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Report:

Evaluation: “Strengthening resilience and coping capacities in the Caribbean through integrated early warning systems”

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Disclaimer

The analysis and recommendations of this report do not necessarily reflect the views of the United Nations Development Programme, its Executive Board or the United Nations Member States. This publication reflects the views of its author.

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Acronyms and Abbreviations

AAR	After Action Review
CAP	Common Alerting Protocol
CAP EWS	Common Alerting Protocol based Early Warning System
CADRIM	Red Cross Caribbean Disaster Risk Management Reference Centre
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	Comprehensive Disaster Management
CERTs	Community Emergency Response Teams
CIMH	Caribbean Institute for Meteorology and Hydrology
CL	Capability Level
CPD	Country Programme Document
CTIC	Caribbean Tsunami Information Centre
DIM	Direct Implementation Modality
DIPECHO	Disaster Preparedness ECHO programme
DRR	Disaster Risk Reduction
EARs	Emergency Alert Radios
ECHO	European Civil Protection and Humanitarian Aid Operations
EWS	Early Warning System
GAR	Global Assessment Report
GIS	Geographic Information Systems
HDR	Human development Report
HFA	Hyogo Framework for Action
HS	Highly Satisfactory (no shortcomings) – Achievement rating
HU	Highly Unsatisfactory (severe problems) – Achievement rating
IFRC	International Federation of Red Cross and Red Crescent Societies
ITU	International Telecommunication Union
KAP	Knowledge Attitude and Perception
M-CPAP	Multi-Country Programme Action Plan (M-CPAP)
MS	Moderately Satisfactory (shortcomings) – Achievement rating
MU	Moderately Unsatisfactory (significant shortcomings) – Achievement rating
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OASIS	Organisation for the Advancement of Structured Information Standards
OCTs	Overseas Countries and Territories
OECS	Organisation of Eastern Caribbean States
PDNA	Post-Disaster Needs Assessment
POE	Public Education and Outreach
R3I	Regional Risk Reduction Initiative
RDS	Radio Data System
RSS	Real Simple Syndication
S	Satisfactory (minor shortcomings) – Achievement rating
SIDS	Small Island Developing States
SMS	Short Message Service
SOP	Standard Operating Procedures
SVG	St. Vincent and the Grenadines

TE	Terminal Evaluation
TOR	Terms of Reference
U	Unsatisfactory (major problems) – Achievement rating
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNISDR	UN Office for Disaster Risk Reduction
USGS	United States Geological Service
Web EOC	Web-based Emergency Operations Centre
WMO	World Meteorological Organisation

EXECUTIVE SUMMARY

Project Summary Table

Table 1: Project Summary

Project Title:	Strengthening resilience and coping capacities in the Caribbean through integrated early warning systems
Programme Period:	2012-2016
Key Result Area (Strategic Plan):	Resilience
Start date	1 May 2015
End Date	31 Oct 2016 (the date was extended twice to February 2017)
PAC Meeting Date	April 2015
Management Arrangements:	Direct Implementation Modality (DIM)
Total resources required	US\$809,748 (€744,720)
Total allocated resources:	US\$649,748 (€600,000) (From ECHO)
Unfunded budget:	US\$160,000
Responsible Parties	CDEMA, CTIC, CIMH

Project Description

The project ‘Strengthening resilience and coping capacities in the Caribbean through integrated early warning systems,’ was aimed at reducing the vulnerability of communities facing multiple natural hazard risks in Caribbean small islands. This was to be achieved by helping communities become better informed about natural hazards and their vulnerabilities. This was to be completed by implementing a system to allow automated receipt of hazard notifications and dissemination of alerts, via an integrated Common Alerting Protocol (CAP) based, all hazard Early Warning System.

The project builds towards UNDP’s focus of strengthening community and national resilience through improving the early warning systems (EWS) across the region. This focus started through the EU-funded Regional Risk Reduction Initiative (R3I), which as one of its components developed a CAP based EWS in four overseas countries and territories. Through, the ECHO-funded Community Alerts Project 2013-2014, UNDP Barbados and the OECS expanded the countries with CAP-based EWS by three to include Dominica, Grenada and St. Vincent. The current project added Barbados and St Lucia to the existing network of CAP based EWS and sought to create an enabling environment for other countries in the region to facilitate the adoption of CAP EWS through:

- Systemisation of the process
- Adding two (Barbados and Saint Lucia) additional territories to the Caribbean network of established all-hazard CAP-based EWS
- Upscaling of end-to-end automated CAP systems

The objective of the project was to strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and create a regional framework for facilitating multi-hazard CAP EWS. The expected outcomes of the project were as follows:

- Outcome 1: Regional harmonisation and knowledge sharing for EWS
- Outcome 2: Knowledge of risk and vulnerability enhanced in communities¹ to improve preparedness and response
- Outcome 3: Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels

The project started in May 2015 and aimed to be completed by October 2016. The project end date was subsequently extended to the end of February 2017. The project was implemented by UNDP under Direct Implementation Modality (DIM). A summary of the expected outcomes and outputs of the project are provided in the table 2.

Table 2: Framework of project outcomes, outputs, indicators (as per Project Document)

	Indicator	Baseline	Targets	Source of verification
Project Objective To strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and create a regional framework for facilitating multi-hazard CAP EWS	% of targeted beneficiary population know and are able to identify EWS alert messages and respond in an understandable and timely way	0%	75%	<ul style="list-style-type: none"> • Test reports and feedback logs from system • Site visit and site surveys • Simulation exercise reports
	Number of end-to-end CAP EWS functioning in communities and managed by national authorities, developed using a systematised regional framework	0	3	<ul style="list-style-type: none"> • Test reports and feedback logs from system • Monitoring protocols • Site visit and site surveys • Simulation exercise reports • DEWETRA data logs • Regional CAP EWS toolkit
	Best practices, tools and experiences for implementing CAP-based EWS articulated and disseminated through regional online platform	0	1	<ul style="list-style-type: none"> • Toolkit developed and available through online platform • Number of downloads of toolkit from online platform • EWS case studies available through online platform
Outcome 1 Regional harmonisation and knowledge sharing for EWS	Comprehensive regional process articulated for implementing CAP EWS based on experiences	0	1	<ul style="list-style-type: none"> • Completed EWS toolkit available online
	Number of new EWS case studies developed and shared on active regional knowledge platform	3	7	<ul style="list-style-type: none"> • Template developed • Documented case studies • Number of downloads
	Number of countries in the	9	15	<ul style="list-style-type: none"> • Letters of commitment

¹The communities supported under the project are Martin's Bay and Shermans (in Barbados); Dublanc and Colihaut (in Dominica); Dennery South (in Saint Lucia); South Rivers and Vermont (in St. Vincent and Grenadines). These communities were selected at the project design stage, on the recommendations of the respective national governments.

²End of the project target as per project document (log-frame)

	region which recognise the integrated EWS model and commit to its adoption in the future			<ul style="list-style-type: none"> • Activity work plans • Project proposals
<u>Outputs to deliver Outcome 1:</u> 1.1 Development of regional EWS technical and knowledge sharing mechanisms 1.2 Regional harmonisation of EWS policy and protocols 1.3 Systemisation through creation of a CAP EWS Toolkit				
Outcome 2 Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response	% of beneficiaries in the target communities know the risks of the hazards faced and know the contingency measures to adopt in case of disaster	0%	75%	<ul style="list-style-type: none"> • KAP surveys • Interviews of key stakeholders • Simulation exercise report
	% increase in beneficiary participation in simulation exercises in countries with previous CAP EWS experience	0%	20%	<ul style="list-style-type: none"> • Adapted communications strategies based on lessons learnt • Simulation exercise reports • After Action Review (AAR)
<u>Outputs to deliver Outcome 2:</u> 2.1 Community assessment of vulnerability and capacities 2.2 KAP surveys 2.3 Risk awareness programme 2.4 EWS education				
Outcome 3 Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels	% of targeted population receiving alerts responding according to pre-established protocols and procedures	0%	75%	<ul style="list-style-type: none"> • Installation reports • Testing reports • Simulation exercise reports • After Action Review (AAR)
	Number of vulnerable communities with operational end-to-end CAP EWS, managed by trained national authorities	0	3	<ul style="list-style-type: none"> • Installation reports • Testing reports • Site visits and site surveys • DEWETRA data logs • Simulation exercise reports • After Action Review (AAR)
<u>Outputs to deliver Outcome 3:</u> 3.1 Participatory system design and validation 3.2 Installation, testing and training for alerting 3.3 Improvement and integration of hazard monitoring systems 3.4 Simulation exercises				

Terminal Evaluation

With the project coming to an end, a terminal evaluation of the project has been carried out as per the standard practice of UNDP. The terminal evaluation (TE) was carried out during November to December 2016, just before the planned closure of the project, and covers the project duration from May 2015 to mid-December 2016. The evaluation was conducted in

accordance with the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported Projects as provided in the *Handbook on Planning, Monitoring and Evaluating for Development Results*.

The evaluation was initiated by UNDP Barbados and the OECS. The objective of the TE was to assess the achievement of project results, to highlight lessons that can improve the sustainability of the benefits of the project and aid in the overall enhancement of UNDP programming. Findings of the TE are given in this report and the summary of which is given in this chapter.

Attainment of Objectives, Outcomes and Outputs

The terminal evaluation efforts and the report is structured around the UNDP evaluation criteria of Relevance, Effectiveness, Efficiency and Sustainability. A summary of assessment regarding the attainment of objectives and the planned outcomes of the project is given in table 3. The assessment of the attainment of objectives and the outcomes has been completed in terms of the indicators provided in the log-frame of the project.

Table 3: Summary of Attainment of Results / Outcomes of component and the project

Indicator	Baseline	Targets	Achievement ³	Rating ⁴
Project Objectives				
Indicator 1: % of targeted beneficiary population know and are able to identify EWS alert messages and respond in an understandable and timely way	0%	75%	Could not be assessed as means of verification specified in the log-frame like test reports and feedback logs from system; site visit and site surveys, simulation exercise reports (please see Table 2 as well) are not in place	Not Rated
Indicator 2: Number of end-to-end CAP EWS functioning in communities and managed by national authorities, developed using a systematised regional framework	0	3	3	S
Indicator 3: Best practices, tools and experiences for implementing CAP-based EWS articulated and disseminated through regional online platform	0	1	Tool Kit 1, Case Study 1 2 more case studies are expected	MS
Outcome 1				
Indicator 1-1: Comprehensive regional process articulated for implementing CAP EWS based on experiences	0	1	1	S
Indicator 1-2: Number of new EWS case studies developed and shared on active regional knowledge platform	3	7	1 2 more case studies are expected	MU
Indicator 1-3: Number of countries in the	9 ⁵	15	9	MU

³ At the time of Terminal Evaluation

⁴ Achievement Ratings; Highly Satisfactory (HS), no shortcomings; Satisfactory (S), minor shortcomings; Moderately Satisfactory (MS), shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

⁵ The baseline value for this indicator as given in the project document is 9. When it comes to actual implementation of CAP EWS these 9 countries are different stages, British Virgin Islands, Montserrat, Anguilla, St. Maarten and Aruba had CAP based EWS developed previously, In St. Vincent and Grenadines and Dominica CAP based EWS were developed under the previous

region which recognise the integrated EWS model and commit to its adoption in the future				
Outcome 2				
Indicator 2-1: % of beneficiaries in the target communities know the risks of the hazards faced and know the contingency measures to adopt in case of disaster	0%	75%	Not determined in terms of value for indicator as KAP survey and simulation exercise was not done	MS
Indicator 2-2: % increase in beneficiary participation in simulation exercises in countries with previous CAP EWS experience	0%	20%	Not determined in terms of value for indicator	MS
Outcome 3				
Indicator 3-1: % of targeted population receiving alerts responding according to pre-established protocols and procedures	0%	75%	Could not be assessed as means of verification are not in place	Not Rated
Indicator 3-2: Number of vulnerable communities with operational end-to-end CAP EWS, managed by trained national authorities	0	3	3	S

Evaluation Rating Table

As per the requirements of the TOR for Terminal Evaluations, table 4 provides the ratings for relevance, effectiveness, efficiency and sustainability of the project. The table also provides the ratings for assessment of outcomes. Ratings have been provided using the rating scale stipulated in the TOR.

Table 4: Terminal Evaluation Ratings

Assessment of Outcomes	Rating ⁶	Sustainability	Rating ⁷
Relevance	R	Financial resources	L
Effectiveness	MS	Socio-political	L
Efficiency	MS	Institutional framework and governance	L
Overall Project Outcome Rating	MS	Overall likelihood of sustainability	L

Summary of Conclusions and Recommendations

The design of the project was well thought out. It had components pertaining to pilot / demonstration (outcome 2 and outcome 3), aimed to produce replications by creating a framework and developed case studies for knowledge sharing (outcome 1).

The project could not achieve the objective of obtaining commitments from other Caribbean countries regarding implementation of CAP EWS. Getting the national governments to commit to CAP EWS requires a persistent campaign to the target audiences and decision makers by engaging them directly, which was missing from the project design. In such scheme of things,

DIPECHO initiative. Under the present project CAP based EWS has been introduced in two additional countries.

⁶Ratings for Relevance; Relevant (R), Not relevant (NR)

Ratings for Outcomes, Effectiveness, Efficiency: Highly Satisfactory (HS): no shortcomings; Satisfactory (S): minor shortcomings; Moderately Satisfactory (MS), moderate shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

⁷Ratings for Sustainability: Likely (L), negligible risks to sustainability; Moderately Likely (ML), moderate risks; Moderately Unlikely (MU), significant risks; Unlikely (U): severe risks

the knowledge sharing platform as provided in the project design could have been used as a tool (*please see recommendation 1*).

Recommendation 1: *In cases where the objective of the project is to achieve a commitment from national governments and a policy level change, decision makers such as politicians and bureaucrats should be engaged directly because the creation of a knowledge platform and the dissemination of information alone is insufficient.*

One of the problems with the design of the project is that the indicators have been put at the outcome level and not the output level. Generally speaking, the indicators at the output level are more quantitative in nature and related to the activities (e.g. number of persons trained, number of workshops organized, number of surveys carried out etc.). For better project management, monitoring and evaluation, it is desirable to have indicators both at the output and at the outcome level (*please see recommendation 2*). In cases where we have indicators at both the outcome level and the output level, both the qualitative and the quantitative aspects will be covered.

