CREWS CLIMATE RISK & EARLY WARNING SYSTEMS

CREWS OPERATIONAL PLAN: DELIVERING AT SCALE 2021–2025

Approved: June 2021

WORLD METEOROLOGICAL ORGANIZATION

WORLD BANK GROUP

GFDRR Global Facility for Disaster Reduction and Recovery

UNDRR UN Office for Disaster Risk Reduction

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EXECUTIVE SUMMARY

In 2015, countries set ambitious targets to substantially reduce mortality, economic losses and the number of people affected by disasters by 2030. They further recognized that this requires enhanced international cooperation and increased availability and access to early warning systems and risk information in developing countries.

The Climate Risk and Early Warning Systems (CREWS) Initiative was established, at the same time, by several donor countries, to accelerate efforts towards these targets in Least Developed Countries (LDCs) and Small Island Developing States (SIDS). Following a successful initial phase, the *CREWS Operational Plan: Delivering at Scale 2021–2025* reiterates the value of the initiative's initial objective. Specifically, CREWS ambitions to build on efforts and achievements to date and to enhance its business model and scale-up its response to the early warning needs of LDCs and SIDS through country and regional projects that are country-driven, impact-based, people-centred, and gender-responsive. CREWS will continuously refine its efforts based on lessons learned, current gaps and needs, and the broader global context. It will also place attention on maintaining systematic weather and climate observations and sustainable infrastructure underpinning national and international multi-hazard early warning capacities.

Through an extensive consultative process with partners and building on the CREWS Post-2020 Preliminary Findings, this document outlines how CREWS will operationalize its efforts during the 2021–2025 period.

Key features for 2021–2025

CREWS operations will be strengthened through its implementing partners, the World Bank, the World Meteorological Organization (WMO) and the UN Office for Disaster Risk Reduction (UNDRR). The following principles will drive operations. CREWS will:

Put people at the centre by engaging with and encouraging collaboration between local level actors, for effective impact-based multi-hazard early warning systems.

Have sustainability as the cornerstone of its operations. Ensuring the longevity of CREWS' impact requires a number of concerted efforts over a sufficiently long period, not least strong ownership and financing plans by national and local institutions for the services developed.

Strengthen cooperation with relevant initiatives and other financiers and implementers to allow CREWS to frame and deploy its resources in the most strategic manner possible. This includes strengthening and harmonizing the efforts of its partners and creating an environment in countries conducive to leveraging the effectiveness of additional financing.

Enhance collaborative partnerships between the public and private sectors to foster innovative, sustainable, and cost-effective approaches to various elements of early warning systems.

Finally, a Strategic Support Window will be established for all LDCs and SIDS, for shorter duration, targeted actions aimed at strengthening elements of early warning systems and the associated enabling conditions required for their sustainability and effectiveness.

Scale of ambition

While funding decisions will ultimately be driven by a bottom-up process based on country needs and demands, initial projections are provided as an indication of potential resource requirements based on different scenarios. In order to effectively achieve the CREWS objectives in LDCs and SIDS a projected USD 107 million is required.

The implementation of the Operational Plan will be overseen by CREWS Contributing Partners. The roll-out will:

- Be supported by a resource mobilization strategy that will target contributions to the CREWS Trust Fund, during 2021 to 2025, in the amount of USD 107 million by 2025;

- Involve revising the CREWS results-based framework with specific baselines, targets and indicators associated with this plan; and

- Consider the findings and recommendations of the CREWS Initial Phase External Evaluation, which is expected in 2021.

BACKGROUND

1. In 2015, governments committed to increase the availability to and access of multi-hazard early warning systems by 2030 and to measure their progress towards that target. They also recognized that this target would only be reached if assistance to LDCs and SIDS was considerably scaled-up.

2. In response, the Climate Risk & Early Warning Systems Initiative (CREWS) was announced by the Minister of Foreign Affairs of France at the World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015, and formally launched by Australia, France, Germany, Luxembourg and the Netherlands later that year, during the twenty-first Conference of the Parties on Climate Change (COP21) in Paris, France. Since then, Switzerland and the United Kingdom have joined as Contributing Members.[1] As of February 2021, a total of USD 66.9 million has been contributed to the CREWS Financial Intermediary Fund by eight countries.

OBJECTIVE AND APPROACH

3. **The overall objective of CREWS is to substantially reduce disaster mortality by 2030 by significantly increasing access to early warnings and risk information in LDCs and SIDS.**[2,3] Through its programming, CREWS contributes to, and measures its progress against, the goals of three multilateral agreements: the Sustainable Development Goals (SDGs), the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction 2015–2030 (Figure 1.).

4. Each of these multilateral agreements stress the role that multi-hazard early warning systems[4] play in overseeing extreme weather events and monitoring climate, both of which are foundational elements for managing risks and achieving socio-economic benefits. Recent economic assessments in several countries have found strong positive cost-benefit ratios for investment in weather and climate services, typically between 1:4–1:36 (WMO, 2015).

5. Furthermore, early warning systems are an adaptation priority in 88% of the Nationally Determined Contributions (NDCs) to the Paris Agreement submitted by LDCs and SIDS (WMOa, 2020). These targets and result metrics are also aligned with established targets set by global partnerships such as the InsuResilience Global Partnership and the Risk Informed Early Action Partnership (REAP) (See Strategic Partnerships and Alignments in Annex 3A).

1 Canada provides its contributions directly to WMO, to be aligned with CREWS. The European Commission announced a EUR 10 million contribution to CREWS in 2020.

2 Sendai Framework Targets A and G.

3 As of May 2020, there are 76 LDCs and SIDS. There are 38 SIDS and 47 LDCs with 9 countries that are both an LDC and SIDS. See Annex 4 for a complete list.

4 According to the Member States of the United Nations (2017), "multi-hazard early warning systems address several hazards and/or impacts of similar or different type in contexts where hazardous events may occur alone, simultaneously, cascadingly or cumulatively over time, and taking into account the potential interrelated effects. A multi-hazard early warning system with the ability to warn of one or more hazards increases the efficiency and consistency of warnings through coordinated and compatible mechanisms and capacities, involving multiple disciplines for updated and accurate hazards identification and monitoring for multiple hazards."

6. In recognition of the critical importance of effective early warning systems (Figure 2), CREWS focuses its support in a targeted manner by responding to the early warning needs of LDCs and SIDS through country and regional projects that are country-driven, impact-based, people-centred, and gender-responsive.[5] (See Box 2 for CREWS Programming Principles).

Box 2. CREWS Programming Principles

- **PEOPLE-CENTRED:** Local organizations are listened to and engaged so that investments are driven by the needs of end-users.
- **SOLUTION-ORIENTED:** Good and innovative practices are applied and shared continuously across national and regional projects.
- **MULTIPLIER:** Country portfolios promote a favourable environment for, and leveraging of, effective additional financing.
- **GENDER-RESPONSIVE:** CREWS recognizes women's empowerment as fundamental for building resilience, and that gender influences the way people access, process and respond to information and warnings.
- **PROMOTES COHERENCE:** Programming considers existing projects and other international partner initiatives to ensure value-added to the national context and needs.

Figure 2. Four elements required for effective early warning systems

7. Specifically, the Implementing Partners — the World Bank Group (WBG)/Global Facility for Disaster Reduction and Recovery (GFDRR), World Meteorological Organization (WMO), and United Nations Office for Disaster Risk Reduction (UNDRR) — provide analytical and advisory services, technical assistance, capacity building, and operational support to LDCs and SIDS via country and regional projects to achieve country, regional, and global outputs (Table 1).

5 This document uses "multi-hazard early warning systems" and "early warning systems" inter-changeably to refer to early warning systems which are multi-hazard, impact-based, people-centred, and gender-responsive.

