monitoring in the country.</p> <p>Financial management techniques for improving climate change resilience through budget coding, registry systems</p> <p>Impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, Green labels</p> <p>Developed CC budget coding and tracking</p> <p>Government introduced policies to leverage private sector investment</p> <p>Micro-finance supported farmer organisations and cooperatives</p> <p>Supported the piloting of Local Climate Change Action Plans (LCCAPs) and assisted development of procedures for channelling and access to the funds from the GCCF, and supported the process through which national and local governments ensured the content of the plans</p>		<p>Monitoring by national and local authorities and project stakeholders</p> <p>Number of private sectors participating in implementing climate resilience projects</p> <p><u>Sources:</u> Monitoring by national and local authorities and project stakeholders strategies and plans Project reporting and evaluation</p> <p>Number of farm organizations and cooperatives accessing financing from SMEs</p> <p><u>Sources:</u> National annual reports National census-based poverty map Project reporting and evaluation</p>		
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	reflected in policies and plans at all levels				
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>1.2.1</b> Operationalise the Gambia Climate Change Fund;	2.1 Established Climate Change Fund	National Government Sector Ministries Agencies. NGOs. Private Sector, Farm Organizations, Research Institutes	Gambia Climate Change Fund	TBC	National Government willing to provide financing and budget allocation to the National Climate Change Fund
<b>1.2.2</b> Commission an impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels	2.2 Completed studies on innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels	National Government Sector Ministries Agencies. NGOs. Private Sector, Farm Organizations, Research Institutes	Feasibility study on innovative climate financing mechanisms	TBC	National Government willing to allocate funds for consultancy
<b>1.2.3</b> Develop the climate change budget coding and tracking registry	2.3 Developed Climate Change Code and tracking Registry System	National Government, Sector Ministries	Climate Change Code and tracking Registry System	TBC	National Government willing to allocate funds for consultancy
<b>1.2.4</b> Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives	2.4 Developed New Policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives	National Government, Sector Ministries	Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development	TBC	National Government willing to allocate funds for consultancy

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1.2.5 Develop micro finance products and provide support to local government, farmer organisations and cooperatives, other user groups and entrepreneurs to access and use climate finance at local levels	2.5 Developed micro finance products	Farm Organizations, Local Communities, Youth and Women, Entrepreneurs	Micro finance products and support procedures	TBC	National Government willing to allocate funds for consultancy
<b>Component 1.3:</b> Climate change research, capacity development and communication	Concept paper on capacity development and communication prepared	National and Regional Coordination Teams	Number of government decision-makers with increased knowledge of climate change resilience  <u>Sources:</u> Project reporting and Evaluation	National and Regional gaps in climate resilience governance and M&E compiled and prioritized	National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by with project support for the design of formal information development and communication strategies)
<b>Component 1.4:</b> Furthering climate services investments and systems	Climate Service Systems and Investments established	National and Regional Coordination Teams	Number of government decision-makers with increased knowledge of climate change resilience  <u>Sources:</u> Project reporting and Evaluation	National and Regional gaps in climate resilience governance and M&E compiled and prioritized	National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by project support for the design of formal information development and investment strategies)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>

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1.4.1 Develop all observations systems, climatic and sectoral, automated as far as possible, and full maintained, to the levels required for climate services and research within The Gambia and to satisfy international requirements;	4.1 Developed automated observation systems	National Government, Sector Ministries, Agencies, Farm Organizations	Automated observation systems	TBC	National Government willing to allocate funds for observation systems and climate change services
1.4.2 Provide real time information dissemination through appropriate communications systems to central databases for at least the climate observations;	4.2 Provided Real time based information	National Government, Sector Ministries, Agencies, Farm Organizations	Appropriate communications systems	TBC	National Government willing to allocate funds for information dissemination through appropriate communications systems to central databases for at least the climate observations
1.4.3 Provide equipment for climate and, where necessary, sectoral databases;	Provided Equipment	National Government, Sector Ministries	Equipment for climate and sectoral databases	TBC	National Government willing to allocate funds for equipment
1.4.4 Provide internet in all GoTG agencies involved with the production, dissemination, or receipt of climate services;	Provided internet	National Government, Sector Ministries, Agencies	Internet systems	TBC	National Government willing to allocate funds for internet
1.4.5 Provide all computer and software facilities required to manage data receipt, storage, access, visualisation, climate service creation and dissemination	Provided Computers and software facilities	National Government, Sector Ministries, Agencies	Computer and software facilities	TBC	National Government willing to allocate funds for computers and software facilities

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<p><b>Component 1.5:</b> Developing the climate resilience monitoring, evaluation and reporting system</p>	<p>Climate resilience monitoring, evaluation and reporting system developed</p>	<p>National and Regional Coordination Teams</p>	<p>Number of government decision-makers with increased knowledge of climate change resilience, monitoring, evaluation and reporting system</p> <p><u>Sources:</u> Project reporting and Evaluation</p>	<p>National and Regional gaps in climate resilience governance and M&amp;E compiled and prioritized</p>	<p>National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by project support for the design of formal information development and monitoring, evaluation and reporting)</p>
<p><b>Resources:</b></p> <p>Total: US\$28,850,000 SPCR Fund Grant: US\$ .... and The Gambia Government in kind contribution: US\$ ...</p>					
<p><b>HIERARCHY OF OBJECTIVES</b></p>	<p><b>EXPECTED RESULTS</b></p>	<p><b>REACH</b></p>	<p><b>PERFORMANCE INDICATORS</b></p>	<p><b>INDICATIVE TARGETS TIMEFRAME</b></p>	<p><b>ASSUMPTIONS / RISKS</b></p>
<p><b>Pillar 2:</b> <b>Climate resilient land use mapping, planning and information systems</b></p>	<p>Improved climate resilient land use mapping, planning and information systems</p>	<p>National Government, Regional Provinces, Sector Ministries and M&amp;E Units,</p>	<p>SPCR strategy programs and action plans adopted by National Government and Regional Provinces</p> <p><u>Sources:</u> Project reporting and Evaluation</p>	<p>The indicative targets and timeframes will be formulated as Concept Note 2 is developed into a full project proposal.</p>	<p>Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)</p>
<p><b>Component 2.1:</b> Data gathering to inform climate resilient land use planning</p>	<p>Improved organizational and technical structures of land use and data collection, monitoring and reporting mechanisms</p>	<p>Municipalities, Sector Ministries and M&amp;E Units</p>	<p>Data gathered</p> <p><u>Sources:</u> Project Reporting and Evaluation</p> <p>Number of municipalities monitoring, assessing, and reporting to National Climate Change Authority on land degradation measures. <u>Sources:</u> Project Reporting</p>	<p>National Land Use and Planning indicators governance and monitoring compatible with global monitoring systems.</p>	<p>Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)</p>

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			and Evaluation		
	Adequate resources mobilized for functional and regular observation mechanism and reporting process established at municipal, national and regional levels	Municipal Councils, Sector Agencies, Civil Society, NGOs, CBOs	Total hectares included within protected areas system in the project sites  <u>Sources:</u> Project Reporting and Evaluation	Municipal and National Governance and M&E budgets finance adequately the municipal and national governance and M&E action Plan	National government willing to mobilise adequate resources
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
2.1.1 Survey coastal zones structures by technical experts;	1.1 Strategic assessment, including climate change considerations, conducted for target coastal landscapes. Economic valuations completed comparing the coastal landscape level costs and benefits. Coastal Ecosystem-based Resilience/Adaptation strategies completed and operational for selected eco-regions	Municipal Councils, National Government, Sector Agencies,	Functional and adequate Municipal and National Task Teams set and put in place	TBC	Classified information on coastal zones and restricted areas available



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2.1.2 Survey Urban areas and demarcation of land in accordance with effective use	1.2 Plans for infrastructure, Industrialization, Resettlement, Waste Disposal, Recreational prepared	Municipal Councils, National Government, Sector Agencies,	Functional and adequate Municipal and National Task Teams set and put in place	TBC	Land Use and Resource Management including wetlands/Riparian Reserves conflicts
2.1.3 Survey Rural Areas and land allocation for farming and resettlement	1.3 Land Survey Maps prepared	Local Authorities, Farmers, Organizations, Entrepreneurs	Functional and adequate Municipal and National Task Teams set and put in place	TBC	Land Use and Resource Management including wetlands/Riparian Reserves conflicts
2.1.4 Determine Cross-sectoral interventions	1.4 Topographical Maps prepared	Municipalities, National Government, Private sector, Developers, Farmers, Fishermen	Functional and adequate Municipal and National Task Teams set and put in place	TBC	Land Use and Resource Management including wetlands/Riparian Reserves conflicts
HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Component 2.2:</b> Establish a central information management system based on GIS	National level GIS and Data Base and M&E systems assessed  Capacities established for climate change resilience/adaptation assessment and monitoring	Municipal Councils, National Government and Regional Coordination Teams and consultants,	Number of Municipalities Using GIS for strategic programs on Land Use and Planning  <u>Sources:</u> Project Reporting and Evaluation Monitoring by national and local authorities and project stakeholders	GIS and M&E systems assessment reports validated at municipal and national levels periodically	National and Municipal level stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)  Proposed interventions are able to deliver GIS results (this will be supported by strategic and participatory planning implemented under Component One that will

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					identify and prioritize actions based upon local needs.)
<b>Component 2.3:</b> Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the existing situation	Cadastral maps prepared	Municipal, National, and Regional Coordination Teams	<p>Number of government decision-makers with increased knowledge of basic cadastral maps principles and practices</p> <p><u>Sources:</u> Project Reporting and Evaluation Determined by cadastral maps monitoring</p> <p>Number of Municipalities replicating cadastral maps principles and practices within the target areas</p> <p><u>Sources:</u> The Municipal Council Strategy Process implemented will verify results</p> <p>Project Reporting and Evaluation Report</p>	Municipal Council County, National and Regional gaps in cadastral maps, M&E compiled and prioritized periodically	<p>National, Municipal, Regional, provincial and district level stakeholders are receptive to project's cadastral maps knowledge building approach (this will be supported by with project support for the design of formal information development and awareness for outreach strategies)</p> <p>Government is willing and capable of directing financing towards the support of cadastral maps, soil maps</p>
<b>Component 2.4</b> Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development, and	Land Policy and overarching Land Act prepared	Municipal, National, and Regional Provinces	<p>Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices</p> <p><u>Sources:</u> Project Reporting</p>	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Land Regulatory Commission may lack capacity and may be constrained by institutional and administrative challenges posing the risk of non-performance and non-

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governance			and Evaluation Determined by Land Policy, Land Act and Practices monitoring		delivery
<b>Component 2.5</b> Cross-sectoral updating, development and publication of relevant Policies and Acts taking account of climate resilience in addition to other national development objectives	5.1 Publication of relevant Policies and Acts prepared	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk
<b>Component 2.6</b> Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact	6.1 Publication of a national land use plan prepared	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk
<b>Component 2.7:</b> Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions	7.1 Updated policies, plans and maps	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk

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<b>Resources:</b> Total: US\$45,000,000 SPCR Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...					
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Pillar 3: Developing climate resilient infrastructure, services and energy systems</b>	Climate resilient infrastructure, services and energy systems	National Government, Regional Provinces, Municipalities, civil society, private sector, academia	SPCR strategy programs and action plans adopted by National Government and Regional Provinces  <u>Sources:</u> Project reporting and Evaluation	The indicative targets and timeframes will be formulated as Concept Note 3 is developed into a full project proposal.	Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)
<b>Component 3.1:</b> Climate-resilient integrated waste management	Integrated climate resilient waste management	National Government, Regional Provinces, Municipalities	Waste Management strategy programs and action plans adopted by National Government, Regional Provinces and Municipalities  <u>Sources:</u> Project reporting and Evaluation	The indicative targets and timeframes will be formulated as Concept Note 3 is developed into a full project proposal.	Capacity of National, Regional Provinces and Municipalities levels do not match project activity demands (this will be alleviated by a project capacity building strategy)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress/Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
3.1.1 Develop a National Waste Management Strategy	1.1 Waste management strategy developed	National Government, Regional Provinces, Municipalities, communities	National Waste Management Strategy	Within one year of project inception	Sufficient capacity to manage the process to develop the Strategy

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3.1.2 Conduct a waste survey in GBA and Growth Centres to identify opportunities for recycling businesses, particularly to target women and youth	1.2 Conducted survey in GBA for waste and recycling	Local communities, National Government, Regional Provinces, Municipalities	Waste survey	Within one year of project inception	Restriction in conducting survey in GBA for waste
3.1.3 Identify socially and environmentally acceptable waste dump sites in the GBA	1.3 Identified dumpsite in GBA	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Waste dump sites identified	Within one year of project inception	Risk of public opposition to identifying socially and environmentally acceptable waste dump sites in the GBA
3.1.4 Develop standards and design and implement dumpsites and landfills in the GBA to appropriate standards, with access roads, embankments, fencing, drainage, weigh scales and scale house as appropriate	1.4 Developed standards and designed and implemented dumpsites and landfills in the GBA	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Standards developed and waste sites designed and implemented	To be developed during detailed planning	Restriction in developing standards and designing and implementing dumpsites and landfills in the GBA
3.1.5 Assess the equipment for proper waste collection in each municipality or growth centre (e.g. waste compactors, bulldozers, back hole/with front loader and dump trucks, skip buckets, trailers)	1.5 Assessed the equipment for proper waste collection in each municipality or growth centre	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Assessment of equipment for proper waste collection	To be developed during detailed planning	Sufficient capacity for assessing the equipment for proper waste collection in each municipality or growth centre
3.1.6 Close all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites	1.6 Closed all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Community dump sites closed	This will depend on prior identification of new formal dump sites and successful operationalization of household waste collection	Community resistance to closing all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites will be adequately managed

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<p>3.1.7 Design and implement a nation-wide awareness raising campaign to sensitise the public about the rationale for integrated waste management, and climate resilient infrastructure and services; this should include <i>inter alia</i> the health impacts of illegal waste dumping, the need to keep drains free of waste and climate-related increased flooding risks</p>	<p>1.7 Designed and implemented a nation-wide awareness raising campaign plan</p>	<p>Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector</p>	<p>Integrated strategy document for national awareness raising campaign Number of national and regional awareness raising events</p>	<p>Design to be initiated within 6 months of project inception, awareness raising campaign to continue for duration of project, and be institutionalised thereafter</p>	<p>Political will for designing and implementing a nation-wide awareness raising campaign plan</p>
<p><b>HIERARCHY OF OBJECTIVES</b></p>	<p><b>EXPECTED RESULTS</b></p>	<p><b>REACH</b></p>	<p><b>PERFORMANCE INDICATORS</b></p>	<p><b>INDICATIVE TARGETS TIMEFRAME</b></p>	<p><b>ASSUMPTIONS / RISKS</b></p>
<p><b>Component 3.2:</b> Climate-resilient Water and Sanitation</p>	<p>Developed Climate-resilient Water and Sanitation infrastructure</p>	<p>Urban areas of the Greater Banjul area and towns in Regional Provinces</p>	<p>Number of towns developed with climate resilience infrastructure  <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders</p>	<p>Climate-resilient Water and Sanitation and M&amp;E systems assessment reports validated at municipal. Regional Provinces and National Government  Timeframe to be developed during detailed project planning</p>	<p>National, municipal and regional levels stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)  Proposed interventions are able to deliver Climate-resilient Water and Sanitation results (this will be eradicated by strategic and participatory planning.)</p>
<p><u>Inputs and activities:</u></p>	<p><u>Outputs:</u></p>	<p><u>Beneficiaries:</u></p>	<p><u>Output indicator:</u></p>	<p><u>Progress /Timeframe:</u></p>	<p><u>Assumption statement:</u></p>

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3.2.1 Implementation of IWRM	2.1 IWRM implemented	Urban areas of the Greater Banjul area and towns in Regional Provinces	IWRM implemented	Timeframe to be developed during detailed project planning	Restriction in awareness, sensitization and public consultation
3.2.2 Update the SNC Lavan Water and Sanitation Master plan up to 2030 and implement plan – this should entail <i>inter alia</i> the location of new boreholes away from heavily built up areas to minimize runoff and facilitate recharge of aquifers	2.2 Updated SNC Lavan Water and Sanitation Master plan up to 2030 and implement plan	Urban areas of the Greater Banjul area and towns in Regional Provinces	Updated Master Plan	Timeframe to be developed during detailed project planning	Lack of capacity for updating the SNC Lavan Water and Sanitation Master plan up to 2030 and implementing the plan
3.2.3 Develop a Rural Water Supply Programme to attain 100% coverage in the Gambia	2. Rural Water Supply Programme to attain 100% coverage in the Gambia developed	Urban areas of the Greater Banjul area and towns in Regional Provinces and local communities	Rural water supply programme	Timeframe to be developed during detailed project planning	Sufficient capacity and raw water for developing a Rural Water Supply Programme to attain 100% coverage in the Gambia
3.2.4 Put in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level	2.4 Robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level in place [and functioning efficiently]	Rural areas of The Gambia and towns in Regional Provinces and local communities	Robust village water supply maintenance mechanism	Timeframe to be developed during detailed project planning for putting in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level	Capacity for putting in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level
3.2.5 Increase the density of observation boreholes to monitor the groundwater extraction rates and possible relocation of boreholes due to salt water intrusion	2.5 Increase the density of observation boreholes	Urban areas of the Greater Banjul area and towns in Regional Provinces and local communities	Density of observation boreholes	Timeframe to be developed during detailed project planning for increasing the density of observation boreholes	Capability for increasing the density of observation boreholes
3.2.6 Develop a treatment plant, for the Banjul sewage system	2.6 Treatment plant for Banjul Sewage system in operation	Urban areas of the Greater Banjul area	Treatment plant for Banjul Sewage system	Timeframe to be developed during detailed project planning for developing a	Political will in place for developing a treatment plant, for the Banjul sewage system

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				treatment plant, for the Banjul sewage system	
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 3.3:</b> Climate resilient roads and Drainage Infrastructure	country level climate resilient roads and drainage infrastructure governance and M&E systems assessed	National and Regional Provinces	Number of municipalities implementing climate resilient roads and drainage Infrastructure governance and M&E systems strategic programs <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders	Climate resilient roads and drainage infrastructure governance and M&E systems governance and M&E systems assessment reports validated at municipal, regional and national levels	National, Regional and Municipal levels stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>3.3.1</b> Review and modify existing policies and strategies on roads and bridges to ensure climate resilient standards are applied, including appropriate drainage systems along their corridors	3.1 Modified policies and strategies	National Government, Municipalities and Regional Provinces	Modified policies and strategies	Timeframe TBC for reviewing existing policies and strategies	Capacities for reviewing existing policies and strategies
<b>3.3.2</b> Update and design the Kotu stream drainage system from Lamin to Badala Park	3.2 Updated and designed the Kotu stream drainage system from Lamin to Badala Park	National Government, Municipalities and Regional Provinces	Updated and designed Kotu stream drainage system	Timeframe TBC for updating and designing the Kotu stream drainage system from Lamin to Badala Park	Restriction in updating and designing the Kotu stream drainage system from Lamin to Badala Park



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3.3.3 Design and implement drains for all major roads in the GBA including Kombo Coastal Roads	3.3 Designed and implement drains for all major roads in the GBA including Kombo Coastal Roads	National Government, Municipalities and Regional Provinces	Functional and adequate National, Regional and Municipalities Task Forces set up in place	Timeframe TBC for designing and drains for all major roads in the GBA including Kombo Coastal Roads	Sufficient capacity for designing and drains for all major roads in the GBA including Kombo Coastal Roads
3.3.4 Provide a comprehensive institutional framework for the maintenance of urban drains	3.4 Provided a comprehensive institutional framework for the maintenance of urban drains	National Government, Municipalities and Regional Provinces	Drains for all major roads in the GBA	Timeframe TBC for providing a comprehensive institutional framework for the maintenance of urban drains	Capacities for providing a comprehensive institutional framework for the maintenance of urban drains
HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Component 3.4:</b> Climate resilient energy infrastructure	Country level climate resilient energy infrastructure governance and M&E systems assessed	National and Regional Provinces and Municipalities	Number of Municipalities and Regional Provinces implementing climate resilient energy infrastructure strategic programs <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders	Climate resilient energy infrastructure governance and M&E systems assessment reports validated at national levels	National, Municipality and Regional Provinces levels stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
3.4.1 Explore the possibility of immediately replacing NAWEC's existing aged generators.	4.1 NAWEC's existing aged generators replaced	National Government, Municipalities and Regional Provinces	Replaced generators	TIMEFRAME TBC for replacing NAWEC's existing aged generators	Know-how replacing NAWEC's existing aged generators

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3.4.2 Expedite the feed-in-tariff study to encourage private sector participation in the Energy Sector	4.2 Completed Feed-in-Tariff studies	National Government, Municipalities and Regional Provinces, Technical Teams and consultant	Feed-in Tariff Study	Timeframe TBC for undertaking studies on Feed-in-Tariffs	Willingness to allocate funds for undertaking studies on Feed-in-Tariffs
3.4.3 Install solar and wind mini-grids to compliment NAWEC's generating capacity	4.3 Solar and wind mini-grids, complimenting NAWEC's generating capacity installed	National Government, Municipalities and Regional Provinces	Solar and wind mini-grids	Timeframe TBC for installing solar and wind mini-grids to compliment NAWEC's generating capacity	Restriction in installing solar and wind mini-grids to compliment NAWEC's generating capacity
3.4.4 Support SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector	4.4 SMEs (tailoring shops, fish markets, vegetable vendors etc.) supported with solar powered systems to boost the sector	National Government, Municipalities and Regional Provinces	Support systems for SMEs	Timeframe TBC for supporting SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector	Political will for supporting SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector
3.4.5 Institute urgent human resources development together with a substantial investment of material resources	4.5 Human resources developed together with a substantial investment in material resources	National Government, Municipalities and Regional Provinces, Technical Teams and consultant	Training courses	Timeframe TBC for instituting urgent human resources development together with a substantial investment of material resources	Political will for instituting urgent human resources development together with a substantial investment of material resources
3.4.6 Design and implement a nation-wide awareness raising and sensitisation campaign on the climate change and health related aspects of fossil fuels and energy inefficiency, and the substantial adaptation and mitigation benefits existing within renewable energy	4.6 A nation-wide awareness raising and sensitisation campaign plan designed and implemented	National Government, Municipalities and Regional Provinces	Nation-wide awareness raising and sensitisation campaign	Timeframe TBC for designing and implementing a nation-wide awareness raising and sensitisation campaign plan	Appropriate capacities for designing and implementing a nation-wide awareness raising and sensitisation campaign plan
<p><b>Resources:</b></p> <p>Total: US\$169,000,000                  SPCR Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...</p>					
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>

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<b>Pillar 4: Developing integrated approaches to build rural climate resilience</b>	Improved integrated approaches to build rural climate resilience	National Government, Regional Provinces, Sector Ministries and M&E Units,	SPCR strategy programs and action plans adopted by National Government and Regional Provinces  <u>Sources:</u> Project reporting and Evaluation	National Government and Sector Ministries indicators for governance and monitoring compatible with global monitoring systems.	Capacity of National level stakeholders will match project activity demands (this will be supported by a project capacity building strategy)
<b>Component 4.1:</b> Enhancing the resilience of small-scale farming against future climate impacts	Improved organizational and technical structures of the resilience of small-scale farming against future climate impacts	Regional Provinces, Sector Ministries and M&E Units	The resilience of small-scale farming against future climate impacts strategy programs and action plans adopted by National Government and Regional Provinces  <u>Sources:</u> Project reporting and Evaluation  Number of Regional Provinces monitoring, assessing, and reporting to National Climate Change Authority on the resilience of small-scale farming against future climate impacts measures.  <u>Sources:</u> Project Reporting and Evaluation	National Agriculture sector indicators governance and monitoring compatible with global monitoring systems.	Capacity of National and Regional Provinces' level stakeholders will match project activity demands (this will be supported by a project capacity building the resilience of small-scale farming against future climate impacts strategy)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
4.1.1 Develop plan and National Programme for Crop Diversification <b>put in place</b> led by the Ministry of Agriculture, as a tool to spread crop failure risks and enhance resilience of small	1.1 A tool to spread crop failure risks and enhance resilience of small scale/commercial farming developed and adopted;	Sector Ministries, Regional Provinces, Farm Organizations, Cooperatives, rural communities	National Programme for Crop Diversification	TBC in detailed project planning	Insufficient capacities may limit coordination

