UNITED NATIONS DEVELOPMENT PROGRAMME

PROJECT AMMENDMENT

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Project Title: Community Flood Early Warning Systems (CFEWS) Enhanced in Trinidad and Tobago – Phase 2
Project Number: TBD
Implementing Partner: Office of Disaster Preparedness and Management, Ministry of National Security, Trinidad and Tobago
Start Date:1 June, 2021 **End Date:** 31 July 2025 **PAC Meeting date:** N/A

Brief Description

Trinidad and Tobago is highly susceptible to flooding. Although comparably being perceived as events of lower magnitude, floods have had a significant economic and social impact in the country throughout the years; for example, damage and losses from flood events in the years 1993, 2002 and 2006 were US$580,000, US$3,300,000 and US$2,500,000, respectively (Roopnarine, et al., 2018). The most recent major event reported in the country took place in October 2018 and affected an estimated 150,000 people from 4,100 households (IFRC, 2018). According to the President of the Agricultural Society of Trinidad and Tobago, approximately 75% of local farmers in the country were severely affected through the loss of crops and livestock (IFRC, 2018). A record of hazard events in Trinidad and Tobago during the period 2011-2014 show 695 flood events, 277 strong wind events and 179 landslide events as the top three categories of hazards; highlighting that flooding is a significant and recurring hazard for the country.

The 10th meeting of the Joint Select Committee on Land and Physical Infrastructure indicated that there is need for (i) closer collaborations amongst entities responsible for flood alleviation and control of major river basins, (ii) spatial data to undertake flood mapping and risk analysis to support decision making and (iii) more public education and the building of resilience in the communities themselves to prepare, respond and adapt to floods. Also, the Water Resources Agency (WRA) manages a rainfall monitoring system which comprises rainfall and river monitoring stations; the key challenge is that the flood monitoring network consists of a mixture of aged, manually operated instruments and outdated telemetric components. The issue with flooding is compounded by the fact that the official hurricane season coincides with the country's rainy season.

The specific objectives for Phase 2 are to build on the successes of CFEWS Phase 1 and continue to strengthen community and national capacities for generating impact-based flood early warnings and effectively planning and executing anticipatory actions. Under Phase 2, there are twelve additional sites targeted by this action, 5 are from Tobago and 7 are from Trinidad. The majority of these communities are in areas highly susceptible to flooding and are among the most vulnerable. This actions under Phase 2 continues with the result areas of CFEWS Phase 1 but expands and deepens these Results through enhanced and new activities. The Outputs established under Phase 1 and carried through Phase 2 are: (i) enhance capacities for detecting, monitoring, analysing and forecasting of flood hazards; (ii) expand the flood early warning information communication/ dissemination platform to reach more communities, municipalities and governmental agencies; (iii) enhanced flood management and coordination at the community and national levels and(iv) improved emergency response capacities in a crisis. Additional activities under these outputs for Phase 2 are designed to increase and enhance the impact of the activities undertaken during Phase 1. These additional activities under Phase 2 are:

a) *Output 1 - Enhance capacities for detecting, monitoring, analysing and forecasting of flood hazards. The added activities are:*
   i. *Procurement of a HydroSurveyor to collect information on flow rates and rainfall-runofff relationships.*
   ii. *Procurement of five (5) rainfall stations to be deployed in areas to support monitoring, forecasting and modelling.*

b) *Output 3 - Enhanced flood management and coordination at the community and national levels. The added activity is:*
   i. Conduct of a flood hazard susceptibility study for Tobago.

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Contributing Outcome (RPD):
Outcome 2. Risk-informed climate change and sustainable development frameworks that promote healthy ecosystems and sustainable livelihoods, and reduce risk, especially for people in vulnerable conditions (Strategic Plan 3.3.1)
Indicative Output(s) with gender marker[2]:
Output 1: Capacities enhanced for detecting, monitoring, analysing and forecasting of flood hazards. GEN 2
Output 2: Flood early warning information communication/dissemination platform is expanded and useful to more communities, municipalities and governmental agencies in Trinidad and Tobago. GEN 1
Output 3: Coordination and management of floods at the community and national levels are enhanced. GEN 1
Output 4: Improved emergency response capacities in a crisis. GEN 1
Overall Project gender marker is 1

Total resources required:	€1.250.000.00 (US$1.414,740.54) (Total) Phase 1 – 01 June 2021 to 30 May 2023 Budget: €400,000.00 (US$487,804.88[1] Phase 2 – 01 Aug 2023 to 31 July 2025 Budget: €850.000.00 (US$926,935.66)[2]	
Total resources allocated:		
	Co-financing	
	Donor:	€850.000.00(US$926,935.66)
	Government:	
	In-Kind:	
Unfunded:	0	

Agreed by (signatures):

Government - Ministry of National Security (MNS)	UNDP Trinidad and Tobago, Aruba, Curaçao and Sint Maarten
Print Name: The Honourable Fitzgerald Ethelbert Hinds M.P, Minister, MNS	Print Name: Ms Sharifa Ali-Abdullah, OIC Assistant Resident Representative, UNDP
Date: 5th June 2023	Date:

[1] Exchange rate at Feb 2021 used 1USD=0.82 Euros

[2] Exchange rate as of 22 May 2023 used:1USD=0.917 Euros

BACKGROUND AND OVERVIEW – PHASES 1 and 2

The Community Flood Early Warning Systems (CFEWS) Project ran for two (2) years during the period 01 June 2021 to 30 May 2023. During CFEWS Phase 1, the national early warning system (EWS) was complemented by the following actions including *inter alia* the installation of seven (7) stream gauges, three (3) antennas, one (1) high-speed computer, capacity building in flood forecasting, modelling and mapping for public officers, a flood-management governance mechanism and, community-based capacity building in flood response. While the actions under Phase 1 have made considerable progress in bridging the gap, there remains outstanding priority areas in the national EWS which will be supported by the proposed actions of this intervention (Phase 2).

