



CREWS PROJECT PROGRESS REPORT (January – June 2021)

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	Regional Partners involved in the project Caribbean Disaster Emergency Management Agency (CDEMA) Caribbean Institute for Meteorology and Hydrology (CIMH) Caribbean Meteorological Organization
4. Project Duration/Timeframe	September 2018 – December 2022	
5. Reporting focal point(s)	Anna Maria Bogdanova – ambogdanova@worldbank.org Other IP focal points: Jair Torres- itorres@eird.org Lina Sjaavik – lsjaavik@wmo.int	
6. Project overview	<p>Please include synergies, leveraging, key project deliverables and total funding in bullet points. (max 250 words)</p> <p><u>Budget</u>: US\$ 5.5 million - implemented by the WB/GFDRR, in collaboration with WMO and UNDRR.</p> <p><u>Leveraging</u>: This project is complemented with US\$ 1.5 million from the CREWS contribution from Canada to WMO.</p> <p><u>Objectives</u>: 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.</p>	



	<p>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.</p>
<p>7. Progress summary</p>	<p>What has been achieved between (reporting period)? – Please list the most significant and tangible developments?</p> <ul style="list-style-type: none"> • An updated draft of the regional MHEWS roadmap has been developed and shared with regional stakeholders (Caribbean Disaster Emergency Management Agency (CDEMA), Caribbean Institute of Meteorology and Hydrology (CIMH) and Caribbean Meteorological Organization HQ (CMO Hq)) and implementing partners. It will be reviewed and discussed in the Project Steering Committee Meeting planned for August 2021; • Of the four priority/pilot activities, two are in process of being contracted, namely (i) the development of a precipitation grid in the Eastern Caribbean, and (ii) the implementation of a feasibility study for the development of a regional emergency alert system using cell broadcast messages. The scope of the other two activities, (iii) on strengthening multi-hazard coordination mechanisms and (iv) mainstreaming impact-based forecasting, has been further defined but has not yet been finalized. <p>Two baseline reports drafted to inform the final NSPs for Grenada & Jamaica</p> <ul style="list-style-type: none"> • Eight national strategic plans – for Antigua and Barbuda, Anguilla, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis as well as St. Vincent and the Grenadines have been finalized. They have yet to be endorsed and officially launched by the respective countries. • A validation workshop for the Model Meteorological Bill and Policy was held on 2 June 2021 and the Model MET-Bill and Policy were endorsed by the CMO Member States. • Grenada and Belize have been identified to be the first two countries to implement the MET-Bills due to fulfillment of several required criteria. These criteria have been developed by CMO and WMO and



include among others the degree of an existing related policy, need for related legislation, the present level of bureaucracy etc.




- A revised Implementation Agreement between CMO and WMO to put into force 8 MET-Bills instead of two in selected countries until November 2021 is currently being reviewed for approval. This exceeds the original goal of putting into force two MET-Bills. The addition is made possible through savings on limited travel, DSA and smaller expenses on consultations.
- In addition, a Cabinet memorandum has been provided to assist the countries with the process of obtaining the endorsement of the Policy to national circumstances. The memorandum also provides guidance for the submission of the legislation after the Model Bill has been adapted.
- Fellowships for two students have been awarded. Fellow 1: MSc in Natural Resource and Environmental Management at the University of West Indies (Saint Lucia), Fellow 2: MSc in Applied Meteorology and Climate with Management at the University of Reading (United Kingdom) (online studies from Barbados) Implementation Agreement between WMO and the Ministry of Housing, Urban Renewal, Environment and Climate Change – Meteorological Service Jamaica currently in signing process to support the implementation of the project “Building Resilience Through Climate Adaption Technologies (BReTCAT) as contribution to the CREWS Caribbean project. The Implementation Agreement includes the co-financing of a weather mobile app to increase the accessibility and use of weather information, trainings and technical assistance.
- The Coastal Inundation Toolkit is in finalization and is currently waiting for an external peer review (reviewers yet to be defined).
- Integrated riverine flood forecasting (IRFF) in synergy with products from SWFP (Severe Weather Forecasting Programme), FFGS (Flash Flood Guidance System) has been developed in Yaque del Norte basin in Dominican Republic, and implementation is ongoing in the Haina coastal basin, which will allow to integrate products from CIFI (Coastal Inundation Forecasting Initiative).
 - I. Component: systems development
 - Developed impact-based flood forecasting system in Yaque del Norte basin.
 - Started development of IRFF impact based forecasts in the pilot coastal basin Haina.
 - WHOS implementation is underway and is facilitating data sharing from Oficina Nacional de Meteorología (ONAMET) (NMS Dominican Republic) to the IRFF.






