



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND:LDCF

PART I: PROJECT IDENTIFICATION

Project Title:	Strengthening climate services and early warning systems in the Gambia for climate resilient development and adaptation to climate change – 2nd Phase of the GOTG/GEF/UNEP LDCF NAPA Early Warning Project		
Country(ies):	Gambia	GEF Project ID:	5071
GEF Agency(ies):	UNEP and UNDP	Agency Project ID:	UNEP ID: 00901 UNDP ID:5156
Other Executing Partner(s):	Ministry of Forestry and the Environment (MOFEN), Ministry of Fisheries, Water Resources and National Assembly Matters (MoFWRNAM), Department of Water Resources (DWR) National Environment Agency (NEA); National Disaster Management Agency (NDMA);	Submission Date:	August 13th, 2012
		Resubmission Date	24 September, 2012
GEF Focal Area (s):	Climate Change Adaptation	Project Duration (months):	48 months
Name of parent programme: For SFM/REDD+ <input type="checkbox"/>		Agency Fee (\$):	800,000

A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative grant amount (\$)	Indicative co-financing (\$)
CCA-2 Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level	Outcome 2.2 Strengthened adaptive capacity to reduce risks to climate-induced economic losses	Output 2.2.1 Adaptive capacity of national early warning networks strengthened to rapidly respond to extreme weather events	LDCF	1,920,000	10,746,275
CCA-3 Promote transfer and adoption of adaptation technology	Outcome 3.1 Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas	Output 3.1.1: Relevant adaptation technology transferred to targeted groups Output 3.2.1: Skills increased for relevant individuals in transfer of adaptation technology	LDCF	5,700,000	13,250,000
Sub-total				7,620,000	23,996,275
Project management cost				380,000	1,363,725
Total project cost				8,000,000	25,360,000

B. PROJECT FRAMEWORK

Project Objective: To strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Gambia.						
Project Component	Grant type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative co-financing (\$)
Component 1: Infrastructure, technologies, equipment and human resources requirements to enable EWS functionality and sustainability	INV	<p>Outcome 1.1. The Gambia National Meteorological Services is transformed into a full-fledged Meteorological Agency</p> <p>Outcome 1.2 Hydro-meteorological infrastructure is installed that will cover the full needs for 'optimal performance of EWS' as identified by recent needs assessment reports¹ in the Gambia.</p> <p>Outcome 1.3 Optimum critical mass of human resources is put in place for the operation of the Gambia Early Warning System beyond the Pilot project</p>	<p>1.1.1: All Administrative and Technical Units of the National Meteorological Services are centralized at one location in Banjul International Airport²;</p> <p>1.1.2: Communication equipment and technologies procured and installed at the Meteorological Agency to enable data and information archiving and dissemination with regional centers and the Central Forecast Office</p> <p>1.2.1: The infrastructure of the existing meteorological and hydrological networks are upgraded to meet the required operational standard of the Early Warning System;</p> <p>1.2.2: A network of 5 Pilot balloon/upper air stations is developed and operational;</p> <p>1.2.3: A Marine Meteorological Station Network is developed and operational;</p> <p>1.2.4: Wildlife and spatial variability of biodiversity is -monitored and recorded and integrated into national Early Warning Systems monitoring programme.</p> <p>1.2.5: The national water quality monitoring and reporting system is upgraded and operational</p> <p>1.3.1: The critical mass of human capital and capacity required for the establishment of the appropriate climate and climate change early warning systems is developed;</p>	LDCF	5,420,000	15,601,025

¹ (a) ThabisaniNdhlovu, Sarah Fox and Dr. Anthony Mills (2011) Baseline Information and Indicators for the Gambia LDCF Project: Implementing NAPA priority intervention to strengthen the climate change early warning systems in the Gambia” Prepared by C4 EcoSolutions, November 2011
(b): Mr. John G. Peacock (2012) Consultancy Report on the Needs Assessment for an Effective Early Warning System in The Gambia
(c): Jane Wardle & Helen Ticehurst, (2012): Situational Assessment of the Meteorology Division of the Department of Water Resources, Republic of The Gambia, Consultants: UK Met Office.
(d): Jane Wardle & Helen Ticehurst, (2012): Training needs analysis and Training Delivery Proposal for the Meteorology Division of the Department of Water Resources, Republic of The Gambia: Consultants: UK Met Office.

Project Objective: To strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Gambia.						
Project Component	Grant type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative co-financing (\$)
Component 2: Climate information integrated into development plans and early warning systems	TA/INV	Outcome 2.1: Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.	2.1.1: Baseline study to validate project indicators, baselines, targets and means of verification. 2.1.2: National capacity for assimilating forecasts and mainstreaming them into existing development planning is built; 2.1.3: Communication channels, strategies and procedures for issuing climate change early warning products are enabled; 2.1.4: Plan for sustainable financing for the operation and maintenance of the installed EWS developed and implemented;	LDCF	2,200,000	8,395,250
Sub-total					7,620,000	23,996,275
Project management cost					380,000	1,363,725
Total project costs					8,000,000	25,360,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Item #	Origin of Funds	Expected Amount US\$	Type of Co-financing
1	African Monitoring of the Environment for Sustainable Development (AMESD) Project	2,000,000	Grant
2	UNEP supported program on Early Warning and Assessments	500,000	Grant
3	ECOWAS supported Gambia National Agriculture Investment Programme (GNAIP)	5,000,000	Grant
4	USAID supported Gambia-Senegal sustainable Fisheries Project	150,000	Grant
5	FAO support to strengthen capacities in the Gambia Government for policy planning, programming, statistics & monitoring in the Agriculture & Natural Resources sector	380,000	Grant
6	UNDP and Spanish Fund supported public service reform and institutional capacity development project (PSRICD).	1,800,000	Grant
7	African Development Bank supported Rural Water Supply and Sanitation Project	4,000,000	Grant
8	African Development Bank supported National Water Sector Reform Project	2,600,000	Grant
9	Technical Support Programme to The Gambia on Climate and Development by United Nations Economic Commission for Africa (UNECA), African Climate Policy Center (ACPC)	2,930,000	Grant
10	GOTG Assets (infrastructure, personnel, utilities)	1,000,000	In Kind
11	IFAD supported Livestock & Horticulture Development Project (LHDP)	5,000,000	Grant
TOTAL		25,360,000	

D. GEF RESOURCES REQUESTED BY AGENCY, FOCAL AREAS AND COUNTRY

GEF AGENCY	TYPE OF TRUST FUND	FOCAL AREA	Country name/Global	Project amount (a)	Agency Fee (b)	Total c=a+b
UNEP	LDCF	Climate Change Adaptation	Gambia	\$5,000,000	\$500,000	\$5,500,000
UNDP	LDCF	Climate Change Adaptation	Gambia	\$3,000,000	\$300,000	\$3,300,000
Total GEF Resources				\$8,000,000	\$800,000	8,800,000

PART II: PROJECT JUSTIFICATION

1. The proposed project responds to priorities and actions identified in the NAPA of Gambia which articulate the need for securing, transferring and installing critical technologies, as well as developing the necessary systems for climate change-related information to permeate into decision-making processes. The technologies required to achieve these aims will increase the capacity of the national early warning network to forewarn and rapidly respond to extreme climate events.

2. The NAPA clearly identifies a priority project on Early Warning Systems (EWS) along with projects associated with Food security, Coastal Zones, Energy, Health, Water resources and Terrestrial ecosystems. Following the completion of the NAPA, the Gambia developed a first LDCF Early Warning project, but due to resource constraints at the time (2008), only a very limited budget of USD 1,028,000 was allowed, which enabled only minimal functionality and implementation on a pilot basis. Needs assessments developed through the first LDCF project have clearly outlined the need for increased functionality of the national level EWS, and has confirmed that the budgetary allocation under the current project is inadequate to meet the needs identified. The project funding and coverage need to be scaled up to cover the whole country and to procure the technologies, develop and strengthen the infrastructure and provide the needed institutional and human capacity to develop and operationalise an effective climate change early warning system. This is not associated with any one particular sector and is expected to be relevant to multiple sectors, including food/agriculture, water management, health and energy. A second EWS LDCF project is therefore proposed, which will bridge the budget gap between the investments achieved in the first LDCF project and a fully functional EWS as identified in the needs assessment. Hence, the current proposal is timely and relevant for sustainability of the EWS in The Gambia. The total amount of funding requested, as articulated in the Letter of Endorsement and not including PPG and agency fees is USD 8,000,000.

A1. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 The GEF focal area strategies:

3. This project is fully in line with LDCF/SCCF focal area objective 2 “Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level” and objective 3: Promote transfer and adoption of adaptation technology. It is specifically aligned with outcomes linked to these objectives including increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas, strengthened adaptive capacity to reduce risks to climate-induced economic losses, successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas and enhanced enabling environment to support adaptation related technology transfer.

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

4. *Country ownership:* The Government of Gambia has ratified the UNFCCC and is classified among the non-Annex 1 parties. These countries have also developed and submitted their National Adaptation Plans of Action (NAPA) and are entitled to benefit from the LDC Fund for the

implementation of priority measures identified in their respective NAPAs. In implementing priority interventions identified in the NAPAs, the project is consistent with the Conference of Parties (COP-9) and also satisfies criteria outlined in UNFCCC Decision 7/CP.7 and GEF/C.28/18.

5. The project focus is aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9. As climate impacts fall disproportionately on the poor, the project recognizes the links between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29).

6. **Compliance with programme and LDC Fund policies:** The project complies with the NAPA-identified urgent needs, all of which are relevant for supporting national development goals and for achieving MDGs 1, 3, 6 and 7.

