CREWS PROJECT PROGRESS REPORT

(July – December 2022)

1. Project title	Caribbean - Strengthening Hydro-Meteorological and Early Warning Services	**2. Project reference** CREWS/CProj/04/Regional Caribbean	
3. Implementing Partners involved in the project	World Bank (Lead) World Meteorological Organization UNDRR	**4. Operational Partners involved in the project** • Caribbean Disaster Emergency Management Agency (CDEMA) • Caribbean Institute for Meteorology and Hydrology (CIMH) • Caribbean Meteorological Organization (CMO)	
5. Project Duration/Timeframe (from year – to year)	June 2018 – December 2022	**6. Total Funding Approved by Steering Committee (in US dollars), including fees** 6,500,000[1]	
7. Reporting focal point(s) from Implementing Partners	Anna Maria Bogdanova – ambogdanova@worldbank.org Other IP focal points: Jair Torres- jtorres@eird.org Lina Sjaavik – lsjaavik@wmo.int		
8. Project overview	**Please include objectives, key project deliverables, leveraging, contextual information/statistics, significant events during the reporting period in bullet points. (max 250 words)** **Objectives:** To strengthen and streamline regional and national systems and capacity related to weather forecasting, hydrological services, multi-hazard impact-based warnings and service delivery for enhanced decision-making.		

[1] Including additional funding allocated to UNDRR in 2022

	Key Deliverables: (i) Regional roadmap to strengthen and streamline early warning and hydromet services; (ii) Institutional strengthening and streamlining of early warning and hydromet services; (iii) Piloting high priority national activities on end-to-end EWS including impact-based forecasting. **Leveraging:** This project is complemented with US$ 1.5 million from the CREWS contribution from Canada to WMO. **Significant events during the reporting period:** • The regional Roadmap has been finalized and peer reviewed by the World Bank and it's ready for publication. • All 4 Priority Activities have been completed. • The regional meteorological radar study has been completed. • Sept: A REWSC member's meeting was held from 1-2 September 2022 hosted by CDEMA, Bridgetown, Barbados. • Sept: Regional training workshop on gender mainstreaming in end-to-end early warning systems for flood forecasting and integrated flood risk management held in Antigua (20-23.09) • Sept. National consultation in Trinidad and Tobago, for establishing a national living repository of open-source risk data to improve risk literacy, strengthen national risk data ecosystems, and identify data and information to be used as impact in the context of Impact Based Forecasting. • Oct: Regional consultation for improving MHEWS governance in the Caribbean region, 6-7 October 2022. Georgetown, Guyana • Nov: Regional Consultation among Chambers of Industry and Commerce, Regional and National Disaster Risk Management Offices, and Meteorological Agencies in the Caribbean region on Integrating Private Sector on Multi-Hazard Early Warning Systems' Governance and Actions was held in Saint George's, Grenada - November 21-23, 2022. • Nov: Dry season Caribbean Climate Outlook Forum 2022 held in Christchurch, Barbados (24-25.11)

	• Nov: Workshop on improving marine meteorology service provision in Grenada held in Grenada (14-16.11) • Dec: 10th session of the international workshop on tropical cyclones eld in Bali, Indonesia (05-09.12) (including Caribbean participants) • Sep-Nov: Risk and EWS' Perception Dialogue. In coordination with the Tobago Emergency Management Agency, ODPM, St. Lucia's NEMO, St. Vincent and the Grenadines NEMO, ODPEM Jamaica, IFRC and their national societies in Tobago (T&T), Castries (SLU), Bequia (SVG) and Port Antonio (JAM), four two-days Risk and EWS' Perception Dialogue were organized.
9. Progress summary	**What has been achieved during this reporting period? – Please list in bullet points the most significant and tangible outcomes? (max 250 words)** **Component I:** • A final version of the Roadmap was produced and reviewed by regional and implementation partners and WB peer reviewers. The document was professionally edited, and the final document layout is been designed. • A full report was developed containg reviews of four weather radars located at the Meteorological Services of Trinidad & Tobago (TTMS), Barbados (BMS), Guyana (GMS) & Belize (NMS). The report included recommended upgrades and site improvements to increase their reliability, maintainability and functionality for their respective meteorological services. • The regional mechanism for ensuring coordination on MHEWS: REWSC, was reactivated. A member's meeting was held from 1-2 September 2022 hosted by CDEMA, Bridgetown, Barbados. New members has been accepted, including the Caribbean Broadcasting Union, the World Food Programme, the Association of Caribbean States and UNDRR among others. In the framework of this meeting the Strategic Roadmap for Advancing MHEWS in the Caribbean 2020-2030, the mapping of existing capacities of MHEWS in the region, and actions for ensuring synergies among REWSC's members programmes and activities, were discussed. • Mapping of existing national and regional capacities for MHEWS. Web-based Platform available. Narrative report under layout. This mapping is being now integrated in the Situational Analysis prepared for selected (14) CDEMA Participant States (e.g. Saint Lucia).