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scale/commercial farming;					
4.1.2 Develop eco- based crop varieties that are adaptable to varying soils and climatic conditions	1.2 Improved technical capacities of extension services and small scale farmers against future climate impact	Sector ministries, extension services, farmers and national seed council	Number of climate resilient crop varieties developed		Restriction in developing Eco-based crop varieties that are adaptable to different soils and climatic conditions
4.1.3 Strengthen stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming	1.3 Water resources and irrigation management structures in operation aimed at enhancing the resilience of small-scale farming strengthened	Sector Ministries, Regional Provinces, Farm Organizations, Cooperatives, rural communities	Water resources and irrigation management structures		Capacities for strengthening stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming may limit functional operations of the regional provinces and national task force
4.1.4 Strengthen technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools_(CC-FFS) amongst other mechanisms for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter);	1.4 Technical capacity and skills among farmers and Extension Service officers developed	Sector Ministries, Regional Provinces, Farm Organizations	Climate Change Farmer Field Schools_(CC-FFS) courses		Sufficient capacity for strengthening technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools_(CC-FFS) for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter) may impact capacity development

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4.1.5 Strengthen the capacities of agricultural research system	Research system and quality of results improved	Sector ministries, department headquarters and cluster sites of agriculture and natural resources	Fully equipped laboratories and research cluster sites in the agro ecological zones in places		Political will for strengthening the capacities of Agriculture and Natural Resource research systems.
4.1.6 Strengthening and/or operationalization of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability;	1.4 A Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability strengthened	National Government Meteorological Stations, Sector Ministries, Regional Provinces, Farm Organizations	Climate Change Integrated Agrometeorological Advisory Services for the Gambia		Political will for operationalization of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability may limit operational functions
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 4.2:</b> Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small-scale farming, livestock and wildlife sub-sectors	Capacities established to support resilience of small-scale farming, livestock and wildlife sub-sectors	National and Regional Provinces Teams, farmers’ organizations and local communities	Number of Regional Provinces and farmers’ organizations implementing resilience of small-scale farming, livestock and wildlife sub-sectors strategic programs <u>Sources:</u> Project reporting and Evaluation Monitoring by national and local authorities and project stakeholders		National and Regional Provinces stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>

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<p><b>4.2.1</b> Climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management (intercropping fruit or native trees within the farming plots) to act as “nutrient pumps,” bringing nutrients that are too deep for crops</p>	<p>2.1 Climate-smart ecosystem based approach developed</p>	<p>National Government, Regional Provinces and Sector Ministries</p>	<p>Institutional structures and processes for climate-smart ecosystem based approach</p>	<p>TBC</p>	<p>Restrictions in climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management</p>
<p><b>4.2.2</b> Promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry, to act as “climate buffers” providing shade, wind breaker and litter source for water conservation, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation;</p>	<p>2.2 Developed soil and water conservation measures</p>	<p>National Government, Regional Provinces and Sector Ministries</p>	<p>Training courses and support structures for soil and water conservation measures</p>		<p>Sufficient capacities for promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation</p>
<p><b>4.2.3</b> Promoting strategically placed drinking points/ponds deep in Forest protected areas (“traditional flora and wildlife regeneration traps”) for offsetting the disappearance of the natural habitats and indigenous traditional flora and wildlife species</p>	<p>2.3 Developed climate-smart livestock management practices</p>	<p>National Government, Regional Provinces and Sector Ministries, farmers’ organisations</p>	<p>Training courses and materials necessary for climate-smart livestock management practices</p>	<p>TBC</p>	<p>Restrictions in climate-smart livestock management practices addressing multiple gains of adaptation (green expansion, livestock diversification, and water supply) and mitigation (developing National Programme for Biogas Production and Utilization</p>

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due to frequent bush fires and drying of streams.					through on-farm anaerobic digestion of manure as an integrated adaptation-mitigation measure)
<b>4.2.4</b> Establish a regional network of rural water supply system coupled with construction of strategically placed plunge dips structures to support livestock animals for preventing against ticks, flies, mites, lice and other external parasites expected to increase under the projected warmer climate and new management practices such as artificial insemination, castration, inoculation, dehorning and weighing.	2.4 National Plans for Grazing Zones and management systems for improved livestock productivity and health developed	National Government, Regional Provinces, Sector Ministries, Farm Organizations, individual farmers and local communities	Strategically placed plunge dips	TBC	Capacities for development of National Planning of Grazing Zones and management of grazing activities with Improvement of stock feeds to avoid overgrazing issues (goats/sheep)
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 4.3:</b> Supporting the planning, rehabilitation and management of buffering coastal ecosystems to build the resilience of fisheries and tourism development in The Gambia	Plan for rehabilitation and management of buffering coastal ecosystems prepared  Ecosystem-based climate resilience of fisheries and tourism development in The Gambia established	National Government, Regional Provinces, Sector Ministries	Number of government decision-makers with increased knowledge of planning, rehabilitation and management of buffering coastal ecosystems  <u>Sources:</u> Project reporting and Evaluation Determined by monitoring  Number of Regional		National, provincial and district level stakeholders are receptive to project's building the resilience of fisheries and tourism knowledge (this will be supported by with project support for the design of formal information development and strategies)  Government is willing and capable of directing financing towards the support of building the resilience of

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			Provinces replicating Ecosystem-based climate resilience of fisheries and tourism development principles and practices within the target areas  <u>Sources:</u> Climate Resilient Strategy Process implemented will verify results		fisheries and tourism programming (Incentive issues will be supported by the project strategy of linking success demonstrations with comprehensive capacity building efforts, including studies showing the economic, social and ecological benefits of up scaling)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>4.3.1</b> Develop Regional Programmes for Ecotourism that incorporate buffer control to protect forest and riverine locations with clear identification of potential sites and natural conditions. This will be used by the Gambia Tourist Board to attract external investment on ecotourism;	3.1 Developed Regional Programmes for Ecotourism	National Government, Regional Provinces, Sector Ministries	Regional Programmes for Ecotourism and supportive training courses		Political will for development Regional Programmes for Ecotourism
<b>4.3.2</b> Initiation of a national programme addressing the Rehabilitation of ecosystems bordering the coastal dunes and riverine areas to be used as a buffer between the coastal zone and the community villages particularly in the West Coast Region (land reclamation operations on fish landing sites and old sand mining sites using palm trees, mangroves	3.2 Established national programme for addressing the Rehabilitation of ecosystems bordering the costal dunes and riverine areas	National Government, Regional Provinces, Sector Ministries	Meeting costs Consultancy study National programme for addressing the Rehabilitation of ecosystems bordering the costal dunes and riverine areas		Willingness to commission study for establishment of national programme for addressing the Rehabilitation of ecosystems bordering the costal dunes and riverine areas



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and other native shrubs);					
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 4.4:</b> Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia	Private sector involved in promoting and strengthening the resilience of communities' livelihoods in The Gambia	Private Sector in The Gambia	Number of government decision-makers with increased knowledge of Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia  <u>Sources:</u> Project reporting and Evaluation Determined by monitoring		Government is willing and capable of directing financing and providing incentives towards the support of Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>4.4.1</b> Promotion of youth and women centred "Spin-off" SMMEs for development of climate resilient agricultural and livestock value chains in each of the Gambian Regions	4.1 Youth and women centers promoted	Youth and Women centers	Youth and Women centers	TBC	Restriction in Promoting youth and women centers

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<p><b>4.4.2</b> Establishment of Waste Management Plans at Municipal Level – National Recycling Training Programmes for youth and women</p>	<p>4.2 Plans for waste management established</p>	<p>National Government, Municipalities, Youth and Women Enterprises</p>	<p>Waste management plans</p>	<p>TBC</p>	<p>Capacity for establishment of Waste Management Plans at Municipal Level – National Recycling Training Programmes for youth and women</p>
<p><b>4.4.3</b> Establishment (physical and logistical infrastructures) of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs) following the Global Eco-village Network approach</p>	<p>4.3 Established physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)</p>	<p>National Government, Regional Provinces, Municipalities</p>	<p>Physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)</p>	<p>TBC</p>	<p>Willingness to allocate funds for establishing physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)</p>
<p><b>4.4.4</b> Establishment of a network of Centres for Skills Development (CSDs) to assist youth and women associations in developing skills for alternative income generating activities to curb migration and intense degradation of the environment, in particular the coastline through mangrove cutting and sand mining</p>	<p>4.4 Established a network of centers for skills development</p>	<p>National Government, Regional Provinces, Youth and Women</p>	<p>Network of centers for skills development</p>	<p>TBC</p>	<p>Sufficient capacity for establishing a network of centers for skills development</p>

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<p><b>4.4.5</b> Strengthening the resilience of the Fisheries Sector and community livelihoods by upgrading all eight national Fish Landing Points, and fish markets and cold chain structures, as well as the establishment and operationalization of post-harvest value chain units at each landing site</p>	<p>4.5 Strengthened, Established and Operationalized resilience of the Fisheries' Sector and community livelihoods</p>	<p>National Government, Sector Ministries, Regional Provinces, Fishery Organizations</p>	<p>Upgraded national Fish Landing Points, and fish markets and cold chain structures, with functional post-harvest value chain units at each landing site</p>	<p>TBC</p>	<p>Political will for strengthening the resilience of the Fisheries Sector and community livelihoods by upgrading all eight national Fish Landing Points, and fish markets and cold chain structures, as well as in establishing and operationalization of post-harvest value chain units at each landing site</p>
<p><b>Resources:</b>                  Total: US\$73,000,000                  Adaptation Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...</p>					



**THE GAMBIA STRATEGIC PROGRAMME FOR CLIMATE  
RESILIENCE: PHASE 1**

**Strategic Programme for Climate Resilience (SPCR)  
Volume II: Concept Notes and Regional Consultations  
FINAL REVISED, 30<sup>th</sup> August 2017.**

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## **Concept Note 1: Developing the enabling environment for climate resilience**

### **1. Title and brief summary of the investment**

This Concept Note is for an integrated programme entitled “**Developing the enabling environment for climate resilience in The Gambia**”. The integrated programme includes policy review and legislative development; further development and strengthening of institutional coordination mechanisms at different levels; putting in place mechanisms to promote mobilisation of climate finance, including through the operationalization of the Gambia Climate Change Fund; support to a coherent programme on climate change capacity development and communication; furthering climate services investments; mainstreaming climate resilience into the national development agenda; and developing the monitoring, evaluation and reporting (M, E&R) systems for climate resilience. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components; the specific details of this will be further developed during detailed project planning.

### **2. Background and justification**

Part 1 of the SPCR identified the need for many actions that would be part of further developing the enabling environment, nationally and sub-nationally, for climate resilient development. This process has recently developed some momentum, with the formulation of the draft National Climate Change Policy (NCCP) in 2016, the strengthening of the key institution concerned with coordination of climate change responses in the country, the MoECCNAR, and the enhanced coverage by the draft PAGE II of climate change, DRR, gender and sustainable development issues. The Ministry of Finance has recently been approved as the National Designated Authority (NDA) for the Green Climate Fund (GCF) in the country, a GCF Readiness grant has been received, and The Gambia’s first GCF project initiated, through the implementation entity of UNEP.

These are all extremely positive developments. However, numerous critical aspects with respect to coordination, review and harmonisation of the policy and legislative framework, systematic capacity development and research for low carbon and climate resilient development, as well as enhancement of climate observations and services, remain to be dealt with.

A number of recently developed laws, policies and strategies that do integrate climate change considerations and aim to actively promote, coordinate and facilitate implementation of climate resilient development remain in draft form. There are many areas in which enforcement of existing Acts and policies is required. And there remains the urgent need to communicate the realities of climate change to Gambians. One of the most striking impacts that will become a reality in the next couple of decades will be the loss of most of the city of Banjul to sea level rise and associated effects. Yet many stakeholders participating in the SPCR process were unaware

of this, and shocked to hear it; as one participant remarked, “Why has no one told us that the city will soon be under water? Do our policy makers know of this?” A comprehensive and ongoing communication programme to make all Gambians aware of the issues, as well as their role in addressing them, is needed. Currently there is no research centre or research institution in The Gambia to undertake climate change in the context of economic development. Moreover, capacity development interventions across the sectors for an enhanced response to climate change have in general been implemented under projects, resulting in duplication and/or lack of effectiveness; there is thus the need for a more coherent approach to climate change capacity development.

The country has significant climate finance needs: had it been fully implemented, The Gambia’s climate change priority action plan for 2012–2015 would have cost almost US\$14.2 million (Camara, 2014); and, according to a national assessment of investment and financial flows completed in October 2011, The Gambia would need an additional US\$1.35 billion to implement priority actions to reduce greenhouse gas emissions from the energy sector and forest degradation and adapt to the impacts of climate change in the agriculture and water sectors by 2030 (Jarju and UNDP, 2011). Most existing donor financing in the country targets adaptation and climate resilient development. Mitigation, while not currently pronounced due to low emissions, will need more financial resources in the medium- to long-term. The government will need to continue drawing down public resources, making public investments work better and initiating innovative financing mechanisms to leverage private sector investment into climate change mitigation projects. Climate change financing, an essential component of the enabling environment, will be further catalysed by policymakers and practitioners putting in place the financial architecture to support The Gambia’s transition to climate resilient and low-emissions sustainable development. Note that climate finance refers to funding for adaptation, disaster risk reduction, building resilience, and mitigation.

The government will need to allocate a larger part of the national budget to climate change financing, through gender-based budgeting. The budget allocation will be coordinated, managed and administered through the Gambia Climate Change Fund (GCCF), as stipulated in the draft NCCP (2016). The GCCF would serve as the conduit for international aid financing, while enhanced and tracked public financing would leverage, complement and supplement the funds from multilateral and bilateral agencies, which are currently the main intermediaries mobilising and disbursing climate finance in The Gambia.

Regarding climate observations, synoptic, hydrological and marine observations systems within The Gambia are inadequate from the perspectives of distribution, quality and reliability. The issues are well recognised within the country, and significant concrete actions have been taken under the Early Warning Systems (EWS) Project Phase I, with further planned, under the EWS II Project. Equally it is recognised that even when planned improvements under EWS II are implemented, the network will still require further development to bring it up to the full standards of GCOS, GUAN and WHYCOS, plus additional marine requirements, to provide essential background for monitoring of climate variability and change and to provide input to

services and research. Even denser networks would be beneficial, including locating automated meteorological stations and observations platforms at research sites, to provide more accurate data for forecast. An appropriate climate database is required as a central storage facility. In parallel with climate observations there is a need to obtain observations in a number of climate-sensitive sectors, again for monitoring and for providing input to research and services. A necessary preliminary to this activity will be a review of sectoral observations and databases currently in place, such as in health and in agriculture.

### **3. Project development objective**

The project development objective is to put in place an enhanced enabling environment for achieving low emissions, climate resilient development in The Gambia, through review and development of key policies, legislation, and institutions; mainstreaming climate resilience into national development planning and implementation, and initiating and/or developing coherent systems and strategies for climate finance, capacity development and research, climate services, and a national system for M, E & R of climate resilience.

### **4. Link to national adaptation and /or mitigation objectives**

The programme contributes directly to the achievement of the following policy objectives in the draft 2016 National Climate Change Policy (2016):

- Advance the understanding, capacity and social empowerment of all Gambians so that they can adequately respond to climate change.
- Ensure adequate climate change research for informed decision making, and promote timely access to climate information and early warning of climate risks.
- Effectively integrate climate change (considering DRR) into all sectors and across all scales, through mainstreaming climate risks and opportunities into national and sectoral frameworks, and through effective policy coordination and implementation.
- Coordinate national and international financial resource mobilization to address climate change by mainstreaming climate finance readiness and identifying, developing and promoting innovative financing mechanisms.

The programme objective and activities are additionally aligned with the relevant provisions on mainstreaming climate change and environmental sustainability in the draft PAGE II, and would contribute to the realisation of the priorities identified in the National Adaptation Programme of Action (NAPA) and the Intended Nationally Determined Contribution (INDC), which in themselves are reflected in the policy provisions of the NCCP.

### **5. Project components and activities**

The programme includes five inter-linked components, with associated activities, as detailed below.

#### ***Component 1: Policy, legislative and institutional review and development***



Critical policy and legislative steps identified are the following:

- Promulgate the draft NCCP and develop a Climate Change Act, to further develop the enabling environment for planning, coordinating, implementing and enforcing the cross-sectoral climate change functions/issues;
- Enact key policies and pieces of legislation still in draft form, such as the Policy on Biodiversity and Biosafety, the draft amendment of the 2008 Disaster Risk Reduction (DRR) Act and the Draft DRR Strategy and Action Plan;
- Comprehensively integrate climate change into National Development Plans – while the draft PAGE II does include many provisions in this regard, the Ministry of Finance and Economic Affairs has indicated willingness that this be taken further;
- Carry out an economic analysis study on the proposed resilience building, adaptation, and mitigation activities set out in the SPCR or parts of it;
- Develop a comprehensive framework for integrating climate risks and resilience into key policies, legislation, regulations and strategies, and to ensure harmonisation within the policy and legislative framework as regards gender, environmental sustainability, climate change and disaster risk reduction; and ensure that national planning legislation makes it mandatory for other sector planning legislation to include the integration of these elements into sector policies and plans; this would entail identifying short-, medium- and long-term priorities for review;
- Revise selected key policies, legislation, regulations and strategies to mainstream gender, climate change, DRR and environmental sustainability within the context of sustainable development (short- and medium-term priorities); immediate sector priorities identified during the SPCR planning phase include Health, ANR, Education, the Gender and Women Empowerment Policy, the Local Government Act, and the Biomass strategy; regarding over-arching policy, review of the NEMA is required, while review of the critical land use planning framework is covered as a priority in Concept Note 2;
- Review and approve the (Draft) National Strategic Environmental Assessment Policy and its Guidelines and Procedures as part of an amendment of NEMA; and subsequently to strengthen capacity of both government institutions and the private sector to carry out SEAs and to integrate SEA into policies, plans and programmes.
- Support enforcement of the legislation by strengthening the capacity of implementing institutions, enhancing effective and efficient coordination, administration and management to identify, minimize, avoid and eradicate duplication of efforts.

A priority area, as identified in numerous studies, for mainstreaming climate change is within the health sector. The SPCR team, together with the Department of Planning in the Ministry of Health and Social Welfare, identified the need for a comprehensive analytical study to understand climate change impacts on health, using the Health Management Information System (HMIS) and climate data. This would feed into the ongoing Health policy and legislative

review, towards ensuring that climate risks and resilience requirements are fully integrated into the sector's policy and legislative framework.

Important cross cutting focus areas for all of the above are gender, youth, health, tourism and DRR. Further development of the policy and legislative framework should ensure that livelihood planning is also a cross cutting task across all zones / regions.

Regarding regional/transboundary issues, the policy review and development process will include a consideration of the regional element of OMVG with respect to energy and water resources. The infrastructure works on the Gambia River (the Sambangalo Dam in Senegal and the Kaleta hydroelectric facility in Guinea) will impact both on The Gambia's dependence on fossil fuels for power generation (through inter-connection with the West African Power Pool (WAPP) as part of the Sambangalo project) and on the management of water resources, ecosystems and control of water levels in the river basin (with potential impact on flood control and irrigation, and recession of the saline front through control of the hydraulic balance, etc.). Management of the resource by the OMVG may well involve the updating of the Gambia River treaties, and the revision of OMVG protocols so that trans-boundary management of the Gambia River Basin aligns with the management of agriculture and natural resources, coastal zone, tourism and other sectors impacted on by the control of the water levels in the river basin.

A further critical transboundary issue concerns biomass: to this end, the feasibility of a transboundary sustainable charcoal production and utilisation policy will be explored. This may require aligning forestry policies of The Gambia and neighbouring states. In parallel, interventions that focus on more efficient use of biomass to support sustainable usage of biomass both within The Gambia and neighbouring states will be pursued (this is included in Concept Note 4).

Regarding the *institutional environment*, the NCCP contained a number of provisions for institutional reform and development, building on other studies as well as the independent institutional review carried out in order to develop the Policy. Since development of the draft NCCP, a number of steps have been taken in this regard – for example, the establishment of the Project Coordination Unit and the Climate Change Secretariat within the MoECCNAR, with some enhancement of capacity. This programme of the SPCR will further develop the national multi-level climate change institutional framework, in line with provisions of the NCCP and to respond to the changed political situation. The capacity of the Climate Change Secretariat, as well as other key institutions, will be strengthened through ongoing and sustained interventions, to include training on key areas such as programme coordination, project management, proposal development and M, E and R (see Component 3 which covers capacity development).

Activities will include:

- Advocacy to ensure the UNFCCC Focal Point is located within the Climate Change Secretariat, for optimal effectiveness;
- Constituting the National Climate Change Council (NCCC), with an executive sub-committee to manage the GCCF;

- Setting up the Inter-ministerial Climate Committee (IMCC), as the technical body tasked with assisting the NCCC to perform its functions, *inter alia*;
- Further developing and strengthening the decentralised institutional mechanisms for effective and streamlined climate change and DRR responses; and
- Resolving overlapping mandates with respect to renewable energy, especially biomass and cook stoves, and the biomass value chain – this will support related activities covered under Concept Note 4.

Regarding the latter point, as the biomass value chain includes and overlaps with the responsibility of several ministerial portfolios, as well as involving private and non-government actors, interventions in the value chain need to be coordinated. The most appropriate and inclusive approach will be to initiate a scoping exercise under the NEA, which brings together the various elements in the value chain, in parallel with the development of a Biomass Strategy, as mandated by the Renewable Energy Act. Besides sustainable use of biomass in The Gambia and across the border, the value chain incorporates numerous other elements, such as: indoor air pollution (health); production and marketing of improved cook-stoves (private-sector incentives for local production, including tax-holidays, VAT-exemptions, etc.; women and youth skills training, etc.); sustainable management of forests and mangroves (agriculture and natural resources; decentralised local government); research in renewable energy and alternative energy sources (particularly for urban areas). The complexity of the value chain means that it is not something that can be approached by silo-like interventions but is something that needs to be seen as a whole.

The issue of enforcement of the legislative environment with respect to environmental sustainability and climate resilience was raised repeatedly by numerous stakeholders during the SPCR consultations, and requires investigation into best available options across the board. One of the priorities identified was to tackle the widespread problems with contractors on agricultural, climate change, and other related projects delivering substandard /incomplete / late infrastructure, through systems for better supervision, standards and design, and tendering and payment procedures. Such systems would need to apply across project and government infrastructure. Key activities include developing climate-resilient standards in key areas, e.g. infrastructure; and reviewing building standards regulations, combined with advocacy for enforcement of these.

Enforcement also relates to EIAs which are not carried out or simply disregarded, as a practice has developed where most sectors have been flouting the NEMA with impunity; this includes lack of enforcement of an industrial registration and discharge permitting system (polluter pays principle), mining activities (for example sand mining), amongst others.

### ***Component 2: Enhanced mobilisation of climate finance***

The capital flows of climate change programmes and projects or activities appear to have been assumed to be a function of development partners' contributions. This assumption has resulted into harsh realities on the ground where in recent years, communities have invaded wetlands,

riparian reserves and protected areas including dumping sites for survival, and government has limited resources to protect, manage, govern and conserve the natural resources and the environment. The Gambian government has managed to attract only a small amount of capital flows for climate change, further constrained by reduced donor funding due to political risk. This is likely to change resulting in more donor funding following up to recent political change and more democratic government. The previous government overlooked the potential for private sector capital flows by not providing incentives such as tax relief, tax holidays, tax breaks, and tax rebates or low tariffs. Both tariff and non-tariff incentives would attract direct private sector investments into the development, protection and management of the environment and into developing climate resilience. Part of effective resource mobilization is to identify and eliminate barriers propagated by small institutions or initiatives working in isolation, in order to develop a more coherent approach to climate finance mobilisation under the proposed Gambia Climate Change Fund.

In addition, The Gambia needs to consider supporting emerging innovative financial mechanisms such as polluter pays approaches, carbon tax, carbon credits, and green labels to enhance the flow of non-government revenue based sources. This approach supports creative and financial innovation to increase diversity and reduce financial risks to the Government. The increase in private capital flows will promote restoration of the environment for sustainable economic growth and climate resilient development, and help to fill the long-term financial resource gaps. Some of the private capital flows should be sourced from innovative markets - this can be tailored around carbon-offset initiatives. The capital flows are similar to PES, carbon tax, carbon credits, and green labels, but specific to carbon sequestration, since The Gambia has very little emissions to justify large-scale mitigation programmes and or projects.

