



# Annual Report

2021

**Rising to the challenge  
in complex crises**



## **CREWS Report Series - Annual Report 5 - 2021**

Editor: Jemini Pandya

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# Annual Report 2021

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in complex crises**

# The CREWS Initiative

We are a unique and specialized fund for climate action that saves lives and livelihoods in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

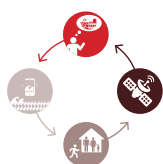
We help countries and regions build strong and sustainable early warning systems providing timely, accurate and accessible climate risk and weather services. Our tailored country-driven projects strengthen national and regional institutions to better protect those hardest hit by climate change.

We put women and men at the heart of our work through community engagement to find the right early warning solutions and build resilience.

Our impact is underpinned by the expertise and collective experience of our implementing partners – the World Meteorological Organization (WMO), the World Bank Group/Global Facility for Disaster Reduction and Recovery (GFDRR), and the UN Office for Disaster Risk Reduction (UNDRR).

We currently support 60 countries — with more each year — through contributions from our Members: Australia, Finland, France, Germany, Luxembourg, the Netherlands, Switzerland, and the United Kingdom. Canada contributed financially to CREWS through WMO. Our growing body of Members testifies to the urgency and value of our work.

## Our value proposition



We are a **unique** finance mechanism for customized, country-led, early warning solutions.

**People** are at the **centre** of all that we aim for and do through risk-informed, impact-based warnings.



We build resilience of women and men with **gender responsive** projects.

Our **solution orientated** focus, drawing on best available expertise aligned with approved standards and norms — makes us agile, innovative and effective.



We act as a **multiplier** by leveraging more climate action funds through our projects.

Our work complements and builds on that of partners, **promoting coherence**.





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# Foreword

In a year when the CREWS Initiative evolved to begin a new chapter in its brief history, 2021 posed old and new challenges.

The ongoing global pandemic continued to impact our operations. The mostly single digit vaccination levels in CREWS supported countries meant projects cancelled or postponed some activities. For some, COVID became a backdrop to more pressing issues of instability and insecurity.

Upheaval from regime change in Afghanistan, growing insurgency in various West African countries, and a presidential assassination followed by an earthquake and a hurricane in Haiti, threatened or stalled projects. This posed a crucial question. How can CREWS support, operate in, and deliver success when nearly half the countries it currently assists are fragile or conflict-affected contexts?

The 2021 CREWS Annual Report should give hope. The creativity and versatility of national, regional, and implementing partners WB/GFDRR, WMO and UNDRR, allowed us to find solutions in complex crises and show our added value time and again.

In Afghanistan's highly food insecure situation, reorientating project-developed tools helped aid and humanitarian agencies reach millions of people. In Haiti, Chad, Mali and Niger, progress was made despite multiple and simultaneous crises. These and other West African countries showed investment in institutional capacity building was paying off as weather services improved during uncertain times. They also pushed forward on engaging and empowering women on disaster risk management. Organic and formal women leaders' networks are now emerging to mobilize and warn communities before disaster strikes.

As some projects approached completion, others were just beginning. A new initiative for Cambodia and Lao PDR will help strengthen climate adaptation and disaster resilience, building on previous Canadian-funded CREWS support for two of Asia's most disaster-prone countries.

We took first steps in implementing our five-year operational plan – *Delivering at Scale 2021-2025*. It will build on initial phase external evaluation findings when they are finalized in mid 2022. Through our partnership with the International Federation of Red Cross and Red Crescent Societies (IFRC) we identified best practices for people-centred operations. We began setting up the Accelerated Support Window, a rapid financing system for quick and targeted high priority assistance to be launched in 2022.

Sustained Member support underlines the criticality of CREWS' mandate and impact: our funding rose by 17% in 2021 through additional contributions from several donors. We also initiated private sector and insurance industry engagement, while various institutional diagnostics carried out across projects included alternative investment plans for sustainability. Nevertheless, our resource mobilization efforts will need stepping up to meet longer-term objectives and needs, the priority being to raise USD 95 million to meet our target of an additional USD 107 million by 2025.

As global challenges mount, so does the case for investment in early warning. This report illustrates numerous and different ways CREWS projects are laying the foundations for potentially profound change. Together, we must build on these. By putting shoulder to the wheel, the rewards will be incalculable.

**Stéphane Crouzat**

Climate Ambassador, Ministry for Europe and Foreign Affairs, France  
Chair of the CREWS Steering Committee



# 2021 in numbers

**60** countries

– supported through projects to improve their early warning services



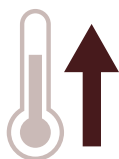
**15** national, regional, and global projects in operation

– 12 national and regional pipeline projects await funding



**+25 million**

people in Cambodia and Lao PDR will have stronger weather, climate, early warning, and response services — through a new CREWS project



**19** countries

receiving support are affected by either high or medium intensity conflict — or suffer high institutional and social fragility



**40 million** people

– will be better protected from floods in Afghanistan with a new flood early warning system being developed for 6 Central Asian countries



Drought identified and declared

**4** months

earlier than in 2018 in Afghanistan due to early warning system — triggering early action



**1**

meteorological law passed in Kiribati,

**12**

National Strategic Plans completed or endorsed in Caribbean and Pacific regions will ensure stronger governance on climate and weather services

– 10 more countries developing or reviewing Met Bills



**400 million US\$**

– value of additional resources leveraged on early warning and through projects in synergy with CREWS' work in 2021

**77.6 million US\$**

received in signed contributions to CREWS Trust Fund since 2015

– With a **17.3%** increase in funding since 2020

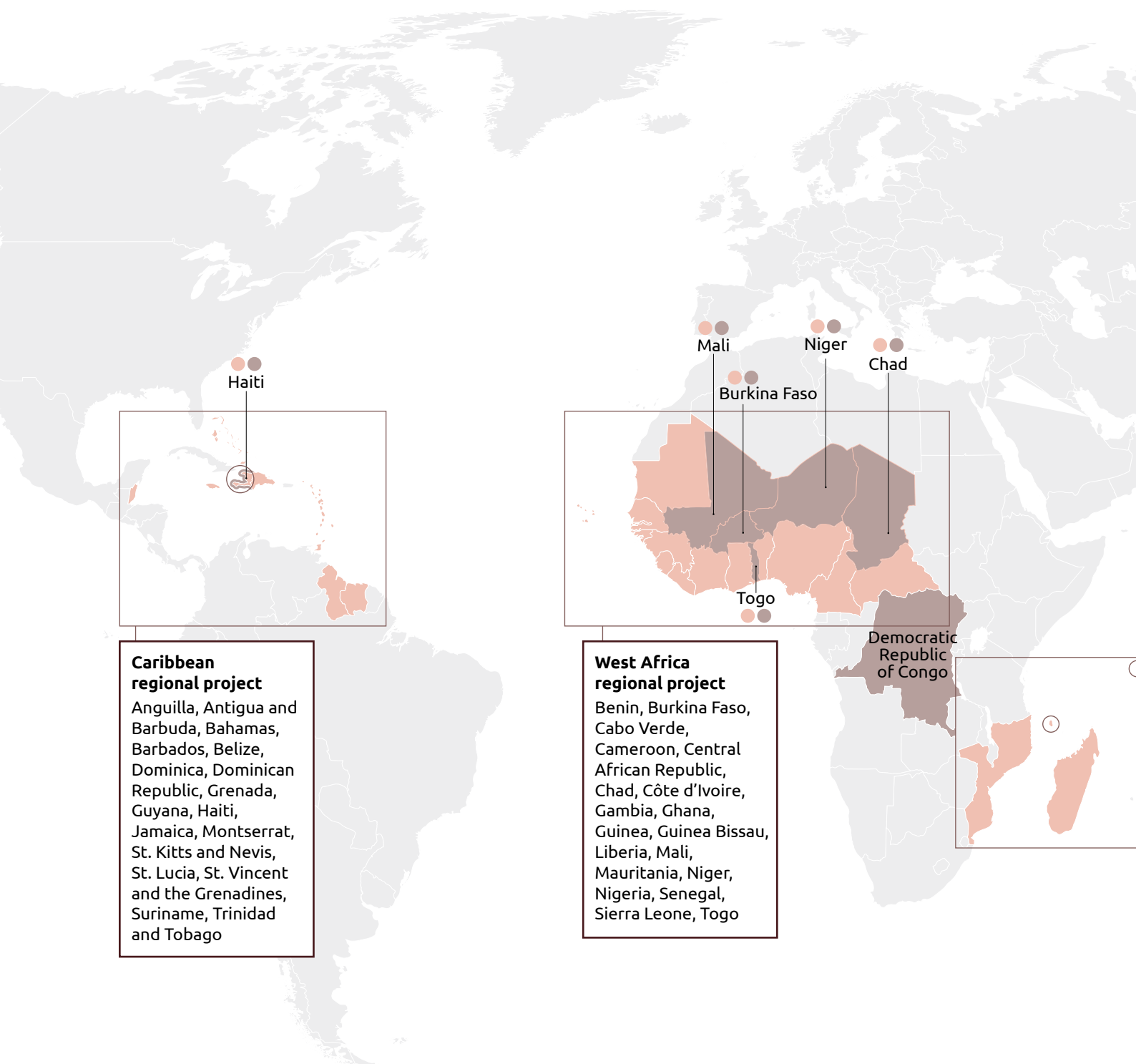


**95.5 million US\$**

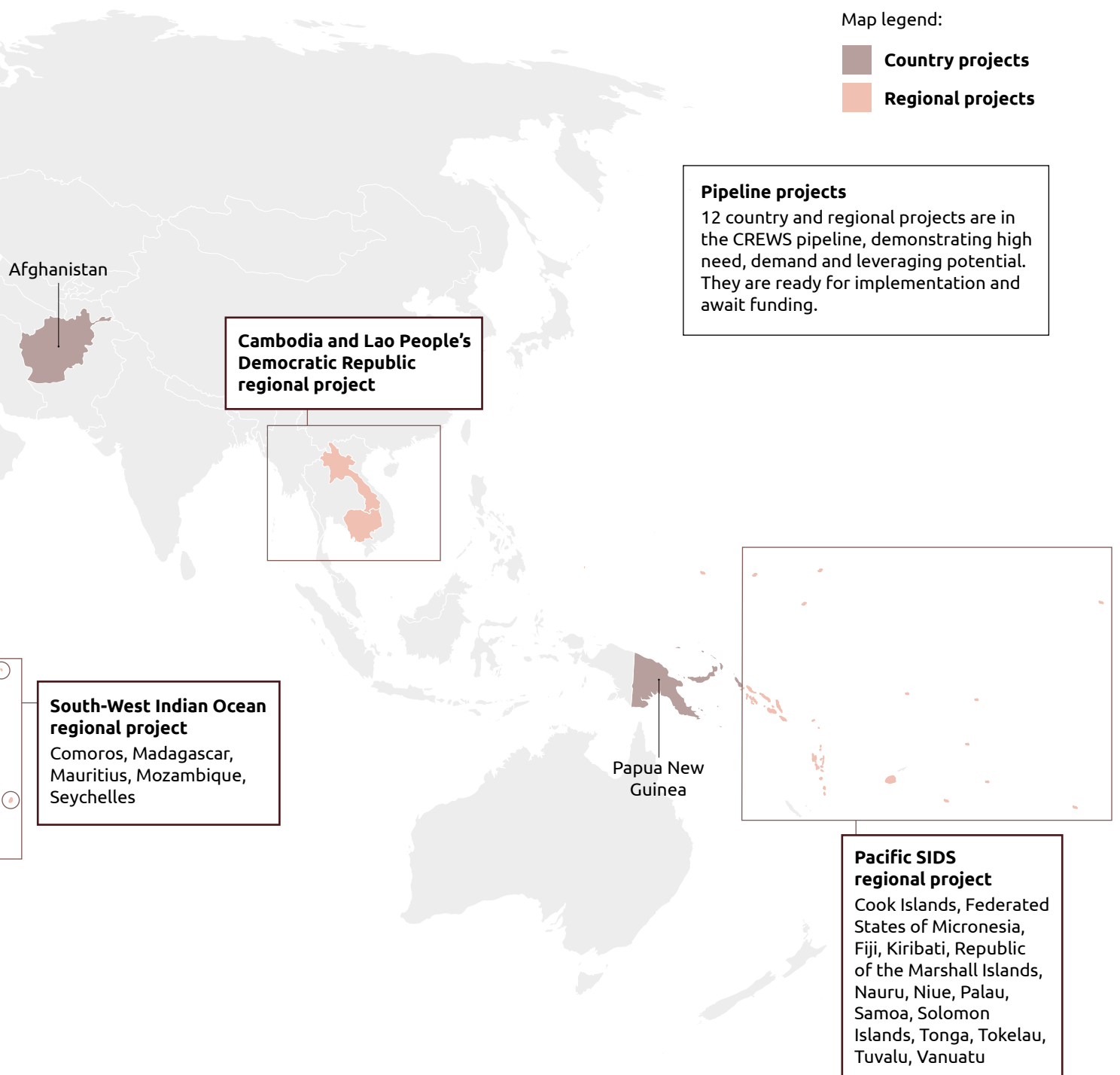
needed out of an additional 107 million US\$ by 2025 to meet demand for CREWS support



# CREWS Initiative in action



In 2021, Canada co-funded CREWS Pacific SIDS and Caribbean regional projects and supported activities in Southeast Asia.