Recommendation 2: *While designing future projects, wherever possible provide the indicators both at the output and the outcome levels.*

The project suffered partially due to the involvement of project participants, who were not directly co-ordinated by the project management team (e.g. state level Red Cross Societies which were being co-ordinated by IFRC). One of the other reasons for insufficient performance was the absence of a comprehensive and elaborate work plan and activity plan for carrying out the required tasks. As explained by the project team, it made use of the work plan and the procurement plans on the UNDP Intranet (*please see recommendation 3*). The project has also suffered due to lack of human resources deployed for the execution of the project. The project coordinator was the only fulltime human resource assigned to the project and was thus stretched out too thin across multiple activities and geographical locations. In the case of St. Vincent and the Grenadines and Saint Lucia, the Education Coordinators were contracted in 2016 and were given the additional responsibility of supporting the National Disaster Management Offices (NDMO) for the project.

Recommendation 3: *For all future projects, preparation of an inception report that includes a detailed work plan may be made mandatory. The inception report and the detailed work plan would draw largely from the project document and the basic work plan provided therein. The project document may specify the use of project management tools like Gantt Chart etc.*

The project partners could not fulfill the required deliverables expected from them, as the required human resources were not assigned by them, there was a lack of coordination within the internal organisational structure of the project partners, and the absence of a work plan (*please see recommendation 4*).

Recommendation 4: *In cases where multiple agencies are involved as project partners, it is important that each agency prepares an inception report (including the detailed work plan and schedule for deployment of human resources). These inception reports need to be aligned with the overall timelines and the work plan for the project at an aggregate level.*

Some of the specific achievements of the project include the following:

- Deployment of a tool kit, case studies and knowledge sharing regarding CAP EWS with

the objective of facilitating the creation of a regional framework for multi-hazard CAP EWS in the Caribbean region.

- Establishment of CAP EWS in seven communities, along with enhanced knowledge regarding the risks and vulnerability to improve their preparedness and response in case of a hazard event.
- Inclusion of two more countries in the CAP based framework for EWS in the Caribbean region.

The benefits of the projects can be enhanced and sustained by making the training to government officials and the education to the communities an ongoing process. The main objectives of the project were to create a regional framework for facilitating multi-hazard CAP EWS and to strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups. The objectives of the project could be achieved only partially. It may help if future projects with the same objectives directly engage the decision makers (politicians and bureaucrats) in their respective countries (please see recommendation 5).

Recommendation 5: *For future proposals that have the objective of creating a regional framework or further strengthen the existing regional framework for CAP EWS, directly engage the decision makers (e.g. politicians and bureaucrats) in their respective countries in the region.*

One of the possible reasons for insufficient results of the project is the lack of deployment of the required level of human resources. Due to lack of human resources coordination between multiple implementation partners did not occur as it should. The project design had provision for only one full time human resource (project coordinator). UNDP could have deputed consultants (e.g. education consultants), hired under the project for a longer duration of time with the added responsibility of coordination (please see recommendation 6)

Recommendation 6: *The implementing agency should carry out a realistic assessment of the human resources that would be required at different times during implementation of the project. The assessment regarding the requirement of human resources should take into account the overall duration of the project. In case of a shortfall in the availability of human resources, provision should be made to hire consultants to meet the shortfall.*

1. INTRODUCTION

1.1 Context; purpose of the evaluation and objectives

The project, “**Strengthening resilience and coping capacities in the Caribbean through integrated early warning systems,**” seeks to create an enabling environment that can facilitate the adoption of CAP EWS by other countries in the region through systemization of the process, by adding two (Barbados and Saint Lucia) additional territories to the Caribbean network of established all-hazard CAP-based EWS, and upscaling to end-to-end automated CAP systems. Additionally, the project seeks to reduce the vulnerability of communities facing multiple natural hazard risks in Caribbean small islands by helping communities to become better informed about natural hazards and their vulnerabilities, with a system being implemented to allow the automated receipt of hazard notifications and dissemination of alerts via an integrated Common Alerting Protocol (CAP)-based all-hazard EWS. One of the strengths of the CAP lies in its ability to be adaptable. Ultimately the system can be expanded and improved with time as local and national capacities are strengthened and confidence in the system continues to grow.

With the project coming to an end, it was proposed that an evaluation of the project be carried out. This is as per the standard practice of UNDP to carry out evaluations of its projects. The target audiences for the evaluation are funding agencies, project partners and beneficiaries, and the UNDP Barbados and the OECS Sub-regional Office. The UNDP Barbados and the OECS invited an independent international consultant to carry out the terminal evaluation of the project as per the scope and terms of reference given in Annex A. The evaluation was to identify the outputs produced, the contributions to the results at the outcome level, and positive or negative changes produced along the way, including possible unexpected results. The evaluation also aimed to seek and identify the key lessons learned and best practices that can both improve the sustainability of the benefits from the project and aid in the overall enhancement of UNDP programming. The terminal evaluation was intended to:

- Demonstrate the level of change in the measured variables and level of success of the outputs achieved and contributions to outcome level changes. Promote accountability and transparency and to assess and disclose the extent of project accomplishments.
- Synthesize lessons that can help to improve the selection, design, and implementation of future UNDP activities or projects.
- Provide feedback on issues that are recurrent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues.
- Gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Document (CPD).

Specifically, the evaluation was to assess:

- The relevance of the project, and its regional dimensions
- The effectiveness of the achievement of the results at output level and efficiency with which the ECHO resources have been used
- The usefulness and sustainability of the results/project targets for the beneficiaries
- UNDP’s performance as a development partner
- ECHO and UNDP’s added value to the expected results

The consultant, Dinesh Aggarwal (India) was selected and contracted by UNDP, Barbados

and the OECS to carry out the terminal evaluation. Accordingly, the terminal evaluation was carried out by the independent evaluator, Mr. Dinesh Aggarwal (India)

1.2 Scope and methodology of the Evaluation

The evaluation was carried out in accordance with the UNDP's Guidance for Conducting Terminal Evaluations of UNDP-supported Projects, as provided in the *Handbook on Planning, Monitoring and Evaluating for Development Results*. Prior to the start of the terminal evaluation, an inception report was prepared and shared with the UNDP Barbados and OECS Sub-regional office, the project team, and the project board. The inception report provided the outline of the approach and methodology to be followed while carrying out the evaluation. It also provided the proposed timelines for the evaluation. The inception report included a table providing the criteria for the evaluation and the list of main evaluation questions. The table of terminal evaluation criteria and the questions are given in **Annex B**. Accordingly, the methodology for carrying out the Terminal Evaluation was comprised of following activities:

- **Review of Documents and Website:** Review of the 'Project Design Document' and all relevant sources of information including documents prepared during the preparation phase. This included the review of information on the CDEMA website where some of the outputs of the project have been disseminated. The review of documents included a review of some of the reports prepared by the consultants hired under the project, a sample of back to office reports, and samples of project communication material. **Annex C** provides the list of the documents reviewed.
- **Mission to Barbados and St. Vincent and Grenadines (SVG), Interviews with stakeholders and site visits.** A mission to Barbados and St. Vincent and Grenadines was undertaken from 28th November to 14th December 2016. The mission started with a briefing by the UNDP Project coordinator. The mission concluded with a presentation regarding the initial findings. During the mission, interviews with different stakeholders and project participants were carried out. While the interviews with the stakeholders at Barbados and St Vincent and Grenades were carried out in person, the interviews with other stakeholders, including those at Saint Lucia and Dominica, were conducted over Skype or phone. The mission included a site visit to the beneficiaries' communities at Barbados. **Annex D** provides the overall schedule of the mission and the stakeholders interviewed during the mission. The mission also served the purpose of collecting the missing documents to be reviewed.

The assessment of project performance has been carried out based upon the expectations set out in the Project Logical Framework/Results Framework, which provides performance and impact indicators for project implementation along with their corresponding means of verification. While carrying out the evaluation, emphasis was placed on evidence based information that is credible, reliable and useful.

The review of documents provided the basic information regarding the activities carried out to attain the desired outcomes and outputs and the actual achievements. However, the mission was needed to verify the information, retrieve missing data, and to learn the opinions of stakeholders and project participants to interpret the information. During the mission, the interviews with the key stakeholders' / project participants were based on an open discussion to allow respondents to express what they feel are the main issues. This was followed by more specific questions on the issues mentioned. During the interviews, the evaluation criteria and the questions (Please see **Annex B**) were used as the check list to raise relevant issues. The list

of terminal evaluation questions located in Annex B were used as a checklist to raise relevant questions and issues during the interviews that correspond to the level and type of involvement of the interviewee or the organisation visited.

Regarding the data analysis and methods for analysis, the documents listed in Annex C were reviewed and analysed. The notes of the interviews with key informants were used to verify facts and information presented in reports and documents to help to formulate the conclusions and recommendations. A sixteen-day mission spread across four countries has the limitation of potentially giving a snapshot impression only. Nonetheless, the terminal evaluator believes that this mix of data collection and analysis tools has yielded viable answers to the terminal evaluation questions within the limits of available time and budget resources.

The evaluation has been conducted in accordance with the principles outlined in the United Nations Evaluation Group's 'Ethical Guidelines for Evaluation' as given in **Annex E**.

1.3 Structure of the evaluation Report

The structure of the report is as per the format suggested in the Terms of Reference for the terminal evaluation. The report starts with a chapter providing an introduction, which is followed by the chapters of project description and findings. The last chapter of the report provides the conclusions and recommendations. Additional information is provided in the Annexes to the report. While the Executive Summary of the report is provided in the beginning, the rest of the report is organised as follows:

- Chapter 1: Introduction to the project
- Chapter 2: Project description and development context.
- Chapter 3: Findings: Project results
- Chapter 4: Conclusions, recommendations and lessons

Annex B shows where the main criteria and questions of the Terminal Evaluation can be located in different sections of the report.

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 Project description and development context

2.1.1 Project Objectives

The project ‘Strengthening resilience and coping capacities in the Caribbean through integrated early warning systems,’ is aimed at reducing the vulnerability of communities facing multiple natural hazard risks in Caribbean small islands. The objective of the project is to strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and creating a regional framework for facilitating a multi-hazard Common Alerting Protocol-based Early Warning System (CAP EWS).

The objectives of the project were to be achieved by helping the communities becoming better informed about natural hazards and their vulnerability, with a system being implemented to allow the automated receipt of hazard notifications and dissemination of alerts via an integrated CAP-based, all hazard Early Warning System.

2.1.2 Project duration and timing

The project started in May 2015 and aimed to be completed by Oct 2016. The project end date was subsequently extended twice to February 2017 (first to December 2016 and then to February 2017). The project is being implemented by UNDP Barbados and the OECS under the Direct Implementation Modality (DIM).

2.2 Problems that the project sought to address

The Caribbean region is prone to earthquakes, and other phenomena such as submarine landslides and underwater volcanoes. In addition to particular exposure, communities in the Caribbean have comparatively higher vulnerabilities due to lack of preparedness. In the Caribbean Small Islands, the economic risks due to natural hazards are prevalent since most assets are concentrated in low-lying areas, which are subject to flooding and coastal hazards.

The project aimed to address the problem of inefficient communication between the national disaster management authorities and the communities. This has implications on effective response to hazard events and related disasters. Existing systems to disseminate the information regarding a likely hazard event falls short of reaching all public segments in time and in a coherent and effective manner. The project aims to address the challenge of alerting communities regarding hazard events in time for them to respond. The project proposes to address this challenge by issuing an effective alert in multiple formats to reach the larger proportion of the population, in a timely manner.

The project is designed to address the risks faced by communities in Caribbean small islands, which are exposed to multiple natural hazards, through the effective implementation of integrated Early Warning Systems (EWS). Under the project, pilot projects are being implemented in four island countries (Barbados, St. Vincent and Grenadines, Saint Lucia and Dominica). The communities targeted are in low lying coastal areas or areas prone to riverine

flooding and landslides. The communities supported under the project are Martin's Bay and Sherman's (Barbados); Dublanc and Colihaut (in Dominica); Dennery South (Saint Lucia); South Rivers and Vermont (St. Vincent and Grenadines). These communities were selected at the project design stage, on the recommendations of the respective national governments.

The Common Alerting Protocol (CAP) is designed as a mechanism for allowing the automated receipt of notifications of a pending hazard, and disseminating warning messages to the population via multiple media simultaneously.

2.3 Immediate and development objectives of the project

Development gains in the Caribbean are increasingly vulnerable to natural and anthropogenic hazards, as well as the impacts of global climate change. Recent events such as tropical storms, hurricanes, flooding, and landslides have caused substantial impacts to the countries' social, economic and environmental assets and services. The Global Assessment Report (GAR) on Disaster Risk Reduction 2011 and the Human Development Report (HDR) 2011 confirm that disaster risk is increasing faster than economic growth in Barbados and the OECS, and that the reduction in mortality with improvement in early warning is negated by high poverty and weak governance systems.

The project is aligned with the Barbados and the OECS United Nations Development Assistance Framework (UNDAF) and the Sub-Regional Programme Document (SPD) outcomes; and the global Hyogo Framework for Action (HFA) 2005-2015, now the Sendai Framework for Disaster Risk Reduction 2015-2030 and regional Comprehensive Disaster Management (CDM) Strategy 2014-2024, led by the Caribbean Disaster Emergency Management Agency (CDEMA).

The Multi-Country Programme Action Plan (M-CPAP) between the Government of Barbados and the Organisation of Eastern Caribbean States (OECS) and UNDP 2012-2016⁸ was developed based on priorities as articulated by the countries and UN Sub-Regional Team in the UNDAF and UNDP SPD. It focuses on building resilience to the impacts of climate change and anthropogenic hazards, specifically enhancing the integration of disaster risk reduction into development planning and improving disaster response and recovery. All the countries served are also CDEMA Participating States.

2.4 Baseline indicators established

The project is in line with the UNDP's focus of building resilience to the impacts of climate change and anthropogenic hazards, specifically enhancing the integration of disaster reduction into development planning, improving the disaster response and recovery. The work on this focus area started through the EU-funded Regional Risk Reduction Initiative (R3I), which as one of its components, developed or enhanced a Common Alerting Protocol (CAP) based EWS in four Overseas Countries and Territories. Through, the ECHO-funded Community Alerts Project 2013-2014, UNDP Barbados and the OECS expanded the countries with CAP-based EWS by three to include Dominica, Grenada and St. Vincent and the Grenadines.