7. **Financing:** The project is designed to accommodate the additional adaptation costs of priority actions identified in the NAPAs and build on several other baseline projects and programmes. The co-funding for this project is also within the stated guidelines, with more than \$5m in prospective co-funding. The relevance of the co-financing to the proposed LDCF project is outlined below and will be further elaborated on during the project preparation phase.

8. **Institutional Synergy and Coordination:** The project outcomes will be primarily implemented through national implementation. The PIF therefore outlines project management costs that will be incurred by implementing partners at the national level (below 5%).

9. The project is aligned with the framework of Poverty Reduction Strategy Papers (PRSP). In the case of Gambia, the relevant pillar is:

- *Improving social protection needs of the poor and vulnerable and Enhancing the capacity and output of the agriculture sector, among others.*

10. Gambia's climate change integrated Programme for Accelerated Growth and Employment (PAGE) which is the replacement of the PRSP presents the five pillars (i) *accelerating and sustaining economic growth*, (ii) *improving and modernising infrastructure*, (iii) *strengthening human capital stock and enhancing access to social services*, (iv) *improving governance and increasing economic competitiveness* and (v) *reinforcing social cohesion*. The proposed project will contribute to pillars i) and ii).

11. The project outcomes are closely aligned and coordinated with efforts already underway within Gambia to promote development which is resilient to climate change at the national and local levels. The project is focused on strengthening the capacity of national and sub-national entities to monitor climate change, generate reliable hydro-meteorological information (including forecasts) and to be able to combine this information with other environmental and socio-economic data to improve evidence-based decision-making for early warning and adaptation responses as well as planning. The proposed project will be implemented at the country level by the lead Ministry mandated to advance climate monitoring including management of climate data in full collaboration with other relevant line Ministries who rely on the information for planning purposes (Disaster Management, Agriculture, Water, Finance and Planning etc). Sub national authorities (Provincial and/or District officers, Municipalities, civil society (women and youth associations, NGOs, media, farmers' associations) and the private sector will all also be important stakeholders (as end users) and will be provided with the space and opportunity to contribute to the design of the project in each country. Details of the institutional coordination will be spelt out in the project document that is prepared during the PPG phase with the full participation of key stakeholders in each country including GEF OFP, UNFCCC FP, and other key senior Government officials including private sector and civil society representations as well as donor representatives.

12. **Monitoring and Evaluation:** The implementation of the project's activities will reflect UNDP-GEF monitoring and evaluation standards and procedures, in line with the requirements of the LDCF. Details for monitoring and evaluation will be articulated during the project development phase.

A.2. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

13. The link between this project strategy and the NAPA is centered on a common goal of informing climate resilient development planning and sector management through improved national systems that generate relevant climate information.

14. The Gambia's number one priority NAPA intervention is related to EWS, titled, "Rehabilitation of Early Warning Systems on Climate Related Natural Hazards." Aspects of this project are currently being managed by UNEP and are implemented by the Department of Water Resources in collaboration with technical departments of the Ministry of Agriculture, Ministry of Fisheries and Water Resources, Ministry of Forestry and the Environment, as well as the National Disaster Management Agency (NDMA) and Local Government Authorities. Component 1 of the project includes Climate change information, monitoring and early warning systems.

15. Additionally, NAPA priority Project 9, "Restoration/Protection of coastal environments" works toward a comprehensive coastal management plan. It prioritizes bathymetric and topographic surveys, but does not include monitoring equipment in its budget or description. Priority Project 10, "Increasing fish production through aquaculture and conservation of post-harvest fishery products" seeks to achieve improved livelihoods security and personal safety at sea. It also aims to reduce sea accidents, loss of lives and equipment. To meet these goals, monitoring, forecasting, and warning systems are gaps which have not been implemented for sea and coastal environments since the NAPA was written.

B. PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

Problem

16. Many countries in Africa suffer from low rates of development. In particular, Gambia is in the lowest 20% of countries worldwide, ranked by both Gross National Income (GNI per capita) and the 2011 United Nations Human Development Index (ranked 168 out of 187 countries)³. These countries are particularly vulnerable to climate-related shocks (either to the economy or to unprotected populations), which threaten to undo years of development assistance and asset accumulation, especially within poor populations. One way to help mitigate the impact of these climate-related shocks is to warn populations, businesses and governments in advance of an impending or likely damaging event through an Early Warning System (EWS).

17. The fundamental problem in many LDC countries such as Gambia is that a complete EWS, which generates knowledge of the risks (vulnerability & hazard), has capacity to monitor, analyze and forecast hazards, provides communication and dissemination of alerts and warnings, either does not exist or does not function as well as it ought to be relevant and useful for long-term planning, management and risk reduction activities. In the Gambia, this status unnecessarily imperils lives and assets, recently for flood victims nationwide⁴ and for farmers suffering from drought impacts on cereal production⁵. Reasons for this situation involve a lack of both hard and soft technologies and the capacity to utilize those technologies in an appropriate manner. This results in: i) a limited understanding of current and future risks; ii) limited monitoring and forecasting of climate-related hazards; iii) inappropriate communication and packaging of warnings; iv) restricted responses to impending disasters and v) constrained planning for slow-onset changes due to climate change that will require a transformational shift in economic

³ <http://hdr.undp.org/en/reports/global/hdr2011/>

⁴ <http://reliefweb.int/node/367776>

⁵ http://www.actionaid.org.uk/103169/drought_in_the_gambia_as_west_africas_sahel_crisis_spreads.html

development and risk reduction efforts. The infrastructure and technology on which to build a fully operational EWS for the Gambia including these services cannot be fully met from the existing GOTG/GEF/UNEP Project on the development of an effective national early warning system which has set the foundations for a EWS in the Gambia. An assessment of needs for EWS in the Gambia under the above project shows that the current GEF/LDCF funding is inadequate to provide the required institutional and human capacities needed for a national early warning system. Without investing in the capacity to generate information, especially the monitoring and forecasting of climate-related hazards, the proposed EWS under the current funding will never function as optimally as it could. The **aim of this proposal** is, therefore, to invest in strengthening the EWS of Gambia, largely through improving national capabilities to generate and use climate information in the planning for and management of climate induced hazard risks. It will achieve this by implementing the transfer of appropriate technology, and development of appropriate infrastructure and skills.

Changes in climate-related hazards and likely impacts

18. According to the fourth assessment report of IPCC, Africa is the continent expected to suffer the most under anthropogenic induced climate change, both due to expected increases in climate hazards and its already high vulnerabilities to those hazards across a range of sectors. Gambia is classified as a Least Developed Country (LDC), which is recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as among the most vulnerable to the impacts of climate change. These vulnerabilities span many sectors, livelihoods and assets within each country and the region in general.

19. Water is a scarce resource across Africa and its availability both for agriculture and domestic consumption is impacted severely by drought, which has been and will continue to increase in intensity and frequency (due to both changes in rainfall and increasing temperatures), especially in sub-tropical and semi-arid regions. In the Gambia annual temperatures have risen by approximately 1.0°C since 1960 and are expected to increase by between 1.1 and 3.1°C by 2060⁶. Hot nights and days are expected to increase in frequency, whilst cold days and nights will become rarer (there are insufficient measurements to calculate these statistics from observations). Statistically significant trends in historical rainfall indicate decreases during the main rainy season from July to September. Future projections of rainfall also suggest a likely decrease in rainfall during the June to September period, though maximum daily rainfalls are likely to increase.

20. These hazardous events often lead to impacts on food security and health such as those seen recently. Whereas flooding due to heavy rainfall over a short period of time has wreaked havoc in both urban and rural (river basins/watersheds) environments, with attendant impacts on health and the spread of disease. Whilst the upswing in deaths attributed to floods in recent years may largely be due to population dynamics⁷, many deaths can be avoided with sufficient early warning. These risks and associated losses are expected to increase in some regions due to the increased availability of atmospheric moisture and intensity of rainfall in the future⁸.

21. Severe weather, associated with convective weather, atmospheric heating and moisture, will likely increase in many regions and can result in increases in rain, hail and winds, all of which are damaging to crops and infrastructure. Sea level rise is a problem for many low lying coastal areas, such as Banjul⁹, where large populations often assemble and the slow and steady rise of mean sea level results in

⁶ <http://country-profiles.geog.ox.ac.uk/>

⁷ Di Baldassarre, G., A. Montanari, H. Lins, D. Koutsoyiannis, L. Brandimarte, and G. Blöschl (2010), Flood fatalities in Africa: From diagnosis to mitigation, *Geophys. Res. Lett.*, 37, L22402, doi:10.1029/2010GL045467

⁸ IPCC, 2012: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp

⁹ http://www.grida.no/graphicslib/detail/impact-of-sea-level-rise-in-banjul-gambia_913c

more frequent flooding and coastal erosion. Rises in temperature which affects all regions, results in an increase in the frequency of heat waves and extremely hot days/nights, which in turn affect the health of humans, ecosystems and urban environments.

22. Changes in the above climate-related hazards will negatively affect a range of sectors. Of particular concern is the agricultural sector which is an important component of the economy and forms the basis of many rural livelihoods. Droughts, floods and increases in temperature reduce the ability to grow crops, as well as affecting other aspects of the value chain e.g. drying/storage and transport to market.

Underlying causes

23. Whilst the EWS in many different countries serve different sectors or users, they also currently share common problems; i) insufficient meteorological and hydrological observing stations to monitor the current state of the climate and hydrology, map risks and detect long-term trends; ii) insufficient use of satellite data for monitoring different aspects of the environment and providing information in regions not covered by the meteorological and hydrological stations; iii) limited use of climate forecasts on daily to seasonal timescales and; iv) limited packaging of different sources of information to inform risk reduction efforts in different sectors; v) inappropriate communication of EWS messages and vi) lack of trained personnel to effectively run and maintain the different aspects of the EWS.