- MCH is under implementation in Oficina Nacional de Meteorología and training will be delivered by August 2021.
- II. Component: training
 - Verification of numerical weather forecasting training was conducted for ONAMET in March and April 2021. More than 5 forecasters were trained.
 - Hydrometry training is on-going, at the moment theoretical distance learning and 4 practical sessions in measurements through Doppler sensors were completed in June 2021. More than 15 technicians and engineers have been trained.
 - Hydrodynamic modelling training on HydroBID flood was prepared in the moodle platform and will be delivered between August and September 2021.
 - A paper was drafted to describe the IRFF technical approach in collaboration with the developers
- Project advancements, concerning gender and vulnerable groups inclusion, and on private sector engagement on MHEWS were presented in the framework of the Hydromet CARIBBEAN Virtual Forum 2020.
- Project advancements, concerning gender and vulnerable groups inclusion, and on private sector engagement on MHEWS were presented in the framework of The UN Decade of Ocean Science for Sustainable Development 2021-2030: Tropical Americas Safe Ocean Co-Design Workshop on Breaking down the Silos for More Effective Multi Hazard Early Warning. Within this workshop, the views from representatives of the 1) Gender Bureaus; 2) people with disabilities institutions and experts; and, the Private Sector network for Disaster Risk Reduction (ARISE); in the Caribbean region, were summarized and presented concerning the regional MHEWS roadmap, and the need for an Impact-Based Forecasting approach.



8. 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	<p>Disbursement June, 2021</p> <p>From WB side: is \$1,213,393 (47.1% of total amount)</p> <p>From WMO side: Commitment on December 2020 is \$843,388 (36,7 % of total amount)</p> <p>From UNDRR side: Commitment on December 2020 is US\$131,652 (40,5% of total amount)</p>	<p>The review and consultation processes of the developed products with counterparts takes more time due to the full virtual work modality that has been followed since the beginning of the Covid19 pandemic.</p> <p>Hence, several activities have been delayed due to travel restrictions during the covid pandemic. With the no-cost extension granted, WMO has amended agreements with partners to allow for completion of activities before 31 Dec 2022. (For more details see remarks in section 7 and 10.)</p>	<p>The project remains strongly aligned to the objectives.</p>
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9. Risk Management Status

Risk Status	<p>What is the current risk status as compared to what was identified in the project proposal?</p> <p>The overall risk of the project is medium. Overall project implementation has been lower than expected over the last year, particularly due to the pandemic. Further delays in implementation have been caused by the volcanic outbreak in St. Vincent and the Grenadines and hurricane events. At the time of reporting, we are still early in the Caribbean 2021 Hurricane Season. Going forward, the development of the COVID-19 pandemic creates some uncertainty for the further progress of the project.</p>
Measures to address	<p>What mitigation measures have been developed to address the risk status?</p> <p>To count for current and future delays as well as the uncertainty moving forward, most activities required readjustment in scope and timeline, as well as way of delivery (e.g. change from in-person to virtual interaction). The granted project extension to 2022 will give the opportunity for this timeline readjustment and we plan to complete outstanding activities by 31 Dec 2022.</p>



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11. Contributions to CREWS Output(s)

11.1 National Output(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	Target for reporting period	Progress by December 2020	Progress by June 2021
<i>National Strategic Plans Developed</i>	8	100%	50%	60%
<i>Model Meteorological Bill Drafted</i>	1	100%	60%	100%
<i>Meteorological Bills adapted at national level</i>	Prior plan: 2 Now adapted to 8 in revised IA between WMO & CMO	2	0	0

Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

The review and consultation processes for the development of products with counterparts take more time than originally planned due to the full virtual work modality that has been followed since the beginning of the Covid19 pandemic. Despite the challenging circumstances, we are currently finding ways to mitigate accordingly.



