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| **Executive summary** *Table 1: Project Summary Table*  |
| Organization/Co-financier  | US $  |
| At project Formulation  | At Mid-Term  |
| GEF  | 4,000,000  | 4,000,000  |
| 1. Government of Uganda (GoU)/MWE-Uganda National Meteorological Authority (UNMA), budget allocation  | 6,000,000  | 3,000,000  |
| 2. GoU, MWE, Joint Partnership Fund, Joint Water and Environment Sector Support Programme (JWESSP)  | 5,400,000  | 3,000,000  |
| 3. UNDP Strengthening Uganda’s Disaster Preparedness and Management Capacities (SUDPMC)  | 3,900,000  | 3,900,000  |
| 4. GoU, Directorate of Water Resource Management (DWRM) budget allocation  | 2,800,000  | 1,700,000  |
| 5. GoU, Department of Relief, Disaster Preparedness and Management (DRDMP)/Office of the Prime Minister (OPM) budget allocation  | 1,500,000  | 1,000,000  |
| 6. German Agency for International Cooperation (GIZ)  | 1,264,000  | 800,000  |
| 7. MWE, World Bank (WB), Water Management and Development Project (WMDP)  | 1,100,000  | 500,000  |
| 8. GoU, MAAIF, Agricultural Technology and Agribusiness Advisory Services Programme (ATAAS)  | 1,000,000  | 700,000  |
| 9. Agency for Technical Cooperation and Development (ACTED) Drought Early Warning System (DEWS)  | 400,000  | 300,000  |
| 10. The International Telecommunications Union and Uganda Communication Commission (ITU/UCC)  | 300,000  | 200,000  |
| TOTAL  | 23,664,000  | 5,100,000  |

Brief Description of the Project

1. Uganda is particularly vulnerable to the increasing frequency and severity of droughts, floods and severe storms (hail, thunder, lightning and violent winds), and their impacts on sectors such as agriculture, fisheries, as well as infrastructure. Such climate-related hazards are having increasingly adverse effects on the country and future climate change is likely to further exacerbate the situation. A large proportion of the Ugandan population has a low capacity to adapt to climate change. Climate change impacts are likely to be particularly negative on Uganda’s rural population because of their high dependence on rain- fed agriculture and natural resource-based livelihoods.

2. The LDCF project contributes to overcoming barriers to mainstreaming climate risks into development and livelihoods in Uganda by strengthening climate monitoring and early warning systems of the country. The project seeks to improve national capacities to generate and use climate information in planning for, and management of, climate hazards and long-term strategic planning. The project aims to achieve this by transferring appropriate technology, infrastructure and skills to hydro-meteorological services (DoM and DWRM), user- agencies (MAAIF, DRDPM, CCU and MLG) and end-users (local communities) in the country. The project objective is

therefore to: “to strengthen the weather, climate and hydrological monitoring capabilities, early warning systems and available information for responding to extreme weather and planning adaptation to climate change in Uganda.” The objective is to be achieved through two complimentary Outcomes: 1). Enhanced capacity of the Department of Meteorology (DoM) and Department of Water Resource Monitoring and Assessments (DWRM) to monitor and forecast extreme weather, hydrology and climate change; 2). Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.

3. Through Outcome 1, LDCF resources are being used, in conjunction with other ongoing initiatives, to assist the Government of Uganda (GoU) to address some of the fundamental barriers to the deployment of an operational and modernised (automated) weather, climate and hydrological monitoring system and forecasting extreme weather and longer-term climate variability. The project is therefore increasing the coverage and automating the national weather and hydrological monitoring system and upgrading weather and climate forecasting facilities.

4. Through outcome 2, LDCF funding is being used to build human technical capacity to use data collected from the strengthened and modernised weather and hydrological monitoring system and increasing the proportion of the local population that has access to adequate climate information, both for early warning purposes and for long-term planning. This is being pursued through training DoM and DWRM in up-to-date forecasting methodologies and meteorological workstation software. Standard Operating Procedures (SOPs) for disseminating and responding to weather and climate forecasts – including warnings for floods, droughts and severe weather – will be developed and demonstrated in the Teso and Mt. Elgon sub-regions in the Kyoga WMZ. National systems will be linked to existing community-based systems and decentralised observation networks. It is expected that this will show the socio-economic benefits of adequate climate services that will support the upscaling, operation and maintenance of the system in the long term. The table below shows the outputs per Outcome.