	• A Regional consultation for improving MHEWS governance in the Caribbean region was held. The outcomes of this consultations will be summarized on a regional report stating recommendations for improving MHEWS governance in the region. It is expected that policy mechanisms, such as the National Roadmaps for MHEWS and MHEWS national policies, will be strengthen, this in order to ensure sustainability of EWS while providing clear roles and mandates for the different stakeholders involved. • A Regional Consultation on Integrating Private Sector on Multi-Hazard Early Warning Systems' Governance and Actions was held. It gathered Chambers of Industry and Commerce, Regional and National Disaster Risk Management Offices, and Meteorological Agencies in the Caribbean region. This consultation is the first regional dialogue between public and private sector representatives on the issue of MHEWS. A regional plan of action was agreed and it would be implemented by the representatives of this consortium, aiming to integrate private sector capacities and views in MHEWS, while ensuring that better services could be provided to them notably on issues related to MHEWS and DRM (such as Business Continuity Plans). In addition to this, public sector actors engaged to support the development of the CARICHAM center of excellence for business resilience. • Risk and EWS' Perception Dialogues: In coordination with the Tobago Emergency Management Agency, ODPM, St. Lucia's NEMO, St. Vincent and the Grenadines NEMO, ODPEM Jamaica, IFRC and their national societies in Tobago (T&T), Castries (SLU), Bequia (SVG) and Port Antonio (JAM), four two-days Risk and EWS' Perception Dialogue were organized. The purpose of the activity was to increase the understanding of risk and early warning systems perceptions of local and national institutions and local communities so as to facilitate increased engagement and use of MHEWS by stakeholder and practitioners. By engaging local communities in perception dialogues, the needs and views of community representatives were better understood by the authorities, and the outcomes of this dialogues will be later integrated in local and national strategies and policies for MHEWS, ensuring a people-centered approach of MHEWS. **Component II (WMO led):** National Strategic Plans (NSP), Frameworks for Weather, Water and Climate Services (FFWWC) & Legislation

	• Development of NSP and FFWWC for Turks & Caicos Islands and Cayman Island, which define clear goals, actions, responsibilities and financial needs of the NMHS in the next 5 years started. Drafts for both countries developed and currently under review. • Development of Meteorological Legislation started which will define a clear mandate and role for the Meteorological Service of Barbados. (to be finished latest 30 June 2023) BReTCAT Project (Development of Weather App) | Jamaica • Sept: Co-design workshop held in Kingston where weather impact statements and messages of advice to the Jamaican public were created in order to disseminate impact-based forecasts through the weather app to be launched in 2023 (02.09.) |22 participants from Jamaican organizations concerned with public safety, essential services, farming, fisheries, transport and the media. Among those seven women. • Oct: Collaboration with *Resurgence* intensified to implement additional outreach activities to foster usage of weather app within Jamaican most vulnerable groups: collaboration with *Jamaican Fishermen's Cooperation Union, Food For the Poor* and the *Jamaica Red-Cross* for delivery of training sessions and dissemination of learning material initiated • Nov: New marine weather forecast for fishermen and other small craft users launched by the Jamaican NMHS which provides targeted information to artisanal fishermen, other small craft or water sports twice-daily. (16.11.) Community Based Flood Management | Antigua & Barbuda • Jul: Workshop held with National Office of Disaster Services (NODS) and community volunteers which enhanced knowledge and awareness on flood management on community level (12.07). First-Aid training held to strengthen response capacity on community level (13.07.)|32 participants trained, among these 13 women. • Sept: Regional training workshop on gender mainstreaming in end-to-end early warning system (EWS) for flood forecasting and integrated flood risk management held which built capacities related to the inclusion of gender considerations of national actors of 5 Caribbean countries as to the integration of gender considerations into EWS. (20-23.09) | 34 participants from NHMS, Gender

	Affairs Offices and Disaster Management from 5 countries, representatives from CMO, CDEMA as well as volunteers trained. Among these 12 women.
	• Sept: Subscription to Common Alert Protocol secured for 12 months to enable the dissemination of warning services to the population of Antigua and Barbuda
	• Nov: Vulnerable houses lists in 4 most flood-prone communities updated, one training drill and simulation exercise held in order to strengthen knowledge and response capacity, loudspeakers provided to two communities to enable improved communication in hazardous situations, one community based flood management manual adapted to the local context developed (dissemination Feb. 2023)
	• Nov: Media training held which improved national media representatives' understanding of weather information provided by the Antiguan NHMS and thus helped the transition to impact-based-forecasting (12.11.) | 9 participants trained. Among these 6 women.
	