Table 1. CREWS's Country, Regional and Global Outputs

Level	Output	Overview of CREWS Support *(Early Warning Element Addressed)*
Country	**1. Hydrometeorological service delivery improved**	Supports improvements to the service delivery of national meteorological and hydrological services, including the preparation and implementation of long-term service delivery strategies and plans to meet the needs of end users. *(Monitoring, detection, analysis and forecasting of hydrometeorological hazards)*
	2. Risk information generated for impact-based forecasts and early warnings	Supports improvements to risk information and related tools to guide early warning systems and for the development of impact-based forecast and warnings, namely those that inform on the potential impact of an extreme event rather than solely on the occurrence of the event. *(Disaster risk knowledge)*
	3. Information and communication technology strengthened	Strengthens information and communication technology, including through the adoption of common alerting protocols. *(Dissemination of timely and authoritative warnings)*
	4. Preparedness and response plans strengthened and accessible	Supports capacity building and institutional cooperation around standard operating procedures to generate, communicate, prepare for and act on warnings as an integral part of disaster preparedness and response plans. *(Preparedness and response plans)*
	5. Awareness on early warning improved	Supports the development of knowledge products and awareness programmes on early warnings. *(Preparedness and response plans)*
	6. Gender-responsive capacity-building programmes initiated	Supports gender-responsive training and the provision of capacity building programmes for women, as gender influences the way people access, process and respond to information and warnings. *(Preparedness and response plans)*
Regional	**7. Regional capacities for early warning strengthened**	Supports increased institutional and human capacities at regional WMO and intergovernmental organizations. *(Monitoring, detection, analysis and forecasting of hydrometeorological hazards and disaster risk knowledge)*
Global	**8. Investments are increased and better coordinated to address early warning service delivery gaps**	Provides mapping of needs, demand and leveraging opportunities across LDCs and SIDS to guide investment in a more programmatic manner. Contributes to standardizing how to measure progress on early warning systems in countries and against global goals. *(All five elements)*

8. The implementing partners have broad networks of national and local partners, such as national meteorological and hydrological services and national agencies for disaster risk management, which ensure that the needs of the end-users of risk information and warning services are met. They also collaborate with and contribute to other initiatives and funds to maximize impact. This includes, for example, the Alliance for Hydromet Development, Green Climate Fund (GCF), Global Framework for Climate Services (GFCS), InsuResilience Global Partnership, REAP, and others. (See Annex 2 for an overview of CREWS Operational Modalities and Annex 3A for a list of Strategic Partnerships).

VISION: DELIVERING AT SCALE 2021–2025

9. CREWS and its partners have already improved the state of early warning systems and capabilities in the LDCs and SIDS (See Box 3 for highlights; further details are captured in CREWS Annual Reports, Project Status Reports, and other related documents all available on the CREWS website).

Box 3. CREWS Operational Highlights as of the end of December 2020:

- 51 vulnerable countries have benefitted from CREWS country and regional project support, including 47 LDCs and SIDS;
- USD 47.5 million in CREWS funding has been deployed across nine CREWS country projects and four regional projects*;
- More than USD 270 million has been leveraged from public funds of other development partners**; and
- 10 million additional people protected by three new national life-saving early warning systems launched in Fiji, Burkina Faso and Papua New Guinea in 2019.

*As of December 2020, there are nine country projects (Afghanistan, Burkina Faso, Chad, Democratic Republic of Congo, Haiti, Mali, Niger, Papua New Guinea, and Togo), four regional projects (Caribbean, Pacific, South-West Indian Ocean, and West Africa), and one global project. See Annex 3B for a summary of current projects.

** CREWS utilizes the GFDRR definition of leverage. GFDRR categorizes the way in which its activities have leveraged in three ways: (i) informing the mobilization of resources from national governments or development partners; (ii) enabling development financing by directly supporting the design and/or implementation of a hydromet operation from national governments or development partners.; or (iii) co-finance hydromet operations with other development partners to increase the scale of interventions.

10. At a global level, adaptation finance for disaster risk management interventions, which include early warning and rapid response systems, has been increasing over the years, from an average annual amount of USD 1.9 billion in 2013–2014 to USD 2.9 billion in 2015–2016 to USD 6.6 billion in 2017–2018 (WMO, 2020a; CPI, 2019; CPI, 2016). This trend is expected to continue. GCF alone expects to have a USD 2.2 billion portfolio of climate information and early warning services projects by 2030, roughly 2.5 times the current portfolio (WMO, 2020b).

11. However, financial resources alone will not ensure that disaster mortality is significantly reduced by 2030; several LDCs and SIDS lack components of early warning systems, and current institutional capacities to translate early warning into early action is insufficient, especially in LDCs (WMO, 2020a). Smart, effective deployment of support, especially for longer-term capacity building, is critical.

12. This is especially relevant in the current COVID-19 crisis context, which in the short term is likely to exacerbate existing needs and gaps, constrain current efforts, and add vulnerability factors. In the medium term, however, synergies should be sought as this crisis is expected to accelerate the expansion of the type of hazards which countries will want to see covered by their early warning systems and broader disaster risk management strategies (e.g., to include biological health hazards and geohazards).

13. CREWS is continuously refining its efforts based on lessons learned, current gaps and needs, and the broader global context. During the 2021–2025 period, CREWS will build on efforts and achievements to date and continue to work towards its objective by:

    - Enhancing its focus on key programming principles (i.e., people at the centre, sustainability as the cornerstone, and cooperation and coherence);
    - Strengthening its private sector engagement; and
    - Putting in place a Strategic Support Window to maximize its ability to respond to country needs.

14. Through an extensive consultative process with contributing Members and implementing partners, and building on the CREWS Post-2020 Preliminary Findings, and the following sections outline how CREWS will operationalize its efforts (See Annex 1 for an overview of the Vision development process).[6] Specifically:

    - **Key Features for 2021–2025** — A look at key programming principles and new features for the 2021–2025 period: the programming principles include people at the centre, sustainability as the cornerstone, and cooperation and coherence, and the new features include private sector engagement and a Strategic Support Window.
    - **Scale of Ambition: Programming scenarios** — Scenarios for CREWS programming across different project types (i.e., new country or regional projects; additional financing for existing country or regional projects; and strategic support).

KEY FEATURES FOR 2021–2025

15. This section highlights key programming principles and new features for CREWS for the 2021–2025 period. The programming principles include people at the centre, cooperation and coherence, and sustainability as the cornerstone. In terms of new features, CREWS will strengthen its private sector engagement and will put in place a Strategic Support Window. For each of these key features, the Secretariat will measure progress as part of the existing monitoring and evaluation framework, and the Steering Committee will be regularly informed. This will include developing core programme indicators with baselines and targets (Annex 2).

People at the centre

16. Despite the increasing existence and accessibility of early warning data, information, knowledge and expertise, such information does not always effectively reach those who need it the most — the communities most at risk and, especially, the vulnerable sections of the population (e.g., women, children, older persons, displaced persons, indigenous people, and persons with disabilities). Many forecasts fail to be converted into understandable warnings, and, when they exist, warnings often fail to reach the populations most at risk or trigger appropriate response, due to missing elements or links. People-centred (also referred to as "community-centric") approaches involve the people and communities that most require warnings — the end-users — in each of the four elements required for effective impact-based multi-hazard early warning systems (Figure 2).

6 CREWS is currently undergoing an external evaluation. The findings of the evaluation are expected to inform the roll-out of Vision 2025.

17. In other words, the end-users of early warning systems shape the design and implementation of the system according to their priorities and needs. For example, early warning information must be impact-based, meaning sufficiently informed by risk data to provide warnings of what the weather will do rather than what the weather will be. Warnings need to be provided in the right languages and use the right communication channels; preparedness efforts and early warning systems are only effective if they enable early action by at-risk communities ahead of impact, thus ensuring the safety of both the people and their livelihoods (WMO, 2020a).

18. There is no single approach to designing and implementing inclusive, people-centred, impact-based early warning systems. However, common principles include the need to understand local context, integrate local knowledge, and take account of individual motivations when planning and implementing risk management activities. National and local institutions require tools, data platforms and capacity to manage data related to weather and climate predictions, as well as risk and exposure data.

19. CREWS recognizes the need for engagement with and collaboration between various actors, especially at the local level, to inform the development of early warning systems (e.g., to enable multi-dimensional analysis and assessment of the context, such as factors affecting politics and decision-making for disaster risk reduction (DRR) investments, the level of poverty and extent of marginalization and exclusion). Continued collaboration also ensures that the needs of the end-users of risk information and warning services are met. Furthermore, involvement of local communities improves the sustainability of CREWS' results; local stakeholders take ownership of the early warning systems and are able to continue their implementation beyond CREWS project completion.

Actions for 2021–2025:

- During project design, the implementing partners will seek to work with local partners (e.g., national Red Cross and Red Crescent Societies, local non-profit organizations, local private sector, community and women's organizations, groups of persons with disabilities) to ensure that relevant stakeholders and communities are engaged in project design; giving communities a voice from the beginning is critical for overall project success. Inputs received from local partners will be reflected in project proposals.

- During project implementation, the implementing partners will continue to engage local partners to understand and integrate local and traditional knowledge, risk perceptions, and context on an ongoing basis, ensuring that no one is left behind.