⁸ The 2012-2016 M-CPAP provides assistance to the 10 programme countries supported by the UNDP Barbados and OECS Sub-regional Office (SRO)- i.e.: Anguilla; Antigua and Barbuda; Barbados; British Virgin Islands; Commonwealth of Dominica; Grenada; Montserrat; St. Kitts and Nevis; St. Vincent and the Grenadines; and Saint Lucia

The project is another step towards the focus of the UNDP on strengthening community and national resilience through improving the early warning systems (EWS) across the region. The current project sought to create an enabling environment that can facilitate the adoption of CAP EWS by other countries in the region through:

- Systemisation of the process
- Adding two (Barbados and Saint Lucia) additional territories to the Caribbean network of established all-hazard CAP-based EWS
- Upscaling to end-to-end automated CAP systems.

The expected outputs of the project were as follows:

- Output 1: Regional harmonization and knowledge sharing for EWS
- Output 2: Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response
- Output 3: Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels

Table 5 provides the outputs of the project along with the baseline and targeted values for the indicators.

2.5 Expected Results

As stipulated in the earlier section, the project is another step towards the focus of UNDP on strengthening community and national resilience through improving the early warning systems (EWS) across the region. The current project sought to create an enabling environment that can facilitate the adoption of CAP EWS by other countries in the region. Through systemization of the process and upscaling of the EWS to end-to-end automated CAP systems. Table 5 provides the log-frame of the project detailing the expected outcomes of the project and other relevant details.

Table 5: Framework of project outcomes, outputs, indicators (as per Project Document)

	Indicator	Baseline	Targets ⁹	Source of verification
Project Objective (equivalent to output in ATLAS) To strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and create regional framework	% of targeted beneficiary population know and are able to identify EWS alert messages and respond in an understandable and timely way	0%	75%	Test reports and feedback logs from system Site visit and site surveys Simulation exercise reports
	Number of end-to-end CAP EWS functioning in communities and managed by national authorities, developed using a systematized regional framework	0	3	Test reports and feedback logs from system Monitoring protocols Site visit and site surveys Simulation exercise reports DEWETRA data logs Regional CAP EWS toolkit

⁹Targets for end of project

for facilitating multi-hazard CAP EWS	Best practices, tools and experiences for implementing CAP-based EWS articulated and disseminated through regional online platform	0	1	Toolkit developed and available through online platform Number of downloads of toolkit from online platform EWS case studies available through online platform
Outcome 1 Regional harmonisation and knowledge sharing for EWS	Comprehensive regional process articulated for implementing CAP EWS based on experiences	0	1	Completed EWS toolkit available online
	Number of new EWS case studies developed and shared on active regional knowledge platform	3	7	Template developed Documented case studies Number of downloads
	Number of countries in the region which recognise the integrated EWS model and commit to its adoption in the future	9 ¹⁰	15	Letters of commitment activity work plans project proposals
Outputs to deliver Outcome 1: 1.1 Development of regional EWS technical and knowledge sharing mechanisms 1.2 Regional harmonisation of EWS policy and protocols 1.3 Systemisation through creation of a CAP EWS Toolkit				
Outcome 2 Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response	% of beneficiaries in the target communities know the risks of the hazards faced and know the contingency measures to adopt in case of disaster	0%	75%	KAP surveys interviews of key stakeholders simulation exercise report
	% increase in beneficiary participation in simulation exercises in countries with previous CAP EWS experience	0%	20%	Adapted communications strategies based on lessons learnt simulation exercise reports After Action Review (AAR)
Outputs to deliver Outcome 2: 2.1 Community assessment of vulnerability and capacities 2.2 KAP surveys 2.3 Risk awareness programme 2.4 EWS education				
Outcome 3 Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels	% of targeted population receiving alerts responding according to pre-established protocols and procedures	0%	75%	Installation reports testing reports simulation exercise reports After Action Review (AAR)
	Number of vulnerable communities with operational end-to-end CAP EWS, managed by	0	3	Installation reports testing reports site visits and site surveys DEWETRA data logs

¹⁰ The baseline value for this indicator as given in the project document is 9. When it comes to actual implementation of CAP EWS these 9 countries are different stages, British Virgin Islands, Montserrat, Anguilla, St. Maarten and Aruba had CAP based EWS developed previously, In St. Vincent and Grenadines and Dominica CAP based EWS were developed under the previous DIPECHO initiative. Under the present project CAP based EWS has been introduced in two additional countries.

	trained national authorities			simulation exercise reports After Action Review (AAR)
<u>Outputs to deliver Outcome 3:</u> 3.1 Participatory system design and validation 3.2 Installation, testing and training for alerting 3.3 Improvement and integration of hazard monitoring systems 3.4 Simulation exercises				

2.6 Key project partners

The project is being executed by UNDP Barbados and the OECS in collaboration with the national disaster offices in the beneficiary countries, the Caribbean Disaster Emergency Management Agency (CDEMA), the Caribbean Institute for Meteorology and Hydrology (CIMH), the Caribbean Tsunami Information Centre (CTIC), the International Federation of Red Cross and Red Crescent Societies (IFRC) and the United Nations International Strategy for Disaster Reduction (UNISDR).

CDEMA is hosting the EWS toolkit and was the strategic focal point for systemisation and dissemination of the practices of CAP EWS at a regional level. An online forum for continued technical and experience sharing was developed on CDEMA's website to allow sharing documents (e.g. toolkit), sharing when national EWS are activated, and the sharing of successes and challenges. CDEMA was a key partner in the regional systemisation of the EWS process, the development of the toolkit, advocacy, and creating the knowledge sharing platform.

The project participants included CIMH as one of the key partners. CIMH provided the services relating to hazard surveillance and the DEWETRA platform as the entity with the relevant regional mandate, existing capacity, and ongoing related programmes.

The areas of collaboration with the IFRC included carrying out VCAs, KAP surveys and sharing EWS best practices and strategies for community resilience.

2.7 Main stakeholders

Apart from the key project participants mentioned above, one of the key stakeholders are the direct beneficiaries of the project and their respective disaster management offices in the beneficiary countries.

3. FINDINGS: PROJECT RESULTS

3.1 Overall results

The main questions for terminal evaluation are: (please see Annex B)

- What is the achievement of the objectives against the end of the project values of the log-frame indicators for outcomes/outputs, indicating baseline situation and target levels, as well as position at the close of the project?
- What are the possible issues while employing CAP based early warning systems?

Details of the attainment of the overall project objectives are presented in this section of the report. The achievement of different targeted outcomes in terms of the indicators has been presented first, which is followed by a presentation regarding the achievement of the project goals and objectives. This is because the achievements of the project objectives have been assessed in terms of the indicators (for project objectives as given in the log-frame) as well as in terms of the achievement of different outcomes.

As per the requirements, the attainment of the results' evaluation has been carried out for three individual outcomes of the project. The attainment of results has been carried out in terms of the indicators of the log-frame. Wherever relevant, the reasons for non-attainment of the target values of the indicators have also been provided.

The mandatory ratings for the attainment of overall results has also been provided. Although rating is not mandatory for achievement against each component and the indicator, ratings have been provided. This was done to facilitate the ratings for the individual components of the project and the project at an aggregate level. The evaluation of the attainment of overall results has been carried out keeping in mind the main questions for terminal evaluation, as given in the box at the beginning of this section.

3.1.1 Outcome 1: Regional harmonization and knowledge sharing for EWS

As per the project design (Project Document) the expected outputs for outcome 1 of the project were as follows:

- 1.1 Development of regional EWS technical and knowledge sharing mechanisms
- 1.2 Regional harmonisation of EWS policy and protocols
- 1.3 Systemisation through creation of a CAP EWS Toolkit

Table 6 provides the details of the levels of attainment of the different indicators for outcome 1. For reference, the baseline values of the indicators and the targets at the end of the project are also provided in the table. Ratings for the level of achievement for each of the indicators are also given in the table.

Table 6: Framework Achievement of Results for Outcome 1: Regional harmonisation and knowledge sharing for EWS

Indicator	Means of Verification ¹¹	Baseline	Targets	Achievement ¹²	Rating ¹³
Indicator 1-1: Comprehensive regional process articulated for implementing CAP EWS based on experiences	<ul style="list-style-type: none"> Completed EWS toolkit available online 	0	1	1	S
Indicator 1-2: Number of new EWS case studies developed and shared on active regional knowledge platform	<ul style="list-style-type: none"> Template developed Documented case studies Number of downloads 	3	7	1 Two more case studies are expected within the extended time lines (Feb. 2017)	MU
Indicator 1-3: Number of countries in the region which recognise the integrated EWS model and commit to its adoption in the future	<ul style="list-style-type: none"> Letters of commitment Activity work plans Project proposals 	9 ¹⁴	15	9	MU

Indicator 1-1:

A tool kit for EWS has been developed under the project and is available on the CDEMA website. The tool kit provides following information:

- Case Studies (these three case studies are the baseline case studies)
 - Montserrat Case Study on Common Alerting Protocol
 - Cuba Early Warning Systems in Eastern Provinces – Facing Hydro-Meteorological Extreme Phenomena
 - Jamaica Flood Community EWS
- Dissemination/Communication of Alerts
 - Cell Broadcast Technology for Public Warning
 - CAP
 - CAP server software
 - CAP server hardware
 - FM Broadcast Interrupt
 - RDS Encoder and Receivers
 - Siren Controller
 - Sample Alert Message Templates (English, French, Spanish)
 - A Blue-Print for CAP Based Alerting Systems
- Community Early Warning Systems: Guiding Principles

¹¹As per project log-frame

¹²At the time of Terminal Evaluation

¹³ Achievement Ratings; Highly Satisfactory (HS), no shortcomings; Satisfactory (S), minor shortcomings; Moderately Satisfactory (MS), shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

¹⁴The baseline value for this indicator as given in the project document is 9. When it comes to actual implementation of CAP EWS these 9 countries are at different stages, British Virgin Islands, Montserrat, Anguilla, St. Maarten and Aruba had CAP based EWS developed previously, In St. Vincent and Grenades and Dominica CAP based EWS were developed under the previous DIPECHO initiative. Under the present project CAP based EWS has been introduced in two additional countries. Thus, the baseline value for this indicator should have been 7.

- Multi-Hazard App
- Hazard Monitoring, Risk Analysis, and forecasting of hazards
- Links to the sites for Hazard Monitoring/Forecasting
- Community Early Warning Systems: Guiding Principles
- Response Capacity
 - A Winning Campaign – Public Outreach in Early Warning
 - Risk Knowledge
 - Public Awareness and Public Education for Disaster Risk Reduction: A Guide
 - Public Awareness and Public Education for Disaster Risk Reduction: Key Messages
 - Community Early Warning Systems: Guiding Principles
 - Integrating Gender into Disaster Management
- Risk Knowledge
 - Introduction to Vulnerability and Capacity Assessment
 - Community Early Warning Systems: Guiding Principles

Although the tool kit provides lot of information, the presence of a tool kit on the CDEMA website lacks the required prominence. The project team pointed out that a more prominent infographic is being developed which will be placed on the website to link directly to the tool kit information. Additionally, it is proposed that the promotion of the toolkit will be heightened during 2017.

The objective of the tool kit was to guide implementation of CAP EWS in the Caribbean. The tool kit was to be made available on the CDEMA website, DIPECHO LAC and other relevant regional platforms. The development of the EWS toolkit was expected to result in capturing experiences that are key to the systemisation, sustainability and expansion of the CAP EWS. Moreover, the tool kit anticipated to capture testing procedures and assessments, multilingual CAP message templates, warning policy and SOP templates, technical specifications, public education approaches, challenges, and lessons learnt. Specifically, the tool kit was expected to include the following:

- Template policies and protocols
- Sample technical specifications for CAP servers and dissemination tools
- Sample tools for assessment of EWS capacities
- Guidance on hazard monitoring
- Guidance on developing public awareness programs
- Identification of roles of actors in the EWS and capacities needed
- Identification of possible key stakeholders
- Potential challenges and mitigation actions.

As is evident, the tool kit meets most of the expectations. However, it lacks in terms of dissemination of the information amongst the target audiences. Accordingly, the achievement against this indicator has been rated as **Satisfactory**.

Indicator 1-2:

A template for the case studies was developed by the project team and circulated amongst the potential contributors of the case studies. At the time of the evaluation only one new case study (for Anguilla) was finalised but even this case study was yet to be uploaded to the web site. Some of the EWS case studies are currently under development. During the evaluation meetings, the project team informed that the draft case study for Saint Lucia is likely to be completed by the end of the extended time lines for the project. Also, it was pointed out by the

project team that the case study for St. Vincent and the Grenadines (SVG) is under preparation and would be available shortly. The evaluation team is of the view that with the extension of the project timelines until February 2017, completion of two more case studies, which are in progress (Saint Lucia and St. Vincent and the Grenadines), would be achieved. In view of this, the achievement against this indicator has been rated as **Moderately Unsatisfactory**.

The achievement against this indicator could have been better if the focus extended to countries which already have CAP EWS (British Virgin Islands, Montserrat, Anguilla, St. Maarten and Aruba). The problem in this case was that these countries are not actively covered by UNDP Barbados and the OECS.

Indicator 1-3:

The baseline value for this indicator as given in the project document is 9. British Virgin Islands, Montserrat, Anguilla, St. Maarten and Aruba had CAP based EWS developed previously. In St. Vincent and Grenadines and Dominica, CAP based EWS were developed under the previous DIPECHO initiative. Under the present project, CAP EWS is being introduced in two additional countries (Barbados and Saint Lucia) in the Caribbean. Thus, the baseline value for this indicator should have been 7.

In order to facilitate recognition of integrated EWS model by the countries in the region a workshop was organised during April, 2016. The workshop was convened in collaboration with IFRC, CADRIM, UNISDR, CDEMA. There were sixty participants in the workshop, which included those from the English, Spanish and French speaking Caribbean countries. The workshop also assisted with the development of the toolkit and case studies envisioned under the initiative. This workshop facilitated:

1. Shared understanding of the status of EWS in the Caribbean and requirements of key partners to successfully implement EWS in the Caribbean;
2. Increased awareness and capacity among regional and national partners for the successful implementation of EWS;
3. Awareness raised on the need for the consideration of vulnerable groups in the development and implementation of EWS;
4. Deeper understanding of Partners/country representatives on the requirements needed to operate and maintain CAP Based EWS.

Through collaboration with the UNDP and Cuba, the initiative co-financed the Director of the Department of Instruments and Observation of the Meteorological Institute of Cuba to share the Cuba experience at the EWS regional meeting. The project also supported the IFRC in contracting a consultant to undertake a desk review to consolidate the knowledge and experiences of EWS in the Caribbean. The desk review report has been prepared, but it is still to be uploaded at the CDEMA web site (as part of the tool kit).