The validation workshop for the Model Meteorological Bill and Policy was held online instead of face-to-face on 2 June 2021. As a positive result of the challenges related to the pandemic, the savings on travel, DSA and consultation CMO were reallocated to allow for six additional MET-Bills to be passed in six selected CARICOM countries (for further information see section 7).

As mentioned in section 7, eight national strategic plans have been finalized. The goal is to finish the endorsement process within the project period but due to the current situation, the timeline for this is not predictable. But as mentioned before, the Implementing Agreement between CMO and WMO is adjusted accordingly. Also there will not be formal face-to-face launching events.

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	Target for reporting period	Progress by December 2020	Progress by June 2021
Hydrological observation, data management and flood forecasting strengthened	Implementation of a River Flood Forecasting System in Haiti and Dominican Republic	80%	70%	90%
WMO Cascading initiatives implemented	2 SWFDP RSMT Meetings 10 SWFDP Regional Trainings conducted	1 RSMT Meeting 1 SWFDP Regional Training Conducted	0	0
Biannual Caribbean Climate Outlook Fora	6 CariCOFs held	1 CARICOF	1 CARICOF dry season	1 CARICOF (wet season)



Multi-hazard early warning systems, risk assessments and impact-based forecasting introduced	3 regional training events on hurricane forecasting 2 Regional Training events on Impact-based forecasting	0 0	1 1	0 0
<p>Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)</p> <p>The review and consultation processes for the development of products with counterparts took more time than originally planned due to the full virtual work modality that has been followed since the beginning of the Covid19 pandemic. Also, face-to-face trainings could not be organized due to travel restrictions. Hence, some of the allocated budget has not been spent yet. Further challenging is also the fact that virtual trainings do not always have the same impact as face-to-face trainings.</p> <p>Given the granted no-cost project extension, we are in the process of rescheduling trainings (face-to-face if possible) which should have taken place already and we are exploring options for additional in-country trainings which could be financed through the mentioned cost savings. Please find below some affected trainings:</p> <ul style="list-style-type: none"> • Caribbean Training on Hurricane Forecasting planned for April 2022 • Hurricane Committee planned for March 2022 • One CariCOF planned for November 2021 (virtually), 2 CariCOFs planned for April & November 2022 (face to face) • 1 SWFDP Workshop planned for 2022 • Operational Forecasting Workshops EUREC4A planned for 2022 • Further trainings yet have to be scheduled. Discussions are currently ongoing. 				

CREWS Output(s) 3: Information and Communication Technology, including common alerting protocol, strengthened

State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by December 2020	Progress by June 2021
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Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words) n/a				

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	Target for reporting period	Progress by December 2020	Progress by June 2021
Review and Development of model for standing operational procedures and adaption to 4 countries.	SOP model revised & adapted to four countries	SOP model revised & adapted to four countries	-	Consultant chosen, hiring in process.
Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. The review and consultation processes for the development of products with counterparts take more time than originally planned due to the full virtual work modality that has been followed since the beginning of the Covid19 pandemic. This caused major delays and extra-work on CDEMAs side (as being the local partner for this output). Given the granted no-cost project extension, a revised implementing agreement is currently being drafted to allow for completion of activities before 31 Dec 2022.				



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

State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by December 2020	Progress by June 2021
<p>Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)</p>				

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

State Project Output(s) in this section	Overall Project Target	Target for reporting period	Progress by December 2020	Progress by June 2021
National workshops for 'gender and vulnerable groups in early warning system' training with regional strategy consultation implemented	3 national workshops	0 national workshops	4 national workshops	N/A?



Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)

No planned activities for this period.