Global economic realities and financing mechanisms suggest that a wise strategy for The Gambia would be to intensify efforts and rely more on domestic mobilization of resources and private sector instruments. In order to do this effectively and efficiently, the country needs to identify the underlying causes behind the poor performance in mobilizing local resources through fiscal regimes (measures), domestic financial and capital markets, and Public Private Partnerships (PPPs).

The country should set priorities to include: improving management coordination, governance of the environment, accountability and transparency in all areas at National and Regional levels, the corporate, private sector and community levels. The development of a Budget Coding Registry System, combined with Gender Responsive Budgeting, can be a flagship project to motivate public and private institutions to participate in low carbon and climate resilient development. Attracting carbon funds would capitalize and leverage conservation in natural environment and poverty alleviation. Ecosystem valuation also provides an entry point to PPPs - for example, valuation done for the forest and fisheries sectors provides economic justification for considering climate resilient development as a fundamental component of the economic pillar.

A comprehensive inward approach to resource mobilization for environmental conservation and sustainable climate resilient development should be viewed in totality. This should include both external and internal sources of capital. A funding proposal to develop a national budget coding and registry to track climate financing of environmental services and products would be appropriate. The Gambia would need to adopt a more selective approach than in the past, and one that is consistent with its development mandate as stipulated by Vision 2020 and the National Climate Change Policy (2016), amongst other strategic directions. Government support and development of sound policies that reduce costs, support local community livelihoods and private sector investment in climate resilient development programmes, projects and activities would enhance potential to leverage financial resources, both from internal and external sources. Enhancing resource mobilization would ensure sufficient flow of capital and provide space for micro finance designed to be flexible, affordable and accessible by farmer organizations, cooperatives, individual farmers and local communities.

Key steps and activities include the following:

- Operationalise the Gambia Climate Change Fund;
- Commission an impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels;
- Develop the climate change budget coding and tracking registry, linked to gender responsive budgeting;
- Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives;
- Develop micro finance products and provide support to local government, farmer organisations and cooperatives, other user groups and entrepreneurs to access and use climate finance at local levels; and
- Support the piloting and subsequent scaling up of Local Climate Change Action Plans (LCCAPs) to assist with developing the procedures for channelling of and access to the funds from the GCCF, as well as the process through which national and local governments will ensure that the content of the plans is reflected in policies and plans at other levels.

Operationalization of the GCCF would require adoption of the draft NCCP by Cabinet, after which actions would be taken to set in place the institutional environment envisaged in the Policy. A related activity would be to develop a system for needs assessment of climate change projects, disaggregated according to levels and scales. At the local level, such a system could be developed through activities to develop the Local Climate Change Action Plans. An iterative approach to climate change needs assessment would provide an important mechanism to underpin transparency of decision making on the part of the GCCF.

***Component 3: Climate change research, capacity development and communication***

In order to enable coherent and focused research for climate resilient policy and practice, the first step will be to establish and resource the Gambia National Research Framework on Climate Change (GNRF-CC), which is a provision in the NCCP. This will be initiated through discussions with the University of The Gambia and relevant public and private institutions, including the National Agricultural Research Institute (NARI), the Renewable Energy Association of The Gambia (REAGAM), the Gambia Chamber of Commerce and Industry (GCCCI), the Ministry of Higher Education, Research, Science and Technology (MoHERST), amongst others. A National Climate Change Research Centre would be established, and the National Climate Committee encouraged to include R&D in its discussions and proposals for support. The National Climate Change Research Centre would *inter alia* generate data and support policy and decision making processes on integrating and mainstreaming climate resilience into the national development agenda, including through economic analysis of adaptation, mitigation and resilience building approaches and initiatives. The National Climate Change Research Centre will develop a strategy, framework and regularly develop lessons learned reports on the implementation of the SPCR.

With respect to climate change sensitisation, education and capacity development, a critical step will be to expand and systematise the National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR), which exists within the MoECCNAR. This will require a dedicated budget line to MoECCNAR for this, for reliable and consistent resourcing.

The NCCCS&AR will be developed in a systematic fashion, with a 5-year work plan, which will include a comprehensive civic education programme on climate change, including promoting individual actions and those of institutions such as NGOs, CBOs and the private sector. A series of simple pamphlets, translated into local languages, will be initiated, starting with the NCCP and the SPCR summary. Traditional communicators will be a crucial mechanism to communicate climate change effectively, as will innovative methods such as song, drama and video, including video documentaries of successful projects.

As an input to the process to develop both the NCCCS&AR and the GNRF-CC, a sequence of Climate Change Multi-Sectoral Forums (CCMSF) would be convened, to include civil society and the private sector. This would be a similar concept to that of the Regional Climate Outlook Forums held regularly in West Africa since 1998. However, the CCMSFs would be multi-sectoral platforms, to facilitate the necessary process of cross-sectoral policy development and planning, as well as enhanced coordination, that is required, and strongly recognised within the NCCP provisions. Given limited resources and the need to move away from sectoral siloes as well as the isolated project-based approaches of the past, it is essential that both the awareness raising and communication components, as well as the research strategy, are developed in a coherent and holistic fashion. Research on complex problems like climate change is increasingly required to adopt a multi- or inter-disciplinary approach, while still valuing and supporting the development of single discipline skills. The CCMSFs could be a forum for the discussion of case studies from The Gambia and other countries on promising initiatives for achieving climate resilience.

A Long-term Climate Change Capacity Development Strategy (LT-CCDS) will be formulated. As set out in the NCCP, this is an important part of the process to develop the National Climate Change Response Strategy and Action Plan, which this SPCR will contribute to. The LT-CCDS will spell out the desired focus of climate change education, as part of education for sustainable development (ESD) at different levels (primary, secondary, tertiary), and propose effective ways to build on and extend the current efforts to mainstream climate change into educational curricula. Phased and concrete steps to integrate climate change into Lower Basic, Basic and Higher education curricula for government and madrasah institutions, as well as into tertiary education curricula, will be developed; as well as an institutionalised climate change training programme across the sectors, to include conflict management training and dialogues to address conflictual issues. This will build on and integrate with relevant ongoing and planned initiatives by the Education ministries and beyond, such as the integration of climate change into the Gambia College extension course by the Early Warning Project Phase II, and could include integration of climate change into adult literacy programmes.

The Long-term Climate Change Capacity Development Strategy will use as a basis the capacity requirements identified through a range of studies, including the National Capacity Self Assessment, the Gap Analyses carried out in the preparation of the NCCP, the Technology Needs Assessment, and the identification in the Second National Communication (2012) of capacity constraints and opportunities for integrated capacity building, disaggregated at the three capacity building levels of individual, institutional and systematic capacities. Incentives for retention of climate change capacity will be considered, and an active system of mentoring will be implemented in order to retain and build on the existing human resources capacity in The Gambia. Experienced professionals and practitioners in the fields of climate change policymaking, planning, implementation, monitoring, and fundraising will be identified as part of this mentoring system at the national and sub-national levels, to systematically build the capacity of promising young professionals and practitioners.

A further activity of the LT-CCDS will be a dedicated component for capacity development and sensitisation for the Ministry of Tourism, the Gambia Tourism Board (GTB) and other tourism stakeholders, as requested by the GTB, to enable better engagement in the hospitality industry with climate resilience challenges.

Thus key steps and activities under this component would include:

- Establish and resource the Gambia National Research Framework on Climate Change (GNRF-CC) and The Gambia Climate Change Research Centre;
- Expand and systematise the National Climate Change Communication Strategy and Awareness Campaign (NCCCS&AR) that exists within the MoECCNAR, and provide a dedicated budget line for reliable and consistent resourcing;
- Convene a sequence of Climate Change Multi-Sectoral Forums (CCMSF), to include civil society, the private sector, and all stakeholder groups, As an input to the process to develop both the NCCCS&AR and the GNRF-CC;

- Undertake research and build capacity inclusive of women, children, youth and people with disabilities on best practices for effective and efficient communications on climate change, including translating and interpreting research findings in local languages;
- Formulate a Long-term Climate Change Capacity Development Strategy (LT-CCCDs), to underpin the implementation of the SPCR, which would spell out phased and concrete steps to integrate climate change into Lower Basic, Basic and Higher education curricula for government and madrasah institutions, as well as into tertiary education curricula, building on existing initiatives, as part of education for sustainable development (ESD); as well as an institutionalised climate change training programme across the sectors, to include conflict management training and dialogues to address conflictual issues;
- Design and implement an ongoing and sustained strategy to strengthen the capacity of the Climate Change Secretariat, to include training on key areas such as programme coordination, project management, proposal development and M, E and R; capacity development for sectoral departments involved in the IMCCC, including leadership training and team building;
- Develop incentives for retention of climate change capacity, linked to an active system of mentoring (as part of the LT-CCCDs) to retain and build on human resources capacity to coordinate and respond to climate change; and
- As a priority of the LT-CCCDs, design and implement a dedicated component for capacity development and sensitisation for the Ministry of Tourism, the Gambia Tourism Board (GTB) and other tourism stakeholders, to enable better engagement in the hospitality industry with climate resilience challenges.

***Component 4: Furthering climate services investments and systems***

This component covers development of climate observations databases, all observations systems, data management, and acquisition of related hardware and software required for climate resilience in The Gambia. Communications and processing systems necessary for the development, production and dissemination of climate services in the interests of climate resilience are included. The scope covers data for all pertinent Departments and Agencies of the GoTG, plus any other essential non-governmental organisations where justified following a review.

Aims of activities under this component would be:

- To develop all observations systems, climatic and sectoral, automated as far as possible, and full maintained, to the levels required for climate services and research within The Gambia and to satisfy international requirements;
- To provide real time information dissemination through appropriate communications systems to central databases for at least the climate observations;



- To provide equipment for climate and, where necessary, sectoral databases;
- To provide internet in all GoTG agencies involved with the production, dissemination, or receipt of climate services; and
- To provide all computer and software facilities required to manage data receipt, storage, access, visualisation, climate service creation and dissemination.
- To provide training and skills to women and enhance the participation of women in meteorological services.
- To establish effective integrated early warning systems for floods, drought and groundwater, building on the work of the EWS II Project.

Specific steps and activities under this component, in all cases covering meteorological, hydrological and marine systems, and to be coordinated with the EWS II Project, would be the following:

- Determine, alongside the EWS II Project, the outstanding observations platforms needed to satisfy GCOS, GUAN, WHYCOS and marine observations and required for research in the interests of climate resilience;
- Consider the case for installation of a rainfall-measuring radar installation, together with all essential support facilities, and proceed on the outcome;
- Undertake a gap analysis of sectoral observations required for monitoring and research in climate resilience;
- Upgrade to need facilities for instrument calibration and repair for observations systems; as well as necessary observations real-time delivery systems;
- Provide resilient database equipment for all observations sets, climate and sectoral, including quality control, input and output facilities, and visualisation software, to develop long-term on-line digitised records;
- Support completion of DARE activities in DWR and provide support for sectoral DARE, in all cases producing digitised records in the databases;
- Implement a full internet service and up-to-date computer facilities and software necessary for all work under climate resilience at DWR, other GoTG Agencies and research facilities involved with climate services;
- Take steps to integrate women, youth and people with disabilities in the meteorological services, since they are the most vulnerable to the effects of climate change; and
- Establish and scale up effective integrated drought, flood and ground water early warning systems - to enable effective risk reduction for user groups and communities, as well as for protecting public health and safety, and infrastructure; this would include establishing a groundwater based EWS to monitor the status quo of groundwater, both in terms of quantity and quality of the various aquifers.

All aspects of climate services, collation of information, research, and product development and creation plus delivery, require efficacious communications systems; currently communications in all areas are restricted by the lack of communications facilities, not least internet, necessary for information transfer and visualisation. The immediate objective here is to provide communications facilities, likely mainly internet, including necessary computer hardware and software for accessing and analysing information, within DWR and all other GoTG Agencies involved in research and/or product creation/delivery/receipt within the scope of climate resilience. A later stage might be to assess options for improved communications in organisations other than GoTG Agencies. Work under this component would need to be developed in discussion with the Mol given current GoTG regulations regarding placing information on the Internet.

In further planning and development, the SPCR will identify and build on initiatives providing climate services to communities on the ground, such as the Early Warning Project Phase II and the work of ActionAid. Lessons learned indicate that trust in climate information is a significant issue amongst local communities; when climate forecasts and scientific information are blended with local and indigenous knowledge, reception is considerably enhanced. Innovative methods such as climate games are also proving useful and may provide a further area for scaling up.

***Component 5: Developing the climate resilience monitoring, evaluation and reporting system***

The main focus of this component would be to develop a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems. PAGE II envisages a legal and regulatory framework guiding planning and M&E activities, senior-level commitment and the means to engage all sectors within government. The SPCR M&E would fit into this system developing both a results framework, as well as an M&E reporting system supporting the SPCR and the mainstreaming climate resilient development. In addition, specific government budget lines where climate change interventions are identified would allow for budget tracking, tagging and coding.

As a principle, monitoring would be disaggregated by gender and with respect to youth, recognizing the specific challenges faced by women (disproportionality high responsibility for farming activities in rural areas; responsibilities for family health and welfare; problems of access to land and to credit; etc.) and those challenges faced by youth (lack of skills, lack of job opportunities, rural-urban migration, etc.).

Priority research areas would provide baselines as well as linking to data already available (such as meteorological and hydrological data, which has been gathered over a long period). The development and implementation of the Biomass Strategy would provide the opportunity to build or update a monitoring and reporting system both on biomass use (by households and other users), as well as provide the basis for monitoring the impacts on forest and mangrove resources of various types of biomass utilisation (not only for cooking but also for construction, as well as for livestock grazing and land encroachment for agriculture).

Specific steps and activities of this component thus include:

- Develop a multi-level M, E & R system for climate resilience, linked to the National M, E & R System, in line with the PAGE II systems, with indicators to allow for monitoring to be disaggregated by gender and with respect to youth, the elderly, differently-abled people, and marginalised groups. The aim will be to enable learning-by-doing and sharing of lessons at country, regional and global levels.

## 6. Implementation arrangements

As with all investment programmes developed under the SPCR, high-level oversight in the interim will be provided through the Technical Team set up to oversee the SPCR preparatory process. The GoTG would as a priority need to formalise the draft NCCP, in order to have the basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses, as set out in the main volume of the SPCR. It would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. An initial step would be for the MoECCNAR to develop and submit a Cabinet Paper to motivate for consideration and approval of the draft NCCP.

Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was formalised and the key institutions – the National Climate Change Council and the Inter-Ministerial Committee on Climate Change – were in place. These NCCP institutions should be capacitated and resourced to ensure effective coordination, administration and management of climate change, within the framework of the National Climate Change Policy.

Key stakeholders for CN 1 include the MoECCNAR, MoFEA, and various line ministries including those dealing with agriculture, education, fisheries, tourism, health and social welfare, women, youth, geology, and so on; as well as NARI and the UoTG.

## 7. Estimated cost and provisional financing plan

The estimated cost of this investment programme is **US\$ 28,850,000**.

Sr. Nr.	Components	Cost in US\$
1	Policy, legislative and institutional review and development	35,000
2	Enhanced mobilisation of climate finance	25,000
3	Climate change research, capacity development and communication	2,235,000
4	Furthering climate services investments and systems	10,000,000
5	Developing the climate resilience monitoring, evaluation and reporting system	16,555,000

<b>TOTAL Cost</b>	<b>US\$ 28,850,000</b>
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**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts.**

An overall provisional financing plan for the entire SPCR is contained in section 2.4 of the Volume I report. The GoTG will develop the more specific provisional financing plan for this Concept Note at a later stage, after validation of the SPCR Phase 1.

## 8. Logical framework

### Results-based Logical Framework for Concept Note 1

*Please note that all logical frameworks are of necessity indicative and provisional, and will need to be revised on an ongoing basis as the Concept Notes are developed into full project proposals.*

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>GOAL</b> Put in place an enhanced enabling environment for achieving climate resilience in The Gambia, through review and development of key policies, legislation, and institutions; and initiating and/or developing coherent systems and strategies for climate finance, capacity development and research, climate services, and a national system for M, E &amp; R of climate resilience</p>	<p><b>IMPACT</b> Improved policies, legislation, and institutions; and developed coherent systems and strategies for climate finance, capacity development and research, climate services</p> <p>Effective mechanisms for regular Monitoring, Evaluation and Reporting on “Meeting the targets and goals of the climate resilience</p>	<p>All population in The Gambia</p>	<p><u>Indicators</u> Developed policies, laws, strategies and established institutions</p> <p><u>Sources:</u> National and international statistics and reports</p>	<p>The indicative targets and timeframes will be formulated as the Concept Note is developed into a full project proposal.</p>	<p>There will be sufficient political will and resources to develop policies, legislation, strategies and standards, and to establish institutions (this will be alleviated by project support)</p> <p>Impacts of climate change do not outpace project resilience/adaptation responses (this will be alleviated by the project's interventions targeted to build resilience)</p>
<p><b>Project purpose:</b> <i>To establish a national enabling environment for achieving climate resilience in The Gambia</i></p>	<p><b>Outcomes:</b> 1. Better understanding and knowledge of the state of climate resilience governance and management systems, current gaps and developments</p>	<p><b>Beneficiaries:</b> 1. Technical Teams and Sector Ministries and Climate Resilience governance and population</p>	<p><b>Outcome indicators:</b> National Government and regional annually report on the status of climate resilience management and economic sector</p>	<p><b>Progress anticipated in the medium term:</b> Annual National and Regional reports on climate resilience management and economic sector</p>	<p><b>Assumption statement:</b> Acceptance of the report content in relation to adequacy and accuracy</p>

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HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Component 1:</b> Policy, legislative and institutional review and development	Improved policy, legislative and institutional capabilities and abilities	National Government, Sector Ministries and M&E Units	Policy, legislative and institutions adopted by National and regional governments  <u>Sources:</u> Project reporting and Evaluation  Number of regional governments monitoring, assessing, and reporting to National Climate Change Authority on climate resilience measures. <u>Sources:</u> Project Reporting and Evaluation	National Policy indicators, governance and monitoring compatible with global monitoring systems.	Capacity of National level stakeholders will match project activity demands (this will be alleviated by a project capacity building strategy)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
1.1 Promulgate the draft NCCP and develop a Climate Change Act;	1.1 Climate Change Act prepared	National Government, Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Approved NCCP and formalised Climate Change Act.	Official set up of The Gambia National Climate Change Fund, Set up of National Climate Change Commission	Restrictions in dissemination of the Climate Change Act as a government document
1.2 Comprehensively integrate climate change into National Development Plans	1.2 National Development Plans prepared	National Government, Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Climate change integrated into National Development Plans		Limited circulation of Development plans create information gaps
1.3 Revise key legislation and their related regulations and strategies to mainstream climate change	1.3 Revised legislations, regulations and strategies	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Revised climate change-integrated legislation, regulations and strategies		Political will is present to revise legislation

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1.4 Develop a comprehensive framework for integrating climate risks and resilience into key other and sectoral policies and regulatory standards	1.4 Developed framework for integrating climate risks and resilience sectoral policies and regulatory standards	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	Comprehensive framework for integrating climate risks and resilience into key other and sectoral policies and regulatory standards		Limited circulation creates information gaps
1.5 Review and approve the (Draft) National Strategic Environmental Assessment Policy and its Guidelines and Procedures	1.5 Approved National Strategic Environmental Assessment Policy and its Guidelines and Procedures	Regional governments, States Sector Agencies, Policy and Decision-makers, local communities	National SEA Policy and Guidelines		Sufficient capacity is in place for the review and approval process
<b>Component 2:</b> Enhanced mobilisation of climate finance	<p>National Climate Change Fund Established</p> <p>Capacities established for climate change resilience/adaptation assessment and monitoring in the country.</p> <p>Financial management techniques for improving climate change resilience through budget coding, registry systems</p> <p>Impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, Green labels</p> <p>Developed CC budget coding and tracking</p> <p>Government introduced policies to leverage private</p>	National and Regional Governments, Sector Ministries, Farm Organizations, private sector and consultants,	<p>Number of Regional governments accessing climate finance and implementing climate resilience programs <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders</p> <p>Number of private sectors participating in implementing climate resilience projects <u>Sources:</u> Monitoring by national and local authorities and project stakeholders strategies and plans Project reporting and evaluation</p> <p>Number of farm organizations and cooperatives accessing financing from SMEs <u>Sources:</u> National annual reports National census-</p>	Climate Fund Governance and M&E systems assessment reports validated at county and national levels by end month 7 and regional level by end months 8	National and Regional level stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)

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	<p>sector investment</p> <p>Micro-finance supported farmer organisations and cooperatives</p> <p>Supported the piloting of Local Climate Change Action Plans (LCCAPs) and assisted development of procedures for channelling and access to the funds from the GCCF, and supported the process through which national and local governments ensured the content of the plans reflected in policies and plans at all levels</p>		<p>based poverty map Project reporting and evaluation</p>		
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<p><b>2.1</b> Operationalise the Gambia Climate Change Fund;</p>	<p>2.1 Established Climate Change Fund</p>	<p>National Government Sector Ministries Agencies. NGOs. Private Sector, Farm Organizations, Research Institutes</p>	<p>Gambia Climate Change Fund</p>		<p>National Government willing to provide financing and budget allocation to the National Climate Change Fund</p>
<p><b>2.2</b> Commission an impact assessment / feasibility study, to launch innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels</p>	<p>2.2 Completed studies on innovative climate financing mechanisms e.g. polluter pays, carbon tax, carbon credits, green labels</p>	<p>National Government Sector Ministries Agencies. NGOs. Private Sector, Farm Organizations, Research Institutes</p>	<p>Feasibility study on innovative climate financing mechanisms</p>		<p>National Government willing to allocate funds for consultancy</p>



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2.3 Develop the climate change budget coding and tracking registry	2.3 Developed Climate Change Code and tracking Registry System	National Government, Sector Ministries	Climate Change Code and tracking Registry System		National Government willing to allocate funds for consultancy
2.4 Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives	2.4 Developed New Policies and incentives to leverage private sector investment in low carbon and climate resilient development initiatives	National Government, Sector Ministries	Introduce policies and incentives to leverage private sector investment in low carbon and climate resilient development		National Government willing to allocate funds for consultancy
2.5 Develop micro finance products and provide support to local government, farmer organisations and cooperatives, other user groups and entrepreneurs to access and use climate finance at local levels	2.5 Developed micro finance products	Farm Organizations, Local Communities, Youth and Women, Entrepreneurs	Micro finance products and support procedures		National Government willing to allocate funds for consultancy
<b>Component 3:</b> Climate change research, capacity development and communication	concept paper on capacity development and communication prepared	National and Regional Coordination Teams	Number of government decision-makers with increased knowledge of climate change resilience  <u>Sources:</u> Project reporting and Evaluation	National and Regional gaps in climate resilience governance and M&E compiled and prioritized	National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by with project support for the design of formal information development and communication strategies)

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<p><b>Component 4:</b> Furthering climate services investments and systems</p>	<p>Climate Service Systems and Investments established</p>	<p>National and Regional Coordination Teams</p>	<p>Number of government decision-makers with increased knowledge of climate change resilience</p> <p><u>Sources:</u> Project reporting and Evaluation</p>	<p>National and Regional gaps in climate resilience governance and M&amp;E compiled and prioritized</p>	<p>National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by project support for the design of formal information development and investment strategies)</p>
<p><b><u>Inputs and activities:</u></b></p>	<p><b><u>Outputs:</u></b></p>	<p><b><u>Beneficiaries:</u></b></p>	<p><b><u>Output indicator:</u></b></p>	<p><b><u>Progress /Timeframe:</u></b></p>	<p><b><u>Assumption statement:</u></b></p>
<p><b>4.1</b> Develop all observations systems, climatic and sectoral, automated as far as possible, and full maintained, to the levels required for climate services and research within The Gambia and to satisfy international requirements;</p>	<p>4.1 Developed automated observation systems</p>	<p>National Government, Sector Ministries, Agencies, Farm Organizations</p>	<p>Automated observation systems</p>		<p>National Government willing to allocate funds for observation systems and climate change services</p>
<p><b>4.2</b> Provide real time information dissemination through appropriate communications systems to central databases for at least the climate observations;</p>	<p>4.2 Provided Real time based information</p>	<p>National Government, Sector Ministries, Agencies, Farm Organizations</p>	<p>Appropriate communications systems</p>		<p>National Government willing to allocate funds for information dissemination through appropriate communications systems to central databases for at least the climate observations</p>
<p>4.3 Provide equipment for climate and, where necessary, sectoral databases;</p>	<p>Provided Equipment</p>	<p>National Government, Sector Ministries</p>	<p>Equipment for climate and sectoral databases</p>		<p>National Government willing to allocate funds for equipment</p>
<p>4.4 Provide internet in all GoTG agencies involved with the production, dissemination, or receipt of climate services;</p>	<p>Provided internet</p>	<p>National Government, Sector Ministries, Agencies</p>	<p>Internet systems</p>		<p>National Government willing to allocate funds for internet</p>

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4.5 Provide all computer and software facilities required to manage data receipt, storage, access, visualisation, climate service creation and dissemination	Provided Computers and software facilities	National Government, Sector Ministries, Agencies	Computer and software facilities		National Government willing to allocate funds for computers and software facilities
<b>Component 5:</b> Developing the climate resilience monitoring, evaluation and reporting system	Climate resilience monitoring, evaluation and reporting system developed	National and Regional Coordination Teams	Number of government decision-makers with increased knowledge of climate change resilience, monitoring, evaluation and reporting system  <u>Sources:</u> Project reporting and Evaluation	National and Regional gaps in climate resilience governance and M&E compiled and prioritized	National, provincial and district level stakeholders are receptive to project's Climate resilience knowledge building approach (this will be eradicated by project support for the design of formal information development and monitoring, evaluation and reporting)
<p><b>Resources:</b></p> <p>Total: US\$28,850,000                  SPCR Fund Grant: US\$ .... and The Gambia Government in kind contribution: US\$ ...</p>					

## **Concept Note 2: Climate-resilient land use mapping, planning and information systems**

### **1. Title and brief summary of the investment**

#### **Climate-resilient land use mapping, planning and information systems**

The national Land Use Plan for The Gambia has not been reviewed or updated since 1989. In addition to being outdated, it does not integrate any climate change projections, of which sea level rise is arguably the most important given The Gambia's vulnerability. Investment is required in:

- Establishing and populating a centrally managed information base, through extensive gathering and collation of relevant data combined with upgrading and expanding the national GIS capability to manage, analyse and present relevant information;
- Preparation and publication of national land use, cadastral and thematic maps at a range of appropriate scales based on the existing situation;
- Cross-sectoral updating, development and publication of related relevant Policies and Acts, specifically including the National Land Policy and an overarching Act, taking account of climate resilience in addition to other national development objectives;
- Preparation and publication of a national land use plan (maps and policy);
- Definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact; and
- Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions and to ensure climate resilience.