24. Inadequate number and non-extensive spatial distribution of meteorological and hydrological monitoring stations and agricultural mixed farming centres in Gambia has meant that many important regions and populations vulnerable to climate hazards are underserved by the existing weather and climate data and information generation and dissemination system. For example, large areas in the northern parts of Central River and Upper River regions and the western parts of Lower River Region are not adequately monitored in terms of weather, climate and other atmospheric and environmental risks and phenomena. Therefore many potentially threatening hazards are not forewarned because of a lack of or ill-equipped monitoring stations. Where stations exist they are often manually operated and do not report measurements for days to weeks after the climate hazards have passed. Equipment failure is also common and regular checks and maintenance often neglected due to insufficient funds, incentives and regulatory policies resulting in poor quality and unreliable data for making management decisions related to climate change induced disaster risks. The existing GOTG/GEF/UNEP Early Warning Project is intervening mainly in the North Bank Region on a Pilot basis and is concentrating on improving the meteorological and hydrological monitoring services. The project baseline study and needs assessment reports have indicated that for a sustained national early warning system, implementation should be extended to other regions and sectors of the country. It is also evident from the reports that intensive institutional, infrastructure and capacity development measures are required

25. It is now common practice to utilize satellite imagery as a useful tool for monitoring areas where meteorological and hydrological monitoring stations do not exist and aspects of the environment useful for assessing current risks e.g. vegetation monitoring helps assess crop performance and images of floods help understand which areas are more at risk. Both digital and analogue cloud imagery are received at the Central Forecast Office of the Banjul International Airport in The Gambia. However, the meteorological and hydrological technicians and forecasters and other national extension services agents (agriculture, forestry, fisheries, wildlife) are ill-equipped (lack of appropriate computer hardware and software) and have little or no capacities and skills to analyze the imagery to develop early warning advisories and other products that are useful to stakeholders.

26. A radar network for monitoring severe weather does not exist in The Gambia despite its huge potential to provide products that will enable forewarning on impending storms and other severe and extreme weather events given its large range of coverage (approximately 75-200kms). High costs of procurement (for infrastructure, maintenance and human resources to run the equipment) and operation and

maintenance of a Radar network are barriers to the acquisition of the technology in The Gambia. It is cheaper to forge partnership with the Senegal National Meteorological Services through financial contribution to operational costs and then have full access to the products generated by their radar networks, some of which image parts of The Gambia.

27. Climate forecasts for the coming 1-7 days are produced using a combination of Numerical Weather Prediction (NWP) models and predictions either from neighboring countries or international centres. Seasonal forecasts are also produced using tools developed at international centres. In situations where forecasts are externally sourced, forecasters are dependent on the applicability of the forecasts to local conditions and restricted in their ability to apply local observations to develop better forecasts.

28. Often climate early warning advisories, forecasts and climate information are given in the same standard formats for different users and this restricts their interpretation and application. For example, agricultural extension officers require information about the start of the rains, or the frequency of days with rain, whereas those monitoring floods require information on rainfall intensity. Extracting these particular attributes is currently being achieved through a consultancy under the existing GOTG/GEF/UNEP Early Warning NAPA project. However, this activity is limited to only the North Bank Region of The Gambia. Development and operationalization of an effective and sustained early warning system for The Gambia will need to cover all 5 administrative regions and the Greater Banjul Area. This information is then more useful when packaged with other sources of data e.g. satellite maps showing current vegetation and rainfall, or soil moisture as an indication of flooding potential etc.

29. Further problems are caused by a lack of trained personnel who are capable of maintaining an observational network, generating information for specific sectors, as well as interpreting the data in ways that non-technical stakeholders can understand. This human capacity is required to:

- Replace components of the observing networks when they fail;
- Manage and run any forecast models;
- Understand how users interpret data and design information packages that address these needs;
- Be able to combine, manipulate and overlay different data to identify areas at risk.

Long-term solution and barriers to achieving it:

30. It is expected that as climate change unfolds the frequency and intensity of climate related shocks will change, therefore improving EWSs is one way to adapt to a changing climate. As an adaptive measure EWS also benefit the poorer segments of society, those who do not necessarily benefit from large protective infrastructure projects¹⁰. Furthermore, improving the EWS also provides benefits for long term planning and helps NHMS and other institutions build capacity to service other needs e.g. for land-use and agricultural planning, hydro-electric power , etc. ., in the face of a changing climate. .

31. To allow Gambia to better manage severe weather related disasters, food security and agricultural production, scarce and dwindling water resources and make their socioeconomic development process less vulnerable to climate-related risks it is essential to:

- enhance the capacity of hydro-meteorological services and networks for predicting climatic events and associated risks;
- develop a more effective, efficient and targeted delivery of climate information including early warnings;
- support improved and timely preparedness and response to forecast climate-related risks and vulnerabilities.

32. These objectives require developing robust weather and climate observation, forecasting, and monitoring infrastructure, which can be rapidly deployed, is relatively easy to maintain, and simple to

¹⁰World Bank (2010). Natural hazards, Unnatural disasters: Effective prevention through an economic lens. World Bank and United Nations.231 pp.

use. Such a weather and climate monitoring system can provide countries with the capacity to develop: (i) an early warning system for severe weather; (ii) real-time weather and hydrological monitoring; (iii) weather forecasting capabilities (Numerical Weather Prediction); (iv) agro-meteorological information and services (including integrated crop and pest management); (v) applications related to building and management of infrastructure; (vi) land, air and maritime transport management; (vii) integrated water resources management; (viii) coastal zone and land management; and (ix) planning and policy making processes.

33. However, there are significant policy, institutional, financial, technological and informational barriers that prevent the desired situation from emerging. These barriers include:

Lack of weather and climate monitoring infrastructure

34. In Gambia there has been a steady decline in infrastructure dedicated to monitoring the climate, hydrology, environment and severe weather (e.g. meteorological and hydrological observing stations, satellite receivers and weather radar) for the last 20-30 years. Whilst this situation has been ameliorated by specifically targeted project interventions, this has often benefited a particular aspect of the early warning system (e.g. African Monitoring of the Environment for Sustainable Development (AMESD)¹¹ to improve use of satellite data or the “Weather for all” initiative to improve weather station coverage¹²). Recently the need for a systematic improvement of the observing network is recognized by the Global Climate Observing System (GCOS)¹³ which in its reports to the UNFCCC notes that “Developing Countries have made only limited progress in filling gaps in their in situ observing networks, with some evidence of decline in some regions, and capacity building support remains small in relation to needs”. The installation of new infrastructure also requires several practical considerations: i) safety of the equipment; ii) power sources; iii) long term durability; iv) access for maintenance and v) transmission and archiving of data.

Limited knowledge and capacity to effectively predict future climate events

35. The scientific and technical capabilities required to effectively identify hazards and forecast their potential impacts on vulnerable communities are often weak. This may be due to a lack of infrastructure (i.e. computational equipment), software (model code and associated routines) or human capacity/skills to programme and run the model code. Running forecast models is a highly skilled task and requires many years of education and training. Forecasters, with highly sought skills, are often lured into more lucrative work.

Inconsistent use of different information sources across and within country borders

36. If there is not a clear legal mandate for the issuing of warnings then messages may be confused (between different sources) and not acted upon. There needs to be an official process for generating warnings that include communication between sectoral ministries and with communities where disasters are experienced. Representatives from different ministries convene, assess the situation and warning messages are conveyed. This allows a wide range of views and evidence to be considered (including information from international and regional sources), though the process needs to be clear and act efficiently if warnings are to be issued in time.

No systematic forecasting of climate hazards, risks and timely dissemination of warnings

37. When climate information is available (monitoring and forecasts), it should be translated into specific hazards experienced by different sectors and users e.g. heat units for agriculture or wave heights for managing coastal shipping. Without translation into information that can be easily understood by users, the information is unlikely to be used. This information should then be combined with known

¹¹ <http://www.amesd.org/index.php?start=25>

¹² <http://www.un.org/apps/news/story.asp?NewsID=31193&Cr=weather&Cr1>

¹³ <http://www.wmo.int/pages/prog/gcos/index.php>

vulnerabilities to identify areas and communities at risk. This is currently not part of the process for issuing warnings in most cases.

Lack of environmental databases for assessing the risks posed by climate variability and change

38. Calculating risks for known vulnerabilities requires a comprehensive archive of information related to vulnerable communities, infrastructure, roads, shipping, access to markets, flood prone areas, cropping patterns etc. This information are held in disconnected databases or computers spread across different government departments and ministries. All the information required to assess vulnerability and calculate risks needs to be accessible, either through a central database/repository, or through distributed networks.

Long-term sustainability of observational infrastructure and technically skilled human resources

39. The maintenance of monitoring equipment, the human capacity to use and repair this equipment, process data and develop early warning packages, all require constant income streams and annual budgets. These are needed beyond the lifetime of this project and therefore require suitable business models and financial mechanisms to be developed. The NHMS often struggles to pay for the maintenance and upgrade of existing equipment which is recognized as a limiting factor¹⁴ and various levels of public-private partnership have been suggested, including the use of an intermediary organization¹⁵. The National Meteorological Services and the Gambia Civil Aviation Authority are currently implementing such partnership at a trial level. Discussions are continuing between these two partners for a more elaborate and inclusive partnership which calls for the National Meteorological Services being transformed into an Agency and move away from a fully-fledged public institution. Regardless of the business structure it is clear that delivery of targeted services, such as those proposed here, are essential for generating products and revenue that both public and private clients will pay for. This revenue can then support the maintenance of the observational infrastructure and the salaries of skilled staff to use it and generate the early warning products.