In this vein, Phase 2 of the CFEWS Project is expected to run for 2 years, with an expected start date as 01 August 2023, and a projected end date as 31 July 2025. Phase 2 expands and deepens the results from Phase 1 by supporting the expansion of a more robust national and community-level EWS and deepening a resilient culture within and across communities. The Results Framework (see Annex 2) for Phase 2 builds on the baselines established under Phase 1 and sets new targets for some indicators.

The Actions under Phase 1 and proposed actions in Phase 2 are interlinked as almost all aspects of Phase 2 (see Annex 1 – Multi-Year Work Plan – 2023 to 2025) seek to extend and enhance the impact of the activities undertaken during Phase 1. Phase 2 deepens the results under Phase 1 by expanding the geographic coverage of the national EWS by adding seven (7) stream gauges, five (5) rainfall stations, two (2) antennas and one (1) hydro surveyor; establishing a baseline flood hazard susceptibility for Tobago, increased capacity building in beneficiary communities and expanding the gender and age study to the target communities under Phase 2. Further, across both Phases 1 and 2, all the stream gauges and rainfall stations are solar-powered, thereby utilising green, sustainable energy solutions while expanding EWS coverage. Phase 2 also builds on the foundation established in Phase 1 by building technical capacity within government agencies to generate more accurate flood models and flood maps, as well as supporting the recommendations from the Interagency Coordinating Mechanism (ICM) which includes improved coordination among agencies involved in flood management.

Further, the specific objectives under Phase 2 remain the same as those under Phase 1 and continue to strengthen community and national capacities for generating impact-based flood early warnings and effectively planning and executing anticipatory actions. To achieve this, Phase 2 continues to target the four result areas in Phase 1 that aim to (i) enhance capacities for detecting, monitoring, analysis and forecasting of flood hazards in twelve (12) sites – five (5) in Tobago and seven (7) in Trinidad;(ii) expand the flood early warning information communication/dissemination platform to reach more communities, municipalities and governmental agencies; (iii) enhance capabilities for the coordination and management of floods at the community and national levels and (iv) improve emergency response in a crisis. While the Results and Activities for both Phases 1 and 2 are continuous and interlinked, under Phase 2, there are three additional Activities, specifically 1.4, 1.5 and 3.3 (see Annex 1).

Phase 2 targets a total of 12 sites (see Annex IV) – 7 stream gauge sites and 5 rainfall. Seven (7) sites for stream gauge installations include: Arima, Guanapo, Navet, Guapo, Lois D'or, Bloody Bay and Richmond (with the last three in Tobago), and the five (5) sites for rainfall stations are

La Canoa, Guanapo II, Tableland, Bloody Bay and Bacolet (with the last two in Tobago). These sites under Phase 2 ensure coverage for mainly rural areas currently poorly resourced by early warning systems (EWS), are semi agrarian/rural and ensure balance in coverage since the sites covered by Phase 1 are mainly urban and peri-urban. This design balances out the focus on urban and peri-urban sites in the ongoing project. Further, the geographic spread of the EWS infrastructure (stream gauges and antennas) established under Phase 1 is expanded with the stream flow and rainfall gauges in additional communities.

The rationale for the selection of beneficiary communities (sites) for both the existing and expanded sites in Trinidad and Tobago remains consistent with the selection criteria for Phase 1 - *(i) there is high susceptibility to flooding (ii) communities populated and/or have agriculture subsistence activities and (iii) there are currently no streamflow stations or rainfall gauges.* The distribution of the beneficiaries by sex, age group and disability in these seven communities are depicted in the table below.

Table 1: CFEWS Phase 2 - Distribution of Beneficiaries by Age Group, Sex and Disability

	Male	*Female*	*Sub-total*
0-4	1,847	1,886	3,733
5-17	4,608	4,408	9,016
18-49	12,025	12,142	24,167
>50	6,436	6,597	13,033
SUB-TOTAL	**24,824**	**25,125**	**49,949**
Disabilities	***906***	***986***	***1,892***

Source: CSO, 2010

To address the needs and risks identified, Phase 2 develops the foundation established under Phase 1 by continuing to contribute towards flood risk informed planning and expanding development across Trinidad and Tobago to reduce loss of life and minimize displacement and poverty.

The Monitoring and Evaluation programme (See Annex III), key partners and Governance and Management Arrangements (see Annex IV: Governance and Management Arrangements) for CFEWS Phase 2 remain the same as established in Phase 1. The national partners remain the most relevant agencies for flood EWS in Trinidad and Tobago. These include: Office of Disaster Preparedness and Management which is the lead national coordinating agency for disaster management; the Ministry of Rural Development and Local Government is the lead agency for disaster management response; the Water Resources Agency (WRA) is charged with the responsibility for monitoring the country's water resources, and manages a hydrological monitoring system which comprises rainfall and river monitoring stations, which relay real time data from remote sites in various basins to a base station situated at the WRA; Trinidad and Tobago Meteorological Services provides weather and climate forecasts; Ministry of Works and Transport (Drainage Division) develops and maintains main watercourses and irrigation systems, and the Tobago Emergency Management Agency (TEMA) coordinates water and wastewater management and the development of infrastructure in Tobago. Phase 2 will continue to recognise

the contribution of Trinidad and Tobago Red Cross in community-level capacity building as the TTRCS will be included as an *ex-oficio* Project Board Member.

The actions under Phase 1 have made considerable strides in building public awareness and the resilience of the communities themselves to prepare and respond to floods. This remains a priority activity for the additional geographical areas and satellite communities since there has been an increase in the intensity of flood events. As such, the public education and awareness activities through Phase 2 will underscore the benefits of anticipatory actions to the wider geographic areas, thereby increasing and deepening impact in the additional communities and at the national level.

Phase 1 identified the need for robust spatial data as input to flood hazard susceptibility mapping and risk analysis. While flood mapping and capacity building in flood forecasting were activities undertaken by the current action, there remains the need for robust spatial data to allow the models built to accurately reflect vulnerabilities and the impacts of events. As such, in Phase 2, a flood hazard susceptibility study will be conducted tor Tobago fill this gap.

The Actions under Phase 1 are being sustained, and appropriately enhanced, through Phase 2, as there is a continued need to reduce risks, expand the national early warning system coverage, and strengthen anticipatory actions through prevention and adaptation mechanisms in Phase 2.