This would be a significant national initiative with parallel investment in human resources, equipment, technology, institutional structures and policy / procedure development to achieve a legacy of climate resilient land use planning self-sufficiency, including in the coastal zone, but with short term support from international experts, training centres and contractors. The project activities could begin concurrently and immediately, and would run over a period of at least five years initially with ongoing review and updating on a continuous rolling programme. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components.

### **2. Background and justification**

The Gambia, like most nations, has undergone substantial and accelerating social, economic and environmental change. Rural-urban migration, population growth, commercial development, tourism, vehicle use and habitat degradation have radically altered the fabric of the country. Unfortunately, the government has not kept pace with the changes, resulting in uncontrolled urban sprawl into valuable agricultural land, severe problems of waste management, inadequate infrastructure, uncontrolled depletion of limited natural resources, loss of public open space, strains on water resources and ecosystem services, and loss of natural habitat. Thus the uncontrolled nature of the urbanisation process across the country is a critical factor exacerbating social and environmental unsustainability, and reducing resilience to climate change. This is primarily apparent in the GBA, but also manifests in other urban centres. Effective policy guidelines for future

development and the administrative machinery to implement them are imperative for national development; the need for resilience to the impacts of climate change adds a level of urgency given The Gambia's position as the 10<sup>th</sup> most at-risk nation and the expectation that the capital city, Banjul, will be effectively lost to erosion and flooding due to sea level rise within a generation. The threats from sea level rise and coastal erosion to the tourism industry are exacerbated through lack of clarity on and enforcement of development control, including within the Tourism Development Area. In addition, improved integrated waste management and drainage is inextricably linked to updating and enforcing land use planning throughout the country. Uncontrolled dumping in the riverine areas and drainage channels is already exacerbating increased flooding that is linked to climatic change. Within the GBA, these risks have been significantly increased recently with the informal closure of the Bakoteh waste disposal site.

These issues, apart from sea level rise, were recognized in the 1980s, and resulted in the Physical Planning Act of 1984 and an urban Land Use Plan (for the Greater Banjul Area, Brikama, Basse and Farafenni) produced in 1985 with the technical assistance of GTZ (German Agency for Technical Cooperation). It was intended that the Plan and the associated maps should be extended and updated on a rolling five year programme, with substantial revision every fifteen years. The Plan was reviewed in 1989 following a period of public consultation. No further reviews were undertaken, and the Plan is now completely out of date and effectively obsolete despite a revision of the Act to become the Physical Planning and Development Control Act of 1990.

In addition to the lack of a national land use plan, land administration is a critical problem requiring a National Land Policy and related Acts. While records of land acquisitions are kept, these are not related to maps or an urban cadastre. Many plots are not registered at all, to avoid paying registration costs, and are usually allocated by traditional leaders who cannot obtain documentation for the land "sold"; many of these plots encroach not just on wetlands, but on rights-of-way, urban drainage systems, and areas where waste is deposited illegally. The role of estate agents and their necessary regulation would be a further consideration.

The urgent need for climate-integrated Land Use Planning is highlighted in the National Development Plan (PAGE II, 2016 Draft) and the National Climate Change Policy (2016 Draft), as well as in sectoral policies such as Agriculture and Natural Resources (2009), Tourism Development Master Plan (2007), Fisheries Strategic Action Plan (2012), Forest Policy (2010), Biodiversity and Wildlife Act (2003), Disaster Risk Reduction Strategic National Action Plan (2013) and others.

### **3. Project development objective**

The objective is to put in place the necessary steps to develop, implement and enforce a national Land Use Plan that recognises the need for climate resilience and balances the cross-sectoral aspirations of all relevant stakeholders. The Land Use Plan would provide an environment to achieve rational, efficient, economical and equitable use of resources in The Gambia, considering future growth and development. The Plan would specifically address the relocation of the government functions currently within Banjul, as well as provide a coherent vision and framework for addressing coastal resilience.

### **4. Link to national adaptation and /or mitigation objectives**

The programme contributes directly to the achievement of the following policy objectives in the draft 2016 National Climate Change Policy:

- Advance the understanding, capacity and social empowerment of all Gambians so that they can adequately respond to climate change;
- Effectively integrate climate change into all sectors and across all scales, through mainstreaming climate risks and opportunities into national and sectoral frameworks, and through effective policy coordination and implementation;
- Put in place sound and equitable adaptation and mitigation measures that promote effective management of ecosystems and biodiversity, reduce vulnerability to climate change impacts, and reduce greenhouse gas emissions, to achieve sustainable low-carbon socio-economic development;
- Build the resilience of communities and ensure health and welfare through participatory, equitable and pro-poor approaches to climate change that emphasise the meaningful inclusion of women and vulnerable groups; and
- Integrate community-based adaptation with ecosystem-based approaches to strengthen people's adaptive capacities and develop more climate-resilient livelihoods, by investing in sustainable natural resource management initiatives.

The programme objective and activities are additionally aligned with the relevant provisions on mainstreaming climate change and environmental sustainability into the relevant sectors as set out in the draft PAGE II, and would contribute to the realisation of the priorities identified in the National Adaptation Programme of Action (NAPA) and the Intended Nationally Determined Contribution (INDC), which in themselves are reflected in the policy provisions of the NCCP.

## **5. Project components and activities**

The programme includes seven inter-linked components, with associated activities, as detailed below. Each component could run concurrently, with immediate commencement of some sectoral data gathering activities on receipt of funding and commencement of other activities on agreement of a management framework to coordinate activities.

### ***Component 1: Data gathering to inform climate resilient land use planning***

There is insufficient data of a good quality from most, if not all, sectors to inform planning. Data that have been gathered are of variable quality, inconsistent temporally and spatially and poorly managed making analysis difficult or impossible. Existing and new data should be gathered and collated with appropriate protocols and metadata to define method of measurement, dates, responsible body, quality, repetition interval, security, etc.

Land use planning covers all areas of the country and most sectors of government; for convenience, this project categorizes the data requirements into coastal, urban, rural and cross-sectoral. The boundaries between these categories are not fixed and overlaps are expected. The list of required data is not considered exhaustive but is too extensive to include specific details; details and additions would need to be developed elsewhere.

Much of the required data could be gathered and collated using national capacity, although significant investment in human resources, technology and logistics would be necessary. Some support from international contractors would be required, particularly for the coastal element.

**Coastal:**

- Topography of all low lying coastal and river basin areas building on the Japanese (JICA) survey of 2001, to determine areas at risk from flooding due to sea level rise, specifically including Banjul;
- Bathymetry of the full coast to a depth of at least 10 m plus tidal reaches of the River Gambia, combined with analysis of historic data to determine areas of change and to support hydrodynamic and sediment transport modelling that will determine coastal risk areas;
- Beach surveys from low water to the established backshore, at least seasonally using miniature drone technology, combined with analysis of coastal erosion and accretion rates referencing historic aerial photography, remote sensing and ground surveys to determine areas at risk;
- Tidal monitoring for a continuous period of one year at Port of Banjul, combined with analysis of tidal components to redefine present day mean sea level and predicted tidal range; also, reanalysis of historic records (where available) to determine frequency and extent of surges;
- Nearshore wave monitoring for a continuous period of one year at a depth of about 10 m off the open coast combined with simultaneous wind monitoring at an appropriate coastal location, with analysis to support wave prediction and sediment transport modelling;
- Drogue tracking and point measurement of currents in the approaches to the River Gambia, combined with numerical modelling to determine sediment transport regime in support of possible navigation dredging for the port, commercial dredging for building sand and future coast protection;
- Flow and water quality monitoring at a number of points up the River Gambia to the Senegal boundary;
- Sea / river bed, foreshore and backshore characterization including surface sediment distribution, depth to underlying rock layer, benthic ecology, presence of near shore cables / pipelines / wrecks and backshore vegetation / habitat distribution;
- Definition of coastal and river areas set aside for fish landing sites (including surveys of facilities and condition, number of active vessels, vehicle parking, etc.), oyster farming / aquaculture, turtle nesting, protected / significant habitats, public access tracks to the beach or fish landing sites not defined as roads, cultural sites and resort development including eco-resorts;
- Definition of coastal areas suitable for sand mining and location of control points to prevent illegal mining and transport;
- Structure survey of all coast defences, jetties, ferry landings, roads, irrigation facilities, houses, tourism assets and other structures on the beach and the backshore zone subject to present or future flood or erosion damage on the open coast and river, including location, description, geo-referenced / dated photographs, date of construction and condition assessment, together with a record of legal planning approval, ownership/responsibility and

estimated value (based on contribution of specific at risk assets to tax returns for the property as a whole);

- River water abstraction points (pumped and gravity fed), including annual abstraction rates and distribution network; and
- Location and condition of natural and artificial drainage channels, pipes, etc. discharging to the foreshore or river, including ownership / responsibility.

In general, data gathering within the coastal zone, including the river, is the responsibility of the National Environment Agency with support from the Coastal and Marine Environment Working Group (CMEWG). Much of the work defined above and appropriate climate resilient coastal management actions were set out in a 2015 GCCA report titled *Coastal Adaptation Scenarios: Vulnerable Site Options*, with a management framework for the coastal zone set out in the companion 2016 GCCA report *Management Plan for Coastal Zone Management in The Gambia*.

**Urban:**

- All supply services including distribution networks and connections (water, sewerage, power, telecoms);
- Artificial and natural drainage channels, flood corridors, ponding areas and structures, to include condition survey for both built structures and uncontrolled channels;
- Waste disposal sites, both official and illegal with area and management activity;
- Established or traditional tracks and rights of way not designated as roads;
- Planned and unplanned car park areas;
- Historic and cultural buildings / sites to be protected; and
- Location of trees and other significant habitat to be protected.

These data and information are mainly the responsibility of the Municipal Councils and NAWEC, as well as NDMA, NEA, Physical Planning, Forestry, and other stakeholders.

**Rural:**

- Vegetation cover, separated in to exploitable resources (arable, grazing, forestry) and protected habitats;
- Soil mapping;
- Artificial and natural drainage channels, flood corridors, ponding areas and structures, to include condition survey for both built structures and uncontrolled channels;
- Waste disposal sites, both official and illegal with area and management activity;
- Established or traditional tracks and rights of way not designated as roads;
- Historic and cultural buildings / sites to be protected; and
- Location of trees and other significant habitat to be protected;
- Location and condition of water supply and irrigation features, including dykes, bunds, ditches, etc.; and



- Market places, including type and condition of buildings and services.

The Department of Agriculture and Natural Resources is responsible for much of this information, as well as the NEA, NDMA, Physical Planning and Forestry. Further information is available from remote sensing sources including the MESA Project.

**Cross-sectoral:**

- Definition of existing land use at scales of 1:1250 for urban areas, 1:2500 for sub-urban areas and 1:5000 for rural areas, based on all categories defined for the 1985 plan as set out in the Physical Planning and Development Control Act, but also including more detail such as infrastructure corridors, waste management sites, boreholes / wells, water and sewerage treatment sites, power stations and renewable energy sites, seasonal drainage routes and storage reservoirs, car parking / links with public transport corridors, urban gardens, fish landing sites, protected habitat areas, tourism / eco-tourism areas, coastal set-back zones, port facilities, airport restricted areas, designated sand mining areas, ferry and river transport landing sites, warehouse zones, telecoms towers, sewerage treatment sites, etc.;
- Topography to 1 m contour intervals, building on the Japanese (JICA) survey of 2001;
- Legal definition of local, municipal, regional and national boundaries;
- Roads, including type, width, load capacity, condition, traffic volume, etc.;
- Traditional and established tracks not classified as roads;
- Power distribution network, with voltages and location of all associated structures and delivery points;
- Boreholes and wells, both private and public, including ownership / responsibility, depth, annual abstraction volume, pump type and capacity, together with water table / water quality monitoring records for a representative sample throughout the country;
- National Parks and habitat conservation areas;
- Land ownership / legal leaseholder cadastral information, including legal boundaries, census information on occupancy, plus condition of any structures, date and type of construction, use, occupancy, contribution of taxes, availability of services, sanitation, etc.);
- Land and property values for each holding; and
- Drift and sub-surface geology (building on the 1995 Chinese survey) to determine exploitable quarry and mining resources, plus suitability as open space for aquifer recharge and for waste disposal sites.

This information is the responsibility of various bodies such as Bureau of Statistics, Tourism Board and the Departments of Lands and Surveys, Physical Planning, Water Resources, Geology, Transport, Parks & Wildlife, Department of Soil and Watershed Management (DSWSM), NWEAC and MoE.

***Component 2: Establish a central information management system based on GIS***

All data, information and metadata should be retained and managed within a single national GIS. GIS provides a platform for collating, storing and analysing geospatial data and information, and the facility for presentation in thematic map formats at scales appropriate to the input information and

the user's needs. Use of information may range from informing government on long term socio-economic planning to providing map based teaching materials for primary education.

Central control of a national capability would ensure that quality standards can be maintained, that data formats are compatible, data security can be maintained where required and that distribution to users is efficient at a cost that ensures widespread access (for example, to schools, universities, NGOs, government departments and commercial bodies). Extensive investment in human resources, technology and office space would be required, with support from international contractors and training centres.

At present, there are two national centres of significant GIS capability, one at the NEA and one at the Gambian Bureau of Statistics (GBoS). The NEA has a programme to continually expand their capability and the extent of the system to deliver output to bodies such as the Tourism Board and the Department of Physical Planning, but they are a **very** considerable distance from having the capacity or depth of knowledge to deliver this proposed project. It may be that a centralized GIS capability should be housed by a different Department and Ministry, drawing initially on the human resources within the NEA and GBoS plus other departments; given that the central objective is to produce and implement a national Land Use Plan then it is logical that responsibility should be with the Department of Physical Planning.

National GIS capacity is required at three main levels:

1. Senior leadership to oversee GIS development in terms of national level vision, aims and objectives. This role requires at least Masters Degree level theoretical understanding of GIS, with the administrative capability to manage integration of cross-sectoral and cross-boundary interests involving stakeholders at a Ministerial / Departmental level.
2. Management to oversee implementation of the national GIS programme in terms of developing and sustaining resources and capacity, with specific responsibility for input data / metadata quality and control, and managing cross-sectoral user access. These roles are also likely to require post-graduate level understanding of GIS, along with technical competence to manage technical teams. It is possible that there are suitable individuals already working in The Gambia that could fulfil these roles but they would need at least some training support to migrate from specific sectoral roles to embrace a cross-sectoral role in support of a national vision. Initially it is likely that at least four individuals would be required at this level initially, expanding in future as required. Responsibilities could be divided according to technical responsibilities and / or sectoral interests.
3. Technicians to collate, quality check, input data / meta data, analyse information and present outputs to stakeholder requirements. These roles are likely to require formal post-secondary training, initially at an international universities or training facilities to ensure both technical competence and an understanding of the function of GIS as an important tool for national development. There are a small number of individuals working in sectoral roles in The Gambia (for example at the NEA) who already have some technical skills but may lack an appreciation of quality, data management and output issues required to support a national vision. It is likely that a team of at least forty would be needed to establish an effective national system, with additional support from IT specialists capable of maintaining a complex network under the challenging conditions in The Gambia.

Technical resources for the GIS facility would need to be specified by an international supplier with detailed knowledge of current technology. Dedicated office space with up to date IT, communications and reliable power supply would be needed to house the GIS unit.

***Component 3: Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the existing situation***

The first output from the data collection and GIS development components would be land use maps and cadastral maps for the existing situation. Land use classes determined for the 1985 Land Use Plan are still relevant, but should be expanded to include features relevant to modern Gambia as set out under cross-sectoral land use information in Component 1 above.

The maps would be highly detailed, with working scales of 1:1250 for urban areas, 1:2500 for suburban areas and 1:5000 for rural areas. Having produced the initial series, the maps would then be subject to continuous future updating to remain current. All relevant stakeholders would be involved in the national land use planning exercise. As major participants in land administration, the Governors will be the leading implementers of the land use plans at regional levels; their importance in the process cannot therefore be overemphasized.

***Component 4: Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development and governance***

Gambia does not have a Land Policy. By virtue of its colonial past, land tenure in The Gambia is based on a dual system – statutory and customary. The statutory system governs the freehold and leasehold titles both of which were introduced by the British and are based on English law. The customary tenure evolved from the traditions and practices of the indigenous communities that allow communities to distribute or sell land, but discriminates against women heads of household who constitute the majority in rural areas. Freehold and leasehold are most prevalent in the Banjul and Kombo St. Mary Regions and within the west coast Tourism Development Area, while customary tenure is most common in the Provinces. The different statutes that regulate the management of these lands are the State Lands Act 1992 and the Lands (Provinces) Act.

The goal of a National Land Policy should be to ensure efficient, equitable and optimal planning, utilization and climate-resilient management of Gambia's land resources for poverty reduction, wealth creation, environmental enhancement and overall socio-economic development. Responsibility for the Policy would lie with the Ministry of Local Government and Lands, but action would require cross-sectoral consultation and negotiation between stakeholders.

***Component 5: Cross-sectoral updating, development and publication of relevant land use planning Policies and Acts taking account of climate resilience in addition to other national development objectives***

Government Acts, Policies, Procedures and Guidelines need to be reviewed and, where required, updated to account for climate resilience, youth / gender issues and other national development objectives that are relevant to Land Use Planning. Policy review and updating would be a complementary activity with component 1 of Concept Note 1 of this SPCR. Cross-sectoral actions include:

- Policy Formulation: to identify through systematic stakeholder consultation appropriate policies through surveys and analyses of physical development related issues so that

guidelines and parameters can be set and used to direct future decisions related to land use and development, including issues relating to compulsory purpose to release land for alternative purposes and monitoring / enforcement procedures;

- Development control: to identify the requirements of development projects and to control the possible conflicts resulting from different land uses and claims and from utilization of natural and other resources; and
- Development planning: to estimate future requirements for ongoing developments especially regarding population growth, and to identify and specify projects and plans for physical development, resulting in investment proposals to be included in the overall public investment planning.

Within the coastal zone there are specific actions required to address coastal resilience regarding existing and future flooding and erosion:

- The first and most significant is to prioritize the **relocation of government functions in Banjul to a planned new enclave** at a location that would best serve the nation and act as a best practice example of urban planning, the use of climate resilient building codes and the development of sustainable public transport. This action would release land in Banjul for expansion of the port, recognizing that Banjul is subject to both erosion and flooding and that the port would need to protect its facilities;
- The second is to **achieve coastal resilience along the open and river coasts by establishing a formal land use Policy for set-back**, with associated procedures and powers for implementation and enforcement. The set-back distance should be defined on a site-specific basis recognizing the spatial variation of flood / erosion risk and any associated land use issues. The Policy should enshrine the principle that coastal resilience is normally best achieved through adaptation to natural processes and not through engineering intervention, a process generally referred to as managed realignment. The specific issue of responsibility for removal / relocation of existing assets from within the set-back would need to be addressed in Policy to ensure that natural shoreline eco-systems can evolve and the foreshore remains freely available for public recreation, fishing and other customary activities.

Responsibility for policies, procedures and guidelines would lie with individual Ministries, Departments and Agencies that make up the cross-sectoral interest group for Land Use Planning. Coordination would be the responsibility of the Ministry of Lands and Regional Governments and the Department of Physical Planning and Housing with the full contribution and support of all stake holders. Capacity at the Department would need to be expanded to manage the project (*it is of interest to note that the Department for Physical Planning offices are located immediately adjacent to the north shore of Banjul, and will be amongst the very first to be directly affected by coast erosion*).

***Component 6: Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact***

The National Land Use Plan would be a combination of a Policy, procedural documents, guidance documents, cadastral maps, land use maps, supporting reports and data bases. The preparation of

the Plan would be the responsibility of the Ministry of Lands and Regional Governments and the Department of Physical Planning and Housing, but would be informed by consultation with cross-sectoral stakeholders addressing the wide ranging and often conflicting issues. The Plan would provide an environment to achieve a climate resilient, rational, efficient, economical and equitable use of resources, thereby enhancing the following:

- The presentation of data relating to the stock of physical structures and associated land use as well presentation of data relating to socioeconomic and environmental characteristics;
- Identification and estimation of present and future land requirements for expansion, in addition to new facilities and changes in land use;
- Preparation of plans for new facilities, land use changes, expansions as well as measures to alleviate possible shortcomings with respect to their locations, and integration into the existing environment;
- Coordination of building plans and intended land uses of public and private sector investors to achieve an optimal compromise acceptable to both the individual sector and the community; and
- Implementation, monitoring and enforcement of the physical development Plan.

The 1985 Land Use Plan identified a wide range of land use categories, but there are new categories relevant to the modern Gambian situation. Examples include:

- A new government enclave as a figurehead development for the nation;
- Waste management sites, sewerage works and water treatment plants;
- Power stations, including renewable energy installations and waste-to-power facilities;
- Flood corridors and ponding areas, not to be developed;
- Public transport corridors, “park & ride” facilities to reduce urban centre traffic and planning for integration of residential / work / child-care areas to reduce transport dependency, reduce sub-urban sprawl and improve quality of family life, proposed railway systems;
- Tourism development areas;
- Pedestrian only commercial and urban amenity areas; and
- Port expansion zone and re-development of river transport for bulk loads.