	Other significant outcomes:
	• Oct: Consultation initiated to develop a baseline analysis for the development of strategic and operational plans on weather, water and climate services in the Dominican Republic
	• Nov: Workshop held on improving marine meteorology service provision for Grenada which strengthened end-user knowledge about marine meteorology and gathered feedback as to end-user information needs to enable improvement of services provided by the Grenada NMHS (14-16 Nov) | 25 participants from the NMHS and end-users trained. Among these 9 women.
	
	Component III:
	
	• All four priority/pilot activities have been completed with the following outputs:
	  • A Multi-sensor Precipitation Grid prototype has been developed and it's in production with a spatial domain which includes Barbados, Saint Lucia, Martinique, St. Vincent and the Grenadines.
	  • Supporting the transition to the impact-based forecasting. A series of 7 webinars on Impact Based Forecasting implementation plan were developed in partnership with the Weather and

	Climate Ready Nations program and are were presented to the regional and national stakeholders (8 countries). • An integrated approach to floods – a concept and a guidance were developed with and for Saint Lucia and Jamaica correspondingly. Both strategic documents were the results of stakeholder coordination and collaboration which included the representatives of the meteorological services, hydrological services and disaster risk management agencies. Both documents were presented to countries stakeholders for further their further use.) • A full training on Impacted Based Forecasting consisting on seven webinars were developed and conducted between May and September 2022. • The technical analysis for the development of a regional emergency alert system was completed. The final report will be presented to regional and national stakeholders in January 2023. • Integrated approach to flooding: final strategy document for developing end-to-end (E2E) flood-integrated operational early warning systems were developed for Saint Lucia and Jamaica. • Improving living repositories of open-source global, regional and national risk data to improve risk literacy, strengthen national risk data ecosystems, and identify data and information to be used as impact in the context of Impact Based Forecasting. A first mapping of sources of information for gathering available, accessible, up-to-date, and recurrent data that could be tailored for integrating impact information in early warning systems was developed for Guyana and Trinidad and Tobago. A discussion with national entities producing this data is planned in order to establish sharing data mechanism aiming to create living repositories of open-source national risk data at the national offices for disaster risk management in both countries. Additionally, a National workshop on Impact-based Forecasting databases was held in Trinidad and Tobago. As a platform to centralize and make hazard and climate risk information available, the development of a Risk Information Exchange (RiX) platform in the country has been launched. Discussions with Guyana have been initiated, and it is expected that the launch of the RiX platform for Guyana would start at the beginning 2023. Impact: multisectoral dialogues has been started around risk data aggregation. All sectors in the selected countries are now identifying the information they currently produce as an input data for describing exposure or vulnerabilities. With this information NDMOs and scientific public institutions, such as the MET offices, will have a better set of information that could be tailored for transitioning from traditional EWS to those with impact information (IBF).

10.Project Performance

Interpretation of color coding		
	High	Good progress; on track in most or all aspects of delivery
	Medium	Moderate progress or on track in some aspects of delivery
	Low	Less than moderate or poor progress. Not on track in critical areas of its delivery. Requires remedial attention

	Rate of expenditure	Rate of delivery	Alignment of Objectives
Coding			
Narrative	**From WB side:** Disbursed: 2,2 mln USD (89%) Committed: 225,000 USD **From WMO side:** Disbursed: approx. 1,5 Mio USD (65,2 %) Committed: approx. 500,000 USD (negotiations for agreements with further spending ongoing)	While several activities have been delayed due to travel restrictions during the covid pandemic, currently key activities are underway/in preparation. Hence, delivery is expected speed up towards the end of the year.	The project remains strongly aligned to the objectives.

	From UNDRR side: Disbursed: 494K Committed: 695K (Implementation rate: 89,73%) To implement in 2023: 136K		

11. Risk Status

Risk Status	What is the current risk status as compared to what was identified in the project proposal? Low
Measures to address	What mitigation measures have been developed to address the risk status? **In bullet points** In consultations with the regional and implementing partners activities have been adjusted to accommodate for mostly virtual delivery mode

12. Contributions to CREWS Output(s)s

(use number for activities and products and % for project component completion)

12.1 National Output(s)s

CREWS Output(s) 1: National Meteorological and Hydrological Services service delivery improved, including the development of long-term service delivery strategies and development plans