The project funded the participation of beneficiary countries to the DIPECHO regional meeting, which was held during November 2016 in Barbados. The main objectives of this workshop were to:

- Present achievements, good practices and tools related to the main thematic areas of the 2015-2016 DIPECHO Action Plan for the Caribbean: Early Warning Systems, Information & Knowledge Management on DRR, Communication on DRR, Institutionalization of DRR processes;

- Review regional and national DRR priorities;
- Strengthen operational links to and facilitate the implementation of the CDM strategy and Sendai Framework.

Significant efforts have been exerted to achieve the objectives of this part of the project. However, when seen from the view point of the value of the indicators and their sources of verification (please see Table 6), there is no achievement under this part of the project. Still, considering that there will be some positive impacts of the work carried out under the project including bringing more countries in the region in the fold of the integrated EWS model in the future; the achievement against this part of the project has been rated as **Moderately Unsatisfactory**. This is considering that under the project CAP EWS has been introduced in two additional countries (Barbados and Saint Lucia) in the Caribbean.

It is ambitious to expect that the countries would commit to adopting the EWS model after participating in a workshop and in the absence of a concrete proposal to support such an action by the countries.

At an aggregate level the achievement against outcome 1 of the project has been rated as Moderately Satisfactory.

3.1.2 Outcome 2: Knowledge of risk and vulnerability enhanced in communities

As per the project design (Project Document) the expected outputs for outcome 2 of the project were as follows:

- 2.1 Community assessment of vulnerability and capacities
- 2.2 KAP surveys
- 2.3 Risk awareness programme
- 2.4 EWS education

Table 7 provides the details of the level of attainment of different indicators for Outcome 2. For reference, the baseline values of the indicators and the targets at the end of the project are also provided in the table. Ratings for the level of achievement for each of the indicator are also given in the table.

Table 7: Achievement of Results for Outcome 2: Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response

Indicator	Means of Verification ¹⁵	Baseline	Targets	Achievement ¹⁶	Rating ¹⁷
Indicator 2-1: % of beneficiaries in the target communities know the risks of the hazards faced and know the contingency measures to adopt in case of	<ul style="list-style-type: none"> ● KAP surveys ● Interviews of key stakeholders ● Simulation exercise report 	0%	75%	Not determined in terms of value for indicator as KAP survey and simulation	MS

¹⁵As per project log-frame

¹⁶At the time of Terminal Evaluation

¹⁷ Achievement Ratings; Highly Satisfactory (HS), no shortcomings; Satisfactory (S), minor shortcomings; Moderately Satisfactory (MS), shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

disaster				exercise was not done	
Indicator 2-2: % increase in beneficiary participation in simulation exercises in countries with previous CAP EWS experience	<ul style="list-style-type: none"> ● Adapted communications strategies based on lessons learnt ● Simulation exercise reports ● After Action Review (AAR) 	0%	20%	Not determined in terms of value for indicator as Simulation exercise were not done	MS

Indicator 2-1

The project was to support implementation of CAP based EWS in the selected communities across the four countries in the Caribbean. The communities where the CAP based EWS were to be installed are:

- Shermans, Barbados
- Martins Bay, Barbados
- South Rivers-Park Hill-Colonarie watershed, St. Vincent and Grenadines (St. Vincent and the Grenadines)
- Vermont Valley-Buccament Bay watershed, St. Vincent and Grenadines (St. Vincent and the Grenadines)
- Dublanc, Dominica
- Colihaut, Dominica
- Dennery South, Saint Lucia

Outcome 2 of the project aimed to reduce the vulnerability of these seven selected communities facing multiple hazard risks by making them better informed about natural hazards and their vulnerabilities. Also, this outcome of the project sought to enhance the benefits of CAP-based EWS being provided to these communities (under outcome 3 of the project). At the project design stage, these communities were selected based on the recommendations of the respective countries. The objective of making the communities better informed regarding the vulnerability to hazards and risks was to be achieved by providing focused education and information. The communities targeted under the project are particularly vulnerable to rapidly forming hydro-meteorological events generating floods from rain fall and coastal hazards such as storm surges and tsunamis. Landslides, slippages and earthquakes are also a threat to these communities. The education part of the overall project focused on these hazards and the identified vulnerable members of the community including the elderly and those with disabilities.

The overall scheme of things involved a vulnerability assessment and a baseline KAP survey. This was to be followed up with the design of a communication strategy and delivery of education. The education was to focus on the nature of the hazards faced, factors contributing to vulnerability within the communities, and the actions that community members can take to reduce their vulnerability. The education also aimed to inform the communities about EWS, how the CAP EWS works, and how it benefits the community in helping to improve their resilience capacities. The impacts of the education were to be captured in an end line KAP survey.

Due to different reasons, the entire set of activities (Vulnerability assessment, Baseline KAP Survey, Education and end line KAP survey) did not take place in all the communities. Table

8 below provides the actual status of different activities in the communities.

Table 8: Status of Activities for Outcome 2

Community	VCA	Baseline KAP Survey	Community Education	End line KAP Survey
Sherman's, Barbados	Feb 2016	Jan 2016	Done	Not Done
Martin's Bay, Barbados	Nov 2015	Oct 2015 ¹⁸	Done	Not Done
South Rivers-Park Hill-Colonarie watershed, SVG	Dec 2015	Not Done ¹⁹	Done	Not Done
Vermont Valley-Buccament Bay watershed, SVG	Oct 2015	May 2016	Done	Not Done
Dublanc, Dominica	Not done	Done	Done	Not Done
Colihaut, Dominica	Aug 2016	Done	Done	Not Done
Dennery South, Saint Lucia	Nov 2015	Not Done ²⁰	Done	Not Done

Due to delays in almost all the cases, the design of the education part of the project did not initially incorporate the findings of the VCAs and the KAP surveys as they were not available at that point in time. For delivery of the education to the communities, education coordinators were contracted for all four beneficiary countries. These education coordinators had previous experiences in the respective countries and used their knowledge of the communities to design and deliver the education. Once the information from the VCA and KAP surveys became available it was incorporated into the education component of the project.

Some of the baseline KAP surveys and none of the end line KAP surveys could take place. IFRC is currently finalising arrangement to complete some of the end line KAP surveys within the extended timelines for the project. Due to the unavailability of end line KAP surveys, the achievement against this indicator could not be assessed in terms of the value for the indicator. The assessment is based on the reports of the education coordinators and discussions with the stakeholders. Discussions with the community leaders and the government officials revealed that they were happy with the work carried out by the education coordinators. However, there were some concerns, for example, some of the community leaders pointed out that that the education coordinators focused on earthquakes and tsunamis, whereas the predominant hazard in their area is flooding. In fact, the CAP based EWS implemented under the project within the communities were also related to flooding. The reports by the education coordinators detail the perception of the community (based on a very small sample size of 3-4 participants) about the benefits of the education provided. These reports stipulate that some of the expectations of the community were not met. For example, one of the community members mentioned that there was nothing new in the information and training provided by the education coordinators. Also it was pointed out that the education coordinators themselves were not well informed about the CAP EWS being implemented within the communities. Based on these, the achievement against this part of the projects has been rated as **Moderately Satisfactory**.

In this case the VCA and the KAP surveys (both baseline and the end line) were to be coordinated by International Federation of Red Cross in collaboration and Red Cross Societies and implemented by the Red Cross Societies in collaboration with the disaster management offices in the respective countries. The reasons for under achievement on the part of the IFRC includes lack of work planning, lack of coordination between the IFRC, the National Societies, and the National Disaster Management Offices in the countries, and lack of deployment of required human resources. This is evident from the fact that there was no collaboration between

¹⁸Survey was done in October 2015, report finalized in August 2016

¹⁹Survey was carried out in Dec 2015, but data analysis and report preparation is yet to be done

²⁰Survey was done but report is yet to be prepared

the IFRC and the National Societies for carrying out the voluminous work within a comparatively short duration of time.

The lesson learnt is that it is necessary to have an elaborate, carefully monitored work plan that is agreed to by all participants when carrying out multiple tasks involving multiple countries. This can best be achieved by preparing a detailed plan and an inception report in the beginning of the activity.

Indicator 2-2

Out of the four participating countries in the project, two (Dominica and St. Vincent and Grenadines) have previous CAP EWS experience. This is due to participation of these two countries in an earlier project²¹. Simulation exercises within the communities in Dominica and St. Vincent and the Grenadines were to be carried out as a part of this project. In Saint Lucia some evacuation drills and post assessments were carried out. In St. Vincent and the Grenadines some simulation exercises are said to have been carried out, but it is not recorded.

There were technical problems with the CAP server in Dominica. The CAP system in Dominica is now functional and a simulation exercise is being discussed to test the system. As such, no simulation exercise was carried out at Dominica until the time of the evaluation. Even with the extension in the timelines for the project until February 2017, the situation is not expected to change.

As simulation exercises, could not be carried out, quantification in the increase in beneficiary participation in simulation exercises in Dominica and St. Vincent and the Grenadines is not possible. However, it is expected that due to the training and education imparted to the community members, there may be some increase in participation. Based on discussions with the stakeholders', achievement against this indicator has been rated as **Moderately Satisfactory**.

At an aggregate level, the achievement for outcome 2 of the project has been rated as Moderately Satisfactory.

3.1.3 Outcome 3: Framework for CAP-compliant all-hazard EWS integrated

As per the project design, outlined in the Project Document, the expected outputs for outcome 3 of the project were as follows:

- 3.1 Participatory system design and validation
- 3.2 Installation, testing and training for alerting
- 3.3 Improvement and integration of hazard monitoring systems
- 3.4 Simulation exercises

Table 9 provides the details of the level of attainment of different indicators for outcome 3. For reference, the baseline values of the indicators and the targets at the end of the project are also provided in the table. Ratings for the level of achievement for each of the indicators are also

²¹Community Alert Project, financed by the European Commission Humanitarian Aid and Civil Protection DIPECHO program. The project included demonstration of the Common Alerting Protocol (CAP) as a process to improve community alerting with a view to wider application within the pilot countries and other Caribbean states.

given in the table.

Table 9: Achievement of Results for Outcome 3: Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels

Indicator	Means of Verification ²²	Baseline	Targets	Achievement ²³	Rating ²⁴
Indicator 3-1: % of targeted population receiving alerts responding according to pre-established protocols and procedures	<ul style="list-style-type: none"> ● Installation reports ● Testing reports ● Simulation exercise reports ● After Action Review (AAR) 	0%	75%	Could not be assessed as means of verification are not in place	Not Rated
Indicator 3-2: Number of vulnerable communities with operational end-to-end CAP EWS, managed by trained national authorities	<ul style="list-style-type: none"> ● Installation reports ● Testing reports ● Site visits and site surveys ● DEWETRA data logs ● Simulation exercise reports ● After Action Review (AAR) 	0	3	3	S

This part of the project involved drafting an integrated perspective on protocols and procedures as well as the implementation guidelines. This was to be done based on an initial capacity assessment in the case of Saint Lucia and knowledge of existing capacities in the case of the other three participating countries (Barbados, St. Vincent and the Grenadines and Dominica). This was to be followed up with the proposal for technology solutions for detection and alerting based on CAP. The specific activities that were to be carried out included acquisition of selected alerting technologies, installation and system testing of CAP servers (for Barbados and Saint Lucia). In the case of Dominica and St. Vincent and the Grenadines (where CAP servers were provided as part of an earlier project²⁵), procurement of additional warning dissemination technologies was to be carried out. Training of national operators on the use and maintenance of the CAP was to be provided. Training was to be provided to national authorities (Disaster Office, Meteorology Office, etc.) who will be the requesters, activators and approvers of the CAP system as well as those who will be expected to manage and maintain the system. This was to be followed up with simulation exercises to evaluate the communities' ability to use and respond to the warning messages received.

Indicator 3-2

Hazard monitoring equipment has been installed in the watersheds within the beneficiary communities in St. Vincent and the Grenadines during September 2016. Similar equipment has also been installed for Saint Lucia. Monitoring equipment in the case of Shermans

²²As per project log-frame

²³At the time of Terminal Evaluation

²⁴ Achievement Ratings; Highly Satisfactory (HS), no shortcomings; Satisfactory (S), minor shortcomings; Moderately Satisfactory (MS), shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

²⁵Community Alert Project, financed by the European Commission Humanitarian Aid and Civil Protection DIPECHO program. The project included demonstration of the Common Alerting Protocol (CAP) as a process to improve community alerting with a view to wider application within the pilot countries and other Caribbean states

(Barbados), both the rain gauge and the level gauge have been installed. In the case of Martin's Bay (Barbados), a level gauge has been installed, but the installation of a rain gauge is still pending. The installation of a rain gauge in Martin's Bay is pending as it will be installed on private land (requiring an agreement between the government and the private party). The agreement between the government and the private party is pending but is expected to be in place by end of January, 2017. In the case of Dominica, the hazard monitoring equipment is to be installed by the end of January, 2017 by the CIMH.

Procurement of CAP server (software) has also been completed. CAP server hardware has been installed in Barbados and Saint Lucia. Software installations have been completed in Barbados and in the case of Saint Lucia, was completed in December 2016. Training on the system has also been completed.

Procurement processes for warning dissemination technologies and the installations have also been completed. There was, however, an issue with one of the dissemination technologies procured. Communication has been received from the vendor of the via radio RDS system informing that from as early as 1 December 2016, but not later than June 2017, they will discontinue operation and support of the Via Radio server that facilitates the operation of the RDS equipment. This equipment was already procured and was slated to be installed the week after this information was communicated by the vendor. After discussions with country participants, a new warning dissemination technology (radio interrupt) was recommended. An extension in the timelines of the project was requested and has been extended until the end of February 2017 to allow procurement, installation and testing of this new warning technology in replacement of the via radio RDS system.

Dominica and St. Vincent and Grenadines already have functional EWS. Specific to Barbados and Saint Lucia, by the middle of December these countries will have at a minimum two warning technologies specifically email and smart phone app. The radio interrupt would be the third warning dissemination option.

With the extension of the time until February 2017, the activities relating to installation, testing, and operations of the end-to-end CAP EWS in the targeted communities are expected to be completed. Thus, the achievement against indicator 3-2 has been rated as Satisfactory.

Indicator 3-1

As the testing of the end-to-end EWS could not be carried out until the time of the terminal evaluation, performance against indicator 3-1 could not be rated.