40. In the Gambia, instruments and equipment are often procured and installed without consideration of the skilled human capital to operate, maintain and repair them. Foreign firms, from which the equipment and instruments are procured, are often too expensive when needed to repair broken equipment or retrain technicians etc. Thus, the required national human capital will be developed by this project and every effort will be made to integrate the trained personnel into the Government Civil Service and budget system. This provides a sustainable way forward and the existing EWS project in The Gambia already offers lessons and experiences in this area.

Baseline Project(s) the project will build on:

41. The **African Monitoring of the Environment for Sustainable Development (AMESD)** Project. The European Union funded project Preparation for the Use of MSG in Africa (PUMA) made available data and products from EUMETSAT's latest satellites, promoting African National Meteorological and Hydrological Services to provide accurate weather forecasts, monitor extreme weather phenomena, and improve disaster management. The African Monitoring of the Environment for Sustainable Development (AMESD) initiative takes PUMA a stage further by significantly extending the use of remote sensing data to environmental and climate monitoring applications. For West Africa, ECOWAS adopted the theme of water resource management and the management of crops and pastures. The project was entrusted to the Niamey-based Regional Centre for Training and Application of Agro-meteorology and Operational Hydrology (AGRHYMET). This represents a baseline investment of approx. \$27 million. Of this, \$2 million will count as baseline for this project. The Gambia Meteorological Services is a beneficiary of this

¹⁴ see WMO Global Framework for Climate Services

¹⁵ See GFDRR WCIDS: <http://www.gfdr.org/gfdr/WCIDS>

activity and the funds can be used as baseline for this proposed 2nd Phase of the existing GOTG/GEF/UNEP LDCF NAPA Early Warning Project.

42. **IFAD supported Livestock & Horticulture Development Project (LHDP) (\$15m):** 2010-2016¹⁶. The project engages the active involvement of communities in a participatory monitoring and evaluation system, including the use of a voucher-based remuneration system for the delivery of agricultural extension services. Agricultural and other field extension agents serve as important stakeholders of the existing GOTG/GEF/UNEP LDCF NAPA Early Warning project by serving as conduit of meteorological, hydrological and environmental information to vulnerable farmers and other communities. These agents understand the language of the grassroots level communities and are able to translate the meteorological and hydrological technical language for easy communication to the communities. The project also provides practical support to the kafos (community association), enabling farmers to build on their existing activities and improve their use of increasingly scarce water and land resources. \$5m of the project is assumed as co-financing, details of which will be determined during the PPG phase.

43. **ECOWAS supported Gambia National Agriculture Investment Programme (GNAIP), (\$15m):** 2010 -2015. The overall aim of GNAIP is to increase the Agriculture sector's contribution to the national economy, enhancing growth and poverty reduction all of which cannot be achieved in the absence of targeted weather, climate and climate change early warning advisories and information. One of the specific objectives of the programme is to promote lowland development for rice cultivation and targets 24,000 ha of land under various ecologies and aims to expand rice production to attain an annual production of 70,000 metric tons of paddy rice as well as promote aquaculture to optimize yields per year. \$5m of the project is assumed as co-financing, details of which will be determined during the PPG phase.

44. **USAID supported Gambia-Senegal sustainable Fisheries Project (\$12m):** 2009 -2014. The "Ba Nafaa", (translated as Value of the Sea) project is a five-year regional initiative supported by the American people through the U.S. Agency for International Development (USAID)/West Africa Regional Mission. It is implemented through the University of Rhode Island (URI)-USAID cooperative agreement on Sustainable Coastal Communities and Ecosystems (SUCCESS). The World Wide Fund West Africa Marine EcoRegional Program is the regional implementing partner. Project activities are carried out in partnership with the Department of Fisheries (DoFish) and stakeholders in the fisheries sector in The Gambia and in Senegal. The National Meteorological and Hydrological Services of The Gambia are important stakeholders and currently provide tailored weather forecasts and warnings to the fisher folk as and when required. This partnership is being strengthened under the GOTG/GEF/UNEP LDCF NAPA Early warning project and will be pursued vigorously under this proposed 2nd phase of the project. The focus is on sustainable fisheries management including the shared marine and coastal resources between The Gambia and Senegal. However, most field activities are in The Gambia and it is assumed that 10% of the value is co-financing, details of which will be determined during the PPG phase.

45. **FAO support to strengthen capacities in the Gambia Government for policy planning, programming, statistics & monitoring in the Agriculture & Natural Resources sector (\$384,000):** 2010 – 2012.

46. **UNDP and Spanish Fund supported public service reform and institutional capacity development project (PSRICD). Co-financing: 1.8M\$ (2012-2015).** With support from the Spanish DGTTF and UNDP, the Public Service Reform & Institutional Capacity Development (PSRICD) project continues to contribute towards laying foundation for development, financing and implementation of a long-term strategy for public/civil service reform and institutional capacity development under strengthened government leadership, while at the same time addressing short-term capacity needs in key government institutions. Following the Poverty Reduction Strategy Programme II (PRSP II), the Government of The Gambia has put in place The Programme for Accelerated Growth and Employment

¹⁶<http://www.ifad.org/operations/projects/design/98/gambia.pdf>

(PAGE) outlining the country's vision, priorities and strategies for sustained economic growth, poverty reduction and realization of the MDGs (2012-2015). A major theme is strengthening government institutions, to enhance the effectiveness and efficiency in public service delivery and also implicitly enhancing the capacity of the civil service to develop, implement, monitor and evaluate the policies required for the successful execution of the PAGE. Closer cooperation and partnership have been forged between the Project Management Unit of the GOTG/GEF/UNEP Early Warning Project and the Personnel Management Office (PMO) under the Office of the President (OP) with a view to absorption of project staff into mainstream public service at the end of the project. The PMO leads in the recruitment of project staff and this will be maintained under this proposed 2nd phase.

47. Many EWS-related projects for the Gambia are detailed under 'coordinating projects' below. However, there is a planned "**Disaster Risk Reduction and Climate Change Adaptation Programme (DRR-CCA) for The Gambia**" the funding for which will be detailed at the end of the PPG phase. Two activities in this project are: i) the development and/or strengthening of a multi-hazard early warning system; ii) the development of guidelines and other information, education and communication materials to raise awareness on disaster risk reduction and climate change adaptation issues. As a key stakeholder and member of the National Disaster Management Committee, the Department of Water Resources, serving as the Climate Change Focal Point and currently implementing the GOTG/GEF/UNEP Early Warning Project is working closely with the National Disaster Management Agency (NDMA) on implementation of climate change and disaster management activities. The NDMA is a member of the National Climate Committee and the existing Project Steering Committee and its membership will continue under the proposed 2nd phase of the project. The recent validation of The Gambia's DRR report indicates this project is in the pipeline.¹⁷ UNDP supported the Gambia National Disaster Management Programme (2008-2011), and synergies with the outputs of this project are relevant. As part of these efforts, The Gambia has established and is currently building the capacities of its National Disaster Management Agency (NDMA),¹⁸ which has recently received support from Nigeria's National Emergency Management Agency.¹⁹ When implementation of the implementation of the DRR-CCA project starts, lessons learnt, good practices and relevant information and products generated by the GOTG/GEF/UNEP LDCF NAPA Early Warning Project and this proposed 2nd phase will be useful to NDMA. The Department of Water Resources, as the climate change focal point and responsible for coordination of climate change activities with support the development and implementation of climate change mainstreaming guidelines under the DRR-CCA project. Duplication of efforts will be avoided and efficient utilization and share of scarce resources will be the norm.

48. The **African Development Bank** supported the **Rural Water Supply and Sanitation Project** (2012 – 2015) to the tune of **US\$7,920,000** and implemented by the Ministry of Fisheries, Water Resources and National Assembly Matters. The objective of the project is to accelerate access to safe water and sustainable sanitation to contribute to the achievement of the national target and the Millennium Development Goals. Access to safe water supply and sanitation facilities in the Gambia is low compared to the MDGs. As a result the incidence of water-borne diseases, especially during flood events is very high. The project will have direct and indirect benefits economic and social benefits to the population of the area. The availability of adequate and potable water supply and sanitation facilities would allow the population healthier and productive lives. The availability of these services would enable the rural population to devote the time previously spent on fetching water on other productive activities. More than 50% (US\$4 million) of funds in the above project will count as baseline for this project.

49. The **African Development Bank** supported the **National Water Sector Reform Project** (2011 – 2014) to the tune of **US\$2,602,215**, is implemented by the Ministry of Fisheries, Water Resources & National Assembly Matters. The objective of the project is to support the establishment of Integrated

¹⁷ <http://thepoint.gm/africa/gambia/article/ndma-validates-disaster-risk-reduction-report>

¹⁸ <http://www.ndma.gm/home/>

¹⁹ <http://fmi.gov.ng/nigerias-nema-backs-the-gambia-on-disaster-emergency-management/>

Water Resources Management (IWRM) in The Gambia in line with the National Water Policy and the IWRM Roadmap. Implementing this project will assist the Government of The Gambia advance the establishment of IWRM in the country so as to facilitate sustainable and effective management of the nation's water resources to boost socio-economic development and reduce poverty. The establishment of IWRM strengthens The Gambia's commitment to ECOWAS' Regional Action Plan on IWRM in West Africa. Through this project, African Water Facility (AWF) would facilitate introduction of water governance based on IWRM principles in The Gambia; it would further improve water knowledge and information systems. Funds in the above project will all count as baseline for this project.