State Project Output(s) in this section	Overall Project Target	Progress by June 2022	Target for reporting period	Progress by December 2022
National Strategic Plans including Frameworks for Weather, Water and Climate Services developed | Multiple countries	Originally: 8 Update Dec 2022: 10	8	9	8
Model Meteorological Legislation & Policy developed | Regional	1	(activity finished)	(activity finished)	(activity finished)
Meteorological Legislation &Policy adapted to national level | Multiple countries	Originally: 2 countries Update 2021: 9 countries	8	0	0
Baseline analysis for the development of strategic and operational plans on weather, water and climate services | Dominican Republic	Baseline Analysis finalized	n/a (new activity)	Consultants hired, workplan approved	Consultants hired, workplan approved

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

Contribution to (selected) CREWS value propositions:

- *Gender responsive & people centered*: The legislation, policy and NSPs enable countries to strengthen EWS in a way that will reach more people - specifically the ones most at risk, and further contribute to the concept of people-centered EWS.
- *Multiplier*: The existence of a legislation and policy with clearly defined roles and mandates for the NHMS with corresponding strategies enable NMHS to improve their service delivery which contributes to a more favorable environment for EWS. The associated action plan identifies further needs for external funding.
- *Promote coherence, unique & solution oriented*: Country specific circumstances and initiatives were taken into consideration in the development of the NSPs & Legislation. The activities promote building sustained institutional capacity by creating defined legal mandates and identifying gaps in capacity that are specific to the country context and situation.

CREWS Output(s) 2: Risk Information to guide early warning systems and climate and weather service developed and accessible				
State Project Output(s) in this section	**Overall Project Target**	**Progress by June 2022**	**Target for the reporting period**	**Progress by December 2022**
Hydrological observation, data management and flood forecasting strengthened | Haiti, Dominican Republic	Implementation of an integrated River Flood Forecasting System (IRFF) in Haiti and Dominican Republic	100%	Activity finished. No target.	Activity finished. No target.
WMO cascading initiatives implemented	2 SWFDP RSMT Meetings	2	Activity finished. No target.	Activity finished. No target.
	10 SWFP Regional Trainings conducted. Update June 2022:3	2	0	2
Caribbean Climate Outlook Fora held biannually | Regional	Originally: 6, Adaption after NCEs: 9 CariCOFs supported & held	7 CariCOFS supported & held	1CariCOFS supported & held	1 CariCOFS supported & held
Multi-hazard early warning systems and impact-based forecasting introduced to target groups *(Trainings/ Workshops)*	Originally: 3 regional training events on hurricane forecasting. Update June 2022: 1 regional training event, one	Development of TORs started for Learning Module on Hurricane Forecasting (instead of face-to-face training)	Learning Module accessible in WMO Moodle.	Training module finalized, but not accessible in WMO Moodle yet. (planned Feb/2023)

	international event, 1 learning module 2 Regional Training events on Impact-based forecasting	No target for this reporting period.		
Mapping the data environment for IBF in two countries (Guyana, and, Trinidad and Tobago). [aiming to contribute to living repositories of open-source national risk data]	2 Mapping the data environment for IBF	Activity not started.	2 mapping of sources of information for gathering available, accessible, up-to-date, and recurrent data that could be tailored for integrating impact information on early warning systems was developed	1str meeting with national Stakeholder in Trinidad and Tobago, has been developed. The national living repository is being now developed.
Marine meteorology service provision improved | Grenada	1 training workshop held	Activity not started.	1 training workshop held	1 training workshop held

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). <u>Please list in bullet points.</u>

- *Gender responsive, people centered:* An integrated river forecasting system provides reliable information about floods especially to the most vulnerable groups. Depending on the content, trainings further include most vulnerable groups (e.g. women), users as well as providers and emphasize engagement of local organizations to ensure inclusion.
- *Promote coherence:* Most workshops (e.g. SWFP, Hurricane Forecasting, …) are part of larger, cross-regional initiatives and as such contribute to coherence and regional capacity building. IRFF further is a system established also with synergies with WMO system

products such as the Severe Weather Programme, the Flash Flood Guidance System Programme and the Costal Inundation Forecasting Initiative.

- *Solution oriented:* The project seeks to find innovative approaches/best practices to substitute trainings that should be held face to face e.g. through the development of online training modules (as is the case for the topic "Mmessaging Tropical Cyclone Threats Before Formation" which shall substitute a face-to-face training) or webinars. The workshop in Grenada brought end-users and service provider (NMHS) together to identify needs and find solutions to satisfy these requirements. As a result, e.g. the Grenada NHMS will publish marine bulletins.