At an aggregate level the achievement against outcome 3 of the project has been rated as Moderately Satisfactory.

3.1.4 Attainment of Results – Project Objectives

The defined objective of the project was to strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and create a regional framework for facilitating multi-hazard CAP EWS. Table 10 provides the details of the level of attainment of the different indicators for the project objectives. For reference, the baseline values of the indicators and the targets at the end of the project are also provided in the table. Ratings for the level of achievement for each of

the indicator are also given in the table.

Table 10: Achievement of Project Objectives

Indicator	Means of Verification ²⁶	Baseline	Targets	Achievement ²⁷	Rating ²⁸
Indicator 1: % of targeted beneficiary population know and are able to identify EWS alert messages and respond in an understandable and timely way	<ul style="list-style-type: none"> • Test reports and feedback logs from system • Site visit and site surveys • Simulation exercise reports 	0%	75%	Could not be assessed as means of verification are not in place	Not Rated
Indicator 2: Number of end-to-end CAP EWS functioning in communities and managed by national authorities, developed using a systematised regional framework	<ul style="list-style-type: none"> • Test reports and feedback logs from system • Monitoring protocols • Site visit and site surveys • Simulation exercise reports • DEWETRA data logs • Regional CAP EWS toolkit 	0	3	3	S
Indicator 3: Best practices, tools and experiences for implementing CAP-based EWS articulated and disseminated through regional online platform	<ul style="list-style-type: none"> • Toolkit developed and available through online platform • Number of downloads of toolkit from online platform • EWS case studies available through online platform 	0	1	Tool Kit 1 Case Study 1 2 more case studies are expected within the extended time lines (Feb. 2017)	MS

Based on the performance of the project against the different outcomes, the achievement of the project objectives in terms of different indicators has been assessed and provided in the table above. **At an aggregate level, the achievement of the objectives of the project has been rated as Moderately Satisfactory.** This is considering that many of the project activities such as development of the case studies, KAP surveys, and the simulations were not fully completed. Even in the cases where KAP surveys were carried out, there were significant delays and gaps.

3.1.5 Issues while employing CAP-based early warning systems

CAP-based EWS supports the objective of early warning to empower individuals and communities threatened by natural or man-made hazards, to act in a timely and appropriate manner to reduce the possibility of injury, loss of life, and damage to property and fragile environments.

Over a period of time, EWS were established in the Caribbean for more frequently experienced hazards (floods and hurricanes) and information and communication technologies were being introduced into the EWS process. The project supported the IFRC in contracting a consultant

²⁶As per project log-frame

²⁷At the time of Terminal Evaluation

²⁸ Achievement Ratings; Highly Satisfactory (HS), no shortcomings; Satisfactory (S), minor shortcomings; Moderately Satisfactory (MS), shortcomings; Moderately Unsatisfactory (MU), significant shortcomings; Unsatisfactory (U), major problems; Highly Unsatisfactory (HU), severe problems

to undertake a desk review to consolidate the knowledge and experiences of EWS in the Caribbean²⁹. The desk review also identified a couple of issues while employing CAP based EWS.

Each country has a range of challenges to address in the broad context of disaster risk management. While some of the countries need greater legal and organisational clarity regarding authorities and responsibilities in the event of particular types of emergencies, others need to institute well-documented Standard Operating Procedures (SOPs). Many emergency managers confront basic challenges concerning trained human resources, equipment, and services. Some of the other challenges include connectivity between the sensing devices and the data compilation centres and the arrangement with the communication services providers for dissemination of the hazard information.

In some of the countries, legal agreements are in place for service providers of telecommunication, television and radio stations to facilitate dissemination of emergency messages. However, there is a level of reluctance on the part of the service provider for reasons such as loss of control, level of liability, and technical concerns.

3.2 Relevance

The main questions for terminal evaluation are: (please see Annex B)

- To what extent is the UNDP's engagement a reflection of strategic considerations, including UNDP's role in this particular development context and its comparative advantage?
- To what extent is the initiative in line with the UNDP's mandate, national priorities and the results of targeted women and men?
- To what extent was the projects selected method of delivery appropriate to the development context?
- Is the initiative/project aligned with national and sub-regional strategies, UNDPs and ECHO mandate?
- Is it consistent with human development needs and the specific development challenges in the countries and sub-region?

3.2.1 UNDP's engagement and role

UNDP has been providing support to the region in this area continuously since the 1990s. Work during the current programme period 2012-2016 is aligned with Barbados and the OECS, United Nations Development Assistance Framework (UNDAF) and Sub-Regional Programme Document (SPD) outcomes, the global Hyogo Framework for Action (HFA) 2005-2015 and regional Comprehensive Disaster Management (CDM) Strategy 2014-2024 led by the Caribbean Disaster Emergency Management Agency (CDEMA). The work programme for 2012-2016 is developed based on priorities as articulated by the countries and UN Sub-Regional Team in the UNDAF and UNDP SPD. It focuses on building resilience to the impacts of climate change and anthropogenic hazards, specifically enhancing the integration of disaster risk reduction into development planning and improving and disaster response and recovery. All of the countries served are also CDEMA Participating States.

The UNDP is currently working to strengthen capacities across the region in the application of the Post-Disaster Needs Assessment (PDNA) methodology and mechanisms for improving disaster loss databases in countries and using such information within risk assessments to strategically inform national investments and decision making, and thus improve their resilience. UNDP continues to work with countries in the Eastern Caribbean to strengthen their

²⁹ EARLY WARNING SYSTEMS IN THE CARIBBEAN: A DESK REVIEW, Jeremy Collymore February 2016

resilience to natural hazards in a region of highly vulnerable small island developing states, in alignment with outcome 5 of the Strategic Plan- "Countries are able to reduce the likelihood of conflict and lower the risk of natural disaster, including climate change." This level of capacity building includes mitigation, the strengthening of risk assessments in public investment and planning, the preparation of early warning systems (EWS) and Community Emergency Response Teams (CERTs), disaster relief, and post-disaster needs assessment (PDNA).

With the understanding that early warning is one of the most cost effective solutions for reducing disaster losses and is a critical need in vulnerable communities with high exposure and limited coping capacities, the UNDP is endeavouring to apply the lessons learned in a more effective expansion of Common Alerting Protocol (CAP)-based EWS in the region, which is coherent with output 4.3 of the regional Comprehensive Disaster Management (CDM) Strategy.

3.2.2 ECHO's Role

ECHO has been increasing its involvement in DRR and preparedness projects over the last decade both in terms of funding and activities. ECHO dedicates about 13% of its humanitarian budget to DRR activities and has developed DRR policy guidelines to guide implementing partners. The Disaster Preparedness ECHO programme (DIPECHO) is the core element of ECHO's DRR global efforts. The key goal of the programme is to increase communities' resilience and reduce their vulnerability. DIPECHO is a people-oriented programme, helping communities at risk of disasters to better prepare themselves by undertaking training and establishing or improving local early warning systems and contingency planning. It also encourages citizens, civil society groups and local, regional and national authorities to work more effectively together.

3.2.3 Development Context

The Caribbean region is prone to earthquakes and other phenomena such as submarine landslides and underwater volcanoes. In addition to a particular exposure, Caribbean communities have comparatively higher vulnerabilities due to lack of preparedness. In the Caribbean Small Islands, the economic risks due to natural hazards are prevalent since most of the assets are concentrated in low-lying areas, which are subject to flooding and coastal hazards.

The project seeks to build resilience in vulnerable communities by improving their understanding of the hazard risks they may face and enhancing the mechanisms for more effective hazard monitoring and disseminating alerts to communities, so they are better able to respond. Through these coordinated actions, it is expected to improve individual and household preparedness, which will at the very least increase the amount of time that persons must respond to a pending threat to reduce potential losses. The approach will see increasing knowledge and understanding of the multi-hazard scenario at the local level. It will also upscale EWS to integrated end-to-end systems that will be articulated and coordinated at territorial and institutional levels with timely and accurate information about hydro-meteorological and geological hazards through innovation and technology for improving local alert capacities; and capturing of experiences and processes to create a duplicable template that can be adopted by other countries in the region.

The project aimed to address the problem of inefficient communication between the national

disaster management authorities and communities. This has implications for effective response to hazard events and related disasters. Existing systems to disseminate the information regarding a likely hazard event falls short of reaching all public segments in time and in a coherent and effective manner. The project aimed to address the challenge of alerting communities in time regarding hazard events. The project proposed to address this challenge by issuing an effective alert in multiple formats to reach the larger proportion of the population, in a timely manner.

The project was designed to address the risks faced by communities in Caribbean small islands, which are exposed to multiple natural hazards, through the effective implementation of integrated Early Warning Systems (EWS). The Common Alerting Protocol (CAP) is designed as a mechanism for allowing the automated receipt of notifications of a pending hazard through the dissemination of warning messages to the population via multiple media outlets simultaneously.

In view of the above, the relevance³⁰ of the project has been rated as Relevant.

3.3 Effectiveness

The main questions for terminal evaluation are: (please see Annex B)

- What have been the observed changes at the outcome level?
- To what extent have expected outputs been achieved or has progress been made towards their achievement?
- How has the project contributed to outcome level changes? Did it at least set dynamic changes and processes that move towards the long-term outcomes?
- What factors have contributed to achieving or not achieving intended outputs and contributions to outcomes?
- If applicable, has the partnerships strategy developed for this project been appropriate and effective?
- What has been the contribution of partners and other organizations, especially beneficiary countries organizations, to the outcome, and how effective have been the project partnerships in contributing to achieving the outcome?
- What were the positive or negative, intended or unintended, changes brought about by the project?
- Has the project built on recommendations from previous related project evaluations? How effective was the project in implementing these recommendations?
- How did the project contribute to the objectives laid out in the Harmonized Implementation Plan (HIP) from ECHO?

The project objectives and the corresponding outcomes are as follows:

Project Objectives:	Strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups; and create regional framework for facilitating multi-hazard CAP EWS
Outcome 1:	Regional harmonisation and knowledge sharing for EWS
Outcome 2:	Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response
Outcome 3:	Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels

The three outcomes of the projects were to mutually support and increase the effectiveness of each other. For example, outcome 2 of the project was to support outcome 3 of the project and significantly increase its effectiveness. Outcome 3 was to act as a demonstration / pilot for

³⁰ Ratings for Relevance: Relevant (R); Not relevant (NR)

other countries thereby encouraging them to implement CAP based EWS, thereby supporting the outcome 1 of the project.

Due to unsatisfactory results for outcome 2 of the project (achievement rated as Moderately Satisfactory) and due to significant delays in the physical implementation of the pilots within the communities, the effectiveness of the project has suffered. Due to delay in physical implementation of the pilot projects in the communities, the desired demonstration to facilitate the outcome 1 and the project objectives could not be achieved. Further, the effectiveness of the outcome 3 of the project has fallen short of the expectations due to shortcomings in implementation of outcome 2. Nevertheless, in spite of low achievements in the project, there were some successes in achieving the overall project objectives.

The only observable changes at the outcome level of the project has been the establishment of CAP EWS at seven additional communities in the Caribbean and the inclusion of two additional countries (Barbados and Saint Lucia) in the Caribbean region that have CAP EWS. This leads to a progress towards the achievement of the project objective of creating a regional framework for facilitating multi-hazard CAP EWS.

The project has suffered partially due to poor coordination amongst the multiple project participants in the project. One of the other reasons for unsatisfactory performance has been the absence of a comprehensive and elaborate work plan and activity plan for carrying out the required tasks. The project also suffered due to a lack of human resources deployed for execution of the project. There are no negative changes due to the project.

The effectiveness of the project is rated as Moderately Satisfactory.

3.4 Efficiency

The main questions for terminal evaluation are: (please see Annex B)

- To what extent were quality outputs delivered on time?
- Has the project been implemented within deadlines and cost estimates?
- Have UNDP, the Project Board, and its partners taken prompt actions to solve implementation issues?
- What impact has political instability had on delivery timelines?
- Were the projects resources focused on the set of activities that were expected to produce significant results?
- How did UNDP promote gender equality, human rights and human development in the delivery of outputs?

Efficiency is determined in terms of the efficient use of the funds and other resources when seen against the results of the project. In the case of the present project, the expenses have been within the provisions made in the budget but the results of the project are unsatisfactory. Table 11 below provides the details of the budget for different outcomes and the actual spending.

Table 11: Budget and Actual Expenditure (Figures in USD) (Figures in brackets indicate % against the budget)

Outcome		Activities	Budget	Expenditure 2015 ³¹	Expenditure 2016 ³²	Commitments ³³	Total
Outcome 1: Regional harmonization and knowledge sharing for EWS	Activity 1	Development of regional EWS technical and knowledge sharing mechanisms	135870 (100.0%)	13835 (10.2%)	33959 (25.0%)	4834 (3.6%)	52628 (38.7%)
Outcome 2: Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response	Activity 2	Community assessment of vulnerability and capacities	176087 (100.0%)	9921 (5.6%)	98321 (55.8%)	14440 (8.2%)	122682 (69.7%)
	Activity 3	KAP surveys conducted					
	Activity 4	Risk awareness programme developed and implemented					
	Activity 5	EWS education programme developed and implemented					
Outcome 3: Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels	Activity 6	Participatory system design and validation	410870 (100.0%)	118311 (28.8%)	142078 (34.6%)	138481 (33.7%)	398870 (97.1%)
	Activity 7	Installation, testing and training for alerting					
	Activity 8	Improvement and integration of hazard monitoring systems					
Project Management			33696 (100.0%)	1876 (5.6%)	27042 (80.2%)		28918 (85.8%)
GMS (7%)			52957				
Total			809480 (100.0%)	143943 (17.8%)	301400 (37.2%)	157755 (19.5%)	603098 (74.5%)

³¹As per Combined Delivery Report (CDR)

³²Up to 5 Dec 2016, as per CDR

³³As on Oct 2016, as per progress report

As can be seen from the table, project management expenditure is within the budget. The budget utilisation for outcome 1 and outcome 2 is likely to fall short of expectations. When seen from the viewpoint of the achievements for outcome 1 and 2, it seems satisfactory as the achievements for these two outcomes are short of the expectations. Thus, whatever funds have been spent for outcome 1 and 2, they got utilised efficiently. The achievement against outcome 3 is expected to be satisfactory, also the budget utilisation for outcome 3 is almost 100%. Thus, the funds against outcome 3 were utilised efficiently.