50. Technical Support Programme to The Gambia on Climate and Development by the **United Nations Economic Commission for Africa (UNECA), African Climate Policy Center (ACPC)**, 2012 - 2014. ACPC is the working organ of the Climate for Development in Africa (Climdev-Africa) Programme, a joint initiative of the African Union Commission (AUC), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB). Through the MOU between UNECA and the Government of the Gambia (GoTG), the parties agreed to cooperate in development of the Gambia Programme for Accelerated Growth and Employment (PAGE) and promoting collaboration and mutual interest. ACPC and broadly, the ClimDev Africa Support Programme to The Gambia will include:

- A meteorological and hydrological data and information upgrading and management programme;
- Low emissions climate resilient development strategy (LECRDS); and
- Capacity building & technical support in the co-implementation of activities in the Climate Change Priority Action Plan of PAGE and the NAMA

B.2. Incremental/Additional cost reasoning: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) AND THE ASSOCIATED Global environmental benefits TO BE DELIVERED BY THE PROJECT:

51. The first component of this proposed 2nd Phase of the GOTG/GEF/UNEP early warning project seeks to establish a functional network of climate (meteorological and hydrological) monitoring stations and associated infrastructure (satellite and severe weather monitoring) and human capacity (new staffing and training of existing staff) as a basis for understanding climate change and building an early warning system to increase resilience to climate-related shocks. The second component concerns itself with developing and strengthening connected systems and processes to enable the data from such a network to be translated, combined, reinterpreted and communicated to intended users.

Baseline Situation

52. As of March 2012 and based on the Needs Assessment Report²⁰ conducted under the existing GOTG/GEF/UNEP early warning project, only two of the ten meteorological station of the National Meteorological Services of The Gambia operate on a 24hr-basis all the year-round. Three stations operate from 6am to 9pm every day and the rest operate as daylight station from 6am to 6pm every day. The major challenges facing the observing network are: inadequate number of meteorological and hydrological stations in the country, delayed repair and/or replacement of broken instruments, unavailability of instrument and equipment repair facilities, insufficient spare parts for maintenance of broken down equipment, inadequate human capital to carry out observation and maintenance of instruments and equipment, poor and inadequate infrastructure and facilities for enhanced operational observing capacity and inadequate material resources and consumables for ease of operation. The report of the baseline assessment study, the report of the Needs Assessment study and the reports from the UK Met. Office consultancy on the capacity and training needs for the development, institutionalization and sustenance of a dedicated weather, climate and climate change early warning system for The Gambia

²⁰ John G. Peacock, Needs Assessment Report, March 2012: GOTG/GEF/UNEP Early Warning Project

identified that the current GOTG/GEF/UNEP LDCF NAPA early warning priority project has insufficient funds; the approximately \$1m set aside has been found to be inadequate to meet the project needs. Hence, the need for this request for an extension and scaling up of the project activities and funds.

53. Country wide, the hydrological network has been affected by the destruction of hydrological installations due to physical and other construction activities, encroachment of sites through change of land ownership, dilapidated infrastructure, instruments damaged due to over flowing of river banks during flood situations, lack of appropriate instruments and equipment to carry-out the observation and monitoring, and inadequate trained personnel to carry out observations and analysis.

54. Packaging, communication and dissemination of EWS messages to different users and sectors is a key prerequisite for maximizing the impact of a well-functioning EWS. This is currently being piloted in the existing GOTG/GEF/UNEP Early Warning NAPA project. However, this activity is limited to only the North Bank Region of The Gambia, and covers primarily the agriculture and water sectors. Development and operationalization of an effective and sustained early warning system for The Gambia will need to cover all 5 administrative regions and the Greater Banjul Area as well as all major vulnerable economic sectors. National capacity for assimilating forecasts and mainstreaming them into existing development planning is critical and will be undertaken. Communication channels, strategies and procedures for issuing climate change early warning products will be institutionalized and plans and activities for sustainable financing of the operation and maintenance of the installed EWS will be developed and implemented.

55. **AfDB supported Gambia Artisanal Fisheries Development Project (GAFDP)** Recognizing the importance of fish as a reliable and affordable source of protein for the majority of Gambians and a source of income for coastal communities, this project aims to: rehabilitate the Banjul fisheries Jetty and the three fish landing sites of Albreda, Bintang and Tendaba including access roads & associated facilities; to construct fish central market in Bakoteh through the AfDB supported project 'Gambia Artisanal Fisheries Development Project (GAFDP). This infrastructure will contribute to an increase in the quality of fish landed as well as reduce fish spoilage and stabilize fish prices and increase opportunities for fishmongers to receive higher incomes and improve nutritional standards of the people. Marine meteorological information and hydrological tide gauge records and information are useful and provided to the Department of Fisheries and the fisher folks. Although the project was completed in 2011, the existing GOTG/GEF/UNEP Early Warning Project and this proposed 2nd phase of the project will continue to improve the meteorological and hydrological data collection infrastructure at the fish landing sites and the Banjul Port facilities.

Additional Cost Reasoning

56. Under this proposed 2nd Phase of the GOTG/GEF/UNEP LDCF NAPA Early Warning Project, the Government of Gambia will be able to use LDCF resources to procure, install and/or rehabilitate critical infrastructure required to build and strengthen the climate-related observational network. In all equipment purchases, the assessed instruments, equipment, infrastructure and capacity building and capacity maintenance needs under the existing UNEP-led Early Warning project will be used, noting the manufacturer, whether it is still working and whether the NHMS has an interest in continuing with particular makes/models. This will need to be weighed against the costs of potentially cheaper solutions and the added costs of training personnel to service different products. Building the capacity of technicians to install, operate and maintain critical instruments and equipment is a pre-requisite to the procurement of the instruments and equipment.

57. Government needs in terms of equipment and infrastructure that are relevant to the implementation of a 2nd Phase of the Early Warning Project, which will be developed in detail during the PPG phase include:

- Automatic Weather Stations (purchasing, installation);
- Coastal monitoring equipment and installation;

- River gauging equipment and installation;
- Improve communication systems used by stations;
- Upper Air and Pilot Balloon Stations; (purchasing, installation, training);
- Financial allocation and retention of staff after the project ends.

58. Much of the value of early warnings (whether a user changes their actions or lives/assets are safeguarded) is dependent on the packaging, communication and dissemination of those warnings. The effectiveness of warnings can be improved either through improving the forecasts/monitoring information, communications or the decision-making process. Component 2, therefore, is primarily concerned with improving these aspects of the EWS. Specific details on the exact type of EWS information and risk management tools (for flood warnings, agricultural extension advisories, weather index insurance, transport planning etc.) will be determined at the PPG phase along with additional actions designed to meet those priority needs.

59. Under the ongoing GOTG/GEF/UNEP Early Warning Project, absorption of personnel recruited and trained using project funds after the end of the project has been discussed and agreed with the Personnel Management Office (PMO). It is for this reason that PMO is the lead institution in the recruitment process. This process will continue under the 2nd Phase.

The following Table shows the expected outcomes, outputs and indicative activities under the proposed 2nd Phase.

Summary of Outcomes, Outputs and Indicative Activities under the proposed 2 nd Phase of the GOTG/GEF/UNEP Early Warning Projects		
Project Objective: To strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Gambia.		
Component 1: Infrastructure, technologies, equipment and human resources requirements to enable EWS functionality and sustainability		
Outcomes	Outputs	Indicative Activities
Outcome 1.1: The Gambia National Meteorological Services is transformed into a full-fledged Meteorological Agency	<p>1.1.1: All the Administrative and Technical Units of the National Meteorological Services are centralized at one location in Banjul International Airport²¹;</p> <p>1.1.2: Communication equipment and technologies procured and installed at the Meteorological Agency to enable data and information archiving and dissemination with regional centres and the Central Forecast Office</p>	<p>1.1.1.1: Complete the ongoing negotiations with government authorities for the establishment of the National Meteorological Agency;</p> <p>1.1.1.2: Transform the land area for the Water Resources Training School into the home of the National Meteorological Agency;</p> <p>1.1.1.3: Establish the National Meteorological Agency at the Banjul International Airport and relocate all the relevant Units to the grounds at the Airport.</p> <p>1.1.2.1: Determine the equipment and communication technology requirements of the NMA for the efficient operations of the Early Warning System;</p> <p>1.1.2.2: Procure and install the required equipment and communication technologies;</p>
Outcome 1.2 Hydro-meteorological infrastructure is installed that will cover the full needs for 'optimal performance of EWS' as identified by recent needs assessment reports in the Gambia.	1.2.1: The infrastructure of the existing meteorological and hydrological networks are upgraded to meet the required operational standard of the Early Warning System;	<p>1.2.1.1: Procure and install:</p> <ul style="list-style-type: none"> a) Five (5) Automatic Weather Stations (AWS) for synoptic, climatological and agro-meteorological observations in remote and underserved areas of the country; b) The missing conventional and automated hydro-meteorological instruments and equipment identified in needs assessment reports procured and installed; c) A Low level Wind alert System (LLWAS) at the Airport, in close consultations with the Gambia Civil Aviation Authority (GCAA) and main Airlines operating at the Banjul International Airport; d) Six (6) Automatic Hydrological Stations (AHS) at the current sites of Hydrological Stations and in remote and underserved areas of the country; e) An appropriately equipped Hydrological Boat for use in comprehensive profiling of salinity along the River Gambia and some coastal sites; f) Equipment for the monitoring of status