Annex 1- Multi-Year Workplan – 2023 to 2025 (CFEWS Phase 2)

I. MULTI-YEAR WORK PLAN [3] [4]

There are two multi-year work plans contained in this section; one is in Euros and the other is in USD.
The exchange rate that was used at the time of the proposal development is 1USD=0.917 Euros[5].

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
Output 1: Capacities enhanced for detecting, monitoring, analysing and forecasting of flood hazards ***Gender marker:2***	**Activity 1.1: Gender and age analysis completed to inform the mainstreaming of gender considerations in the work plan of the project** Sub-activity 1.1.1: Undertake gender and age analysis Sub-activity 1.1.2: Incorporate findings from gender and age analysis into the work plan of the project Sub-activity 1.1.3: Promotion and awareness of the findings of the study for informing other	€9,803.16	€10,000	UNDP	ECHO		1

[3] Cost definitions and classifications for programme and development effectiveness costs to be charged to the project will be defined in the Executive Board decision.
[4] Changes to a project budget affecting the scope (outputs), completion date, or total estimated project costs require a formal budget revision that must be signed by the project board. In other cases, the UNDP programme manager alone may sign the revision provided the other signatories have no objection. This procedure may be applied for example when the purpose of the revision is only to re-phase activities among years.
[5] https://treasury.un.org/operationalrates/OperationalRates.php (Exchange rates in May 2023 used)

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	policies, strategies and/or actions related to flooding						
	Activity 1.2: Flood models and maps developed to support impact-based forecasting and for the building of mitigation and preparedness capacities Sub-activity 1.2.1: Procure and install high speed supercomputer. Sub-activity 1.2.2: Collect data required for the development of flood maps Sub-activity 1.2.3: Train stakeholders and develop usable flood maps	€12,084.10	€10,000	UNDP	ECHO		2
	Activity 1.3: Streamflow and rainfall stations deployed in communities highly susceptible to flooding in Trinidad and Tobago Sub-activity 1.3.1: Procure, prepare site, construct infrastructure,	€139,680.12	€ 71,546,63	UNDP, WRA, Beneficiary Communities	ECHO		3

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	install, test streamflow and rain gauge stations Sub-activity 1.3.2: conduct measurements (river profiling, threshold levels, velocity, discharge etc.) Sub-activity 1.3.3: Install signage and launch of sites with sensitization session for community members						
	Activity 1.4 HydroSurveyor operationalised to collect information on flow rates and rainfall-runoff relationships Sub-activity 1.4.1: Procure Hydro Surveyor Sub-activity 1.4.2: Operationalize and commission Hydro surveyor (real time data collection).	€71,118.44	€9,000.00				4
	Activity 1.5 Rainfall stations deployed in areas to support monitoring, forecasting and modelling Sub-activity 1.5.1 Procure,	€99,103.63	€42,971.28				5

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	prepare site, construct infrastructure for rainfall stations Sub activity 1.5.2 Test and commission rainfall stations Sub-activity 1.5.3: Install signage and launch of sites with sensitization session for community members.						
SUB-TOTAL		**€331,798.45**	**€ 143,517.91**			**€ 475,307.36**	
Output 2: Flood early warning information communication/dissemination platform is expanded and useful to more communities, municipalities and governmental agencies in Trinidad and Tobago ***Gender marker:1***	**Activity 2.1 Communications platform expanded and functional to strengthen coverage in Trinidad and Tobago** Sub-activity 2.1.1 purchase 3 Omni antennas Trinidad and Tobago Sub-activity 2.1.2: Select site, prepare site, install and test antennas.	€30,396.49 *(purchase of antennas)*	€9,000.00 *(installation)*	WRA, UNDP	ECHO	€15,591.55 €12,126.77 €30,490.15	6

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	Activity 2.2 Website for facilitating information dissemination is developed and functional Sub-activity 2.2.1: Design website for real-time information sharing from streamflow and rainfall gauges, promoting PEA product and sharing impact-based forecasts	€22,354.69	€ 16,354.69	WRA, ODPM, Met Services, Web Development Consultant, Communications Specialist (UNDP)	ECHO	€13,776.00 €5,740.00 €6,150.00	7
	Activity 2.3 Flood Public Education and Awareness Campaign and Warning Communication and Dissemination Channels strengthened Sub-activity 2.3.1: Develop work plan for PEA campaign Sub-activity 2.3.2: Develop products for PEA campaign Sub-activity 2.3.3: Develop products and channels for enhancing the sharing of warning	€ 27,015.35	€ 63,010.70	Communications Specialist, WRA, ODPM, Beneficiary Communities	ECHO	€22,632.00 €10,250.00	8

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	information						
SUB-TOTAL		**€ 79,766.53**	**€ 88,365.39**			**€ 168,131.92**	
Output 3: Coordination and management of floods at the community and national levels are enhanced. ***Gender marker:1***	**Activity 3.1 Community Hydrological Observers are established and trained to better prepare for, respond to and recover from flood hazards** Sub-activity 3.1.1: establish CHO networks Sub-activity 3.1.2: convene training of CHO networks in CERT Sub-activity 3.1.3: convene training of CHO networks in installation, calibration, maintenance and troubleshooting, data retrieval, quality Assurance/ Control	€7,263.45	€8,000.00	MRDLG, WRA, Red Cross, Beneficiary communities	ECHO	€0.00	9
	Activity 3.2 Strengthen an inter-agency coordination mechanism, and support an integrated flood management plan and Standard Operating Procedures for issuing flood warnings	€44,990.54	€44,990.55	UNDP, WRA, ODPM, Met Services, MRDLG, Red Cross	ECHO	€41,328.00 €820.00 €8,200.00	10

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	Sub-activity 3.2.1: Draft TOR, convene first meeting of ICM Sub-activity 3.2.2: Convene routine meetings of the ICM to test, review, and/or update SOPs.						
	Activity 3.3: Conduct a flood hazard susceptibility study for Tobago and validate results. Sub activity: 3.3.1 Conduct flood hazard susceptibility study for Tobago Sub activity 3.3.2 Validate results and obtain approval Sub activity 3.3.3 Support the implementation of the study Sub activity 3.3.4 Obtain endorsement of findings of the study/ publish report	€17,815.22	€20,262.00				11
	Activity 3.4: A document capitalization of this action is prepared and	-	-				14

