



UNDP-GEF Terminal Evaluation

**Strengthening climate information and early warning systems in
Eastern and Southern Africa for climate resilient development and
adaptation to climate change – Zambia**

(PIMS 5091)

Final Report

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Evaluator

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Acronyms

ACMAD	African Centre of Meteorological Application for Development
AWS	Automatic Weather Stations
CIIEWS	Climate Information and Early Warning System
CIRDA	Climate Information for Resilient Development and Adaptation to Climate Change in Africa
CO	Country Office
COMESA	Common Market for Eastern and Southern Africa
CSO	Central Statistics Office
DDMC	District Disaster Management Committee
DMMU	Disaster Management and Mitigation Unit
DWA	Department of Water Affairs
EWS	Early Warning System
GEF	Global Environment Facility
INCCS	Interim National Climate Change Secretariat
IP	Implementing Partner
LDCF	Least Developed Country Fund
LTA	Long Term Agreement
M&E	Monitoring and Evaluation
MAL	Ministry of Agriculture and Livestock
MoFNP	Ministry of Finance and National Planning
MoH	Ministry of Health
MTR	Mid-Term Review
NAPA	National Adaptation Programmes of Action
NCCTC	National Climate Change Technical Committee
NGO	Non-Governmental Organization
NIM	National Implementation Modality
PIR	Project Implementation Report
PPCR	Pilot Program for Climate Resilience
PPP	Public Private Partnership
PRODOC	Project Document
RANET	Radio and Internet - Project
SADC	Southern Africa Development Community
SARCOF	Southern African Regional Climate Outlook Forum
SASSCAL	Southern Africa Science Service Centre for Climate Change and Adaptive Land Management
TE	Terminal Evaluation
ToC	Theory of Change
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNDAF	United Nations Development Assistance Framework
UNZA	University of Zambia
WARMA	Water Resources Management Authority
WMO	World Meteorological Organization
WFP	World Food Programme
ZCCN	Zambia Climate Change Network

Executive Summary

Project Summary Table

This is a report for the UNDP-GEF Terminal Evaluation of the project “**Strengthening climate information and early warning systems in Eastern and Southern Africa for climate resilient development and adaptation to climate change – Zambia (PIMS 5091)**”. Project information is presented in **Table 1-1**.

Table 1-1 Project Information

Project Information											
Project Title: Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for Climate Resilient Development and Adaptation to Climate Change – Zambia											
Country	Zambia										
Management Arrangement	NIM (National Implementation)										
Executing Entity/Implementing Partner	Ministry of Transport and Communication (Zambia Meteorological Department)										
Implementing Entity/Responsible Partners	Disaster Management and Mitigation Unit (DMMU), Department of Water Affairs (DWA)/Water Resource Management Authority (WARMA), Ministry of Agriculture and Livestock (MAL), Ministry of Health (MoH), Central Statistics Office (CSO), and Interim National Climate Change Secretariat (INCCS)										
GEF Focal Area: Climate Change	LDCF										
Project Start Date (actual)	26 February 2014										
Project Start Date (planned)	September 2013										
Project Closing Date	17 November 2017										
PAC Meeting Date	31 July 2013										
Atlas Award ID:	00074216										
Project ID:	00086729										
PIMS	5901										
GEF ID											
Total Allocated Resources:	US \$17,131,947										
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">GEF/LDCF</td> <td style="text-align: right;">US \$3,600,000</td> </tr> <tr> <td>Government (In Kind)</td> <td style="text-align: right;">US \$3,746,947</td> </tr> <tr> <td>UNDP (Grant)</td> <td style="text-align: right;">US \$600,000</td> </tr> <tr> <td>UNDP (Cash)</td> <td style="text-align: right;">US \$400,000</td> </tr> <tr> <td>Other</td> <td style="text-align: right;">US \$8,785</td> </tr> </table>	GEF/LDCF	US \$3,600,000	Government (In Kind)	US \$3,746,947	UNDP (Grant)	US \$600,000	UNDP (Cash)	US \$400,000	Other	US \$8,785
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Government (In Kind)	US \$3,746,947										
UNDP (Grant)	US \$600,000										
UNDP (Cash)	US \$400,000										
Other	US \$8,785										

Project Description

1. The project “Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for Climate Resilient Development and Adaptation to Climate Change” – Zambia (PIMS5091) started on 25th February 2015 and was implemented through the Zambia Meteorological Department (ZMD), at the Ministry of Transport and Communication. It is a Full-size UNDP-GEF Least Developed Country Fund (LDCF) Project, with an overall budget of US\$ 3,600,000 from GEF and US \$400,000 from UNDP, over four years.
2. The project was intended to increase Zambia's resilience and ability to adapt to the impacts of climate change. This project was designed within the framework of the UNDP-GEF's Multi-country Support Programme to Strengthen Climate Information for Resilient Development and Adaptation to Climate Change in Africa (CIRDA), comprising 11 country-led projects that focused on strengthening climate information and early warning systems (CIEWS).
3. The objective of the project was “to strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Zambia.” The project expected outcomes were: 1. Enhanced capacity of the Zambia Meteorological Department (ZMD) to monitor and forecast extreme weather events and climate change; and 2. Efficient and effective use of hydro-meteorological and environmental information for generating early warnings and informing long-term development plans.

Terminal Evaluation Methodology

4. This Terminal Evaluation (TE) was conducted in accordance with the UNDP Guidance for Conducting Terminal Evaluations of UNDP-Supported GEF-Financed Projects (UNDP 2014) and the standard GEF rating scale were used, as summarized below. Diverse evaluation approaches were used to gather information pertaining to the project. These approaches included a literature review (Annex 1) and stakeholder's consultations (Annex 3) at national, regional, district and local levels. A total of 98 people were consulted. The collection and analysis of data was guided by a data evaluation matrix, which was developed at the commencement of the evaluation, and is included as Annex 2 to the Report. The project preliminary findings were presented to key stakeholders in a debrief during the field visits in a meeting in Lusaka

KEY FINDINGS

5. The CIEWS project was designed to respond to priority adaptation needs and actions identified in Zambia's National Adaptation Programmes of Action (NAPA 10,11), specifically Option 2: “Strengthening of early warning systems to improve services to preparedness and adaptation to climate change”. Based on the project evaluation criteria, namely relevance, effectiveness, efficiency, monitoring and evaluation (M&E), partnerships and stakeholder's participation, sustainability, and impacts, this TE draws conclusions on each of these components.
6. **Relevance:** The project logic is well aligned with the identified problems, country needs and baseline assessment. Therefore, the outputs are justifiable with observable linkages to policies and priorities. Overall, the project is highly relevant and is, therefore, rated **Relevant**.
7. **Effectiveness:** The project has managed to achieve all of the seven indicators presented in the project log frame. It has been noted that a strong foundation has been set to facilitate the continuity of various project activities initiated by the project, through the GCF project. Apart from the initial delays due to procurement issues, the project effectiveness has been rated **Satisfactory**.
8. **Efficiency:** The financial management was primarily adequate and conformed to good practice and transparency through independent project audits, adhering to approved project work plan and budgets. The project appropriately used the UNDP/GEF financial accountability template forms (FACE) for budgeting and financial tracking. However, this TE recognizes that the government's in-kind contribution to the project has not been quantitatively reported. Therefore, it has not been

possible to quantify or verify the contribution in dollar values, in order to measure the magnitude of commitment. At the time of preparing this report a final project report had not been provided and the AMAT tracking tool had not been fully completed. This criterion is rated **Satisfactory**.

9. **Sustainability:** The project sustainability was measured against financial, institutional, environmental, and socio-economic aspects. The project had implemented diverse activities, using different approaches. The capacity, network and knowledge to manage projects have increased among the key stakeholders. There was strong commitment from government (both provincial and district levels), as well as the private sector, through co-financing, in continuing to support the project.
10. Key stakeholders have indicated that institutional capacity is a major risk for the sustainability of the project results. Institutional and managerial capacity of ZMD and of key local level stakeholders needs to be strengthened further.
11. Environmental risks and local impact on intensifying climate risks are still prominent. For enabling sustainability, it is essential that the project be adequately and deliberately integrated into overall national mitigation and adaptation strategies. Sensitization of stakeholders, for improved CIEWS monitoring and information dissemination and use, must be accompanied with general sensitization on climate risks, impacts, and mitigation measures, at all levels. It is noted that climate change is a key focus of the 7th National Development Plan 2017-202 (7NDP). One of the programmes included under 7NDP Strategy 1 (Improve production and productivity) is early warning system development. Operationalization of these programmes is critical to the sustainability of the CIEWS outputs. The sustainability is rated as **Likely**.
12. **Monitoring & Evaluation (M&E):** M&E is a critical component of project implementation and, therefore, needs to be adequately funded and implemented. A final project report had not been provided and the AMAT tracking tool has not been fully completed at the time of preparing this report. In addition, the 2015 and 2016 Project Implementation Report (PIRs) do not have financial data, as was presented in the subsequent 2017 and 2018 reports. It is necessary to be consistent across all of these reports. However, despite these shortcomings, the project implemented a participatory M&E system that involved joint data collection and verification, as well as periodic progress reviews on a quarterly and annually basis. Various stakeholders were involved from the national, regional, district and local levels. The M&E system is rated **Satisfactory**.
13. **Partnerships and Stakeholders Participation:** The project established partnerships and engagement with a wide range of stakeholder during project implementation from the government ministries, departments, agencies, and institutions; UNDP Country Office; GEF; private sectors; NGOs; community members; and, individual experts. Stakeholders interviewed indicated that partnerships and collaborations could have been stronger at the beginning of the project. Despite the overall achievement that has been recorded in this project, there were also some challenges encountered such as changes in project staff in ZMD, which slowed down decision-making. The project partnerships and stakeholder's participation has been rated **Satisfactory**.
14. **Gender consideration:** The project should be credited for taking an approach in involving women in the project activities. Out of the total number of over 60,000 small scale farmers reached by the project since inception in Gwembe, Mambwe and Sesheke districts, 60% have been women beneficiaries. In project areas the targeted women groups were established for sharing weather and climate information. The information provided to women facilitated their planning and decision making for the determining which farming systems to adopt. This resulted in diversification of women's' livelihoods, ranging from crop production to small livestock rearing, as well as poultry. The affirmative action taken by the project to involve women in receiving weather and climate information facilitated their ability to freely choose to grow crops that are drought tolerant, using the flood ponds for rice, as well as diversification of their livelihoods, including keeping goats.
15. Within ZMD there is an opportunity to further enhance gender aspects to support the gender affirmative action that was adopted by the department. An assessment of opportunities would provide a good basis for equitable participation of women, either in training programmes or project

activities as beneficiaries. For example, out of the 33 staff trained under the project only 6 are female. It is understood that the government froze the recruitment process at one point, which would have opened the window for recruitment of women.

Lessons learnt

16. **Mainstreaming climate change efforts:** Creating the enabling environment for mainstreaming climate change into the national policy framework is critical in changing community mind sets. Capacity building, awareness raising, and engaging communities requires sustained provision of useful and contextualized information. Climate information has enabled local communities to adapt to changing seasonal patterns, thereby safeguarding their livelihoods.
17. **Building partnerships and strong stakeholder engagement:** Partnerships and effective engagement with stakeholders at all levels is necessary to create momentum and change, as it creates a sense of belonging and inclusion of the otherwise marginalized groups (e.g. women). Climate change affects every sector and the entire economy. Therefore, intersectoral partnerships and engaging the local community will lead to transformative changes and broader adaptation to adverse impacts of climate change. When communities are equipped with knowledge and awareness, their adaptive capacity is enhanced.
18. **Use of existing central and local structures and systems:** The integration of project implementation systems and structures under the National Implementation Modalities (NIM) can be applauded for its lowering of the overall administrative costs in terms of staffing and use of government facilities etc. This approach also helped mainstreaming development into the national development framework, since they already know the strategic service delivery systems and the communities.
19. **Modern technology and indigenous knowledge are complementary:** Local communities possess a lot of indigenous knowledge that can complement and strengthen new technologies, such as automatic weather stations (AWS).

Evaluation Rating Table

Evaluation Ratings: Highly Satisfactory (HS), Satisfactory (S), Moderately Satisfactory (MS), Moderately Unsatisfactory (MU), Unsatisfactory (U), Highly Unsatisfactory (HU)				
1. Monitoring and Evaluation		<i>rating</i>	2. IA& EA Execution	<i>rating</i>
M&E design at entry		HS	Quality of UNDP Implementation	HS
M&E Plan Implementation		S	Quality of Execution - Executing Agency	S
Overall quality of M&E		S	Overall quality of Implementation / Execution	S
3. Assessment of Outcomes		<i>rating</i>	4. Sustainability [Likely (L) Moderate Likely (ML), Moderately Unlikely (MU), Unlikely (U)]	<i>rating</i>
Relevance		R	Financial resources:	L
Effectiveness		S	Socio-political:	L
Efficiency		S	Institutional framework and governance:	L
Overall Project Outcome Rating	S		Environmental:	L
			Overall likelihood of sustainability:	L

Recommendations

This evaluation provides three specific recommendations for ZMD and two general recommendations on project implementation that may apply in new future projects.

Recommendation 1: Data access and tailoring	Who/When
<p>To ZMD: it is noted that data is being shared through the daily and 10-day forecasts through radio, TV, and website and this is encouraged and should continue. In response to repeated feedback from stakeholders and partners, it is highly recommended that:</p> <ol style="list-style-type: none"> a. There is clarity in the form of clear guidelines or data access policies and procedures, including any applicable costs to enable institutions to include such costs in annual budgets. b. Recognize the varying sectoral data needs and that some institutions may wish to undertake their own analysis. It is, therefore, highly recommended that ZMD works with the different sectors to establish clear user needs, types of data, frequency and establish suitable tailored data access and packaging. 	<p>ZMD Within 1 year</p>
<p>Recommendation 2: Maintenance and replacement of Automatic Weather Stations</p>	<p>ZMD</p>
<p>To ZMD: the support and investment provided under the CIEWS project will likely require substantial ongoing maintenance. The project intended to influence the government to increase the ZMD annual budget by almost 50%, but only achieved 28% after the four years of the project. Therefore, funding for the department remains inadequate. It is noted that the cost recovery model will enable ZMD to cover some of the operational costs. It is necessary to understand the full annual operating, maintenance, and replacement costs of the weather stations. The weather stations established under the project face the risk of rapidly deteriorating in functionality if not adequately maintained. It is highly recommended that:</p> <ol style="list-style-type: none"> a. A full assessment be undertaken to determine the annual operating, maintenance and replacement costs (where necessary) of the weather stations, at least for an initial period of 5 to 7 years. b. From the assessment, identify funding shortfalls and prepare a funding strategy to address any shortfall. 	<p>ZMD, within 1 year</p>
<p>Recommendation 3: Capacity building</p>	<p>ZMD</p>
<p>To ZMD: Staff at the district level raised the need for additional and ongoing capacity to continue engaging with local communities beyond the project life.</p> <p>It is highly recommended that ZMD efforts continue to increase and enhance the critical mass to enable wider extension services and sectoral support to different sectors. The current efforts to seek cabinet office approval to establish high positions for those who have been trained and those to graduate should continue.</p> <p>It is noted that the government human resource regulations states that staff members who are provided training are bonded to the department for the</p>	<p>Ongoing</p>

<p>period of two years. However, additional efforts should be made to ensure that staff stay with the department beyond the tow year bonding period.</p>	
<p>General Project Management Recommendations</p>	
<p>Recommendation 4: Sharing of lessons learned on good practice project approaches</p>	
<p>To UNDP and ZMD: this evaluation commended the baseline self-capacity assessment conducted during the project preparation phase, which guided the identification and prioritisation of stakeholder needs. Equipment and capacity-building investments were selected based on identified priorities, as well as the available budget and focal areas of the CIEWS project. This is good practice and should be an important lesson to be shared with other institutions for formulation of future projects.</p> <p>This evaluation highly recommends that:</p> <ul style="list-style-type: none"> a. In addition to the social media videos produced about the results and impact of the project, preparation of information briefs in good practice project implementation should be shared with all project partners. 	<p>UNDP/ZMD</p>
<p>Recommendation 5: Monitoring and evaluation</p>	
<p>To ZMD and UNDP: The current methods of collecting M&E data are weak and inconsistent to enable longitudinal assessment of development support impact. As a systematic and long-term process, monitoring should continually gather information regarding the progress made by an implemented project. While evaluation is time specific and it is performed to judge whether a project has reached its goals and delivered what is expected according to its original plan.</p> <p>M&E are also relevant to development partners and donors, who need to assess the reliability of partnerships and accountability upon which further collaborations could be established. This evaluation highly recommends that:</p> <ul style="list-style-type: none"> - In future, develop an M&E system and reporting for planning and building a knowledge management and database. This can be linked, integrated, and interfaced with the existing government M&E system. This will enhance both management and institutional memory through proper reporting, record keeping and archiving at all central and local government levels, to allow for streamlined integrated database management as a pillar for effective Results-Based Monitoring & Evaluation/Management. 	<p>UNDP/ZMD</p>

1 INTRODUCTION

20. Zambia is vulnerable to the impacts of floods and droughts, which are predicted to increase in frequency and severity as a result of climate change. Rural Zambian communities, the majority of which comprise of small-scale farmers, are particularly vulnerable because of their dependence on rain-fed agriculture and natural resource-based livelihoods. Prior to the project, the meteorological observation network in Zambia was not capable of producing the required climate information to support risk management in the short or long term. To increase the ability of Zambia to adapt to the impacts of climate change, it will be necessary to strengthen the generation of appropriate climate information to monitor and predict the on-set of climate hazards such as droughts, increased temperatures, and river floods, including flash-floods. This information needs to be disseminated to end-users through an appropriate Early Warning Systems (EWS). Zambia already had components of a functional EWS. However, feedback from various stakeholders suggests that these activities could be better coordinated and contribute more effectively to planning processes and managing uncertainties of long-term climate change.
21. To realize the long-term development planning benefits of a streamlined, customized and consolidated EWS, which is informed by accurate climate information, this Least Developed Country Fund (LDCF) financed project took a two-pronged approach by: i) increasing the geographic distribution of meteorological monitoring stations at the national level; and ii) enabling communication channels for the dissemination of primarily flood and drought early warnings, including implementing a two-way, community-based EWSs in three vulnerable districts of Zambia, namely Chipata (now Mambwe), Gwembe and Sesheke. The following two outcomes were planned to be delivered through the Government of the Republic of Zambia (GRZ)-led initiative:
 - i) Enhanced capacity of the Zambia Meteorological Department (ZMD) to monitor and forecast extreme weather events and climate change.
 - ii) Efficient and effective use of hydro-meteorological and environmental information for generating early warnings and informing long-term development plans.