	<p>1.2.2: A network of 5 Pilot balloon/upper air stations is developed and operational;</p> <p>1.2.3: A Marine Meteorological Station Network is developed and operational;</p> <p>1.2.4: Institutionalize the monitoring and</p>	<p>(acidity/alkalinity) of freshwater sources using selected water points (wells, boreholes, etc) in the country;</p> <p>1.2.1.2: Upgrade the Satellite Receiving Station at the Airport to receive Geostationary and Polar Orbiting Satellite imagery and products;</p> <p>1.2.1.3; Upgrade the Visualization Systems (SADIS 2G, SYNERGIE, MESSIR-AERO, MESSIRCOM, etc.) at the Central Forecast Office of the Banjul International Airport;</p> <p>1.2.1.4: Rehabilitate existing or establish where non-existent, National, Regional and Global Telecommunication Systems by upgrading/installing the VSAT communication links; upgrading and installing hardware and software for internet services, and upgrading/installing the communication links between the CFO, IT Centre and national meteorological and hydrological stations;</p> <p>1.2.1.5: Institutionalize a comprehensive data base and data base management system through the:</p> <ul style="list-style-type: none"> •development and application of appropriate procedures and strategies •provision and application of user-friendly hardware and software packages for data processing and dissemination; •conduct of relevant training and capacity building of staff of the NMHS and other stakeholders on website design and maintenance. •procurement and installation of user-friendly computer software packages (e.g., Climsoft, Climdata) for data processing, dissemination and archiving, including backup systems; •conduct a rescue of historical climate, hydrological, agricultural, land use and other environmental data. <p>1.2.1.6: Establish an Instrument Repair Workshop staffed with skilled personnel and stocked with adequate spare parts</p> <p>1.2.2.1: Determine and identify the appropriate type and number of Pilot Balloon equipment (balloons, theodolites, hydrogen gas cylinders and relevant gadgets) for 5 observation Stations;</p> <p>1.2.2.2: Procure and install the required equipment and operate the stations</p> <p>1.2.2.3: Operate the network of 5 Pilot balloon/upper air stations;</p> <p>1.2.3.1: Determine and identify the appropriate type and number of equipment and instruments required for the establishment of a Marine meteorological station;</p> <p>1.2.3.2: Procure and install the required equipment at the marine meteorological stations</p> <p>1.2.3.3: Operate the network of 3 Marina Meteorological Stations at Buniadu Point, Cape Point and Kartong/Gunjur</p> <p>1.2.4.1: Determine equipment, tools and infrastructure</p>
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<p>Outcome 1.3 Optimum critical mass of human resources is put in place for the operation of the Gambia Early Warning System beyond the Pilot project</p>	<p>recording of and reporting on wildlife and biodiversity species diversity and spatial variability;</p> <p>1.2.5: The national water quality monitoring and reporting system is upgraded and operational</p> <p>1.3.1: The critical mass of human capital and capacity required for the establishment of the appropriate climate and climate change early warning systems is developed;</p>	<p>requirement for the upgrading of existing and establishment of new wildlife and biodiversity monitoring sites;</p> <p>1.2.4.2: Procure the identified equipment and tools and materials for the infrastructure;</p> <p>1.2.4.3: Upgrade existing wildlife and biodiversity monitoring sites through the installation of the equipment and tools and the infrastructure;</p> <p>1.2.4.4: Establish new wildlife and biodiversity monitoring sites through the installation of equipment and tools and the infrastructure;</p> <p>1.2.5.1: Determine equipment, tools and infrastructure requirement for the upgrading of the national water quality monitoring and reporting system;</p> <p>1.2.5.2: Procure the identified equipment and tools and materials for the infrastructure;</p> <p>1.2.5.3: Upgrade the water quality monitoring system through the installation of the equipment and tools and the infrastructure;</p> <p>1.3.1.1: Develop the critical mass of human capital required for the establishment of the appropriate climate and climate change early warning systems as identified in the ongoing GOTG/GEF/UNEP Early Warning Project baseline studies;</p> <p>1.3.1.2: Implement the recommended training and new staff hiring programmes as contained in the Baseline and Needs Assessment Reports;</p> <p>1.3.1.3: Determine and develop the capacity building needs and training programmes of staff of the National Meteorological and Hydrological Services and other stakeholder departments and agencies (Agriculture, Environment, Forestry, Fisheries, Health, Disaster Management, etc) for effective participation in the sustainable operations of the early warning system;</p> <p>1.3.1.4: Execute the training and capacity building of staff of the National Meteorological and Hydrological Services and other stakeholder departments and agencies (Agriculture, Environment, Forestry, Fisheries, Health, Disaster Management, etc.);</p> <p>1.3.1.5: Strengthen the capacity of the Central Forecast Office of the NMS to make and use climate forecasts (on daily to seasonal, as well as medium- to long-term timescales) by training all the national weather forecasters to degree level as required by the internationally recognized Quality Management System (QMS).</p>
<p>Component 2: Climate information integrated into development plans and early warning systems</p>		
<p>Outcomes</p>	<p>Outputs</p>	<p>Indicative Activities</p>
<p>Outcome 2.1: Efficient and effective use of hydro-meteorological and environmental information for making early</p>	<p>2.1.1: Baseline study to validate project indicators, baselines, targets and means of verification.</p>	<p>2.1.1.1: Update and validate indicators, baselines and targets set during the project formulation phase</p> <p>2.1.1.2: Determine the Sector-specific needs of stakeholder sectors and institutions (Agriculture and Livestock, Fisheries and Coastal Zone; Forestry, Water Resources, Health, Energy, Air, Road and Water Transport, Disaster Risk Reduction, Construction, Insurance and Re-insurance, Media, etc.);</p>

<p>warnings and long-term development plans.</p>	<p>2.1.2: National capacity for assimilating forecasts and mainstreaming them into existing development planning is built;</p> <p>2.1.3: Communication channels, strategies and procedures for issuing climate change early warning products are enabled;</p> <p>2.1.4: Plan for sustainable financing of the operation and maintenance of the installed EWS developed and implemented;</p>	<p>2.1.1.3: Based on the identified needs, develop tailored sector-specific early warning products that link climate, environmental and socio-economic information on a range of timescales;</p> <p>2.1.1.4: Develop strategies and implementation plans to meet the needs of these sectors for their effective and efficient participation in the sustainable management of the EWS;</p> <p>2.1.2.1: Determine and acquire tools required by staff of the Central Forecast Office to conduct forecast assimilation;</p> <p>2.1.2.2: Determine the skills and other capacity requirements of staff of the Central Forecasts Office to conduct forecast assimilation;</p> <p>2.1.2.3: Develop and execute capacity building strategies and programmes for weather forecasters and other staff of the Central Forecasts to implement forecast assimilation;</p> <p>2.1.2.4: Facilitate and conduct mainstreaming of weather forecasts and early warning into existing development planning, the PAGE and disaster management systems;</p> <p>2.1.2.5: Harmonize the developed assimilation and early warning system with systems and warnings developed by other initiatives such as the ongoing GOTG/GEF/UNEP LDCF EWS project.</p> <p>2.1.3.1: Consult with communication stakeholders especially, relevant public and private sector entities, civil society organizations, sectoral extension services and media houses on their participation in the acquisition, utilization and dissemination of climate and climate change early warning products;</p> <p>2.1.3.2: From the consultations determine the prerequisite needs and capacities for the continued and sustained participation of these stakeholders in the efficient and effective operations of an early warning system;</p> <p>2.1.3.3: Facilitate the provision of the needs and build the capacities of these stakeholders for their sustained participation in the operations of the early warning system;</p> <p>2.1.3.4: Develop and implement procedures and strategies for the establishment of efficient communication channels required for the operations of a sustained and efficient early warning system;</p> <p>2.1.4.1: Continue the close cooperation and collaboration with the Ministry of Finance and Economic Affairs (MOFEA) and the Personnel Management Office (PMO) of the Office of the President initiated under the 1st Phase of the Gambia Early Warning Project;</p> <p>2.1.4.2: Jointly determine the needs and requirements of absorbing and retaining project personnel under Government employment after the end of the project;</p> <p>2.1.4.3: Jointly determine the financial needs and requirements for the sustained and continued operations and maintenance of the established early warning system after the end of the</p>
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	project; 2.1.4.4: Develop procedures, strategies and a plan to absorb and retain project personnel in Government employment and for sustained funding of the operations of the early warning system after the end of the project; 2.1.4.5: Implement the Plan for sustainable financing and staffing for the operation and maintenance of the installed EWS
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B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS. AS A BACKGROUND INFORMATION, READ [Mainstreaming Gender at the GEF.](#)

60. The project is expected to deliver benefits at both the national and local levels. The installation of weather, upper air, radar and other observation and computer infrastructure will benefit the NHMS staff (through training and technological advancement). Other national institutions that will benefit from this endeavour will be Ministries of Agriculture, Water, Energy and Disaster Management, through strengthening of their computer databases, access to information and ability to communicate with other regions. One important benefit will be the improved coordination between government departments and the sharing of information, which can lead to improved products and services. It is then possible that these institutions can start marketing such information and products (satellite monitoring and climate forecast products in particular) to private entities that will pay for the services.

61. At the local level early warnings and climate hazard mapping, disseminated correctly and acted on appropriately, can provide economic benefits through reducing losses of agricultural produce, infrastructure (roads and bridges) and disruption to peoples livelihoods. This has further knock-on effects on people’s health and wellbeing and thus affects communities and social structures. Communities will immediately benefit through warnings related to agriculture, coastal management, water and flood management, wildfires etc. This total population benefiting from these developments has the potential to grow hugely if warnings extend to a reasonable percentage of the total population e.g. through a mobile phone relay or similar system. Many of the beneficiaries will be women, especially within the agriculture sector where they often make up the majority of smallholder farmers, yet are most vulnerable to food insecurity. There may also be other benefits to developing the communication systems associated with early warnings - for instance radios can also be used for arranging medical evacuations.

62. Perhaps the largest economic benefits are associated with improved transport planning, especially shipping which will take advantage of improved forecasts of winds and waves, and aviation which can take advantage of improved local forecasts. These and commercial agriculture likely represent some of the largest private clients for early warning services and tailored forecasts. Together with satellite imagery used for land-use planning and monitoring these can provide environmental benefits, including monitoring of illegal logging which has global consequences in terms of deforestation and the global carbon budget.