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
	disseminated Sub activity 3.4.1 Undertake capitalization activity at key intervals during the project eg: completion of gender analysis, installation of equipment etc. Sub activity 3.4.2 undertake capitalization activity at the end of the project (tagged to the evaluation exercise). Sub activity 3.4.3 incorporate information from the capitalization process in the communications activities, as appropriate for information dissemination. Ensure sharing with ECHO for posting on the website: http://dipecholac.net and preventionweb as a platform for dissemination of the ECHO funded action.						
SUB-TOTAL		**€70,060.21**	**€73,252.55**			**€143,321.76**	

Expected Outputs	Planned Activities	Year 1	Year 2	Responsibility	Funding Source	Total Amount (Euros)	Budget Notes
Output 4: Improved emergency response capacities in a crisis ***Gender marker:1***	**Activity 4.1 Anticipatory actions supported** Sub-activity 4.1.1: Convene emergency meeting of the Project Board to operationalize CM, including prioritization of areas, scope of works, budget etc. Sub-activity 4.1.2: undertake anticipatory actions through the established CHO networks	€0.00	€0.00	CHO networks, ODPM	ECHO	€0.00	12
	Activity 4.2 Response actions supported Sub-activity 4.2.1: Convene emergency meeting of the Project Board to operationalize CM, including prioritization of areas, scope of works, budget etc. Sub-activity 4.2.2: undertake response actions through the established CHO networks	€0.00	€0.00	CHO networks, ODPM	ECHO	€0.00	12
SUB-TOTAL		€0.00	€0.00			€786,761.04	
General Management Support (GMS) (7%)			**€ 63,238.96**		ECHO	**€ 63,238.96**	
GRAND-TOTAL		**€481,625.19**	**€368,374.81**		ECHO	**€ 850,000.00**	

Budget Notes (Euros):

No.	Notes on Planned Activities	Notes on Budget Description
1	Sub-activity 1.1.1 is to be sub-contracted to Local or International Consultant. Sub-activities 1.1.2 and 1.1.3 are to be done by the Project Manager and Communications Specialist. Sub-activity 1.1.3 should also engage the national implementing partners.	Consumables is for supporting the convening of any meetings with stakeholders for the conduct of the gender analysis. Sub-contracting refers to Consultant fees, which is estimated at €19,803.16 for undertaking the gender study and leading the implementation of key recommendations of the gender studies.
2	Sub-activity 1.2.1 to be done by Project Manager and WRA. Sub-activity 1.2.2 to be led by WRA. It is estimated that 4 staff members will provide part-time support over 2 months to collect the baseline data required for the flood modelling training. Local Consultant hired at Sub-activity 1.2.3 to provide technical input and guidance on this Sub-activity (remote input if based outside of Trinidad). Sub-activity 1.2.3 to be sub-contracted. Local Consultant to conduct training in flood modeling. If Local Consultant is unavailable, recommended that CIMH be engaged. The budget can be used to support travel and per diem for Trinidad and Tobago.	ICT equipment required is 1 Toughbook computer which be used in the field with the hydro surveyor to collect real time data. Detailed specs to be provided by WRA. Sub-activity 1.2.2 to be co-financed by WRA. Flood model consultant budget is estimated is € 15,040.00
3	Sub-activities 1.3.1 – 1.3.2 to be led by WRA (Technical Lead) with support from the Project Manager for the procurement of equipment. Local teams to be used for all works required. Sub-activity 1.3.3 to be led by Communications Officer	Personnel budget line covers 20% of Project Manager Salary. Salary is budgeted at €3,438 per month for 24 months. 20% is € 16,506.00. 50% Project Assistant Salary (USD$30,164.16 x 0.917 = Euros 27,660.53) Equipment budget is for the purchase of 7 stream gauge stations. Approximately €20,325.20 budgeted per monitoring station. Construction costs is approximately € 1,832.46 to prepare each site and undertake necessary construction works for the installation of the 7 stream gauge stations. Communications budget is for any public event, including the building and installation of signage at each site. Visibility of the ECHO must be promoted.
4	Sub-activities 1.4.1 – 1.4.2 to be led by WRA (Technical Lead) with support from the Project Manager for the procurement of equipment. Local teams to be used for all works required.	Personnel budget line covers 20% of Project Manager Salary. Salary is budgeted at €3,438 per month for 24 months. 20% is € 16,506.00. Equipment is the hydro surveyor which is estimated at €62,118.44.
5	Sub-activities 1.5.1 – 1.5.3 to be led by WRA (Technical Lead) with support from the Project Manager for the procurement of equipment. Local teams to be used for all works required.	Personnel budget line covers 20% of Project Manager Salary. Salary is budgeted at €3,438 per month for 24 months. 20% is € 16,506.00. Equipment budget is for the purchase of 5 rainfall stations. Approximately €18,124.77 budgeted per rainfall station. Construction costs is approximately € 2,836.08 to prepare each site and undertake necessary construction works for the installation of the 5 rainfall stations.