#### **Component 7: Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions**

The development and implementation of a National Land Use Plan should not be a time framed project. Planning should be ongoing, and constantly responding to new demands and challenges that may arise from socio-economic or political evolution and from changes to the natural environment as anticipated under climate change scenarios. Although certain aspects of the project would be weighted to the early years, such as agreement of management structures, policy development, provision of a suitable work environment, recruitment and training of staff and purchase of equipment, it should be seen as ongoing with a rolling programme of review, updating, maintenance, monitoring and enforcement.

## 6. Implementation arrangements

As with all investment programmes developed under the SPCR, high-level oversight in the interim will be provided through the Technical Team set up to oversee the SPCR preparatory process. The GoTG would as a priority need to formalise the draft NCCP, in order to have the basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses, as set out in the main volume of the SPCR. It would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. An initial step would be for the MoECCNAR to develop and submit a Cabinet Paper to motivate for consideration and approval of the draft NCCP.

Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was formalised and the key institutions – the National Climate Change Council and the Inter-Ministerial Committee on Climate Change – were in place.

Key stakeholders for CN 2 include MoECCNAR, MoLRG and satellite institutions e.g. MoTC, Geology, NEA, GTB, Governors and Traditional Rulers, district government and local municipalities, a wide range of national ministries and departments, Women’s Bureau, NGOs, CBOs, GCCI, TANGO, etc.

## 7. Estimated cost and provisional financing plan

The estimated cost of this investment programme is **US\$ 45,000,000**.

Sr. Nr.	Components	Cost in US\$
1	Data gathering to inform climate resilient land use planning and Training	1,500,000
2	Establish a central information management system based on GIS, GIS Equipment and Accessories and training, housed within a new purpose built facility	33,500,000
3	Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the <u>existing</u> situation	4,000,000
4	Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development, and governance	1,500,000
5	Cross-sectoral updating, development and publication of relevant Policies and Acts taking account of climate resilience in addition to other national development objectives	500,000
6	Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact	2,500,000
7	Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions	1,500,000

<b>TOTAL Cost</b>	<b>US\$ 45,000,000</b>
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**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts.**

An overall provisional financing plan for the entire SPCR is contained in section 2.4 of the Volume I report. The GoTG will develop the more specific provisional financing plan for this Concept Note at a later stage, after validation of the SPCR Phase 1.

8. Logical framework

**Results-based Logical Framework: Concept Note 2**

*Please note that all logical frameworks are of necessity indicative and provisional, and will need to be revised on an ongoing basis as the Concept Notes are developed into full project proposals.*

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>GOAL</b> Put in place the necessary steps to develop, implement and enforce a national Land Use Plan that recognises the need for climate resilience and balances the cross-sectoral aspirations of all relevant stakeholders</p>	<p><b>IMPACT</b> Improved Land Use Plan, institutional arrangements, and infrastructure to deliver climate resilience</p> <p>Effective mechanisms for regular Monitoring, Evaluation and Reporting on “Meeting the targets and goals of the Land Use Plan</p>	<p>All population in the Greater Banjul Area and other parts of the Gambia</p>	<p><u>Indicator</u> Land Use Plan <u>Sources:</u> Ministry of Lands</p> <p>Project Reporting and Evaluation</p>	<p>The indicative targets and timeframes will be formulated as the Concept Note is developed into a full project proposal.</p>	<p>Political will to develop climate change-integrated Land Use Plan Impacts of climate change do not outpace project Adaptation/resilience responses (this will be alleviated by the project’s interventions targeted to build resilience)</p>
<p><b>Project purpose:</b> <i>To establish Land Use Plan that would provide an environment to achieve rational, efficient, economical and equitable use of resources in The Gambia, considering future growth and development. The Plan would specifically address the relocation of the government functions currently within Banjul.</i></p>	<p><b>Outcomes:</b> 1. Better understanding and knowledge of the state of Land Use Plan in The Gambia and Land Governance, Management systems, current gaps and developments</p>	<p><b>Beneficiaries:</b> 1. The Greater Banjul Municipal Council, Developers, Planners</p>	<p><b>Outcome indicators:</b> The Gambia Municipalities and Property Developers annually report on the status of land use, management and land sector</p>	<p><b>Progress anticipated in the medium term:</b> Annual Municipality, National and Regional report on Land Use, Management and Development</p>	<p><b>Assumption statement:</b> Acceptance of the land use report content by broad stakeholders</p>



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HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>Component 1:</b> Data gathering to inform climate resilient land use planning</p>	Improved organizational and technical structures of land use and data collection, monitoring and reporting mechanisms	Municipalities, Sector Ministries and M&E Units	<p>Data gathered</p> <p><u>Sources:</u> Project Reporting and Evaluation</p> <p>Number of municipalities monitoring, assessing, and reporting to National Climate Change Authority on land degradation measures. <u>Sources:</u> Project Reporting and Evaluation</p>	National Land Use and Planning indicators governance and monitoring compatible with global monitoring systems.	Capacity of National level stakeholders will match project activity demands (this will be alleviated by a project capacity building strategy)
	Adequate resources mobilized for functional and regular observation mechanism and reporting process established at municipal, national and regional levels	Municipal Councils, Sector Agencies, Civil Society, NGOs, CBOs	<p>Total hectares included within protected areas system in the project sites</p> <p><u>Sources:</u> Project Reporting and Evaluation</p>	Municipal and National Governance and M&E budgets finance adequately the municipal and national governance and M&E action Plan	National government willing to mobilise adequate resources
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
1.6 Survey coastal zones structures by technical experts;	1.1 Strategic assessment, including climate change considerations, conducted for target coastal landscapes. Economic valuations completed comparing the coastal landscape level costs and benefits. Coastal Ecosystem-based	Municipal Councils, National Government, Sector Agencies,	Functional and adequate Municipal and National Task Teams set and put in place		Classified information on coastal zones and restricted areas available

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	Resilience/Adaptation strategies completed and operational for selected eco-regions				
1.7 Survey Urban areas and demarcation of land in accordance with effective use	1.2 Plans for infrastructure, Industrialization, Resettlement, Waste Disposal, Recreational prepared	Municipal Councils, National Government, Sector Agencies,	Functional and adequate Municipal and National Task Teams set and put in place		Land Use and Resource Management including wetlands/Riparian Reserves conflicts
1.8 Survey Rural Areas and land allocation for farming and resettlement	1.3 Land Survey Maps prepared	Local Authorities, Farmers, Organizations, Entrepreneurs	Functional and adequate Municipal and National Task Teams set and put in place		Land Use and Resource Management including wetlands/Riparian Reserves conflicts
1.9 Determine Cross-sectoral interventions	1.4 Topographical Maps prepared	Municipalities, National Government, Private sector, Developers, Farmers, Fishermen	Functional and adequate Municipal and National Task Teams set and put in place		Land Use and Resource Management including wetlands/Riparian Reserves conflicts
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 2:</b> Establish a central information management system based on GIS	National level GIS and Data Base and M&E systems assessed  Capacities established for climate change resilience/adaptation assessment and monitoring	Municipal Councils, National Government and Regional Coordination Teams and consultants,	Number of Municipalities Using GIS for strategic programs on Land Use and Planning  <u>Sources:</u> Project Reporting and Evaluation Monitoring by national and local authorities and project stakeholders	GIS and M&E systems assessment reports validated at municipal and national levels periodically	National and Municipal level stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)  Proposed interventions are able to deliver GIS results (this will be supported by

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					strategic and participatory planning implemented under Component One that will identify and prioritize actions based upon local needs.)
<p><b>Component 3:</b> Preparation and publication of national land use and cadastral maps at a range of appropriate scales based on the existing situation</p>	Cadastral maps prepared	Municipal, National, and Regional Coordination Teams	<p>Number of government decision-makers with increased knowledge of basic cadastral maps principles and practices</p> <p><u>Sources:</u> Project Reporting and Evaluation Determined by cadastral maps monitoring</p> <p>Number of Municipalities replicating cadastral maps principles and practices within the target areas</p> <p><u>Sources:</u> The Municipal Council Strategy Process implemented will verify results</p> <p>Project Reporting and Evaluation Report</p>	Municipal Council County, National and Regional gaps in cadastral maps, M&E compiled and prioritized periodically	<p>National, Municipal, Regional, provincial and district level stakeholders are receptive to project's cadastral maps knowledge building approach (this will be supported by with project support for the design of formal information development and awareness for outreach strategies)</p> <p>Government is willing and capable of directing financing towards the support of cadastral maps, soil maps</p>
<p><b>Component 4</b> Development and publication of a National Land Policy and overarching Act to guide land ownership, planning, management, development, and governance</p>	Land Policy and overarching Land Act prepared	Municipal, National, and Regional Provinces	<p>Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices</p> <p><u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act</p>	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Land Regulatory Commission may lack capacity and may be constrained by institutional and administrative challenges posing the risk of non-performance and non-delivery

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			and Practices monitoring		
<b>Component 5</b> Cross-sectoral updating, development and publication of relevant Policies and Acts taking account of climate resilience in addition to other national development objectives	5.1 Publication of relevant Policies and Acts prepared	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk
<b>Component 6</b> Preparation and publication of a national land use plan, including definition and legal recognition of implementation, monitoring and enforcement procedures and creation of capacity to enact	6.1 Publication of a national land use plan prepared	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk
<b>Component 7:</b> Ongoing review and updating of the policies, plans and maps to respond to future changes in social, economic and environmental conditions	7.1 Updated policies, plans and maps	Municipal, National, and Regional Provinces	Number of government decision-makers with increased knowledge of Land Policy, Land Act and Practices  <u>Sources:</u> Project Reporting and Evaluation Determined by Land Policy, Land Act and Practices monitoring	Municipal Council County, National and Regional gaps inland Policy, Land Act, Land Practices, M&E compiled and prioritized periodically	Duplication of information and information gaps may result into information risk
<b>Resources:</b> Total: US\$45,000,000 SPCR Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...					

## **Concept Note 3: Developing climate resilient infrastructure, services and energy systems**

### **1. Title and brief summary of the investment**

This Concept Note is for an integrated programme entitled “**Developing climate resilient infrastructure, services and energy systems in The Gambia**”. The programme includes an integrated set of components designed to enhance the climate resilience of the urban areas in The Gambia – namely the Greater Banjul Area (GBA) and the growth centres – while also covering infrastructural issues beyond the urban areas. Specific components include developing climate-resilient integrated waste management, addressing the associated need for climate resilient roads and drainage systems, and actions to climate proof water supply and sanitation infrastructure, as well as energy infrastructure. Livelihoods opportunities associated with renewable energy, waste management and urban agriculture will be supported, particularly for women, youth and disadvantaged groups, including differently abled people. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components.

### **2. Background and justification**

While a number of studies carried out over the years have made numerous recommendations, waste management continues to be a major challenge in The Gambia. Problems are particularly severe in the Greater Banjul Area (GBA). From collection, storage and disposal, all aspects of waste management are poorly managed, whilst existing dumpsites including the Bakoteh disposal site are public health hazards as well as being eyesores. Both Bakoteh and Mile 2 Dump sites in the GBA are no longer capable of handling the volume of waste they were intended to handle, whilst Bakoteh has been rendered unhealthy and ineffective by the uncontrolled urban development and encroachment around it. It is therefore necessary to identify a new site that can replace both Bakoteh and Mile 2. An associated problem is the blockage of drainage channels through indiscriminate dumping of waste, which reduces the ability to cope with flooding that is expected to increase under climate change. Broad attitudinal change and law enforcement will be required to address these waste management issues. It is clear that the current practices adopted by various municipalities in dealing with drainage problems in the GBA and the growth centres are not sufficient to address the problem. Appropriate drainage off roads, to handle higher volumes of water from more intense rainfall and increased hard surfaces, is further required.

The GBA is served by a good network of roads and bridges, which however have a long history of vulnerability to coastal erosion. The Banjul/Serekunda highway, which runs westwards from Banjul parallel to the northern coastline of the GBA, has in the past been threatened as erosion has extended to within 10 metres from the road. The Denton Bridge, across which the highway runs at Oyster Creek, is equally vulnerable. To protect this infrastructure, as well as other valuable shore front properties, wide beach nourishment was undertaken in 2004, but this has subsequently been heavily eroded and the pre-2004 situation is expected to return in less than 10 years.

The National Water Policy calls strongly for an Integrated Water Resources Management (IWRM) approach, and clearly highlights the likelihood of future climate change-driven flood risks across the Gambia River Basin, noting that some 20% of the country's surface area consists of water, wetlands and tidal creeks. The Policy includes strong reference to both climate change and flooding, and clearly raises the issue of increased risks to water resources in the future in the face of climate change and sea level rise. Collection of water is mainly the task of women and children, who obtain water from communal wells and standpipes, including open wells, uncovered boreholes or concrete-lined boreholes with hand pumps, often waiting in long queues. In the GBA, two water resource management problems exist, both of which are essentially climate-induced: salt intrusion due to increased extraction; and insufficient recharge due to runoff from hard surfaces.

The Gambia's energy supply comes exclusively from four sources: fuelwood, petroleum products, butane gas and solar energy. Fuelwood is the most important energy source in the country and accounts for about 80% of the country's primary consumption. There are important gender and health considerations inherent in this. For example, when the supply of fuelwood is affected by drought, women and children in North Bank Region may walk up to 5 km and spend many hours gathering fuelwood (Lahmeyer International, 2006). Access to electricity outside the GBA is very low. Therefore, wind and solar PV are likely to remain the most appropriate renewable power options in the Gambia in the short term. There is currently no interconnection within the West African region. This will change when the OMVG hydroelectric project becomes operational, as it will connect up the four member states, and in turn allow them to access the West African Power Pool.

### **3. Project development objective**

The project development objective is to put in place a series of steps and develop systems to promote climate resilience in the urban areas of The Gambia, through actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes; and to promote associated livelihoods opportunities, particularly for women, youth and disadvantaged groups, including differently abled people.

### **4. Link to national adaptation and /or mitigation objectives**

The programme contributes directly to the achievement of the following policy objectives in the draft 2016 National Climate Change Policy (2016):

- Advance the understanding, capacity and social empowerment of all Gambians so that they can adequately respond to climate change.
- Effectively integrate climate change into all sectors and across all scales, through mainstreaming climate risks and opportunities into national and sectoral frameworks, and through effective policy coordination and implementation.
- Put in place sound and equitable adaptation and mitigation measures that promote effective management of ecosystems and biodiversity, reduce vulnerability to climate change impacts, and reduce greenhouse gas emissions, to achieve sustainable low-carbon socio-economic development.

- Build the resilience of communities and ensure health and welfare through participatory, equitable and pro-poor approaches to climate change that emphasise the meaningful inclusion of women and vulnerable groups.

The programme objective and activities are additionally aligned with the relevant provisions on mainstreaming climate change and environmental sustainability into the relevant sectors as set out in the draft PAGE II, and will contribute to the realisation of the priorities identified in the National Adaptation Programme of Action (NAPA) and the Nationally Determined Contribution (NDC), which in themselves are reflected in the policy provisions of the NCCP.

## **5. Project components and activities**

The programme includes 5 inter-linked components, with associated activities, as detailed below.

### ***Component 1: Climate-resilient integrated waste management***

Apart from the formal waste management sites, a number of illegal dumpsites exist, some of which are located on waterways. These should be completely eradicated, based upon holistic and improved waste collection strategies that maximize entrepreneurial opportunities, and within the ambit of a new National Waste Management Policy and associated regulations. Improved integrated waste management is inextricably linked to updating and enforcing land use planning in the GBA, and indeed throughout the country. For an enhanced urban environment, existing environmental and physical planning laws and regulations should be enforced, to eradicate inappropriate developments on waterways, amongst other issues.

The GBA and Brikama areas face serious challenges with respect to solid waste management. Insufficient collection is occurring due to lack of municipal resources and extensive equipment downtime as a result of unavailable spare parts. Collected waste is being disposed of improperly at authorized substandard dumpsites, while waste not collected by the municipalities is dumped indiscriminately throughout the community, and particularly in riverine areas. Landfills have not been properly sited or managed, and the many temporary dumpsites are degrading the urban environment. These practices are resulting in a littered landscape, surface water and groundwater pollution, air quality degradation, risks of explosion from methane gas for adjacent structures, blocked drains and public health and safety impacts (SNC Lavalin International, 2005).

The Kanifing Municipal Council (KMC) has recently prepared a 5-year Waste Management Strategy, for which resources are lacking. There is the opportunity to contribute to the implementation of this strategy, for example by funding the critical awareness raising priority component.

The composition of wastes generated by Gambian households typically includes organic waste, garden waste, animal waste, night soil, paper, cardboard, textiles, glass plastic containers and bags, polyethylene, ceramic and stone, metals, leather, rubber and wood wastes. In addition to these components a large amount of sand also finds its way into the waste set out for collection through existing practices of sweeping wastes from the ground of compounds.

The Waste Surveys Report (Louis Berger/GAP Consultants, 2002) carried out a substantive effort to develop household waste compositions for Banjul, Kanifing and Brikama and to look at variations

associated with income levels. A combined average of the household waste composition for all three of these municipalities by weight is: sand (46.7%), organic (35%), paper/carton (9.7%), glass (1.2%), wood (2.6%), metals (2.1%), textiles (1.6%), rubber (0.5%), and other (0.7%). According to the 2002 data, more than 80% of the waste stream was organics and sand.

Project Lighthouse Gambia in collaboration with KMC collected data on incoming waste at Bakoteh dumpsite. The findings can be summarized as follows:

YEAR	Reference year 2002	2011	2012	2013	2014
VOLUME OF WASTE	220 Mg/d	411 Mg/d	380 Mg/d	541 Mg/d	478 Mg/d

This data was used to project a landfill volume after 15 year at 2,000,000 Mg/d, assuming that (a) the average waste rate of 350Mg/d (b) 1 Mg is equal to 1 M<sup>3</sup> (waste is not compacted).

In 2015, Waste Aid UK conducted a waste composition study in Brikama, during which 2.497 tonnes of waste were segregated into 45 separate categories, using 25 separate samples (28<sup>th</sup> April to 2<sup>nd</sup> May) at Jamisa dump site following UNEP IETC waste characterization protocols. This produced results with an 80% confidence level with the following composition: “Organics”: 36.45%, “Other”: 19.28%, “Plastics”: 15.22%, “Textiles”: 7.80%, “Paper and Paperboard”: 5.81%, “Construction and Demolition”: 5.54%, “Hazardous Waste”: 5.22%, “Glass”: 1.35%, “Metals: 3.32%.

For an enhanced urban environment, existing environmental and physical planning laws and regulations would need to be enforced to, among other things, eradicate developments on waterways.

Key activities and steps identified are the following:

- Building on the good practice gained by the KMC in developing the municipal Integrated Waste Management Strategy, develop, implement and enforce a coherent national integrated waste management framework, to include a National Integrated Waste Management Policy, Strategy and an Act with Regulations;
- Allocate resources for capacity development for integrated waste management in The Gambia, and implement a comprehensive capacity development programme;
- Conduct a waste survey in GBA and Growth Centres to identify opportunities for recycling businesses, particularly to target women and youth, as well as for opportunities for production of biogas; should this be feasible, a power plant to generate energy from waste should be established;
- As a matter of urgency, implement a participatory process to identify socially and environmentally acceptable waste dump sites in the GBA; this should form part of the land use planning exercise as covered in Concept Note 2;



- Develop standards and design and implement dumpsites and landfills in the GBA to appropriate standards, with access roads, embankments, fencing, drainage, weigh scales and scale house as appropriate;
- Assess the equipment for proper waste collection in each municipality or growth centre (e.g. waste compactors, bulldozers, back hole/with front loader and dump trucks, skip buckets, trailers etc.);
- Once appropriate waste sites have been identified and initiated, and municipal household collections are in place in the KMC, based on a segregation plan supported by appropriate training, close all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites;
- Support the implementation of the National Health Care Waste Management Plan, which would include clinical waste incinerators that can generate energy, as well as other steps for management and disposal of medical and clinical waste;
- Identify sewage treatment plants (e.g. Kotu treatment plant) in all the regions of the Gambia; and
- Design and implement a nation-wide awareness raising campaign to sensitise the public about the rationale for integrated waste management, and climate resilient infrastructure and services; this should include *inter alia* the health impacts of illegal waste dumping, the need to keep drains free of waste and climate-related increased flooding risks.

### ***Component 2: Climate-resilient water supply and sanitation***

Water for domestic and other uses in the GBA is mainly sourced from below ground in deep and shallow aquifers. Adequate amounts of rainfall are required to recharge the underground aquifers, necessitating reliable climate and precipitation projections for future estimates of groundwater recharge; moreover, extraction levels of the groundwater need to be controlled for sustainability.

In the GBA, two water resource management problems exist, both of which are essentially climate-induced:

- Salt intrusion due to increased extraction; and
- Insufficient recharge due to runoff from hard surfaces.

For the former, existing boreholes need to be relocated away from possible salt intrusion areas whilst extraction rates are adequately monitored to ensure that appropriate levels are always maintained. For the latter, new boreholes need to be located away from heavily built up areas to minimize runoff and facilitate recharge of aquifers. A likely reduction in rainfall due to climate change would be likely to further reduce the rate of recharge. In both cases, however, planning authorities should ensure that boreholes are adequately protected from encroachment.

Recent developments have resulted in a more supportive legal and institutional framework, as there is now an Integrated Water Resources Management (IWRM) Policy, Strategy and Road Map. There is an evolving institutional framework that includes water user groups. However, all of this is project based, with no dedicated budget lines for reliable and ongoing support to institutions, which means they are not able to carry out their institutional mandates effectively.

There are a number of necessary steps to create more systematised linkages between rural water supply and that in the peri-urban areas, given the transition of some rural areas peri-urban, particularly in the GBA. Challenges lie in the funding approaches: most rural water supply and sanitation projects are grants, while most of the support to peri-urban water supply systems under NAWEC's management is in the form loans. While in the past the GoTG was able to use the EDF-9 grant to connect peri-urban communities like Brufut and satellite villages around Kerewan (NBR) to the NAWEC system, a more institutionalised approach will be needed in the future.

The Banjul sewerage system currently suffers from both infrastructure and operational problems. These include blockages in the system, infiltration of rain water and sand through manhole covers, intermittent mains power supply to the two pumping stations and regular overflows to the environment chiefly at the pumping station.

The Kotu system on the other hand, suffers from discharge of raw sewage into the Kotu Stream due to defective sewer pipes, a lack of overflow storage capacity during pump/power failures, lack of an alarm system to alert operators that there is a problem with the pumps, and intermittent mains power supply to the pumping stations. In addition to these, fundamental equipment needed to adequately maintain and repair failures in the system is lacking.

Key activities and steps identified are the following:

- Implement the Integrated Water Resources Management (IWRM) strategy, to include rain water harvesting systems;
- Update the SNC Lavalin NAWEC Water and Sanitation Master plan up to 2030, fully integrate climate change, gender and environmental sustainability issues, and implement the plan – this should entail *inter alia* the location of new boreholes away from heavily built up areas to minimize runoff and facilitate recharge of aquifers (US\$75M);
- Develop a Rural Water Supply and Sanitation Programme to attain 100% coverage in the Gambia, link rural water supply to that in the peri-urban areas, strengthen the capacity of communities to govern water supply systems, and put in place a robust and sustainable village water supply maintenance mechanism; (US\$30M);
- Increase the density of observation boreholes to monitor the groundwater extraction rates and need for relocation of boreholes due to salt water intrusion;
- Develop and decentralize sewerage systems and sewage treatment plants in all regions of The Gambia, and support the implementation of community-led total sanitation and hygiene; and
- Develop appropriate regulations and standards for both water supply and sanitation, and strengthen and decentralize the laboratory services.

### ***Component 3: Climate resilient roads and drainage infrastructure***

Existing facilities are limited to drainage systems in Banjul, Kanifing and Brikama and drainage canals constructed to serve some of the main roads. In most communities, there is no way to collect and eliminate rainwater and in many cases, drainage is insufficient or has not been provided. Areas of standing water are often a daily problem during the wet season. Unfortunately, drainage channels located in the GBA are generally poorly maintained; dumping of waste into the channels leads to blockages and accumulation of stagnant water. With projected increasing temperature and erratic, at times more intense rainfall, this scenario could exacerbate transmission of diseases such as malaria and cholera.

Beyond the GBA, the current situation in the growth centres of the country is essentially the same, characterized by inadequately designed open drainage facilities, often without outlets, with minimal coverage of the main catchment area. At present, the only provincial centres with some drainage facilities are Bansang and Basse with 1.5 km each, and Janjangbureh with 3 km of drainage network.