CREWS Output(s) 3: Information and Communication Technology, including common alerting protocol, strengthened				
State Project Output(s) in this section	**Overall Project Target**	**Progress by June 2022**	**Target for the reporting period**	**Progress by December 2022**
Weather mobile app to increase the accessibility and use of weather information launched ("BReTCAT Project") | Jamaica	• SmartMet Server & Workstation procured • Technical trainings & assistance provided • Data updated (SmartMet to MSJ website & app) • Support in forecast design in the localization and configuration	• SmartMet Server & Workstation operational, related trainings held • Co-design workshops held to improve twice daily national forecasts and five-day MHEWS service forecasts	• Data updated (SmartMet to MSJ website & app) • Workshops held to strengthen provision of impact-based forecasts through the app • Weather App launched on behalf of Jamaican NMHS	• Data updated (SmartMet to MSJ website & app) – but not finalized • Workshops held to strengthen provision of impact-based forecasts through the app • MSJ website adapted, but not finalized

	of the "Weather App" • Weather App launched on behalf of Jamaican NMHS • User-friendliness of MSJ webpage increased • Increase outreach of App within most vulnerable groups	• Template of improved twice-daily national forecast developed Overall delivery: 60%	• User-friendliness of MSJ webpage increased • Outreach activities to include most vulnerable groups initiated Overall delivery: 100%	• Outreach activities to include most vulnerable groups initiated Overall delivery: 85%
CAP subscription secured | Antigua & Barbuda	CAP subscription secured in Antigua	n/a (new activity)	CAP subscription & payment for 12 months successful	CAP subscription & payment for 12 months successful

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). <u>Please list in bullet points.</u>
Contribution to (selected) CREWS value propositions:

- *Gender responsive, people centered:* The provision of a mobile application for weather information will improve and support a quick dissemination of warning alerts as basis for decision making in a way that is easy to understand and access, especially for most vulnerable groups. The forecast co-design process was further strongly focused on the weather information needs of women, as most households in informal settlements are single-parent families headed by a woman.
- *Solution oriented:* BRetCAT activities address critical gaps in the dissemination of warning alerts in a modern, solution-oriented, pragmatic manner.
- *Promote coherence:* The BRetCAT activity is part of a larger initiative undertaken between the Meteorological Service in Jamaica, the Finnish Meteorological Institute, UK Resurgence and the Caribbean Climate Innovation Centre. The initiative is replicable in other Caribbean countries. The subscription to CAP in Antigua and Barbuda promotes regional coherence. CAP implementation trainings for Belize and Turks and Caicos Islands are planned for Q2/2023.

CREWS Output(s) 4: Preparedness and response plans with operational procedures that outline early warning dissemination processes developed and accessible				
State Project Output(s) in this section	**Overall Project Target**	**Progress by June 2022**	**Target for the reporting period**	**Progress by December 2022**
Model standing operational procedures (SOPs) developed, adapted and tested in 4 countries. | Multiple countries	SOP model revised, adjusted & adapted to four countries	SOPs for Bahamas, Barbados, Antigua & Barbuda, Trinidad & Tobago developed/improved	Support provided to the 4 countries as to implementation of SOPs	Support provided to the 4 countries as to implementation of SOPs
Community based flood management activities initiated | Antigua & Barbuda	5 face-to face & hybrid workshops, update of vulnerable houses and mapping lists, installation of flood warnings, provision of 1 guidance document	1 inception workshop incl. community consultations held; interventions planned	4 workshops held, vulnerable houses list updated, flood warnings installed, guidance document developed	4 workshops held, vulnerable houses list updated, flood warnings installed, guidance document developed
Development of a Risk, EWS and IBF Perception Study in selected countries to be implemented in close coordination with the University of West Indies and the Red Cross	A Perception Study developed	1 risk perception dialogue between national and local authorities and local community developed	3 risk perception dialogue between national and local authorities and local community	3 risk perception dialogue between national and local authorities and local community developed

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.
Contribution to (selected) CREWS value propositions:

- *Gender responsive & people centered:* Ensuring safety of the population and especially most vulnerable groups is the core reason why functional SOPs are important. The activity improves the collaboration between different actors in EWS and thus enhances responsiveness in hazardous situations. Further, the integration of the gender dimension in all phases of climate risk prevention and management is ensured. The Gender Mainstreaming workshop held in Antigua was guided by a training manual designed by the Associated Programme of Flood Management to guide practitioners and policy makers on how to ensure integration of gender into the overall end to end early warning systems for flood forecasting and integrated flood risk management processes. Through ensuring that all activities are focused on the self-help capability of the communities and their members, people centricity is promoted as well.
- *Promote coherence:* The review, adjustment and harmonization of SOPs across four target countries promotes coherence and coordination for EWS in the region. The activity further helps to built sustained institutional capacity tthrough defined roles and responsibilities. The community-based flood management activities are guided by the Associated Programme of Flood Management which ensures coherence and potential adaptability in other Caribbean countries.