B.4. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND IF POSSIBLE, PROPOSE MEASURES THAT ADDRESS THESE RISKS

Risk	Level	Mitigation
Unavailability of requisite human resources and data	High	The issue of the unavailability of requisite human resources will be mitigated by recruitment of international consultants who will work closely with in-country counterparts and by targeted capacity building activities. Training activities of local personnel will also be part of all aspects of the work and the relevant institutions will be encouraged to expand the staff base if it is weak in particular areas.
Local IT and telecommunications infrastructure weak e.g. international bandwidth and local mobile telecommunications networks	Medium	Cost-effective solutions for each particular situation will be used e.g. satellite and/or radio communications. Where feasible automatic weather and hydrological stations reporting over the mobile telecoms network will be preferred.
Insufficient institutional support and political commitments	Medium	The proposed project is strongly supported by Governments and other key stakeholders and development partners. The project, in conjunction with UNDP, will therefore take advantage of this opportunity to seek substantial support from the Governments and forge strong partnership with other development partners. Direct linkages to existing and planned baseline development activities implemented by government, securing of the necessary co-financing, as well as local buy-in will also minimize this risk. It will also be important to establish buy in from all government departments early as the project will utilize data and information from a wide range of departments.
Work progresses in a compartmentalized fashion and there is little integration e.g. government departments refuse to share data and information	Medium	This risk is always present in a project such as this. By ensuring that capacity is built across a range of departments and implementing 'quick win' measures early (developing products based on internationally available data), these issues can be mitigated.
Non-compliance by primary proponents for the successful implementation of this project	Medium	Ensuring that the project is designed and implemented in a participatory and inclusive manner, following established UNDP procedures, will mitigate the risk. Since the activities correspond to the urgent needs as expressed by the primary proponents the risk of non-compliance should be reduced
Climate shock occurring during the design and implementation phase of the project	Low to medium	There may be some delays as more urgent priorities may need to be addressed by some of the stakeholders (e.g. NHMS or disaster management) but it is unlikely that this will derail the project.

B.5. IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:

Stakeholder	Relevant roles
Regional	
Environmental Outlook for Africa (UNEP)	Provision of data and information on the state of environment for Africa
UNEP Regional Office for Africa	Coordinating the work on environmental issues including on Early Warning in Africa region
Africa Adaptation Programme (UNDP)	Investing in both hard technology and the use of climate information for risk management
Climate for Development in Africa Programme (ClimDev-Africa)	Promoting the use of climate information for development – potential partner for TA
African Monitoring of the Environment for Sustainable Development (AMESD)	Installing and promoting the use of satellite equipment and technology for environmental monitoring
Global Climate Observing System (GCOS)	Coordinating body for the climate observing system worldwide
Système d'Observation du Cycle Hydrologique de l'Afrique de l'Ouest et Centrale (AOC-HYCOS)	Coordinating the installation and use of hydrological monitoring equipment and information for water resource management
Global Facility for Disaster Reduction and Recovery (GFDRR)	Working mostly with disaster management, the programme also has a facility for advising on infrastructure development
African Centre for Meteorological Applications for Development (ACMAD)	Using climate forecasts and the seasonal outlooks for development
Centre Regional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle (AGRHYMET)	Using hydrological and agro-meteorological monitoring and forecasts, as well as satellite data for early warning of hydro-meteorological extremes
Famine and early warning system network (FEWSNET)	Working across Africa to implement climate monitoring and forecasting for early warning in the food security sector
UNDP Bureau for Crisis Prevention and Recovery (UNDP-BCPR)	Working with disaster management, disaster and loss databases and climate risk assessments
Climate Change Adaptation and Development (UNDP - UNEP CC DARE)	Integrating climate change considerations into early warning systems
Gambia	
Ministry of water Resources, Fisheries & National Assembly Matters (MOFWR&NAM)	Forecasts and monitoring for efficient use of water resources and safety at sea
National Environment Agency (NEA)	Land use planning, environmental impact assessments
Ministry of Forestry & the Environment (MOFEN)	Long term planning for forestry, short term monitoring of fire hazards
Ministry of Agriculture (MOA)	Planning for food security, agricultural zoning and
Ministry of Finance & Economic Affairs (MOFEA)	Planning for infrastructure, urban and rural planning
University of the Gambia (UTG)	Coastal management and agriculture
National Disaster Management Agency (NDMA)	Coordinating national disaster management, official outlet for warnings and response
Gambia Red Cross Society (GRCS)	NGO working with communities
Gambia Navy (Ministry of Defense)	Patrolling seas routes and rescue
Ministry of Trade, Industries & Employment (MOTIE)	Marketing of agricultural produce, private sector engagement and employment

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

63. **Climate for Development in Africa Programme (ClimDev-Africa)** is a joint initiative of the Commission of the African Union (AUC), the African Development Bank (AfDB) and the United Nations Economic Commission for Africa (UNECA). ClimDev-Africa has received strong political endorsement from AU heads of state and government, African Ministers, several key stakeholders and the International Community. In general, the ClimDev-Africa programme supports Africa's response to climate variability and change by building regional, sub-regional and national policy capacity. It will improve the quality and availability of information and analysis to decision-makers.

64. The **Global Climate Observing System (GCOS)** is intended to be a long-term, user-driven operational system capable of providing the comprehensive observations required for: Monitoring the climate system; Detecting and attributing climate change; Assessing impacts of, and supporting adaptation to, climate variability and change; Application to national economic development; Research to improve understanding, modelling and prediction of the climate system. GCOS is a joint undertaking of the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational Scientific and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP) and the International Council for Science (ICSU). It includes both in situ and remote sensing components, with its space based components coordinated by the Committee on Earth Observation Satellites (CEOS) and the Coordination Group for Meteorological Satellites (CGMS). GCOS is intended to meet the full range of national and international requirements for climate and climate-related observations.

65. The **Système d'Observation du Cycle Hydrologique de l'Afrique de l'Ouest et Centrale (AOC-HYCOS)** project is the West and Central African component of the World Hydrological Cycle Observing System (WHYCOS), operated by the World Meteorological Organization (WMO). The 11 participating countries are: Gambia, Cape Verde, Chad, Gambia, Ghana, Guinea, Mali, Mauritania, Niger, Nigeria and Senegal. The project's real-time hydrological database is maintained by regional meteorological observatories and contains digital weather pictures, news alerts and statistical water maps.

66. **UNDP** has also submitted for approval (in early 2012) the project, “**Gambia - Enhancing Resilience of Vulnerable Coastal Areas and Communities to Climate Change in the Republic of Gambia**” (\$50.4m, LDCF). This project will “reduce Gambia’s vulnerability to sea-level rise and associated impacts of climate change by improving coastal defenses and enhancing adaptive capacities of coastal communities.”²²

67. The Gambia EWS project will be designed to be part of, and benefit from, the UNDP-LDCF supported, LDCF financed, regional initiative on EWS that involves 10 countries (Benin, Burkina Faso, Ethiopia, Liberia, Malawi, Sierra Leone, Sao Tome and Principe, Tanzania, Uganda, and Zambia). As suggested by a number of LDCF Council members, the regional initiative is currently being designed to allow each LDCs that are part of the initiative to develop country specific sustainable capacities related to EWS and decision-making on adaptation, receive technical support with procurement and employ the necessary technologies (including ensuring sustainable financing of operations and management etc.), and exchange information including lessons learned on the generation, dissemination and use of information from EWS for planning food security interventions and managing water resources, among others. The regional initiative will support countries to strengthen their local functional and technical capacities to use information from EW systems, in conjunction with other sources, to inform short-, medium- and long-term planning.

²²<http://www.gefonline.org/projectDetailsSQL.cfm?projID=4724>

68. Gambia is involved in the regional **UNDP/UNESCO** project, “**Adaptation to Climate Change - Responding to Shoreline Change in its Human Dimensions in West Africa through Integrated Coastal Area Management (ACCC)**” (\$4m, GEF-SPA, \$4m co-financing) This project seeks to “mainstream adaptation to climate change into Integrated Coastal Area Management (ICAM) planning in the participating countries through the development and implementation of pilot adaptation activities in response to shoreline change.”

69. **UNEP’s “Adoption of Ecosystem Approach for Integrated Implementation of Multi Environmental Agreements (MEA) at National and Divisional Levels.”** This is a 4-year (2009-2013) GEF funded project (**\$661,000**) managed by UNEP. Specific objectives are: i) strengthen the national institutional framework for integrated management of global environmental priorities; and ii) integrate global environmental issues into divisional level planning and implementation through the application of an ecosystem approach. The output of an MEA Unit would include development of a better information management system, which would feature early warning-related information for the monitoring of pasture and crop lands.²³

70. The GEF supported ‘**Promoting renewable energy based mini grids for productive uses in rural areas of The Gambia**’ (2011 – 2015) is implemented by the Ministry of Energy. The objective of the project is to develop and promote a market environment that will stimulate investments in renewable energy based mini-grids for productive uses in rural areas of The Gambia. The project seeks to address most of the existing barriers to the wide scale adoption of renewable energy technologies in The Gambia through an integrated and catalytic approach that combines interventions aimed at creating a market environment conducive to investments in renewable energy projects and pilot projects aimed at demonstrating technical feasibility and commercial viability of renewable energy projects. It is envisaged that these interventions, seen together, will catalyze greater investments in renewable energy projects in the Gambia and provide useful lessons in the region. This fuel-switching project will reduce the consumption of fossil fuel and thus reduce emissions of greenhouse gases. It will also reduce electricity losses during transmission due to obsolete wiring in the NAWEC grid which is a serious concern and a major source of emissions as identified in the Gambia NAMA document²⁴ This project will be important to coordinate with and build synergies with, particularly in terms of building national capacity for climate change policies and protocols and the transfer of technology, for this project

71. The project will build on products and services to support both assessment and decision making developed by **UNEP** through its Early Warning and Assessment program developed through the Division of Early Warning and Assessment (DEWA,) such as manuals including the ‘State of the Art Analysis of EWS²⁵’; data portals including the Global Environmental Outlook (GEO) and Africa Environment Outlook²⁶; training tools and the Program of Research for Vulnerability Impact and Adaptation (PROVIA²⁷ etc. The project will also contribute important climate data towards and build on the ‘My country Gateway’ feature of the new UNEP live online platform. The UNEP live website is a dynamic reporting portal which is intended to replace the GEO’s, and will provide The Gambia with a sustainable

²³<http://www.gefonline.org/projectDetailsSQL.cfm?projID=3135>

²⁵ http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=89

²⁶ UNEP’s ‘Africa Environment Outlook’ is an integrated environmental assessment tool “providing an analysis of the state of the environment over the past 30 years, the driving forces behind environmental change, and the consequences for social and economic development. These consequences are presented both in terms of impacts on ecosystems, and vulnerability of human populations to floods, droughts, earthquakes, pests and diseases. The links between environmental change and poverty are explored, and appropriate intervention points identified. It builds on sound data, information and science, and input from all stakeholders to identify priority issues.”