In addition to the Banjul/Serekunda highway, a section of the Kombo coastal road, close to the Tanji Bridge, has been threatened by coastal erosion, necessitating protection using a rock revetment. With a possible increasing intensity of some rainfall events, similar flooding may occur causing the Tanji River or other water channels to further damage road infrastructure in the GBA. In the floodplain of the Gambia River and its main tributaries there is a complex pattern of alluvial deposits and fluvial marine deposits. Inappropriate road construction on these substrates has led to damage to the road surfaces, which reduces their durability and impacts negatively on road safety.

The impacts of changes caused by floods, drought and erosion may entail significant additional project costs. Because the GBA is relatively flat, flooding caused by heavy rains leads to inundation of the roads, destruction of the road shoulders and undermining of the infrastructure foundations. Additional studies, evaluation, budgeting, and consultation on the part of construction companies are required to ensure climate-resilient infrastructure. More thorough consideration of current and future climate impacts in the design of projects should also contribute to a more ambitious quality of the works. The sustainability of road infrastructure must meet an unequivocal standard for climate resilience. Investments may therefore be costly both in terms of new work and maintenance; best practices must be taken into account, without being exhaustive.

Key activities and steps identified are the following:

- Review and modify existing policies, laws, regulations and strategies on roads and bridges to ensure climate resilient standards are applied, including appropriate drainage systems along their corridors;
- Develop a national drainage master plan, which fully integrates climate change, gender and environmental sustainability issues;
- Update and design the Kotu stream drainage system from Lamin to Badala Park and those of Brikama, Barra, Soma, Bansang, Basse and Farafenni; and design and implement drains for all major roads in the GBA including Kombo Coastal Roads;

- Provide a comprehensive institutional framework (National Roads Authority, Municipal Councils, National Disaster Management Agency, Department of Water Resources, etc.) for the maintenance of urban drains; and
- Include development of river transport in the new transport policy – which is currently at the invitation to tender stage.

#### ***Component 4: Climate resilient energy infrastructure***

Energy infrastructures refers to NAWEC's entire electricity generation, transmission and distribution assets comprising of power stations with an aggregate capacity of 101 MW produced by electro-mechanical generators. Power produced is conveyed to users through an electricity grid comprising of 181-km long 33kV/11kV transmission network, step-down transformers, and finally 230V and 400V distribution lines. With increase in temperatures, sagging of overhead lines will become more serious leading to significant electricity transmission losses, resulting in subsequent power shortages and power outages.

The power supply in The Gambia is still largely inadequate, inefficient, and extremely unreliable, which had a negative impact on investment and production. This is one of the reasons for the excessive dependence within the city and major urban centres on firewood and charcoal, which reduce the country's forest resources and natural vegetation cover at an alarming rate, causing widespread environmental degradation. An important baseline priority for the GoTG would be considering the possibility of immediately replacing NAWEC's existing aged generators. To this end, the GoTG has signed a contract of \$120 Million for new generators and for improvement of the electricity supply network with a Chinese company. However, within the SPCR context, it is important to significantly increase investment into renewable energy, remove any bottlenecks, and put in place incentives for scaling up renewables. Improving electricity supply in the rural areas is likely to be one of the factors that helps to slow migration to the urban centres.

Vulnerability of the energy sector on the whole resides in various different effects, as set out in Njie (2015). Rising temperatures combined with decreasing rainfall are likely to cause a decline in standing forest biomass, and hence the renewable volume of fuelwood. Delivery of petroleum products, the second most important source of energy in use, could suffer disruptions in supply related to extreme weather. The vulnerability of growing renewable energy solutions varies according to technologies, with wind turbines likely to be least affected, and solar PV efficiencies slightly reduced by dust coating of modules. Electricity supply infrastructure faces decreased thermal efficiency of power lines, and possibly damage to infrastructure. Higher temperatures degrade heat exchange efficiency of engines and encourage use of air-conditioning, resulting in higher fuel consumption and increased GHG emissions.

At the regional level, the most important ongoing activity is the West African Power Pool (WAPP), aimed at integrating the regional power system and the realisation of a regional electricity market in West Africa. The Gambia will benefit from three projects under the Gambia River Basin Organisation (OMVG):

- 240 MW Kaleta Hydropower Plant, which started operation in Guinea

- 128 MW Sambangalo hydropower dam to be constructed along the River Gambia in Senegal. A Chinese company has been contracted and construction will commence soon
- 225 KV Gambia – Guinea – Guinea Bissau – Senegal interconnection Project

Despite these projects, it is essential that additional investment be channelled into renewable energy, in order to make the energy systems more climate resilient. Several studies have been carried out on alternative energy sources such as wind, solar and hydropower, in order to reduce dependence on electro-mechanical generators. Steps need to be taken to make existing energy infrastructure and systems more climate resilient. When supporting renewable energy, significant efforts will need to be made to ensure timely and ongoing maintenance and long-term sustainability. This is currently not the case – for example, in the rural areas, problems with the solar systems powering the water pumps in the vegetable gardens mean that the pumps are often not functioning. Lessons from successfully implemented renewable energy projects, such as PV powered freezers at Tendaba, should be learned and these practices scaled up. It would be important to provide start-up capital and training for both men and women in renewable energy entrepreneurial activities – for example through scaling up the PURA-initiated Renewable Energy Fund. The human resources development mentioned below could include establishing an engineering centre of expertise to plan, design and execute climate change projects in order to capitalize on engineering services offered by Gambian firms and consultants – this would go beyond energy to include other areas of climate resilience-related engineering services.

Key activities and steps identified are the following:

- Develop the renewable energy regulatory framework and expedite the feed-in- tariff study and develop further incentives to encourage entrepreneurial opportunities and private sector participation in renewable energy;
- Install solar and wind mini-grids to compliment NAWEC's generating capacity, develop an alternative energy source for all general hospitals, district hospitals and major and minor health centres, and install solar powered street lights in the GBA and the Growth Centres (US\$ 15M);
- Investigate the feasibility of a wave energy system and low-flow underwater turbine technology, and implement if feasible;
- Scale up the Renewable Energy Fund initiated by PURA, and further support SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered systems to boost the sector (US\$ 3M);
- Institute urgent human resources development (technical capacity for building, installing and maintaining renewable energy systems) together with a substantial investment of material resources into renewable energy; this should include researching and replicating successfully implemented renewable energy projects (US\$ 1M);
- Implement the National Energy Efficiency Action Plan, which should include developing energy efficiency measures, incentivising the replacement of incandescent bulbs with energy saving bulbs like LED; developing standards for electrical and solar equipment, and supporting the development of mass production techniques for energy efficient stoves;
- In conjunction with the investment programme set out in Concept Note 2, map out and acquire land for renewable energy installations in the country;

- Monitor emissions from vehicles and take steps to reduce them, including through the development of appropriate standards and regulations; and
- Design and implement a nation-wide awareness raising and sensitisation campaign on the climate change and health related aspects of fossil fuels and energy inefficiency, and the substantial adaptation, mitigation and developmental benefits of renewable energy.

#### ***Component 5: Support to urban agriculture***

The new Department of Urban Agriculture provides an additional opportunity to strengthen and promote urban agriculture, for more resilient urban areas. Expansion and support of existing vegetable gardens, as well as new micro gardening initiatives, should be considered, in an integrated fashion with other urban development activities. Climate resilient technologies and processes for urban agriculture would need to be identified and disseminated.

Key activities and steps identified are the following:

- Support key stakeholders, including the Urban Agriculture Department, NARI, the UoTG and relevant NGOs and CBOs to identify, research and disseminate integrated systems at different scales for climate resilient urban farming.
- Support the establishment of urban agriculture producers associations and develop appropriate systems of extension and farmer-to-farmer learning.

#### **6. Implementation arrangements**

As with all investment programmes developed under the SPCR, high-level oversight in the interim will be provided through the Technical Team set up to oversee the SPCR preparatory process. The GoTG would as a priority need to formalise the draft NCCP, in order to have the basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses, as set out in the main volume of the SPCR. It would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. An initial step would be for the MoECCNAR to develop and submit a Cabinet Paper to motivate for consideration and approval of the draft NCCP.

Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was formalised and the key institutions – the National Climate Change Council and the Inter-Ministerial Committee on Climate Change – were in place.

The following key stakeholders were identified: MoECCNAR, NAWEC, PURA, Ministry of Energy, GREC, DWR, Department of community Department, Ministry of Local Government and Lands, Department of Physical Planning, Municipal and Area Councils, NEA, National Roads Authority, Port Authority, etc.

#### **7. Estimated cost and provisional financing plan**

The estimated cost of this investment programme is **US\$ 169,000,000**.

<b>Sr. Nr.</b>	<b>Components</b>	<b>Cost in US\$</b>
1	Climate-resilient integrated waste management	30,000,000
2	Climate-resilient water supply and sanitation	105,000,000
3	Climate resilient roads and drainage infrastructure	10,000,000
4	Climate resilient energy infrastructure	19,000,000
5	Support to urban agriculture	5,000,000
<b>TOTAL Cost</b>		<b>US\$ 169,000,000</b>

**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts.**

An overall provisional financing plan for the entire SPCR is contained in section 2.4 of the Volume I report. The GoTG will develop the more specific provisional financing plan for this Concept Note at a later stage, after validation of the SPCR Phase 1.

8. Logical framework

**Results-based Logical Framework: Concept Note 3**

*Please note that all logical frameworks are of necessity indicative and provisional, and will need to be revised on an ongoing basis as the Concept Notes are developed into full project proposals.*

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>GOAL</b> Develop systems to promote climate resilience in the urban areas of The Gambia, through actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes</p>	<p><b>IMPACT</b> Improved systems for promoting climate resilience in the urban areas of The Gambia, and developed systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy climate resilient</p> <p>Effective mechanisms for regular Monitoring, Evaluation and reporting on “Meeting the targets and goals of the climate resilient</p>	<p>All population in The Gambia</p>	<p><u>Indicator</u> Sustained climate resilience in the urban areas of The Gambia, and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy</p> <p><u>Sources:</u> National and international statistics and reports</p>		<p>Climate resilience reporting remains operational and reliable (this will be alleviated by project support)</p> <p>Impacts of climate change do not outpace project Resilience/adaptation responses (this will be alleviated by the project’s interventions targeted to build resilience)</p>
<p><b><u>Project purpose:</u></b> <i>To establish actions to make systems and infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient to current and future projected climatic changes.</i></p>	<p><b><u>Outcomes:</u></b> 1. Better understanding and knowledge of the state of infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient</p>	<p><b><u>Beneficiaries:</u></b> 1. National Government, Regional Provinces, Municipalities, Technical Teams and Sector Ministries and water, infrastructure, energy, roads, sanitation governance and population</p>	<p><b><u>Outcome indicators:</u></b> National Government, Regional Provinces and Sector Ministries annually reports on the status of infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient</p>	<p><b><u>Progress anticipated in the medium term:</u></b> Annual National Government and Regional Provinces reports on infrastructure for waste management, roads and drainage, water supply and sanitation, and energy resilient</p>	<p><b><u>Assumption statement:</u></b> Acceptance of the reports content</p>



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HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Component 1:</b> Climate-resilient integrated waste management	Integrated climate resilient waste management	National Government, Regional Provinces, Municipalities	Waste Management strategy programs and action plans adopted by National Government, Regional Provinces and Municipalities  <u>Sources:</u> Project reporting and Evaluation	The indicative targets and timeframes will be formulated as the Concept Note is developed into a full project proposal.	Capacity of National, Regional Provinces and Municipalities levels do not match project activity demands (this will be alleviated by a project capacity building strategy)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
1.10 Develop a National Waste Management Strategy	1.1 Waste management strategy developed	National Government, Regional Provinces, Municipalities, communities	National Waste Management Strategy	Within one year of project inception	Sufficient capacity to manage the process to develop the Strategy
1.11 Conduct a waste survey in GBA and Growth Centres to identify opportunities for recycling businesses, particularly to target women and youth	1.2 Conducted survey in GBA for waste and recycling	Local communities, National Government, Regional Provinces, Municipalities	Waste survey	Within one year of project inception	Restriction in conducting survey in GBA for waste
1.12 Identify socially and environmentally acceptable waste dump sites in the GBA	1.3 Identified dumpsite in GBA	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Waste dump sites identified	Within one year of project inception	Risk of public opposition to identifying socially and environmentally acceptable waste dump sites in the GBA
1.13 Develop standards and design and implement dumpsites and landfills in the GBA to appropriate standards, with access roads, embankments, fencing, drainage, weigh scales and scale house as appropriate	1.4 Developed standards and designed and implemented dumpsites and landfills in the GBA	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Standards developed and waste sites designed and implemented	To be developed during detailed planning	Restriction in developing standards and designing and implementing dumpsites and landfills in the GBA

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1.14 Assess the equipment for proper waste collection in each municipality or growth centre (e.g. waste compactors, bulldozers, back hole/with front loader and dump trucks, skip buckets, trailers)	1.5 Assessed the equipment for proper waste collection in each municipality or growth centre	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Assessment of equipment for proper waste collection	To be developed during detailed planning	Sufficient capacity for assessing the equipment for proper waste collection in each municipality or growth centre
1.15 Close all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites	1.6 Closed all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Community dump sites closed	This will depend on prior identification of new formal dump sites and successful operationalization of household waste collection	Community resistance to closing all community dump sites (collection points), as well as both Bakoteh and Mile 2 dump sites will be adequately managed
1.16 Design and implement a nation-wide awareness raising campaign to sensitise the public about the rationale for integrated waste management, and climate resilient infrastructure and services; this should include <i>inter alia</i> the health impacts of illegal waste dumping, the need to keep drains free of waste and climate-related increased flooding risks	1.7 Designed and implemented a nation-wide awareness raising campaign plan	Communities, National Government, Regional Provinces, Municipalities, NGOs, Private Sector	Integrated strategy document for national awareness raising campaign Number of national and regional awareness raising events	Design to be initiated within 6 months of project inception, awareness raising campaign to continue for duration of project, and be institutionalised thereafter	Political will for designing and implementing a nation-wide awareness raising campaign plan
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 2:</b> Climate-resilient Water and Sanitation	Developed Climate-resilient Water and Sanitation infrastructure	Urban areas of the Greater Banjul area and towns in Regional Provinces	Number of towns developed with climate resilience infrastructure  <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders	Climate-resilient Water and Sanitation and M&E systems assessment reports validated at municipal. Regional Provinces and National Government  Timeframe to be developed during detailed project planning	National, municipal and regional levels stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)

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					Proposed interventions are able to deliver Climate-resilient Water and Sanitation results (this will be eradicated by strategic and participatory planning.)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
2.1 Implementation of IWRM	2.1 IWRM implemented	Urban areas of the Greater Banjul area and towns in Regional Provinces	IWRM implemented	Timeframe to be developed during detailed project planning	Restriction in awareness, sensitization and public consultation
2.2 Update the SNC Lavan Water and Sanitation Master plan up to 2030 and implement plan – this should entail <i>inter alia</i> the location of new boreholes away from heavily built up areas to minimize runoff and facilitate recharge of aquifers	2.2 Updated SNC Lavan Water and Sanitation Master plan up to 2030 and implement plan	Urban areas of the Greater Banjul area and towns in Regional Provinces	Updated Master Plan	Timeframe to be developed during detailed project planning	Lack of capacity for updating the SNC Lavan Water and Sanitation Master plan up to 2030 and implementing the plan
2.3 Develop a Rural Water Supply Programme to attain 100% coverage in the Gambia	2. Rural Water Supply Programme to attain 100% coverage in the Gambia developed	Urban areas of the Greater Banjul area and towns in Regional Provinces and local communities	Rural water supply programme	Timeframe to be developed during detailed project planning	Sufficient capacity and raw water for developing a Rural Water Supply Programme to attain 100% coverage in the Gambia
2.4 Put in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level	2.4 Robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level in place [and functioning efficiently]	Rural areas of The Gambia and towns in Regional Provinces and local communities	Robust village water supply maintenance mechanism	Timeframe to be developed during detailed project planning for putting in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level	Capacity for putting in place a robust village water supply maintenance mechanism to maintain the systems to a satisfactory and sustainable level

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2.5 Increase the density of observation boreholes to monitor the groundwater extraction rates and possible relocation of boreholes due to salt water intrusion	2.5 Increase the density of observation boreholes	Urban areas of the Greater Banjul area and towns in Regional Provinces and local communities	Density of observation boreholes	Timeframe to be developed during detailed project planning for increasing the density of observation boreholes	Capability for increasing the density of observation boreholes
2.6 Develop a treatment plant, for the Banjul sewage system	2.6 Treatment plant for Banjul Sewage system in operation	Urban areas of the Greater Banjul area	Treatment plant for Banjul Sewage system	Timeframe to be developed during detailed project planning for developing a treatment plant, for the Banjul sewage system	Political will in place for developing a treatment plant, for the Banjul sewage system
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 3:</b> Climate resilient roads and Drainage Infrastructure	country level climate resilient roads and drainage infrastructure governance and M&E systems assessed	National and Regional Provinces	Number of municipalities implementing climate resilient roads and drainage Infrastructure governance and M&E systems strategic programs <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders	Climate resilient roads and drainage infrastructure governance and M&E systems governance and M&E systems assessment reports validated at municipal, regional and national levels	National, Regional and Municipal levels stakeholders will match project activity demands (this will be eradicated by a project capacity building strategy, including national/local mentoring program)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
3.1 Review and modify existing policies and strategies on roads and bridges to ensure climate resilient standards are applied, including appropriate drainage systems along their corridors	3.1 Modified policies and strategies	National Government, Municipalities and Regional Provinces	Modified policies and strategies	Timeframe TBC for reviewing existing policies and strategies	Capacities for reviewing existing policies and strategies

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3.2 Update and design the Kotu stream drainage system from Lamin to Badala Park	3.2 Updated and designed the Kotu stream drainage system from Lamin to Badala Park	National Government, Municipalities and Regional Provinces	Updated and designed Kotu stream drainage system	Timeframe TBC for updating and designing the Kotu stream drainage system from Lamin to Badala Park	Restriction in updating and designing the Kotu stream drainage system from Lamin to Badala Park
3.3 Design and implement drains for all major roads in the GBA including Kombo Coastal Roads	3.3 Designed and implement drains for all major roads in the GBA including Kombo Coastal Roads	National Government, Municipalities and Regional Provinces	Functional and adequate National, Regional and Municipalities Task Forces set up in place	Timeframe TBC for designing and drains for all major roads in the GBA including Kombo Coastal Roads	Sufficient capacity for designing and drains for all major roads in the GBA including Kombo Coastal Roads
3.4 Provide a comprehensive institutional framework for the maintenance of urban drains	3.4 Provided a comprehensive institutional framework for the maintenance of urban drains	National Government, Municipalities and Regional Provinces	Drains for all major roads in the GBA	Timeframe TBC for providing a comprehensive institutional framework for the maintenance of urban drains	Capacities for providing a comprehensive institutional framework for the maintenance of urban drains
HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<b>Component 4:</b> Climate resilient energy infrastructure	Country level climate resilient energy infrastructure governance and M&E systems assessed	National and Regional Provinces and Municipalities	Number of Municipalities and Regional Provinces implementing climate resilient energy infrastructure strategic programs <u>Sources:</u> Project reporting and evaluation Monitoring by national and local authorities and project stakeholders	Climate resilient energy infrastructure governance and M&E systems assessment reports validated at national levels	National, Municipality and Regional Provinces levels stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)
<u>Inputs and activities:</u>	<u>Outputs:</u>	<u>Beneficiaries:</u>	<u>Output indicator:</u>	<u>Progress /Timeframe:</u>	<u>Assumption statement:</u>

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4.1 Explore the possibility of immediately replacing NAWEC's existing aged generators.	4.1 NAWEC's existing aged generators replaced	National Government, Municipalities and Regional Provinces	Replaced generators	TIMEFRAME TBC for replacing NAWEC's existing aged generators	Know-how replacing NAWEC's existing aged generators
4.2 Expedite the feed-in-tariff study to encourage private sector participation in the Energy Sector	4.2 Completed Feed-in-Tariff studies	National Government, Municipalities and Regional Provinces, Technical Teams and consultant	Feed-in Tariff Study	Timeframe TBC for undertaking studies on Feed-in-Tariffs	Willingness to allocate funds for undertaking studies on Feed-in-Tariffs
4.3 Install solar and wind mini-grids to compliment NAWEC's generating capacity	4.3 Solar and wind mini-grids, complimenting NAWEC's generating capacity installed	National Government, Municipalities and Regional Provinces	Solar and wind mini-grids	Timeframe TBC for installing solar and wind mini-grids to compliment NAWEC's generating capacity	Restriction in installing solar and wind mini-grids to compliment NAWEC's generating capacity
4.4 Support SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector	4.4 SMEs (tailoring shops, fish markets, vegetable vendors etc.) supported with solar powered systems to boost the sector	National Government, Municipalities and Regional Provinces	Support systems for SMEs	Timeframe TBC for supporting SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector	Political will for supporting SMEs (tailoring shops, fish markets, vegetable vendors etc.) with solar powered system to boost the sector
4.5 Institute urgent human resources development together with a substantial investment of material resources	4.5 Human resources developed together with a substantial investment in material resources	National Government, Municipalities and Regional Provinces, Technical Teams and consultant	Training courses	Timeframe TBC for instituting urgent human resources development together with a substantial investment of material resources	Political will for instituting urgent human resources development together with a substantial investment of material resources
4.6 Design and implement a nation-wide awareness raising and sensitisation campaign on the climate change and health related aspects of fossil fuels and energy inefficiency, and the substantial adaptation and mitigation benefits existing within renewable energy	4.6 A nation-wide awareness raising and sensitisation campaign plan designed and implemented	National Government, Municipalities and Regional Provinces	Nation-wide awareness raising and sensitisation campaign	Timeframe TBC for designing and implementing a nation-wide awareness raising and sensitisation campaign plan	Appropriate capacities for designing and implementing a nation-wide awareness raising and sensitisation campaign plan
<b>Resources:</b>					
Total: US\$169,000,000 SPCR Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...					

## **Concept Note 4: Developing integrated approaches to build rural climate resilience in The Gambia**

### **1. Title and brief summary of the investment**

This Concept Note is for an integrated programme of investment entitled “Developing integrated approaches to build rural climate resilience in The Gambia”. The programme includes an integrated set of components designed to support and develop the climate resilience of the rural and peri-urban areas in The Gambia. Specific components include developing the resilience of small scale farming against future climate impacts; addressing the “Sahelization” of ecosystems in The Gambia; rehabilitating and managing the buffering coastal ecosystems, and involving the private sector for promoting and strengthening the resilience of communities’ livelihoods in the Gambia. The important cross cutting focus areas of gender, youth, health, tourism and DRR are integrated into the project components where applicable. Steps to address the low participation of women in decision making at both community and national levels will be integrated across the components. The programme would also have a focus on the elderly and disabled, where appropriate, and include research and development as a crosscutting issue.

### **2. Background and justification**

Over the past forty years The Gambia has experienced a decline in mean total annual rainfall, as set out in the Gambia National Agricultural Investment Plan (GNAIP) - 2011 – 2015. Annual rainfall amounts from 1950 to 2000 have decreased by about 30%, associated with a steady reduction in the length of the rainy season (growing period). One further important effect is the evident reduction in the quantity of rainfall recorded in the month of August, which induces a mid-season dry spell. This small detail, coupled with the current sociological context, has profound implications on the sustainability of rural farming in The Gambia.

In addition, there has been an increase in the frequency of extreme rainfall events, which invariably lead to numerous flooding events and widespread run-off induced erosion phenomena, particularly in uneven and bare grounds. Sea level rise and rainfall reduction has led to increased salinization of River Gambia further upstream, spreading into rice farming fields in the riverine locations. The net result of these climatic variations for rural farming communities is the ever-increasing episodes of dry years, erratic distribution of rainfall, and droughts alternating with intense rainfall events, both of which cause great damage to crop production and farming sustainability.