11.2 Regional Output(s)

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	Target for reporting period	Progress by December 2020	Progress by June 2021
Strategic roadmap on strengthening MHEWS	Development of a Regional MHEWS Roadmap	Roadmap third draft prepared.	Second draft	Roadmap third draft prepared and shared for review and comments with regional and implementing partners in June 2021.
Assessment of socio-economic benefits of better hydromet services and EWS	Developed the complete economic analysis of regional MHEWS in the Caribbean.		Agreed a methodology to develop the economic analysis of regional MHEWS in the Caribbean.	Hired the consultant to develop the complete economic analysis of regional MHEWS in the Caribbean.



Priority Activities implemented as pilots.	Set of Priority Activities implemented.	Priority Activities identified as pilots to be implemented under the project.	Four Priority Activities identified to be implemented under the project.	Defined the content and reach of Priority Activities to be implemented. Two Priority Activities in process of being contracted
<p>Narrative: briefly indicate the major issues or challenges faced and mitigation steps taken to addressing them. (150 to 200 words)</p> <p>With the travel restrictions due to the COVID-19 pandemic and the volcano eruption in Saint Vincent, interaction with regional partners has been limited. Particularly CIMH and CDEMA have been even more busy then usual and written feedback to products and inputs during calls have been limited.</p>				

12. Contributions to Value Propositions

Gender Responsive	<p><i>(How did the project capture relevant gender concerns? For example, including gender-inclusive indicators and targets, reporting on sex-disaggregated data, conduct of gender analysis, involvement of gender and/or women’s organisations, documenting effects on women, men and gender-relations, implementing gender specific actions/activities for women and men.)</i></p> <p>The project documents and activitie identify gender and vulnerable groups as cross-cutting themes. This enables the region to strengthen the EWS in a way that will consider the different groups, reach more people, specifically the ones most at risk, and further contribute to the concept of people-centered EWS. Major activities to secure gender and vulnerable groups concerns are: 1) extensive consultation with institurions in</p>
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	charge of gender and vulnerable groups; and, 2) scientific research on risk and early warning systems perception, notably of vulnerable groups and communities
Multiplier	<p><i>(How did the project contribute to the promotion of a favorable environment for early warning systems? What additional financing has been leveraged or expected to be mobilized as an effect of the project?)</i></p> <p>By identifying regional best practices in the diagnostic, the regional roadmap aims at building on them and replicating them across the region.</p>
People-centered	<p><i>(Which local organisations have been engaged and what is their level of participation? How did the project ensure the involvement and uptake of end-users?)</i></p> <p>People-centered approach has been identified as one of the core values of the regional roadmap that is under development. By implementing different consultations with Gender Bureaus; people with disabilities institutions and experts; and, the Private Sector network for Disaster Risk Reduction (ARISE); in the Caribbean region; the project is aiming to secure its people-center approach. Similarly, in the coming months, scientific research on risk and early warning systems perception, notably of vulnerable groups and communities, will be developed.</p>
Promote Coherence	<p><i>(What are the approaches undertaken to ensure complementarity and value-added of the project with existing projects and other international partner initiatives ? For example, conduct of joint planning, resource sharing, participation in consultations, workshops, meetings organized by partners.)</i></p> <p>The IP team is closely coordinating with stakeholders that are active in the region around the topic of end-to-end EWS, including regional organizations, consortia and other development partners. A mapping of ongoing projects and initiatives is planned to take place in a few months.</p>
Solution-oriented	<i>(What good and innovative practices have been produced or are evident in the project?)</i>



	<p>The regional strategy is identifying “strategic initiatives” that could be game changers, as they are addressing and offering solutions to some or the main weakness and bottlenecks identified in the diagnostic.</p>
<p>Unique</p>	<p><i>(How did the project support building sustained institutional capacity driven by countries?)</i></p> <p>While many national plans to strengthen EWS and regional plans to strengthen EWS aspects exist in the region, there is not yet any regional strategy that would set the frame for national level strengthening.</p>

13. Visibility products

- a. *Insert or copy any links to press releases, videos or communication items and/or social media links*

In order to communicate progress, share information and for consultation purposes the following website was established:

<https://www.gfdr.org/en/crews-caribbean>

14. Supporting documents

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