1.1 Scope of the Terminal Evaluation

22. The scope of the Terminal Evaluation (TE) is the GEF/UNDP funded project named “Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for climate resilient development and adaptation to climate change” – Zambia (PIMS#5091). The objectives of the TE are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from the project, and aid in the overall enhancement of UNDP programming, as well as assisting the Implementing Partner (IP) in implementing the lessons learnt.

1.2 Methodology of the Evaluation

23. The TE will be based on the overall approach and method for conducting project terminal evaluations of UNDP-supported GEF-financed projects, which has been developed over time. Therefore, the evaluation will be framed using the criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. Looking at the objectives, the evaluation will combine quantitative and qualitative research methods in order to consolidate and document review results and apply clearly defined review criteria, while ensuring transparency in the review process in order for stakeholders to be able to understand, interpret and discuss the results. The evaluation also took into account the extent to which the findings and the recommendations of the 2016 Mid-Term Review (MTR) were followed up and implemented.

1.2.1 Data Collection

24. The evaluation was based on information that is credible, reliable and useful. The TE reviewed all relevant sources of information, including documents prepared during the preparation phase (i.e. Project Identification Form (PIF), UNDP Initiation Plan, UNDP Socio-Environmental Standards Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considered useful for this evidence-based review). This followed a collaborative and participatory approach to ensure close engagement with the project team, government counterparts including the GEF Operational Focal Point, the UNDP Country Office, UNDP-GEF Regional Technical Advisor and other key stakeholders.
25. Engagement of stakeholders is vital to a successful terminal evaluation. Stakeholder involvement included interviews with partners who had project responsibilities, including but not limited to executing agencies; senior officials and task team/ component leaders; key experts and consultants involved in the subject area; Project Steering Committee; academia; local government; and project stakeholders and CSOs,. Additionally, the evaluation consultant visited district project sites in order to assess on-the-ground progress of implementation and impact, as well as to seek recommendations for their improvement. The visits included an inspection of an automatic weather station, installed by the project in Gwembe District. The visits also included consultations with stakeholders at the local level.
26. Consultations were held with the District Disaster Management Committees and community representatives in Gwembe District. Feedback from other districts was received from district staff during the GCF Project Workshop in Lusaka. Both men and women participated in all of the meetings with community members. The detailed mission itinerary is provided in Annex 2 and a full list and affiliation of people interviewed in Annex 4. Further analysis of information was done through document review, which included project documentation and further supporting documents from stakeholders and partners. A full list of documents reviewed is provided in Annex 4.
27. The national circumstances described in the approved Project Document (PD) were noted. The assessment is comprehensive and identifies a significant number of pre-existing initiatives, activities and bilateral and multilateral programmes. The strategy and approach taken to

develop this framework is important and was indeed the subject of in-depth assessment through key stakeholder interviews and document review. Allocation of time and resource for data collection was given significant priority and reflects the relative importance of ensuring complete coverage of strategic aspects and adequate information for triangulation of evidence.

1.2.2 *Data Evaluation Matrix*

28. A data evaluation matrix was compiled to guide the data gathering and analysis process. It included evaluation criteria, follow-up questions/issues, indicators, sources of data and methodology. The evaluation criteria were organised under the rating criteria of relevance, effectiveness, efficiency, sustainability and impact. In designing the evaluation matrix, attention was paid to ensuring a level of consistency with the evaluation matrix used in the Mid-Term Review to make accurate and fair comparisons between the ratings at mid-term and project end. The matrix is included under Annex 5, at the end of this report.

1.3 **Structure of the Evaluation Report**

29. The structure of the report adheres to the report template for terminal evaluations provided in the UNDP-GEF evaluation guidelines. The report is structured in four sections with:
- a. Section one presenting the general introduction with a focus on evaluation purpose, evaluation scope and methodology.
 - b. Section two presents the project description and development context with a focus on: project start up and duration; problems that the project sought to address; immediate development objectives of the project; baseline indicators established; main stakeholders; and, expected results, which lay a foundation for the presentation of findings in section three.
 - c. Section three presents findings, focusing on: project design / formulation project implementation; project results, in the light of UNDP/ GEF evaluation criteria (Effectiveness, Efficiency, Relevance, Sustainability, impacts); stakeholder's participation; and, mainstreaming.
 - d. Section four presents conclusions, lessons learnt and recommendations.
30. The report also provides annexes (Section 5), which include; Terms of Reference (ToR), itinerary, list of documents reviewed, summary of field visits, list of persons interviewed, results summary, and evaluation matrix.

2 PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

31. The project “Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for Climate Resilient Development and Adaptation to Climate Change” – Zambia (PIMS5091) started on 25th February 2015 and was implemented through the Zambia Meteorological Department (ZMD), at the Ministry of Transport and Communication. It was a full-size UNDP-GEF Least Developed Country Fund (LDCF) Project, with an overall budget of US \$3,600,000 from GEF and US \$400,000 over four years.
32. The project was designed to strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Zambia. It was intended to increase Zambia's resilience and ability to adapt to the impacts of climate change. This project was designed within the framework of the UNDP-GEF's Multi-country Support Programme to Strengthen Climate Information for Resilient Development and Adaptation to Climate Change in Africa (CIRDA), comprising 11 country-led projects that focus on strengthening climate information and early warning systems.
33. The objective of the project was “to strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Zambia.” The project had two expected outcomes:
 - i) Enhanced capacity of the Zambia Meteorological Department (ZMD) to monitor and forecast extreme weather events and climate change.
 - ii) Efficient and effective use of hydro-meteorological and environmental information for generating early warnings and informing long-term development plans.

2.1 Project Start and Duration

GEF Focal Area: Climate Change	LDCF
Project Start Date (actual)	26 February 2014
Project Start Date (planned)	September 2013
Planned Project Closing Date	17 November 2017

2.2 Project Development Objectives

34. The CIEWS project responded to priority adaptation needs and actions identified in Zambia's National Adaptation Programmes of Action (NAPA 10,11), specifically Option 2: "Strengthening of early warning systems to improve services to preparedness and adaptation to climate change". The objectives as stated in the NAPA are: i) strengthening systematic observations of meteorological and hydrological services, capacity building, education and public awareness; and ii) developing the use of compatible standards and systems – encompassing relevant data and stations – including remote areas, use and disseminate modern technology for data collection, transmission and assessment. This includes the need to: i) develop infrastructure for early warning advanced planning purposes; ii) establish a National Climate Centre; iii) collect the required climate, environmental and health data; iv) conduct field surveys in representative localities to identify climatic and non-climatic disease risk factors; v) establish an effective climate data management system; vi) develop human capacity for regular monitoring of climate stations for data quality; and vii) devise an effective information dissemination process to all sectors that may be affected by climate change.
35. In general, climate change projections outlined in Zambia's National Adaptation Programme of Action (NAPA 2007), and the First and Second National Communications (INC 2002; SNC 2004) to the United Nations Framework Convention on Climate Change (UNFCCC), show an increase in: i) temperature; and ii) rainfall variability with regards to seasonality and raindrop impact. Projections show reductions in rainfall for the hot, dry season, from September to October and increases in rainfall during the rainy season from December to February. The main effects of these climate projections are described as prolonged dry spells and localised floods. These impacts will result in a shortened growing season in Zambia, leading to significant negative impacts on agricultural productivity, food security, climate-related hazards, reduced water availability, and adverse effects on human welfare.
36. The project contribution to the agriculture sector is particularly important as the effects of climate change, such as a predicted shortening of the growing season, will have significant impacts on cropping and community livelihoods. It is stated that the area suitable for growing staple crops in Zambia, such as maize under rain-fed conditions, is likely to decline by 80% by the year 2100¹, thereby undermining food security. In 2010 it was reported that the prolonged dry spells in the last 20 years, which led to droughts and shorter rainfall seasons, resulted in a reduction of maize yields to only 40% of the long-term average². Agricultural production in the main agro-ecological region (AER), including AER I and II, was predicted to experience severe yield deficits at critical periods of the

¹ Ministry of Tourism, Environment and Natural Resources (2007), *Zambia National Adaptation Programme of Action*.

² PIMS No. 3942: Adaptation to the effects of drought and climate change in Agro-ecological Regions I and II in Zambia (2010).

cropping calendar as a result of climate change. These regions are also notable livestock-producing regions, thereby rendering the livestock and wildlife sectors vulnerable to the impacts of climate change, because livestock and wildlife numbers are strongly correlated with rainfall and temperature. In summary, the anticipated variability in rainfall and increase in temperatures in Zambia will have clear negative effects on food security and nature-based tourism.

37. The design of the LDCF project was well-aligned with the framework of Poverty Reduction Strategy Paper (PRSP 2002-2004), of which the relevant pillars are Governance (improved security, including security from natural disaster) and Agriculture (technology development and food security efforts). The PRSP was succeeded by the Fifth and Sixth National Development Plans (FNDP 2006-2010; SNDP 2011-2015). A large proportion of the development fostered by these strategies focused on the development of climate change adaptation programmes. It was acknowledged by some stakeholders that appropriate climate information is lacking. With regard to meteorology, which is included in the Information and Communications Technology sector, there is a focus on enhancing the capacity of the sector to provide timely and accurate information for the public to respond and adapt to climatic events.
38. The CIEWS project was also aligned to other relevant policies including the National Disaster Management Act (2010), National Disaster Management Policy (NDMP, 2005), the National Meteorological Policy (NMP, 2009) and the National Agricultural Policy (NAP, 2004-2015). The NDMP was put in place in an effort to respond to local, regional, and national disasters related to flooding, drought and other climatic hazards. The NDMP is currently under revision, which will include the addition of Disaster Risk Reduction (DRR) activities to enable a transition from re-active to pro-active disaster management. The aim of the NDMP policy is to guide and direct the provision of meteorological services, utilisation of weather and climate information, development of a model legal framework, and it also established of a semi-autonomous meteorological agency (ZMD). The purpose of Zambia's NAP is to enhance agricultural productivity and thereby reduce poverty by means of inter alia capacity building, sustainable agricultural practices, soil conservation measures and increasing the extent of irrigated agriculture. These objectives needed to be informed by the appropriate agro-meteorological data and early warnings.

2.3 Regional Context

39. The CIEWS project was designed within the framework of the UNDP-GEF's Multi-country Support Programme to Strengthen Climate Information for Resilient Development and Adaptation to Climate Change in Africa (CIRDA), comprising 11 country-led (NIM-implemented) projects that focus on strengthening Climate Information and Early Warning Systems (CIEWS) for climate resilient development and adaptation to climate change in Africa.
40. The CIRDA programme was developed in response to a request for assistance from UNDP-GEF by Least Developed Countries (LDCs) in strengthening Climate Information and Early Warning Systems for Climate Resilient Development and Adaptation to Climate Change in Africa. In support of the NIM-implemented country-led projects the multi-country support project enabled each of the countries to cost-effectively draw on technical assistance for strengthening climate information and early warning systems, as well as benefit from regional coordination and sharing of knowledge and experiences. The technical assistance that was delivered through this project, implemented under the NIM modality, focused on: meteorological, climate and hydrological observing and forecasting systems; disaster risk management and viable communication systems/processes for disseminating alerts; the use of alternative cost-effective technologies; and, engagement with the private sector for the provision of climate services.
41. The CIRDA provided technical capacity support through expert consultancy missions in Zambia, on matters related to hydro-meteorological technologies, data management and

collection, private sector engagement and communications, and through participation of ZMD staff in high-level technical workshops and in regional and international exchange visits, as well as short and long term training.

42. The regional programme strengthened the capacity of decision-makers in each country to understand the likely impacts of climate change in the short and long-term, which is of critical importance when planning strategies for sustainable development. Weather and climate information, based on routinely collected observations and forecast models, allow countries to produce short-term weather forecasts, as well as long-term projections of climate change.

2.4 Problems that the project sought to address

43. The problems that the project sought to address were very clear. As described in the ProDoc, the problem that the project sought to address was the absence of a coordinated and complete climate information (including weather monitoring and forecasting) and EWS in Zambia. The absence of such systems limits the effectiveness of long-term development planning and the delivery of timely climate/weather-related warnings to key sectors and communities vulnerable to climate change impacts, such as an increase in frequency and intensity of floods and droughts.
44. The reasons for this ineffective climate information and early warning system included inadequate relevant technologies and technical capacity resulting in limited:
 - i. understanding of current and future weather- and climate-related risks;
 - ii. monitoring and forecasting of weather and climate-related hazards;
 - iii. communication and packaging of early warnings;
 - iv. responses to impending weather and climate-induced disasters; and
 - v. planning for slow-onset climate hazards that will require a transformational shift in economic development and risk reduction efforts.
45. There was also limited infrastructure, technology, capacity and investments to build these services – especially the monitoring and forecasting of climate and extreme weather-related hazards. These limitations meant that the weather and climate monitoring and Early Warning Systems (EWS) network in Zambia could not function as effectively as it could, lowering the potential for building resilience of sectors and vulnerable communities.
46. The absence of adequate systems also limited understanding of current and future weather and climate-related risks. This limited the capacity for monitoring and forecasting of climate related hazards and providing appropriate communication and early warnings, which would enable targeted responses. Therefore, the project was necessary to address critical issues that restricted responses to impending weather and climate induced disasters and constrained planning for the onset of climate hazards.
47. There was insufficient coverage of meteorological and hydrological observation stations, with just 25 automatic weather stations (AWSs) planned for installation and two existing operational AWSs, where data was manually downloaded. The installation of AWS was aimed at establishing a network for efficient transmission of high quality and reliable information. A system was required to address the limited packaging, inappropriate communication, limited flow of weather and climate information and warnings for different end-users. Such information was envisaged to improve information flow between the Zambia Meteorological Department (ZMD), Disaster Management and Mitigation Unit (DMMU), Department of Water Affairs (DWA), now Department of Water Resources Development and its subsidiary quasi government Water Resources Management Authority, and Ministry of Agriculture and Livestock (MAL), at the national level, as well as improve transmission of information, with improved interpretation and application for local communities.

48. The project was planned to improve coverage of meteorological and hydrological observation stations, thereby providing timely and accurate information to the vulnerable regions, communities and public. In addition, the project would support the rehabilitation and maintenance of existing manual stations thereby strengthening the network.
49. Regarding institutional capacity, including access to Numerical Weather Prediction (NWP) and climate models, and individual capacities were identified at ZMD. These capacities (institutional and individual), restricted the ability to downscale forecasts and apply them to local conditions. Further it limited the use of weather and climate forecasts on daily to seasonal time scales from regional and international centres. The limited capacity also impacted the operation and maintenance of climate information and early warning equipment and systems in Zambia, including insufficient use of satellite data.

2.5 Baseline indicators

50. The indicators are designed to measure change in the coverage, impact, sustainability and replicability of the LDCF project. These indicators track progress in achieving project objectives and outcomes. The baseline, target, source of verification, risks and assumptions per indicator are detailed in the Project Results Framework. This evaluation is satisfied that adequate baseline assessment was undertaken based on the indicators outlined in the log frame.

2.6 Expected Results

51. As of necessity, the expected results from the CIEWS project should be beneficial to all stakeholders. Table 2-1 outlines the project's contribution to the NAPA objectives and UNDP (United Nations Development Assistance Framework [UNDAF]) Outcomes while Table 2-2 lists the specific Outcomes and outputs of the project

Table 2-1 Project Contribution Areas

UNDAF Outcome(s)	(2) Targeted populations in rural and urban areas attain sustainable livelihoods; (3) Vulnerable people in Zambia have improved quality of life and wellbeing by 2015 Human Development; (4) People's vulnerability reduced from the risk of Climate Change, natural and man-made disasters and environmental degradation; and (5) Targeted government institutions provide human rights-based policies, frameworks and services.
UNDP Strategic Plan Environment and Sustainable Development	Primary Outcome: Promoting adaptation to climate change.
	<p>Expected CP Outcome(s): 2.1) Government and partners enable vulnerable populations to be food secure by 2015; 4.1) Disaster Management and Mitigation Unit (DMMU) has a fully functional national disaster management and early warning system to prevent, alert and respond to disasters by 2015; 4.2) Government promotes adaptation and provide mitigation measures to protect livelihoods from climate change by 2015; and 4.3) Government implements policies and legal frameworks for sustainable community based natural resources management by 2015.</p> <p>Expected CPAP Output (s): 2.1.1) Increased access to financial services and agricultural inputs to Small and medium-scale farmers and other vulnerable groups; 4.1.1) A legal framework for coordination of disaster response and management is developed; 4.2.1) Increased adoption of sustainable land management and agriculture practices to adapt to risks of climate change among small scale farmers; 4.2.2) Revised agricultural and land policies and legal frameworks reviewed to take into account climate change; and 4.3.1) Functional mechanisms to ratify/ domesticate conventions on biodiversity conservation, combating desertification, climate change, ozone depleting substances, water and Convention on International Trade in Endangered Species; and 4.3.3) Increased environment awareness at national and local levels.</p>

Table 2-2 Outcomes and Outputs

Outcome 1: Enhanced capacity of the Zambia Meteorological Department (ZMD) to monitor and forecast extreme weather events and climate change	
Output 1.1	28 Automatic Weather Stations procured and installed, and 41 existing manual and automatic monitoring stations rehabilitated.
Output 1.2	Weather and climate forecasting systems upgraded, including the installation of the required hardware and software and integration of satellite observations.
Output 1.3	Capacity developed for operating and maintaining the climate observation network and related infrastructure including the training of 10 engineers, 10 technicians and local communities to maintain and repair meteorological equipment, computer infrastructure and telecommunications network.
Output 1.4	Technical capacity of ZMD is developed to improve the production of standard and customized weather and climate forecasts and packaging meteorological data and information into a suitable format for user agencies and local community end-users.
Outcome 2: Efficient and effective use of hydro-meteorological and environmental information for generating early warnings and informing long-term development plans	
Output 2.1	Tailored, sector-specific weather and climate information made accessible to decision makers in government, private sector, civil society, development partners and local communities.
Output 2.2	National capacity developed for assimilating weather and climate information into existing national policies, development plans and disaster management systems.
Output 2.3	Communication channels and procedures for issuing warnings are enabled at a national level and implemented at a district level through the development of mobile phone-based alert platforms in the priority districts of Chipata, Gwembe and Sesheke. (The target district of Chipata was later replaced by Mambwe).
Output 2.4	Public-private partnership developed for sustainable financing of the operation and maintenance of the installed meteorological observation network.

3 FINDINGS

3.1 Project Design and Formulation

52. The project design and formulation process are critical aspects and influence the degree of project success. Projects need to have well-crafted and specific, measurable, attainable, realistic and time-bound (SMART) indicators. Similarly, it is necessary to ensure indicators are objective, with adequate formulation of assumptions and assessment of risks to ensure reasonable mitigation measures are put in place. It is also important that the project design and formulation integrate lessons and linkages with other relevant projects, avenues for stakeholder participation, replicability of the project approach, as well as the robustness of the management arrangements. Thus, the analysis of the project design/formulation features all these variables, as outlined in the following sections.