- Projects will develop tools and capacity to aggregate monitoring, forecasting and risk data in a temporal and spatial manner using technologies adapted to the local context (web-GIS platforms) with a view to promote people-centred and impact-based warnings.

- The Secretariat will develop, in consultation with the IPs and relevant stakeholders, the CREWS Operational Procedures on People-Centred Early Warning.

Sustainability as the cornerstone

20. The support that CREWS provides to its recipient countries helps to build and strengthen early warning systems but cannot fill all of the associated needs of the LDCs and SIDS over time. Maximizing and ensuring the longevity of its impact therefore requires a number of concerted efforts over a sufficiently long period. Crucially, when CREWS first initiates support in a given country it develops an exit strategy to ensure that the services and capacity developed by the national and local counterparts are continued after the project is concluded.

21. The approaches that CREWS takes to ensure the sustainability of its support is three pronged:

    - First, the implementing partners ensure ownership by the national institutions of the project and the tools and services that are developed with CREWS support. In countries with very limited institutional capacity, CREWS investments are aligned with larger financing efforts to ensure infrastructures and equipment can be rehabilitated or procured, and that services can continue beyond the time frame of the project. Related capacity building is provided for relevant institutions and individuals (e.g., through support for higher education) with the hope that capacities will be strengthened and sustained.

    - Second, the implementing partners assist the relevant national institutions, including NMHSs, to develop the strategic plans (e.g., National Strategic Plans (NSPs), DRR plans, National Adaptation Plans (NAPs)), laws and legislations needed to formalize its functions and ensure sustained public funding from national and international sources.

    - Finally, the implementing partners connect LDCs and SIDS to regional and global initiatives and expertise. For example, sustained capacity of national meteorological services to anticipate severe climate and weather phenomena is attained by ensuring global-scale numerical weather prediction models are interpreted at the subregional scale by regional specialized meteorological centres and regional climate centres accredited by WMO. Further economies of scale and harmonization of approaches are also achieved through additional regional centres including regional economic communities (for DRR policies), WMO regional training centres, WMO regional WIGOS centres and WMO regional instrument calibration or maintenance centres.

Actions for 2021–2025:

- CREWS will continue to ensure that its support is aligned with and adds value to existing or potential projects by its implementing partners and the broader community and will endeavour to achieve the maximum leverage of its support possible.

- During the design and implementation of its projects, the implementing partners will foster closer collaboration between government ministries and departments in charge of NMHSs and those sections of government responsible for setting national priorities and determining public budgets in order to secure political buy-in and goodwill towards NMHSs. As part of this effort:

- Implementing partners will assist the NMHS, Disaster Risk Management (DRM), Ministries of Finance and other relevant agencies in making the case for early warning systems by highlighting the socioeconomic benefits provided by sufficiently resourced early warning systems.

- Implementing partners will continue to support NMHS, DRM and other relevant agencies in their development of NSPs, and, recognizing the importance of implementation, will: develop necessary institutional capacities; support efforts to integrate NSPs within broader development and investment plans, including NAPs and national and local DRR strategies, among others; and assist actions necessary to translate the plans into policies and legislation.

Cooperation and coherence

22. National meteorological, hydrological, disaster risk reduction, food security and civil protection services and other organizations involved in observation, weather/climate data collection, and other aspects of early warning systems are generally funded by the public sector. This includes domestic and international public finance. At the same time, the development and implementation of early warning systems necessarily involves a range of stakeholders from local, national, regional and international levels; effective implementation of early warning systems requires close partnerships between many and varied organizations involved in hazard monitoring, dissemination of predictions, issuance of warnings and disaster management, together with the public at risk.

23. To date, one of the values added by CREWS has been to inform and contribute to the effectiveness of investments and projects led by other stakeholders, and in particular entities and financing mechanisms with broader climate and/or development mandates. Leveraging is achieved through different levels of influence, such as triggering new financing that would not have otherwise happened; ensuring investments are programmatically informed and optimally utilized; developing local capacities for project management and creating awareness and advocacy about the need for early warning systems.

24. Cooperating with relevant initiatives and other financiers and implementers allows CREWS to frame and deploy its resources in the most strategic manner possible, and to strengthen and harmonize the efforts of its partners. This in turn guarantees maximum impact and contributes to the sustainability of CREWS' funded projects. CREWS will also cooperate with efforts for effective financing of the global weather and climate observation systems (e.g., the Systematic Observations Financing Facility (SOFF))[7].

25. Implementing partners engage with partners in several ways and at multiple levels. The entire CREWS governance system – the steering committee, implementing partners, Secretariat and trustee — is involved. Internally, coherence is achieved through ongoing engagement between actors within the governance system and especially between the implementing partners. This ensures that the respective capabilities and comparative advantages of each implementing partner are capitalized on.

26. Coherence within the countries CREWS supports is most important, so efforts are taken to ensure that a diverse set of local stakeholders and partners (e.g., national Red Cross and Red Crescent Societies, local non-profit organizations, local private sector, community and women's organizations, groups of persons with disabilities) are engaged during project design and implementation. Cooperative efforts involve general collaboration (e.g., through sharing lessons learned and country operation practices), financing, project design and/or project implementation. Outreach and coordination with relevant partners in a systematic manner during the early stages of project design is especially important to maximize synergies with and avoid duplication of other efforts. Overall, these collaborations strengthen the impact of CREWS within its recipient countries as well as across the broader early warning finance and implementer landscape.

7 The Systematic Observations Financing Facility (SOFF) is a proposal by WMO for a new financing mechanism to support implementation of the Global Basic Observing network (GBON) in the countries with the largest capacity gaps. This initiative aims to achieve and maintain GBON compliance in all SIDS and LDCs. SOFF has a long-term perspective and uses a systematic approach based on a global design. It aims to increase upper air and surface-based data more than 10-fold and 20-fold, respectively.

Actions for 2021–2025:

- CREWS will continue mapping the needs, demands and leveraging opportunities across LDCs and SIDS to assist with funding prioritization, linking with the WMO's community platform and the Country Hydromet Diagnostics tool of the Alliance for Hydromet Development.

- CREWS will finalize its programme indicators, standardize how early warning availability and access is measured by countries and development partners, and build capacity of LDCs and SIDS to monitor their national systems and report against relevant global goals and targets.

- CREWS will reinforce its contribution to coherent programmes, primarily at the regional and national level through its projects, as well as through its cooperation with selected external actors. Table 2 provides an illustration of the range of entities/initiatives that CREWS may engage with during project design and implementation, financing, or on a more general coordination level. This does not include regional institutions.

- The Secretariat will make available on its website information collected by the implementing partners, for each of its projects, on investments and programmes carried out by other development partners.

- The Secretariat will update information on strategic partnerships and alignments (Annex 3A) annually, noting not only the type(s) of cooperation but also assessing, for example, the degree of alignment with CREWS objectives and the importance of and rationale for collaboration.

Table 2. Examples of CREWS's Efforts to Cooperate with Partners *(Illustrative; non exhaustive)*

Type	Entity/Initiative	Type of alignment			
		General Coord.	Financing	Project Design	Project Imp.
Implementing Partner-Related	International Development Association (IDA)		x	x	x
	Global Framework for Climate Services (GFCS)	x	x		
	Country Support Initiative (CSI)	x	x	x	x
Steering Committee Related	AFD (France) Building Regional Resilience through Strengthened Meteorological, Hydrological and Climate Services in the Indian Ocean Commission (IOC)	x	x	x	x
	Australia Climate and Oceans Support Program in the Pacific (COSPPAC)		x	x	x
	FCDO Programme on Asia Resilience to Climate Change Trust Fund (ARCC)		x	x	x
	Weather and Climate Information Services for Africa (WISER)		x	x	x

Multilateral Development Banks (MDBs) and Funds	Green Climate Fund (GCF)	x	x	x	x
	Global Environment Facility (GEF), including the Least Developed Countries Fund (LDCF)	x	x	x	x
	InsuResilience Solutions Fund (ISF)		x		
	African Development Bank (AfDB) including ClimDev (CDSF)	x	x	x	x
	Nordic Development Fund (NDF)		x	x	x
	European Union (Intra-ACP, SAWIDRA)	x	x	x	x
Initiatives and Partnerships	InsuResilience Global Partnership	x	x	x	x
	Risk Informed Early Action Partnership (REAP)	x	x	x	x
	Capacity for Disaster Reduction Initiative (CADRI)	x			
	Global Commission on Adaptation (GCA)	x			
	Private Sector Alliance for Disaster Resilient Societies (Arise)	x			
	Alliance for Hydromet Development	x			
	Systematic Observations Financing Facility (SOFF)	x	x		
	International Network for Multi-Hazard Early Warning Systems (IN-MHEWS)	x			
Other Entities/ Organizations	Red Cross and Red Crescent Societies	x	x	x	x
	UN Resident Coordinators	x		x	
	Hydro-Meteorological Equipment Industry (HMEI)	x			x

PRIVATE SECTOR ENGAGEMENT

27. While the public sector has traditionally been responsible for the majority of financing for and implementation of early warning systems — and will likely continue to be in the case of most LDCs and SIDS — it is becoming increasingly important to involve the private sector to mobilize finance at scale and to ensure their sustainability. This ranges from the creation of public-private partnerships (PPPs) (e.g., example between NMHSs, media, mobile phone operators, and developers of production tools) to scaling of insurance and other forms of private finance (e.g., CAT bonds).