²⁷The objective of PRO-VIA is to create a structure by means of a Secretariat and scientific committees to prioritize, accelerate, harmonize, mobilize, and communicate VIA research. PRO-VIA’s activities will include: (i) Identifying gaps in VIA research and emerging issues of importance; (ii) Providing a clearinghouse for information and communication outreach on emerging VIA issues; (iii) Organizing a semi-annual international conference of the VIA research community; (iv) Facilitating annual reporting to policymakers and civil society of the latest results from the VIA community. (v) Conducting capacity building (with other organizations) of young scientists working on VIA in developing countries.

online space for data sharing. The project will benefit 0.5 MUSD during 2013-2014 from UNEP EWS program which is sought as parallel co – financing.

C. DESCRIBE THE GEF AGENCY’S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

72. The proposed LDCF project is consistent with **UNEP’s comparative advantage** as identified through the GEF Council paper C.31/5. delineates UNEP’s comparative advantage in providing the GEF with a range of relevant experiences, a proof of concept, the testing of ideas, and the best available science and knowledge upon which it can base its investments. The LDCF project is also in accordance with the GEF Council paper C.28/18 that delineates UNEP’s comparative advantage areas as including: “developing and using climate information to effect changes in relevant sectoral policies based on climate science”.

73. The project is consistent to UNEP’s mandate which is to analyze the state of the global environment, assess global and regional environmental trends, and provide early warning on environmental threats, recently empowered through the decisions of the UN Conference on Rio + 20. This project is aligned well with the following functional elements which derive from its mandate such as: (i) **Assessment and Reporting;** (ii) **Environmental Observing;** (iii) **Data Analysis and Integration;** (iv) **Strategic Oversight and Early Warning.**

74. UNEP’s Medium Term Strategy the Climate Change Adaptation expected accomplishments include the generation of relevant science for improved decision making and planning, which is aligned to the objectives of this project. The science and technical analysis aspects in regards to the early warning system and the interpretation of climate projections into risk factors are activities that are of particular interest to UNEP through its Division of Early warning and Assessment (DEWA). Through DEWA, UNEP can link to its activities at the IPCC, to the Global Climate Observing Systems (GCOS), to the World Meteorological Organization as well as the UNEP supported Environmental Outlook for Africa and Program of Research for Vulnerability Impact and Adaptation (PROVIA) .

75. UNEP has considerable experience in implementing climate change adaptation projects including through LDCF resources and providing scientific guidance in the field of climate change. To date, UNEP has facilitated the completion of 15 NAPAs and has assisted 38 countries in developing their National Communications, which have included vulnerability assessments and studies on adaptation measures. UNEP is also assisting LDCs and other developing countries implement their adaptation priorities identified by the NAPAs, National Communications and Technology Needs Assessments. Additionally, UNEP has implemented or is in the process of implementing over 80 adaptation projects at global, regional and national levels. Through the implementation of those projects, UNEP works to develop innovative solutions for national governments and local communities to adapt in an environmentally sound manner to climate change. This is achieved by providing methods and tools to support decision making, addressing barriers to implementation, and testing and demonstrating those solutions, as well as building climate resilience through restoration of key ecosystems (river basins, mountains, coasts and drylands) vulnerable to climate change. UNEP’s work on climate change adaptation focuses on three main areas: i) Science and Assessments, ii) Knowledge and Policy Support, and iii) Building the Resilience of Ecosystems for Adaptation.

76. In addition, UNEP is currently leading the implementation of the ongoing GOTG/GEF/UNEP Early Warning project for which this 2nd phase is proposed, and has considerable experience working with the Gambia National team. UNEP is also leading the implementation of four similar projects in other developing countries funded through LDCF resources.

77. The proposed project is aligned with **UNDP's comparative advantage**, as articulated in the GEF matrix, in the area of capacity building, providing technical and policy support as well as expertise in project design and implementation. Additionally UNDP has a high level of experience managing other LDCF projects in the region, in particular those with an early warning component. Along with projects in Asia and the Pacific, these contribute to the UNDP-GEF signature programme "Strengthening Climate Information and Early Warning Systems for Climate Resilient Development and Adaptation to Climate Change" which, as of June 2012, is helping 36 countries develop and implement 38 projects focused on EWS, with a total value of USD 587 million. Of these funds USD 148 million is grant funding from the GEF LDCF/SCCF Trust Funds, and the Adaptation Fund.

78. In July 2012, projects focused on strengthening EWS in 10 additional African countries, were approved by the GEF council for funding through the LDCF. The outcomes, outputs and activities of these projects are similar in scope to those proposed here for the Gambia. Having UNDP as an implementing partner will therefore enable this project to more easily benefit from synergies with these ongoing activities in the region, including economies of scale for procurement, training etc.

79. Since 2007, UNDP has been helping to finance the development of Gambia's national disaster management framework, leading to the development of policy and legal structure, as well as a national implementation framework based on regional and local disaster management bodies. On the basis of this work a long term Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) programme for The Gambia (2009 – 2013) has been elaborated, providing a starting point for the proposed integration of climate risk management principles into national and regional planning.

C.1. INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:

80. This project is based on a baseline comprised of ongoing and parallel national and international programmes. These comprise the project's co-financing in the context of NAPA implementation. UNDP is bringing \$1,800,000 to this project, though further funds (yet to be determined) will be provided through the National Disaster Management project. UNEP is bringing \$ 500,000 through its core budget activities in support to Early Warning and Assessments for the next biennium. Additional funding will be explored during the PPG implementation phase. Additionally, UNEP, UNDP and the government will ensure that the minimum co-financing targets will be met. The total amount of co-financing expected for this project is **25,360,000USD**

C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAMME (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

The project contributes to the achievement of the three following outcomes of the UNEP's Program of Work for 2010-2011 for Climate Change Adaptation: (a) the generation and mobilization of knowledge for adaptation including through impact and vulnerability assessment, the Global Adaptation Network and a World Research Programme on Impacts, Vulnerability and Adaptation; (b) support for capacity building, policy setting and planning; and (c) support for ecosystem-based adaptation. UNEP also hosts the secretariat of the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) – a new global initiative aimed to provide direction and coherence at the international level for research on vulnerability, impacts and adaptation.

81. Relative proximity to the UNEP headquarters and regular communication with the National Implementing partners provide the means for successful project delivery. UNEP supervision modalities

for all its projects are expected to be applied in this case as well, providing for ongoing and regular monitoring and supervision as well as regular technical assistance.

82. Activities and results that will be developed under this project are also fully consistent with the UNDAF outcome 2.1 “Improved sustainable Natural Resource Utilization and food security”, 2.2 “Improved access to sustainable livelihoods opportunities in an innovative and competitive private sector”, and UNDAF outcome 2.3 “Improved access to sustainable basic infrastructure”.

83. UNDP’s comparative advantage in implementing this project is underpinned by its energy and environment programme strategy which aims to mainstream environment and disaster prevention measures into national and local development policies, strategies and plans and our overarching role of capacity development.

84. Public service reform and institutional building is one of UNDP’s flagship programming areas. The proposed capacity development activities in all components of the LDCF project will benefit from UNDP’s overarching and strategic role in this area, helping to ensure that related outcomes are sustainable in the long-term.

85. The project will also benefit from the day-to-day presence and support of UNDP’s country office, and UNDP operations are further supported by regional advisory capacity based in the UNDP Regional Centre in Pretoria. UNDP has dedicated Regional Technical Advisers focusing on supporting adaptation programming and implementation in a range of technical areas relevant to this project including capacity development, coastal zone management, disaster management, infrastructure development, and ecosystem based adaptation.

86. There are other LDCF, SCCF and Adaptation Fund -financed projects within the region with similar objectives (see figure above) currently supported by UNDP and UNEP, which means that there is substantial in-house technical expertise within the two Agencies that can be brought to bear to support the Government with the project as outlined above.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

NAME	POSITION	MINISTRY	DATE (MM/DD/YYYY)
Momodou B. Sarr	Executive director	National environment agency, Gambia	07/20/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.

Agency Coordinator, Agency name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Maryam Niamir-Fuller; Director - UNEP-GEF Coordination Office.		09/24/2012	ErmiraFida, Portfolio Manager; UNEP-GEF Adaptation	+ (254-20) 762 3113	ermira.fida@unep.org
Yannick Glemarec Executive Coordinator UNDP/GEF		09/24/2012	Dr. Mark Tadross Technical advisor on climate information and modelling	+27 21 6502884	mark.tadross@undp.org