3.1.1 *Analysis of Results Framework*

53. The project logic was sound, as there is a clear linkage between the problems being addressed, the interventions, specific activities undertaken and the results at output and outcome levels that feed into the project goal. On the whole, the results framework provided a useful guide for tracking project progress at different stages of implementation as reported in the MTR and PIRs. The only aspect that perhaps could help in clarity is numbering the indicator in a continuous sequence across the two outcomes (i.e. 1 to 7).
54. The TE agrees with the MTR that the project is well designed in line with the country needs and the baseline justifies the selected outcomes, outputs and indicators. It is noted that some stakeholders expressed that outputs and activities in Outcome 1 could have focused on the capacity building activities more broadly beyond ZMD. The outputs and outcomes were largely maintained and adhered to throughout the project. Although an element of adaptive management was required towards the end of the project, as an opportunity emerged to support a Green Climate Fund (GCF) project proposal. In February 2017 the Ministry of Transport and Communications requested UNDP to provide additional funding to the CIEWS project, in order to support the preparation of a US \$32 million GCF project proposal. The proposal was successful and will support the Government of Zambia to strengthen the resilience to climate change risks of vulnerable smallholder farmers in the country's Agro-Ecological Regions I and II. Consequently, US \$3.174 million has been allocated to further strengthen generation and interpretation of climate information and data collection to ensure timely, accurate and detailed weather, climate, crop and hydrological forecasts. It is envisaged that the forecasts will support smallholder farmers in planning and the sustainable management of water resources used in resilient agricultural practices. An additional US \$1.589 million has been allocated to strengthen dissemination and use of tailored weather/climate-based agricultural advisories to ensure smallholder farmers receive the information they need for planning and decision-making. This funding will ensure the sustainability of the CIEWS project.
55. The GCF project aims to increase the resilience of smallholder farmers in Agro-Ecological Regions I and II in Zambia, in view of climate change and variability. The project will achieve this aim by taking a value chain approach and addressing risks posed across the key stages of the value chain – planning, inputs, production and post-production. GCF funds will only finance the activities that have a clear climate change additionality such as climate information and early warning systems, access to water for smallholder farmers, and linkages with rural agricultural markets. The project will make targeted interventions to capitalize on opportunities to strengthen and promote viable climate-resilient value chains relating to smallholder agriculture in the target regions, specifically targeting value chains that are gender sensitive and provide viable economic opportunities for women. This includes three interrelated outputs: 1) strengthening capacity of farmers to plan for climate risk; 2) strengthening resilient agricultural production and diversification practices (for both food security and income generation); and 3) strengthening farmers' access to

markets and commercialization of introduced resilient agricultural commodities. The third output on markets and commercialization is important, as it will help to drive the production of resilient agriculture commodities and help to ensure the sustainability of the first two outputs. Capacity-building will be given deliberate emphasis across the various levels, starting from the national to the community level. This will target all the major project outputs and institutions, including extension, Zambia Meteorological Department (ZMD) and farmer field schools. The project interventions will have a strong focus on women, given their unique capacities and vulnerabilities.

56. With regards to Outcome 1, strengthening of ZMD is paramount and further capacity building is still needed. A fully functional network of weather stations is essential to provide real time data and this has been a requirement since 2015. The increased network has resulted in ZMD producing timely and accurate weather and climate information, which is disseminated nationally and internationally. The increased data points have resulted in increased coverage and also provide districts with specific location weather and climate information. It is expected that by 2021 ZMD will be able to generate more location specific climatic 10-year averages.
57. In the project target areas, the project has resulted in improved daily generation and dissemination of weather and climate information to the communities. There has been notable transformation in the frequency of data transmission and reception. This has increased public confidence in ZMD to provide weather and climate information.
58. The complementarity between the two project outcomes offer significant opportunity to increase the impact. It is important that there is adequate awareness and knowledge on the use of weather and climate information, in order for the benefits to be realized.
59. The project approach to cross-sectoral engagement is important. As of necessity, key sectors, including agriculture and disaster management, were made integral to the project. These were specifically the Disaster Management and Mitigation Unit (DMMU), Department of Water Affairs (DWA)/ Water Resource Management Authority (WARMA), Ministry of Agriculture and Livestock (MAL), Ministry of Health (MoH), Central Statistics Office (CSO), and the then Interim National Climate Change Secretariat (now Department of Climate Change). However, there is feedback that the level of engagement could have been more at both the design stage and implementation level. Some stakeholders believe that dialogue on critical aspects, such as access to primary data, should have been discussed during the design phase to ensure clarity. The issue of access to data has been a key talking point for many stakeholders, although this has been resolved in the GCF project following a letter of agreement between ZMD and WARMA.
60. A common priority that was identified in all project countries was the need to provide training and capacity building for operation and maintenance of the newly enhanced hydro-meteorological infrastructure, as well as for modelling and forecasting (Outputs 1.2, 1.3 and 1.4). Training and capacity-building activities will be undertaken at the regional level. This approach of simultaneously enhancing skills in all project countries will have several benefits, in addition to enhancing cost-effectiveness. Bringing stakeholders from all project countries together will: i) encourage knowledge sharing and the development of collective skills; ii) promote the sharing of information between countries, regarding best practices and lessons learned; and iii) increase the size of the pool of skilled resources which each country can draw upon, thereby increasing the likelihood of future training workshops to be conducted by experts within the region. Regional training and capacity-building activities will be closely coordinated with other regional and international partners/centres including among others African Centre of Meteorological Application for Development (ACMAD), Southern African Regional Climate Outlook Forum (SARCOF), African Earth Observation Community (AfrigeOSS), African Monitoring of the Environment for Sustainable Development (AMESD), MESA and World Meteorological Organization's (WMO) GFCS initiative.

61. It is commendable that at the district level the project facilitated the organisation of the multi-sectorial District Disaster Coordinating Committee (DDCC). The weather and climate information provide support to policy and planning among the different sectors represented in the DDCC. The predicted changing weather patterns make it imperative that agriculture specific tailored information packages on the weather and climate information are produced and disseminated to small scale farmers. It is important that this is communicated in the local language.
62. The overall assessment of the results framework is that it adequately addressed the critical issues related to the provision of climate and weather information relevant for decision-making, in order to advise communities. The indicators and expected outputs align well with the gaps based on the baseline assessment.

Rating: Highly Satisfactory

3.1.2 *Assumptions and Risks*

63. The risk assessment details were provided in the project document and more specific issues were outlined under strategic result framework. The project worked well to address or mitigate the risks. The relevance of the ten risks indicated in the ProDoc was well verified through further project reporting and documentation, as well as in interviews with most stakeholders. Mitigation measures designed for these pre-identified risks, as detailed in the ProDoc, were also adequate. However, the identification of risks was only partial, and, therefore, the effectiveness of the pre-defined mitigation measures was also insufficient. This is expected in any project, considering that not all risks that become apparent during implementation, are easy to identify in advance of project commencement. Moreover, implementation of the identified mitigation measures was only partially successful, as further detailed below.
64. Risk 1 appropriately focuses on improved technical capacity and the assumption taken is also in line with the necessary mitigation measures. However, it appears that there was a very slow response to the training opportunities, specifically the decisions in the selection of staff to undergo technical training. Although the project has finished, students are still completing studies at various institutions. Risk 2 identifies the need for strengthened inter-sectorial coordination, but the feedback from some stakeholders suggests that the level of intersectoral coordination remains insufficient and could certainly be strengthened. For example, while this evaluation observed the willingness to make primary data available, the mechanics and operationalization of data sharing arrangements remain somewhat vague. ZMD indicates a business model to recover costs of operations through selling of data. Such a business model needs to be carefully considered, so as not to inhibit access and use of weather data and information. It is noted that ZMD will create user accounts with different access rights to meteorological data and this is encouraged.
65. Risk 3 and Risk 4 are straightforward, as they refer to the need for increased political will and for mainstreaming into national policies. Climate change is considered a major risk to the economy and rural livelihoods. Therefore, adaptation and mitigation measures are being mainstreamed into every sector of the economy. Risk 5, referring to synchronization with the baseline projects, proved to be correct but was mitigated through adaptive change of planned activities (mainly through the change of one of the target districts); Risk 6, 7 and 10 remained important and are adequately covered. Discussion with the project team indicated that securing the weather stations should be priority. As reported in the MTR, Risk 8, regarding limitations to information transfer, was adequately identified, and its mitigation needed to be strengthened through a participatory approach. Risk 9 was not well-managed, as delays in the procurement of equipment subsequently led to delays in overall project implementation.
66. Overall the project risks and mitigation measures and assumption were generally deemed **Satisfactory**.

3.1.3 *Lessons from other relevant projects incorporated into project design*

67. As outlined in the ProDoc, the CIEWS project considered building upon existing climate and weather information (including monitoring) and EWS-related activities implemented by government, multi- and bi-lateral donors, and NGOs. In doing so, several important projects were listed as baseline and indicative co-financing options and these included:
- a. **The Southern Africa Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) project (2010 – on-going)**, which was a regional project involving five South African Development Community (SADC) countries, funded by the German Federal Ministry of Education and Research, with focus on research and capacity development to provide sound science-based solutions for current problems and future risks in particular regarding climate change and the associated land management demands.
 - b. **The World Bank led Water Resource Development Project will enhance the water resource management capacity of Zambia at national and regional levels.** In addition to water resource management (~US\$ 16 million), the project resources targeted improving hydrological infrastructure (~US\$ 22 million) and providing institutional support (~US\$ 12 million). Activities relevant to the LDCF project included: i) re-enforcing the hydro-meteorological and groundwater monitoring network; ii) strengthening the national hydrological and geo-hydrological information management systems and improved decision support tools; iii) developing flood forecasting and associated early warning systems; iv) preparing consolidated basin-level water resources development plans and strategic assessment; and v) implementing arrangements and measures for water resource allocation and management.
 - c. **Government of the Republic of Zambia (GRZ) / UN Joint Programme on Climate Change and Disaster Risk Reduction.** As part of the UNDAF, and within the context of delivering as “One UN”, the UN in Zambia in cooperation with the GRZ developed a Joint Programme with the objective of developing capacity and increasing investments at national and local levels for an effective multi-sectoral and multi-level response to climate change. The Joint Programme brought together seven agencies – FAO, UN-HABITAT, UNDP, UNICEF, UNIDO, WFP and the Global Mechanism of the UNCCD – which has complementary competencies to address gaps in the long-term climate change response in Zambia. The Joint Programme had two pillars dealing with: i) capacity development; and ii) climate change response investments.
 - d. **The Gesellschaft für Internationale Zusammenarbeit (GIZ) in collaboration with the German Investment Bank (KfW) is implementing a project to strengthen the management of Zambia’s water sector.** The project aimed to improve: i) collection; ii) processing; iii) management; iv) and utilization of hydrological data in Zambia. This will allow for the improvement of water resources planning and management. The required information systems were to be hosted by the Water Resources Management Authority (WRMA), which replaced the DWA. The project aimed to build new information system – an Integrated Water Resource Management Information System (IWRMIS) – which includes a framework that can accept data from any database (i.e. from DWA, Zambia Electricity Supply Corporation Limited (ZESCO), Zambezi River Authority (ZRA), ZMD, MAL and CSO). The IWRMIS could assist in the integration of climate change considerations into water resource management. Including data sharing arrangements.
 - e. **The Pilot Programme for Climate Resilience (PPCR)**, implemented in nine countries, coordinated in Zambia by the Ministry of Finance and National Planning (MoFNP), supported the mainstreaming of climate change into the most vulnerable sectors of the economy to ensure sustainable economic development towards the attainment of the country’s Vision 2030.
 - f. **The GEF-LDCF Agriculture project “Adaptation to the effects of drought and climate change in Agro-ecological Regions I and II”**, implemented by UNDP as the Implementing Agency and MAL as the Implementing Partner, aimed to reduce the vulnerability of selected target communities to climate change impacts.
68. The above projects influenced the selection of target Districts and AWSs instalment locations, to avoid overlap and increase synergy, and complementarity. There are distinct

benefits from the collaboration of these projects, including avoiding duplication and data sharing where practical. The issue of data sharing was raised by multiple stakeholders during the evaluation field mission. The MTR raised a series of important points, including the benefits that would arise from strengthening ties and collaboration between regional stakeholders and knowledge sharing. Some of the benefits include joint capacity building; reducing sectoral policy conflicts; and, standardizing processes for disseminating flood, drought, health and other climate-related warnings through DMMU. These aspects are reflected in Output 2.1, and specifically in the priority districts of Chipata, Gwembe and Sesheke in Output 2.3.

69. This evaluation agrees with the assertion of the MTR that in the case of the Zambia project, protocols and agreements for strengthening interactions and coordination between ZMD, DMMU, DWA/WARMA and MAL – including those related to the sharing of hydro-meteorological information/data – will be enhanced by including experiences from other countries, particularly those from neighbouring countries to Zambia (i.e. Malawi and Tanzania).

Rating: Highly Satisfactory

3.1.4 *Planned stakeholder participation*

70. The TE assessment observes that there has been significant and adequate stakeholder consultation and participation. It is noted that multi-stakeholder consultations were conducted to inform the design of the LDCF project in September and December 2012 and continued through a validation mission and series of consultations in April and May 2013 (28 April – 3 May 2013, including a validation workshop on 2 May 2013).
71. There is adequate evidence that there was wide ranging consultation and engagement of the national operational focal points and government departments responsible for generating and using climate information and early warning systems, as well as a number of development partners, NGOs, and civil society organisations. Bi-lateral stakeholder consultations included a range of additional meetings that were held between September 2012 and April 2013 with bi-lateral and multi-lateral organisations, government departments and NGOs, as well as private sector partners. The MTR suggests that while most key stakeholders were consulted at the project's design phase, several essential stakeholders at national level and mostly at the local level reported that they were not consulted or involved in the project design.
72. However, a comprehensive Communication Strategy for the CIEWS Project was prepared in 2016 to provide communications support, including consultation with key stakeholders and the integration of their inputs. The project made important efforts to strengthen stakeholders' engagement and enabling public consultation, noting that in Gwembe District the project undertook awareness activities with the surrounding communities. The TE confirms the MTR observation that the small project team become over committed with the implementation of activities at the central level. This overcommitment meant that no on-going permanent consultation processes with provincial, district and local stakeholder took place.

3.1.5 *Replication approach*

73. Based on the outputs, there is substantive scope for replication of activities in the other districts of Zambia. The outputs from the project, such as mobile-based alert platforms in Chipata, Gwembe and Sesheke Districts, can easily be replicated in other districts and sectors in Zambia. Dissemination of outputs and lessons learned during the project implementation can be developed into training material, such as handbooks and toolboxes. These materials can then be made available online for broader access within the region and nationally. The project design adequately incorporated replication action plans for each project outcome. Local government staff and community support teams

were provided with training and capacity-building in operation and maintenance of the improved infrastructure. This means that those trained can also contribute to training others in nearby districts. The training of 12 Climatologists will enhance the capacity to broaden knowledge and expertise to utilize internationally and regionally available monitoring and forecasting products and record and use national/local observations. This will allow for the forecasting of future meteorological and hydrological hazards in a timely manner at provincial levels, servicing 10 provinces and two at headquarters.

74. The close involvement of government institutions and departments – principally DMMU and ZMD – in the CIEWS project’s development and implementation means that there is considerable potential for future incorporation of the project’s approaches into on-going planning and strategies. Additionally, it is expected that the strengthening of capacities among key government stakeholders will enable continued mainstreaming of the use of climate information and early warnings into sectoral planning and decision-making.
75. The design identified key strategies for replication of this project, which included mainstreaming use of climate information through the local level planning process and extension services. Material generated for training, for both land users and technical officers, will be made available to other districts in the region.

Rating: Satisfactory

3.1.6 *UNDP comparative advantage*

76. At the time of design, the project was well aligned with UNDP’s comparative advantage in the areas of capacity building, technical and policy support for EWS/DRR related initiatives. UNDP had, and continues, to have close links with the GRZ. UNDP also continues to manage significant GEF, LDCF and now GCF projects in the country and region.
77. During the project design, UNDP had seven national projects funded through the GEF, with a combined financing total of US\$ 23,435,840 (co-financing of US\$ 87,913,000). As outlined in the ProDoc, three projects focused on Climate Change and multi-focal area capacity building (US\$ 3,847,500; co-financing of US\$7,098,000) and therefore demonstrated UNDP’s comparative advantage in delivering LDCF project support.
78. As of 2011, the UNDP Country Office was in the process of implementing 42 projects, with a combined expenditure of US\$ 56,477,407. Of these projects, six are related to climate change and climate information, with a combined expenditure of US\$ 1,332,762. UNDP was supporting the LDCF-funded project “Adaptation to the effects of drought and climate change in Agro-ecological Regions I and II”, which included developing effective EWS for eight priority districts and the installation of agro-meteorological monitoring stations and associated communication channels. This experience is directly related to the implementation of the climate information and EWS project.
79. The UNDP Country Office has particularly prioritized capacity building, by empowering the project team to overcome the difficulties that they encountered. UNDP has satisfactorily provided prompt and appropriate support to the Project Team in handling implementation challenges that have risen from time to time. UNDP comparative advantage has also been realised in the way it has promptly handled disbursements and the appropriate guidance provided in the financial management and accountability system.
80. The agreed comparative advantage of UNDP for the GEF lies “in its global network of country offices, its experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation”. UNDP assists countries in promoting, designing and implementing activities consistent with both the GEF mandate and national sustainable development plans. UNDP also has extensive inter-country programming experience, which has resulted in a successful bid for a large GCF project that provides further financial resources for the

continuation of the CIEWS project. Overall, UNDP has performed its role in a **relatively highly satisfactory** manner.

3.1.7 Linkages between project and other interventions within the sector

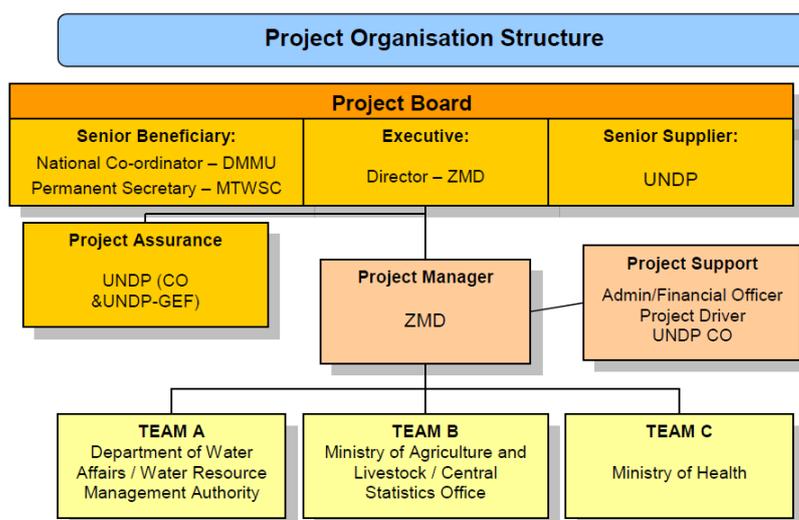
81. Section 3.1.3 summarized several projects that are closely linked the CIEWS project as follows:

- iii) The Southern Africa Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) project.
- iv) The World Bank led Water Resource Development Project will enhance the water resource management capacity of Zambia at national and regional levels.
- v) Government of the Republic of Zambia (GRZ) / UN Joint Programme on Climate Change and Disaster Risk Reduction.
- vi) The Gesellschaft für Internationale Zusammenarbeit (GIZ) in collaboration with the German Investment Bank (KfW) is implementing a project to strengthen the management of Zambia's water sector.
- vii) The Pilot Programme for Climate Resilience (PPCR).
- viii) The GEF-LDCF Agriculture project "Adaptation to the effects of drought and climate change in Agro-ecological Regions I and II", implemented by UNDP as the Implementing Agency and MAL as the Implementing Partner.