28. Given a supportive enabling environment, collaborative partnerships between the public and private sectors can foster innovative, sustainable, and cost-effective approaches to various elements of early warning systems. For example, partnerships with telecom operators, television and media offers the opportunity for expanded distribution of early alerts. Implementing partners have started some small initiatives to demonstrate the value of PPPs, and these types of engagements will be more frequent in future CREWS projects.

Actions for 2021–2025

- **Public-Private Partnerships Scoping and Pilots:** CREWS will assess the enabling environment for PPPs in recipient countries, when relevant (e.g. a win-win partnership is currently under consideration with Météo-France, NMHSs of Burkina Faso, Chad, Mali, Niger and Togo as well as a private design office to improve the use of global products for agrometeorology). Specifically, CREWS will support initial PPP scoping efforts (e.g. legal and regulatory analyses, market assessments, capacity assessment and building, etc.) and pilot projects with the understanding that only some will result in the development of full-scale PPPs, and that those that do go ahead will need to rely on other partners for financing (e.g. MDBs, GCF, etc.)

- **Insurance and Disaster Risk Finance:** CREWS will increase its focus on benefits resulting from closer collaboration between disaster risk financing efforts and early warning systems, which rely on similar hazard, exposure and vulnerability datasets.

    - At the institutional level, the Secretariat will consider ways to bring relevant private sector partners and initiatives into the steering committee discussions to inform possible country or regional projects or strategic support actions (e.g. InsuResilience Global Partnership, Insurance Development Forum and UNDRR's Arise initiative, Africa Risk Capacity (ARC)).

    - At the project level, implementing partners will collaborate with the InsuResilience Global Partnership in relevant recipient countries, when possible, to ensure that the disaster risk financing sector is aligned with and informed by CREWS. This could include, for example, implementing partners supporting the technical exercise and hydromet data requirements for parametric insurance schemes, or supporting the development of emergency financing mechanisms in CREWS countries.

STRATEGIC SUPPORT WINDOW

29. During the 2015–2020 period, CREWS focused its support on multi-year country and regional projects with a firm focus on the four elements of early warning systems. While this will remain the core focus of CREWS for 2021–2025, there is a recognition that an additional financing modality that would allow short-term, targeted activities would position CREWS in a strategic and catalytic manner in certain instances. For example, the implementing partners are often well-positioned to provide targeted technical assistance during the design of larger early warning system projects, related DRR projects, or other projects either at their own institutions or within the broader community. This could also include inputs to projects that will fill gaps in weather and climate observational infrastructure to achieve and sustain GBON compliance. Such targeted assistance would contribute to further accelerate CREWS contribution to its overall objective of reducing mortality lost to disasters in LDCs and SIDS, through the provision of early warning systems.

30. During the implementation of larger-scale country, regional, or global projects, the implementing partners may offer significant value-add on issues related to the four elements of early warning systems (Figure 2). Utilizing CREWS resources (USD 50 000–250 000/ engagement) in these instances would not only contribute to the achievement of CREWS objectives but it would have a multiplier effect by influencing or otherwise strengthening investments. It will also contribute to the sustainability of CREWS outcomes by allowing targeted expert support and capacity building after the completion of country or regional projects.

Actions for 2021–2025

- CREWS will put in place a Strategic Support Window, which will be available for all LDCs and SIDS, that implementing partners can access for a shorter duration, with targeted actions aimed at strengthening elements of early warning systems and the associated enabling conditions required for their sustainability and effectiveness. Actions will focus on the national and regional levels. Table 3 provides an illustrative set of examples.

- The Secretariat will develop streamlined and simplified operational procedures and reporting templates for strategic support actions. The fund allocation decision process will also be developed (e.g., enabling project approval through a no-objection process). It is expected that accessing and reporting on resources from this window will allow implementing partners to address time sensitive request by countries.

- The Secretariat will ensure that the actions supported by the Strategic Support Window are captured within the existing Monitoring and Evaluation framework.

Table 3. Examples of Potential Actions Supported by the Strategic Support Window (Illustrative)

Type	Examples of Actions
Continued Assistance	• Targeted expert support and capacity building following the end of projects to assist with maintaining services and equipment.
Analyses and Assessments	• Analysis to inform the development of larger scale early warning system investments. • Design and implementation support for large scale and/or strategic investments directed to EWS improvement. • Assessment of institutional arrangements and technical capacities of beneficiary agencies (e.g., DRM, NMHSs) and recommendations for improvement.
Advisory Services	• Recommendations for technical specifications to be funded by other resources. • Support for the development of disaster risk financing products (e.g., technical input to the design of triggers for parametric insurance products). • Short-term assistance on selected or specific elements of early warning system.
Data and Knowledge Training and Sharing	• Methodologies for tracking socio-economic outcomes and benefits from early warning systems. • Training on data collection and analysis to improve reporting of Sendai Framework Target G.

SCALE OF AMBITION: PROGRAMMING SCENARIOS

31. This section includes scenarios for CREWS programming from 2021–2025 across different project types of funding: new country or regional projects, additional finance for existing recipient countries/regions, and strategic support financing. While funding decisions will ultimately be driven by a bottom-up process based on country needs and demands, these initial projections aim to provide an indication of potential resource requirements.

New Country or regional projects

32. When CREWS was first launched, an initial mapping of LDCs and SIDS served as the basis for identifying the initial project countries/regions and pipeline countries/regions (Box 4).

33. Since then, the Steering Committee regularly identifies LDCs and SIDS to be included in the pipeline list; countries and regions are included in the pipeline list if they demonstrate a sufficient level of eligibility, ownership and readiness for the preparation of project proposals for potential future funding decisions. To further assist the Steering Committee in prioritizing its financing decisions, short briefs are prepared for each country/region included in the pipeline list, with information on the risk and capacity, priority needs, overall budget and time frame. The Secretariat will also include information regarding ODA eligibility per the most recent OECD DAC list of ODA recipients.

Box 4. Information compiled for LDCs and SIDS to inform project country/region identification:

1. Need: *Exposure to risk and institutional capacity for early warning*

(a) Capacity of NMHSs and disaster management institutions

(b) Projected average annual loss to disaster (projected cost of disasters for the country's economy per year)

(c) Casualty loss risk (where available)

(d) Access and penetration of information and communication technology

2. Demand: *Level of priority given to early warning systems by countries*

(a) Requests for support by country

(b) Identification of early warning systems as a priority in Nationally Determined Contributions (NDCs) and national development and poverty reduction plans

3. Leveraging: *Potential for leveraging additional resources and aligning programmes*

(a) Potential to leverage investments from other mechanisms such as the Green Climate Fund (GCF), the World Bank Group's International Development Association (IDA), the Global Environment Fund (GEF) and other financing mechanism

(b) Ongoing or planned national and regional programmes related to the objectives of CREWS

34. The implementing partners also provide additional contextual information based on their relationships with national stakeholders, and on potential or current projects in, relevant countries. CREWS will continue to consider new country and regional projects using the same approach during the 2021–2025 period.

35. There are currently nine country and regional projects in the pipeline[8] under active consideration, as of February 2021, with a cumulative indicative budget of USD 32 million. This is assumed to be the lower bound of new CREWS country and regional programming for 2021–2025.

36. In terms of projecting the upper bound budget needs for new country and regional programs for the 2021-2025 period beyond the current pipeline list, the following basic assumptions are made:

    - New country projects will be, on average, of a similar scale as existing country projects (average budget of USD 2.6 million/project);

    - New regional projects will be between USD 5 million and USD 9 million, based on inputs from the implementing partners on the scale required to address basic early warning system needs, and with the expectation that additional financing will be needed less often in the event of larger initial project sizes; and

    - In addition to the current pipeline list, CREWS will pursue five additional country projects and two new regional projects (note: new countries may also be added to existing regional projects in the event of project expansion via additional financing, to be discussed in the next section).

37. Assuming five country projects of USD 2.6 million/project and two regional projects of USD 7 million/project (average of the expected USD 5 million to USD 9 million/project), this implies USD 27 million in funding beyond the USD 32 million to cover the current pipeline list, or a total new country and regional project budget of USD 59 million for 2021–2025. This is assumed to be the upper bound for new country and regional projects over the 2021–2025 period. The identification of specific country and regional projects will be determined during Steering Committee meetings (See Annex 4 for a list of all LDCs and SIDS).

38. CREWS will prioritize regional projects when possible. While early warning systems are needed at the national level, there are number of reasons why regionally constructed and executed projects offer a high degree of value-add to the national level as well as the broader Global Data Processing and Forecasting System. For example:

    - *NMHS are part of regional centres:* Designated by WMO, the Regional Climate Centres (RCCs) strengthen the capacity of WMO Members in a given region to deliver better climate services to national users. The RCC then feed into the global centres.

    - *Economies of scale:* Certain capacity building and other activities are relevant to a wide range of stakeholders. Conducting trainings for multiple countries at once is more cost-effective than offering them to individual countries. Separately, joint trainings allow members of the NMHS from different countries to interact, share lessons, and so on. This also strengthens the regional system.

8 This includes the following countries, with indicative budget amounts in parentheses: Benin (USD 3.5 million), Bhutan (USD 3.5 million), Ethiopia (USD 3 million), Malawi (USD 3 million), Senegal (USD 3 million), Central African Republic (USD 3 million), Central Africa region (USD 4 million), East Africa region (USD 4 million), South Asia sub-region (USD 4 million), and additional financing for the Caribbean region (USD 1 million).

Additional financing for country and regional projects

39. As of December 2020, CREWS is supporting nine country projects (Afghanistan, Burkina Faso, Chad, Democratic Republic of Congo, Haiti, Mali, Niger, Papua New Guinea, and Togo) and four regional projects (Caribbean, Pacific, South-West Indian Ocean, and West Africa). This amounts to USD 23.69 million for country projects and USD 22.13 million for regional projects (See Annex 3B for summary of current projects).

40. While CREWS aspires to provide support to as many LDCs and SIDS as possible, it recognizes that quality is just as important as quantity. In some cases, certain existing country and regional projects may require additional, longer-term support than was originally allocated. In fact, as of December 2020, CREWS has approved two additional allocations to existing regional projects. Specifically, USD 3.5 million for the Pacific regional project and USD 4.8 million for the West Africa regional project.

41. Additional financing does not imply that the original project support failed to achieve the desired outputs or outcomes, but is rather a reflection of the often iterative, long-term nature of developing and implementing early warning systems. For the 2021–2025 period, CREWS would like to be in a position to, under the right circumstances, allocate additional resources to existing country or regional projects. The Steering Committee will discuss and decide, on a case-by-case basis, whether to provide additional resources. Decisions will be taken in parallel with decisions regarding new country and regional projects to maximize the impact of available resources, and will be informed by the same criteria as the new projects (Box 4) as well as additional information provided by implementing partners. Additional information could include, for example:

In countries with limited institutional capacity, with slow implementation, and where the project requires a steep learning curve;

- In countries that demand to extend their early warning system to cover additional hazards, to target new groups in the population or to strengthen other elements of the early warning value chain;

- In countries that would like to enhance their National Strategies and Plans, work to integrate these into broader national development plans, or otherwise translate their National Strategies and Plans into policies and legislation; and

- Regional projects that require further support and/or that would like to add more countries.

42. For the purpose of projecting potential programming budget requirements, it is assumed that CREWS would provide, on average, 50–80% more to existing projects, or USD 22.9 million to USD 36.7 million. Ultimately, investment decisions will be taken by the Steering Committee based on information at the country/regional level, and based on the availability of resources.

Strategic support window

43. The Strategic Support Window is a new feature for 2021–2025. In terms of resource requirements, the following assumptions are made:

    - Strategic support action budget range of USD 50 000 to USD 250 000; and

    - A total number of 10–20 actions over the 2021–2025 period.

44. This implies a forecasted budget need between USD 1 million and USD 5 million.

PROJECTED FUNDING NEEDS FOR 2021–2025

45. Based on the assumptions regarding the three project types, between USD 40 million and USD 95.2 million will be required for programming during the 2021–2025 period, or USD 43 million and USD 101.9 million including administrative costs (7%) (Table 4).[9]

Table 4. Summary of CREWS Projected Funding Needs for 2021–2025

	Forecasted Budget Needs 2021–2025 USD millions	
	Minimum	**Maximum**
Programming Costs	**55.9**	**99.6**
New Country or Regional Projects	32	**59**
Additional Financing	22.9	**36.6**
Strategic Support Window	1	**5**
Administrative Costs (7%)	**4**	**7.1**
Total	**59.9**	**106.7**

46. In terms of Trust Fund resources, a total of USD 51.56 million has been committed as of February 2021. Approximately USD 10.35 remains in the Trust Fund. Additional resources will be raised from existing and new Contributing Members.

9 These estimates include Implementing Partner Project Supervision Fees (on average 11.5% of the project cost). The Implementing Partner Supervision fees range from 10.0-13.0% of the overall project amount.

OPERATIONAL PLAN ROLL-OUT AND RESOURCE MOBILIZATION

47. Implementation of the operational plan will be overseen by the steering committee, and based on a work plan developed by the Secretariat. The work plan will include targets against which progress will be measured and regularly reported on.

48. One of the first steps will be incorporating the key features of the operational plan within the existing CREWS Monitoring and Evaluation Framework, and developing associated core programme indicators.

49. The roll-out will be supported by a resource mobilization strategy. The objective of the resource mobilization strategy will be to secure contributions to the CREWS Trust Fund to reach upper level of the programming scenarios. It will ensure continued growth of the Trust Fund by demonstrating the value of the CREWS business model in the context of development aid and climate financing and will look to increase the number of contributing partners.

50. In terms of immediate next steps, achieving the resource mobilization objective requires: (i) outlining the comparative advantages of CREWS and its operational plan for the next five years; (ii) identifying potential funding sources; (iii) developing robust communication and visibility strategy and related information materials; and (iv) defining the roles and responsibilities of the key protagonists involved in the resource mobilization efforts.

51. The roll-out will take into account the findings and recommendations of the CREWS Initial Phase External Evaluation, which is expected in 2021.

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ANNEX 1. VISION 2025 DEVELOPMENT PROCESS

The Vision: Delivering at Scale 2021–2025 was developed between December 2019 and December 2020 through an extensive consultative process (Figure 1).

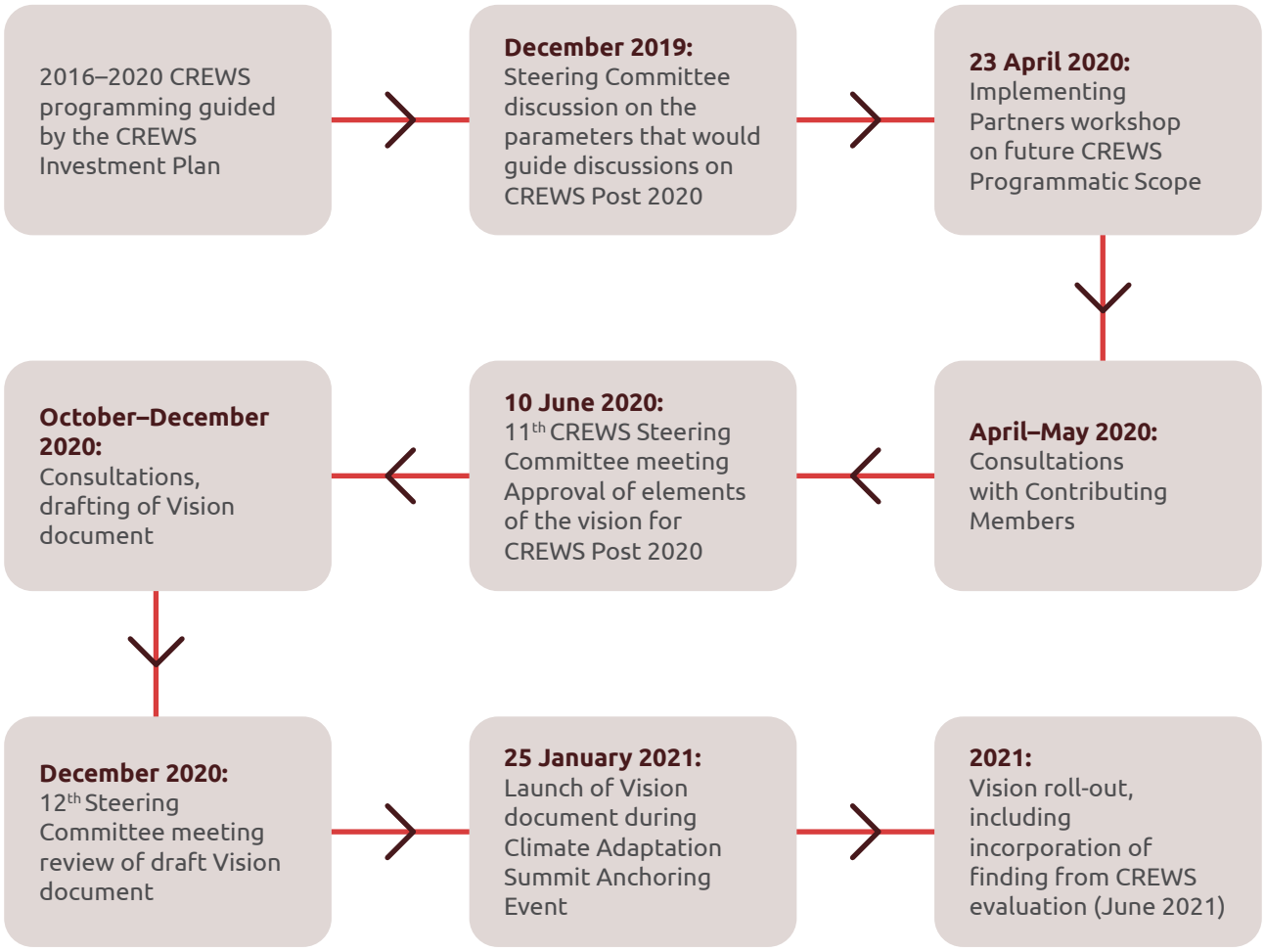

Figure 1. Process Steps and Timeline

ANNEX 2. CREWS OPERATIONAL MODALITIES: THE BASICS

This section provides a brief overview of the CREWS operational modalities including roles and responsibilities, programming, and monitoring and evaluation.

ROLES AND RESPONSIBILITIES

CREWS includes a steering committee, implementing partners, a Secretariat and a trustee. Respective roles and responsibilities are captured in the CREWS governance document. These are summarized in Table 1.

Table 1. CREWS Roles and responsibilities

Component	Roles and Responsibilities	Entities Involved
Steering Committee	• Serves as the decision-making body; • Approves operational guidelines (eligibility, process and a common format for projects); • Reviews and approves projects and fund allocations.	Governments of Australia, France, Germany, Luxemburg, Netherlands, Switzerland, the United Kingdom
Implementing Partners	• Work with relevant stakeholders in recipient countries to develop project proposals; • Implement CREWS projects in accordance with their respective policies and procedures.	World Bank Group/ GFDRR, WMO, and UNDRR
Secretariat	• Receives and reviews project proposals for quality assurance; • Provides operational guidelines and templates (eligibility, process and format for project proposals); • Maps the status of early warning systems in SIDS and LDCs; • Keeps the Trustee informed to enable them to carry out their responsibilities.	WMO
Trustee	• Provides the Steering Committee with regular reports on the financial status; • Collaborates with the Secretariat with information necessary for them to carry out their responsibilities.	World Bank

PROGRAMMING

Through its implementing partners, CREWS provides support for the four elements of effective early warning systems. Specifically, the implementing partners provide analytical and advisory services, technical assistance, capacity building, and operational support to LDCs and SIDS via country and regional projects.[10]

CREWS responds to priority activities articulated by countries and prioritizes investments that support early warning systems developed with the participation of the people and communities that most require warnings, as well as vulnerable groups to disasters and to the impact of climate change. CREWS recognizes that women's empowerment and gender-responsiveness are fundamental for building resilience and that, due to unequal gender roles, men and women often access and respond to information and warnings in different ways. Ultimately, CREWS country and regional projects seek to achieve several outputs across the four elements of early warning systems.

MONITORING AND EVALUATION: CORE PROGRAMME INDICATORS

CREWS measures the progress of its projects against the monitoring framework contained in the CREWS Operational Procedures Note No. 2 Monitoring and Evaluation. While the project-level focus is important, CREWS recognizes that metrics are also needed to systematically measure its overall higher-level impacts and the related access and effectiveness of early warning systems in LDCs and SIDS.

This requires LDCs and SIDS to have sufficient reporting capacity. According to UNDRR, as of April 2020, 17 out of 47 LDCs (36%) and 5 out of 38 SIDS (13%) have reported on Sendai Framework Target A[11] for the reporting year 2018, while 16 LDCs (34%) and 2 SIDS (5%) reported on Sendai Framework Target G[12] until 2019. Recognizing this reporting capacity gap, the CREWS Steering Committee initiated the development, in 2019, of a set of core programme indicators, which:

- Draw on the extensive work and expertise of the CREWS initiative's implementing partners — WMO, WBG/GFDRR, UNDRR — together with the experiences and needs of CREWS Country Partners;
- Support a concerted approach by countries, the CREWS Trust Fund, and other international partnerships to assess the effectiveness of early warning systems and monitor progress of related investments; and
- Align with indicators adopted by Member States for relevant global goals and targets, and specifically with those used by countries to measure life and economic loss due to disasters, and to measure access to early warning systems and risk information (SDG Indicator 1.5.1 and Sendai Targets A, B, and G).

Later in 2019, the CREWS Steering Committee approved a set of metrics and proposed core programme indicators to measure the progress and impacts of its overall portfolio (Figure 1).[13] This will also allow for broader monitoring of the early warning capacity of LDCs and SIDS. Measurements will have a 2015 baseline, subject to data availability. Targets for 2025 will be developed in order to systematically track progress and demonstrate CREWS' results.

10 CREWS Projects are implemented and administered in accordance with the guidelines of the implementing partners. Implementing partners apply their own approval procedures, procurement and financial management procedures, and project start-up support.

11 Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality in the decade 2020–2030 compared to the period 2005–2015.

12 Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

13 These are currently being reviewed and validated by external experts and the Steering Committee.

CREWS Metrics	CREWS Core Programme Indicators	Sendai Framework for Disaster Risk Reduction 2015–2030 and the Sustainable Development Goals (SDGs)	CREWS National Outputs	CREWS Implementing Partners (IPs) and Other Sources
Loss of Life	# of deaths and missing persons in LDCs and SIDS attribution to hydrometeorological events, per 100,000 population	Sendai Target A Indicator 1 / SDG Indicator 13.1.1		UNDRR Sendai Framework Monitor
Forecasting and Warning Capacity	Type of hazards, which pose risk of life loss in the country, for which forecasting and warning capacity is available.	Sendai Target G Indicator 2	CREWS Output No. 1	WMO Country Platform / Country Hydromet Diagnostic (CHD) tool
	'Level of Service' category of the National Meteorological and Hydrological Service (NMHS) in LDCs and SIDS			
Access to Early Warning	# of people living in areas covered by forecasts and warnings for a given hazard.	Sendai Target G Indicator r		WMO Community Platform / World Bank & GFDRR Ind.
	# of women having access to communication channels (the ICT tools) used for early warning.		CREWS Output No. 6	CREWS projects reports by IPs / Intl. Tele. Union (ITU) global ICT statistics
Use of Risk Information	# of LDCs and SIDS that have generated risk information to enhance the early warning system.	Sendai Target G Indicator 5	CREWS Output No. 2	National inst. through Ips / WMO Country Plaform
Capacity to disseminate warnings	# of LDCs and SIDS communicating warnings through common alerting procedures.		CREWS Output No. 3	WMO CHD tool
	# of households and individuals with access to and use of info. and communications tech. (ICT) in LDCs and SIDS.	Sendai Target G Indicator 5		ITU global ICT statistics
Capacity to prepare for and respond to warnings	# of LDCs and SIDS using standard operating procedures (SOPs) to Issue warnings for forecasted hazards.		CREWS Output No. 4	WMO / NAtional institutions through IPs

Figure 1. CREWS Core programme indicators and data sources

ANNEX 3A. STRATEGIC PARTNERSHIPS AND ALIGNMENTS

Partner	Partner Overview/Objectives	CREWS Engagement
Alliance for Hydromet Development	Launched on 10 December 2019, the Alliance for Hydromet Development brings together major international development, humanitarian and climate finance institutions, collectively committed to scale up and unite efforts to close the hydromet capacity gap by 2030. It aims to increase the effectiveness and sustainability of hydromet investments by forging a collaborative partnership which recognizes and leverages the respective competencies and expertise of its members.	CREWS has committed to contributing its growing body of knowledge, data and metrics to the Alliance to inform the work of its members.
Global Commission on Adaptation (GCA)	Launched on 16 October 2018 with the support of 17 convening countries. The mandate is to encourage the development of measures to manage the effects of climate change through technology, planning and investment.	CREWS contributed to the Commission's flagship report produced in 2019 in the lead-up to the UN Secretary-General's Climate Action Summit.
Global Framework for Climate Services (GFCS)	Established by the international community at the World Climate Conference-3 in 2009 to enable better management of the risks of climate variability and change, and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale.	The GFCS is hosted by WMO, one of the CREWS implementing partners, enabling efficient collaboration.
Green Climate Fund (GCF)	The GCF is the world's largest dedicated fund helping developing countries reduce their greenhouse gas emissions and enhance their ability to respond to climate change. It was set up by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010. GCF has a crucial role in serving the Paris Agreement, supporting the goal of keeping average global temperature rise well below 2 degrees C. It does this by channelling climate finance to developing countries, which have joined other nations in committing to climate action.	Two CREWS implementing partners have formal agreements with the GCF: The World Bank and WMO. In working with countries on projects, CREWS implementing partners promote alignment with ongoing or potential GCF financing mechanisms, and related countries' readiness programmes, regional and national structure dialogues, project preparatory facility and funding proposals.
InsuResilience Global Partnership	The InsuResilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions was officially launched at the UN Climate Conference COP23 in November 2017. It brings together G20 and V20 countries, as well as civil society, international organizations, the private sector, and academia. The Partnership aims to enable a substantial scale-up in the use of climate and disaster risk finance and insurance solutions and approaches by developing countries, ultimately contributing to strengthening resilience by enabling faster, more reliable and cost-effective responses to disasters.	In 2019, the InsuResilience and CREWS secretariats decided to strengthen their operational cooperation and to initiate a study to analyse the weather and climate data needs, availability, accessibility and reliability in a selection of countries in which both InsuResilience and CREWS have investments in the context of the requirements to facilitate the penetration of risk financing and insurance solutions.

Partner	Partner Overview/Objectives	CREWS Engagement
International Network for Multi-Hazard Early Warning Systems (IN-MHEWS)	UNDRR and WMO, along with other international and national agencies, established the IN-MHEWS as an outcome of the Session on Early Warning at the Third United Nations World Conference on Disaster Risk Reduction (WCDRR) in Sendai, Japan, in 2015.	CREWS and its implementing partners serve on the IN-MHEWS Steering Committee.
Risk-informed Early Action Partnership (REAP)	Launched during the Climate Action Summit in New York in 2019, the REAP's goal is to make one billion people safer from disasters by creating a new partnership to greatly expand early action financing and improve early warning systems and the capacity to act on the risks they identify. This will save lives, protect livelihoods and improve the efficiency and effectiveness of response. The global partnership convenes the humanitarian, development and climate communities.	CREWS will strive to contribute to REAP objectives through its country practices, knowledge, metrics and data.

Examples of other global targets against which CREWS aligns its operations and measures results:

- Number of countries adopting risk finance and insurance solutions integrated within prevention, preparedness, response and recovery plans that are anchored in a country's systems (InsuResilience Global Partnership);
- Development/human impact of these risk finance and insurance arrangements through increased resilience to disasters (reduced impact, faster recovery) (InsuResilience Global Partnership);
- USD 500 million invested in early warning system infrastructure and institutions to target early action in 'last/first mile' communities, building on existing initiatives (REAP Partnership);
- 1 billion more people are covered by new or improved early warning systems, including heatwave early warning, connected to longer-term risk management systems and supported by public awareness campaigns (REAP Partnership);
- Close the capacity gap on weather, climate, hydrological and related environmental services (WMO, Strategic and Operating Plan 2020–2023);
- By 2025 Expand access to early warning systems for an additional 250 million people in at least 30 developing countries (World Bank Action Plan on Climate Change); and
- Increase the number of females and males covered by new or improved early warning systems (Green Climate Fund Strategic Plan 2020–2023).

ANNEX 3B. CREWS PROJECT SUMMARY

Table 1. Ongoing Country Projects

Region	Country	Project Title
East Asia & Pacific	**1. Papua New Guinea**	Weather and Climate Early Warning System
Latin America & Caribbean	**2. Haiti**	Support for the Hydromet. Unit of Haiti (UHM) for sustainable operability and the implementation of a relevant and efficient hydromet. warning system
Middle East & North Africa	**3. Afghanistan**	Hydromet. & Early Warning Services for Resilience
Sub-Saharan Africa	**4. Burkina Faso**	Strengthening National Capacities for Early Warning System Service Delivery
	5. Chad	Support the strengthening of national capacity to deliver climate, hydromet. and early warning services in selected sectors and communities
	6. Democratic Republic of Congo	Strengthening Hydrometeorological and Early Warning Services
	7. Mali	Hydrological and Meteorological Services Modernization Project
	8. Niger	Strengthening Early Warning Services
	9. Togo	Support the strengthening of national capacity to deliver climate, hydromet. and early warning services in selected sectors and communities

14 As of June 2020. Implementing partners are responsible to assess, plan and communicate any uncertain events or conditions that could have a negative effect on a project. The CREWS Risk Management Framework takes reference from the implementing partners policies, frameworks and tools such as the World Bank's Systematic Operations Risk-Rating Tool (SORT), the WMO's Risk Management Framework and the UNDRR's Risk Management Policy. Risk Rating: Low risk means acceptable risk and no further action is required at present. Medium/moderate risk means assumptions can be looked at on a case-by-case basis to determine whether additional management efforts are required. High risk means unacceptable and management must take additional action to lower the risk level.

15 As of June 2020. Low – less than moderate or poor progress. Not on track in critical areas of its delivery. Requires remedial action. Medium – moderate progress or on track in some aspects of its key delivery. High – good progress, on track in most or all aspects of delivery.

16 As of June 2020. Low – less than moderate or poor progress. Not on track in critical areas of its delivery. Requires remedial action. Medium – moderate progress or on track in some aspects of its key delivery. High – good progress, on track in most or all aspects of delivery.

	Timeline	Budget (USD)	Implem. Partners	Risk Status[14]	Expend. Rate[15]	Delivery Rate[16]
	Oct 2017 – Sept 2020	1.65m	WMO	Medium	High	High
	Feb 2020 – Feb 2023	1.5m	WMO	N/A	N/A	N/A
	July 2019 – June 2023	3.665m	World Bank/ GFDRR, WMO	High	Medium	High
	Jan 2017 – Dec 2020	2.192m	WMO	Medium	High	High
	May 2019 – May 2024	3.15m	World Bank/ GFDRR, WMO	Medium	Medium	Medium
	July 2017 – June 2022	3.09	World Bank/ GFDRR, WMO	Medium	Medium	Medium
	July 2017 – June 2021	3.333m	World Bank/ GFDRR, WMO	Medium	Medium	Medium
	July 2017 – June 2021	2.74m	World Bank/ GFDRR, WMO	Medium	Medium	Medium
	May 2019 – May 2024	2.365m	World Bank/ GFDRR, WMO	Medium	Medium	Medium

Table 2. Ongoing Regional Projects

Region	Countries	Project Title	
Pacific	**1. Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Republic of the Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu**	Strengthening Hydrometeorological and Early Warning Services	
Caribbean	**2. Caribbean Community (CariCom) Member States[17]**	Strengthening Hydrometeorological and Early Warning Services	
South-West Indian Ocean	**3. Comoros, Madagascar, Mauritius, Seychelles, Mozambique**	Supporting regional cooperation to strengthen seamless operational forecasting and multi-hazard early warning systems at national level in the South-West Indian Ocean	
West Africa	**4. Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo**	Seamless Operational Forecast Systems and Technical Assistance for Capacity Building	

Table 3. Ongoing Global Projects

Region	Project Title	
Global	Measuring Effectiveness of Early Warning Systems through Sendai Framework Monitoring	

17 Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, St Kitts and Nevis, St Vincent and the Grenadines, Suriname, and Trinidad and Tobago. Accessed at: https://caricom.org/member-states-and-associate-members/

	Timeline	Budget (USD)	Implem. Partners	Risk Status	Expend. Rate	Delivery Rate
	Jan 2017–Dec 2021/ June 2020–June 2024	2.5m/4.8m	World Bank/ GFDRR, WMO, UNDRR	Low	High	Medium
	June 2018–June 2021	5.5m	World Bank/ GFDRR, WMO, UNDRR	High	High	Medium
	2020–2025	4.0m	World Bank/ GFDRR, WMO, UNDRR	N/A	N/A	N/A
	June 2018–Dec 2021/ Jan 2020–Dec 2022	1.8m/3.5m	World Bank/ GFDRR, WMO	Medium	High	High

	Timeline	Budget (USD)	Implem. Partners	Risk Status	Expend. Rate	Delivery Rate
	June 2020–June 2022	761 620	UNDRR, WMO	N/A	N/A	N/A

kindly provide table title

ANNEX 4. SUMMARY OF LDCS AND SIDS

Table 4. xxxxxxx

Region	Country	LDC	SIDS	
East Asia & Pacific	1. Cambodia	x		
	2. Lao PDR	x		
	3. Myanmar	x		
	4. Singapore		x	
	5. Timor-Leste	x	x	
	6. Cook Islands		x	
	7. Fiji		x	
	8. Kiribati	x	x	
	9. Marshall Islands		x	
	10. Micronesia, Fed. States		x	
	11. Nauru		x	
	12. Niue		x	
	13. Palau		x	
	14. Papua New Guinea		x	
	15. Samoa		x	
	16. Solomon Islands	x	x	
	17. Tonga		x	
	18. Tuvalu	x	x	
	19. Vanuatu	x	x	
Latin America & the Caribbean	20. Antigua and Barbuda		x	
	21. Barbados		x	
	22. Belize		x	
	23. Cuba		x	
	24. Dominica		x	
	25. Dominican Republic		x	

18 OECD DAC List of ODA Recipients. Effective for reporting on 2021 flows. http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/DAC-List-ODA-Recipients-for-reporting-2021-flows.pdf

19 During the period of this operational plan, a few SIDS are expected to graduate from the DAC List of ODA Recipients. Specifically: Antigua and Barbuda and Palau will graduate on 1 January 2022; São Tomé and Príncipe and Solomon Islands will graduate on 13 December 2024; and Mauritius and Nauru will be proposed for graduation from the List in the 2023 review if they remain high-income countries.

Current CREWS Support *(as of December 2020)*			CREWS Pipeline Country (as of February 2021)	OECD DAC ODA Recipient[18,19]
CREWS Country Project	CREWS Regional Project	CREWS - WMO (Canada)		
		x	x	x
		x	x	x
				x
				x
	x	x		
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
x				x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		
	x	x		x
	x			x
	x	x		x
	x			x

Region	Country	LDC	SIDS
	26. Grenada		x
	27. Guyana		x
	28. Haiti	x	x
	29. Jamaica		x
	30. St. Kitts and Nevis		x
	31. St. Lucia		x
	32. St. Vincent and the Grenadines		x
	33. Suriname		x
	34. Trinidad and Tobago		x
Middle East & North Africa	35. Djibouti	x	
	36. Yemen, Rep.	x	
South Asia	37. Afghanistan	x	
	38. Bangladesh	x	
	39. Bhutan	x	
	40. Maldives	x	x
	41. Nepal	x	
Sub-Saharan Africa	42. Angola	x	
	43. Benin	x	
	44. Burkina Faso	x	
	45. Burundi	x	
	46. Cabo Verde		x
	47. Central African Republic	x	
	48. Chad	x	
	49. Comoros	x	x
	50. Congo, Dem. Rep.	x	
	51. Eritrea	x	
	52. Ethiopia	x	
	53. Gambia, The	x	
	54. Guinea	x	
	55. Guinea-Bissau	x	x

Current CREWS Support *(as of December 2020)*			CREWS Pipeline Country (as of February 2021)	OECD DAC ODA Recipient
CREWS Country Project	CREWS Regional Project	CREWS - WMO (Canada)		
	x	x		x
	x	x		x
x	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x	x		x
	x			x
	x	x		
				x
				x
x				x
				x
			x	x
			x	x
				x
				x
	x		x	x
x	x			x
				x
				x
				x
x				x
				x
x				x
				x
			x	x
	x			x
	x			x
	x			x

Region	Country	LDC	SIDS	
	56. Lesotho	x		
	57. Liberia	x		
	58. Madagascar	x		
	59. Malawi	x		
	60. Mali	x		
	61. Mauritania	x		
	62. Mauritius		x	
	63. Mozambique	x		
	64. Niger	x		
	65. Rwanda	x		
	66. São Tomé and Principe	x	x	
	67. Senegal	x		
	68. Seychelles		x	
	69. Sierra Leone	x		
	70. Somalia	x		
	71. South Sudan	x		
	72. Sudan	x		
	73. Tanzania	x		
	74. Togo	x		
	75. Uganda	x		
	76. Zambia	x		
TOTALS		**47**	**38**	

20 CREWS is also supporting four non-LDCs and SIDS (i.e., Cameroon, Côte d'Ivoire, Ghana and Nigeria) via regional projects.

21 There are six country and three regional projects under development: Benin, Bhutan, Ethiopia, Malawi, Senegal, Central African Republic, Central Africa region (countries to be determined), East Africa region (countries to be determined) and South Asia (Bhutan, Nepal, Maldives) sub-region.

	Current CREWS Support *(as of December 2020)*			CREWS Pipeline Country (as of February 2021)	OECD DAC ODA Recipient
	CREWS Country Project	CREWS Regional Project	CREWS - WMO (Canada)		
					x
		x			x
		x			x
				x	x
	x	x			x
		x			x
		x			x
		x			x
	x	x			x
					x
					x
		x		x	x
		x			
		x			x
					x
					x
					x
					x
	x	x			x
					x
					x
	9	47[20]	26	5[21]	70

ANNEX 5. TARGETS AND RESULT METRICS ALIGNED WITH KEY MULTILATERAL AGREEMENTS

Objective
Substantialy reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate between 2020–2030 compared to 2005–2015.

Final Outcome
Significantly increase the capacity to generate and communicate effective, impact-based, multi-hazard early warnings and risk info. to protect lives, livelihoods, and assets in LDSs and SIDS.

Intermediate Outcomes
1. Increased prioritization of and investment in early warning, 2. Increased accuracy and timeliness of weather forecasts and early warning.

Outputs	
Global	Investment are increased and better coordinated to adress early warning service delivery gaps
Regional	Regional capacities for early warning strengthened
National	1. Hydrometeorological service delivery improved; 2. Risk information generated for impact-based forecasts and early warnings; 3. Information and communication technology strengthened; 4. Preparedness and response plans strengthened and accessible; 5. Awareness on early warning improved; 6. Gender-responsive capacity building programmes initiated.

Multilateral Agreements	
Sendai Framework for Disaster Risk Reduction 2015-2030	**Goal:** Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, envinronmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerabillity to disaster, increase preparedness for response and recovery, and thus strengthen resilience.
Sustainable Development Goals (SDGs)	**Goal 13:** Take urgent action to combat climate change and its impacts.
Paris Agreement	**Adaptation Goal:** Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.

ACRONYMS

AfDB	African Development Bank
COP	Conference of the Parties
CREWS	Climate Risk and Early Warning Systems
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
FIF	Financial Intermediary Fund
GBON	Global Basic Observing Network
GCA	Global Commission on Adaptation
GCF	Green Climate Fund
GEF	Global Environment Facility
GFCS	Global Framework for Climate Services
GFDRR	Global Facility for Disaster Reduction and Recovery
IN-MHEWS	International Network for Multi-Hazard Early Warning Systems
LDC	Least Developed Countries
LDCF	Least Developed Countries Fund
MDTF	Multi-Donor Trust Fund
NMHS	National Meteorological and Hydrological Services
NSP	National Strategic Plan
RCC	Regional Climate Centre
REAP	Risk-informed Early Action Partnership
SIDS	Small Island Developing States
SOFF	Systematic Observations Financing Facility (SOFF)
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
WBG	World Bank Group
WMO	World Meteorological Organization

kindly check the last page info if everything is correct

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CREWS Implementing Partners

WORLD METEOROLOGICAL ORGANIZATION | WORLD BANK GROUP | GFDRR Global Facility for Disaster Reduction and Recovery | UNDRR UN Office for Disaster Risk Reduction