#### Agriculture and small-scale family farming

Drivers of rural vulnerability for the small-scale and family-based farming that predominates in The Gambia include the absence of capacity to overcome the impacts of climate change, particularly the increasingly shortening of the growing period with late onset and early cessation of rains; the growing migration flux of young people, the main workforce, towards the urban centres and abroad, enlarging the number of women headed households; and the deficient

technical support to adopt adaptive options that would enhance resilience to the shortening of the growing period. As it is, frequent dry spells in the middle of the rainy season limit farming activities such as ploughing, sowing and planting before the arrival of the dry spell. The Multidisciplinary Facilitating Teams (MDFTs), which are essentially extension services, are presently monovalent, with an extension/farmer ratio of 1: to over 3,500, and not cost effective in their delivery performances; and inadequate technical knowledge about climate smart farming techniques for erosion protection and improving soil structure and fertility. Soils in the Gambia are generally poor in organic matter and chemical fertility, requiring high inputs of manure and fertilizers to increase yields and quality.

#### Forestry and land management

The current Forest Policy envisages that 30% of the total land area should be covered by forests, and that 75% of this should be sustainably managed by communities. While the policy target for the area has been surpassed, the sustainability of this management approach is questionable. Communities are increasingly struggling to ensure multiple use of forests and forest resources/products for food and nutrition security, incomes, employment and investment. In addition, forests are under severe attack with widespread cutting of trees both for commercial purposes and charcoal or other household fuel purposes. There is regular encroachment into forests and virgin lands when the fertility of farming grounds is exhausted, mostly through inadequate land use and lack of technical knowledge on soil improvement, use of composting and mineral fertilizers.

#### Forestry and livestock

Further degradation of vegetation cover is taking place through freely moving cattle (transhumance) and small ruminants. Rapid population growth and urbanisation, for example in the Brikama area, have placed increased demand on forests for new settlements and/or expansion of existing ones, agricultural production, fuel wood, timber for construction and other forest produce. Cattle production is constrained by scarcity of feed and water during the long dry season, and aggravated by rampant bush fires that consume most of standing hay, crop residues and by-products to feed cattle. The Forestry sub sector could arrest and reverse degradation of lands along river banks and mangrove areas and protect others at risk of degradation from erosion, and in the process, expand land availability for increased rice production from tidal irrigation, and short cycle cash crops from uplands. Forestry could also increase the efficiency of the value chains of livestock, especially increasing off-take and processing of cattle in the rangelands of the country.

#### Fisheries

According to published literature (Izrael, 1991), a 1-2°C rise in global air temperature, accompanied by a 10% reduction in precipitation, may cause a 40-70% drop in mean annual river run-offs. In the event of the above scenario, plausible in terms of the most recent projections, and according to results of surveys carried out in The Gambia and elsewhere, there may be a complete change in the hydrological and salinity balance of the River Gambia estuary,



which would in turn affect fish species abundance, composition and distribution. Additionally, higher salinity at the mouth of the River Gambia estuary caused by reduction of freshwater sources and enhanced by possible climate change-induced reduction of rainfall and simultaneous sea level rise may impede the entry of larvae and juveniles of many marine species into the estuary, particularly the shrimp (*Penaeus notialis*), to complete their earlier lifecycle processes. There is a need to further develop the fisheries value chain, and support aquaculture.

### **3. Project development objective**

The project development objective is to develop systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia, through developing climate resilient small-scale agriculture and livestock, community-based approaches to forest and natural resource management, and promotion of livestock, agro-forestry and fisheries value chains and markets.

The project development objective will be supported by actions in the following areas:

- **Agriculture and small-scale farming:** by addressing climate smart farming practices for family farms and smallholders, guided by strong climate advisory services, approaches to reduce land degradation, crop diversification, climate smart irrigation practices and training and capacitance of Extension Services, Research institutions, Meteorology Unit and farmers alike;
- **Community-based approaches to forest and natural resource management:** by protecting and restoring forest and agricultural landscapes (including afforestation, reforestation, agroforestry and woodlot management) to achieve resilient integrated and productive landscapes throughout the Gambian regions;
- **Climate-smart livestock management practices:** by addressing multiple gains of adaptation (green expansion, livestock diversification, and water supply), and mitigation through developing a National Programme for Biogas Production and Utilisation through on-farm anaerobic digestion of manure as an integrated adaptation-mitigation measure;
- **Promotion of livestock and agro-forest value chains and markets:** through training and capacity development, with a focus on cross cutting issues linked to gender, youth, tourism, waste and community livelihoods.

### **4. Link to national adaptation and /or mitigation objectives**

The programme contributes directly to the achievement of the following policy objectives in the draft 2016 National Climate Change Policy (2016):

- Advance the understanding, capacity and social empowerment of all Gambians so that they can adequately respond to climate change.
- Effectively integrate climate change into all sectors and across all scales, through mainstreaming climate risks and opportunities into national and sectoral frameworks, and through effective policy coordination and implementation.

- Put in place sound and equitable adaptation and mitigation measures that promote effective management of ecosystems and biodiversity, reduce vulnerability to climate change impacts, and reduce greenhouse gas emissions, to achieve sustainable low-carbon socio-economic development.
- Build the resilience of communities and ensure health and welfare through participatory, equitable and pro-poor approaches to climate change that emphasise the meaningful inclusion of youth, women, disabled people and vulnerable groups.

The programme objective and activities are additionally aligned with the relevant provisions on mainstreaming climate change and environmental sustainability into the relevant sectors as set out in the draft PAGE II, and will contribute to the realisation of the priorities identified in the National Adaptation Programme of Action (NAPA) and the Intended Nationally Determined Contribution (INDC), which in themselves are reflected in the policy provisions of the NCCP.

## 5. Project components and activities

The programme includes four inter-linked components, with associated activities, as detailed below.

### ***Component 1: Enhancing the resilience of small-scale farming against future climate impacts***

Component 1 includes addressing climate smart smallholder and family farming practices guided by strong climate advisory services, land degradation, crop diversification, climate smart irrigation practices and training and capacitance of Extension Services and farmers alike. Attention will be paid to methodologies for soil improvement, such as vermiculture and biochar, and to sensitisation of older farmers who are often resistant to change. Climate resilient varieties (crops and livestock), including heat resistant grass species will be further developed and disseminated, as will high yielding seeds that are also climate resilient. Capacity development, including through Farmer Field Schools, will include appropriate methods for the illiterate.

Key activities and steps identified are the following:

- Develop plan and put in place a National Programme for Crop Diversification led by the Ministry of Agriculture, as a tool to spread crop failure risks and enhance resilience of small scale/commercial farming, including the adoption/development of climate resilient crop varieties that are adaptable to varying soil water (drought/flood) and climatic conditions; (1 million \$US)
- Strengthen stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming; (5 million \$US)
- Strengthen technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools (CC-FFS), amongst other measures, for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter); (3 million \$US)

- Strengthen and/or operationalize of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability; (1 million \$US) and
- Strengthen the capacities of the National Agricultural Research Systems, including the updating of Agro-Ecological Zoning and Soil Mapping (5 million \$US).

***Component 2: Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small-scale farming, livestock and wildlife sub-sectors***

Some areas of The Gambia have been suffering from drought as a temporary feature, whilst there are extensive inland areas suffering from chronic episodes of low precipitation, usually combined with high temperatures and the impact of sand erosion from the Harmattan, giving rise to Sahelization of the ecosystems. The phenomenon of Sahelization, which is a consequence of many factors, aggravated by climate change, is a process which began over a half century ago, but which has manifested in a troubling and progressive manner over the past three decades in West Africa, including in The Gambia. The multiple causes include economic (persistent poverty of communities), human (rapid population growth and related human pressure on ecosystems, poorly adapted cultural practices, etc.) and natural (climate hazards) issues, which establish interlinked cause-and-effect relations. Successful local responses to the Sahelization phenomenon have unfortunately not been capitalized on and need to be supported and strengthened, to increase the resilience of the small-scale farming, livestock and wildlife sub-sectors.

Key activities and steps identified are the following:

- Climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management (intercropping fruit or native trees within the farming plots crops to act as “nutrient pumps,” bringing nutrients that are too deep for crops); (3 million \$US)
- Promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry to act as “climate buffers” providing shade, wind breaker and litter source for water conservation, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation; (2 million \$US)
- Promoting strategically placed drinking points/ponds deep in Forest protected areas (“traditional flora and wildlife regeneration traps”) for offsetting the disappearance of the natural habitats and indigenous traditional flora and wildlife species due to frequent bush fires and drying of streams. (2 million \$US)
- Establishment a regional network of rural water supply system coupled with construction of strategically placed Plunge dips structures<sup>1</sup> to support livestock animals for preventing against ticks, flies, mites, lice and other external parasites expected to

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<sup>1</sup> Typical cattle dips have a volume of 10'000 liters or more, sheep dips about 2'000 liters.

increase under the projected warmer climate and new management practices such as artificial insemination, castration, inoculation, dehorning and weighing. (5 million \$US)

- Climate-smart livestock management practices addressing multiple gains of adaptation (expansion of water supply and drinking points, green expansion, livestock diversification, creation of livestock centres through feed diversification and breed improvement for meat, milk, and disease tolerance etc.) and mitigation (developing National Programme for Biogas Production and Utilization through on-farm anaerobic digestion of manure as an integrated adaptation-mitigation measure); (3 million \$US)
- Development of National Planning of Grazing Zones and management of grazing activities with Improvement of stock feeds to avoid overgrazing issues (goats/sheep); (3 million \$US)
- Diversification of the small-scale livestock sector with adoption of small ruminants and poultry activities and Incentives for developing milk collection centres that use solar cooling powered energy (2 million \$US).

**Component 3:** *Supporting the planning, rehabilitation and management of buffering coastal ecosystems to build the resilience of fisheries and tourism development in The Gambia*

In The Gambia, and in particular the West Coast Region, there are extensive buffer zones bordering the shoreline and community villages that for a long period of time have been encroached both by sand mining and waste dumping activities, endangering the natural coastal resilience. Regrettably, the current laws and enforcement of these have not been sufficient to protect the ecosystems.

Realizing this dilemma, and taking in consideration that the very same disturbed ecosystem represents a valuable asset for future tourism investment, there should be other common solutions to invigorate buffers across the country by turning to an ecology approach. Relying on native plants such as palm trees and natural shrubs, an integrated land reclamation exercise should be carried out to distance the fragile coastal shores from the impact of human development. Growing healthy native buffers gives coastal habitat a true shot at survival and regeneration. Conversely, in areas where tenure arrangements are unclear or where communities have no access rights, there should be incentives for communities to participate in natural resource management or to comply with by-laws and restrictions on natural resource use.

Key activities and steps identified are the following:

- Develop Regional Programmes for Ecotourism, to include supportive pathways into ecotourism, for buffer control of protected forest and riverine locations with clear identification of potential sites and natural conditions. This will be used by the Gambia Tourist Board to attract external investment on ecotourism; (3 million \$US)
- Initiation of a national programme addressing the rehabilitation of ecosystems bordering the coastal dunes and riverine areas to be used as a buffer between the

coastal zone and the community villages particularly in the West Coast Region (land reclamation operations on fish landing sites and old sand mining sites using palm trees, mangroves and other native shrubs); (7 million \$US) and

- Implement long-term Monitoring and Management National Mechanisms through the establishment of a National Climate Change Centre for Information and Risk Management (CC-CIRM) comprised of a robust Remote Sensing Unit and an innovative operational mobile system using drone-based GIS technology. (3 million \$US)

**Component 4:** *Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia*

Communities' livelihoods in The Gambia have been severely impacted by climate variability and change with frequent episodes of drought and/or floods affecting farming production systems. In addition, economic and social reasons have induced youth migration from the rural areas putting further pressure on the small-scale family farming production system. In order to redress this situation and revitalise the small-scale production of crops and livestock, partnerships with the private sector should be supported to create conditions for enhancing the local and national supply of agriculture and livestock outputs and inputs, and to invest in post-harvest value chains of local produce, in order to provide employment and livelihood. At the same time, support should be given to enabling entrepreneurial initiatives through funding (start-up capital) and technical assistance (training for both men and women in relevant entrepreneurial activities).

Key activities and steps identified are the following:

- Promote youth- and women-centred "Spin-off" SMEs for development of climate resilient agricultural, livestock, forestry and fisheries value chains in each of the Gambian Regions, supported by policy intervention and the establishment of the Gambia Climate Change Fund (covered in Concept Note 1) (5 million \$US);
- Establish Waste Management Plans at Regional and Municipal Level, in conjunction with Concept Note 3, linked to National Recycling Training Programmes for youth and women. This will be linked to the Centres for Skills Development (see below) and "spin-off" programmes; (5 million \$US)
- Establish (physical and logistical infrastructures) a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs), following the Global Eco-village Network approach<sup>2</sup>; (5 million \$US)
- Establish a network of Centres for Skills Development (CSDs) to assist youth and women associations, as well as disabled people, the elderly and other disadvantaged groups, in

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<sup>2</sup> <https://ecovillage.org/>. Activities range from e.g., *Creation of art crafts workshops*; production of native fruit jam; beekeeping and honey production, native fruits liquor production facilities, small ruminant and poultry breeding, *Mushroom farming* and dry mushroom processing, *Poultry farming* and egg production, etc.

developing skills for alternative income generating activities to curb migration and intense degradation of the environment, in particular the coastline through mangrove cutting and sand mining. This would include civil construction, bricklaying, welding, electrical technicians, motorcar mechanics, plumbing, fish net mending techniques, boat construction/repair/maintenance, carpentry, etc. This implies also establishing Centres of Excellence for Skills and Product Development for the following sectors: (5 million \$US)

- Natural Resources Management (this will support the rational use of Forest Resources)
  - Fisheries (based on/expanding the TRY Oyster Association model)
  - Food processing, production and certification
  - Renewable energy (based on existing initiatives such as the FANDEMA Association - solar installation and maintenance); and
- Strengthen the resilience of the Fisheries Sector and community livelihoods by supporting aquaculture and upgrading all eight national Fish Landing Points, and fish markets and cold chain structures, as well as the establishment and operationalization of post-harvest value chain units at each landing site<sup>3</sup>. (10 million \$US)

When supporting renewable energy, significant efforts will need to be made to ensure timely and ongoing maintenance and long-term sustainability. This is currently not the case – for example, in the rural areas, problems with the solar systems powering the water pumps in the vegetable gardens mean that the pumps are often not functioning. The CSDs will have a critical role to play in this regard.

## **6. Implementation arrangements**

As with all investment programmes developed under the SPCR, high-level oversight in the interim will be provided through the Technical Team set up to oversee the SPCR preparatory process. The GoTG would as a priority need to formalise the draft NCCP, in order to have the basis for initiating the institutional arrangements envisaged in the NCCP for enhanced coordination of climate change planning and responses, as set out in the main volume of the SPCR. It would be most appropriate for those institutional mechanisms to provide final direction on optimal oversight of the SPCR. An initial step would be for the MoECCNAR to develop and submit a Cabinet Paper to motivate for consideration and approval of the draft NCCP.

Additional details on project-level oversight of the SPCR investment programmes would be developed once the NCCP was formalised and the key institutions – the National Climate Change Council and the Inter-Ministerial Committee on Climate Change – were in place.

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<sup>3</sup> This includes: transportation means, fish handling and processing section, cold room, ice making plant, rodent free store for smoked fish, smoke ovens, training hall with the availability of water and hygienic facilities; Upgrading Smoke ovens to modified “altona” oven which requires considerably more capital investment than the traditional “banda” system but uses approximately 40 percent less fuel and only one fourth the labour required by the “banda” per unit of fish processed.

Key stakeholders for CN 3 include the MoECCNAR, MoA, MoHERST, MoBSE, Department of Fisheries, Department of Forestry, NEA, Department of Parks and Wildlife, NARI, UoTG, MoY&S, Women’s Bureau, FAO, WFP, IFAD, EU, NACOFAG, Livestock Farmers Association, All Gambia Forestry Platform, EbA for Food Security Assembly, TANGO, GCCI, etc.

### 7. Estimated cost and provisional financing plan

The estimated cost of this investment programme is **US\$ 73,000,000**.

Sr. Nr.	Components	Cost in US\$
1	Enhancing the resilience of small scale farming against future climate impacts	10,000,000
2	Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small scale farming, livestock and wildlife sub-sectors	20,000,000
3	Supporting the planning, rehabilitation and management of buffering coastal ecosystem to build the resilience of fisheries and tourism development in The Gambia	13,000,000
4	Private sector involvement for promoting and strengthening the resilience of communities’ livelihoods in The Gambia	30,000,000
<b>TOTAL Cost</b>		<b>US\$ 73,000,000</b>

**Please note that all budgets are tentative, subject to revision during actual programming of activities. They may offset, increase or reduce. The figures represent working budgets, and not the final investment amounts.**

An overall provisional financing plan for the entire SPCR is contained in section 2.4 of the Volume I report. The GoTG will develop the more specific provisional financing plan for this Concept Note at a later stage, after validation of the SPCR Phase 1.

## 8. Logical framework

### Results-based Logical Framework: Concept Note 4

*Please note that all logical frameworks are of necessity indicative and provisional, and will need to be revised on an ongoing basis as the Concept Notes are developed into full project proposals.*

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>GOAL</b> Develop systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia</p>	<p><b>IMPACT</b> Improved systems and integrated approaches to promote climate resilience in the rural and peri-urban areas of The Gambia</p> <p>Improved mechanisms and systems for regular Monitoring, Evaluation and reporting on “Meeting the targets and goals of the climate resilience in the rural and peri-urban areas</p>	<p>All populations in The Gambia</p>	<p><u>Indicator</u> Sustained systems for climate resilience in the rural and peri-urban areas in The Gambia</p> <p><u>Sources:</u> National and international statistics and reports</p>	<p>The indicative targets and timeframes will be formulated as the Concept Note is developed into a full project proposal.</p>	<p>Systems for climate resilience in the rural and peri-urban areas in The Gambia remain operational, accessible and reliable, supported by project</p> <p>Impacts of climate change do not outpace project resilience/adaptation responses (this will be alleviated by the project’s interventions targeted to build resilience)</p>
<p><b><u>Project purpose:</u></b> <i>To develop climate resilient small-scale agriculture and livestock, community-based approaches to forest and natural resource management, and promotion of livestock, woodlot and agro-forestry value chains and markets in The Gambia</i></p>	<p><b><u>Outcomes:</u></b> 1. Better understanding and knowledge of the systems for climate resilience in the rural and peri-urban areas in The Gambia developed.</p>	<p><b><u>Beneficiaries:</u></b> 1. Technical Teams and Sector Ministries and climate resilience governance and regional provinces</p>	<p><b><u>Outcome indicators:</u></b> National Government and Regional Provinces annually report on the status of systems for climate resilience in the rural and peri-urban areas in The Gambia</p>	<p><b><u>Progress anticipated in the medium term:</u></b> Annual National and Regional Provinces report on systems for climate resilience in the rural and peri-urban areas in The Gambia</p>	<p><b><u>Assumption statement:</u></b> Acceptance of the report content on systems for climate resilience in the rural and peri-urban areas in The Gambia</p>



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HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS TIMEFRAME	ASSUMPTIONS / RISKS
<p><b>Component 1:</b> Enhancing the resilience of small-scale farming against future climate impacts</p>	<p>Improved organizational and technical structures of the resilience of small-scale farming against future climate impacts</p>	<p>Regional Provinces, Sector Ministries and M&amp;E Units</p>	<p>The resilience of small-scale farming against future climate impacts strategy programs and action plans adopted by National Government and Regional Provinces</p> <p><u>Sources:</u> Project reporting and Evaluation</p> <p>Number of Regional Provinces monitoring, assessing, and reporting to National Climate Change Authority on the resilience of small-scale farming against future climate impacts measures.</p> <p><u>Sources:</u> Project Reporting and Evaluation</p>	<p>National Agriculture sector indicators governance and monitoring compatible with global monitoring systems.</p>	<p>Capacity of National and Regional Provinces' level stakeholders will match project activity demands (this will be supported by a project capacity building the resilience of small-scale farming against future climate impacts strategy)</p>
<p><b><u>Inputs and activities:</u></b></p>	<p><b><u>Outputs:</u></b></p>	<p><b><u>Beneficiaries:</u></b></p>	<p><b><u>Output indicator:</u></b></p>	<p><b><u>Progress /Timeframe:</u></b></p>	<p><b><u>Assumption statement:</u></b></p>
<p>1.17 Develop plan and National Programme for Crop Diversification <b>put in place</b> led by the Ministry of Agriculture, as a tool to spread crop failure risks and enhance resilience of small scale/commercial farming;</p>	<p>1.1 A tool to spread crop failure risks and enhance resilience of small scale/commercial farming developed and adopted;</p>	<p>Sector Ministries, Regional Provinces, Farm Organizations, Cooperatives, rural communities</p>	<p>National Programme for Crop Diversification</p>	<p>TBC in detailed project planning</p>	<p>Insufficient capacities may limit coordination</p>

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1.18 Develop eco- based crop varieties that are adaptable to varying soils and climatic conditions	1.2 Improved technical capacities of extension services and small scale farmers against future climate impact	Sector ministries, extension services, farmers and national seed council	Number of climate resilient crop varieties developed		Restriction in developing Eco-based crop varieties that are adaptable to different soils and climatic conditions
1.19 Strengthen stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming	1.2 Water resources and irrigation management structures in operation aimed at enhancing the resilience of small-scale farming strengthened	Sector Ministries, Regional Provinces, Farm Organizations, Cooperatives, rural communities	Water resources and irrigation management structures		Capacities for strengthening stakeholder structures in water resources and irrigation management to enhance the resilience of small-scale farming may limit functional operations of the regional provinces and national task force
1.20 Strengthen technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools_(CC-FFS) amongst other mechanisms for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter);	1.3 Technical capacity and skills among farmers and Extension Service officers developed	Sector Ministries, Regional Provinces, Farm Organizations	Climate Change Farmer Field Schools_(CC-FFS) courses		Sufficient capacity for strengthening technical capacity and skills among farmers and Extension Service officers through Climate Change Farmer Field Schools_(CC-FFS) for implementing climate-smart measures addressing crop yield response to water and husbandry (fertilizers and organic matter) may impact capacity development
1.21 Strengthen the capacities of agricultural research system	Research system and quality of results improved	Sector ministries, department headquarters and cluster sites of agriculture and natural resources	Fully equipped laboratories and research cluster sites in the agro ecological zones in places		Political will for strengthening the capacities of Agriculture and Natural Resource research systems.
1.22 Strengthening and/or operationalization of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme	1.4 A Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme climate variability	National Government Meteorological Stations, Sector Ministries, Regional Provinces, Farm Organizations	Climate Change Integrated Agrometeorological Advisory Services for the Gambia		Political will for operationalization of a Climate Change Integrated Agrometeorological Advisory Services for the Gambia to support farming practice under the extreme

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climate variability;	strengthened				climate variability may limit operational functions
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 2:</b> Reverting the “Sahelization” of ecosystems in The Gambia to support resilience of small-scale farming, livestock and wildlife sub-sectors	Capacities established to support resilience of small-scale farming, livestock and wildlife sub-sectors	National and Regional Provinces Teams, farmers’ organizations and local communities	Number of Regional Provinces and farmers’ organizations implementing resilience of small-scale farming, livestock and wildlife sub-sectors strategic programs <u>Sources:</u> Project reporting and Evaluation Monitoring by national and local authorities and project stakeholders		National and Regional Provinces stakeholders will match project activity demands (this will be supported by a project capacity building strategy, including national/local mentoring program)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>2.1</b> Climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management (intercropping fruit or native trees within the farming plots) to act as “nutrient pumps,” bringing nutrients that are too deep for crops	2.1 Climate-smart ecosystem based approach developed	National Government, Regional Provinces and Sector Ministries	Institutional structures and processes for climate-smart ecosystem based approach	TBC	Restrictions in climate-smart ecosystem-based approach to protection, management, conservation, restoration of traditional farming ecosystems to promote water retention, conservation and soil management