No.	Notes on Planned Activities	Notes on Budget Description
6	Sub-activities 2.1.1 and 2.1.2 to be led by WRA (Technical Lead) with support from the Project Manager for the procurement of equipment. Local teams to be used for all works required.	Personnel budget line is for the local staff required to install the 2 Omni antennas. Approximately € 3,393.47 budgeted for labour work per site. Equipment budget is for the purchase of 2 Omni Antennas. Approximately € 7,304.77 budgeted per Omni Antennae. Construction costs are approximately € 9,000.00 per site and includes the materials required to construct base etc. for the installation of the Antennas
7	Sub-activity 2.2.1 to be sub-contracted to web-developer; oversight provided by Project Manager and Communications Officer	Personnel budget is 20% of Project Manager's salary. Sub-contracting is the Web-Developer Consultant fees to enhance functionality with website (multi-lingual content, mass alerts).
8	Sub-activities 2.3.1 – 2.3.4 to be led by Communications Officer.	Personnel budget line is salary Comms Officer to be hired for 18mths at € 2,307.55 per month. Subcontracting includes the following: Videographer/ Photographer fees for Communications, Visibility and Public Education and Awareness campaign of the Project at a cost of approximately USD$10, 000.USD$10,000 x 0.917 = Euros 9,170 Graphic Designer to support Communications Specialist and project team at a cost of USD$10,000 for the 24-month duration of the project. USD$10000 x 0.917 = Euros 9,170 USD$5,000 to secure recent figures/reports to accurately track impact through Communications and Visibility. USD$5000 x 0.917 = Euros 4585 Consultant services for final MR project evaluation USD$19,154.85 x 0.917 = Euros 17,565 Communications and Visibility budget is expected at USD$18,482.92 x 0.917 = Euros4,000.00 Institutional Visibility Actions to be conducted as per eSF guidelines and General Conditions - budget Euros - 4,000.00
9	Sub-activity 3.1.1 to be led by key implementing agencies: WRA, ODPM and MRDLG; oversight provided by Project Manager Sub-activities 3.1.2 and 3.1.4 to be led by MRDLG and WRA, respectively	€1,592.73 to co-financed by WRA/ MRDLG € 15,263.45 to be used for CERT Manuals and PPE for CHOs €11,187.89 to be used for PPEs and €4,075.56 for CERT Manuals
10	Sub-activity 3.2.1 and 3.2.2 to be led by Project Manager and ODPM for supporting the work of the ICM.	Personnel costs is 60% of Project Manager's salary. 50% of Project Assistant Salary (USD$30,164.16 x 0.917 = € 27,660.53) Consumables is budgeted at € 2,000.00 to support any meetings/consultations required to organize and conduct meetings of the ICM.
11	Sub-activity 3.3.1 and 3.3.4 to be led by Project Manager and ODPM for supporting the work of the flood hazard study in Tobago	Personnel costs is 20% of Project Manager's salary. Subcontracting is for a Consultant fees to conduct flood hazard susceptibility study for Tobago and obtain endorsement of the findings (€21,553.22)

No.	Notes on Planned Activities	Notes on Budget Description
12	No monies budgeted for this output. Pending trigger of crisis modifier.	Up to a maximum of 5% of the ECHO funds will be reallocated to support anticipatory or response actions, should the need arise.
13	***General Management Support (GMS)***	For UNDP and ATLAS, GMS is calculated at 7% of the programmatic budget, audit, M&E and UNDP operational costs, (total is € 903,413.72), which equates to € 63,238.96.
14	***Monitoring and Evaluation***	A budget of € 19,154.85 is allocated for the hiring of an external evaluator for the conduct of the Final evaluation. This should occur during the last quarter of the project. **Important Note:** In APPEL, the Evaluation is budgeted under Activity 2.3.2; Budget line – Sub-contracting.

Annex 2 – Results Framework – 2023 – 2025 (CFEWS Phase 2)

II. RESULTS FRAMEWORK[6]

Intended Outcome as stated in MSDF: Policies and programmes for climate change resilience, disaster risk reduction and universal access to clean and sustainable energy

UNDP Country Programme: Output 4.1. Disaster risk reduction approaches integrated into relevant national, sectoral and community-based planning frameworks and processes.
Output indicators as stated in the UNDP Country Programme, including baseline and targets:
Indicator: Number of new plans that integrate disaster risk reduction approaches in line with the Sendai Framework, including gender
Baseline: 0
Target: 4

UNDP Strategic Plan Outcome 3: Strengthen Resilience to Shocks and Crises

Applicable Output(s) from the UNDP Strategic Plan: 3.3.1. Evidence-based assessment and planning tools and mechanisms applied to enable implementation of gender-sensitive and risk-informed prevention and preparedness to limit the impact of natural hazards and pandemics and promote peaceful, just and inclusive societies

UNDP 2018-2021 Strategic Plan Indicator 3.3.1.1 Number of additional countries with operational end-to-end multi-sectoral early warning systems (EWS) to limit the gender-differentiated impact of (a) natural hazards (b) health shocks (c) economic crises and (d) other risk factors

Project title and Project Number: Community Flood Early Warning System (CFEWS) Enhanced in Trinidad and Tobago – Phase 2

IMPACT[7]	INDICATOR	DATA SOURCE	BASELINE	*TARGETS*	*DATA COLLECTION METHODS & RISKS*
To improve flood risk response, planning and development across Trinidad and Tobago so as to reduce loss of life, minimize displacement and poverty.	# of people at the beneficiary sites reached by the combined flood early warning channels	CHO reports of preparatory actions undertaken (door-to-door visits etc.) Reports of the Communications Specialist Reports of the Web Developer Website hits/analytics Social media analytics (FB, Instagram, Twitter) Communities outreach activities post flooding events by the MRDLG and WRA will help to determine the reach of flood early warnings.	0 (for the proposed sites under Phase 2)	*49,949 (Phase 2)*	*Some of these reports will be housed at the WRA, ODPM and/or MRDLG and will be supplied to the Project Manager for reporting. Interviews will also be undertaken by the Project Manager as part of the data verification process.* *Data will be disaggregated by sex, to the best extent possible*
EXPECTED OUTPUTS	**INDICATORS**	**DATA SOURCE**	**BASELINE**	***TARGETS***	***DATA COLLECTION METHODS***

[6] UNDP publishes its project information (indicators, baselines, targets and results) to meet the International Aid Transparency Initiative (IATI) standards. Make sure that indicators are S.M.A.R.T. (Specific, Measurable, Attainable, Relevant and Time-bound), provide accurate baselines and targets underpinned by reliable evidence and data, and avoid acronyms so that external audience clearly understand the results of the project.

[7] Whilst it is not customary to include indicators at this level in the PRODOC; the project will be expected to report on this indicator to ECHO via APPEL

			Value	Year	Year 1	Year 2	*FINAL*	*& RISKS*
1. Capacities enhanced for detecting, monitoring, analysis and forecasting of flood hazards	1- Number of people covered by a functional early warning system (disaggregated by sex)	GIS maps of areas covered by the final monitoring stations installed (located with WRA), census data	177,251 (established under Phase 1)	2023	0 persons	49,949	227,200 Phases 1 and 2 total 227,200 cumulatively.	Review of GIS maps with relevant population information for the beneficiary communities. Field visits and interviews (as needed). Risk – Internally displaced populations from within target beneficiary communities impact number of persons covered.
	# males and females benefiting from the training on flood models and maps (disaggregated by agency)	Training reports prepared by the Consultant/Technical Lead on the training. Registration forms will also be utilized.	12	2023	0 persons	12 persons	12 persons *(at least 2 persons from 6 agencies)*	Literature review of training reports, interviews with trainees, if needed. Interviews with key staff at WRA can be undertaken since this national agency will lead on the design and implementation of this training activity. Risks – none/limited since the training report and/or interviewees should be easily accessible given WRA's role as an implementing partner for the project.
	# of recommendations from the gender and age analysis incorporated into the work plan of this project	Report of the gender and age analysis and the revised work plan of this project	5	2023	0 recommendations incorporated into workplan	10 recommendations incorporated into workplan	10 recommendations (cumulatively between Phases 1 and 2) incorporated into workplan	Literature review of gender report and final work plan of the project. Risks – none/limited since this consultancy will be managed by UNDP and the work plan will be prepared by the Project Manager. Therefore, the gender report and the work plan will be readily available at UNDP.
	Number of reports generated to support rainfall-runoff relationships	Reports generated by agencies involved in flood management and water resource management	0	2023	1 report	2 report	3 reports	Reports will be collected from partner agencies based on weather forecasts, model exercises, mapping for vulnerable communities and academic papers.
	Number of communities covered by rainfall data collection network	Reports (Internal or public) produced by the partner agency(ies). Academic articles and papers	0	2023	1 communities	4 communities	5 communities	Review of GIS maps with relevant population information for the beneficiary communities. Field visits and interviews (as needed).

		Installation and coverage reports						
2. Flood early warning information communication/ dissemination platform is expanded to more municipalities and governmental agencies in Trinidad and to Tobago	Number of people reached through Information, Education and Communication on DRR (disaggregated by sex)	Reports of the Communications Specialist Reports of the Web Developer Website hits/analytics Social media analytics (FB, Instagram, Twitter) Registration forms for Communities outreach activities	695,000	2023	100,000 people	255,000 people	1,050,000 people or 75% of the population of TnT	Data will be collected from online tools and reports (web analytics) and surveys with CHOs and beneficiaries Risk –interviewees (if required) are unwilling to complete surveys. Also, misinterpretation of information since many hits for a particular website does not represent the quality (suitability, usefulness, timeliness) of the information being shared.
3. Coordination and management of floods at the community and national levels are enhanced	Number of people participating in interventions that enhance their capacity to face shocks and stresses (disaggregated by sex)	CHO training reports, including registration forms; interviews/survey with trainees, if needed	0	2023	150 persons	250 persons	300 persons [30 persons per 10 communities]	Literature review of CHO training reports and registration forms. Risks – none/limited since the training report and/or interviewees should be easily accessible given MDRLG's role as an implementing partner for the project.
	Number of inter-agency flood management coordination mechanisms functioning	Meeting reports (minutes), after action review report, including registration forms	0	2023	1	0	1 inter-agency coordination mechanism	Literature reviews of meeting reports and review of after-action reports of flood management drills Risks – the elected Secretary will be responsible for the preparation of the meeting minutes. This role might change annually and the quality and standardization in the meeting notes and type of information collected may vary.
	A flood hazard susceptibility study is conducted for Tobago	Data sources for this indicator include reports, literature reviews and consultation reports (including registration forms)	0	2023	0	1 report	1 flood hazard susceptibility report	Data will be collected via literature review and primary data collection methods to develop valid results and maps. Validation report based on consultations with key partners and stakeholders. Risks – none/limited since this consultancy will be managed by UNDP and the work plan will be prepared by the Project Manager. Therefore, the

								gender report and the work plan will be readily available at UNDP.
1. Improved emergency response capacities in a crisis	% of beneficiaries (disaggregated by sex, age and disability) reporting that humanitarian assistance is delivered in a safe, accessible, accountable and participatory manner	The CHO networks will be requested to provide reports on this indicator to the project manager should any of the two CM triggers be activated. Surveys sent to beneficiaries. The final evaluation of this project will also include surveys and questionnaires for beneficiaries to provide information on this indicator	0	2023	0	5% [Due to budget limitations, we anticipate that the project would be able to assist at most 5% of the beneficiary communities]	0	Literature review of CHO reports Risks –not all beneficiaries will complete any surveys shared; the CHO network may not be able to do extensive consultations in the communities due to the COVID-19 pandemic.
	Number of hours between the crisis and the emergency response	Date of the official request to the ODPM's Preparedness and Response Operations from the Chairman of the Council or Mayor for assistance in responding to a Level II flood event's impact on any of the beneficiary communities of this project. Date of the meeting of the project board and agreement to trigger the CM - minutes of the meetings	0	2023	0	72 hours	72 hours	Review of the official request and minutes of the meeting of the Board Risks – none/limited since these official reports will need to be collected by UNDP to trigger either of the crisis response

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
	weaknesses and to inform management decision making to improve the project.		decisions to improve project performance.		
Review and Make Course Corrections	Internal review of data and evidence from all monitoring actions to inform decision making.	At least annually	Performance data, risks, lessons learned, and quality will be discussed by the project board and used to make course corrections.	UNDP, WRA, MRDLG, ODPM, TEMA	N/A
Project Report	A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary, an updated risk log with mitigation measures, and any evaluation or review reports prepared over the period.	Intermediate (months 13 and 4 months prior to the end of the Project Implementation Period. The Final Report is due within 3 months after the end of the Implementation Period.	Revision of achievements and lesson learned, and report to the Donor.	UNDP	N/A
Project Review (Project Board)	The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of project review to capture lessons learned and discuss opportunities for	Once per quarter	Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.	UNDP, UNDRR, WRA, MRDLG, ODPM, TEMA, Donor	N/A

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
	scaling up and to socialize project results and lessons learned with relevant audiences. The project board will meet quarterly				

Evaluation Plan

Evaluation Title	Partners (if joint)	Related Strategic Plan Output	UNDAF/CPD Outcome	Planned Completion Date	Key Evaluation Stakeholders	Cost and Source of Funding
Final Evaluation of the CFEWS Project	UNDP and ECHO			September 2025	Beneficiary communities and staff from UNDP, WRA, MRDLG, ODPM, TEMA, Met Services, Donor	20,000 USD or 18,340 Euros Source: ECHO funds

IV. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

The management arrangements of the project will continue to be governed by the UNDP rules and regulations. These are specifically designed to take into account the requirements of this project and have been successfully applied by the UNDP Trinidad and Tobago Country Office in its partnership projects in the region thus far including CFEWS Phase 1

UNDP assumes responsibility for the day-to-day management of the implementation of the project. This includes: monitoring implementation progress and quality as well as performance of the contractors, financial management (payments, accounting and reporting, budget monitoring and – if needed – revision, and organising the required external audits), ensuring coordination with the relevant stakeholders and with similar interventions/programmes, and providing secretariat services to the project's Steering Committee (convening meetings, establishing agendas, writing minutes and related action plans, monitoring progress on implementation of action plans). UNDP has organised a project office in Port-of-Spain, and the team operates from this office. Technical Support is provided by the UNDP Regional Hub for Latin America and the Caribbean based in Panama. Phase 2 has a maximum duration of 24 months, with three additional months for final reporting.

A Steering Committee or Project Board has been established to oversee and to provide overall guidance to the implementation of CFEWS Phase 1. The Project Board will continue to provide strategic guidance to CFEWS Phase 2 to ensure completion of project goals and to coordinate with the project manager to ensure tasks are completed in an appropriate sequence. The Steering Committee/Project Board will continue to provide recommendations for project management decisions by consensus, when required.

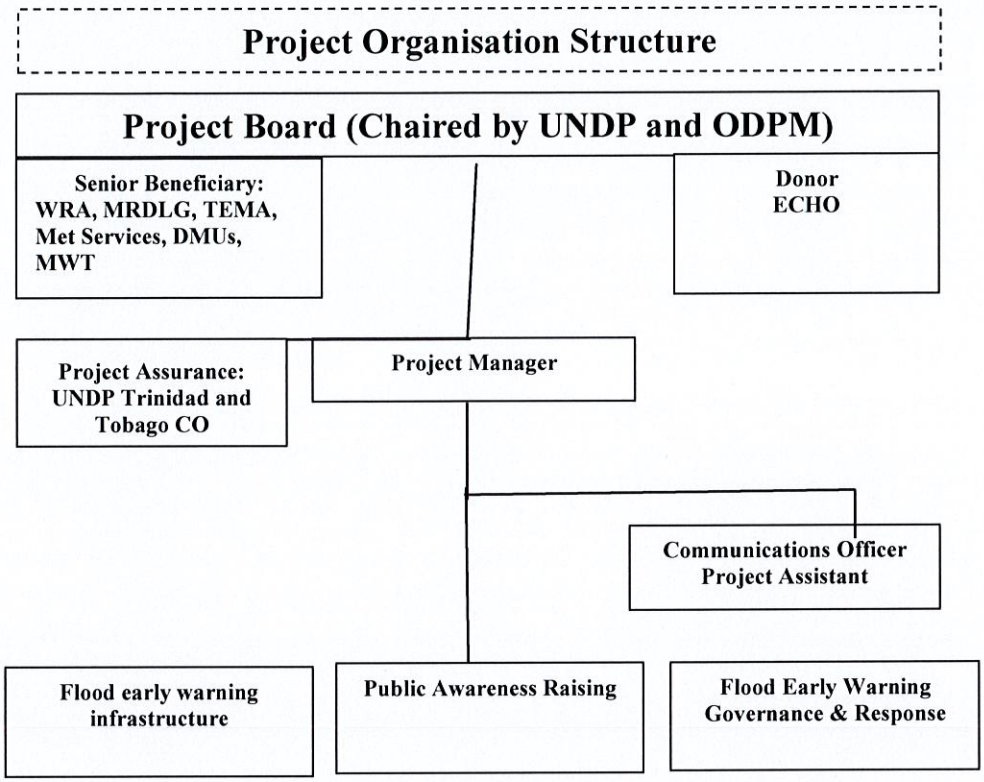
The Project Board is co-chaired by UNDP and ODPM and comprises representatives from ECHO, WRA, MRDLG, Met Services, Ministry of Works and Transport (MOWT), a representative of the DMUs[8] for the regional corporations covering the beneficiary communities on the Project. Representatives of other stakeholders may be invited to attend steering committee meetings, as appropriate; for example, gender experts, UWI etc. This approach ensures that the perspectives and synergies of the partners are captured and that there is ownership, promotion of sustainability and coordination with regional and national strategies.

The Project Board convenes at least quarterly after the start of project implementation and the meetings will continue to be held either face-to-face or online.

[8] See Section III (Results and Partnerships); Subsection: National Partnerships on Page 27 for more information on the DMU System.

Project Organization Structure

The following organigram shows this project organization structure for implementation:



V. SITE MAP FOR EQUIPMENT INSTALLATIONS 2021 TO 2025 (CFEWS PHASES 1 AND 2)

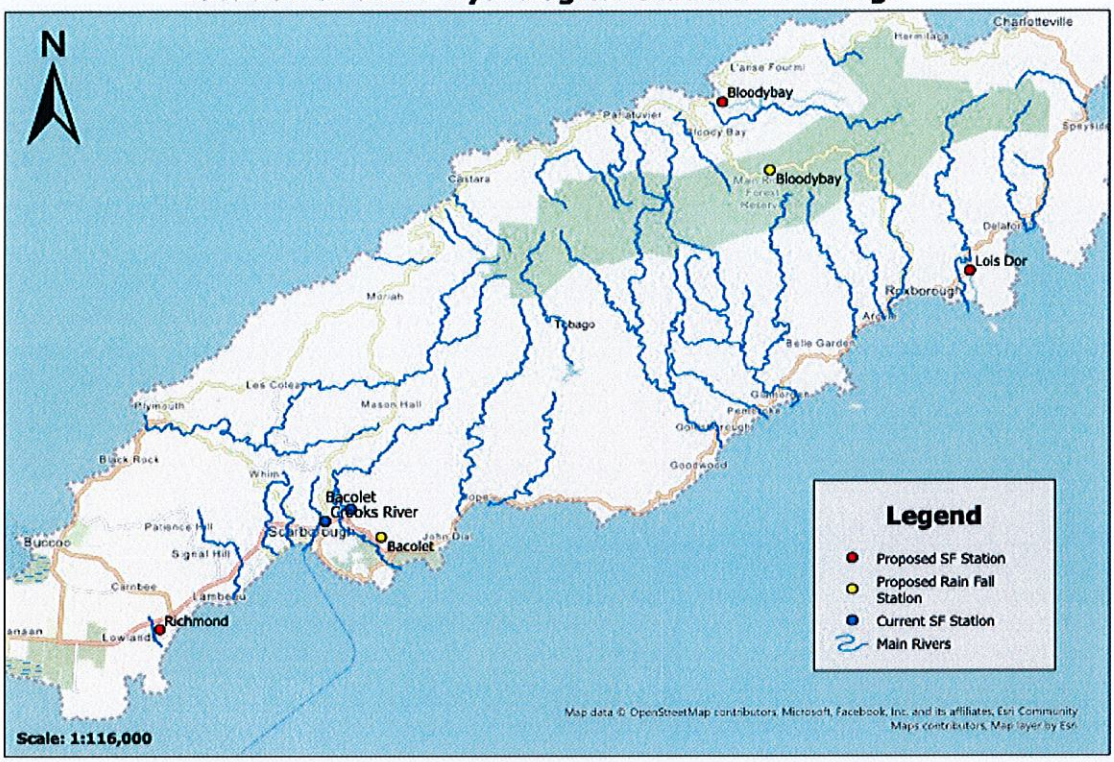
Location of UNDP Hydrological Stations in Trinidad



Status	Type of Station	Locations (Trinidad)	Coordinates		Location	Regional Corporation
			latitude	Longitude		
Phase 1	Stream Flow	Cunupia	10° 33.862'N	61° 22.393'W	Bridge along the South Main Road over the Cunupia River	Chaguanas Borough Corporation
Phase 1	Stream Flow	Diego Martin Lower	10° 41.390'N	61° 33.259'W	Diego Martin River in vicinity of the Four Roads Community	Diego Martin Regional Corporation
Phase 1	Stream Flow	Maraval Lower	10° 39.976'N	61° 31.807'W	Bridge along the Mucurapo Road over the Maraval River (in the vicinity of Fatima College)	Port of Spain City Corporation

Phase 1	Stream Flow	Couva Caroni	10° 25.189'N	61° 26.875'W	in the vicinity of the Bailey Bridge along Camden Road	Couva/ Tabaquite / Talparo Regional Corporation
Phase 1	Stream Flow	Papourie	10° 12.495' N	61° 25.233'W	Bridge along Papourie Road Monkey Town	Penal/ Debe Regional Corporation
Phase 2	Stream Flow	Arima	10° 42.150'N	61° 17.994'W		Arima Borough Corporation
Phase 2	Stream Flow	Guanapo	10° 41. 262'N	61° 15.768'W		Tunapuna/Piarco Regional Corporation
Phase 2	Stream Flow	Guapo	10° 10.267'N	61° 39. 593'W	Bridge along Southern Main Road Guapo	Point Fortin Borough Corporation
Phase 2	Stream Flow	Navet	VI. 10°20'56.8"N	VII. 61°09'55.6"W		Mayaro / Rio Claro Regional Corporation
Phase 2	Rainfall	Guanapo	10° 41. 262'N	61° 15.768'W		Tunapuna / Piarco Regional Corporation
Phase 2	Rain fall	La Canoa	10° 41.585'N	61° 26.929'W		San Juan/Laventille
Phase 2	Rainfall	Tableland	10° 15.832'N	61° 16.116'W		Mayaro/Rio Claro Regional Corporation

Location of UNDP Hydrological Stations in Tobago



Status	Type of Station	Locations (Tobago)	Coordinates		Location	Regional Corporation
			latitude	Longitude		
Phase 1	Stream Flow	Crooks River	11°11.275' N	60°43.883' W	In the Vicinity of Bacolet extension well	Tobago House of Assembly
Phase 1	Stream Flow	Bacolet River	11°11.470' N	60°43.479'W	In the Vicinity of Bacolet #5 well	Tobago House of Assembly
Phase 2	Stream Flow	Bloody Bay	11° 18.072'N	60° 37.662'W	Bridge Along Northside Road, Bloody Bay	Tobago House of Assembly
Phase 2	Stream Flow	Richmond	11° 9.523'N	60° 46.452'W		Tobago House of Assembly
Phase 2	Stream flow	Lois D'or	11° 15.294'N	60° 33.852'W	Bridge along Windward Road bordering the Louis D'or Play Park.	Tobago House of Assembly
Phase 2	Rainfall	Bloody Bay	11° 16.946'N	60° 36.932'W		Tobago House of Assembly
Phase 2	Rainfall	Bacolet	11° 11.006'N	60° 43.014'W		Tobago House of Assembly

III. MONITORING AND EVALUATION

In accordance with UNDP's programming policies and procedures, this project will be monitored through the following monitoring and evaluation plans:

Monitoring Plan

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
Track results progress	Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.	Quarterly	Project management will take measures according to the achievements.	UNDP, WRA, MRDLG, ODPM, TEMA	N/A
Monitor and Manage Risk	Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.	Quarterly	Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.	UNDP, WRA, MRDLG, ODPM, TEMA	N/A
Learn	Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.	At least annually	Relevant lessons are captured by the project team and used to inform management decisions.	UNDP, WRA, MRDLG, ODPM, TEMA	N/A
Annual Project Quality Assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and	Annually	Areas of strength and weakness will be reviewed by project management and used to inform	UNDP, WRA, MRDLG, ODPM, TEMA	N/A