3.1.8 Management arrangements

82. The project management arrangements were based on national ownership with ZMD, as the implementing partner under National Implementation Modality (NIM). The project outputs support national and local capacity building, and thereby promoted national ownership. A Project Board (also called the Project Steering Committee) was established and responsible for making the management decisions of the project and provided guidance to the Project Manager. The Project Board played its role in monitoring progress of implementation and ensuring that recommendations from annual and mid-term evaluations were adopted for performance improvement, ensuring accountability and adoption of lessons learnt. The project was implemented based on an approved Annual Work Plan and the Project Board was kept informed of progress through quarterly and annual reports. At the district level, the project facilitated the organization of the multi-sectorial District Disaster Coordinating Committee (DDCC). This committee enabled weather and climate information sharing with energy, water, disaster management, health and tourism sectors.

Figure 3-1 Project organizational structure



83. Concerns were raised during the MTR that the Project Team was very small, comprised only of the Project Manager, Project Administrative/Financial Assistant and Project Driver, in addition to part-time support of a ZMD Project focal point, who was also pre-occupied with regular work at ZMD. The small size of the Project Team potentially reduced the percentage of time that the team, and especially the Project Manager, dedicated to engaging in the technical aspects of the project, to assuring the technical quality of activities' implementation, and to engaging with stakeholders, and mainly at the local level. This confirms some feedback that the local level presence of ZMD needed to be strengthened in order to improve local level engagement and coordination, so as to sustain gains made through the implementation of the project. The project lost its Project Manager midway and the position was never refilled.
84. The MTR report indicates some challenges with delegation of authority and reporting flow between the Project Team, ZMD, and UNDP Country Office. This was further confirmed during this TE that at times the Project Team received different guidance from the two main partners. There were difficulties in obtaining timely authorizations for project requests. There is feedback that UNDP procedures are somewhat complex, but there is also further feedback that decision making within the ZMD sometimes lacked expedience, thus slowed down progress at times. For example, the decision to select list of candidates for training was rather prolonged and has led to students' programmes extending beyond the term of the project.

Rating: Satisfactory

3.2 Project Implementation

3.2.1 *Adaptive management*

85. The project adequately applied adaptive management. For instance, implementation was initially slow due to the delay in the procurement of the Automatic Weather Stations and the recruitment of the project staff. Adjustments were made through the phasing of many activities that were originally planned for the first, moving them into the second year (2015/2016). The slow implementation in the first year has created a backlog of activities, which need to be implemented in subsequent years. As such, it required the project to be extended beyond the planned end period of September 2017. The no cost extension necessary for the project to fully achieve its objectives was also recommended by the MTR, which took place between February and March 2016.

86. To address the void left by the resignation of the Project Manager, a ZMD staff has been appointed as focal point to stand in while the UNDP country office is in the process of recruitment. There were also significant delays in the procurement process of the AWSs and the equipment for the rehabilitation of the manual stations. These delays slowed down progress towards achieving the objective and outcomes, as reflected in most of the relevant pre-defined indicators. But these delays were mitigated through the technical support of the CIRDA, who helped with the procurement process through regional LTAs. The equipment was procured and subsequently installed in 2016.

Rating: Satisfactory

3.2.2 Partnership arrangements

87. The project established a wide range of partnerships and these are presented in the annual reports and summarized in **Error! Reference source not found.** below

Table 3-1 Partnership summary

Stakeholder	Main role in the Project / contribution
UNDP Country Office	Executing Agency
The Project team	Implementation
Zambia Meteorological Department (ZMD) at the Ministry of Transport and Communication	Implementing Agency
UNDP RTA	Technical assistance
CIRDA Project team	Technical assistance, training, supporting participation in regional activities
The Project Board/Steering Committee members	Policy forming and guidance of implementation
The GEF Operational Focal Point of Zambia	Policy guidance
Disaster Management and Mitigation Unit (DMMU)	Implementation partner, in kind contributions
Department of Water Affairs (DWA) - Water Resource Management Authority (WRMA)	Implementation partner and beneficiary
Ministry of Agriculture and Livestock (MAL) - Central Statistics Office (CSO)	Implementation partner and beneficiary, in kind contribution, staff time
Ministry of Health (MoH)	Implementation partner and beneficiary
Ministry of Tourism, Environment and Natural Resources (MTENR)	Implementation partner and beneficiary, in kind contribution
Interim National Climate Change Secretariat (INCCS)	Implementation partner, in kind contribution, participation, coordination, leadership
The UNFCCC operational focal point	Implementation partner
District Commissioners and District Disaster Management Committees of Gwembe, Sesheke, and Mambwe	Implementation partners, key beneficiaries, participation, leadership at district level
Local communities and traditional leadership in the pilot districts of Gwembe, Sesheke and Mambwe	Implementation partners, key beneficiaries, participation, leadership and implementation at the local level
On-the-ground practitioners of climate information management and disaster risk reduction.	Implementation partners and beneficiaries, participation, staff time
Local Radio Stations	Implementation partners and beneficiaries, participation, advocacy and information dissemination at local level
World Bank	Partner organization of baseline projects

WFP- Disaster Risk Reduction/ Vulnerability Assessment and Mapping Unit	Partner organization of baseline projects
GIZ – KFW	Partner organization of baseline projects
Zambia Climate Change Network (ZCCN) and other civil society organizations/NGOs	Implementation partners, representing civil society, participation, advocacy
Representatives of the academia – University of Zambia (UNZA)	Implementation partners, technical assistance
Representatives of the private sector	Implementation partners, beneficiaries, potential partners in securing financial sustainability
Partners	Innovation and Work with Partners
Civil Society Organisations/NGOs	Zambia Climate Change Network, a network of climate change NGOs, actively participated in the CIEWS national task team, raising matters of concern to civil society, such as raising community awareness on the impacts of climate change and the importance of developing resilient livelihoods.
Indigenous Peoples	The project management unit engaged with the royal court of the traditional leadership in Sesheke district to raise awareness on climate change and variability. This enabled the traditional leadership to give well-informed guidance to the local small-scale farmers in planning their farming activities.
Private Sector	Two mobile network operators were engaged to facilitate weather information dissemination. Insurance Companies: (Zambia State Insurance, Madison insurance and Focus Insurance): The project engaged the insurance companies on the possibility of introducing weather index insurance for small scale farmers in Zambia.
GEF Small Grants Programme	The project engaged the GEF small grants programme with a view to promote projects that would use climate information (both indigenous and conventional knowledge) in decision making and planning for farming systems among the small-scale farmers.
Other Partners	The CIEWS project cooperated with the Southern African Science Centre for Climate Change and Adaptive Land Use Management (SASSCAL) to upgrade the climate data management system for ZMD. The CIEWS project also collaborated with the Climate Change Adaptation Project at Ministry of Agriculture to activate the eight automatic weather stations installed by the latter project. The CIEWS is also collaborating with the Pilot Programme for Climate Resilience (PPCR) on strengthening accessibility of climate information, by synchronizing the CIEWS and PPCR climate information workplans.

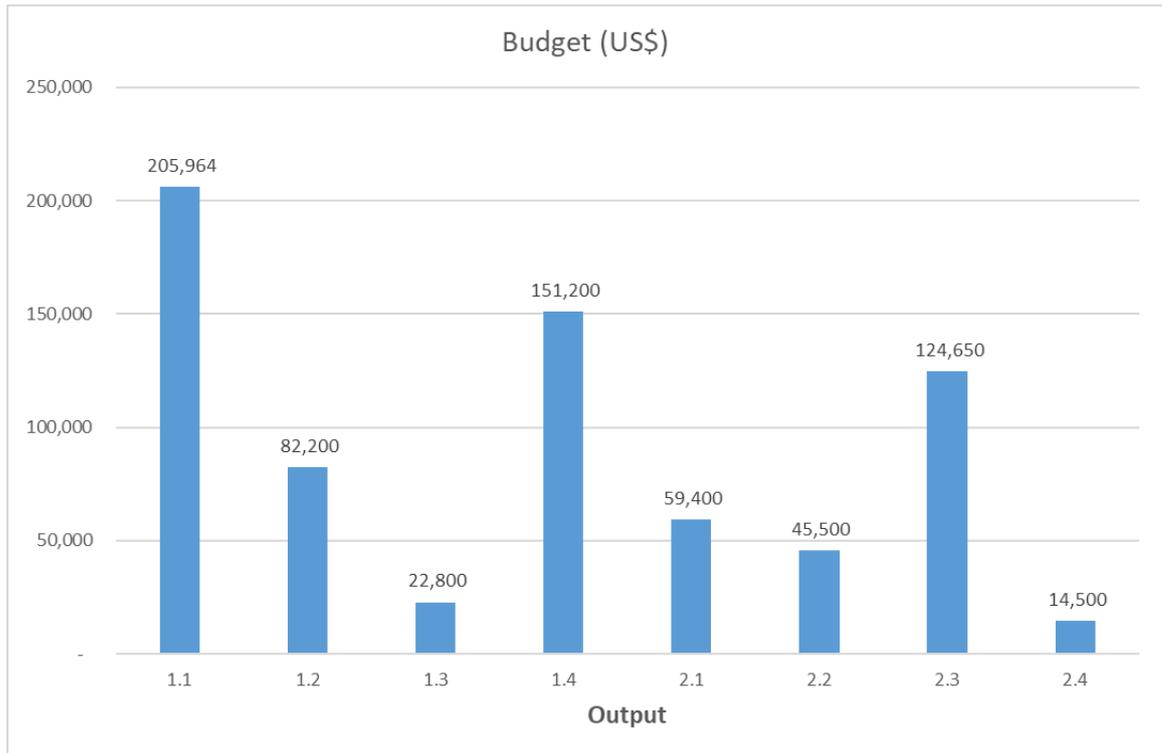
3.2.3 Project Finance

88. The Implementing Agency was required to provide certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds. This was in addition to other financial management regulations specified in the UNDP-GEF Programming and Finance manuals. In conformity with the project audit clause, both internal (quarterly) and external audits have been performed and the results have been used to inform the Project Board. The project financial management system included appropriate controls that allowed the project management team to make informed choices regarding the budget at all times. Two audit reports were made available (Financial Years 2015 and 2016) and no major issues were raised in the reports. In terms of financial delivery, the overall cumulative expenditure over the four years has been 99.75%.
89. There was adequate commitment to align project expenditure with the annual work plans and budgets, which ensured that resources are spent towards realizing project outputs. The project budget was allocated to specific outcomes (i.e. outcome-based budgeting)

implying that project spending has been well aligned with the envisaged project results, which promotes value for money.

90. The responsibility of financial administration and reporting was routinely done by ZMD, supported by the UNDP Country Office in Zambia. Financial reports were periodically reviewed by the Project Board, pending approval of the next implementation budget. The project satisfactorily maintained appropriate and reliable management structures, internal controls and record-systems that supported sensible financial management. This represents a sound financial management arrangement that has ensured appropriate utilization of the project's financial resources. The graph and table below summarize the budget allocation by outcome and output.

Figure 3-2 Budget allocation by output



91. This TE recognizes the government's in-kind contribution to the project. However, it has not been possible to quantify or verify the contribution in dollar values, in order to measure the magnitude of commitment.

Table 3-2 Project budget by output

Goal: Strengthening climate information and early warning systems in Eastern and Southern Africa for climate resilient development and adaptation to climate change				
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 Zambia.				
Outcomes	Outputs	Budget (US\$)	LDCF Funding (US\$)	Indicative Co-Financing (US\$)
1. Enhanced capacity of Zambia Meteorological Department to monitor and forecast extreme weather and climate change.	1.1. 28 Automatic Weather Stations procured and installed, and 41 existing manual and automatic monitoring stations rehabilitated.	205,964	2,284,000	10,075,720
	1.2. Weather and climate forecasting systems upgraded, including the installation of the required hardware and software and integration of satellite observations.	82,200		
	1.3. Capacity developed for operating and maintaining the climate observation network and related infrastructure including the training of 10 engineers, 10 technicians and local communities to maintain and repair meteorological equipment, computer infrastructure and telecommunications network.	22,800		
	1.4. Technical capacity of ZMD is developed to improve the production of standard and customized weather and climate forecasts and packaging meteorological data and information into a suitable format for user agencies and local community end-users.	151,200		
2. Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.	2.1. Tailored, sector-specific weather and climate information made accessible to decision makers in government, private sector, civil society, development partners and local communities.	59,400	1,136,000	3,056,227
	2.2. National capacity developed for assimilating weather and climate information into existing national policies, development plans and disaster management systems.	45,500		
	2.3. Communication channels and procedures for issuing warnings are enabled at a national level and implemented at a district level through the development of mobile phone-based alert platforms in the priority districts of Chipata, Gwembe and Sesheke. (The target district of Chipata was later replaced by Mambwe).	124,650		
	2.4. Public-private partnership developed for sustainable financing of the operation and maintenance of the installed meteorological observation network.	14,500		
Project Management			180,000	400,000
		<i>Co-financing:</i>		
		GEF/LDCF	US\$ 3,600,000	
		Government (In Kind)	US\$ 3,746,947	
		UNDP (Grant)	US\$ 600,000	
		UNDP (Cash)	US\$ 400,000	
		Other	US\$ 8,785	
		TOTAL		7,131,947

Rating: Satisfactory**3.2.4 Project Monitoring and Evaluation (M&E)**

92. The M&E plan was well articulated in the ProDoc and there have not been any major variations in its actual implementation. Monitoring of the project was a shared responsibility between ZMD and UNDP (i.e. GEF Implementing Agency). Both internal and external evaluations were well planned from the design stage of the project. Internally, quarterly

progress reports, annual performance reports and the project implementation reviews formed the central part of the M&E system. The strategic framework was well utilized (focusing on indicators and targets) to guide the implementation of the M&E and there was adequate adherence to the M&E reporting templates provided by UNDP. Externally, an independent Mid-Term Evaluation (MTR) was conducted in March 2016. In general, the project adhered to UNDP monitoring and evaluation framework. At the beginning of each year, an annual work plan was developed, indicating annual targets to be met. Quarterly and annual reviews were undertaken with the participation of stakeholders. In analysing the M&E, the key things considered are as follows:

93. With regards to the project design and inception, the project had clear outcomes, outputs and activities, which were consistent with the project objectives. There was an extensive baseline assessment and articulation of indicators and targets. There were no major project shortcomings, but an adjustment was made during the selection of project sites as a result of consultation with other projects.
94. The project implemented a reasonably participatory M&E system that involved joint data collection and verification, as well as periodic progress reviews in relation to the quarterly and annual work plans. The MTR was undertaken as planned in March 2016 and recommended among other things: strengthening consultations with and engagement with local level stakeholders and allocating liaison person(s) for the project at district levels. It further recommended more regular engagements with the communities in the three districts for the purpose of awareness of the project and climate information dissemination, adding activities for institutional capacity building of key stakeholder and strengthening inter sectorial coordination. These recommendations were taken on board and implemented.
95. The Project Monitoring and Evaluation plan, as detailed in the ProDoc, was generally implemented in a timely and satisfactory manner. The Inception Workshop was implemented in April 2014, two months after the Project commencement, as planned. The Report is attached as an Annex to the ProDoc. Several key adaptive management changes were approved at the Inception Workshop to support project implementation and sustainability. Annual Workplans and Budgets (AWBs) were prepared by the Project Team and reviewed and adopted by the Project Board. Since the start of the project the APR/PIRs adequately combine UNDP and GEF reporting requirements in monitoring progress made, risks and mitigation measures, lessons learned and financial information. However, it is important to point out that at the time of preparing this TE report a final project report had not been provided and the AMAT tracking tool has not been fully completed. In addition, the 2015 and 2016 PIRs do not have financial data as presented in the 2017 and 2018 reports. It is important to be consistent across all of these reports.

Rating: Moderately satisfactory

3.3 Project results

3.3.1 *Overall results (attainment of objectives)*

96. This TE agrees with the MTR and the subsequent monitoring reports that the development objectives of the project have been achieved in a generally satisfactory manner. This achievement has been achieved through capacity development and transforming the system for generating, analyzing, packaging and dissemination of weather and climate information.
97. Zambia has benefited from the CIEWS project as there is now a legal framework through the development of the Meteorological Act. Critical capacity enhancement for managing weather and climate information has been attained to a large extent and further work will be undertaken through the GCF project now underway. The project has also contributed to the attainment of the Government's plan, as enshrined in the 7th National Development

Plan (7NDP), as well as attainment of the Sustainable Development Goals (SDGs) by the year 2030.

98. There has been transformation in small-scale farming systems, with increased crop yield and income generating and resilience, through crop diversification and promotion of early maturing varieties. This transformation is contributing to the achievement of the 7th National Development Plan (7NDP) goals on poverty reduction and vulnerability, as well as economic diversification and job creation/livelihoods.
99. Through the support from ZMD and DMMU key achievements include:
 - i) Expansion of the station observing network, through the installation of 28 Automatic Weather Station, as well as rehabilitation of 39 manual stations (out of a total of 82) to enhance the generation, packaging and dissemination of timely, accurate and sector specific weather and climate information in line with 7NDP pillar 3 to achieve SDG 13 climate action.
 - ii) Enhanced capacity of ZMD through training of 34 staff in various courses.
 - iii) The enhancement of ZMDs capacity to analyze, package and disseminate weather and climate information as well as conduct research and climate modelling. In addition, ZMDs capacity has been enhanced to maintain and calibrate meteorological instruments and equipment.
 - iv) Enhanced dissemination of weather and climate information at national, provincial, district and community levels, such as seasonal rainfall forecasts, 10-day crop weather bulletins, 7-day weather forecasts and daily weather forecasts. Since inception, the project has disseminated weather and climate information to more than 60,000 small scale farmers in the three pilot districts (Gwembe, Mambwe and Sesheke).

3.3.2 Relevance

100. The project logic is well aligned with the identified problems, country needs and baseline assessment. The outputs are therefore justifiable with observable linkages to policies and priorities. Overall the project is highly relevant.
101. In relation to UNDAF Outcomes – the project is highly relevant to the primary outcome of promoting adaptation to climate change. It also aligns with UNDP country program outcomes: (2) targeted populations in rural and urban areas attain sustainable livelihoods; (3) vulnerable people in Zambia have improved quality of life and wellbeing by 2015 Human Development; (4) people’s vulnerability reduced from the risk of climate change, natural and man-made disasters and environmental degradation; and (5) targeted government institutions provide human rights-based policies, frameworks and services.
102. The sectoral relevance of the CIEWS project manifests further through the broad engagement of a wide range of institutions and stakeholders, through the partnerships stated in Section 3.2.2. With regards to national priorities, the CIEWS project adds significant value to a wide range of policies and strategies, as outlined in Section 2.2. Confirmation of overall relevance also comes from the emphatic feedback from various communities met during both the MTR and this TE. For example, in Gwembe, community groups and individual farmers expressed gratitude and explained how weather information has influenced their seasonal cropping decisions and choices regarding the types of crops. Small-scale farmers reported and confirmed the marked increase in crop yields and the benefits from crop diversification and aspects such as choosing early maturing crop varieties.
103. With regards to each of the outputs, the baseline barriers to effective sectoral development in relation to climate change impacts underscore the relevance (Table 3-3) which is justified against the baseline scenario.

Table 3-3 Relevance of outputs

Output	Description	Relevance (Justification against baseline scenario)
<i>Outcome 1</i>		
1.1	28 Automatic Weather Stations procured and installed, and 41 existing manual and automatic monitoring stations rehabilitated.	<p><i>The baseline scenario presented significant challenges due to limited knowledge and capacity to effectively project future climate events as a result of an acute shortage of technology and skilled human resources, as well as access to climate models and hardware.</i></p> <p><i>Inadequate weather and climate monitoring infrastructure, which limits data collection, analysis and provision of timely meteorological services.</i></p>
1.2	Weather and climate forecasting systems upgraded, including the installation of the required hardware and software and integration of satellite observations.	<p><i>Long-term sustainability of observational infrastructure and technically skilled human resources is compromised because of inadequate Government of the Republic of Zambia (GRZ) and private sector funding.</i></p>
1.3	Capacity developed for operating and maintaining the climate observation network and related infrastructure including the training of 10 engineers, 10 technicians and local communities to maintain and repair meteorological equipment, computer infrastructure and telecommunications network.	<p><i>Inadequate weather and climate monitoring infrastructure, which limits data collection, analysis and provision of timely meteorological services.</i></p> <p><i>Long-term sustainability of observational infrastructure and technically skilled human resources to maintain it because of inadequate GRZ and/or private sector funding.</i></p>
1.4	Technical capacity of ZMD is developed to improve the production of standard and customized weather and climate forecasts and packaging meteorological data and information into a suitable format for user agencies and local community end-users.	<p><i>Limited knowledge and capacity to effectively project future climate events as a result of an acute shortage of technology and skilled human resources, as well as access to climate models and hardware.</i></p> <p><i>Weak institutional coordination between institutions leading to limited packaging, translating and disseminating climate information and warnings.</i></p> <p><i>Low community level uptake of warnings, advisories and available climate/weather information.</i></p>
<i>Outcome 2</i>		

2.1	Tailored, sector-specific weather and climate information made accessible to decision makers in government, private sector, civil society, development partners and local communities.	<p><i>Weak institutional coordination between institutions leading to limited packaging, translating and disseminating climate information and warnings.</i></p> <p><i>Low community level uptake of warnings, advisories and available climate/weather information.</i></p>
2.2	National capacity developed for assimilating weather and climate information into existing national policies, development plans and disaster management systems.	<p><i>Limited knowledge and capacity to effectively project future climate events as a result of an acute shortage of technology and skilled human resources, as well as access to climate models and hardware.</i></p> <p><i>Weak institutional coordination between institutions leading to limited packaging, translating and disseminating climate information and warnings.</i></p>
2.3	Communication channels and procedures for issuing warnings are enabled at a national level and implemented at a district level, through the development of mobile phone-based alert platforms in the priority districts of Chipata, Gwembe and Sesheke (the target district of Chipata was later replaced by Mambwe).	<p><i>Limited knowledge and capacity to effectively project future climate events as a result of an acute shortage of technology and skilled human resources, as well as access to climate models and hardware. This means climate information and warnings do not reach those who need the information, either because there is no access to technology or inappropriate communications and terminology are used.</i></p> <p><i>Weak institutional coordination between institutions leading to limited packaging, translating and disseminating climate information and warnings.</i></p> <p><i>Low community level uptake of warnings, advisories and available climate/weather information.</i></p>
2.4	Public-private partnership developed for sustainable financing of the operation and maintenance of the installed meteorological observation network.	<p><i>Long-term sustainability of observational infrastructure and technically skilled human resources is threatened. GRZ agencies are unable to grow and develop services to generate revenue.</i></p>

Rating: Relevant

3.3.3 Effectiveness

104. For the CIEWS project, an analysis of cost-effectiveness and sustainability of investments was undertaken and assessed against alternative approaches (Table 8, page 54 of the ProDoc). This analysis was useful as it enabled a collective determination of the best options. The achievements described in Section 3.3.1 and feedback from stakeholders and partners confirms the level of effectiveness.

105. The summary of achievements of the CIEWS project, as presented in Table 3-4, reflect a successful project in the context of the stated baseline scenario. The investment from the project resulted in significantly improved frequency of data transmission, through the installed AWSs, providing data at 15-minute intervals, 24 hours per day, and with much improved accuracy of the weather forecasts provided. At national level, forecasts are now provided daily, with no failure and radio forecast updates are being provided regularly and as frequent as daily, weekly, and every 10 days.
106. The analysis in the monitoring reports states that quantifying the cost effectiveness of improved climate information and early warning system investments is acknowledged to be difficult and is therefore not regularly undertaken. However, a cost-benefit analysis of the investments could have been useful as a communication tool, in order to support requests for fiscal support increases from central government. Literature cited suggests that investment in disaster prevention is more cost-effective than spending on relief. In general, in developed countries the benefits of improved weather services to inform severe weather warnings exceed the costs by an average of more than 10 times (Tsirkunov and Rogers 2010). There is potential for similar cost-benefits to be realised through investing in improved climate monitoring and early warning systems in developing countries. These benefits are expected to be proportional to: i) the population of the country; ii) level of climate-related risk; and iii) exposure to weather due to the state of infrastructure. It is estimated that, for all developing countries, the benefits of improved hydro-meteorological information, production of early warnings and associated capacity building/development include:
- Leading to between US\$ 300 million and US\$ 2 billion per year of avoided asset losses due to climate change-induced disasters.
 - Resulting in an average of 23,000 saved lives per year, which is valued between US\$ 700 million and US\$ 3.5 billion per year using the Copenhagen Consensus guidelines.
 - Providing between US\$ 3 and US\$ 30 billion per year of additional economic benefits.
107. The total benefits are estimated to be between US\$ 4 and US\$ 36 billion per year. The cost of improving hydro-meteorological services and producing the required warnings is estimated to be lower than US\$ 1 billion. The benefit-cost ratio for developing countries is on average between 4 and 36.
108. As with any project there were some aspects that could have been implemented more effectively. There were some factors that moderately affected implementation and resulted in some project delays. For instance, there were three changes at the Director level within ZMD and this affected the expedience in decision making, provision of direction and policy guidance particularly on the selection of staff that had to undergo training at Master's and BSc levels. The main implication of these staff changes is that some students have had to continue studies beyond the life of the project, and this has had financial implications for UNDP.

Table 3-4 Project achievements and effectiveness rating

Project Strategy	Indicator (based on Project Results Framework)	Baseline Level (based on the PRODOC)	End-of-project Target (Based on the PRODOC)	Achievement (Effectiveness)	End of Project Achievement Rating (Effectiveness)
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 Zambia.	Indicator 1: Capacity as per capacity assessment scorecard.	Average capacity scorecard rating of 80 across men and women	Capacity scorecard rating is increased to an average of 171 for both men and women	<p>There has been capacity increase from 80 to 156 as per scorecard, which represents 91% increase since the inception of the project (the target at the end of the project capacity score is 171)</p> <p>33 students enrolled over the course of the project. The following have completed their training:</p> <ul style="list-style-type: none"> • 11 Diploma students in Meteorology (8 males; 3 females). • 4 Diploma students in Electrical/Electronic Engineering (4 males). • 3 BSc students in Climatology (2 males; 1 female). <p>The following will complete in December 2019:</p> <ul style="list-style-type: none"> • 7 Master’s degree students in Disaster Management (5 male; 2 females). • 12 BSc students in Climatology (9 male; 3 female). • 	Achieved Highly Satisfactory
	Indicator 2: Domestic finance committed to ZMD and DMMU to monitor and warn against extreme weather and climate change.	Annual budget of: US \$322,680 allocated to ZMD; and US \$ 614,057 allocated to DMMU.	20% increase 32 in annual domestic finance allocated to ZMD and DMMU to monitor and warn against extreme weather and climate change.	Since 2014 an annual increase of 7%, making a cumulative increase of 28% over the four year project period.	Partially achieved Satisfactory

Outcome 1: Enhanced capacity of Zambia Meteorological Department to monitor and forecast extreme weather and climate change.	Indicator 1: Percentage of national coverage of climate monitoring network (fully operational).	Automatic: 0% of districts; Manual: 0% of districts.	Automatic: 29% of districts; Manual 37% of districts.	28 AWS equivalent to 39% of the districts against the target 29%, contributing a total of 41% of the country's total AWS network. Rehabilitation of all 41 manual stations in the country representing 57% against 37% of the target. Currently the 68 AWS are able to observe and consistently transmit real time weather data every 15 minutes to the central forecasting centre.	Achieved Satisfactory
	Indicator 2: Frequency data transmission and reception.	At present, the 2 AWSs transmit data which is sent daily Majority of manual stations record data at (GMT) 06h00, 09h00, 12h00, 15h00. However, provision to ZMD does not occur daily.	30 AWSs (28 new, 2 rehabilitated), transmitting continuously 39 rehabilitated manual stations collecting data at the synoptic hours of (GMT) 06h00, 09h00, 12h00, 15h00, 18h00 and 00h00, and sending to ZMD daily.	Increased network of AWS of 1 per 25 square kilometers, the forecast will be more accurate and location specific especially for Zambia, which is currently experiencing frequent and intensive localized flash floods.	Satisfactory
Outcome 2: Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.	Indicator 1: Percentage of population in Chipata (<i>later replaced with Mambwe</i>), Gwembe and Sesheke Districts with access to improved climate-related flood and drought warnings (disaggregated by gender).	0% of men; 0% of women.	100% of men; 100% of women.	The total of small-scale farmers who have benefited from weather and climate information in the past 4 years is over 60,000, representing 100% of small-scale farmers in the targeted areas of the project of which 60% are women. The weather and climate information has contributed to an increase in maize production from 600 kilograms per hectare to 2.2 tons per hectare. This in turn has ensured food security as only 400 kilograms of maize is needed for a family and the surplus is for income generation. Weather and climate information has facilitated crop diversification, as farmers are now growing other crops such as legumes and rearing small livestock.	Satisfactory

	Indicator 2: Development frameworks and disaster policies that integrate climate information in the formulation.	The Sixth National Development Plan highlights the need to develop climate change mainstreaming and response strategies, but not the need for improved information to inform the strategies.	At least the Seventh National Development Plan to incorporate the availability of climate information into planning for the five-year period.	At the district level the project facilitated the organization of the multi-sectorial District Disaster Coordinating Committee (DDCC). DMMU focal points in the districts use the weather and climate information to update the disaster risk reduction activities.	Satisfactory
	Indicator 3: Sector-specific, tailored climate information packages that integrate climate risks.	ZMD, in collaboration with the relevant line ministries, produces sector-specific forecasts for agriculture, aviation, water and health.	Sector-specific, tailored climate information packages produced for agriculture, aviation, water, health, tourism, construction, road and rail transport, and energy.	Agriculture specific tailored information packages on the weather and climate information have been produced and disseminated to small scale farmers. Furthermore, these packages have been translated into local languages.	Satisfactory

Overall Rating: Satisfactory

3.3.4 Efficiency

109. The extent to which the project resources (financial, equipment and human) have been used appropriately and economically to deliver the desired results in a cost-effective manner has been a key yardstick for assessing the degree of project efficiency. The CIEWS project was not a standalone project, as it was designed as part of a wider multi-country programme that implemented similar initiatives on generating climate information and Early Warning Systems in at least 11 countries in Africa (including Benin, Burkina Faso, Ethiopia, Liberia, Malawi, Sierra Leone, São Tomé & Príncipe, Tanzania, Uganda and Zambia). The project achieved a good level of efficiency through synergies between the projects and enhanced the cost-effectiveness through access to a pool of specialized technical staff knowledge sharing; training in operations and maintenance of equipment; and forecasting techniques.
110. According to the ProDoc the total project budget was US \$17,131,947 and was broken down as presented below:

Total Allocated Resources:	US \$17,131,947 (all US)	
	GEF/LDCF	\$3,600,000
	Government (In Kind)	\$3,746,947
	UNDP (Grant)	\$600,000
	UNDP (Cash)	\$400,000
	Other	\$8,785

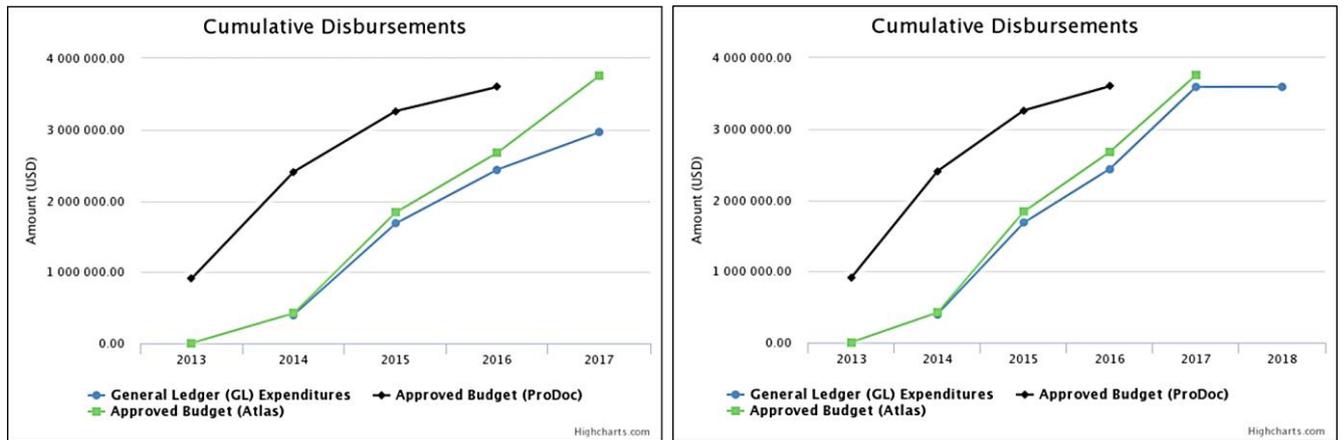
111. Both the project budget and expenditure were well aligned with the outcomes (outcome-based budgeting and spending) and this ensured that project financial resources were directed at achieving desired results under each outcome accordingly. Government contribution covered office space, utilities, and salaries for the government staff involved in the project. UNDP and GEF contributions were directed towards activity implementation that directly supported the achievement of project outcomes including vehicles.
112. The financial data drawn from the PIR indicates that by June 2018, 89.78% of the budgeted financial resources had actually been received at the time of the evaluation and 99.75% had been spent as of June 2018.

Table 3-5 Cumulative Expenditure to June 2018

Cumulative GL delivery against total approved amount (in ProDoc):	89.78%
Cumulative GL delivery against expected delivery as of June 2018:	99.75%
Cumulative disbursement as of 30 June 2018	\$3,591,086.93

113. Project expenditure distribution across all outputs display a steady expenditure trend (Figure 3-3), showing that the project was generally on track over the four-year period. Although delays in procurement of the AWS equipment during the first year were noted.

Figure 3-3 Cumulative expenditure (2017 and 2018)



114. Adherence to good financial management principles and practices such as performing project audit, achieving harmony between the project work plans and budgets, results based budgeting and financial tracking using UNDP/GEF financial accountability template forms (FACE) contributed to financial achievements. All these have supported the establishment of financial prudence across all project-implementing units. As such, the project has satisfactorily maintained appropriate and reliable management structures, internal controls and reporting systems, which are all features of efficient project management.
115. This TE commends the fact that a baseline self-capacity assessment was conducted during the project preparation phase, in order to guide the identification and prioritisation of stakeholder needs. Equipment and capacity-building investments were selected based on identified priorities, as well as the available budget and focal areas of the CIEWS project. Proposed outputs and procurements were reviewed in a representative validation workshop and revised to reflect considerations of sustainability and cost-effectiveness. This was important for ensuring subsequent efficiencies.

Rating: Satisfactory

3.3.5 Country Ownership

116. The government's contribution to the total cost portrays an important perspective on project ownership. The integration of project implementation in the national implementation modality also illustrates ownership of the project. As such, the involvement of government officials in the entire project implementation processes has been evident in indicating ownership. All the government stakeholders that participated in this evaluation expressed willingness to continue playing active roles in coordinating the implementation of climate change adaptation, disaster preparedness, and climate resilience countrywide. The evaluator attended a training workshop as part of the recently initiated GCF project, where national and district level staff expressed the importance of both national and local ownership of projects, as well as ensuring effective engagement and participation of local communities.
117. The government has now established a sectoral legal framework, through the development of the Meteorological Act, with the support of the CIEWS project. This framework recognizes the criticality of mainstreaming climate information into planning systems.

Rating: Satisfactory

3.3.6 Capacity Building and Mainstreaming

118. The CIEWS project is well aligned with national development priorities and also with UNDP's and country programming, as discussed under relevance in Section 3.3.2. Implementation of this project contributed to other UNDP and national priorities, specifically climate poverty alleviation, improved governance, prevention and recovery from natural disasters, and gender.
119. The capacity building strategy undertaken by the project is likely to have significant positive impact on the project's sustainability. Sponsoring 33 staff to undertake studies in climatology, meteorology and disaster management enhances the overall country capacity to sustain and maintain the meteorological and early warning system. This has and will enable ZMD to continue generating, analysing, packaging, interpreting and disseminating weather information in a timely and accurate manner.
120. This TE agrees that the project has been able to add value in other sectors - particularly the agriculture sector by generating, analyzing and disseminating weather and climate information for decision making at the policy and implementation levels. The weather and climate information, which has been disseminated to the stakeholders in the agriculture sector, has been beneficial for planning and decision making in farming systems. ZMD has continued to engage farmers and stakeholders, as demonstrated by enquiries on the weather information, which has been on the increase since 2014. With the support from the project, ZMD has been able to collect indigenous knowledge from the three targeted districts and this has encouraged the communities to enhance their knowledge with conventional weather forecasts. In addition, ZMD engaged the mobile service providers and other partners, such as Adventist Relief Agency (ADRA), to disseminate weather and climate information through mobile phones, especially at critical times of the rainy season.
121. As a result of advocacy and capacity building, climate change has a specific outcome in reducing poverty and vulnerability reduction. The government has set up a specific technical working group on climate change in the context of the 7NDP.
122. The increased government budgetary allocation to ZMD is contributing to the achievement of 7NDP on pillar three: poverty and vulnerability reduction. The increased budget is assisting ZMD to sustain its operations and functioning in providing weather and climate information. In terms of SDGs, increased budgetary allocation is supporting ZMD to provide accurate and real time data for users to take action, particularly among the small-scale farmers.

Rating: Satisfactory

3.3.7 Sustainability

123. The overall ranking for sustainability is ***Moderately likely***. More specific issues are outlined below with regard to financial, institutional and socio-economic sustainability.
124. **Financial Sustainability:** The project facilitated the development of the Legal Framework for the management of weather and climate information and this provides the mandate for ZMD to commit and sustain the provision of information. Once approved, it is expected that the Meteorology Act will facilitate ZMD to recuperate costs through charging for selected services. This is not an unusual business model. However, caution must be taken as a profit driven approach could undermine access to valuable information and lead to poor decision making, as institutions become reluctant to incur additional costs for a public good. The project intended to influence the government to increase the ZMD annual budget by almost 50%, but only achieved 28% after the four years of the project. Therefore, funding for the department remains inadequate. There is still a need for more resources to enhance ZMD's capabilities in packaging and dissemination of information, as well as ensuring that the effective functioning of the weather station network is sustained.

125. **Institutional Sustainability:** All projects under this programme will develop a sustainable financing strategy for the ongoing operation and maintenance of the newly enhanced hydro-meteorological networks. These strategies may include leveraging financing and logistic support from private sector companies and relevant sectors. In the case of Zambia's specific sectors that the ZMD aims to align with (Output 2.4) include, but are not limited to, the agricultural insurance sector in particularly weather-based index insurance for private sector farmers and agricultural investors. Where private sector engagement includes multi-national corporations, regional support will assist in engaging head offices in multiple countries.
126. Funding from government will reduce the burden on ZMD and enable broader access to vital climate information for other sectors, which would enhance evidence-based policy formulation and implementation. Despite some minor shortcomings, the success of the project has increased the level of confidence and overall image of ZMD, due to the increased knowledge and usage of weather and climate information among the communities. This is attested by expressions given by individuals in reports from the three pilot districts and in the newsletter. The project addressed the issue of gender in this male dominated institution, but more focus is required. Given the success made by the project in the pilot districts, replication and upscaling will be critical to safeguard livelihoods in all districts that are vulnerable to climate variability and climate change. The Government of the Republic of Zambia, through ZMD, would like to pay tribute to GEF and UNDP for providing resources and technical assistance that has led to the improved service delivery in providing weather and climate information.
127. Key stakeholders have indicated that institutional capacity is a major risk for the sustainability of the project results. The adoption of adequate policy and legal frameworks has been initiated, but needs to be further supported and strengthened. Institutional and managerial capacity building of ZMD and of key local level stakeholders, as well as strengthening inter-sectorial coordination, have been identified as essential components for securing the required institutional capacity for securing continuity and sustainability. Relevant activities to achieve this effect can be introduced within the existing project framework.
128. **Social, Environmental and Economic Sustainability:** The MTR highlighted that the financial risk was indicated by key stakeholders as a prominent risk to sustaining the project results and securing their continuity. As reported by ZMD, the budget at baseline was the equivalent in national currency (Kwacha) of 322,680. According to information from ZMD the nominal budget in local currency has increased, but not the available funds for climate information and early warning systems in real terms, as reflected in the equivalent USD.
129. ZMD will need to maintain the partnerships established during the implementation of this project. To increase the total effective services being offered and the bargaining position with key service providers, such as mobile (cellular) communications (which will be used for both disseminating alerts and the collection of data used to generate alerts), the government needs to support ZMD in maintaining and accessing the regional support programme to leverage collective negotiations for data services. The regional programme planned to engage with corporate social responsibility programmes of multi-national corporations, in order to enhance services where possible. This is a more cost-effective approach than if the 11 individual countries were to approach corporations individually.
130. For project results to be sustainable after the project end, financial sustainability must be strengthened at both national and local levels, through national budgets and other sources, including agreements with the private sector. As stated above, the current government budget for ZMD is inadequate. Therefore, further support is necessary to enable ZMD and DMMU to maintain the infrastructure and equipment, and employ the staff trained through

this project on permanent basis, for on-going CIEWS monitoring and information dissemination.

Rating: Moderately Likely

3.3.8 Gender consideration

131. The project has a deliberate policy in involving women in the project activities. Out of the total number of over 60,000 small scale farmers reached by the project since inception in Gwembe, Mambwe and Sesheke districts, 60% have been women beneficiaries. In project areas the targeted women groups were established for sharing weather and climate information. The information provided to women facilitated to their planning and decision making over which the farming system to adopt. This resulted in the diversification of their livelihoods, ranging from crop production to small livestock rearing, as well as poultry. The affirmative action taken by the project to involve women in receiving weather and climate information has facilitated their ability to freely choose to grow crops that are drought tolerant, using the flood ponds for rice, as well as diversification of their livelihoods, including keeping goats.
132. Within ZMD there has not been a deliberate gender analysis, and this is perhaps necessary to support gender affirmative action that was adopted by the department. Such an assessment would provide a good basis for more opportunities for equitable participation of women, either in training programmes or project activities as beneficiaries. For example, out of the 33 staff trained under the project only six were female. It is understood that the government froze the recruitment process at one point, which would have opened the window for the recruitment of women. However, opportunities still exist for such gender issues to be address.
133. During a field visit to Gwembe the evaluator observed the evident eagerness from women to participate and express their views on community issues. As of necessity, this evaluation paid special attention to gather the views of women. Both man and women have equally benefited from the project and have access to relevant information, although some expressed limitations of not having smartphones, since messages are now being transmitted through platforms such as WhatsApp. The MTR noted that in some cases men seem to have the first access to information received from ZMD, normally through extension officers or radio. and the men then subsequently disseminate the information to women, who then use social gatherings to disseminate it further among themselves.
134. This TE also confirms the MTR observation that gender equality in occupying senior positions is much better addressed at the district level, rather than at the national level. There is still a challenge of achieving gender equity in the department (ZMD). This is because most female staff do not meet minimum requirements for tertiary education. The department is encouraging the female staff members to upgrade their basic education, by allowing them to take sabbaticals for studying and also using work experience as the criteria for recommendations to undertake diploma courses.

3.3.9 Impact

135. There is unreserved recognition from stakeholders and project partners that the project has opened numerous opportunities to build greater climate resilience and disaster preparedness. There has been capacity increase from 80 to 156 as per the capacity scorecard, which represents a 91% increase since the inception of the project (the target at the end of the project capacity score was 171).
136. There is sectoral transformation resulting from the formulation of the Meteorological Act. The meteorological sector operated without a legal framework for a long-time. The project provided technical assistance for the development of a Bill, which allows for cost recovery on specialised climate data and information and also allows ZMD to regulate private owned

weather stations, as well as to ensure observance of accurate and timely service delivery. The Bill provides for the establishment of the meteorological trust fund, which guarantees sustainability of meteorological operations by retaining a percentage of the cost recovered funds.

137. Weather and climate information scenarios and outlook in the next five years was compiled and used as inputs for the development of the seventh national development plan, particularly in the sectors of agriculture, energy, health and tourism. The climate information facilitated the mainstreaming of climate change and disaster risk reduction. Furthermore, the DMMU Act has been revised in order to take into account the climate change scenarios.
138. The training of 33 staff to undertake studies in climatology, meteorology and disaster management will have a long-term impact, as it enhances the overall country capacity to sustain and maintain the meteorological and early warning system. This enhanced expertise will improve the capacity at both DMMU and ZMD for interpreting impacts of climate variability and change on food security, as well as water resources and flooding. In addition, there will be better linkages in sharing information between ZMD, DMMU and WARMA, as well as across all other sectors.
139. This TE agrees that a major result of the project is the integration of environmental and climate change policies, strategies and frameworks into the national agenda's 7NDP, through domestication of the Paris Agreement on climate change and domestication of the SDG targets to the Zambian context. Prior to this process, the climate change agenda was not featured as priority in the national agenda. However, as a result of consented and capacity building effects, it has been highlighted and integrated into the five pillars of the 7NDP: Economic diversification and job creation; poverty and vulnerability reduction; reducing developmental inequalities; enhancing human development and governance human rights. As a result of advocacy and capacity building, climate change has a specific outcome in reducing poverty and vulnerability reduction. In addition, the government has set up a specific technical working group on climate change, in the context of the 7NDP.

Rating: Significant

4 CONCLUSIONS, RECOMMENDATIONS AND LESSONS

4.1 Conclusions

140. The CIEWS project was designed to respond to priority adaptation needs and actions identified in Zambia's National Adaptation Programmes of Action (NAPA 10,11), specifically Option 2: "Strengthening of early warning systems to improve services to preparedness and adaptation to climate change". Based on the project evaluation criteria, namely relevance, effectiveness, efficiency, M&E, partnerships and stakeholder's participation, sustainability, and impacts, this TE draws conclusions on each of these components.
141. **Relevance:** The project logic is well aligned with the identified problems, country needs and baseline assessment. Therefore, the outputs are justifiable, with observable linkages to policies and priorities. Overall, the project is highly relevant. The project is rated **Relevant**.
142. **Effectiveness:** The project has managed to achieve all of the seven indicators presented in the project log frame. It has been noted that a strong foundation has been set to facilitate the continuity of various project activities initiated by the project, through the GCF project. Apart from the initial delays due to procurement issues, the project effectiveness has been rated **Satisfactory**.
143. **Efficiency:** The financial management was primarily adequate and conformed to good practice and transparency through independent project audits, adhering to approved project work plan and budgets. The project appropriately used the UNDP/GEF financial accountability template forms (FACE) for budgeting and financial tracking. However, this TE recognizes that the government's in-kind contribution to the project has not been quantitatively reported. Therefore, it has not been possible to quantify or verify the contribution in dollar values, in order to measure the magnitude of commitment. At the time of preparing this report a final project report had not been provided and the AMAT tracking tool had not been fully completed. In addition, the 2015 and 2016 PIRs do not have financial data as presented in the 2017 and 2018 reports. It is necessary to be consistent across all these reports. This criterion is rated **Satisfactory**.
144. **Sustainability:** The project sustainability was measured against financial, institutional, environmental, and socio-economic aspects. The project had implemented diverse activities, using different approaches. The capacity, network and knowledge to manage projects have increased among the key stakeholders. There was strong commitment from the regional and district governments, as well as the private sector, through co-financing, in continuing to support the project. The ongoing institutional efforts in ZMD are encouraging, especially noting that there is additional funding support from the GCF to carry over the work undertaken under the CIEWS project. This is likely to improve the probability for sustainability of the outputs of the CIEWS project.
145. While there are these encouraging prospects, it is important to note the concerns of key stakeholders regarding institutional capacity being a major risk for the sustainability of the project results. Institutional and managerial capacity of ZMD and of key local level stakeholders needs to be strengthened further. Enhanced inter-sectorial coordination has been identified as essential for securing continuity and sustainability and ZMD is encouraged to be more proactive in demonstrating leadership in providing climate data across all sectors. The criterion was rated **Likely**.
146. **M&E:** M&E is a critical component of project implementation and needs to be adequately funded and implemented. A final project report has not been provided and the AMAT tracking tool had not been fully completed at the time of preparing this report. In addition, the 2015 and 2016 PIRs do not have financial data as presented in the 2017 and 2018 reports. It is necessary to be consistent across all these reports. However, despite these shortcomings, the project implemented a participatory M&E system that involved joint data

collection and verification, as well as periodic progress reviews in relation to the quarterly and annual work plans. Various stakeholders were involved from the national, regional, district and local levels. The M&E system is rated **Satisfactory**.

147. **Partnerships and Stakeholders Participation:** The project established partnerships and engagement with a wide range of stakeholders during project implementation from the government ministries, departments, agencies, and institutions; UNDP Country Office; GEF; private sectors; NGOs; community members and individual experts. Stakeholders interviewed indicated that partnerships and collaborations could have been stronger at the beginning of the project. Despite the achievement that has been recorded in this project, there were also some challenges encountered such as changes in project staff in ZMD, which slowed down decision-making. The project partnerships and stakeholder's participation has been rated **Satisfactory**.

4.2 Lessons learnt

148. **Mainstreaming climate change efforts:** Creating the enabling environment for mainstreaming climate change into the national policy framework is critical in changing community mindsets. Capacity building, awareness raising, and engaging communities requires sustained provision of useful and contextualized information. Climate information has enabled local communities to adapt to changing seasonal patterns, thereby safeguarding their livelihoods.
149. **Building partnerships and strong stakeholder engagement:** Partnerships and effective engagement with stakeholders at all levels is necessary to create momentum and change, as it creates a sense of belonging and inclusion of the otherwise marginalized groups (e.g. women). Climate change affects every sector and the entire economy. Therefore, intersectoral partnerships and engaging the local community will lead to transformative changes and broader adaptation to adverse impacts of climate change. When communities are equipped with knowledge and awareness, their adaptive capacity is enhanced.
150. **Use of existing central and local structures and systems:** The integration of project implementation systems and structures under the National Implementation Modalities (NIM) can be applauded for the lowering of the overall administrative costs in terms of staffing, and use of government facilities, as well as mainstreaming development into the national development framework, since they already know the strategic service delivery systems and the communities.
151. **Modern technology and indigenous knowledge are complementary:** Local communities possess a lot of indigenous knowledge that can complement and strengthen new technologies such as AWS.

4.3 Recommendations

152. This evaluation provides three specific recommendations for ZMD and two general recommendations on project implementation that may apply in new future projects.

Recommendation 1: Data access and tailoring	Who/When
<p>To ZMD: it is noted that data is being shared through the daily and 10-day forecasts through radio, TV, and website and this is encouraged and should continue. In response to repeated feedback from stakeholders and partners, it is highly recommended that</p> <p style="padding-left: 40px;">c. There is clarity in the form of clear guidelines or data access policies and procedures including any applicable costs to enable institutions to include such costs in annual budgets.</p>	<p>ZMD</p> <p>Within year 1</p>

<p>d. Recognize the varying sectoral data needs and that some institutions may wish to undertake their own analysis. It is therefore highly recommended that ZMD works with the different sectors to establish clear user needs, type of data, frequency and establish suitable tailored data access and packaging.</p>	
<p>Recommendation 2: Maintenance and replacement of Automatic Weather Stations</p>	<p>ZMD</p>
<p>To ZMD: the support and investment provided under the CIEWS project will likely require substantial ongoing maintenance. The project intended to influence the government to increase the ZMD annual budget by almost 50%, but only achieved 28% after the four years of the project. Therefore, funding for the department remains inadequate. It is noted that the cost recovery model will enable ZMD to cover some of the operational costs. It is necessary to have an understanding of the full annual operating, maintenance, and replacement costs of the weather stations. The weather stations established under the project face the risk of rapidly deteriorating in functionality if not adequately maintained. It is highly recommended that:</p> <p>c. A full assessment be undertaken to determine the annual operating, maintenance and replacement costs (where necessary) of the weather stations at least for an initial period of 5 to 7 years.</p> <p>d. From the assessment, identify funding shortfalls and prepare a funding strategy to address any shortfall.</p>	<p>ZMD, within 1 year</p>
<p>Recommendation 3: Capacity building</p>	<p>ZMD</p>
<p>To ZMD: Staff at the district level raised the need for additional and ongoing capacity to continue engaging with local communities beyond the project life.</p> <p>It is highly recommended that ZMD efforts continue to increase and enhance the critical mass to enable wider extension services and sectoral support to different sectors. The current efforts to seek cabinet office approval to establish high positions for those who have been trained and those to graduate should continue.</p> <p>It is noted that the government human resource regulations state that staff members who are provided training are bonded to the department for the period of two years. However, additional efforts should be made to ensure staff that stay with the department beyond the two-year bonding period.</p>	<p>Ongoing</p>
<p>General Project Management Recommendations</p>	
<p>Recommendation 4: Sharing of lessons learned on good practice project approaches</p>	
<p>To UNDP and ZMD: This evaluation commended the baseline self-capacity assessment conducted during the project preparation phase which guided the identification and prioritisation of stakeholder needs. Equipment and capacity-building investments were selected based on identified priorities, as well as the available budget and focal areas of the CIEWS project. This is good practice and should be an important lesson to be shared with other institutions for formulation of future projects.</p>	<p>UNDP/ZMD</p>

<p>This evaluation highly recommends that:</p> <p>In addition to the social media videos produced about the results and impact of the project, preparation of information briefs in good practice project implementation should be shared with all project partners.</p>	
<p>Recommendation 5: Monitoring and evaluation</p>	
<p>To ZMD and UNDP: The current methods of collecting M&E data are weak and inconsistent to enable longitudinal assessment of development support impact. As a systematic and long-term process, monitoring should continually gather information regarding the progress made by an implemented project. While evaluation is time specific and it is performed to judge whether a project has reached its goals and delivered what is expected according to its original plan.</p> <p>M&E are also relevant to development partners and donors, who need to assess the reliability of partnerships and accountability upon which further collaborations could be established. This evaluation highly recommends that:</p> <p>In future, develop an M&E system and reporting for planning and building a knowledge management and database. This can be linked, integrated and interfaced with the existing government M&E system. This will enhance both management and institutional memory through proper reporting, record keeping and archiving at all central and local government levels, to allow for streamlined integrated database management as a pillar for effective Results-Based Monitoring & Evaluation/Management.</p>	<p>UNDP/ZMD</p>

5 ANNEXES

Annex 1. Documents consulted

1. PIF
2. UNDP Initiation Plan
3. UNDP Project Document
4. UNDP Environmental and Social Screening results
5. Project Inception Report
6. All Project Implementation Reports (PIR's)
7. Quarterly progress reports and work plans of the various implementation
8. Audit reports
9. Mid-term evaluation report
10. Oversight mission reports
11. All monitoring reports prepared by the project
12. Financial and Administration guidelines used by Project Team
13. UNDP country/countries programme document(s)
14. Minutes of the early warning systems project Board Meetings and other meetings (i.e. Project Appraisal, Committee meetings)

Annex 2. Results Summary

Project Strategy	Indicator (based on Project Results Framework)	Baseline Level (based on the PRODOC)	End-of-project Target (Based on the PRODOC)	Achieved Results
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 Zambia.	Indicator 1: Capacity as per capacity assessment scorecard.	Average capacity scorecard rating of 80 across men and women	Capacity scorecard rating is increased to an average of 171 for both men and women	<p>There has been capacity increase from 80 to 156 as per scorecard, which represents 91% increase since the inception of the project (the target at the end of the project capacity score is 171)</p> <p>33 students enrolled over the course of the project. The following have completed their training:</p> <ul style="list-style-type: none"> • 11 Diploma students in Meteorology (8 males; 3 females). • 4 Diploma students in Electrical/Electronic Engineering (4 males). • 3 BSc students in Climatology (2 males; 1 female). <p>The following will complete in December 2019:</p> <ul style="list-style-type: none"> • 7 Master's degree students in Disaster Management (5 male; 2 females). • 12 BSc students in Climatology (9 male; 3 female). •
	Indicator 2: Domestic finance committed to ZMD and DMMU to monitor and warn against extreme weather and climate change.	Annual budget of: US \$322,680 allocated to ZMD; and US \$ 614,057 allocated to DMMU.	20% increase 32 in annual domestic finance allocated to ZMD and DMMU to monitor and warn against extreme weather and climate change.	Since 2014 an annual increase of 7%, making a cumulative increase of 28% over the four year project period.