CREWS Output(s) 5: Knowledge products and awareness programmes on early warnings developed

State Project Output(s) in this section	Overall Project Target	Progress by June 2022	Target for the reporting period	Progress by December 2022
Awareness videos (Ocean Buoys and Costal Inundation) adapted to Caribbean context in English, Spanish and Créole | Regional	9 Caribbean videos available in three languages	9 videos finalized and accessible on YouTube	Activity finished. No target.	Activity finished. No target.
Mapping of existing national capacities for MHEWS developed and integrated in countries' Situational Analysis	2 Countries' capacities mapping integrated in Situational Analysis	14 Countries' capacities mapping integrated in Situational Analysis		

		1 already online		
Development of knowledge products to be part of the educational offer of Caribbean Universities'	1 knowledge products developed	A consultant in charge of the developed of a MOOC on IBF contracted		
Development of WMO Coastal Inundation Forecasting Toolkit and dissemination to Caribbean users supported	Final toolkit available (English)	Development of toolkit ongoing.	Final toolkit available	Final toolkit available, printing and dissemination in Q1/2023

Additional information: briefly indicate the contributions, with concrete examples, to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). <u>Please list bullet points.</u>

Contribution to (selected) CREWS value propositions:

- *Gender responsive & people centered*: The videos specifically target most vulnerable groups and seek to change and educate behavior in the context of Marine hazards. Provision of videos in the most important languages in the Caribbean region, ensures reaching a large audience.
- *Solution oriented & promote coherence:* The provision of awareness videos is a best practice which has been applied successfully in the Pacific (specifically Fiji). Through guidance in a simple and pragmatic manner, the videos further promote regional coherence and shared common knowledge.
- *People centered*: In coordination with the Tobago Emergency Management Agency, IRFC, and the Tobago Red Cross Society, a two days Risk Perception Dialogue was organized. The purpose of the activity was to increase understanding of risk and early warning systems perceptions of local and national institutions and communities so as to facilitate increased engagement and use of MHEWS by stakeholder and practitioners.
- *Promote coherence:* The toolkit contains information which can be applied in all SIDS and thus it provides coherence and strengthens capacities.

Also see output 4: Manual on Community Based Flood Management in Antigua developed.

CREWS Output(s) 6: Gender-sensitive training, capacity building programmes provided

State Project Output(s) in this section	Overall Project Target	Progress by June 2022	Target for the reporting period	Progress by December 2022
National workshops for 'gender and vulnerable groups in early warning system' training with regional strategy consultation implemented	3 national workshops	N/A		
Gender Mainstreaming Workshop held as part of community-based flood management activities in Antigua | Multiple countries	One regional gender mainstreaming in end-to-end early warning system for flood forecasting and integrated flood risk management held	Activity planned	Workshop successfully held	Workshop successfully held

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

Contribution to (selected) CREWS value propositions:

- *Gender responsive & people centered*: The regional training workshop on in end-to-end early warning system for flood forecasting and integrated flood risk management held in Antigua specifically focused on the integration of woman and other vulnerable groups into EWS and thus strengthened national capacity and sensitivity towards gender issues in EWS.

12.2 Regional Output(s)s (for Regional Projects)

CREWS Regional Output(s): Institutional and human capacities at Regional WMO and Intergovernmental organizations to provide regional climate and weather services to LDCs and SIDS increased

State Project Output(s) in this section	Overall Project Target	Progress by June 2022	Target for the reporting period	Progress by December 2022
Strategic roadmap on strengthening MHEWS	Development of a Regional MHEWS Roadmap	Final Draft produce and edited (not internal peer review yet). Summary of Economic Analysis and Preface already included.	Final version of the document produced, peer reviewed, professional edited and final layout developed.	Final version of the document produced, peer reviewed and professional edited. Document final layout under development.
Assessment of socio-economic benefits of better hydromet services and EWS	Developed the complete economic analysis of regional MHEWS in the Caribbean.	Summary of the Economic analysis developed and included In the Roadmap.		
Priority Activities implemented as pilots.	Set of Priority Activities implemented.	Rain Grid Priority Activity is under implementation IBF Pilot agreed and is under implementation	Multi-sensor Precipitation Grid prototype developed and functioning. IBF implementation plan webinar series completed.	Multi-sensor Precipitation Grid prototype developed and functioning. IBF implementation plan webinar series completed. The technical analysis for the

		The technical analysis for the development of a regional emergency alert system under implementation. An “integrated approach to flooding” action plan is being developed for Saint Lucia and Jamaica under implementation.	The technical analysis for the development of a regional emergency alert system completed. An “integrated approach to flooding” strategy document developed for Saint Lucia and Jamaica.	development of a regional emergency alert system completed. Final presentation January 2023. An “integrated approach to flooding” strategy document developed for Saint Lucia and Jamaica.
Regional weather radars report.			Report developed containg reviews of four weather radars including recommended upgrades and improvements.	Report developed containg reviews of four weather radars including recommended upgrades and improvements.

CIMH capacity in climatology and early warning marine products and services delivery to the region strengthened | Regional	• Marine Services products developed • Training for staff provided	No target for this reporting period.	Trainings for staff planned	Trainings for staff planned
Strengthening regional mechanisms for MHEWS	2 meeting proceedings	Preparations for the development of a REWSC member's meeting launched	A REWSC member's meeting held.	A REWSC member's meeting was held from 1-2 September 2022.
Caribbean Regional Workshop on Measuring Effectiveness of Early Warning Systems through Sendai Framework Target (g) and Custom Indicators	1 knowledge product developed	A Caribbean Regional Workshop on Measuring Effectiveness of Early Warning Systems through Sendai Framework Target (g) and Custom Indicators developed	N/A	
Mapping of existing national and regional capacities for MHEWS	Mapping of existing regional capacities for MHEWS	A first preliminary version of a mapping of existing national and regional capacities for	Development of the web-based platform for visualizing the existing MHEWS of CDEMA Participating States	Web-based platform for visualizing the existing MHEWS of CDEMA Participating States developed.

		MHEWS developed		

Additional information: briefly indicate, with concrete examples, the contributions to CREWS value propositions (gender-responsive, multiplier, people-centered, promote coherence, solution-oriented, unique), as relevant (150 – 200 words). Please list in bullet points.

Contribution to (selected) CREWS value propositions:

- *Solution oriented and promotes coherence: The* strengthening of regional capacity in climatology and early warning marine products and thus the services delivery to the region promotes regional coherence.
- Solution oriented and promotes coherence: The strengthening of REWSC as a regional mechanism to serve as a strategic and advisory body for the advancement and strengthened coordination of Early Warning Systems within the Caribbean Region
- Multiplier: In line with the CREWS Global Project for Measuring MHEWS effectiveness, the "Caribbean Regional Workshop on Measuring Effectiveness of Early Warning Systems through Sendai Framework Target (g) and Custom Indicators" was held in Port of Spain, Trinidad and Tobago, 10-11 May 2022. It gathered 65 representatives of: National Disaster Management Offices; Regional and National Meteorological and Hydrological Services; and National Offices of Statistics of 22 Caribbean countries and overseas territories.

13.Certification on Use of Resources

This needs to be provided at the end of the year as part of the submission of the 2nd semester report. Each Implementing Partner to provide a certification of the use of resources signed by their authorized representative.

14. Visibility products

a. ***Insert or copy any links to press releases, videos or communication items and/or social media links produced during the reporting period only***

Project Component II:
BReTCAT | Jamaica

- COP27 Side Event Segment featuring BReTCAT: https://drive.google.com/file/d/115W8J4opuolQetKPTHB0dZa9uLFsqkRC/view?usp=sharing
- https://jis.gov.jm/met-service-to-launch-bush-fire-warning-index-march-23/
- https://jis.gov.jm/project-to-enhance-weather-communication-in-jamaica/
- https://www.youtube.com/watch?v=vxNA1ejUhV0 starting at 3:44
- https://jis.gov.jm/radio_programs/jis-midday-news-march-28-2022/
- https://jis.gov.jm/radio_programs/jis-midday-news-march-23-2022/
- https://jis.gov.jm/radio_programs/met-service-launches-bretcat-march-28-2022/
- https://www.jamaicaobserver.com/latestnews/Project_underway_to_enhance_weather_communication_in_Jamaica

REWSC member's meeting was held from 1-2 September 2022 hosted by CDEMA, Bridgetown, Barbados.

- https://www.cdema.org/news-centre/press-releases/2324-the-caribbean-consolidates-its-partnership-for-advancing-multi-hazard-early-warning-systems-in-the-region
- https://www.undrr.org/event/regional-early-warning-systems-ews-consortium-meeting
- https://www.undrr.org/news/caribbean-consolidates-its-partnership-advancing-multi-hazard-early-warning-systems-region
- https://reliefweb.int/report/world/caribbean-consolidates-its-partnership-advancing-multi-hazard-early-warning-systems-region

Mapping of existing national and regional capacities for MHEWS

- https://www.undrr.org/mapping-mhews-capacities-cdema-participating-states

Trinidad and Tobago, national living repository of open-source risk data to improve risk literacy, strengthen national risk data ecosystems, and identify data and information to be used as impact in the context of Impact Based Forecasting.