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<p><b>2.2</b> Promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry, to act as “climate buffers” providing shade, wind breaker and litter source for water conservation, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation;</p>	<p>2.2 Developed soil and water conservation measures</p>	<p>National Government, Regional Provinces and Sector Ministries</p>	<p>Training courses and support structures for soil and water conservation measures</p>		<p>Sufficient capacities for promoting soil and water conservation measures through climate-smart water ponds and intercropping in agroforestry, coupled with minimum tillage, soil fertility management and regeneration of natural vegetation</p>
<p><b>2.3</b> Promoting strategically placed drinking points/ponds deep in Forest protected areas (“traditional flora and wildlife regeneration traps”) for offsetting the disappearance of the natural habitats and indigenous traditional flora and wildlife species due to frequent bush fires and drying of streams.</p>	<p>2.3 Developed climate-smart livestock management practices</p>	<p>National Government, Regional Provinces and Sector Ministries, farmers’ organisations</p>	<p>Training courses and materials necessary for climate-smart livestock management practices</p>	<p>TBC</p>	<p>Restrictions in climate-smart livestock management practices addressing multiple gains of adaptation (green expansion, livestock diversification, and water supply) and mitigation (developing National Programme for Biogas Production and Utilization through on-farm anaerobic digestion of manure as an integrated adaptation-mitigation measure)</p>
<p><b>2.4</b> Establish a regional network of rural water supply system coupled with construction of strategically placed plunge dips structures to support livestock animals for preventing against ticks, flies, mites, lice and other external parasites expected to increase under the projected warmer climate and new management</p>	<p>2.4 National Plans for Grazing Zones and management systems for improved livestock productivity and health developed</p>	<p>National Government, Regional Provinces, Sector Ministries, Farm Organizations, individual farmers and local communities</p>	<p>Strategically placed plunge dips</p>	<p>TBC</p>	<p>Capacities for development of National Planning of Grazing Zones and management of grazing activities with Improvement of stock feeds to avoid overgrazing issues (goats/sheep)</p>

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practices such as artificial insemination, castration, inoculation, dehorning and weighing.					
<b>HIERARCHY OF OBJECTIVES</b>	<b>EXPECTED RESULTS</b>	<b>REACH</b>	<b>PERFORMANCE INDICATORS</b>	<b>INDICATIVE TARGETS TIMEFRAME</b>	<b>ASSUMPTIONS / RISKS</b>
<b>Component 3:</b> Supporting the planning, rehabilitation and management of buffering coastal ecosystems to build the resilience of fisheries and tourism development in The Gambia	Plan for rehabilitation and management of buffering coastal ecosystems prepared  Ecosystem-based climate resilience of fisheries and tourism development in The Gambia established	National Government, Regional Provinces, Sector Ministries	Number of government decision-makers with increased knowledge of planning, rehabilitation and management of buffering coastal ecosystems  <u>Sources:</u> Project reporting and Evaluation Determined by monitoring  Number of Regional Provinces replicating Ecosystem-based climate resilience of fisheries and tourism development principles and practices within the target areas  <u>Sources:</u> Climate Resilient Strategy Process implemented will verify results		National, provincial and district level stakeholders are receptive to project's building the resilience of fisheries and tourism knowledge (this will be supported by with project support for the design of formal information development and strategies)  Government is willing and capable of directing financing towards the support of building the resilience of fisheries and tourism programming (Incentive issues will be supported by the project strategy of linking success demonstrations with comprehensive capacity building efforts, including studies showing the economic, social and ecological benefits of up scaling)
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>

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<p><b>3.1</b> Develop Regional Programmes for Ecotourism that incorporate buffer control to protect forest and riverine locations with clear identification of potential sites and natural conditions. This will be used by the Gambia Tourist Board to attract external investment on ecotourism;</p>	<p>3.1 Developed Regional Programmes for Ecotourism</p>	<p>National Government, Regional Provinces, Sector Ministries</p>	<p>Regional Programmes for Ecotourism and supportive training courses</p>		<p>Political will for development Regional Programmes for Ecotourism</p>
<p><b>3.2</b> Initiation of a national programme addressing the Rehabilitation of ecosystems bordering the coastal dunes and riverine areas to be used as a buffer between the coastal zone and the community villages particularly in the West Coast Region (land reclamation operations on fish landing sites and old sand mining sites using palm trees, mangroves and other native shrubs);</p>	<p>3.2 Established national programme for addressing the Rehabilitation of ecosystems bordering the coastal dunes and riverine areas</p>	<p>National Government, Regional Provinces, Sector Ministries</p>	<p>Meeting costs Consultancy study National programme for addressing the Rehabilitation of ecosystems bordering the coastal dunes and riverine areas</p>		<p>Willingness to commission study for establishment of national programme for addressing the Rehabilitation of ecosystems bordering the coastal dunes and riverine areas</p>
<p><b>HIERARCHY OF OBJECTIVES</b></p>	<p><b>EXPECTED RESULTS</b></p>	<p><b>REACH</b></p>	<p><b>PERFORMANCE INDICATORS</b></p>	<p><b>INDICATIVE TARGETS TIMEFRAME</b></p>	<p><b>ASSUMPTIONS / RISKS</b></p>
<p><b>Component 4:</b> Private sector involvement for promoting and strengthening the resilience of communities' livelihoods in The Gambia</p>	<p>Private sector involved in promoting and strengthening the resilience of communities' livelihoods in The Gambia</p>	<p>Private Sector in The Gambia</p>	<p>Number of government decision-makers with increased knowledge of Private sector involvement for promoting and strengthening the resilience of communities' livelihoods</p>		<p>Government is willing and capable of directing financing and providing incentives towards the support of Private sector involvement for promoting and strengthening the resilience of communities'</p>

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			in The Gambia <u>Sources:</u> Project reporting and Evaluation Determined by monitoring		livelihoods in The Gambia
<b><u>Inputs and activities:</u></b>	<b><u>Outputs:</u></b>	<b><u>Beneficiaries:</u></b>	<b><u>Output indicator:</u></b>	<b><u>Progress /Timeframe:</u></b>	<b><u>Assumption statement:</u></b>
<b>4.1</b> Promotion of youth and women centred “Spin-off” SMMEs for development of climate resilient agricultural and livestock value chains in each of the Gambian Regions	4.1 Youth and women centers promoted	Youth and Women centers	Youth and Women centers	TBC	Restriction in Promoting youth and women centers
<b>4.2</b> Establishment of Waste Management Plans at Municipal Level – National Recycling Training Programmes for youth and women	4.2 Plans for waste management established	National Government, Municipalities, Youth and Women Enterprises	Waste management plans	TBC	Capacity for establishment of Waste Management Plans at Municipal Level – National Recycling Training Programmes for youth and women
<b>4.3</b> Establishment (physical and logistical infrastructures) of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs) following the Global Eco-village Network approach	4.3 Established physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)	National Government, Regional Provinces, Municipalities	Physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)	TBC	Willingness to allocate funds for establishing physical and logistical infrastructures of a regional network of Village Centres for Agro-Forest Resources Transformation (Village CARTs)

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<p><b>4.4</b> Establishment of a network of Centres for Skills Development (CSDs) to assist youth and women associations in developing skills for alternative income generating activities to curb migration and intense degradation of the environment, in particular the coastline through mangrove cutting and sand mining</p>	<p>4.4 Established a network of centers for skills development</p>	<p>National Government, Regional Provinces, Youth and Women</p>	<p>Network of centers for skills development</p>	<p>TBC</p>	<p>Sufficient capacity for establishing a network of centers for skills development</p>
<p><b>4.5</b> Strengthening the resilience of the Fisheries Sector and community livelihoods by upgrading all eight national Fish Landing Points, and fish markets and cold chain structures, as well as the establishment and operationalization of post-harvest value chain units at each landing site</p>	<p>4.5 Strengthened, Established and Operationalized resilience of the Fisheries' Sector and community livelihoods</p>	<p>National Government, Sector Ministries, Regional Provinces, Fishery Organizations</p>	<p>Upgraded national Fish Landing Points, and fish markets and cold chain structures, with functional post-harvest value chain units at each landing site</p>	<p>TBC</p>	<p>Political will for strengthening the resilience of the Fisheries Sector and community livelihoods by upgrading all eight national Fish Landing Points, and fish markets and cold chain structures, as well as in establishing and operationalization of post-harvest value chain units at each landing site</p>
<p><b>Resources:</b></p> <p>Total: US\$73,000,000                  Adaptation Fund Grant: US\$ ... and The Gambia Government in kind contribution: US\$ ...</p>					



## Reports from the Regional Consultations

Please note that the MoECCNAR has a full list of the participants included in the Regional Consultations.

### A. Regional Consultations: North Bank Region

11<sup>th</sup> April 2017.

#### 1. Responses to SPCR overview presentation

Farmers welcomed the priority areas of the PPCR particularly the rural resilience component. They were concerned with the late delivery of inputs such as seeds and fertilisers by government. Some indicated that government is targeting the wrong farmers and called for farmer organisations to be consulted during project design and implementation. Other issues raised were inter alia: good agricultural policy with adequate extensive personnel, provision of early maturing crops, crop diversification, construction of dykes to prevent salt-water intrusion, marketing outlets for vegetable products and agro-industries in all the regions, promote waste management and use of compost etc. Awareness raising, inadequate information sharing, lack of cattle tracks, wildlife human conflict and weak enforcement of policies were identified as major challenges.

#### 2. Gap Analysis / Needs

##### *Policies and Legal Framework*

- Enforcement of sectoral policies and Laws
- Poor planning in growth centres (settlements in wetlands)
- Weak and inadequate policy formulation (not reinforce).
- Lack of processing materials (livelihood both in materials and capacity).

##### *Agriculture:*

Farmers lamented on the following:

- Inadequate farm inputs and farm implements and/or their late delivery when available
- Early cessation of rains results in low harvest, less food and low income for families hence the rush for women to grow the same vegetables at the same time all across the regional gardens
- Government programmes designed without consulting and involving the real farmers
- Wildlife particularly hippopotamus, bush pigs and monkeys destroy farmlands, farmers not compensated while cattle owners do compensate farmers for any damage cause on farm lands.
- Development of rangelands and cattle tracks for transhumance
- Overgrazing as a result of transhumance (inter, intra region and country).
- Inadequate drinking ponds for the cattle, small ruminants and limited domestic fuel.
- Increase number of extension workers with provision of mobility

- Change attitudes and also encourage good farming practice, avoid cutting trees but promote tree planting on their farms
- Encouraging early maturing crops and crop diversification e.g. cassava, beans etc.
- Encouraging the use of animal manure and compost instead of chemical fertilisers

*Livelihood and Value Chain:*

Building agro-processing industries, storage facilities and marketing outlets in communities  
Provision of micro-credit with low interest for women and youths to engage in entrepreneurship  
Providing farmers with alternative livelihood such horticultural gardens with boreholes and skills centres to engage in soap making, tie and dye, tailoring, welding etc.

*Ecosystem:*

Cognisant of the magnitude of land degradation and loss of forest cover in the north bank region, farmers called for:

- Concerted efforts to reclaim the forest through agro-forestry to reduce erosion, plant more trees including cashew for income generation.
- Encouragement of community forest management to restore the ecosystem through afforestation and minimise the cutting of trees and bushfires.
- Encouragement of the use of improved cooking stoves (e.g. “Jambarr” improved cooking stove sold at Njawara Agricultural Training Centre)
- Proper control of hunting license.
- Community based wildlife management
- Provision of adequate drinking ponds.
- Stock routes and identification of rangelands

**3. Suggested interventions / components for the SPCR**

- Due to the high rate of migration of youths (“back-way syndrome”), farmers called for the provision of gardens with boreholes and skill centres across the region to create employment for the youths.
- The women requested for agro-industries, food processing and storage facilities and availability of markets for their produce.
- Both men and women requested for the timely availability of farm inputs and implements.

**4. Any other key points of relevance**

A farmer was concerned about prioritisation of women and youths instead household heads who are responsible for both women and children.

**5. Lessons learned through the consultations**

The workshop started on time and there was a large turnout of participants including women and youths.

## **B. Regional Consultations: Central River Region**

**12<sup>th</sup> April 2017.**

### **1. Responses to SPCR overview presentation**

The participants thanked the consulting team and Ministry of Environment for the presentation. Participants echoed the timeliness of the SPCR in light of the current challenges confronted them and raised the following:

- Need for effective waste management and proper waste disposal sites for the growth centres like Bansang, Brikamaba and Janjanbureh
- Awareness creation, construction of recycling plants. Restrict dumping near water points and health facilities
- Advocate for waste reduction, cycling and composting at community level
- Capacity building for community radios in Bansang, Brikama and media representative in Janjanbureh with provision of computers and recorders
- Use of integrated system for biogas production since CRR has the highest cattle population in the Gambia
- Support for storage, processing, marketing and value addition of horticultural products of women gardens
- Provision of livelihood projects for the women of the region with micro-credit facilities
- Provision of protective clothes for women engaged in soap making, tie & dye
- Intensify efforts to plant more trees and reduce the proliferation of charcoal production despite its ban in the country
- Need for more information on impacts of climate change and how to mitigate and adapt to their effects
- Support in construction of dykes to reduce salt water intrusion into rice fields
- Address the wildlife human conflict
- Establishment of wood lots and tree planting exercise, while raising awareness on the harmful effects of bushfires and deforestation. Alternative source of energy (improved cooking stoves)
- Using biological solution formation and Home Base Effect Microorganisms (H.B.E.M)
- Government to involve farmers in policy formulation especially (ANR)
- Decentralization of skill centres and creation of job opportunities with better remuneration for youths
- Creation of awareness through IEC on the need to obtain approval prior to construction of buildings.

### **2. Gap Analysis / Needs**

Under Agriculture, the participants raised the following:

- Government to involve farmers and all stakeholders in formulation of policies particularly in the ANR sector.
- Provision of early maturing and high yielding crop varieties due to low rainfall in recent years
- Replacement of diesel pumping machines in the rice fields to solar powered pumps for sustainability and environmental friendliness
- Create study tours for farmers to enhance information sharing and learning from each other
- Increase and train extension services to farming community
- Access to agricultural project finance, eradicate or reduce the requirements for the matching grants
- Support in construction of dykes to reduce salt water intrusion into rice fields
- Diversification of agriculture by engaging in livestock production and small ruminants in addition to crop production

With respect to natural resources and ecosystems, the participants mentioned the following:

- Establishment of wood lots and community forestry. Alternative source of energy (improved cooking stoves)
- Intensify efforts to plant more trees and reduce the proliferation of charcoal production despite its ban in the country
- Need for more information on impacts of climate change and how to mitigate and adapt to their effects
- Address the wildlife human conflict
- Establishment of wood lots and tree planting exercise, while raising awareness on the harmful effects of bushfires and deforestation. Alternative source of energy (improved cooking stoves)
- Using biological solution formation and Home Base Effect Microorganisms (H.B.E.M)
- Government to involve farmers in policy formulation especially (ANR)
- Creation of awareness through IEC on the need to obtain approval prior to construction of buildings.

On Livelihoods and support to women and youths, participants mentioned the following:

- Decentralization of skill centres and creation of job opportunities with better remuneration for youths
- Support for storage, processing, marketing and value addition of horticultural products of women gardens
- Provision of livelihood projects for the women of the region with micro-credit facilities
- Provision of protective clothes for women engaged in soap making, tie & dye

### **3. Suggested interventions / components for the SPCR**

The responses relevant to women were:

- Support for storage, processing, marketing and value addition of horticultural products of women gardens
- Provision of livelihood projects for the women of the region with micro-credit facilities
- Provision of protective clothes for women engaged in soap making, tie & dye
- Provision of improved cooking stoves
- Construction of dykes to address flooding and salt-water intrusion and
- Replacement of diesel pumping machines to solar powered pumps

The responses relevant to youths were:

- Decentralization of skill centres and creation of job opportunities with better remuneration for youths
- Establishment of wood lots and community forests
- Provision of fishing gears, with storage facilities at regional level

#### **4. Any other key points of relevance**

N/A

#### **5. Lessons learned through the consultations**

The meeting started on time and was opened by the Governor of the Region. Participants came from CRR North and South. Refer to the registration for more information.

### **C. Regional Consultations: Upper River Region**

**13<sup>th</sup> April 2017.**

#### **1. Responses to SPCR overview presentation**

Participants thanked government for the priority areas set in the SPCR and echoed the timeliness in light of the current challenges confronted them and raised the following:

- Need for effective waste management and ensure effective utilization of the waste by encouraging the private sector to recycle waste into useful purposes such as energy, organic waste etc.
- Proper waste management (waste collection, site identification, land filling, waste segregation, recycling and awareness raising).
- Recognised and appreciate the importance of community radios but emphasised the role the traditional communicators for effective dissemination of climate related information and messages at community level.
- While acknowledging that human activities through ploughing with tractors, deforestation etc. have resulted in land degradation, erosion and siltation of the river and sedimentation of natural drainage in the region, they called for efforts to widen and deepen the natural drains to allow free flow of water.

- Sustainable land management (reclamation, erosion control, Construction of contours, bonds and dykes and adaptive agriculture)
- Law enforcement (various policies and laws e.g. DPPH, NEA and Forestry)
- Improvement of livelihoods (agroforestry, skills development, micro finance access, storage, market and value chain)
- Reforestation (tree planting, community forest, orchards and plantation)
- Bushfire control committee (early burning control, prosecute offenders)
- Proper drainage sanitation systems
- Improved grazing areas for livestock
- Improve agricultural practice
- Attitudinal change and awareness creation
- Participatory implementation of plan activities
- Family planning
- Land use planning
- Proper planning of settlements
- Introduce proper farming techniques and good ploughing methods (GAP)
- Pest control
- Proper sand mining site identification
- National policies in all sectors

## **2. Gap Analysis / Needs**

Under Agriculture, the participants raised the following:

- Introduce proper farming techniques and good ploughing methods (GAP)
- Sustainable land management (reclamation, erosion control, Construction of contours, bonds and dykes and adaptive agriculture)
- Improved grazing areas for livestock
- Pest control

With respect to natural resources and ecosystems, the participants mentioned the following:

- Improvement of livelihoods (agroforestry, skills development, micro finance access, storage, market and value chain)
- Reforestation (tree planting, community forest, orchards and plantation)
- Bushfire control committee (early burning control, prosecute offenders)

## **3. Suggested interventions / components for the SPCR**

The responses relevant to women were the improvement of livelihoods (agroforestry, skills development, micro finance access, storage, market and value chain)

There were responses that are relevant to men, women and youths such as:

- Reforestation (tree planting, community forest, orchards and plantation) applies to men women and youths

- Sustainable land management (reclamation, erosion control, Construction of contours, bonds and dykes and adaptive agriculture)

#### **4. Any other key points of relevance**

N/A.

#### **5. Lessons learned through the consultations**

The meeting started on time and was opened by the Governor of the Region. Participants came from URR North and South. Refer to the registration for more information.

### **D. Regional Consultations: Lower River Region**

**14th April 2017.**

#### **1. Responses to SPCR overview presentation**

Farmers welcomed the priority areas of the SPCR particularly the rural resilience component and raised the following issues:

- Diversification of agriculture with supplementary irrigation systems and growing early maturing crops
- Encourage community forest activities and conduct tree planting exercises
- Livelihood activity such as bee keeping, livestock rearing and vegetable gardening.
- Building of anti-salt dykes to minimise salt water intrusion into rice fields
- Building of cause ways and access roads to farm lands
- Proper waste disposal, recycling waste and composting
- Availability of waste collection materials, proper dumpsite well fenced
- Attitudinal change (information, laws etc.).
- Awareness creation (communities, institutions, groups etc.).
- Afforestation (continuous tree planting, provision of fencing materials)
- Use organic mature

#### **2. Gap Analysis / Needs**

On Agriculture, participants highlighted:

- Diversification of agriculture with supplementary irrigation systems and growing early maturing crops
- Livelihood activity such as bee keeping, livestock rearing and vegetable gardening

Ecosystems:

- Encourage community forest activities and conduct tree planting exercises

### **3. Suggested interventions / components for the SPCR**

#### **4. Any other key points of relevance**

A youth farmer lamented on the challenges he encountered due to invasion into his farmlands by monkeys. He is a model farmer that could be used to motivate the youths to engage into farming as a venture.

#### **5. Lessons learned through the consultations**

The workshop started on time and there was a large turnout of participants including women and youths.

## **E. Regional Consultations: West Coast Region**

**15<sup>th</sup> April 2017.**

### **1. Responses to SPCR overview presentation**

Participants thanked government for the priority areas set in the SPCR and proposed the following solutions:

- Provision of farming implements and inputs e.g. seeders and fertilizers
- Provision of more vegetable gardens with adequate water facilities
- Introduction of climate Smart agriculture
- Training on women in food processing and preservations with provision of cold stores and processing equipment and transport facilities
- Provision of pesticides (local).
- Planting of drought tolerant varieties/species, salt tolerant varieties or deep flooded variety of rice
- Practice zero tillage, contour farming
- Agro-forestry practice and establish community woodlots and create fire belts to control bush fires
- Promote the use of improve cooking stoves
- Training of youths & women on livelihood skills
- Construction of good drainage systems
- Settlement planning
- Proper waste management
- Sensitisation / outreach programmes
- Capacity building
- Compost making and management
- Provision of canoes, nets and transport facility for the fishing industry



- Introduce integrated pest management e.g. organic pest mgt.
- Strengthen advocacy on male involvement on reproductive health issues
- Strengthen advocacy on family planning among women i.e. child spacing, adolescent

## **2. Gap Analysis / Needs**

Under Agriculture, participants attributed problems of low productivity, inadequate marketing outlets, post harvest losses, inadequate rainfall and inadequate knowledge on vegetable production.

The proposed solutions are:

- Provision of farming implements and inputs e.g. seeders and fertilizers
- Provision of more vegetable gardens with adequate water facilities
- Introduction of climate Smart agriculture
- Introduce integrated pest management e.g. organic pest mgmt.
- Training on women in food processing and preservations with provision of cold stores and processing equipment and transport facilities
- Introduction livelihood skills
- Support to animal husbandry
- Demarcation of rangelands
- Easy accessibility to finance with less conditions attached

With respect to Natural Resources and Ecosystems, participants indicated loss of wildlife, environmental pollution, outbreak of bushfire, deforestation, coastal forest depletion, unsustainable oyster harvesting.

The following were proposed to address these problems:

- Creation of tree nursery
- Support to agro-forestry and encourage planting of more trees on the fire belt (e.g. cashew)
- Sensitization on effects of bush fires
- Creation of community forest parks
- Enforcement of forest laws
- Control of importation of chemicals
- Planting of more mangroves and other trees species.
- Minimising impact of sand mining on the ecosystem
- Training of oyster harvesters
- Support to eco-tourism system

## **3. Suggested interventions / components for the SPCR**

The responses relevant to women were:

- Provision of more vegetable gardens with adequate water facilities

- Training on women in food processing and preservations with provision of cold stores and processing equipment and transport facilities
- Promote the use of improve cooking stoves
- Training of oyster harvesters
- Training of youths & women on livelihood skills
- Strengthen advocacy on family planning among women i.e. child spacing, adolescent

There were responses that are relevant to men and youths such as:

- Training of youths & women on livelihood skills
- Strengthen advocacy on male involvement on reproductive health issues
- Support to agro-forestry and encourage planting of more trees on the fire belt (e.g. cashew)
- Provision of canoes, nets and transport facility for the fishing industry

#### **4. Any other key points of relevance**

N/A.

#### **5. Lessons learned through the consultations**

The meeting started on time and was opened by the Governor of the Region. The representation was gender balance including youths.

### **F. Regional Consultations: Greater Banjul Area**

**21<sup>st</sup> April 2017.**

The following key points were raised during the consultations:

- Indiscriminate dumping along the wetlands in the GBA is a concern and just last year there was cholera out-break in this area. So people need to enforce legislation, and sensitisation is the way forward to build people's understanding and some of the implications.
- There is a need to look at a long time solution to the scenario just presented because waste is a problem in our community.
- Waste recycling is needed, there needs to be some measures including infrastructure e.g. drainage and political influence in overcoming waste problem.
- NRA, DPPH and the Ministry of Local Governance and not invited yet they are key stakeholders.
- KMC has just validated their Waste Management Strategy document, which has nine components, including one on awareness creation. Yesterday they conducted training for both KMC and BCC on waste management.

- Flooding is expected to be severe this year because the waste will serve as a blockage to the run-off water.
- It may be necessary to consider relocating people settling along the riverine areas.
- Attitudinal change is required; and the drainage infrastructure is not suitable to contain the amount of water in the rainy season; creating water-harvesting centres for vegetable fields is a desirable activity.
- Vegetable storage facility with renewable energy supply and livestock corridors.
- Training women and traditional communicators in the dissemination of information in the communities, for awareness raising.
- It is high time to encourage investors to invest on waste and energy.
- Incorporate waste management into the school curriculum.