When it comes to efficiency, one of the problems was that the achievement of the project against its outcomes and the objectives has fallen short of achieving the satisfactory level. This is in spite of the efforts put in by the UNDP project management team and the project board. The reasons for the levels of achievement include the lack of detailed work planning, limited coordination amongst multiple partners, and compact timelines for implementation of the project. Some of the other reasons include the change of management staff in the disaster management office in Dominica. Additionally project implementation was delayed in Dominica due to the impact of TS Erika,

Although the achievements against different outcomes of the project has been proportional to the extent of the utilisation of the funds, **the efficiency of the project has been rated as Moderately Satisfactory**. This is considering that the project has fallen short of achieving the targeted results.

3.5 Sustainability

The main questions for terminal evaluation are: (please see Annex B)

- What indications are there that the achieved results (both at output and outcome levels) will be sustained, e.g. through requisite capacities (systems, structures, staff, etc.)?
- To what extent has a sustainability strategy, including capacity development of key national and regional stakeholders, been developed or implemented?
- To what extent are policy and regulatory frameworks in place that will support the continuation of benefits?
- To what extent have partners committed to providing continuing support?
- What issues emerged during implementation as a threat to sustainability? What were the corrective measures that were adopted?
- How has the implementing partner addressed the challenge of building national capacity in the face of high turnover of government officials?

Sustainability is determined in terms of the extent to which the results would continue after the end of the project. Some of the benefits of the project are as follows:

- Establishment of CAP EWS in seven communities, along with enhanced knowledge regarding the risks and vulnerability to improve their preparedness and response in case of a hazard event.
- Inclusion of two more countries in the CAP based framework for EWS in the Caribbean region.
- Knowledge sharing regarding CAP EWS

After the end of the project the CAP EWS established in the seven communities, will be taken care of by the disaster management offices of the respective countries. Technical training to the officials of the country regarding operation and maintenance of the CAP has been a part of the project. The funds required for carrying out maintenance and operations of the equipment installed would be made available by the respective government. Thus, the communities would

continue to get the benefits on a sustained basis. The tool kit and the case studies for CAP EWS will stay on the website of CDEMA and the server will be managed by it. Thus, this information would continue to be available after the closure of the project.

One of the threats to the sustainability of the results of the project is the turnover of the government officials. However, considering that of late enough skilled resources trained in computer science and information technology are available in the Caribbean countries, it is expected that it would be possible to find suitable replacements as and when required.

There are no political and environmental threats to the sustainability of the results of the projects. **The sustainability of the results of the project has been rated as Likely.**

4. CONCLUSIONS, RECOMMENDATIONS & LESSONS

The main questions for terminal evaluation are: (please see Annex B)

- Are the solutions provided in an efficient way?
- What are the best and worst practices in addressing issues relating to relevance, performance and success?
- 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

4.1 The problem

The Caribbean region is prone to many natural hazards. In addition, the economic losses that result from hazards are comparatively higher, as most of the assets are concentrated in low lying areas that are subject to flooding and coastal hazards. The project intended to provide a solution to the problem of community vulnerability to hazards by introducing CAP EWS in the countries in the Caribbean region. The project was also designed to provide a solution to the problem in an efficient manner. However, the project has fallen a bit short of the satisfactory level of achievement due to several reasons, which are explained in the following sections.

4.2 Corrective actions for the design, implementation, monitoring and evaluation

The design of the project was well thought out. It had the components pertaining to the pilot / demonstration (outcome 2 and outcome 3) and aimed to replicate by creating a framework, case studies, and knowledge sharing (outcome 1). One of the issues with the project design was that it was a bit over ambitious to consider that it will be possible to obtain commitment from national governments to implement CAP EWS by simply creating a knowledge platform. Getting the national governments to commit to CAP EWS requires a persistent campaign to the target audiences and the decision makers by engaging them directly. In such scheme of things, the knowledge sharing platform could have been used only as a tool.

The lesson learnt is that creation of a knowledge platform is not sufficient to achieve a policy level decision. The decision makers need to be engaged directly and the knowledge platform can, at best, support the process of engagement. Further, to serve its purpose, the information regarding the existence of the knowledge platform needs to be communicated and promoted amongst the target audiences.

***Recommendation 1:** The recommendation for future projects is that in cases where the objective of the project is to achieve a commitment from national governments and a policy level change, the decision makers such as the politicians, bureaucrats etc. should be engaged directly, as creation of a knowledge platform and dissemination of the information alone is insufficient.*

One of the other problems with the design of the project is that the indicators have been put at the outcome level and not the output level. Generally speaking, the indicators at the output level are more quantitative in nature and related to the activities (e.g. number of persons trained, number of workshops organised etc.). It is desirable to have indicators both at the output and at the outcome level. In cases where we have indicators at both the outcome level and the output level, both the qualitative and quantitative aspects are covered.

Recommendation 2: *In the future projects, while designing the projects, wherever possible provide the indicators both at the output and outcome levels.*

4.3 The best and worst practices relating to relevance and performance

Due to the level of results for outcome 2 (vulnerability assessment, education and KAP surveys in the communities) of the project and due to significant delays in physical implementation of the pilots within the communities, the effectiveness of outcome 3 (CAP EWS project in the communities) has suffered. Due to the delay in physical implementation of the pilot projects in communities, the desired demonstration to facilitate the outcome 1 (creation and a regional framework for CAP EWS in the Caribbean) and the project objectives could be achieved only partially.

The project has suffered partially due to limited coordination amongst the multiple project participants. One of the other reasons for limited achievement has been the absence of a comprehensive and elaborate work plan and activity plan for carrying out the required tasks. The project also suffered due to the lack of human resources deployed for execution of the project. The inception meetings for the project happened for each of the countries individually, but no inception of the project that would provide a comprehensive work plan / activity plan was prepared. The basic work plan given in the project document (for the purpose of budget) was used as the work plan for project execution. The project team also made use of the work plan and the procurement plans on the UNDP Intranet. The preparation of RFPs for design and installation of CAP server could be issued only in February 2016, which is purely due to oversight, in the absence of a comprehensive work plan and activity plan for implementing the project. An early action towards procurement of hardware and software would have clearly avoided the delays in execution of outcome 3 of the project. The lesson learnt is that to ensure proper control on the execution of the project, it is necessary to have a detailed activity wise work plan.

Recommendation 3: *For all future projects, preparation of an inception report and a detailed work plan should be made mandatory. The project document may specify the use to project management tools like Gantt Chart etc.*

In spite of substantial work to be carried out by some of the project implementation partners, there is no inception report or work plan from these project participants. The project partners could not deliver the required deliverables due to a shortage of deployment of human resources, limited coordination (amongst themselves) and the lack of a proper work plan at their end. The lesson learnt is that in the absence of a detailed work plan and inception reports (including the plan for deployment of human resources) from all of the major project participants, it becomes difficult to track and monitor the progress made by the partner agencies.

Recommendation 4: *In cases where multiple agencies are involved as project partners, it is important that each agency prepares an inception report (including the detailed work plan and schedule for deployment of human resources). These inception reports need to be aligned with the overall timelines and the work plan for the project at an aggregate level.*

There was a clear shortage of human resources for the implementation of the project and the

efforts of the project coordinator, who was the only full time human resource for project implementation, got spread out too thinly. The education coordinators in the different countries were hired for a period of six months. If possible, the education coordinators could have been hired for the entire duration of the project and they could have been given additional responsibilities to coordinate the overall work in their respective countries. In case of St. Vincent and Grenadines and Saint Lucia, the education coordinators were given the additional responsibilities.

4.4 Actions to follow up or reinforce initial benefits from the project

Some of the specific achievements of the project include the following:

- Deployment of a tool kit, case studies and knowledge sharing regarding CAP EWS, with the objective of facilitating the creation of a regional framework for multi-hazard CAP EWS in the Caribbean region.
- Establishment of CAP EWS in seven communities, along with enhanced knowledge regarding the risks and vulnerability to improve their preparedness and response in case of a hazard event.
- Inclusion of two more countries in the CAP based framework for EWS in the Caribbean region.

These benefits of the projects could be enhanced and sustained by making the training to government officials and education to the communities an ongoing process.

4.5 Proposals for future directions underlining main objectives

The main objective of the project was to create a regional framework for facilitating multi-hazard CAP EWS and to strengthen national preparedness mechanisms through improved hazard monitoring and alert dissemination, targeting vulnerable communities and groups.

The objectives of the project were achieved only partially. Particularly, the achievement of the creation of a regional framework for facilitating multi-hazard CAP EWS has been limited. It may help if future projects with the same objectives directly engage the decision makers (such as politicians and bureaucrats) in the respective countries.

Recommendation 5: For future proposals that have the objective of creating a regional framework or for further strengthening the existing regional framework for CAP EWS, directly engage the decision makers (e.g. politicians and bureaucrats) in their respective countries in the region.

One of the reasons for the unsatisfactory results of the project was the lack of deployment of the required level of human resources. Due to the lack of human resources proper coordination between multiple implementation partners could not happen. The project design had provision for only one full time human resource (project coordinator). UNDP could have deputed consultants (e.g. education consultants), and hired under the project for a longer duration of time with the added responsibility of coordination (please see recommendation 6).

Recommendation 6: The implementing agency should carry out a realistic assessment of the human resources that would be required at different times during implementation of the project. The assessment regarding the requirement of human resources should consider the overall duration of the project. In case of a shortfall in the availability of human resources,

provision should be made to hire consultants to meet the shortfall.

ANNEX A: TOR FOR THE EVALUATION

Strengthening Resilience and Coping Capacities in the Caribbean Through Integrated Early Warning Systems

TERMS OF REFERENCE

Job Title	Evaluation Consultant
Contract Type	Individual Contract
Duty Station	Home Based, Barbados, St. Vincent & the Grenadines, Dominica, Saint Lucia
Contracting Authority	United Nations Development Programme
Period Date	10 October 2016 – 15 December 2016

1. CONTEXT

In the region, climate change and increasingly severe annual natural hazards continue to threaten development gains. The United Nations Development Assistance Framework (UNDAF) sub-regional analysis confirms the paradox of rapid destruction and deterioration of natural resources juxtaposed with their underutilization. While these resources form the cornerstone of social and economic development, unsustainable exploitation and pollution increase the vulnerability to climate change and natural hazards. Moreover, the nexus between poverty, environment and livelihoods is inextricably linked to ownership of and/or access to land and natural resources and to equity in their access, use and benefits. Furthermore, while the potential contribution of renewable energy sources is high, monopolization, limited research, and lack of technology, capital and skills are among the main barriers to expansion. Countries will need to sustain focus on climate change adaptation and build a sustainable energy sector, which is critical to growth and development in the region.

UNDP will therefore continue to build on the support to the Comprehensive Disaster Management (CDM) Strategy led by the Caribbean Disaster Emergency Management Agency (CDEMA) and the Sendai Framework to advance DRR through regional, sub-regional and national initiatives. This will include investments in critical components of DRR such as hazard mapping and vulnerability assessments; support to early warning systems; and continued capacity development of DRR infrastructure. Where necessary, the development and implementation of recovery strategies will also be central to DRR mainstreaming and will be formulated around poverty reduction and democratic governance strategies, with emphasis on sustainable livelihoods and inclusive consultative processes. Also central to activities for the period will be strengthening the links between the DRR and climate change adaptation agendas at both the national and regional levels. Strengthening disaster response and assessment capabilities at the national and regional levels will also be a priority area.

2. INTRODUCTION

This Action represents another step in the focus of UNDP on strengthening community and national resilience through improving the early warning systems (EWS) across the region. This focus started through the EU-funded Regional Risk Reduction Initiative (R3I), which as one of its components developed a Common Alerting Protocol (CAP) based EWS in four Overseas Countries and Territories. Through the ECHO-funded Community Alerts Project 2013-2014, UNDP Barbados and the OECS expanded the countries with CAP-based EWS by three to include Dominica, Grenada and St. Vincent and the Grenadines. This current Action seeks to create an enabling environment that can facilitate the adoption of CAP EWS by other countries in the region through systemization of the process, by adding two (Barbados and Saint Lucia) additional territories to the Caribbean network of established all-hazard CAP-based EWS, and upscaling to end-to-end automated CAP systems.

Additionally, this Action therefore seeks to reduce the vulnerability of communities facing multiple natural hazard risks in Caribbean small islands by helping communities become better informed about natural hazards and their vulnerability, with a system being implemented to allow the automated receipt of hazard notifications and dissemination of alerts via an integrated Common Alerting Protocol (CAP)-based all-hazard EWS. One of the strengths of the CAP lies in its ability to be adaptable. Ultimately the system can be expanded and improved with time as local and national capacities strengthen and confidence in the system continues to grow.

The specific results of this Action include:

Result 1: Regional harmonization and knowledge sharing for EWS

Result 2: Knowledge of risk and vulnerability enhanced in communities to improve preparedness and response

Result 3: Framework for CAP-compliant all-hazard early warning systems integrated at national and community levels

3. EVALUATION PURPOSE

Evaluations are critical for UNDP to progress towards advancing human development. Through the generation of 'evidence' and objective information, evaluations enable managers to make informed decisions and plan strategically. This exercise is the final project evaluation, which is intended to:

- Demonstrate the level of change in the measured variables and level of success of the outputs achieved and contributions to outcome level changes. Promote accountability and transparency, and to assess and disclose the extent of project accomplishments.
- Synthesize lessons that can help to improve the selection, design and implementation of future UNDP activities or projects.
- Provide feedback on issues that are recurrent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues.
- Gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Document (CPD).

4. EVALUATION OBJECTIVES

This evaluation will identify the outputs produced and the contributions to results at outcome level and positive or negative changes produced along the way, including possible

unexpected results. The evaluation will also seek to identify the key lessons learned and best practices.

The evaluation will assess:

- The relevance of the project, and in particular its regional dimensions
- The effectiveness for the achievement of the results at output level and efficiency with which the ECHO resources have been used
- The usefulness and sustainability of the results/project targets for the beneficiaries
- UNDP performance as a development partner
- ECHO and UNDP's added value to the expected results

5. EVALUATION SCOPE AND CRITERIA

Evaluation Scope seeks to focus the evaluation exercise and establish the boundaries of what is covered in the evaluation. Specifically:

- The unit of analysis - The evaluation should cover all the intervention components under the Strengthening Resilience and Coping Capacities in the Caribbean Through Integrated Early Warning Systems project. In essence all the project outputs should be evaluated.
- The time frame or phase to be covered - This should be observed as 1 April 2015 to 30 November 2016
- The geographical coverage – Saint Lucia, St. Vincent and the Grenadines, Barbados and Dominica
- Target groups to be considered - See Appendix 2

The scope also includes documentation of lessons learned, findings and recommendations in the following areas:

- Opportunities and challenges brought by key Stakeholders (See Appendix 2) including UNDP as the Implementing partner in a Caribbean regional programme in the field of disaster risk reduction
- Potential and effective contribution by beneficiary countries (Saint Lucia, St. Vincent and the Grenadines, Barbados and Dominica) to their own development and to the development of other countries in the field of interest.