- https://www.undrr.org/news/trinidad-and-tobago-adopts-undrrs-new-risk-information-exchange
- https://www.preventionweb.net/news/trinidad-and-tobago-benefit-disaster-risk-information-platform
- https://sdgs.un.org/sites/default/files/2022-07/UNDRR_Inputs_2022_SG_Report_on_Caribbean_Sea.pdf
- https://trinidadandtobago.un.org/en/190799-trinidad-and-tobago-gears-increase-resilience-disasters

Risk and EWS' Perception Dialogues.

- https://www.iwnsvg.com/2022/11/07/bequia-urged-to-focus-disaster-early-warnings-on-most-vulnerable/
- https://www.iwnsvg.com/2022/11/16/resilient-cities-in-focus-in-st-vincent/
- https://www.iwnsvg.com/2022/11/09/lessons-from-svgs-disaster-response-integrated-into-un-framework/

Regional consultation for improving MHEWS governance in the Caribbean region, 6-7 October 2022. Georgetown, Guyana

- https://dpi.gov.gy/legislation-to-be-introduced-to-develop-early-warning-systems/
- https://newsroom.gy/2022/10/07/govt-committed-to-improving-disaster-early-warning-systems/
- https://guyana.un.org/en/203203-remarks-resident-coordinator-improving-multi-hazard-early-warning-systems-governance
-

Regional Consultation among Chambers of Industry and Commerce, Regional and National Disaster Risk Management Offices, and Meteorological Agencies in the Caribbean region on Integrating Private Sector on Multi-Hazard Early Warning Systems' Governance and Actions was held in Saint George's, Grenada - November 21-23, 2022.

- https://www.youtube.com/watch?v=J7eS4wfUsng&feature=youtu.be

Others:
http://www.acs-aec.org/index.php?q=press-center/releases/2022/the-acs-hosts-webinar-on-multi-hazard-early-warning-systems

Community Based Flood Management Activities | Antigua & Barbuda

- NODS reinforces flood management measures with two-day workshop | Antigua Observer Newspaper
- Gender mainstreaming workshop strengthens flood preparedness response across CDEMA states | Antigua Observer Newspaper

Improving Marine Meteorology Service Provision | Grenada

- November 17th, 2022 | World Meteorological Organization concludes two day training - YouTube

15. Supporting documents

a. ***List and annex to the report any documents providing details on project activities <u>conducted during the reporting period</u> such as reports of training sessions, assessment reports, online solutions and tools, manuals, summaries of high-level discussions etc.***

16. Project History

a. ***Highlight key achievements since project started <u>in bullet points, include all visibility and supporting documents other than those from the last 12 months</u>***

Component 1:

- *Regional MHEWS roadmap has been produced.*
- *Report containg reviews of four weather radars including recommended upgrades and improvements*.
- *Economic Analysis of MHEWS completed.*
- *EW Checklists with national gap analysis reports for Barbados, Trinidad and Tobago and Guyana completed.*

Component 2 – Deliverables before 2022:

- *National Meteorological and Hydrological Services service delivery improved:*
  - ✓ *Model Meteorological Policy and Legislation finalized and endorsed by CMO members (2021)*
  - ✓ *Adaptation of Model Policy and Legislation for 8 countries finalized; Belize, Grenada, St. Kitts and Nevis under ministerial review.*
  - ✓ *8 National strategic plans and frameworks for weather, water and climate services finalized; officially endorsed by Anguilla, Antigua & Barbuda, Dominica, Grenada, Guyana, Jamaica, St. Kitts & Nevis, SVG. Implementation ongoing. (2021/2022)*
- *Risk Information to guide early warning systems and climate and weather service developed and accessible*
  - ✓ *Climate Change in the Caribbean Workshop held (December 2020)*
  - ✓ *8 Caribbean Climate Outlook Forums (CariCOFs) held*
  - ✓ *Tropical Cyclone Forecasting Training held (2019)/ Hurricane Committee RA IV held (2019)*
  - ✓ *Training Workshop on Nowcasting and Severe Weather forecasting using GOES-16, JPSS and GEONETCast-Americas held (2019)*
  - ✓ *SWFDP needs assessment conducted/finalized (2020)*
- *Institutional and human capacities at Regional WMO and Intergovernmental organizations to provide regional climate and weather services to LDCs and SIDS increased*
  - ✓ *2 Fellowships awarded and studies of both fellows finalized at the University of West Indies and University of Reading (2021)*

Component 3:

- *Priority Activities (pilots) completed:*
  - ✓ *Multi-sensor precipitation grid implemented.*
  - ✓ *IBF implementation plan seven technical webinars materials.*
  - ✓ *Technical Study for a regional Emergency Alert System.*
  - ✓ *Integrated approach to flooding strategy documents for Saint Lucia and Jamaica.*

Visibility products before 2022:

- *https://www.gfdrr.org/en/crews-caribbean*
- *National Strategic Plans: Press release CMO, Press release WMO*