# 2021 Programme overview

A global pandemic in its second year, vaccine inequity and COVID-related restrictions affecting national institutions' operational capacity were always going to leave their mark on CREWS projects. Activities were paused or delayed across the board, affecting project completion timelines for Burkina Faso, DR Congo, Niger, Papua New Guinea, and phase I of Pacific SIDS. For Afghanistan, Chad, Haiti, Mali, as well as Niger, instability and conflict exacerbated or added challenges.

Nevertheless, progress was manifest in different ways and degrees. CREWS drive and operational agility were key. Nowhere more so than in Afghanistan, where project-developed tools were repurposed for a humanitarian cause. In the Pacific, phase II got underway, while West Africa began easing into its extended programme of work. New projects in Haiti and South-West Indian Ocean Islands, delayed by COVID in starting up, jumped some key hurdles in laying foundations for strong early warning services.

A Cambodia/Lao PDR project launched late 2021 raised the tally of CREWS projects to 15. CREWS was now assisting 60 countries via national and regional projects, with [Canada](#) supporting activities in the Pacific, the Caribbean and Southeast Asia, including workshops on impact-based forecast and warning services in Thailand and the Philippines.

Among 12 pipeline projects, the greenlight was given to develop project proposals for Central Africa, Horn of Africa, East Africa and Malawi, and for additional funds for the Caribbean.

Work to set up a new financing scheme for short-term expert and advisory services – the Accelerated Support Window – benefited from extensive consultations and will be operational in 2022.

While years of disaster preparedness investment means we are better at saving lives, economic losses continue to increase. Early Warning Systems are critically required for climate adaptation, yet less than half of WMO Members have them. The UN Secretary-General has asked WMO to spearhead new action to ensure every person is protected by early warning systems within five years. CREWS will play an essential role in helping us reach this target and protect the most vulnerable.

**Prof. Petteri Taalas,**  
WMO Secretary-General



In a world of complex risk, much of it weather-related, multi-hazard early-warning systems can save lives and protect livelihoods. New indicators to measure early warning effectiveness developed by UNDRR and WMO through the CREWS Initiative, will support LDCs and SIDS to regularly evaluate the efficacy of their early warning systems. In doing so, countries will be able to move towards a more resilient and sustainable future.

**Mami Mizutori,**  
Special Representative of the  
Secretary-General for Disaster Risk  
Reduction and Head of UNDRR



Early warning systems for natural hazards are important, especially in fragile environments, as disasters can escalate conflict and push people further into poverty. CREWS finances projects in 11 conflict-affected countries, requiring technical assistance to be closely integrated with politically sensitive, adaptable, and agile development support. The CREWS Initiative is a key financing source of this technical assistance, helping facilitate sustained investments to strengthen early warning systems in fragile contexts.

**Sameh Wahba,** Global Director, Urban,  
Disaster Risk Management, Resilience  
and Land Global Practice, World Bank







© UNDP/Ratha Soy

## New Cambodia/Lao PDR project to reach most at-risk

CREWS was already supporting Cambodia and Lao People's Democratic Republic (Lao PDR) with Canadian funding.<sup>1</sup> In September 2021, that support transformed into a fully-fledged CREWS project going into action. A four-year, US\$ 5.5 million investment involving WMO, UNDRR, the World Bank and several operational partners, builds on existing early warning system work and more.

The aim is to reach those most at-risk, including women and people with disabilities. National capacity to deliver hydro-met, early warning and response services and their governance will be strengthened. With project design consultations involving the governments, institutions, UN country offices, civil society and the private sector, and agreements facilitated by the IFRC to work with national Red Cross Societies in both countries, CREWS Cambodia/Lao PDR will enhance climate change adaptation and disaster resilience.

This is key as both countries' economies rely heavily on climate sensitive sectors such as agriculture. Yet, Cambodia and Lao PDR are disaster-prone and climate change threatens more extreme weather. An additional four million people in Cambodia could potentially be exposed to extreme riverine floods by 2040s without any action.<sup>2</sup> In Lao PDR, climate change is exacerbating poverty and malnutrition,<sup>3</sup> exposing the most vulnerable to greater risk. Timely early warnings leading to early action will help minimize that.

<sup>1</sup> Environment and Climate Change Canada (ECCC)

<sup>2</sup> <https://www.preventionweb.net/publication/climate-risk-country-profile-cambodia>

<sup>3</sup> <https://www.preventionweb.net/publication/climate-risk-country-profile-lao-pdr>



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>

3 droughts in 12 years affected 26 million people.<sup>3</sup> In 2021, one in three Afghans was impacted by a drought covering 40% of the country<sup>4</sup>



More than 59% of natural disasters were due to floods, impacting nearly 5 million people

- ➔ An estimated 80% of Afghans rely on agriculture.<sup>5</sup> In 2021, average wheat production fell by about 25%, according to authorities.
- ➔ **CREWS Afghanistan** works to strengthen institutional capacity to provide early warning and climate information to better protect those most at-risk from weather-related hazards.

World Bank/GFDRR, WMO	2019–2023	US\$ 3.66 million	Expenditure rate: 23%	Leverage factor: 1.29x
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## 2021: Adapting to a new reality

A young project forging ahead, political events in August 2021 forced a rethink for CREWS Afghanistan. Some activities were cancelled, including those linked to a larger World Bank investment project. Others were paused or reorientated to face a growing humanitarian crisis. The challenge was to remain active, maintain national engagement and preserve already hard-won development gains — but many skilled national hydro-met staff had gone or were unable to work, particularly women. Priority is now delivering basic weather and climate services to regional entities and UN aid agencies relying on them for continued operations.

## Key achievements

- The drought early warning system (AF-DEWS) developed through CREWS Afghanistan was pivotal to early identification and declaration of drought in 2021 — 4 months earlier than in 2018. Early knowledge was key to early action here.
  - A weekly drought bulletin produced using AF-DEWS enables the UN and donors to define the scope, scale, and timing of aid to help tackle the food crisis.
- A new numerical prediction tool enabled by securing national weather datasets is successfully producing flash flood forecasts and warnings — 31 in 2021.

- Weather forecasts and predictions are still provided by hydro-met staff using cloud-based back-ups of historical weather and climate data, and data from national weather observation networks.

## Key developments

- Development of a Central Asia flood early warning system will strengthen national and regional capacities to manage flood risks, better protecting 115 million people with timely warnings and advisory services – 40 million in Afghanistan.
  - **CAFEWS** will strengthen Afghanistan's ability to provide forecasts, warnings, and advisories on riverine floods.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT disaster defined as when more than 10 people killed, or at least 100 affected/injured <https://www.emdat.be/guidelines>

<sup>3</sup> EM-DAT data download 17 Jan 2022

<sup>4</sup> Afghanistan National Disaster Management Authority/AF-DEWS data

<sup>5</sup> <https://www.fao.org/newsroom/detail/afghanistan--agricultural-assistance-farmers-drought/en>





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- An enhanced flash flood early warning system for Central Asia to now include Afghanistan will improve flash flood prediction in the country and region. Most Afghan river basins are transboundary, with Amu Darya the largest in Central Asia.
  - Nearly 380 people were killed and 35,000 were affected by 2 flash floods in 2021.<sup>6</sup> Floods cause average annual damages of USD 54 million in Afghanistan.<sup>7</sup>
- A legal framework and regulation document for the national Met Service will help develop a legal mandate for its operations and regulate its services — once the current situation has stabilized.
- Coming in from the cold: Afghanistan's taking part in 2021 South Asia Hydromet Forum and completion of a national hydro-met atlas will boost regional collaboration and national forecasting.

#### **Our added value: Coherence, people-centred, solution-orientated**

With an escalating humanitarian crisis and at least half the 40 million Afghan population food insecure, CREWS Afghanistan's swift response to a complex crisis was to refocus its work and meet an imperative need. With winter fast approaching, project developed tools would be used to support aid operations by providing critical drought analytics and weather forecasts, including on temperatures, precipitation, and snow fall. A weekly bulletin helps UN aid agencies and others in Afghanistan map what assistance is needed where — and when to deliver it. An agile solution ensuring project gains are not entirely lost.



© WFP/Andrew Quilty

“The drought bulletin is very useful to understand the drought situation and the weather and climate forecast for Afghanistan. We use the data to conduct analyses of the food security situation.”

**Dr Jintana Kawasaki, World Food Program**

<sup>6</sup> EM-DAT

<sup>7</sup> <https://bit.ly/36f3bQd>



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>

75% of weather-related disasters were flood related



More than 9 in 10 of all disaster-affected people were impacted by drought

- In 2020, 3 floods affected around 130,000 people, while a drought impacted 2.9 million out of a then population of nearly 21 million.<sup>3</sup>
- **CREWS Burkina Faso** strengthens national hydro-met capacities to deliver early warning services to better protect people and assets.

WMO

2017–2022

USD 2.19 million

Expenditure rate:  
77%

Leverage factor:  
16x

## 2021: Evolving and transitioning

CREWS Burkina Faso was almost completed going into 2021 after a no-cost extension had been granted. Only little, albeit important, work remained. However, COVID, very low vaccination rates, and growing insecurity and instability meant the project would continue into 2022. Project evaluations identified achievements for national hydro-met services, while agrometeorological services at three pilot sites had triggered difference-making change for farmers and rural communities. Looking to the future, sustainability and the scaling up of project results are accomplished through a USD 33 million World Bank climate resilience project for Burkina Faso – building on gains made through CREWS. WMO has a continued advisory role.

## Key achievements

- National Met Service, ANAM, has improved its weekly and monthly weather forecasts following training on a real-time monitoring and forecasting tool for Africa (MISVA).
  - The training will also enable Burkina Faso to eventually take on a regional guidance role in the analysis of short to mid-term forecast products developed through the tool and then discussed in weekly briefings with other West African countries.
- 6 out of 10 respondents on a survey among hydro-met staff, farmers and community members said their training through CREWS Burkina Faso was effective and met expectations. Of these, 92% said they were able to transfer acquired knowledge to others.
  - Upskilling and building capacity within institutions and communities is fundamental to project success. It provides the foundations for national resilience to a climate scenario of increasing floods and droughts, with serious

knock-on impacts for people, economy, infrastructure, and the environment.

## Key developments

- 242 weather stations in Burkina Faso were added to WMO's online repository for metadata on surface meteorological and climatological observations (OSCAR/Surface). Sharing this data with the rest of the world will lead to more accurate forecasting skills in Burkina Faso and globally.
- A flash flood early warning system in progress is due to be completed in 2022.
  - The identification and mapping of flood prone zones using a combination of global and national datasets will allow water level change monitoring. This will have impacts on forecast quality, timely and location specific flood warnings, and support to manage flood risk and response.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT data download 18 January 2022

<sup>3</sup> <https://worldpopulationreview.com/countries/burkina-faso-population>





© Suomen Punainen Risti/Finnish Red Cross

### **Our added value: Gender responsive, people-centred**

Can using weather bulletins tackle food insecurity and poverty in a country hit by both floods and drought? By training 1,100 farmers – 34% women – at three pilot sites in Burkina Faso to use location specific weather and climate forecasts for farming decisions, CREWS shows it can. At least 8 of 10 trained farmers now rely on forecasts delivered through community radio to decide on crop choice, location, when to sow, plant, fertilize, irrigate, and harvest. Topline results? Far less loss and lower costs, greater yields and a 267% average income increase over 2 years.

For 240 women farmers growing rice and vegetables on small individual plots in Tiogo before, the impact runs far deeper. Today, they form the Simplified Cooperative Society. Developing 15 ha of lowlands for rainfed rice cultivation and 2 ha for market gardening, the women say they were like the blind before. Weather forecast knowledge has enlightened them. While higher yields and profits have improved their lot, unity has given them strength and solidarity. All gains underpinned by pilot agrometeorological services for men — and women.



© ANAM/CREWS Burkina Faso



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>

7 out of 10 hydro-met disasters were caused by floods, affecting just over 1 million people



Droughts accounted for 20% of hydro-met disasters, but impacted nearly 3.5 million people – more than 3 times than those for floods

- ➔ 40%<sup>3</sup> of Chad's 17 million population live in poverty.
- ➔ 4 out of 5 people are reliant on agriculture for livelihoods and food security, with agriculture contributing almost 45% to the country's GDP.<sup>4</sup>
- ➔ **CREWS Chad** strengthens climate and hydrometeorological services to improve national forecasting, early warning, and disaster response systems.

WB/GFDRR, WMO

2019–2024

USD 3.15 million

Expenditure rate:  
34%

Leverage factor:  
TBD

## 2021: Laying the foundations

As in 2020, CREWS Chad implementation was hampered by various factors. Pandemic-related restrictions, curfews due to insecurity and poor communication networks meant few opportunities for interaction. Nevertheless, some critical foundations for the country's hydro-met and early warning services were laid in 2021. Building on these is imperative to prevent loss of life and livelihoods from weather and climate hazards.

## Key achievements

- 2 diagnostics on Chad's Met Service and system-wide capacities to deliver multi-hazard early warnings were finalized and validated by 5 national institutions, including hydrological, meteorological, food security and civil protection services.
  - Findings and recommendations will determine future investments in early warning, food security and urban flood services to minimize hydro-met risks to the public through the regional West Africa Food System Resilience Program.
- A new national plan for Chad is being informed by the investment plan of another diagnostic on disaster preparedness and response.
- The national Met Service is better able to forecast rain, heavy rain, and other severe weather events through participation in weekly briefings using a real-time monitoring and forecasting tool for Africa (MISVA).
  - The tool creates daily to weekly weather forecasts, bulletins, and satellite and on-the-ground observation products, then analyzed in briefings with Météo-France, the Dakar Regional Specialized Meteorological Center and other West African Met Services.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCList-FY22.pdf>

<sup>2</sup> EMDAT data download 17 Jan 2022

<sup>3</sup> <https://climateknowledgeportal.worldbank.org/country/chad>

<sup>4</sup> [https://agricade/wp-content/uploads/01/2021/GIZ\\_Climate-risk-profile-Chad\\_EN\\_final.pdf](https://agricade/wp-content/uploads/01/2021/GIZ_Climate-risk-profile-Chad_EN_final.pdf)





© WFP/Evelyn Fey

## Key developments

- 139 village producers so far – 41% women – at 3 pilot zones, are more informed and resilient against hazards after training on seasonal rain forecasts, climate change and early warning. It also helps improve their crop yields and food security.
- 40 rural development agency staff, hydro-met observers, community radio, local authorities – 35% women – have been trained as well as the farmers in Mani, Linia, and Mailao-Tchendjou. It ensures an integrated approach to building local warning services now being extended to other areas.

### Our added value: Coherence and people-centred

How can the national body responsible for protecting 17 million people – the Civil Protection Directorate (DPC) – contribute to more effective early warning services? CREWS diagnostics on multi-hazard early warning systems and Chad's disaster response readiness identified priorities and actions.

A new pilot early warning service by the DPC in two provinces shows a way forward. SMS alerts are sent daily to civil protection authorities by field focal points with UNICEF support, triggering responsive action. And it's yielding results. Fire alerts followed by DPC-issued warnings have already saved lives and assets through timely on-the-spot intervention by NGOs, the Chad Red Cross and UN agencies. The system will now be extended to the capital, Ndjamen, with CREWS and World Bank support.



© ANAM Chad

“CREWS has already helped improve Chad's early warning system by identifying pilot sites and building people's capacity to mitigate flood, drought or other weather impacts. While this and UNICEF's mobile phone support helps anticipate risks, more support is needed to share and use early warning information.”

**Tesse Mbia Mabilo, Director of Civil Protection, Chad**





## Hydrometeorological disasters

2010 – 2020<sup>2</sup>

Floods caused nearly three quarters of all weather-related disasters in the period, affecting nearly 940,000 of a total of 1 million people



2<sup>nd</sup> most frequent weather-related disaster at more than 18%, landslides affected the fewest – 1,627 – people



2 wildfires impacted almost 60,000 people

- 3 in 4 people out of a 92 million population live on less than \$1.90 a day. The country has the world's 3<sup>rd</sup> highest populace of poor people.<sup>3</sup>
- **CREWS DR Congo** works to improve hydro-met and climate services in selected sectors through strengthened governance and by building early warning capacity.

WB/GFDRR, WMO

2017–2022

USD 3.09 million

Expenditure rate:  
47%

Leverage factor:  
2.5x

## 2021: Another year of continuing and accumulative challenges

A combination of factors continues to impede progress for CREWS DR Congo. The enduring pandemic, with less than 0.5%<sup>4</sup> of the population vaccinated against COVID by end of 2021, and low institutional capacity within the national Met Service underline some challenges faced. Various activities were paused and a validated National Framework for Climate Services has yet to pass into law. Slow project pace has meant World Bank/GFDRR, WMO and others providing support and close monitoring of the situation, are speeding up implementation as the project is due to end in 2022.

### Key achievements

- A long-term training programme for the national hydro-met agency, Mettelsat, elaborated by the African School for Meteorology and Civil Aviation (EAMAC), was completed and validated.
  - Nearly 500 staff – from forecasters, engineers, and technicians to administrative staff – will be trained, subject to funding. Investment in skills and capacity is critical for Mettelsat to provide timely and accurate forecasts and early warnings in a conflict-affected and fragile context.

### Key developments

- The deployment of a flood early warning system in two watersheds – N'Djili in Kinshasa and Kalamu in the province of Congo Central – is edging closer to completion.
  - The system, to provide flood forecasts and warnings with sufficient lead time to about 1.5 million people, is expected to be operational in early 2022.
- Ongoing data rescue of historical climate data to be completed by May 2022, will allow data from 57 weather observation stations to be shared globally.
  - This will happen after a WMO open-source climate and hydro-met database is installed on Mettelsat servers. More comprehensive data will improve the forecasting quality and accuracy in DR Congo, the region and globally.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSLIST-FY22.pdf>

<sup>2</sup> EM-DATA download 17 January 2022

<sup>3</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/-15883/06-2021WB\\_Congo2%C2%0Democratic20%Republic20%Country20%Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/-15883/06-2021WB_Congo2%C2%0Democratic20%Republic20%Country20%Profile-WEB.pdf)

<sup>4</sup> <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/democratic-republic-of-the-congo/>





© WFP/ Fredrik Leyneryd

- A meteorological services Quality Management System (QMS) for air navigation is under development. When finalized, Mettelsat staff will need training on QMS and infrastructure will need maintenance — although current funding for this is unsustainable. The process for internationally required ISO certification for the system should end by mid 2022.

### Our added value: Solution-orientated

Floods may cause most of the weather-related disasters in DR Congo, but the country suffers a wide range of natural hazards. Poverty and insecurity intensify their impacts. A multi-hazard early warning system to alert populations on imminent floods, an approaching drought or other crises, is imperative for life saving and life-changing decisions. SAPHIR does exactly that — and more. A versatile system, its functions range from real-time weather and rainfall monitoring, data management and analysis to flood and drought warning, and information for agricultural decision-making. With 70% of the population employed in farming<sup>5</sup>, it is vital knowledge accessed easily via a mobile app or web interface — and used widely and nationally. One tool providing solutions for many.



© Matondo Divengele/Mettelsat

“CREWS has contributed to reducing flood disaster risks in two pilot watersheds – N’Djili and Kalamu – by establishing the flood Early Warning System. The funding has also strengthened our internal capacity in forecasting and monitoring in line with our institutional mandate.”

**Joseph Itela,**  
General Director, a.i, Mettelsat, and DR Congo  
Permanent Representative to WMO

<sup>5</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/-15883/06-2021WB\\_Congo2%C2%0Democratic20%Republic20%Country20%Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/-15883/06-2021WB_Congo2%C2%0Democratic20%Republic20%Country20%Profile-WEB.pdf)



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>

2 droughts, the least frequent hydro-met hazard, nevertheless affected the most people – 4.6 million



Storms, mostly tropical cyclones and hurricanes, accounted for 35% of weather-related disasters and affected nearly 2.5 million people



Of 37 hydro-met-related disasters since 2010, nearly 60% were due to floods

- ➔ More than 96%<sup>3</sup> of Haiti's 11.5 million population<sup>4</sup> is vulnerable to hazards such as earthquakes, hurricanes and floods.
- ➔ In 2021, Tropical Storm Grace damaged or destroyed 130,000 homes just two days after a 7.2 magnitude earthquake affected 800,000 people.<sup>5</sup>
- ➔ **CREWS Haiti** works to build a sustainable Met Service, put in place efficient multi-hazard early warning systems, and improve disaster response capacity nationally and locally.

WMO

2021–2023

USD 1.5 million

Expenditure rate:  
48%

Leverage factor:  
24x

## 2021: Beginning of a new journey

CREWS Haiti kicked off a year later than planned due to COVID disruption. 2021 was equally eventful. Minimal vaccination in an ongoing pandemic, a back-to-back earthquake and hurricane in August, along with continuing political insecurity triggered by the assassination of the country's president, not only framed the context, but also impacted the project.

With in-country support from UNDP, CREWS Haiti builds on gains already made by Canadian and World Bank funded projects, and regional advances through CREWS Caribbean. To keep moving forward despite insecurity and uncertainty affecting plans – and potentially goals – there are regular meetings with constant situation reassessments and activity readjustments. The scope, method and timeline of CREWS Haiti will require fluidity. Most importantly, continued project ownership by the Hydrometeorological Unit of Haiti (UHM) will be crucial to mitigate risk.

## Key achievements

- Critical collaboration agreed with UNDP and its national network will help reach last mile communities on disaster risk and response plans, and better support early warning services in the agricultural sector while enabling some essential functioning of UHM.
  - With office supplies, an internet service, SIM cards reconnecting weather stations cut off by the August earthquake, and CREWS financed video conference facilities for virtual trainings and meetings, some fundamentals for UHM operations and communications were secured.
- An outline of a National Strategic Plan for Haiti was endorsed, and an action plan finalized.
  - The outline clearly defines a mandate and strategy enabling UHM to improve services vital for effective early warning as part of a broader disaster management strategy. Implementation of the action plan, which also identifies funding gaps, includes crucial legislation changing UHM's legal status to ensure financial and operational sustainability.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 17 January 2022

<sup>3</sup> <https://climateknowledgeportal.worldbank.org/country/haiti>

<sup>4</sup> <https://worldpopulationreview.com/countries/haiti-population>

<sup>5</sup> <https://www.undp.org/news/haiti-launches-post-disaster-needs-assessment-first-step-towards-recovery-strategy>





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## Key developments

- Training developed for observers from UHM and the civil aviation office (OFNAC) will strengthen both weather observation skills and cooperation between the two entities – a long-term goal. Planned activities with civil protection and food security agencies on using meteorological information in their work, will also build key partnerships.
- 3 staff will acquire advanced technical skills through fellowships at [France's National School of Meteorology](#).
- Awareness raising videos in Creole on coastal inundation and ocean buoys with Canadian funding will specifically target people most at-risk to educate on marine hazards and help change behaviour.

### Our added value: Unique

What's in a name? For UHM, a national entity providing critical everyday weather services people and economies depend on — everything. Changing from being a 'Unit' to a 'Service' is about more than a word. It is recognition of value with a legal status. A mandate brings responsibilities, a budget and oversight. When it happens, becoming a fully-fledged Service will have profound implications for Haiti and its people. The poorest country in the Caribbean and the worst hit by natural hazards will have a Met Service better able to inform, warn and protect people from the impacts of climate change and hydro-met disasters.



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"CREWS Haiti has given us immense hope. We have great expectations it will improve our services. It will certainly strengthen the Haiti Hydrometeorological Unit institutionally and technically. Sectors, including agriculture and civil protection, will benefit from the weather forecasts and early warnings we will be able to provide."

**Marcelin Esterlin, Director,  
Hydrometeorological Unit of Haiti**



## Hydrometeorological disasters

2010 – 2020<sup>2</sup>

Droughts made up nearly a quarter of weather-related disasters, affecting 10.9 million people



Floods, mostly riverine, were the most prevalent – 77% – cause of hydro-met disasters

- ➔ 1 in 3 people were affected by drought in 2020, while half of Mali's 21 million<sup>3</sup> population are extremely poor.
- ➔ Agriculture makes up 50% of Mali's GDP, employs an estimated 62% of the workforce,<sup>4</sup> but only 14% of land is arable.<sup>5</sup>
- ➔ **CREWS Mali** works to improve the country's hydro-meteorological early warning and response systems and services in target areas to reduce loss of life and livelihoods.

WB/GFDRR, WMO

2017–2023

USD 3.33 million

Expenditure rate:  
63%

Leverage factor:  
9x

## 2021: Challenges of multiple crises

Insecurity across much of the country, political instability after a coup d'état, and a pandemic had greatly impacted CREWS Mali progress in 2020. These same issues were exacerbated by a second coup in 2021, spreading violence, and COVID-related restrictions in tandem with a less than 4%<sup>6</sup> vaccination rate by the end of the year. CREWS Mali continued to support risk mitigation initiatives, including COVID sensitization campaigns. Project risk management largely focused on support for training and awareness raising activities in secured areas in southern Mali. Close collaboration between the national project team and CREWS implementing partners moved things forward when and where possible.

## Key achievements

- 95 women leaders from Bamako and Segou region trained on climate risks and early warning systems with CREWS gender specialist support also made strides on setting up a women leaders' network.
  - They validated governance texts, set up regional coordination systems, an office in Bamako, and identified skills gaps.
- In a challenging environment, 21 climate and early warning products and services were still produced and disseminated by Mali's hydro-met services.
  - Virtual training for Mali Météo staff was followed by weekly briefings with Météo-France, Dakar regional meteorological centre and national West African Met Services to analyse 7-day and monthly outlooks using a real-time monitoring and forecasting tool for Africa ([MISVA](#)). It enabled more accurate rain and severe weather forecasts.
- Online training of 7 agrometeorologists on state-of-the-art techniques produced updated crop calendars, enhancing site-specific advice to farmers.
- Training on innovative flood forecasting, modelling and management for 9 hydro-met, civil protection, and food security early warning staff will elevate national flood response.
  - Staff learnt Raincell technology for rainfall estimation, flood and environmental mapping, and data analysis. A 'smart' role play [game](#) developed crisis decision-making skills.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 17 January 2022

<sup>3</sup> <https://worldpopulationreview.com/countries/mali-population>

<sup>4</sup> <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>

<sup>5</sup> <https://climateknowledgeportal.worldbank.org/country/mali>

<sup>6</sup> <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/mali/>





© CGIAR Climate/Francesco Fiondella

## Key developments

- Progress on implementing a flash flood early warning system was made by augmenting its technical functionality and training 12 meteorologists and hydrologists to use it.
  - Floods generally affect 500,000 people a year and cause average annual crop losses of USD 10 million and USD 250 million in building damage.<sup>7</sup>
- A flood risk assessment and identification of potential flood mitigation investments for Bamako is underway to build urban resilience to flood impacts.
  - It follows a community flood mapping of the capital by Mali Météo and others to ensure better flood forecasting, modelling and management. Bamako is regularly inundated in the rainy season.

### Our added value: Solution-orientated, unique

Urban resilience is increasingly a priority in Mali as droughts and desertification drive urbanization. Nearly 45% of the population reside in towns and cities, but poor planning and floodplain settlement have made people highly vulnerable to frequent flood impacts. Assessing flood risks in Bamako and identifying actions to best protect 2.7 million lives requires water mapping – how much rain falls on the city? Where, and how fast does water travel? To know this, CREWS Mali will use Rain Cell Africa – an innovative mobile app. It disrupts telephone networks to gather data on rainfall estimates for Bamako, and on water flow and speed in gutters and drains. It also doubles up as a flood early warning system.



© IOM/Fabrice Recalt

<sup>7</sup> [https://www.gfdr.org/sites/default/files/publication/mail\\_low.pdf](https://www.gfdr.org/sites/default/files/publication/mail_low.pdf)



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>

Floods caused 82% of hydro-met disasters since 2010, affecting 2.9 million people. 2020-2021 inundations impacted nearly 900,000 people and destroyed 25,000 hectares of crops<sup>3</sup>



4 of 23 disasters were caused by drought, affecting more than 10.4 million people

- Floods, droughts, locust infestations and conflict are major contributors to food insecurity. Nearly 43% of people were extremely poor in 2020.<sup>4</sup>
- **CREWS Niger** is enhancing the national food security early warning system and putting in place effective flood and extreme weather warning services.

WB/GFDRR, WMO

2017–2022

USD 2.74 million

Expenditure rate:  
49%

Leverage factor:  
10x

## 2021: Building blocks for modernization

With a national early warning and risk response system established by decree in 2020, clearly defined roles for national hydro-met and civil protection agencies, and an operational national alert code, the foundations for impactful early warning had been laid despite COVID. 2021 was to build on these achievements. Although the pandemic and limited capacity affected project completion, a process to modernize weather, climate, water, and early warning services in Niger involving five national institutions, began.

## Key achievements

- Investment in building national hydro-met services' capacity to produce and disseminate regular information bulletins is yielding dividends.
  - 12 ten-day hydrological bulletins ensured populations along the Niger River, its tributaries, and the Komadougou Yobé River had timely information to better anticipate, prepare and protect against flooding during the rainy season. 5 monthly hydrological bulletins and 2 information notes on flood events were also issued.
  - 6 daily weather bulletins are produced each week by the national Met Service with improved quality and in user-friendly format after training. Disseminated by CREWS partners via community radio and a women leaders disaster management network, the forecasts also inform monthly climate bulletins for agriculture, health, energy, water resources and disaster risk reduction.
- 3 flood awareness TV spots were produced by the Humanitarian Affairs Ministry and broadcast. Based on 2020 spots made through CREWS and focused on gender, they were also used by women leaders in 4 regions for flood sensitization.
  - TV spots in 4 languages for 2020 floods were re-broadcast in Niamey in early 2021 to warn of rising Niger River water levels, and 15 more times in July ahead of flood season.

## Key developments

- A wide-ranging diagnostic and strategic plan for hydro-met services will underpin weather, water, climate, and early warning services' modernization to build on achievements.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 17 January 2022

<sup>3</sup> MAH/GC data

<sup>4</sup> <https://climateknowledgeportal.worldbank.org/country/niger>





© UNICEF/Islamane Soumaila Abdou

- Evidence-based analysis on governance, user needs of service providers and end users, hydro-met resources and gaps, and investment possibilities, will inform future action to better serve 25 million people. It will also inform which activities World Bank projects will fund and the transformation of the Met Service into a semi-independent agency.
- National early warning and crisis response mechanism (COVACC) is extending to regions. COVACC ensures permanent monitoring of hydro-met phenomena to alert authorities and populations at risk of imminent flooding via public and private media.
- 9 workshops trained 172 staff from all 8 regions on diverse issues, including initial response time, announcing a crisis, monitoring and evaluation, and rapidly mobilizing the right resources to where needed.

### **Our added value: Gender responsive, multiplier, people-centred, unique**

Training 600 women leaders in Niger on early warning and disaster management was to build community resilience with knowledge. It did more. It empowered the women to initiate and act. Through WhatsApp groups created in all regions to alert and info share, an organic early warning system was born. Success has led to an informal national Women Leaders Network run by civil protection authorities, connecting heads of diverse regional platforms. Information flows both ways as networks work closely with all-level authorities. The latter now rely on the women for timely crisis prevention and response communication among communities. In four regions, authorities and UNICEF supported women leaders on a flood sensitization effort. Elsewhere, women leaders are initiating their own actions to save lives.



© FAO/Guilio Napolitano



## Hydrometeorological disasters

2011 – 2020<sup>2</sup>

More than half of all 17 weather-related disasters in this period were caused by floods



Tropical cyclones were the 3<sup>rd</sup> most common cause of hydro-met disasters



A single drought impacted 2.5 million out of a total 2.9 million people affected by weather-related disasters in 10 years

- ➔ Numbers for people affected by river flooding and economic damage are predicted to double by 2030.<sup>3</sup>
- ➔ High food insecurity in a country where more than 1 in 3 people are extremely poor.<sup>4</sup>
- ➔ **CREWS Papua New Guinea (PNG)** strengthens weather and early warning systems and the national Met Service's engagement with ministries and economic sectors.

WMO

2017–2022

USD 1.65 million

Expenditure rate:  
91%

Leverage factor:  
0.36x

## 2021: Building on the fruits of labour

The year was mainly about operationalizing what had been developed before and fine-tuning tools and services to better meet user needs. Product development successes now urgently need matching with user validation of those products and training of National Weather Service (NWS) staff to correctly analyse information for forecasting and decision-making.

CREWS PNG was extended into 2022 with important work still unfinished due to COVID. With the pandemic into a third year and a single digit<sup>5</sup> vaccination rate in the country, project timelines will likely need further change.

## Key achievements

- The National Weather Service can more easily access high resolution weekly, monthly, and seasonal climate prediction products and satellite precipitation estimates through a publicly accessible portal. Staff can now develop bulletins faster and spend more time disseminating information.
  - These products underpin wide-ranging services for 9.1 million people and sectors, such as monthly bulletins on rainfall patterns and drought status in different provinces – critical for a cash crop dependent economy.
- Improvement of an already developed set of WMO space-based climate and weather monitoring products has led to greater accuracy on drought risk assessment and prediction.
  - Increased technical ability of the NWS to monitor and predict climate extremes by using these products is enabling it to better communicate with and generate support from disaster management communities, the UN, and development aid.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 17 January 2022

<sup>3</sup> <https://bit.ly/3wwiDTg>

<sup>4</sup> <http://www3.compareyourcountry.org/states-of-fragility/countries/PNG/>

<sup>5</sup> <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/papua-new-guinea/>





© UNDP Papua New Guinea

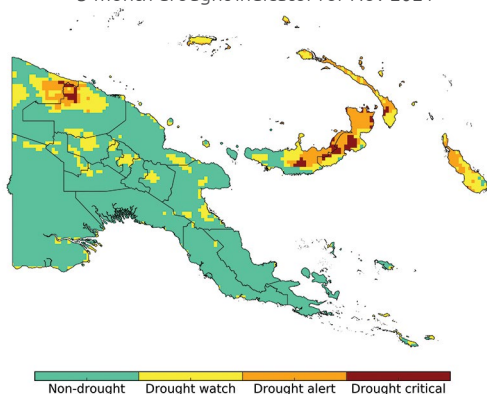
## Key developments

- Major progress was made on developing a drought early warning system. It integrates drought detection, monitoring and forecasting, risk analysis, and the timely and authoritative dissemination of warnings.
  - Performance testing over 6 months revealed a progression of drought warnings for provinces from watch, alert to critical at 1, 3 and 6-month intervals. More testing in late 2021 showed 4 provinces on drought alert status.
- Provincial-level experimental maps for 2014-2021 produced by a drought risk assessment tool in-the-making, integrates drought hazard, exposure, and vulnerability indices. A web tool was also created for user access to these indices.
  - Initial feedback from consultation with key sectors, disaster management, and others on usability of Drought Risk Analyzer and drought early warning system? Early warning maps were realistically representing the drought situation in northern provinces.

## Our added value: People-centred, solution-orientated

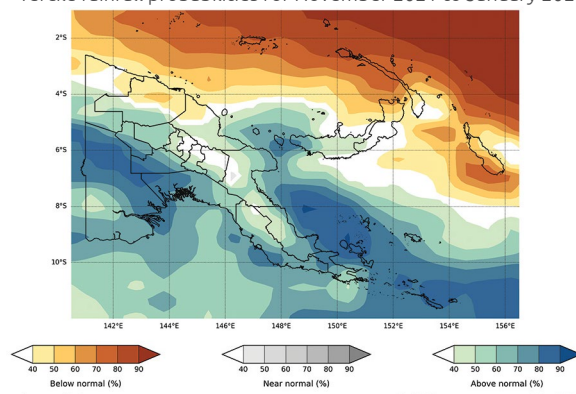
What difference do regular consultations with people using early warning and weather services make? A great deal. Community and sectoral feedback on whether products for different hazards meet their needs ensures climate services stay relevant — and user-friendly. Identifying gaps and solutions, CREWS' annual consultations with frontline users have proved invaluable. In 2021, their evaluation of a drought risk assessment tool revealed 'access to safe water' needed inclusion in drought hazard and vulnerability indices. It also led to an easily accessible and useable mobile app for the tool. More people needing the service can now more easily get it — and take timely action to protect them and their livelihoods.

3-month drought indicator for Nov 2021



© Australian Bureau of Meteorology/CREWS

Tercile rainfall probabilities for November 2021 to January 2022



© Australian Bureau of Meteorology/CREWS



## Hydrometeorological disasters

2010 – 2020<sup>1</sup>

All four weather-related disasters in this timeframe were caused by floods, affecting nearly 185,000 people

- ➔ Nearly 38,000 people were affected by hazardous weather events in 2021 – 59% by floods and 38% by strong winds.<sup>2</sup>
- ➔ **CREWS Togo** strengthens capacities of national hydro-met, climate and civil protection services to improve early warning services for drought, floods, and other severe climate events.

WB/GFDRR, WMO

2019–2024

USD 2.36 million

Expenditure rate:  
32%

Leverage factor:  
TBD

## 2021: Inching forward

A second pandemic year continued to impact project activities due to COVID-related restrictions and low vaccination rates.<sup>3</sup> Modus operandi was through small group activities mostly focused on communication and awareness raising, and on virtual trainings. Nevertheless, forecasts are improving, and several evaluations and action plans developed in 2021 will define the scale, scope, and pace of hydro-met progress in the future.

## Key achievements

- Diagnostics on hydrometeorological and climatological forecasting capacities in Togo will lead to information and services better meeting sectoral and community needs. However, resources will need mustering to resolve skills and capacity gaps in national meteorological, hydrological and civil protection services.
  - A national consultation with farmers, agriculture, energy, and other sectors to gauge user needs and an analysis of hydro-met services' response to these, underpinned proposed actions to improve services and sustainability.
  - Consultation feedback also informed the development of a national strategy for the Met Service with an accompanying action plan that will factor in user needs and consider gender-based actions.
- An assesment of multi-hazard early warning systems capacities and respective action plans identified critical measures meteorological, hydrological, and civil protection services should take to integrate and consolidate early warning systems.
  - Recommendations included adopting common alerting protocols, especially for meteorological hazards, and improving the quality of climate and weather information and forecasts.
- Reliability of 1–2-week forecasts during the monsoon season was improved by upskilling 6 meteorologists in using real-time monitoring and forecasting of intraseasonal variability – [MISVA](#).
  - 165 forecasts issued twice daily and 17 heavy rain alerts were delivered over 6 months. Satellite and meteorological products were analysed in weekly briefings with regional and national West African Met Services and Météo-France before forecasts were issued.
- 88 professionals – 41% women – from public, private and community media across all 5 of Togo's regions were trained on disaster risk and response and crisis communications.
  - Mobilizing broadcast, print and online journalists, editors and others will lead to more informed and timely reporting and public information, reducing risk and impact from natural hazards for more people.

<sup>1</sup> EM-DAT data download 17 January 2022

<sup>2</sup> ANPC - Agence Nationale de la Protection Civile

<sup>3</sup> <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/togo/>





© ANPC

## Key developments

- An assessment of disaster risk knowledge, management and response to weather and climate events will inform action to improve Togo's alert protocols and decision-making on warnings.
- 17 national early warning experts from civil protection, hydro-met, Togo Red Cross and environment management agencies, are better able to estimate the scale, frequency, timing, and location of floods after training on geographic information systems (GIS) for flood modelling.
- Training 75 education professionals – 50% women – in using and integrating a disaster risk reduction guide into school curricula will strengthen local disaster response and resilience in 2 prefectures.

### Our added value: Gender responsive, multiplier, people-centred

Women and men are both on the climate change frontline, but various factors leave women more at-risk from its impacts. Civil protection training for mothers' groups and women leaders in disaster management in Togo's Maritime and Savanes regions – the most flood and drought prone – works to change that. Women pinpointed an immediate need: make safer cooking stoves using 60% less wood, which reduce home fires, and are cheap and easily replaceable. Such stoves also reduce deforestation that makes floods more destructive. Nearly 100 women have been trained. Each trains another 10 women — all connecting safer stoves with climate change and its impact on their socio-economic life.



© ANPC



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>



Just over half of 111 weather-related disasters were due to storms, nearly all hurricanes



Floods were second in both prevalence and in number of people affected – 3.8 million



Drought accounted for 8% of weather-related disasters but impacted most – 4.7 million – people

Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago

- ➔ Haiti and the Dominican Republic had by far the most disasters and the most people affected – a combined total of nearly 10.5 million out of 12 million people.
- ➔ **CREWS Caribbean**, with co-funding from Canada, strengthens and streamlines regional and national systems for multi-hazard forecasting, warnings, and services to mitigate loss of life and economic assets in 17 project-covered countries.

WB/GFDRR, WMO,  
UNDRR

2018–2022

USD 5.5 million

Expenditure rate:  
60%

Leverage factor:  
0.36x

## 2021: Landmark for hydro-met governance

It was a game-changing year. Pandemic restrictions had slowed the project in 2020. However, 2021 saw the pace picking up. All activities were underway – in a fully virtual mode – with minimal delays. Progress was made on governance in a highly disaster-prone region, with potentially life-changing outcomes when Met bills are enacted and National Strategic Plans implemented. CREWS Caribbean will also receive more funding in 2022 to build disaster response capacities of individuals, communities, and institutions.

## Key achievements

- Model legislation and policy for the region endorsed by Caribbean Meteorological Organization (CMO) members marks a major step in coherent hydro-met governance.
  - 7 countries have adapted the model Bill to national circumstances, 1 more is doing so. Grenada and Belize have initiated the process to make theirs law. Met laws with clearly defined roles and mandates for national hydro-met institutions will beef up forecasting and early warning capacities and services – and their resourcing.
- 8 National strategic plans (NSPs) and frameworks for weather, water and climate services endorsed in Anguilla, Antigua and Barbuda, Dominica, Grenada, Guyana, Jamaica, St Kitts and Nevis and St Vincent and the Grenadines.
  - Tailored to national contexts, plans and frameworks are key to strong and sustainable weather and climate services and capacity by identifying and addressing gaps and priorities.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 17 January 2022 on 16 CREWS Caribbean countries, no data available for Montserrat





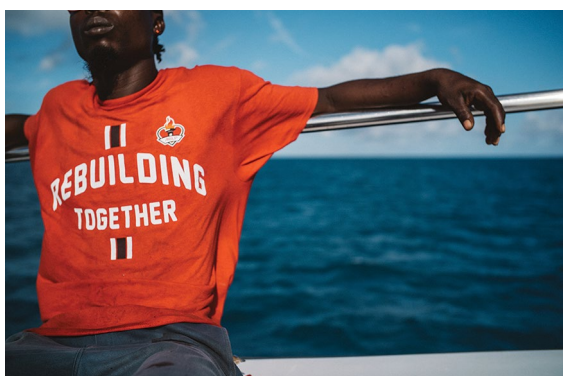
© Michael Atwood/UNDP

## Key developments

- A strategic roadmap to streamline and strengthen multi-hazard early warning systems for the Caribbean, including an economic analysis, is ready for regional consultations in 2022.
  - Aligning multiple early warning efforts across the region for a coherent and sustainable strategy will reduce economic and human loss – and leverage greater investment.
- 2 of 4 pilot activities have begun. An impact-based forecasting plan for all countries matched by technical workshops, is being developed. A multi-sensor precipitation grid for 4 countries will mean better rainfall estimates for water resource planning and disaster management.

### Our added value: Coherence, multiplier, people-centred

With 10 CREWS Caribbean countries engaged on processes for hydro-met law and/or strategic plans, stronger governance will help standardize early warning across the region. Nationally, it will provide a clarity essential for effectiveness.



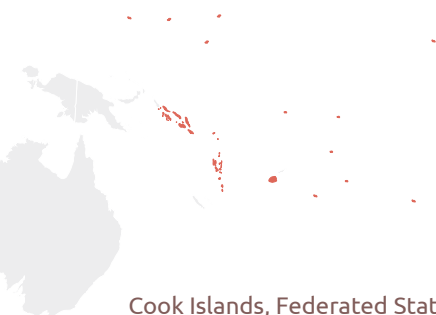
© Michael Atwood/UNDP

“Legislation and policy to guide Early Warning Services are essential to know exactly what is expected from the department, who are our partners in providing these services, and the exact roles and relationships of each partner to ensure an efficient system.”

**Elmo Burke, Senior Meteorological Officer,  
St. Kitts Meteorological Services**

“It is important the National Meteorological Service is legally established as the government authority and voice for alerts on severe weather or climatic hazards potentially affecting the country. This is especially critical given the proliferation of misinformation through unofficial sources on social media.”

**Ronald Gordon, Chief Meteorologist,  
National Meteorological Service of Belize**



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>



Storms – typhoons and cyclones – at 70% are the most prevalent weather-related disasters



Drought, closely followed by floods are together responsible for all the other reported disasters

Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Republic of the Marshall Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu

- ➔ 60 hydrometeorological disasters since 2010 affected 1.9 million people in 11 project countries, with storms alone impacting 1.6 million people.
- ➔ Fiji had the most disasters – 14 – and most people affected, at 1.15 million.
- ➔ **CREWS Pacific SIDS**, co-funded by Canada, strengthens hydro-met governance and inclusive early warning systems and services to reach people most at-risk in 14 countries.

WMO, WB/GFDRR, UNDRR

2017–2024

USD 7.3 million

Expenditure rate:  
36%

Leverage factor:  
9x

## 2021: Stronger protection for those most at-risk

Gains were made by CREWS Pacific SIDS to improve hydro-met governance and early warning services reaching remote corners and last-mile communities in far-flung island States. Two-thirds of project-covered countries are now engaged on hydro-met and inclusive early warning governance by developing or revising laws and national policies and plans on climate, water, weather, and ocean services. Although COVID-related constraints have held back some progress and led to an additional financing decision for the region, the successes of phase 1 of the project are driving forward phase 2.

## Key achievements

- Kiribati passed its first-ever Meteorological Act, a law developed through consultations across society. The third Pacific SIDS with a Met law, joining Tonga and Tuvalu, it ensures stronger governance, oversight, and services for 121,000 people.
  - Fiji has a Bill in review. The Solomon Islands is developing its Met Bill.
- 4 countries – Fiji, Kiribati, Tonga and Tuvalu – completed National Strategic and Action Plans designed through open consultations involving remote communities. More at-risk people from a 1.13 million combined population will be reached with hydro-met and early warning services.
  - Marshall Islands, Micronesia, Palau, Tokelau, and Vanuatu are also engaged on strategic plans.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT data download 17 January 2022, no data available for Nauru, Niue, and Tokelau



© CREWS

## Key developments

- Coastal inundation forecasting systems for Kiribati and Tuvalu to improve safety for coastal communities are in final development. Flooding from a king tide in Kiribati's Tarawa Lagoon – where most people live – was successfully predicted in test mode.
- About 40 hydro-met staff from 10 project countries trained on severe weather forecasting using newly developed online modules, also reviewed effectiveness of a severe weather forecasting programme. It helps national hydro-met services develop forecasting and early warning practices.
- Tonga and Samoa are transitioning to forecasting from what weather will **be** to what it will **do**. Impact-based forecasting will enable 307,000 people to make risk-informed decisions when faced with extreme climate events, saving lives and assets.
  - Both Met Services have developed impact tables, and advice and action statements for natural hazards and tools to communicate with the public. Involving officials, emergency services, economic sectors, and civil society has raised awareness on risk information value to saving lives.
- A national volunteer scheme for disaster management in Fiji is being developed to engage and train local people, particularly women, youth, and those with disabilities.

### Our added value: People-centred

Rapid disaster response in Samoa — a mountainous archipelago with 200,000 people scattered across four of nine islands — is difficult any time. Beefing up disaster response skills of 'last-mile' communities and early warning services builds self-reliance in crises and empowers frontline decision making. CREWS has partnered with Samoa Red Cross and fire services on first aid, search and rescue, and early warning training in six villages on Upolu Island where most people live. At least 200 women and men between 16-68 years are now trained, the most competent receiving formal first aid certification. Investing in people — saves lives.



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“We are more resilient and better prepared to ensure no life will be lost and people live a happy, safe and healthy life.”

**Mati Time Numia Iole,**  
Sa'anapu Village Chief, Samoa





Comoros, Madagascar,  
Mauritius, Mozambique,  
Seychelles

## Hydrometeorological disasters

2010 – 2021<sup>2</sup>



49% of weather-  
related disasters in the  
5 countries were due  
to tropical storms or  
cyclones



38% of the disasters  
were caused  
by floods



9.2 million people  
in the region were  
affected  
by drought

- ➔ 55 out of 63 hydrometeorological disasters in the 5 project-covered countries were in Mozambique or Madagascar.
- ➔ 15.2 million people out of 15.7 million affected by drought, floods, landslides, and storms since 2010 were also in Mozambique and Madagascar.
- ➔ **CREWS South-West Indian Ocean (SWIO)** builds community and economic climate resilience in the region by strengthening multi-hazard early warning systems and services.

WMO, WB/GFDRR,  
UNDRR

2020–2025

USD 4 million

Expenditure rate:  
20%

Leverage factor:  
TBD

## 2021: Taking the first steps

Starting a multi-country project during a pandemic is no easy task. Yet, in its first full year of operation, CREWS SWIO is pushing ahead. Demonstrating the value of differing expertise working in tandem, implementing partners put critical agreements in place. These enabled five national hydro-met services to access support for climate monitoring, and long-range and severe weather forecasting and warning; identified solutions for strong multi-hazard services; and contributed to developing global custom indicators for effective early warning systems through inputs from Mauritius and Seychelles.

## Key achievements

- 2 Regional Specialized Meteorological Centers – La Réunion for Tropical Cyclone and Pretoria for Severe Weather – will support each country to improve its climate and weather monitoring and forecasting skills. This also includes for seasonal outlooks, climate monitoring and drought.
  - Improvement is via increased accuracy, reliability and wider dissemination of forecast and warning advisories. This requires forecasters to be trained and equipped with the right tools.
- Starting point: 2 tropical cyclone outlook mini-fora shared cyclone climatology with national hydro-met services and the humanitarian sector.
- Madagascar is 1<sup>st</sup> of the 5 countries to communicate warnings through a common alerting protocol. It ensures warnings are more effective in reaching many more people through sustained and simultaneous outreach using multiple communication systems.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 27 January 2022



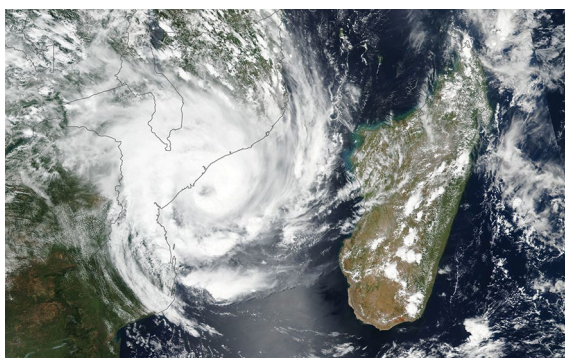
© UNICEF/Safidy Andrianantenaina

## Key developments

- Technical assessments underway on 4 multi-hazard early warning systems, a completed diagnostic for Seychelles, and plans for optimal use of available investment resources, will define roadmaps for effective early warning services.
  - Findings will inform implementation of a World Bank resilience project in the Comoros, the design of a proposed resilience programme in Madagascar, and a multi-donor (GCF, EU, AFD) funded regional hydro-met project.
- A training programme for Seychelles' disaster risk management services was developed. CREWS is also supporting revision of hydro-met and disaster management policies to strengthen governance and link between forecasting and early action to mitigate impact of severe weather and climate events on 100,000 people.
- A system to gauge number of people in Mozambique being reached through early warning communication has been developed and should be operational by end of 2022.

### Our added value: Coherency, multiplier, people-centred

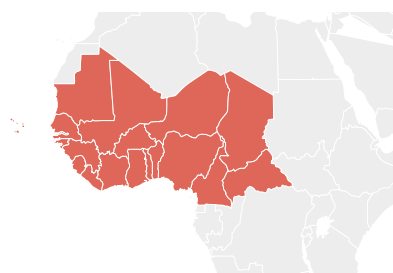
What difference will Regional Specialized Meteorological Centers' (RSMC) support make to national hydro-met services? For CREWS SWIO countries — particularly the fragile or conflict contexts of Comoros and Mozambique — a lot. With tropical cyclones behind 29 disasters in the region since 2010, La Réunion RSMC's expertise is critical to know where each will land, its intensity and scope for damage, and to give people enough lead-time to decide and act. High-quality data, forecasts and warnings will 'cascade' from regional to national level. Pretoria RSMC has long shown it is equally important for severe weather forecasting. Its training of national staff will ensure populations will get the essential services and warnings they need.



© NASA Earth Observatory image by Lauren Dauphin

"Translating tropical cyclone tracks and intensity forecasts into impact-based services is a critical issue for RSMC La Réunion. [This] is a unique opportunity to support the dissemination of new services in the basin."

**Emmanuel Cloppet, Director,  
RSMC-Tropical Cyclone Center La Réunion.**



## Hydrometeorological disasters

2010 – 2021<sup>2</sup>



1 in 8 of the disasters were caused by drought, affecting a total of 43.3 million people



19.2 million people were affected by floods, the most prevalent weather-related disaster in the region at 76%

Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo

- ➔ 194 hydrometeorological disasters since 2010 affected more than 62 million people.
- ➔ Other than Nigeria – Niger, Mali and Burkina Faso had the highest numbers of people affected by the disasters.
- ➔ **CREWS West Africa** builds and strengthens risk information and early warning services in 19 countries.

WMO, WB/GFDRR

2018–2022

USD 5.3 million

Expenditure rate:  
44%

Leverage factor:  
11x

## 2021: A year in view

In a region with very low COVID vaccination rates and many project-covered countries experiencing conflict or fragility, CREWS West Africa is still impacted by delays. Headway was largely due to frontloading remote activities. Mitigating risk involved more consultations with specialized regional centres and transferring greater knowledge to enable them to go forward and further. In the longer-term, securing financial security for regional and national hydro-met services will be key, including engaging the private sector.

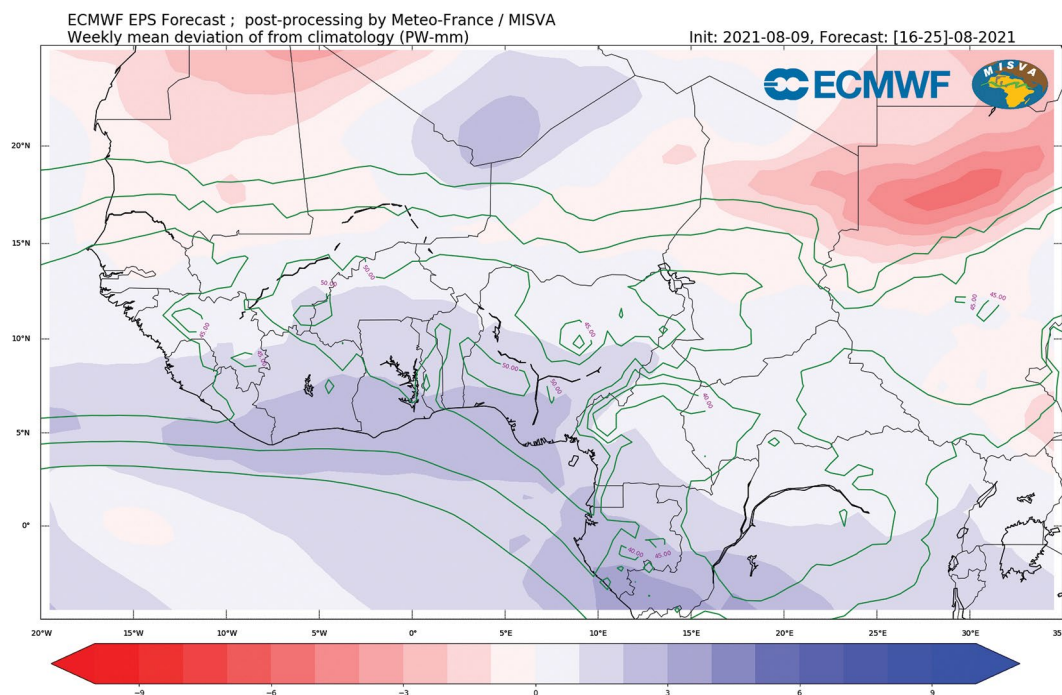
## Key achievements

- National agrometeorological services can now produce more accurate rainfall estimates and advisories to guide farmers on best time to plant, treat, fertilize, harvest, and dry crops to improve yields.
  - A 36-year historical dataset of daily and five-day rainfall estimates consistent with rain gauge measurements and satellite-based estimates covering West Africa is being created. It follows finalization of new methods and technology to merge satellite-based rainfall datasets with rain gauge data (TAMSAT) and calibrated for uncertainty.
  - 20 agrometeorologists (2 women) from Burkina Faso, Chad, Mali, Niger and Togo will provide improved services after training on crop calendars and using rainfall estimates.
- Agrometeorological monitoring bulletins produced by AGRHYMET – the regional drought monitoring and capacity building centre for 17 West African countries – are informed by this enhanced rainfall data.
- Finalizing a blueprint for hydro-met services in Sierra Leone to enhance weather and climate information services and mapping alternative investment approaches, are fundamental for sustainability and effectiveness.
  - The identification of short-term improvement of weather and flash flood forecasting services as priorities by the national Met Service resulted in a capacity assessment, a training plan for short and long-term capacity, and pinpointing essential technical needs. Focusing on these will jumpstart provision of quality services by building partnerships and enhancing skills and capacity.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> EM-DAT download 27 January 2022





## Key developments

- Severe weather forecasting skills in 19 West African countries are being strengthened with forecasters trained on numerical weather product interpretation and via weekly briefings with Météo-France on monitoring and forecasting intra-seasonal variability over Africa (MISVA) with a seamless approach.
  - The Dakar Regional Specialized Meteorological Center's capacity to manage a regional Severe Weather Forecasting Programme was enhanced with a high-performance computer to provide limited area model predictions over West and Central Africa.
- A basic blueprint for operations and roadmap to develop a sustainable business model integrating public-private engagement drafted for AGRHYMET, will underpin its changing mandate.
  - Taking on regional climate centre responsibilities will require new skills, experience, and funding. A workshop on private-public engagement kicked off that search.

### Our added value: Multiplier, people-centred

A common feature of daily life in West Africa, sand and dust storms are not only unpleasant to live with. Linked to several potentially life-threatening health conditions, they also destroy plants, reducing crop yields in a food insecure region. Sand and dust on roads and in waterways also affect transport and water quality. Knowing a storm is coming means taking timely action to protect and limit damage. Sand and dust warnings issued in Burkina Faso since 2018 have proved useful for health, agriculture, and transportation. New partnerships will extend such warnings to six other Sahelian countries — a daily weather service to better protect lives and livelihoods of 107 million people.



# Measuring effectiveness of early warning systems



## Hydrometeorological disasters<sup>1</sup>



Flood-related disasters increased by 134% since 2000. Asia has suffered the most deaths and economic losses from floods



Number and duration of droughts rose by 29% since 2000. Africa has the most drought-related deaths

- In 50 years, 50% of recorded disasters, 45% of related deaths, and 74% of economic losses were due to weather, climate, and water hazards.<sup>2</sup>
- 25 of 76 Least Developed Countries (LDCs) and Small Island Developing States (SIDS) have reported having multi-hazard early warning systems under **Target G** of the Sendai Framework.<sup>3</sup>
- 47 LDCs and SIDS have started reporting on **Target A** to substantially reduce global mortality between 2020-2030 compared with 2005-2015.<sup>4</sup>
- **CREWS** works to strengthen multi-hazard early warning system contribution to global targets on reducing human and economic loss from disasters. It does this through metrics to better measure, monitor and report their effectiveness and will contribute to more LDCs and SIDS reporting on Target G.

UNDRR/WMO

2020–2022

US\$ 0.76 million

Expenditure rate:  
39%

## 2021: A breakthrough year?

With a [Midterm Review](#) of the Implementation of the Sendai Framework fast approaching in 2022, CREWS' efforts on supporting customized metrics complementary to the global target on early warning and early action needed to deliver. The development of custom indicators could be a breakthrough. When agreed and implemented, the indicators will help provide impetus to global action on strong, effective multi-hazard early warning systems. A development that would drive progress by all countries, especially LDCs and SIDS, on meeting international goals and commitments on reducing disaster risk.

## Key achievements

- Approximately 50 custom indicators have been developed to measure the effectiveness of single, cluster and multi-hazard early warning systems and services along with the computation methods to analyse and process them.
  - Each indicator can be tailored for specific situations in countries.
  - When finalized, countries will select and use custom indicators to complement reporting on target G within the Sendai Framework Monitoring.
- A group of experts from meteorology, hydrology, disaster risk reduction and management, civil protection agencies and others contributed to custom indicator development, ensuring inclusion of diverse perspectives on measuring effectiveness.

<sup>1</sup> <https://public.wmo.int/en/media/press-release/wake-looming-water-crisis-report-warns>

<sup>2</sup> [https://library.wmo.int/index.php?lvl=notice\\_display&id=#21930.YhXmYi8w2t9](https://library.wmo.int/index.php?lvl=notice_display&id=#21930.YhXmYi8w2t9)

<sup>3</sup> UNDRR

<sup>4</sup> Ibid





© UNICEF/Jan Grarup

## Key developments

- A training package being developed will support countries in using the custom indicators.
  - The training will be piloted at national level in the Pacific and Africa and at the Global Platform for Disaster Risk Reduction 2022 before full roll-out in targeted Caribbean, Pacific and West African countries.

### Our added value: Multiplier, solution-orientated, unique

Are we on track to deliver on the Sendai Framework on Disaster Risk Reduction by ensuring there are fewer people killed and affected by disasters, and lower economic losses? Are national adaptation efforts guided by Article (4) of the Paris Agreement, specifically on early warning systems, building resilience?

Custom indicators developed through CREWS will help serve as litmus tests for both these questions. By measuring and monitoring multi-hazard early warning system effectiveness – including metrics on governance, hazard risk identification and exposure, and gender and social inclusion – we will better know if these systems are doing their job. Countries will decide which indicators to use and will be supported in refining their early warning systems to make sure they effectively contribute to the goals and aspirations of the Sendai Framework. Although the indicators will serve every country, for LDCs and SIDS, the indicators will be especially crucial. On the frontline of climate change, they are the most impacted by disasters and the most in need of support to build resilience to fully recover from them.



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“The exchange of information between colleagues and the chance to learn how different countries monitor the effectiveness of their early warning systems was enriching. The discussions on the indicators were really helpful in considering how we evaluate our early warning systems.”

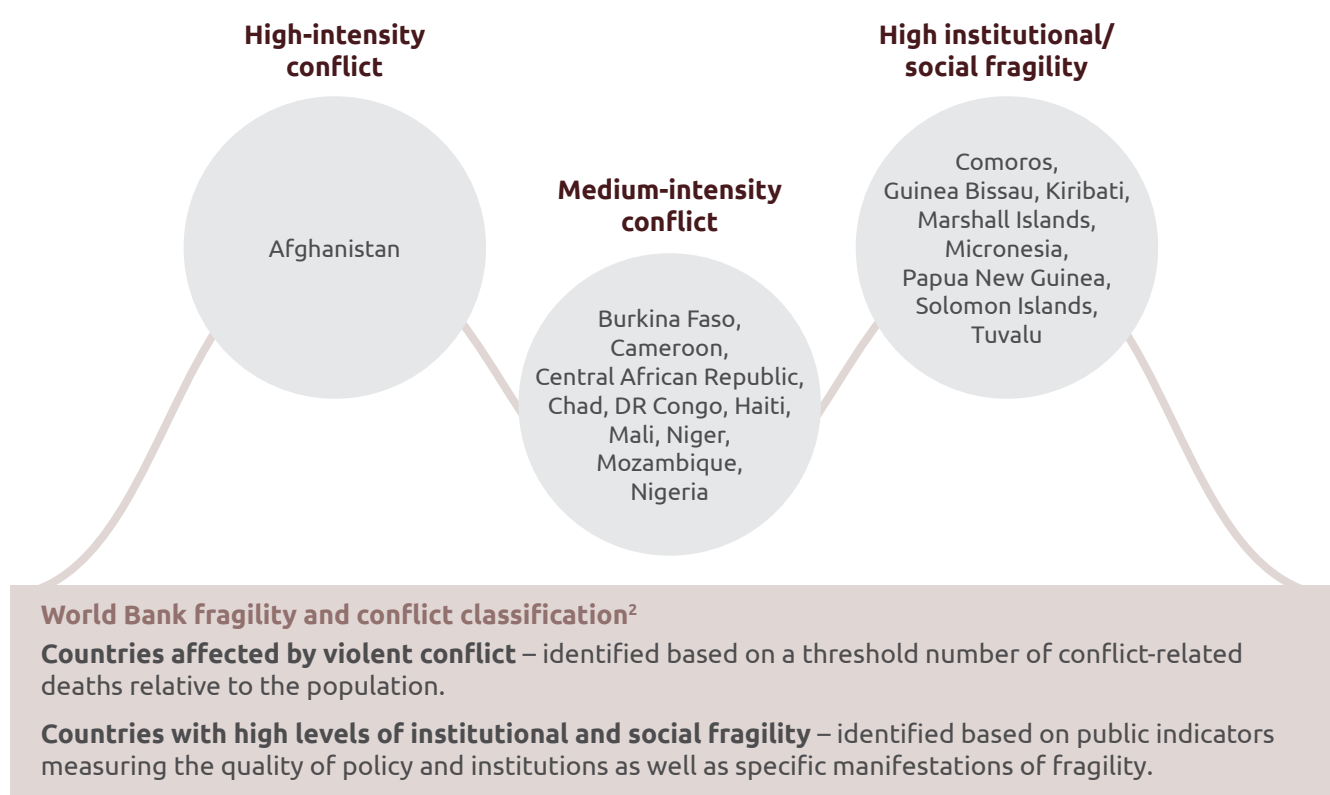
**Catherine Boretti,**  
Météo-France and Expert Group Chair



# Early warning systems in fragile and conflict situations

2021 was a year of global crisis, affecting individuals, communities, institutions, and countries at large. It exposed development and long-term capacity building issues in various countries. Eight countries benefitting from CREWS national investments are on the World Bank's list of Fragile and Conflict Situations.<sup>1</sup> Once countries in regional projects are included, the number is 19 – one which will rise further when pipeline projects become operational.

Figure 1: CREWS-supported countries with conflict or fragility status



Identification of fragile, conflict or violent situations informs strategic and operational decision-making on programmes such as CREWS. Experience gained from working in a range of conflict and fragile situations shows different challenges and opportunities arise in comparison with other CREWS projects. What is clear is that operations must be tailored to individual contexts and be adaptable in the face of sudden security changes or volatility.

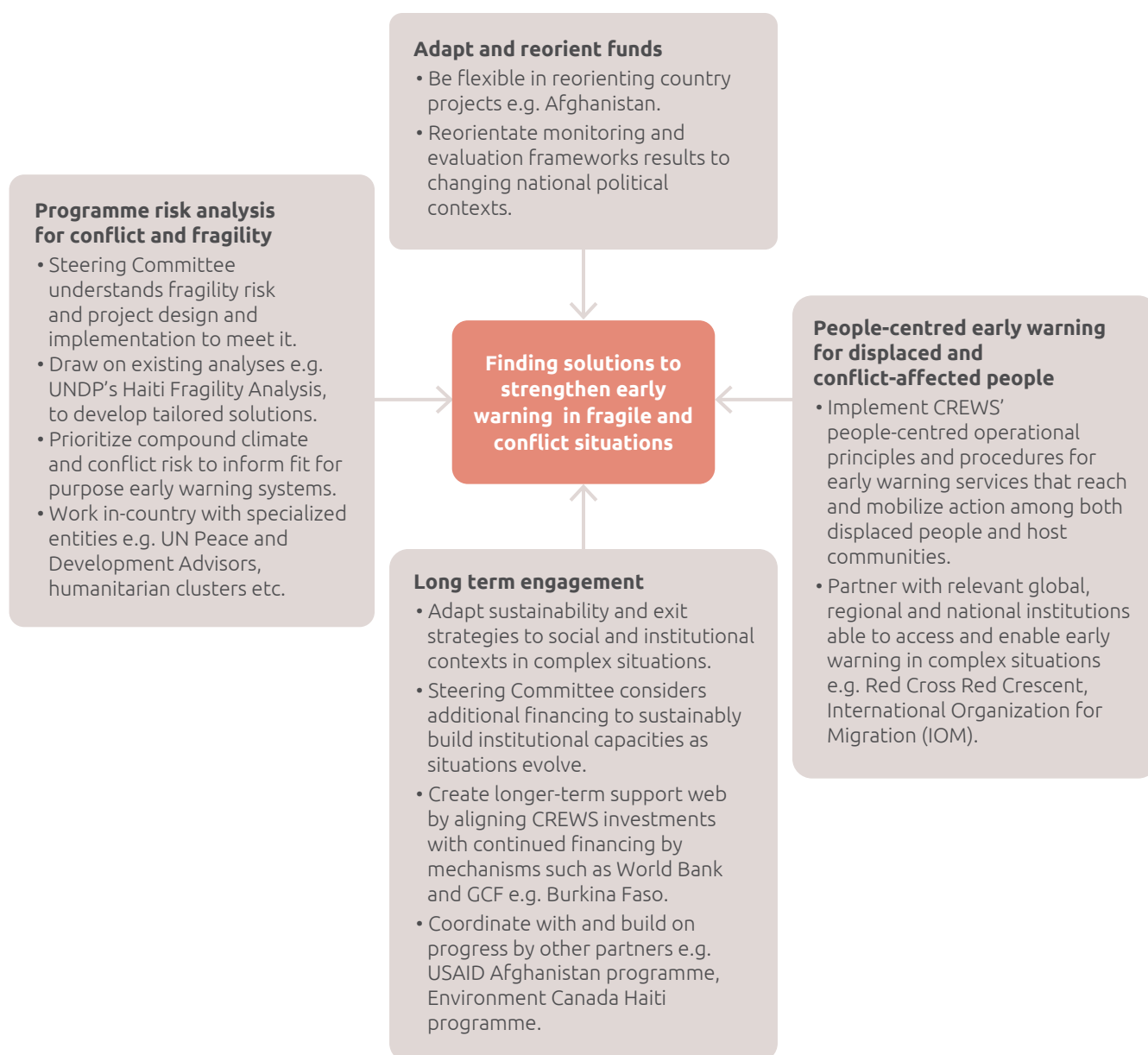
In 2021, when Afghanistan's democratically elected government was overthrown, CREWS' in-country initiatives adapted quickly. The World Bank and WMO<sup>3</sup> found solutions to maintain drought and flood warning services in a complex crisis, working directly with humanitarian actors (see p.12). It demonstrated the flexibility of both implementing partners and the Steering Committee. It also spotlighted CREWS providing a space for development partners to be innovative in providing early warning services in complex crises – including conflict-related situations with emerging, multi-dimensional risks and uncertainty.

<sup>1</sup> <https://thedocs.worldbank.org/en/doc/bb52765f38156924d682486726f422d0090082021-4/original/FCSList-FY22.pdf>

<sup>2</sup> <https://thedocs.worldbank.org/en/doc/8bc2ffd2ca0d2f174fee8315ad4c385b0090082021-/original/Classification-of-Fragility-and-Conflict-Situations-web-FY22.pdf>

<sup>3</sup> WMO has a Coordination Mechanism for Humanitarian Support curating its Members' services to inform anticipatory action.

Figure 2: Adapting CREWS early warning systems in fragile and conflict situations



As a growing number of CREWS projects operate in fragile and conflict situations, understanding how insecurity and violence impact people exposed to climate hazards and institutions, factoring that into appropriate, people-centred early warning system design, and ensuring agility in implementation — are crucial. This, and out-of-the-box partnerships would help manage<sup>4</sup> or potentially even reduce risk and vulnerabilities. This includes those of 19 million internally displaced people in countries where CREWS finances early warning systems.<sup>5</sup>

Continuous support from contributing partners to the CREWS Initiative is critical as ever to deliver early warning services to people on the sharp end of climate shocks and political, social and economic fragility.

4 Jaime Catalina, PHD researcher, Anticipatory Action in Conflict, in forthcoming paper

5 <https://www.internal-displacement.org/database/displacement-data>

# Stronger together

CREWS was established at a time when it was recognized by all development actors that financing decision needed to be based on a stronger programmatic basis. With partnership embedded in its DNA and business model from the start, and a new five-year operational plan in motion, key initiatives with CREWS partners saw deepening engagement in 2021.

A joint publication produced with the world's largest humanitarian organization – IFRC – will help CREWS better achieve our people-centred objectives. It draws on Red Cross Red Crescent community-based early warning experience to identify best practices using case studies in Malawi, Nepal and the Pacific. These are informing new CREWS operational procedures to enhance project design, implementation, and monitoring and evaluation of people-centred, risk-informed early warning services.

More than 200 people have first aid, search and rescue skills following Samoa Red Cross organized training together with emergency fire services and others as part of a community-based early warning activity. On Ejit Island in the Marshall Islands, where rising sea levels threaten communities, the Red Cross is supporting traditional knowledge data collection training and consultations to develop a community disaster management plan and set up.



“People in the Pacific are traditional knowledge practitioners and climate change is altering the signals. The elders tell us trees don’t talk anymore, and we cannot have an effective early warning system that does not integrate traditional knowledge.”

**Tagaloa Cooper-Halo,**  
Director, Climate Change Resilience  
Secretariat of the Pacific Regional Environment  
Programme (SPREP) and CREWS Pacific SIDS partner

2021 also saw CREWS cooperate more closely with the InsuResilience Global Partnership by contributing to ‘A Strategic Evidence Roadmap for Climate and Disaster Risk Finance and Insurance’. Successful national consultations in Niger in September 2021 in partnership with the African Risk Capacity (ARC) on hydrometeorological data and services’ needs for risk financing provide a strong basis for scaling-up CREWS’ contribution to InsuResilience objectives. Launched at COP26, the roadmap aims to increase the evidence base for such financing.

Work continued with the fast-growing Risk-Informed Early Action Partnership (REAP). The partnership also contributed to the development of people-centred, risk-informed operational procedures to guide CREWS financing and knowledge-sharing for more coordinated country programmes.

Effective advocacy on early warning is critical to get the required financing and action on climate adaptation and disaster risk. On the global stage at COP26, CREWS teamed up with the Green Climate Fund and REAP at high-level events to make the case for early warning investment in SIDS and globally. A recurring message was translating disaster data into life-saving solutions designed with full community engagement.







# Financials

The CREWS Initiative's Members – Australia, Finland, France, Germany, Luxembourg, the Netherlands, Switzerland, and the United Kingdom – continued their invaluable financial and programmatic support in 2021.

## Fund contributions

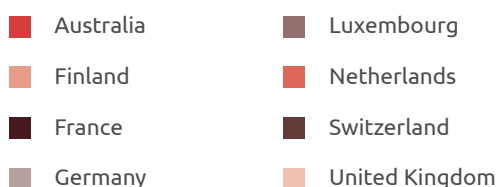
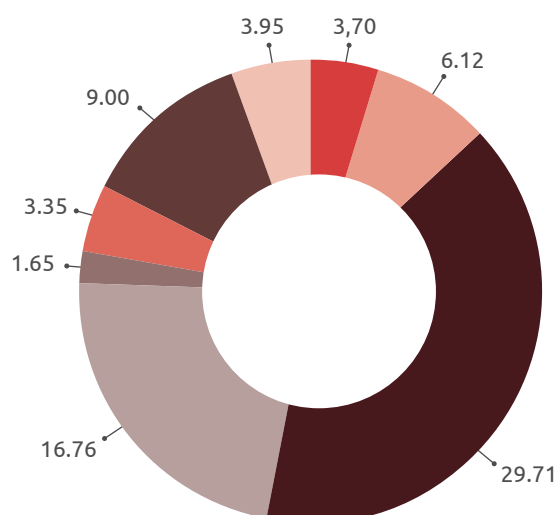
By year end, signed contributions to the CREWS Trust Fund totalled USD 77.63 million since its inception, of which USD 74.24 million had been received. Germany and France between them contributed an additional 9 million Euros in 2021, with the United Kingdom adding another £1 million to the CREWS Initiative.

## Project funding

As of 31 December 2021, nearly USD 58 million had been allocated to cover all costs related to country, regional and global projects since the inception of the Trust Fund. Of that, 81% was directly for projects. New funding decisions during 2021 totalled USD 6.4 million.

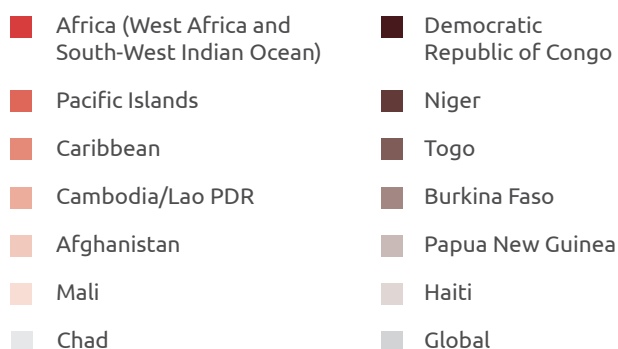
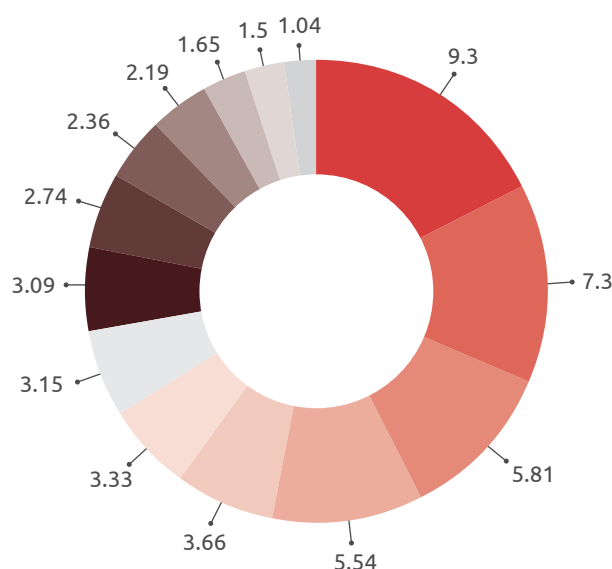
### CREWS Trust Fund received contributions

In USD millions, as of 31 December 2021



### Funding decisions by projects\*

In US\$ millions, as of 31 December 2021



\*Figures may differ from the Trustee due to different aggregation method and timing of report.

**CREWS Trust Fund Summary as of 31 December 2021**  
*in USD millions*

	Total	% of Total
<b>Donor Pledges and Contributions</b>		
Contributions	77.63	100.0%
Pledges	–	0.0%
<b>Total Pledges and Contributions</b>	<b>77.63</b>	<b>100.0%</b>
<b>Cumulative Resources</b>		
<b>Resources received</b>		
Cash Receipts	74.24	93.9%
Investment Income earned a/	1.42	1.8%
<b>Total Resources Received</b>	<b>75.66</b>	<b>95.7%</b>
<b>Resources not yet Received</b>		
Contributions not yet received	3.40	4.3%
Pledges	–	0.0%
<b>Total resources not yet received</b>	<b>3.40</b>	<b>4.3%</b>
<b>Total Potential Resources (A) (in USD millions)</b>	<b>79.06</b>	<b>100.0%</b>
<b>Cumulative Funding Decisions</b>		
Projects	46.94	81.0%
Fees	5.81	10.0%
Administrative Budget	5.21	9.0%
<b>Total Funding Decisions Net of Cancellations (B)</b>	<b>57.96</b>	<b>100.0%</b>
<b>Total Potential Resources Net of Funding Decisions (A) - (B)</b>	<b>21.10</b>	
<b>Funds Available</b>		
Funds Held in Trust with no restrictions	17.71	
Approved Amounts Pending Cash Transfers	–	
<b>Total Funds Available to Support Steering Committee Decisions</b>	<b>17.71</b>	

a/ Represents investment income earned on the liquid balances of the CREWS Trust Fund and investment income received from IPs

*Note: Sub-totals may not add up due to rounding.*

## Sustainable investment

Since 2019, the CREWS Trustee (World Bank) has been integrating Environmental, Social and Governance (ESG) factors into its investment processes as part of a Sustainable and Responsible Investment (SRI) approach to investment management.

As of 31 December 2021, the CREWS investment portfolio has an ESG Quality Score of 7.16 out of 10 and an ESG Rating of AA.<sup>1</sup> The rating reflects high capability of CREWS portfolio's holdings in managing key medium to long term risks and opportunities arising from ESG factors.

<sup>1</sup> <https://fiftrustee.worldbank.org/content/dam/fif/funds/crews/TrusteeReports/CREWS-Trustee-Report2021-31-12---.pdf>



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“Germany continues to support the CREWS Initiative to strengthen climate resilience where it is most needed. CREWS recently became a fully-fledged member of the InsuResilience Global Partnership, and together both initiatives can make real progress towards the goals of InsuResilience Vision 2025, protecting the lives and livelihoods of poor and vulnerable people against the impacts of disasters and climate risks. CREWS’ focus on early warning in Least Developed Countries and Small Island Developing States is an effective investment to minimize and avert losses and damages from climate change.”

**Svenja Schulze,**  
**Minister for Economic Cooperation and Development,**  
**Germany**

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“CREWS is an example of what multilateralism should be about. It is a multilateralism of solidarity, which is reactive, and very much grasping the challenges of our time.” *COP26, 2021*

**Jean Yves Le Drian,**  
**French Minister for Europe and Foreign Affairs**



The CREWS Initiative gratefully acknowledges the support of:

#### CREWS Members



Australia



Finland



France  
(Chair)



Germany



Luxembourg



Netherlands



Switzerland



United  
Kingdom

#### CREWS Observers



Canada



Japan



Mexico



New Zealand



Norway



Spain



ACP



European  
Commission



IFRC



UNDP



USAID

#### CREWS Implementing Partners



WORLD  
METEOROLOGICAL  
ORGANIZATION



WORLD BANK GROUP



GFDRR  
Global Facility for Disaster Reduction and Recovery



UNDRR  
UN Office for Disaster Risk Reduction

#### Find out more about us:

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