Outcome 1: Enhanced capacity of Zambia Meteorological Department to monitor and forecast extreme weather and climate change.	Indicator 1: Percentage of national coverage of climate monitoring network (fully operational).	Automatic: 0% of districts; Manual: 0% of districts.	Automatic: 29% of districts; Manual 37% of districts.	28 AWS equivalent to 39% of the districts against the target 29%, contributing a total of 41% of the country's total AWS network. Rehabilitation of all 41 manual stations in the country representing 57% against 37% of the target. Currently the 68 AWS are able to observe and consistently transmit real time weather data every 15 minutes to the central forecasting centre.
	Indicator 2: Frequency data transmission and reception.	At present, the 2 AWSs transmit data which is sent daily Majority of manual stations record data at (GMT) 06h00, 09h00, 12h00, 15h00. However, provision to ZMD does not occur daily.	30 AWSs (28 new, 2 rehabilitated), transmitting continuously 39 rehabilitated manual stations collecting data at the synoptic hours of (GMT) 06h00, 09h00, 12h00, 15h00, 18h00 and 00h00, and sending to ZMD daily.	Increased network of AWS of 1 per 25 square kilometers, the forecast will be more accurate and location specific especially for Zambia, which is currently experiencing frequent and intensive localized flash floods.
Outcome 2: Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.	Indicator 1: Percentage of population in Chipata (<i>later replaced with Mambwe</i>), Gwembe and Sesheke Districts with access to improved climate-related flood and drought warnings (disaggregated by gender).	0% of men; 0% of women.	100% of men; 100% of women.	The total of small-scale farmers who have benefited from weather and climate information in the past 4 years is over 60,000, representing 100% of small-scale farmers in the targeted areas of the project of which 60% are women. The weather and climate information has contributed to an increase in maize production from 600 kilograms per hectare to 2.2 tons per hectare. This in turn has ensured food security as only 400 kilograms of maize is needed for a family and the surplus is for income generation. Weather and climate information has facilitated crop diversification, as farmers are now growing other crops such as legumes and rearing small livestock.

	Indicator 2: Development frameworks and disaster policies that integrate climate information in the formulation.	The Sixth National Development Plan highlights the need to develop climate change mainstreaming and response strategies, but not the need for improved information to inform the strategies.	At least the Seventh National Development Plan to incorporate the availability of climate information into planning for the five-year period.	At the district level the project facilitated the organization of the multi-sectorial District Disaster Coordinating Committee (DDCC). DMMU focal points in the districts use the weather and climate information to update the disaster risk reduction activities.
	Indicator 3: Sector-specific, tailored climate information packages that integrate climate risks.	ZMD, in collaboration with the relevant line ministries, produces sector-specific forecasts for agriculture, aviation, water and health.	Sector-specific, tailored climate information packages produced for agriculture, aviation, water, health, tourism, construction, road and rail transport, and energy.	Agriculture specific tailored information packages on the weather and climate information have been produced and disseminated to small scale farmers. Furthermore, these packages have been translated into local languages.

Annex 3. Evaluation Matrix

Evaluative Questions	Indicators	Sources	Methodology
Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?			
Does the project strategy support achieving national needs and priorities?	Project objective and outcomes in line with priorities indicated in national policies, strategies and programmes	PRODOC; published relevant national policies, strategies and programmes	Documents review; consultation with UNDP CO and main government partners
Does the project strategy support achieving needs and priorities of local stakeholders?	Project objective and outcomes in line with priorities indicated by local stakeholders	Project documentation; interviews with local stakeholders	Documents review; consultation with District and local level stakeholders
To what extent is the project complementary to government's and partners' initiatives (regional, national and local projects and programmes) addressing the same priorities?	Project design complements existing and planned initiatives	ProDoc; documentation of complementing initiatives	Documents review; consultation with relevant stakeholders and partners
Are the Project outputs and activities relevant and feasible for achieving the Project objective and outcomes?	Project outputs and activities logically lead to achieving Project objective and outcomes	Project documentation; interviews with local stakeholders	Documents review; consultation with relevant stakeholders
Were risks well identified and mitigation measures well designed to adequately address the risks?	Verification relevance of of risks and effectiveness of mitigation measures indicated in the ProDoc, through later Project reporting	Project documentation; interviews with Project team and relevant stakeholders	Documents review; consultation with Project team and relevant stakeholders

Do the Project's outputs and management arrangements promote national ownership?	Project outputs support national and local capacity building; Project management arrangements are based on national ownership	Project documentation; interviews with Project team and relevant stakeholders	Documents review; consultation with Project team and relevant stakeholders
Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far?			
Objective:			
Was national and local capacity enhanced?	Capacity self-assessment scorecards: Increased rating in July 2015 from the average rating of 80 at project design phase; reporting on capacity building activities	Capacity Assessment Scorecards and further Project reports; interviews with relevant national and local stakeholders	Documents review; consultation with relevant stakeholders
Was domestic finance committed to ZMD and DMMU to monitor, forecast and warn against extreme weather and climate change increased?	Annual budget of ZMD and DMMU to monitor and warn against extreme weather and climate change increased by at least 10% from baseline and expected/committed to increase by 20% by project end.	ZMD and DMMU annual budgets and financial reports; PIR; interviews with ZMD and DMMU officials	Documents review; consultation with relevant stakeholders
Are climate monitoring, forecast and warning systems functional and support response to climate shocks and climate change adaptation planning, nationally and in the target districts?	Climate and weather information received through systems installed or supported by this project, recorded, disseminated, and integrated into local and national short term response and long term plans	Project reports; National agencies' reports and strategic plans; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders; ToC exercise
Is the project realistically expected to achieve its objective by project end, within the defined timeline?	At least 50% of end of project targets for project objective and outcomes, indicated in the Project Results Framework, achieved	Project documentation; national documentation; interviews with Project team, UNDP CO and implementing partners	Documents review; consultation with relevant stakeholders; ToC exercise

Outcome 1:			
Is ZMD's capacity to monitor, forecast and communicate information, on extreme weather and climate change, enhanced?	Increased percentage of national coverage of fully operational climate monitoring network (automatic: at least 15% of district, manual: at least 19% of districts)	Project reports; national agencies' reports; national climate information database; District and local climate information datasets and reports; interviews with relevant national and local stakeholders	Documents review; review of climate information database; consultation with relevant stakeholders; Inspection of selected automatic and manual AWS stations in the target districts
	Increased frequency of data transmission and reception (at least 15 AWS stations transmit data continuously; at least 20 rehabilitated manual stations collecting data and sending to ZMD 6 times daily)	Project reports; national agencies' reports; national climate information database; District and local climate information datasets and reports; interviews with relevant national and local stakeholders	Documents review; review of climate information database; consultation with relevant stakeholders; Inspection of selected automatic and manual AWS stations in the target districts
	Increased technical capacity to operate and maintain the climate observation network and to produce and communicate adequate weather and climate information for users (at least 10 engineers and technicians, 12 climatologists and analysts, and 15 weather forecasters were trained; communities near AWS stations in target districts were sensitized; all installed and rehabilitated stations are fully operational; weather information is produced, packaged and distributed to users regularly, in accordance with set protocols)	Project reports; weather information reports and datasets; climate prediction models; website; training courses syllabi, training manuals and sensitization materials; observation network quality control and maintenance toolbox; interviews with relevant national and local stakeholders	Documents review; training and sensitization material analysis; analysis of climate information reports, prediction models, and communication protocols; consultation with relevant national and local stakeholders; questionnaires to selected communities in the target districts

Outcome 2:			
Is hydro-meteorological and environmental information used efficiently and effectively for making early warnings and in preparing long-term development plans?	Increased percentage of population in the target districts with access to improved climate-related flood and drought warnings (at least 50%, disaggregated by gender)	Project reports; National agencies' and district reports; interviews with gender-sensitive questionnaires of selected communities in the target districts	Documents review; consultation with relevant national and local stakeholders; questionnaires to selected communities in the target districts
	Development frameworks and disaster policies integrate climate information in the formulation (at least the Seventh National Development Plan incorporates climate information availability into the 5 years planning)	Project reports; the Seventh National Development Plan; other relevant national policies, strategies, plans and programmes; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders;
	Sector specific tailored climate information packages that integrate climate risks, are produced for agriculture, aviation, water, health, tourism, construction, road and rail transport, and energy.	Project reports; national agencies reports; sector-specific climate information packages; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders; analysis of sector-specific information packages
Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?			
Have the project and individual activities been implemented in line with the defined timeframe and budget, and in accordance with the Annual Workplans and Budgets?	Annual Workplans and Budgets (AWBs) are based on the results framework and total budget and workplan; Activities are implemented within the timeframe and budgets indicated in the AWBs	Project documentation; Project team, UNDP CO and key national partners, RTA	Documents review; consultation with relevant stakeholders

Were the project monitoring and evaluation and reporting plans implemented satisfactorily and did they support the project's implementation?	Quarterly and Annual Reports submitted timely and provide adequate information on progress, bottlenecks, and proposed mitigation measures; M&E Plan implemented and used to improve the project's implementation	Project documentation; Project team, UNDP CO and key national partners, RTA	Documents review; consultation with relevant stakeholders
Were risks, challenges and bottlenecks adequately and timely identified and mitigated?	Mitigation measures of identified bottlenecks and negative impact on implementation were implemented timely and effectively	Project documentation; Project team, UNDP CO and key national partners	Documents review; consultation with relevant stakeholders
Were any needs for adaptive management changes identified and implemented?	Adaptive management changes made and positively impacted project implementation	Project documentation; Project team, UNDP CO and key national partners	Documents review; consultation with relevant stakeholders
Was the project communication strategy designed and implemented satisfactorily and did it support achieving the project's objective and outcomes?	Project communication strategy elaborated, adopted and implemented; identified stakeholders and target groups were adequately informed	Project documentation; Communication materials; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders
Were the project's management arrangement and support of the partner organizations adequate for enabling efficient implementation?	Project implemented smoothly. Support provided by UNDP facilitated implementation	Project documentation; Project team, UNDP CO and key national partners	Documents review; consultation with relevant stakeholders
Was the project's financial management adequate?	Adequate, complete and detailed financial reports; audit	Project documentation, specifically - financial reports; Project team, UNDP CO and key national partners	Documents review; consultation with relevant stakeholders
Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?			

Can sufficient financial sustainability be established before project end, to secure continuity?	Committed permanent adequate annual government budgets to enable ZMD and DMMU to monitor and warn against extreme weather and climate change; other financial resources	Project documentation; National agencies' documentation; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders
Can institutional capacity be adequately established before project end, to secure sustainability of achieved project outcomes?	Adequate policy and legal framework adopted; ZMD has sufficient institutional and technical capacity to secure continuity.	Project documentation; National agencies' documentation; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders
Can adequate socio-economic sustainability be secured before project end to enable continuity?	All relevant stakeholders at national and local levels are well informed and supportive of the project objectives	Project documentation; National agencies' documentation; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders
Are environmental risks identified and mitigated?	Environmental risks are analyzed and reported and mitigation measures proposed and implemented	Project documentation; National agencies' documentation; interviews with relevant stakeholders	Documents review; consultation with relevant stakeholders

Annex 4. List of Stakeholders

Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia Project Management Training & CIEWS TE Inception Meeting

Date: 21 – 24 January 2019
Venue: Protea Hotel Chisamba

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Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia Project Management Training & CIEWS TE Inception Meeting

Date: 21 – 24 January 2019
Venue: Protea Hotel Chisamba

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Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia
Project Management Training & CIEWS TE Inception Meeting

Date: 21 – 24 January 2019
Venue: Protea Hotel Chisamba

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Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia
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Date: 21 – 24 January 2019
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Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia
Project Management Training & CIEWS TE Inception Meeting

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 Venue: Protea Hotel Chisamba

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#	NAMES	District	AMOUNT (ZMW)	NRC#	SIGNATURE
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2	RAFAEL MACHA	GWEMBE	K80.00	107308/75/1	
3	OSMAS CHIKONDE	Gwembe	K80.00	051804/75/1	
4	Mwango FRED	Gwembe	K80.00	222636/78/1	
5	NYAMBANDA EDWIN	Gwembe	K80.00	296306/75/1	
6	Monda Godwin	Gwembe	K80.00	13259/1/2/1	
7	MUKOZOLE PHILLIP	Gwembe	K90.00	211628/75/1	
8	CHILENSA CYNTHIA	GWEMBE	K80.00	286337/73/1	
9	MICHAEL SAKALA	Gwembe	K80.00	162757/10/1	

#	NAMES	District	AMOUNT (ZMW)	NRC#	SIGNATURE
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2	Hambuya Coltrich	Gwembe	K80	249351.75.1	
3	Siamwanku Nelson	Gwembe	K80	149452/72/1	
4	Nkaama Albert	Gwembe	K80	168105/75/1	
5	Peter Mchelo	Gwembe	K80	188848/74/1	
6	Charity Simbale	Gwembe	K80	146201/45/1	
7	HILDAH MUNKWANGU	Gwembe	K80	198138/75/1	
8	Mercy Mubize	Gwembe	K80	222039/75/1	
9	PHILEMUS MULEMO	GWEMBE	K80	179073/11/1	

#	NAMES	District	AMOUNT (ZMW)	NRC#	SIGNATURE
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3	INNOCENT MANDA	GWEMBE	K400.00	649099-11-1	
4					

Annex 5. Evaluation Terms of Reference

Terminal Evaluation Terms of Reference

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for climate resilient development and adaptation to climate change – Zambia* (PIMS#5091)

The essentials of the project to be evaluated are as follows: *(fully complete the table below)*.

Project Summary Table

Project Title:	Strengthening climate information and early warning systems in Eastern and Southern Africa for climate resilient development and adaptation to climate change – Zambia			
GEF Project ID:	5091		<i>at endorsement</i> <i>(Million US\$)</i>	<i>at completion</i> <i>(Million US\$)</i>
UNDP Project ID:	00086729	GEF financing:	3,600,000	
Country:	Zambia	IA/EA own:		
Region:	Southern Africa	Government:	3,746,947	
Focal Area:	Climate information and early warning	Other:	8,785,00	
FA Objectives, (OP/SP):		Total co-financing:		
Executing Agency:	Zambia Meteorological Department	Total Project Cost:		
Other Partners involved:	Disaster Management and Mitigation Unit (DMMU), Department of Water Affairs (DWA) and Ministry of Agriculture (MAL)	ProDoc Signature (date project began):		25 February 2014
		(Operational) Closing Date:	Proposed: 30 September 2017	Actual: 31 August 2018

Objective and Scope

Zambia is vulnerable to the impacts of floods and droughts, which are predicted to increase in frequency and severity as a result of climate change. Rural Zambian communities, the majority of which comprise small-scale farmers, are particularly vulnerable because of their dependence on rain-fed agriculture and natural resource-based livelihoods. At present, the meteorological observation network in Zambia is not capable of producing the required climate information to support risk management in the short or long term. To increase the ability of Zambia to adapt to the impacts of climate change, it will be necessary to strengthen the generation of appropriate climate information to

monitor and predict slow-onset climate hazards such as droughts and increased temperatures, as well as rapid-onset hazards such as river floods, including flash-floods. This information needs to be disseminated to end-users through an appropriate Early Warning System (EWS). Zambia currently has components of a functional EWS, however, these activities are uncoordinated and limited in their relevance for planning for and managing uncertainties of long-term climate change.

To realize the long-term development planning benefits of a streamlined, customized and consolidated EWS informed by accurate climate information, this Least Developed Country Fund (LDCF)-financed project will take a two-pronged approach by: i) increasing the geographic distribution of meteorological monitoring stations at the national level; and ii) enabling communication channels for the dissemination of primarily flood and drought early warnings, including implementing two-way, community-based EWSs in three vulnerable districts in Zambia, namely Chipata, Gwembe and Sesheke. The following two outcomes will be delivered through this Government of the Republic of Zambia (GRZ)-led initiative:

- Enhanced capacity of Zambia Meteorological Department (ZMD) to monitor and forecast extreme weather events and climate change; and
- Efficient and effective use of hydro-meteorological and environmental information for generating early warnings and informing long-term development plans.

To achieve these outcomes, LDCF financing will be used to overcome key barriers including: i) inadequate weather and climate information infrastructure, which limits data collection, analysis and provision of meteorological services; ii) limited knowledge and capacity to effectively forecast future climate events as a result of an acute shortage of technology and skilled human resources; iii) weak institutional coordination between institutions leading to limited packaging, translating and disseminating of climate information and warnings; and iv) no long-term sustainability of observational infrastructure and technically skilled human resources. This LDCF-financed project, which builds on several on-going baseline development initiatives, will be implemented by the ZMD within the Ministry of Transport, Works, Supply and Communication, and is expected to be completed by the third quarter of 2017.

(provide a project summary including project goal and outcomes. Also, in cases where the GEF funded project forms part of a larger programme, specify if the TE is to cover the entire programme or only the GEF component).

Outcome 1 will be achieved by installing a sustainable network of automatic weather stations under ZMD. This network will be established using a phased approach, ensuring each phase of installed equipment is fully operational before the next phase of equipment is installed. High risk districts, in terms of vulnerability to floods and droughts, will be prioritized for installation of automatic weather stations. Modern forecaster facilities (including workstations) will be installed to assist the meteorological team at ZMD in processing and analyzing data, as well as integrating and using raw data for weather and climate forecasting purposes.

Outcome 2 will be achieved by developing human technical capacity to use the data collected from the modernized weather and climate observation and information management systems established under Outcome 1.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

Evaluation approach and method

An overall approach and method³ for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the [UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects](#). A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in [Annex C](#)*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to Lusaka, including the following project sites Mambwe, Gwembe and Sesheke. Interviews will be held with the following organizations and individuals at a minimum: Zambia Meteorological Department, Disaster Management and Mitigation Unit, Ministry of Agriculture, Climate Change Secretariat, Department of Water Affairs, Ministry of Land and Natural Resources and Zambia Climate Change Network.

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in [Annex B](#) of this Terms of Reference.

Evaluation Criteria & Ratings

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see [Annex A](#)), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

Evaluation Ratings:			
1. Monitoring and Evaluation	<i>rating</i>	2. IA& EA Execution	<i>rating</i>
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	<i>rating</i>	4. Sustainability	<i>rating</i>
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental:	
		Overall likelihood of sustainability:	

³ For additional information on methods, see the [Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 7, pg. 163

Project finance / cofinance

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US\$)		Government (mill. US\$)		Partner Agency (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants								
Loans/Concessions								
• In-kind support								
• Other								
Totals								

Mainstreaming

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

Impact

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.⁴

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions, recommendations** and **lessons**.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Zambia. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

⁴ A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: [ROtI Handbook 2009](#)

EVALUATION TIMEFRAME

The total duration of the evaluation will be 31 days according to the following plan:

Activity	Timing	Completion Date
Preparation	5 days (<i>recommended: 2-4</i>)	16 – 21 October 2018
Evaluation Mission	14 days (<i>r: 7-15</i>)	24 October – 15 November 2018
Draft Evaluation Report	7days (<i>r: 5-10</i>)	16 November to 26 November 2018
Final Report	5 days (<i>r: 1-2</i>)	26 August to 30 th November 2018

EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission.	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission	To project management, UNDP CO
Draft Final Report	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	Sent to CO, reviewed by RTA, PCU, GEF OFPs
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

TEAM COMPOSITION

The evaluation team will be composed of 1 international. The consultants shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members must present the following qualifications:

- Minimum 10 years of relevant professional experience
- Knowledge of UNDP and GEF
- Previous experience with results-based monitoring and evaluation methodologies;
- Technical knowledge in the targeted focal area(s)
- *(additional skills based on project particulars)*

Competencies

Corporate competencies:

- Demonstrate integrity by modelling the UNs values and ethical standards
 - Promotes the vision, mission and strategic goals of UNDP
 - Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability
 - Treats people fairly with favoritism
- 1.

Technical Competencies:

- Analytic capacity and demonstrated ability to process, analyze and synthesize complex, technical information;
 - Proven ability to support the development of high quality knowledge and training materials and to train technical teams
 - Proven experience in the developing country context and working in different cultural settings
- 2.

Communication:

- Communicate effectively in writing to a varied and broad audience in a simple and concise manner
- 3.

Professionalism:

- Capable of working in a high-pressure environment with sharp and frequent deadlines, managing many tasks simultaneously
 - Excellent analytical and organizational skills
- 4.

Teamwork:

- Projects a positive image and is ready to take on a wide range of tasks
 - Focuses on results for the client
 - Welcomes constructive feedback
- 5.

Required skills and experience

Qualifications:

The evaluation team will be composed of an international evaluator. The consultant shall prior experience in evaluation similar projects. Experience with GEF finance projects is an added advantage. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

Profile:

- Post graduate in environmental science, climate change, development studies, social science and or related fields (20%)
- Minimum of 8 years accumulated and recognized experience in the area of mitigation and climate change (20%)
- Minimum of 5 years of project evaluation and/or environmental project implementation experience in the result based management framework, adaptive management and UNDP or GEF monitoring and evaluation policy (20%)

- Familiarity in similar country or regional relevant situation to that of “climate information and early warning systems” is an advantage
- Excellent written English (20%)

Responsibilities:

- Documentation review
- Planning, conducting and reporting on the evaluation
- Ensure timeliness of reports
- Use of best practice evaluation methodologies in conducting the evaluation
- Drafting and finalization on the inception report for the terminal evaluation
- Presentation of the draft evaluation findings and recommendations in-country
- Conducting the debriefing for the UNDP country office in Zambia and project management unit
- Draft and finalization of the terminal evaluation report

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the [UNEG 'Ethical Guidelines for Evaluations'](#)

PAYMENT MODALITIES AND SPECIFICATIONS

(this payment schedule is indicative, to be filled in by the CO and UNDP GEF Technical Adviser based on their standard procurement procedures)

%	Milestone
10%	At contract signing
40%	Following submission and approval of the 1ST draft terminal evaluation report
50%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

APPLICATION PROCESS

Applicants are requested to apply online <https://www.ungm.org> by 22/06/18. Individual consultants are invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English with indication of the e-mail and phone contact. Shortlisted candidates will be requested to submit a price offer indicating the total cost of the assignment (including daily fee, per diem and travel costs).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

ANNEX A: PROJECT LOGICAL FRAMEWORK

<p>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:2.1) Government and partners enable vulnerable populations to be food secure by 2015; 4.1) Disaster Management and Mitigation Unit (DMMU) has a fully functional national disaster management and early warning system to prevent, alert and respond to disasters by 2015; 4.2) Government promotes adaptation and provide mitigation measures to protect livelihoods from climate change by 2015; and 4.3) Government implements policies and legal frameworks for sustainable community based natural resources management by 2015.</p>																	
<p>Country Programme Outcome Indicators:2.1) Proportion of population below minimum level of dietary energy consumption (%); 4.1) % of disasters with timely responses; 4.2) Number of households benefiting from environment and Climate Change adaptation and mitigation funds; and 4.3) % reduction in annual average deforestation rate.</p>																	
<p>Primary applicable Key Environment and Sustainable Development Key Result Area: Promote climate change adaptation</p>																	
<p>Applicable SOF (e.g. GEF) Strategic Objective and Program: Objective 2 “Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level”.</p>																	
<p>Applicable SOF (e.g. GEF) Expected Outcomes: Outcome 2.1 “Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas”; and Outcome 2.2 “Strengthened adaptive capacity to reduce risks to climate-induced economic losses”.</p>																	
<p>Applicable SOF (e.g. GEF) Outcome Indicators:</p> <ul style="list-style-type: none"> • Relevant risk information disseminated to stakeholders • Type and no. monitoring systems in place • % of population covered by climate change risk measures 																	
<table border="1"> <thead> <tr> <th></th> <th>Indicator</th> <th>Baseline</th> <th>Targets End of Project</th> <th>Source of Verification</th> <th>Risk and Assumptions</th> </tr> </thead> <tbody> <tr> <td> <p>Project Objective:</p> <p>To strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Zambia.</p> </td> <td> <p>1. Capacity as per capacity assessment scorecard.</p> <p>2. Domestic finance committed to ZMD and DMU to monitor and warn against extreme weather and Climate change.</p> </td> <td> <p>1. Average capacity scorecard rating of 80 across men and women (see Annex 5).</p> <p>2. Annual budget of: US\$322,680 allocated to ZMD; and US\$ 614,057 allocated to DMMU.</p> </td> <td> <p>1. Capacity scorecard rating is increased to an average of 171 for both men and women (see Annex 5).</p> <p>2. 20% increase 32 in annual domestic finance allocated to ZMD and DMMU to monitor and warn against extreme weather and climate change.</p> </td> <td> <p>1. Focus group interviews with climate information and EWS-related stakeholders; consultant reports.</p> <p>2. Review of ZMD and DMMU annual budgets.</p> </td> <td> <p><u>Risk:</u> Human, technical capacity within DMMU, ZMD, MAL, DWA/WRMA, MoH and CSO, including extension services and within decentralized, offices, is insufficient to effectively implement the LDCF project.</p> <p><u>Assumption:</u> Training opportunities provided through the LDCF project result in the development of the required capacity, and the government</p> </td> </tr> </tbody> </table>							Indicator	Baseline	Targets End of Project	Source of Verification	Risk and Assumptions	<p>Project Objective:</p> <p>To strengthen the climate monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Zambia.</p>	<p>1. Capacity as per capacity assessment scorecard.</p> <p>2. Domestic finance committed to ZMD and DMU to monitor and warn against extreme weather and Climate change.</p>	<p>1. Average capacity scorecard rating of 80 across men and women (see Annex 5).</p> <p>2. Annual budget of: US\$322,680 allocated to ZMD; and US\$ 614,057 allocated to DMMU.</p>	<p>1. Capacity scorecard rating is increased to an average of 171 for both men and women (see Annex 5).</p> <p>2. 20% increase 32 in annual domestic finance allocated to ZMD and DMMU to monitor and warn against extreme weather and climate change.</p>	<p>1. Focus group interviews with climate information and EWS-related stakeholders; consultant reports.</p> <p>2. Review of ZMD and DMMU annual budgets.</p>	<p><u>Risk:</u> Human, technical capacity within DMMU, ZMD, MAL, DWA/WRMA, MoH and CSO, including extension services and within decentralized, offices, is insufficient to effectively implement the LDCF project.</p> <p><u>Assumption:</u> Training opportunities provided through the LDCF project result in the development of the required capacity, and the government</p>
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<p>Outcome 1: Enhanced capacity of Zambia Meteorological Department to monitor and forecast extreme weather and climate change.</p>	<p>1. Percentage of national coverage of climate monitoring network (fully operational³³).</p> <p>2. Frequency data transmission and reception.</p>	<p>1. Automatic: <u>0%</u> of districts; Manual: <u>0%</u> of districts³⁴.</p> <p>2. At present, the 2 AWSs transmit data which is sent daily Majority of manual stations record data at (GMT) <u>06h00, 09h00, 12h00, 15h00</u>. However, provision to ZMD <u>does not occur daily</u>.</p>	<p>1. Automatic: <u>29%</u> of districts; Manual <u>37%</u> of districts³⁵.</p> <p>2. 30 AWSs (28 new, 2 rehabilitated), transmitting Continuously</p> <p>39 rehabilitated manual stations collecting data at the synoptic hours of (GMT) 06h00, 09h00, 12h00, 15h00, 18h00 and 00h00, and sending</p>	<p>1. Field inspection of AWS sites; review of climate information database.</p> <p>2. Review of climate information database.</p>	<p><u>Risk:</u> Delayed implementation of baseline projects by the government and donors negatively affects LDCF project outcomes.</p> <p><u>Assumption:</u> Baseline projects are implemented according to the timeline identified in the PPG phase of the LDCF project, and achieve the desired outcomes and objective.</p> <p><u>Risk:</u> Installed hydro-meteorological equipment fails because it is vandalized or not maintained.</p>

			to ZMD daily.		<p><u>Assumption:</u> Communities living nearby installed hydro-meteorological equipment commit to taking active measures to prevent the equipment from being vandalized; and the equipment is adequately maintained by the responsible institution.</p> <p><u>Risk:</u> Climate shocks occurring during the design and implementation phase of the LDCF project result in disruptions to installed equipment and severely affect communities, prior to the EWSs being established.</p> <p><u>Assumption:</u> Any climate shocks occurring whilst the EWSs are being established will not be so severe as to result in a relocation of the communities where the effectiveness of the EWSs will be tested.</p> <p><u>Risk:</u> Local information technology and telecommunications infrastructure restricts the transfer of data from installed equipment to necessary recipients, and restricts communication</p>
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					<p>amongst key role players and end-users.</p> <p><u>Assumption:</u> Information technologies and telecommunications systems implemented or used, where such suitable system already exists, through the LDCF project are best suited to the local context and do not restrict the transfer and communication of information.</p> <p><u>Risk:</u> Procurement and installation of hydro-meteorological equipment, including hardware and software, is delayed because of complications with the release of funds and/or national procurement procedures.</p> <p><u>Assumption:</u> UNDP CO and HQ will coordinate with the IP to ensure effective administrative planning meaning the equipment is procured and installed in a timely manner.</p>
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<p>Outcome 2</p> <p>Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.</p>	<p>1. Percentage of population in Chipata, Gwembe and Sesheke Districts with access to</p> <p>Improved climate-related flood and drought warnings (disaggregated by gender).</p> <p>2. Development frameworks and disaster policies that integrate climate information in the formulation.</p> <p>3. Sector-specific, tailored climate information packages that integrate climate risks.</p>	<p>1. 0% of men 6. 0% of women. 7. 8. 9. 10. 11. 12. 13. 14.</p> <p>2. The Sixth National Development Plan highlights the need to develop climate change mainstreaming and response strategies, but not the need for improved information to inform the strategies.</p> <p>3. ZMD, in collaboration with the relevant line ministries, produces sector-specific forecasts for agriculture, aviation, water and health.</p>	<p>1. 100% of men; 100% of women.</p> <p>2. At least the Seventh National Development Plan to incorporate the availability of climate information into planning for the five-year period.</p> <p>3. Sector-specific, tailored climate information packages produced for agriculture, aviation, water, health, tourism, construction, road and rail transport, and energy.</p>	<p>1. Gender-sensitive field surveys undertaken within identified priority sites, representative the Zambia population; consultant reports</p> <p>2. Review of Seventh National Development Plan.</p> <p>3. Interviews with line ministries and a review of the information packages released.</p>	<p><u>Risk:</u> Lack of commitment from communities where EWS are established undermines the effectiveness of the LDCF project demonstrations.</p> <p><u>Assumption:</u> Awareness raising activities, and the demonstration of the advantages of responding to the information provided through the established EWS, will ensure the commitment of the communities in participating in the LDCF project.</p> <p><u>Risk:</u> Poor coordination and information sharing structures/agreements between IP (ZMD), RPs (DMMU, MAL, DWA/WRMA, MoH and CSO) and UNDP CO results in institutional failure, compartmentalized progress and delayed implementation of the LDCF project.</p> <p><u>Assumption:</u> The management arrangements established through the LDCF project result in a coordinated approach to implementing the project.</p>
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ANNEX B: LIST OF DOCUMENTS TO BE REVIEWED BY THE EVALUATORS

1. PIF
2. UNDP Initiation Plan
3. UNDP Project Document
4. UNDP Environmental and Social Screening results
5. Project Inception Report
6. All Project Implementation Reports (PIR's)
7. Quarterly progress reports and work plans of the various implementation
8. Audit reports
9. Mid-term evaluation report
10. Oversight mission reports
11. All monitoring reports prepared by the project
12. Financial and Administration guidelines used by Project Team
13. UNDP country/countries programme document(s)
14. Minutes of the early warning systems project Board Meetings and other meetings (i.e. Project Appraisal Committee meetings)

ANNEX C: EVALUATION QUESTIONS

This is a generic list, to be further detailed with more specific questions by CO and UNDP GEF Technical Adviser based on the particulars of the project.

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
•	•	•	•
•	•	•	•
•	•	•	•
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
•	•	•	•
•	•	•	•
•		•	•
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
•	•	•	•
•	•	•	•
•	•	•	•
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
•	•	•	•
•	•	•	•
•	•	•	•
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
•	•	•	•
•	•	•	•

ANNEX D: RATING SCALES

•

<p>Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution</p> <p>6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3: Moderately Unsatisfactory (MU): significant shortcomings 2: Unsatisfactory (U): major problems 1: Highly Unsatisfactory (HU): severe problems</p>	<p>Sustainability ratings:</p> <p>4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks</p>	<p>Relevance ratings</p> <p>2. Relevant (R) 1.. Not relevant (NR)</p> <p>Impact Ratings:</p> <p>3. Significant (S) 2. Minimal (M) 1. Negligible (N)</p>
<p><i>Additional ratings where relevant:</i> Not Applicable (N/A) Unable to Assess (U/A)</p>		

ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form⁵

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: _____

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *place* on *date*

Signature: _____

⁵www.unevaluation.org/unegcodeofconduct

ANNEX F: EVALUATION REPORT OUTLINE⁶

- i. Opening page:
 - Title of UNDP supported GEF financed project
 - UNDP and GEF project ID#s.
 - Evaluation time frame and date of evaluation report
 - Region and countries included in the project
 - GEF Operational Program/Strategic Program
 - Implementing Partner and other project partners
 - Evaluation team members
 - Acknowledgements
- ii. Executive Summary
 - Project Summary Table
 - Project Description (brief)
 - Evaluation Rating Table
 - Summary of conclusions, recommendations and lessons
- iii. Acronyms and Abbreviations
(See: UNDP Editorial Manual⁷)
1. Introduction
 - Purpose of the evaluation
 - Scope & Methodology
 - Structure of the evaluation report
2. Project description and development context
 - Project start and duration
 - Problems that the project sought to address
 - Immediate and development objectives of the project
 - Baseline Indicators established
 - Main stakeholders
 - Expected Results
3. Findings
(In addition to a descriptive assessment, all criteria marked with (*) must be rated⁸)
- 3.1 Project Design / Formulation
 - Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
 - Assumptions and Risks
 - Lessons from other relevant projects (e.g., same focal area) incorporated into project design
 - Planned stakeholder participation
 - Replication approach
 - UNDP comparative advantage
 - Linkages between project and other interventions within the sector
 - Management arrangements
- 3.2 Project Implementation

⁶The Report length should not exceed 40 pages in total (not including annexes).

⁷ UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008

⁸ Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

- Adaptive management (changes to the project design and project outputs during implementation)
 - Partnership arrangements (with relevant stakeholders involved in the country/region)
 - Feedback from M&E activities used for adaptive management
 - Project Finance:
 - Monitoring and evaluation: design at entry and implementation (*)
 - UNDP and Implementing Partner implementation / execution (*) coordination, and operational issues
- 3.3** Project Results
- Overall results (attainment of objectives) (*)
 - Relevance (*)
 - Effectiveness & Efficiency (*)
 - Country ownership
 - Mainstreaming
 - Sustainability (*)
 - Impact
- 4.** Conclusions, Recommendations & Lessons
- Corrective actions for the design, implementation, monitoring and evaluation of the project
 - Actions to follow up or reinforce initial benefits from the project
 - Proposals for future directions underlining main objectives
 - Best and worst practices in addressing issues relating to relevance, performance and success
- 5.** Annexes
- ToR
 - Itinerary
 - List of persons interviewed
 - Summary of field visits
 - List of documents reviewed
 - Evaluation Question Matrix
 - Questionnaire used and summary of results
 - Evaluation Consultant Agreement Form

ANNEX G: EVALUATION REPORT CLEARANCE FORM

(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)

Evaluation Report Reviewed and Cleared by	
UNDP Country Office	
Name: <u>Winnie Musonda ARR/EA</u>	
Signature: <u>[Signature]</u>	Date: <u>7/6/2019</u>
UNDP GEF RTA	
Name: <u>MUYEYE CHAMBWERA</u>	
Signature: <u>[Signature]</u>	Date: <u>19.06.19</u>

Annex 6. Evaluation Consultant Agreement

Evaluators:

8. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
9. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
10. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
11. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
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13. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
14. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form⁹

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Nelson Gapare

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Madrid* on May 2019

Signature 

Annex 7. UNDP-GEF MTR Report Audit Trail (Separate Attachment)

⁹www.unevaluation.org/unegcodeofconduct