**Project Outcomes**

GOAL: To strengthen the weather, climate and hydrological monitoring capabilities, early warning systems and available information for responding to climate shocks and planning adaptation to climate change in Uganda

Outcome 1: Enhanced capacity of the UNMA and DRDPM to monitor and forecast extreme weather, hydrology and climate change

Output 1.1: 16 Automatic Water Level Stations (AWLSs) installed and 40 manual hydro-meteorology stations and 5 AWLSs rehabilitated in the Victoria, Kyoga, Albert and Upper Nile Water Management Zones (WMZs

Output 1.2: 25 Automatic Weather Stations (AWS) installed and 32 manuals (12 synoptic, 10 agro-meteorological and 10 hydro-meteorological) and 32 AWSs rehabilitated in priority district

Output 1.3: Weather and climate forecasting facilities upgraded including an integrated hydro-meteorological data management and information system and an online web platform for operationalizing collaboration arrangements and procedures between DRDPM and UNMA

Output 1.4: Capacity developed for operating and maintaining observation networks and related infrastructure including training 9 meteorological and 10 hydrological trainers and 50 weather observers, raising local community awareness, developing an O&M toolbox, and establishing internal arrangements and procedures between UNMA and DRDPM

Outcome 2: Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans

Output 2.1: Technical capacity of UNMA and DRDPM is strengthened by training 16 forecasters – including 8 senior and 8 junior – to build in-house capacity for producing standard and customised weather and climate forecasts and packaging hydro-meteorological data and information into a suitable format for user-agencies and local community end-users

Output 2.2: Tailored weather and climate information (including colour-coded alerts – advisories, watches and warnings – for flood, drought, severe weather and agricultural stresses, integrated

cost-benefit analyses and sector-specific risk and vulnerability maps) made accessible to decision makers in government, private sector, civil society, development partners and local communities in the Teso and Mt Elgon sub-region

Output 2.3: Weather and climate information mainstreamed into national policies, annual work plans and local development including the National Policy for Disaster Preparedness and Management, and district and sub-county development plans in priority districts in the Bukedi, Busoga, Elgon, Teso, Acholi, Karamoja and Lango sub-regions

Output 2.4: Governmental and non-governmental communication channels and procedures for issuing alerts including advisories, watches and warnings are strengthened at a national and local level including the development of an early warning system dissemination national and local toolbox and mobile-based alert platforms in the Teso and Mt Elgon sub-regions

Output 2.5: Sustainable financing options – including appropriate government cost recovery arrangements, service level agreements and public-private partnerships – identified, developed and implemented for the operation and maintenance of the installed hydro-meteorological observation, forecasting and early warning system

A.

5. The project is in the third year of implementation; the Mid-Term Review is therefore conducted in accordance with the guidelines and regulations of UNDP and GEF, and, assessed the overall performance against the project objectives as set out in the Project Document and other related documents; project relevance to national priorities, as well as UNDP and GEF strategic objectives; the effectiveness and efficiency of the project; sustainability of the project interventions and project impacts; implementation and management arrangements of the project, including financial management. It also documents lessons and best practices concerning project design, implementation and management which may be of relevance to other projects in the country and elsewhere in the world.

*Table 3: Evaluation Ratings for the Development Objective, Outcomes, Relevance, Efficiency, Effectiveness, Sustainability, Impact and Monitoring and Evaluation*

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| --- | --- |
| **Criterion**  | **Rating**  |
| **Assessment of outcomes**  |
| Overall rating of project objectives and results  | Satisfactory  |
| A. 1. Effectiveness  | Satisfactory  |
| A. 2. Relevance  | Relevant  |
| A. 3. Efficiency  | Highly Satisfactory  |
| A.4. Impacts  | Not yet significant  |
| **B. Sustainability of Project outcomes; (overall rating); Sub criteria (below)**  | **Unlikely**  |
| B. 1. Financial  | Unlikely  |
| B. 2. Socio Political  | unlikely  |
| B3. Institutional framework & governance  | Likely  |
| B. 4. Environmental  | Likely  |
| C. Achievement of outputs and activities (see section on overall results and impacts)  | Satisfactory  |
| **D. Monitoring and Evaluation (overall rating); Sub criteria (below)**  | **Satisfactory**  |
| D. 1. M&E Design  | Satisfactory  |
| D 2. M&E plan Implementation - use for adaptive management  | Satisfactory  |
| D 3. Budgeting & Funding for M&E activities  | Satisfactory  |
| E. Catalytic Role  | Catalytic  |
| F. Preparation and readiness  | Satisfactory  |
| G. Country ownership  | Highly Satisfactory  |
| H. Stakeholders involvement  | Satisfactory  |
| I. Financial planning  | Satisfactory  |
| J. Implementation approach  | Satisfactory  |
| K. UNDP/GEF Supervision and backstopping  | Satisfactory  |

**I. SUMMARY OF CONCLUSIONS, RECOMMENDATIONS AND LESSONS**

The MTR finds that overall, the project is on track for the 2 goal level targets: Highlights are:

 The 20% end of project target for increase in budgetary allocation for UNMA has been exceeded at MTR: increase by 100% for 2015 – 2016 and over 300% for 2016-2017.

 The budget increment for the DWRM was not available and needs to be confirmed by the TE.

 Capacity development (UNDP Sore Cards) is at 83% (119 out of 143).

Delivery on all 3 indicators (with 11 targets) for Outcome 1 and 2 indicators (with 3 targets) are on target, highlights are:

 National coverage of meteorological monitoring infrastructure has increased; 52 Districts (46%) have rain gauges), 25 districts have Automatic Weather Stations installed and functional (100% of end of project target), 27 base weather stations have been renovated; 5 Total Solutions Automated Weather Stations are installed and functional; the Automated Message Switching System (AMSS) is installed and software provided to analyse and exchange data.

 As a result, all 25 Automatic Weather Stations are functional and exchanging information with the region and the world (via the AMSS), 12 out of 12 (100%) of the synoptic stations are functional and are providing near real-time weather information; 7 out of 14 (50%) Hydro-met stations are functional; and 8 out of 18 (44%) Agro-met stations are functional and are giving reliable information for ten days (decadal) weather information as well as bi- weekly and monthly advisories.

 NECOC (National Emergency Coordination Centre) has started producing and disseminating monthly publication on National Integrated Early Warning Bulletin “U-NIEWS”, which provides updates on disasters, both human induced and natural, humanitarian responses, health surveillance, and the crop and pasture conditions.

 Piloting of cell phone dissemination of climate information has started.

A1. Effectiveness - the MTR finds that despite a 5-month delay in project start-up, implementation and delivery of results has been highly effective. Overall delivery is at US$ 2,474,704, representing 62% within 2 years and 3 months of implementation. There is no doubt that with an extension of 6 months (to recover the lost time), the project will fully deliver the program of work within time and budget.

A2. Relevant - the project remains relevant, contributing to:

 the country’s NAPA objectives 3 and 9;

 National Development objectives of the 2015-2020 Development Plan;

 UNDAF Outcome 2

A3. Efficiency - The MTR finds that by increasing availability and access to more accurate climate information, the project has paved the way for a cost effective way to secure Uganda's investments into development, infrastructure and livelihoods, to be achieved once a broad range of stakeholders start to use this information in day to day decision-making. Four strategies increased the efficiency of the resources at the operational level:

 Involvement of Government Agencies in a partnership aimed at utilizing comparative advantages of all partners and building capacity via implementation;

 The PMU played a key role in identifying synergies and linking this project with, not only the rest of the GEF Portfolio in the country, but also to the CIEWS Portfolio in Africa;

 Use of the TWG to harness technical capacity of various professionals, for which the project didn’t have to pay;

 The three tier project management modality of UNDP (CO/RCU/Hq) provides quality technical and management support at reasonable cost to individual projects. This was complimented by the Climate Information for Development in Africa (CIRDA) group which provided cost effective technical assistance the CIEWS portfolio in Africa).

A4. Impacts: The project has delivered short-term results in increasing capacity of climate information institutions, but the long-term results (impacts) of broad access to and use of climate information in decision making by a broad spectrum of stakeholders is yet to be realized. This is partly because project implementation is still on-going and partly because there are still challenges to be tackled to increase the use of information in decision making.

B. Sustainability of Project outcomes - overall finding - unlikely.

B. 1. Financial (unlikely) - Sustainability of generating and disseminating CIEWS highly dependent on continued functioning of met and hydro infrastructure. There's a history of poor maintenance in the Ministry of Water and Environment, low budgetary allocation for the Maintenance Unit and indicators of organizational performance do not include one on maintaining a functioning system.

B. 2. Socio Political (likely) - Uganda’s economy is highly dependent on agriculture; livelihoods of the majority of the rural population are dependent entirely on agriculture. New climate information products could be sold in the market but it is not yet known if majority of farmers can afford such products, or if they trust the quality and accuracy of CI to have improved enough to invest in them.

B3. Institutional framework and governance (likely) - The creation of UNMA has elevated the appreciation of CI in national development, allowing the Government to increase investments into its acquisition and utilization. The protocol of data sharing and management between UNMA and DWRM has (in addition to ensuring efficiency) improved institutional collaboration; the empowerment of NECOC will ensure mainstreaming of CIEWS into national disaster risk management. Capacity scorecard confirms increase in capacity of the key institutions. However, CIEWS provision needs to be decentralized to involve the Ministry of Local Government in supporting delivery and maintenance of the expanded infrastructure. this should be systematized via Cabinet Paper.

B. 4. Environmental (likely) - There is need to continue expanding the coverage of the country with weather and hydro stations.

C. Achievement of outputs and activities (see section on overall results and impacts)- satisfactory

D. Monitoring and Evaluation (overall rating) - Satisfactory

D. 1. M&E Design - (Satisfactory); The MTR finds that the project design is based on clear logic (threats, barrier analysis); outcomes and indicators are SMART and the MTR finds no need to revise project design. Risks and assumptions identified at design were monitored and have not upstaged project implementation.

D 2. M&E plan Implementation (marginally satisfactory) - use for adaptive management - Satisfactory: M&E plan was used effectively to monitor and mitigate risks – evidence of adaptive management indicated by budget reallocation to purchase TSAWS. However, the lack of active use of M&E systems in the government partner institutions limits the ability of the project to mainstream M& into partner implementers. This is exacerbated by the late recruitment of an M&E Officer for the project.

D 3. Budgeting & Funding for M&E activities - (Satisfactory): The MTR found no issues with the budgeting for M&E activities; MTE Tools used were Inception workshop, APR/PIR, quarterly and annual workplans and reports, including financial reports

E. Catalytic Role: (Catalytic) - The MTR finds three areas in which the project shows potential for playing a significant catalytic role: demonstrating the use of cost benefit analysis of CI and the use of that information in the pricing of CI products and services; the design of the CI products and developing markets for CI products and services and the adoption (and purchase) of the Total Solutions Automated Weather Stations.

F. Preparation and readiness - (Satisfactory): The project was planned over a period of one year with a budget to identify and negotiate partnerships for implementation. As evidenced by the satisfactory findings on project design and implementation, the project preparation period led to a viable project.

G. Country ownership - (Highly Satisfactory): In addition to the points outlined under relevance, the project concept originated from government’s stated objective of securing the economic development and livelihoods via mainstreaming climate risks into production systems. Four ways country ownership is demonstrated: i) The PSC has been actively engaged in the project, as reflected by the quality of discussions recorded in the minutes of the PSC meetings; ii) Enthusiastic support of the project by the District Technical Teams (and members of the DDMC); iii) The report from the DDMC and the staff members of the Synoptic Stations that the demand for CI is increasing, and that the incidents of people walking into these stations to request for CI is on the rise; iv) PMU reports excellent working relations and support of the Senior Management of the Parent Ministry and the Project Board.

H. Stakeholders involvement - (Satisfactory): MTR finds that stakeholder participation was catered for during project design and was pursued during project implementation. However, the MTR finds that communities and community leaders as well as the staff of UNMA need to be more involved during the rest of the project.

I. Financial planning - (Satisfactory): MTR finds that project financing was adequate for the program of work for which it was meant to finance. Co-finance is however needed to address challenges that would reduce the effectiveness of the rest of the results chain to lead to long-term impacts, outlined in the impact and sustainability assessment sections.

J. Implementation approach - (Satisfactory): MTR finds that the implementation arrangement promoted synergies and led to a highly effective implementation. the PMU played a key role in maintaining excellent partnerships and driving efficient use of project resources.

K. UNDP/GEF Supervision and backstopping - (Satisfactory): The MTR found no issues with the UNDP supervision and backstopping. The MTR finds that the CO and RCU provided adequate support to the PMU and other partners; the 3 tier arrangement of UNDP (CO-RCU-Hq) identified as a cost effective tool of providing projects quality support at minimal cost (due to sharing of RTAs by many countries).

**II. LESSONS LEARNT**

1) Mainstreaming lessons from other projects is a cost effective measure because it avoids duplication and waste. The choice of Implementing Partner with the necessary linkages to other adaptation and CIEWS projects, and the fact that this project was part of an 11 project Portfolio played a key role in the excellent level of exchanging lessons from the portfolio to the benefit of all of them.

2) Government leadership in ensuring coordination of projects addressing the same issue is critical

3) A capable PMU staffed with a PM who understands both UN and government bureaucracies thoroughly is a worthwhile investment.

4) The MTR believes that the excellent working relationships between UNDP, PMU, UNMA and DWRM contributed to the high delivery achieved by this project, despite the 5 month late start. While all these units worked hard to build the relationships, the PMU played the critical role of maintaining the relationships that ensured smooth delivery of project results. investing in a capable PMU that understands the importance of such relationships is an excellent investment.

5) Sophisticated and expensive to maintain technology may not be suitable or acceptable solution for establishing CIEWS.

6) The adoption of TOC based evaluation as a tool helps stakeholders understand and appreciate the problem in totality as opposed to what project can address. The TOC articulates the assumptions about the process through which change will occur and specifies the ways in which all of the required early and intermediate outcomes related to achieving the desired long-term change will be brought about and documented as they occur, thus the logic between inputs and impacts.

7) Political buy-in for the maintenance of the expanded climate information infrastructure needs to be reflected in high level indicators and a budgetary allocation for the same.

**III. RECOMMENDATIONS**

1. The MTR recommends that the project should be given a non-cost extension of 5 month to allow more time for the PMU to trouble shoot operational gaps and enable UNMA to smoothly go beyond the threshold of replication and trigger meteorological data revolution in Uganda (action - UNDP and GEF).

2. PCU and Government should speed up the enactment of bye laws and ordinances for supporting decentralized implementation of CIEW services.

3. The procurement of the DWRM equipment should be treated as urgent (by PCU).

4. There is still a great deal of work to be done in Uganda to ensure that CI becomes a part of daily decision-making processes by a large majority. The Government and UNDP should formulate another project to build on the results delivered by this and other projects which have been closely coordinated with it (GiZ and the World Bank supported initiatives).

5. The PMU should build on the baseline assessment study to establish the extent to which CI is currently being used in decision-making by stakeholder groups. This will contribute to monitoring the long-term impacts expected from the project.

6. UNMA and DWRM should adopt institutional performance indicators on maintenance of their networks and allocate adequate budgets for actual maintenance.

7. To ensure that key stakeholders prepare the ground and address the challenges to sustainability of the results from this and similar projects, the PMU, with the backing of UNDP and the Ministry, should convene the development partners investing in CI infrastructure in Uganda and negotiate better support to the Management and Maintenance of the CI infrastructure

8. The Ministry of Water and Environment should Decentralize provision of CIEWS and systematize/formalize collaboration with the Ministry of Local Government.

9. The project and UNMA/DWRM should support further development of the climate information products and a market for the same;

10. PMU and the Ministry of Water and Environment should support further training for staff and linking with University to increase skills in big data analysis, automated equipment maintenance and research for meaningful and effective engagement with the new automated CI technologies;

11. The PCU and project partners should make greater effort to involve communities and their leaders and the existing staff of the CIEWS institutions, especially as it tolls out the implementation of the Community Outreach component.