Evaluation Criteria

Relevant: concerns the extent to which a development initiative and its intended outputs or outcomes are consistent with national and local policies and priorities and the needs of intended beneficiaries. Relevance also considers the extent to which the initiative is responsive to UNDP corporate plan and human development priorities of empowerment and gender equality issues. Relevance concerns the congruency between the perception of what is needed as envisioned by the initiative planners and the reality of what is needed from the perspective of intended beneficiaries. It also incorporated the concept of responsiveness – that is, the extent to which UNDP was able to respond to changing and emerging development priorities and needs in a responsive manner.

Effectiveness: is a measure of the extent to which the initiative's intended results (outputs or outcomes) have been achieved or the extent to which (progress toward outputs or outcomes has been achieved).

Efficiency: measures how economically resources or inputs (such as funds, expertise and

time) are converted to results. An initiative is efficient when it uses resources appropriately and economically to produce the desired outputs. Efficiency is important in ensuring that resources have been used appropriately and in highlighting more effective uses of resources.

Sustainability: measures the extent to which benefits of initiatives continue after external development assistance has come to an end. Assessing sustainability involves evaluating the extent to which relevant social, economic, political, institutional and other conditions are present and, based on that assessment, making projections about the national capacity to maintain, manage and ensure the development results in the future.

It should be noted that “impacts” should not be included as part of the criteria for this evaluation. Impacts describes changes in people’s lives and development conditions at global, regional and national levels and are usually beyond the scope of UNDP evaluations. As such, it is particularly difficult to assess the extent to which UNDP may have contributed to the achievement of impacts on the part of primary stakeholders, bearing in mind the vast array of factors that may have influenced development in an area in which UNDP provides support

Evaluation Rating

The following rating criteria should also be included as part of the evaluation

Ratings for Relevance	Ratings for Outcomes, Effectiveness, Efficiency,	Ratings for Sustainability ratings
2. Relevant (R) 1. Not relevant (NR)	6: Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency 5: Satisfactory (S): There were only minor shortcomings 4: Moderately Satisfactory (MS): there were moderate shortcomings 3. Moderately Unsatisfactory (MU): the project had significant shortcomings 2. Unsatisfactory (U): there were major shortcomings in the achievement of project objectives in terms of relevance, effectiveness, or efficiency 1. Highly Unsatisfactory (HU): The project had severe shortcomings	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A)		

6. EVALUATION QUESTIONS³⁴

The evaluation should answer, at least, the following questions. However, the evaluator

³⁴<http://web.undp.org/evaluation/evaluations/handbook/english/documents/pme-handbook.pdf>

shall complement this listing in its methodological proposal in order to comply with the objectives and scope of the evaluation. Additionally, the evaluator should propose how the gender aspect will be covered.

The following questions should be answered:

In assessing **relevance**:

- i. To what extent is UNDP's engagement a reflection of strategic considerations, including UNDP's role in this particular development context and its comparative advantage?
- ii. To what extent is the initiative in line with UNDP's mandate, national priorities and the results of targeted women and men
- iii. To what extent was the projects selected method of delivery appropriate to the development context?
- iv. Is the initiative/project aligned with national and sub-regional strategies, UNDPs and ECHO mandate?
- v. Is it consistent with human development needs and the specific development challenges in the countries and sub-region?

In assessing **effectiveness**:

- i. What have been the observed changes at the outcome level?
- ii. To what extent have expected outputs been achieved or has progress been made towards their achievement?
- iii. How has the project contributed to outcome level changes? Did it at least set dynamic changes and processes that move towards the long-term outcomes?
- iv. What factors have contributed to achieving or not achieving intended outputs and contributions to outcomes?
- v. If applicable, has the partnerships strategy developed for this project been appropriate and effective?
- vi. What has been the contribution of partners and other organizations, especially beneficiary countries organizations, to the outcome, and how effective have been the project partnerships in contributing to achieving the outcome?
- vii. What were the positive or negative, intended or unintended, changes brought about by the project?
- viii. Has the project built on recommendations from previous related project evaluations? How effective was the project in implementing these recommendations?
- ix. How did the project contribute to the objectives laid out in the Harmonized Implementation Plan (HIP) from ECHO?

In assessing **efficiency**:

- i. To what extent were quality outputs delivered on time?
- ii. Has the project been implemented within deadline and cost estimates?
- iii. Have UNDP, the Project Board, and its partners taken prompt actions to solve implementation issues?
- iv. What impact has political instability had on delivery timelines?
- v. Were the projects resources focused on the set of activities that were expected to produce significant results?
- vi. How did UNDP promote gender equality, human rights and human development in the delivery of outputs?

In assessing **sustainability**:

- i. What indications are there that the achieved results (both at output and outcome levels) will be sustained, e.g. through requisite capacities (systems, structures, staff, etc.)?
- ii. To what extent has a sustainability strategy, including capacity development of key national and regional stakeholders, been developed or implemented?
- iii. To what extent are policy and regulatory frameworks in place that will support the continuation of benefits?
- iv. To what extent have partners committed to providing continuing support?
- v. What issues emerged during implementation as a threat to sustainability? What were the corrective measures that were adopted?
- vi. How has the implementing partner addressed the challenge of building national capacity in the face of high turnover of government officials?

7. METHODOLOGY

The project evaluation is to be undertaken in accordance with the UN evaluation norms and policies, including UN Standards and Norms for Evaluations³⁵, UNDP Handbook on Planning, Monitoring and Evaluation for Development Results³⁶, and in particular UNDP outcome-level evaluation a companion guide to the handbook on planning monitoring and evaluating for development results for programme units and evaluators³⁷. Evaluation methods should be selected for their rigor in producing empirically based evidence to address the evaluation criteria, to respond to the evaluation questions, and to meet the purpose and objectives of the evaluation. The central focus of the evaluation should be on analysing the contribution of the project (outputs) to the outcomes.

The evaluator will define the final methodology to be applied and it should include methodologies as outlined in the Handbook on Planning, Monitoring and Evaluating for Development Results.³⁸ The following can be used to ascertain the empirically based evidence:

- Desk review (indicative but not necessary complete list of documentation at Appendix 1). All needed documentation can be obtained directly from the Project Coordinator and UNDP.
- Visits to some beneficiary countries (St. Vincent and the Grenadines and Barbados).
- Consultations with project contacts via online mediums (skype etc.) or telephone. The evaluator can also use the final project meeting tentatively planned for November 2016 to meet country representatives as well as other stakeholders.
- The evaluator is expected to frame the evaluation effort using the criteria of relevance, effectiveness, efficiency and sustainability

The first draft of the evaluation report will be reviewed by commissioned agencies/areas to ensure that the evaluation meets the expectations and quality criteria. This draft will also be shared with the other partners and stakeholders to validate the findings, recommendations and lessons.

7.1 Results Framework and Indicators to consider

³⁵ Available at UNEG Webpage: http://www.uneval.org/normsandstandards/index.jsp?doc_cat_source_id=4

³⁶ <http://web.undp.org/evaluation/handbook/>

³⁷ http://web.undp.org/evaluation/documents/guidance/UNDP_Guidance_on_Outcome-Level%20_Evaluation_2011.pdf

³⁸ <http://web.undp.org/evaluation/handbook/>

Indicators are specified in the Results and Resources Framework of the Project annexed to the present Terms of Reference. In addition, the evaluation should take into account the relevant Sub-Regional Programme outcome(s), outputs and related indicators.

While this evaluation should be pitched at outcome level, it should be noted that indicators found in the Project Document at output (and at activity level at least to some degree to cover the most strategic activities) level may be completed/specified with the indicators, which may give a better measure of the project's outputs and most strategic activities.

8. EVALUATION PRODUCTS (DELIVERABLES/OUTPUTS)

The evaluator shall produce, in English:

8.1 Inception Report

An inception report should be prepared by the evaluators to detail the evaluators' understanding of what is being evaluated and why, showing how each evaluation question will be answered by way of:

- a. Proposed Methods
- b. Proposed sources of data and data collection procedures

The inception report should include a proposed schedule of tasks, activities and deliverables.

This report provides the UNDP programme unit and the evaluators with an opportunity to verify that the same understanding is shared about the evaluation and clarify any misunderstandings at the outset.

8.2 Draft Evaluation Report

A draft evaluation report shall be submitted. This draft evaluation report shall at least include the following elements as detailed in the Annex 7 of the PME Handbook, and shall not surpass 50 pages:

- The title and opening pages
- Table of contents
- List of acronyms and abbreviations
- Draft executive summary
- Introduction
- Description of the intervention
- Evaluation scope and objectives
- Evaluation approach and methods
- Data analysis
- Findings and Conclusions
- Recommendations
- Lessons Learnt and Best Practices
- Report Annexes

The report annexes may be partly provided at the level of submission of the draft report:

- ToR for the evaluation
- Additional methodology related documentation
- List of individuals or groups consulted
- List of supporting documents reviewed

- Results and Resources Framework
- Summary table of findings
- Short biography of the evaluator
- Code of conduct signed by evaluators

The draft evaluation report will be reviewed by UNDP and key partners as well as country focal points during the period of time. It is thus essential that main findings and recommendations are shared informally during the mission with the relevant stakeholders.

8.2 Final evaluation report

The final Evaluation report must comply with the quality standards set up in Annex 7 of the PME Handbook and key standards for UN evaluators.

The reports shall be written and structured in a way that they can also be read and edited independently from the final evaluation report. All reports produced must be in modifiable word format, Times New Roman 12-point font, numbered pages and have all images compressed.

It is expected that the final evaluation report would be shared with UNDP electronically

8.3 Specific Deliverables

- Produce an inception report
- Conduct consultations with project focal points in person, through online mediums or telephone (see section 4)
- Online Presentation of evaluation report at Final Project Board meeting
- Online Presentation of evaluation report at final review meeting
- Produce a draft evaluation report
- Final evaluation report produced and agreed by UNDP

9. QUALIFICATIONS AND COMPETENCIES

- MSc in environmental science, natural resource management, agriculture, rural development, economics, management, planning, statistics or similar
- At least five (5) years' documented experience in monitoring and evaluating projects and programmes, utilizing participatory approaches.
- At least three (3) years' documented experience in disaster risk reduction or related field within the Caribbean or Small Island Developing States (SIDS).
- Extensive knowledge of, and experience in applying, qualitative and quantitative evaluation methods to projects and/or programmes.
- Knowledge of UNDP Barbados and the OECS participating states context, specifically Saint Lucia, Dominica, St. Vincent and the Grenadines and Barbados; and institutional frameworks for addressing Disaster Risk Reduction.
- Good presentation, interpersonal and communication skills
- Ability to meet deadlines and prioritise multiple tasks
- Excellent report writing and editing skills
- Excellent working knowledge (written and oral) of English is required
- Plans and produces quality results to meet established goals; responds positively to critical feedback and differing points of view.
- Previous experience evaluating ECHO, UNDP or UN system projects will be an asset
- Good computer skills including use of technical software for evaluation purposes.

10. EVALUATION ETHICS

Evaluations shall be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'³⁹ and the evaluation team is expected to sign the UN ethical code of conduct on evaluations as part of his/her contract

In particular, the team shall apply anonymity and confidentiality protocols to safeguard the rights and confidentiality of information providers.

Specific attention will also be brought to the potential interaction between the evaluation team and the media, and information disseminated to the public. Information related to disaster risk reduction can be potentially sensitive in economies highly reliant on tourism.

<http://www.uneval.org/search/index.jsp?q=ethical+guidelines>

12. IMPLEMENTATION ARRANGEMENTS

A pre-evaluation briefing will be provided after which the team is expected to conduct consultations with key stakeholders in different countries. The team will then provide a debriefing to UNDP after these consultations have been completed

Timeframe: 10 October 2016 – 15 December 2016

Period to Consider: 1 April 2015 – 30 November 2016. However, prospects for sustainability and potential for longer term impact will be made far beyond this period

The evaluation team should organise meetings with the following agencies in person or via online mediums (See appendix 3)

Barbados:

- United Nations Development Programme (UNDP)
- Caribbean Disaster Emergency Management Agency (CDEMA)
- Project Coordinator at UNDP
- EU Office
- Department of Emergency Management (DEM)
- Caribbean Institute for Meteorology and Hydrology (CIMH)
- Red Cross Caribbean Disaster Risk Management Reference Centre (CADRIM)
- Education Coordinator
- Beneficiary community representatives

Dominica:

- Office of Disaster Management
- National Red Cross Society
- Beneficiary community representatives
- Education Coordinators
- National stakeholders as determined relevant by the designated project focal point in country

Saint Lucia:

- National Disaster Management Agency
- National Red Cross Society
- Education Coordinator

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- Beneficiary community representatives
- National stakeholders as determined relevant by the designated project focal point in country

St. Vincent & the Grenadines:

- National Emergency Management Organisation
- National Red Cross Society
- French Red Cross
- Education Coordinators
- Beneficiary community representatives
- National stakeholders as determined relevant by the designated project focal point in country

Regional:

- International Federation of the Red Cross and Red Crescent Societies (IFRC)
- ECHO

A possible schedule is proposed as follows:

Task	Number of Working Days	Expected Results
Desk review of project document, reports and other background documents	5	Inception Report
Meetings and interviews with stakeholders, beneficiaries and Partners; Debriefing (last day of the mission) <i>Travel is recommended to Barbados and St. Vincent and the Grenadines</i>	18	Data from major stakeholders collected; One presentation of the preliminary findings at the ending of field mission (last day as debriefing meeting), as part of the participatory and validation process that encourages the use and usefulness of the evaluation
Data analysis and preparation of the draft report	5	Draft evaluation report with findings, lessons learned and results submitted to UNDP for review
Collating comments on draft report from UNDP and partners	3	
Online Presentation of evaluation report at final Project Board Meeting	1	Evaluation report presented
Online Participation in final review meeting of project	1	
Finalization of the report on the basis of final comments received and presentation of final evaluation report	2	Evaluation report
Total working days (incl. travel)	35	

The evaluation team must be equipped with a laptop and cellular communication means. The evaluation team will report directly to the Deputy Resident Representative of UNDP Barbados and the OECS through the Project Coordinator.

12.1 Payment

Payments would be made upon submission and approval of the following deliverables as highlighted in section 6 above

- Inception report agreed by UNDP – (17 October 2016) – 20%
- Presentation of preliminary evaluation findings to UNDP – (7 November 2016) - 10%
- Draft evaluation report and presentation of the findings, conclusions and recommendations provided - (18 November 2016) – 40%
- Final evaluation report provided and agreed by UNDP – (9 December 2016) – 30%

Payments are contingent on performance which include:

- Timely achievement of satisfactory outputs
- Demonstrated reliability

12.2 Travel and allowances

Travel for 2 missions (Barbados and St. Vincent and the Grenadines) will be required as part of this assignment. Applicants must ensure that they have in their possession all the necessary visas to travel and must make all of the arrangements themselves to facilitate travel (airline ticket cost, hotel, meals, taxi services). Airline tickets must be the most economical option. The cost for travel and allowances (hotel, all meals, taxi etc.) must be included as part of the overall cost to be provided in Appendix 1 below.

12.3 Reporting

The evaluator will report to the Climate Change and Disaster Risk Resilience Portfolio at UNDP through the Technical Coordinator.

13. INSTRUCTIONS TO APPLICANTS

13.1 Contents and Submission of Applications

Applications must include:

- Detailed resume outlining experience conducting evaluations
- Proposed approach for implementation of task
- Completed UNDP Personal History Form. This form is found on the UNDP website at <http://www.bb.undp.org/content/barbados/en/home/operations/jobs/>

13.2 Selection, evaluation and negotiation

Submissions must fulfil the profile minimum requirements and comply with the application instructions in order to be evaluated.

Technical evaluation of offers (70 points)

A two-stage procedure will be utilized in evaluating the submissions, with evaluation of the technical component being completed prior to any price component being reviewed and compared. The price component will be reviewed only for those proposals whose Technical

Component meets the requirements for the assignment. The minimum number of points to move to the second stage (evaluation of quotes/financial evaluation) is 49

The technical component, which has a total possible value of 70 points, will be evaluated using the following criteria:

- a) **Quality of resume (15 points)** – [Excellent - 15 points; Good - 13.5 points; Satisfactory - 10.5 points; Poor - 6 points; Very Poor - 1.5 points; No submission - 0 points]
- b) **Minimum of five (5) years’ documented experience in monitoring and evaluating projects (15 points)** - [Over 5 years - 15 points; 5 years - 13 points; 4 - 5 years - 11 points; 3 years - 9 points; 2 years - 5 points; 1 year or less - 3 points]
- c) **Minimum of three (3) years’ documented experience in disaster risk reduction or related field within the Caribbean (10 points)** – [Over 3 years - 10 points; 3 years - 9 points; 2 years - 7 points; 1 year - 4 points; Less than 1 year - 2 points]
- d) **At least 2 documented cases of conducting previous project evaluations for UN agencies, regional or international organisations (10 points)** - [Over 2 cases - 10 points; 2 cases - 9 points; 1 case - 7 points; 0 documented cases - 1 point]
- e) **The approach proposed for implementation of the tasks described (20 points)** - [Excellent - 20 points; Good - 18 points; Satisfactory - 14 points; Poor - 8 points; Very Poor - 2 points; No submission - 0 points]

Evaluation of Quotes

If applicants receive more than 49 points in the technical evaluation, the competitiveness of the quotes will be taken into account in the following manner:

The overall evaluation score will be based either on a combination of the technical score and the financial offer (combined weighting).

The formula for the rating of the Proposals will be as follows:

Rating the Technical Proposal (TP):

$$\text{TP Rating} = (\text{Total Score Obtained by the Offer} / \text{Max. Obtainable Score for TP}) \times 100$$

Rating the Financial Proposal (FP):

$$\text{FP Rating} = (\text{Lowest Priced Offer} / \text{Price of the Offer Being Reviewed}) \times 100$$

Total Combined Score:

$$\frac{(\text{TP Rating}) \times (\text{Weight of TP, e.g. 70\%}) + (\text{FP Rating}) \times (\text{Weight of FP, e.g., 30\%})}{\text{Total Combined and Final Rating of the Proposal}}$$

Extensions and amendments: UNDP may, at its discretion, extend the deadline for the submission of Quotations. UNDP also reserves the right to cancel any Request for

Quotation (RFQ) previously published at any time. Potential bidders will be notified of deadline extensions, amendments or cancellations at <http://www.bb.undp.org/content/barbados/en/home/operations/procurement/>

Clarification: Clarification on any details contained within this document must be sent to procurement.bb@undp.org. Responses to clarifications will be uploaded to <http://www.bb.undp.org/content/barbados/en/home/operations/procurement/>

ANNEX B: TERMINAL EVALUATION CRITERIA AND THE QUESTIONS

Before undertaking the Terminal Evaluation, an Inception Report was presented, including the proposed tasks, activities and deliverables, as well as a table of main evaluation questions that need to be answered to determine and assess project results. This table of evaluation/review criteria and questions is presented in the Box below.

Contents	Main Questions and Evaluation Scope
<p>Project description and development context</p> <ul style="list-style-type: none"> ● Project description and development context (objectives, project participants, objectives and main outcomes; Project duration and timing) ● Problems that the project sought to address ● Immediate and development objectives of the project ● Baseline indicators established ● Main stakeholders ● Expected Results 	
Findings: Project Results	
3.1 Overall results	<p>In assessing overall results</p> <ul style="list-style-type: none"> ● What is the achievement of the objectives against the end of the project values of the log-frame indicators for outcomes/outputs, indicating baseline situation and target levels, as well as position at the close of the project? ● What are the possible issues while employing CAP based early warning systems?
3.2 Relevance	<p>In assessing relevance:</p> <ul style="list-style-type: none"> ● To what extent is UNDP’s engagement a reflection of strategic considerations, including UNDP’s role in this particular development context and its comparative advantage? ● To what extent is the initiative in line with UNDP’s mandate, national priorities and the results of targeted women and men ● To what extent was the projects selected method of delivery appropriate to the development context? ● Is the initiative/project aligned with national and sub-regional strategies, UNDPs and ECHO mandate? ● Is it consistent with human development needs and the specific development challenges in the countries and sub-region?
3.3 Effectiveness	<p>In assessing effectiveness:</p> <ul style="list-style-type: none"> ● What have been the observed changes at the outcome level? ● To what extent have expected outputs been achieved or has progress been made towards their achievement? ● How has the project contributed to outcome level changes? Did it at least set dynamic changes and processes that move towards the long-term outcomes? ● What factors have contributed to achieving or not achieving intended outputs and contributions to outcomes? ● If applicable, has the partnerships strategy developed for this project been appropriate and effective? ● What has been the contribution of partners and other organizations, especially beneficiary countries organizations, to the outcome, and how effective have been the project partnerships in contributing to achieving the outcome? ● What were the positive or negative, intended or unintended, changes brought about by the project? ● Has the project built on recommendations from previous related project

ANNEX C: DOCUMENTS REVIEWED

PROJECT DOCUMENTS

Project Document
Barbados Inception Meeting Report
SGV Inception Meeting Report
Dominica Inception Meeting Report
St Lucia Inception Meeting Report
Undated Project Document
Intermediary Report
Intermediary Report Annex
Barbados Review Meeting Minutes
Financial and Administrative Framework Agreement
Sub-regional Programme Document
UNDP Barbados and OECS 2012-2016
Request for Time Extension 1
Request for Time Extension 2
Combined Delivery Report 2015
Combined Delivery Report 2016
Letter Approving Extension of Project Timelines to Feb 2017

MINUTES OF BOARD MEETINGS

Minutes of Board Meeting - April 2015
Minutes of Board Meeting - Feb 2016
Minutes of Board Meeting - Sep 2016

PROJECT PROGRESS REPORTS

Progress Report Sep 15
Progress Report Oct 15
Progress Report Feb 16
Progress Report Mar 16
Progress Report May 16
Progress Report Sep 16

CASE STUDIES and TOOL KIT

Tool Kit -Write-up
Best Practice Guide for Warning Originators
Case Study Submission Guidelines
Anguilla Case Study Development

KAP Survey and VCA

Red Cross Agreements
VCA Report - Martins Bay, Barbados
VCA Report - Shermans, Barbados
VCA Report - Colihant, Dominica
VCA Report - Dennery, St Lucia
VCA Report - South Rivers, St Vincent
VCA Report - Vermont, St Vincent and the Grenadies

Baseline KAP Survey - Martins Bay, Barbados
Baseline KAP Survey - Shermans, Barbados
Baseline KAP Survey- Dublanc, Dominica
Baseline KAP Survey - Colihant, Dominica
Baseline KAP Survey - South Rivers, St Vincent
Baseline KAP Survey - Vermont, St Vincent and the Grenadies

EDUCATION COORDINATORS REPORTS

Education Coordinators Reports - Barbados
Education Coordinators Reports - St Vincent
Education Coordinators Reports - Dominica
Education Coordinators Reports - St Lucia

PROPOSED INSTALLATIONS - OUTCOME 3

Proposed Installations - Barbados
Proposed Installations - St Vincent
Proposed Installations - Dominica
Proposed Installations - St Lucia

RFPs

RFP Rain Gauze and Water Level Equipment
RFP for Provision and installation of RDS
RFP for Design and Installation of CAP Server
Evaluation of RFP for Rain Gauze and Water Level
Evaluation of RFP for Design and Installation of CAP Server

OTHERS

EWS Harmonized Implementation Plan EU
EWS Final Submitted Proposal
ESW Desk Review Report
CAP Phase 1 Evaluation Report
Emergency Warning Policy Revised
DIPECHO Projects in Caribbean 2015-16
EWS Desk Review Comments
Report of the Caribbean Early Warning System (EWS) Workshop - April 2016
CIMH Contract

ANNEX D: FIELD VISITS AND LIST OF PEOPLE INTERVIEWED

Date	Day	Meeting with	Persons Meet	Contact Details
27 Nov 2016	Sunday	Arrival of Dinesh Aggarwal		
28 Nov 2016	Monday	Project Coordinator at UNDP	Mr. Marlon Clarke	Tel (246) 467-6025 marlon.clarke@undp.org Skype ID: maver1ck246
29 Nov 2016	Tuesday	Caribbean Institute for Meteorology and Hydrology (CIMH)	Dr David Farrell – Principal Mr. Shawn Boyce Chief Hydrologist	Tel (246) 425-1362 dfarrell@cimh.edu.bb sboyce@cimh.edu.bb
29 Nov 2016		Education Coordinator	Ms. Lyn Marie Deane	lynmarie.deane@gmail.com
30 Nov 2016	Wednesday	ECHO	Ms. Virginie Andre Coordinator for the Caribbean	On Skype Tel: (505) 2 270 6201 Ext. 111 Cel: (505) 8627 4003 E-mail: virginie.andre@echofield.eu
		Travel to SVG		
01 Dec 2016	Thursday	Data analysis		
02 Dec 2016	Friday	National Red Cross Society, SVG	Mr. Bernard Morgan President Mr. Bernard Marksman Director General	In Person Tel (784) 456-1888 info@svgredcross.org
03 Dec 2016	Saturday	Data Compilation and analysis		
04 Dec 2016	Sunday	National Emergency Management Organisation, SVG	Ms. Michelle Forbes Deputy Director	In Person Tel (784) 456-2975 nemosvg@gmail.com
05 Dec 2016	Monday	Travel to Barbados		
05 Dec 2016		Education Coordinators, Dominica (on Skype)	Mr. Wayne Abraham	Skype ID: wayneabraham
05 Dec 2016		National Red Cross Society, Dominica	Mrs. Kathleen J. Pinard-Byrne	On Skype (767) 440-2483/448-8280 directorgeneral@redcross.dm
06 Dec 2016	Tuesday	Community Leader – Dubalase, Dominica	Ms Rosima	
		Dy. Country Director, UNDP, Barbados	Ms Chisa Mikami	In Person
07 Dec 2016	Wednesday	Red Cross Caribbean Disaster Risk Management Reference Centre (CADRIM)	Ms. Reynette Royer - Coordinator Mr. Rendal Allen Ms. Tamara Lovell	In person Tel (246) 417 1530/2727 reynette.royer@ifrc.org rendal.allen@ifrc.org tamara.lovell@ifrc.org
		Caribbean Disaster Emergency Management Agency (CDEMA)	Ms. Elizabeth Riley – Deputy Executive Director Ms. Donna Pierre	In Person Tel (246) 434-4880 elizabeth.riley@cdema.org donna.pierre@cdema.org

			– Disaster Risk Management Specialist	
08 Dec 2018	Thursday	Site Visit, Shermans, Barbados		
		Office of Disaster Management, Dominica (on Skype/phone)	Mr. Fitzroy Pascal National Disaster Coordinator	On Skype (767) 448-7777 odm@dominica.gov.dm fitzroypascal@hotmail.com
09 Dec 2018	Friday	National Emergency Management Organisation Saint Lucia	Ms. Velda Joseph Director	On Skype Tel: (784) 452-3802 director@nemo.gov.lc Skype ID: velda.joseph
		Site Visit, Martins Bay, Barbados		
		Community Leader, Martins Bay, Barbados	Mr. William King	Meeting in person
		Department of Emergency Management (DEM), Barbados	Ms. Kerry Hinds - Director Ms. Joy-Anne Johnson – Programme Officer	Meeting in person Tel (246) 438-7575 kerry.hinds@barbados.gov.bb joy-anne.johnson@barbados.gov.bb
10 Dec 2016	Saturday	Data Compilation and analysis		
11 Dec 2016	Sunday	Data Compilation and analysis		
		Community Leader, Shermans, Barbados	Ms. Cheryl Rowe	On Phone 439-6628 829-8525
12 Dec 2016	Monday	Data Compilation and analysis		
		Preparation of Presentation on Initial findings		
13 Dec 2016	Tuesday	Education Coordinators, Dominica (on Skype)	Mr. Clement Richards	On Skype Skype ID: bouzaiproduct
		Presentation of Initial Findings		
		Closure of mission		
14 Dec 2016	Wednesday	Departure of Dinesh Aggarwal		

ANNEX E: SINGED UNEG CODE OF CONDUCT FORMS

Evaluators/reviewers:

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, minimise 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 wrong doing 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 limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation/reviewer Consultant Agreement Form

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

Name of Consultant: Dinesh Aggarwal

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

Signed at: New Delhi

Signature:



