CREWS
CLIMATE RISK & EARLY WARNING SYSTEMS

ANNUAL REPORT
2017

WORLD METEOROLOGICAL ORGANIZATION

WORLD BANK GROUP

GFDRR
Global Facility for Disaster Reduction and Recovery

UNISDR
United Nations Office for Disaster Risk Reduction

CREWS Report Series Annual Report 1

NOTE

Cover photo: WMO/Jeffrey Poon

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ANNUAL
REPORT
2017

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Foreword

2017 was among the three warmest years on record. As the global temperature mounted, extreme weather events intensified, be they floods, droughts or tropical storms, causing death and destruction in many parts of the world.

2017 was also the first year the CREWS initiative was on the ground to reduce the impacts of climate change on the most vulnerable countries and people.

The CREWS initiative responds to the urgent need to develop and strengthen early warning systems expressed by Small Island Developing States and Least Developed Countries. Its objective is to reduce the distance between meteorological data and exposed populations, strengthen their awareness, save lives and significantly reduce the economic impact of disasters related to extreme climate events. Besides, without early warning systems, adaptation to climate change is unlikely at best.

In 2017, CREWS helped countries to improve their early warning system capacity so that warnings reach all those who need them with targeted risk information that enables people to take action. CREWS assisted 19 Governments in the Pacific and in Africa to address their populations' most critical early warning needs. These activities are presented in this first Annual Report.

CREWS has achieved these concrete results because it aligns the technical expertise of its implementing partners—the World Meteorological Organization, the World Bank and its Global Facility for Disaster Reduction and Recovery, and United Nations Office for Disaster Risk Reduction—to offer technical services tailored to each specific context.

CREWS has also had a marked scaling up effect vis-à-vis other donors, for instance through collaboration with the Green Climate Fund and, thus, improved the efficiency of actions in the countries concerned.

The quick progression of CREWS is a result of the strong partnership between Australia, France, Germany, Luxembourg and the Netherlands, along with Canada, which helps finance certain projects. Together we have mobilized USD 30 million and guided CREWS investments and operations.

Interest in partnership with CREWS is growing, as expressed at the One Planet Summit in Paris on 12 December 2017. Yet, in order to meet the growing demand for early warning improvements, notably in the Caribbean, additional resources are indispensable. We must concretely demonstrate solidarity in the face of increasing dangers.

France, as Chair of the Steering Committee, looks forward to enlarging the CREWS partnership and making the promise of early warning a reality for those who need it most, the poorest and most vulnerable countries in the world.

Jean-Yves Le Drian

Minister of Europe and Foreign Affairs, France
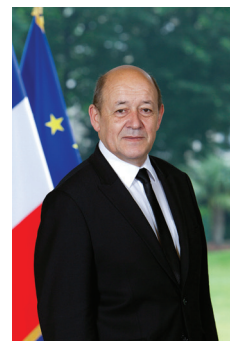
About CREWS

The Climate Risk and Early Warning Systems (CREWS) initiative aims to significantly increase the capacity of Least Developed Countries (LDCs) and Small Island Developing States (SIDS) to generate and communicate effective, impact-based, multi-hazard, gender-informed early warnings and risk information.

CREWS projects let countries and expert partners lead. CREWS projects vary, as they are led by national governments, working with our implementing partners, which ensures the most pressing needs are filled first, and our funds are leveraged for maximum impact. But all our projects take tangible, collective actions to reduce losses in lives and livelihoods from climate change by ensuring early warnings reach those most at risk, as illustrated in our video.

Australia, France, Germany, Luxembourg and the Netherlands contribute to the pooled Trust Fund and provide oversight to CREWS operations through the CREWS Steering Committee. Canada supports CREWS programming through funds provided directly to the World Meteorological Organization (WMO).

The World Bank and its Global Facility for Disaster Reduction and Recovery (GFDRR), WMO and the UN Office for Disaster Risk Reduction (UNISDR) provide CREWS implementation support to countries. The World Bank serves as Trustee for the CREWS Trust Fund. A small secretariat is hosted and managed by WMO.

Why is CREWS needed?

- High risk: In LDCs and SIDS increasing numbers of people are at risk of losing their lives as a result of weather and climate-related hazardous events. This trend is in part attributed to low or basic capacity to use risk information and to provide early warning.

- High demand: LDCs and SIDS are prioritizing early warning systems improvements for climate change adaptation, as reflected in their Nationally Determined Contributions for climate change.

- Leveraging potential: Although investment to strengthen climate services has increased, funding needs remain unmet. Closing the funding gap requires building on existing investments, leveraging additional funds and improving effectiveness.

How does CREWS support LDCs and SIDS?

Country and regional projects are implemented with the support of international partners who provide technical assistance and capacity development in a variety of ways, including the twinning of institutions (i.e., between two or more National Meteorological and Hydrological Services) and by leveraging the expertise of regional and international institutions.

Funding objectives

Yet much more needs to be done. CREWS projects that are awaiting funds in the Caribbean will minimize future hurricane losses. In western Africa, a CREWS project would link work underway in Burkina Faso, Mali and Niger to create more powerful regionwide results. In Papua New Guinea, CREWS work could greatly improve warnings for farmers of drought and flood risk.
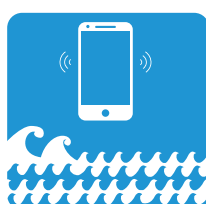
The CREWS investment target is USD 100 million by 2020.

 Risk and climate information that guides early warning systems

 Improved service delivery of National Meteorological and Hydrological Services

 Effective communication networks that reach communities at risk

 Preparedness and response plans, including targeted education and public awareness

Innovative approaches, such as risk-informed early warning systems and climate risk finance and insurance solutions, are key to support poor and vulnerable people to cope with increasing climate risks. This is why Germany supports two prominent partnerships: CREWS, which aligns existing efforts to improve weather data and climate services, and the InsuResilience Global Partnership, which promotes the adoption of risk finance and insurance solutions as part of comprehensive disaster risk management strategies.

Ingrid-Gabriela Hoven
Director-General for Global Issues - Sector Policies and Programmes, Federal Ministry for Economic Cooperation and Development (BMZ), Germany

We are seeing an increase in global temperatures and a growing number of disasters. In addition to climate change mitigation we have to pay attention to adaptation. A very powerful way to adapt to climate change is to invest in climate services and early warning systems. WMO's Strategic Plan 2020-2023 has set an ambitious goal – to close the capacity gap on weather, climate, and water services by scaling up effective partnerships for investment. CREWS is contributing in a very positive manner to achieve that objective.

Petteri Taalas
Secretary-General, World Meteorological Organization

In Mali, a CREWS grant of USD 3.3 million to strengthen meteorological, hydrological, food security and civil protection services has leveraged an USD 22.75 million grant from the Green Climate Fund and an additional USD 8.25 million from the country's World Bank International Development Association resources. As CREWS implementing partners, the World Bank and GFDRR are committed to extend the reach of CREWS to assist countries most vulnerable to climate and disaster risk in building their resilience.

Laura Tuck
Vice President for Sustainable Development, World Bank

In 2015 when countries for the first time agreed to Target G of the Sendai Framework to substantially increase early warning systems and disaster risk information, immediately CREWS emerged as the mechanism to support the poorest, most exposed and most vulnerable—the Least Developed Countries and Small Island Developing States—to meet their Target G commitment.

Robert Glasser, the UN Secretary-General's Special Representative for Disaster Risk Reduction

At a Glance

In 2017...

7 Projects approved and funded

17 USD million disbursed for implementation

19 Least Developed Countries and Small Island Developing States received CREWS support

106 USD million additional funds leveraged*

2 New regional projects pipelined (Caribbean and West Africa)

124 Representatives trained in Common Alerting Protocol in the Pacific Region

14 Government agencies collaborating across sectors in Democratic Republic of the Congo, Niger and Mali

1 Comprehensive assessment of weather observation capacities completed, in Burkina Faso

450 Participants joined the Multi-Hazard Early Warning Conference in Cancún, Mexico, co-sponsored by CREWS

1 Comprehensive review of early warning systems in the Caribbean completed

8 CREWS outreach events held at climate change and early warning conferences

2000 Visits to the newly launched CREWS website during November-December 2017

* Funds leveraged are those influenced by CREWS investment in a country or region

Timeline

March
France proposes an early warning systems initiative at UN World Conference on Disaster Risk Reduction, Sendai, Japan

September
First meeting of the Steering Committee

CREWS Investment Plan 2016-2020 endorsed by Steering Committee

Trust Fund established

February
Steering Committee approves 3 projects:
- **Burkina Faso**
- **Mali**
- **Pacific Region**

June
Third meeting of the Steering Committee

Steering Committee approves 2 projects:
- **Democratic Republic of the Congo**
- **Niger**

2015

2016

2017

CREWS supports participation of LDC and SIDS experts in the Multi-Hazard Early Warning Conference, Cancún, Mexico

Outreach event held at the Conference

CREWS launched at UNFCCC COP21, Paris

Second meeting of the Steering Committee

CREWS events held at COP22, Marrakesh, Morocco

December

November

May

Financials at a Glance

Funding Decisions by Project
in USD millions

- Global 0.28
- Papua New Guinea 1.65
- Pacific Region 2.5
- Niger 2.7
- Mali 3.3
- Congo DR 3.1
- Caribbean 0.31
- Burkina Faso 2.1
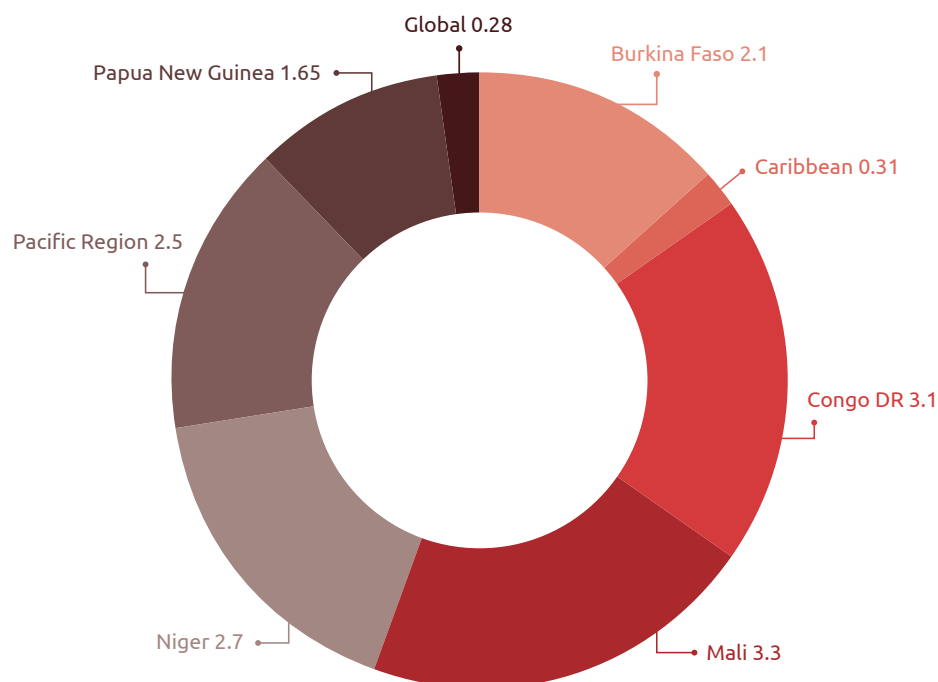
Trust Fund expenditure rate* in 2017: 84.8%

*Cash transfers from the Trustee to Implementing Partners as percentage of resources received in the CREWS Trust Fund

November

- Fifth meeting of the Steering Committee

Steering Committee approves 2 projects:
- **Papua New Guinea**
- **Caribbean lessons learnt**

Steering Committee approves 2 regional projects pending availability of funds:
- **West Africa**
- **Caribbean**

- CREWS events held at COP23: technical side event, France-hosted, high-level event, and heads-of-state Global Island Partnership event

- Fourth meeting of the Steering Committee

September

- One Planet Summit, Paris, highlights CREWS

December

Funds Committed and Received*
in USD millions

- Netherlands 2.22
- Luxembourg 1.13
- Australia 2.4**
- 1.53
- Germany 1.07
- 3.13
- France 10.79
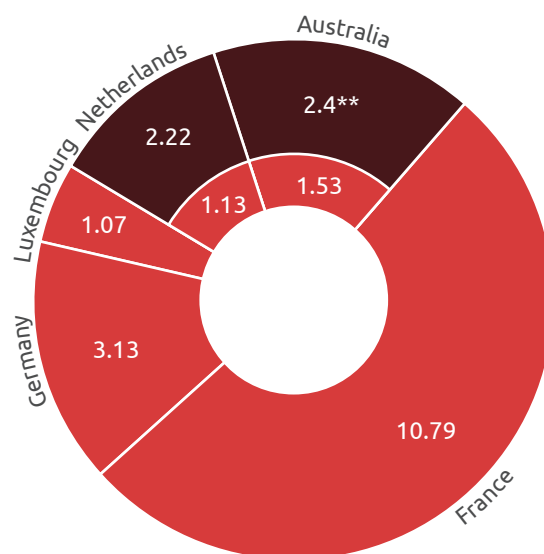
Total Contributions Received = 17.63 USD eq.
* Received by 31 December 2017
** Approximate, in USD eq.

■ Pledges ■ Received

Projects 2017

Project name	Lead Implementing Partners	Cost	Timeframe
Burkina Faso: Strengthening National Capacities for Early Warning System Service Delivery	WMO	USD 2.1 million	3 years Jan 2017 – Dec 2019
Democratic Republic of the Congo: Strengthening Hydro-Meteorological and Early Warning Services	World Bank-GFDRR & WMO	USD 3.1 million	5 years July 2017 – June 2022
Mali: Hydrological and Meteorological Services Modernization Project	World Bank-GFDRR & WMO	USD 3.3 million	4 years July 2017 – June 2021
Niger: Strengthening Early Warning Services	World Bank-GFDRR & WMO	USD 2.7 million	4 years July 2017 – June 2021
Pacific Region: Strengthening Hydro-Meteorological and Early Warning Services-- Covering Fiji, Cook Islands, Kiribati, Niue and Tuvalu; with some services extending to the Federated States of Micronesia, Marshall Islands, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tokelau and Vanuatu	WMO	USD 2.5 million	4 years Jan 2017 – Dec 2020
Multi-Hazard Early Warning Conference	WMO	USD 280,000	22-23 May 2017
Papua New Guinea: Weather and Climate Early Warning System	WMO	USD 1.65 million	3 years Oct 2017 – Sept 2020
Caribbean Region: Lessons Learnt on Early Warning Systems Following the 2017 Hurricane Season	WMO	USD 316,000	8 months Dec 2017-July 2018
Pipelined by CREWS Steering Committee in 2017			
West Africa Region: Seamless operational forecast systems and technical assistance for capacity building	WMO	USD 1.8 million	2 years Pending availability of funds
Caribbean Region: Strengthening Hydro-Meteorological and Early Warning Services	World Bank-GFDRR & WMO & UNISDR	USD 5.5 million	3 years Pending availability of funds

We don't have enough real information about weather forecasts. If we were well informed, we could take appropriate precautions.

Korotimi Souambo
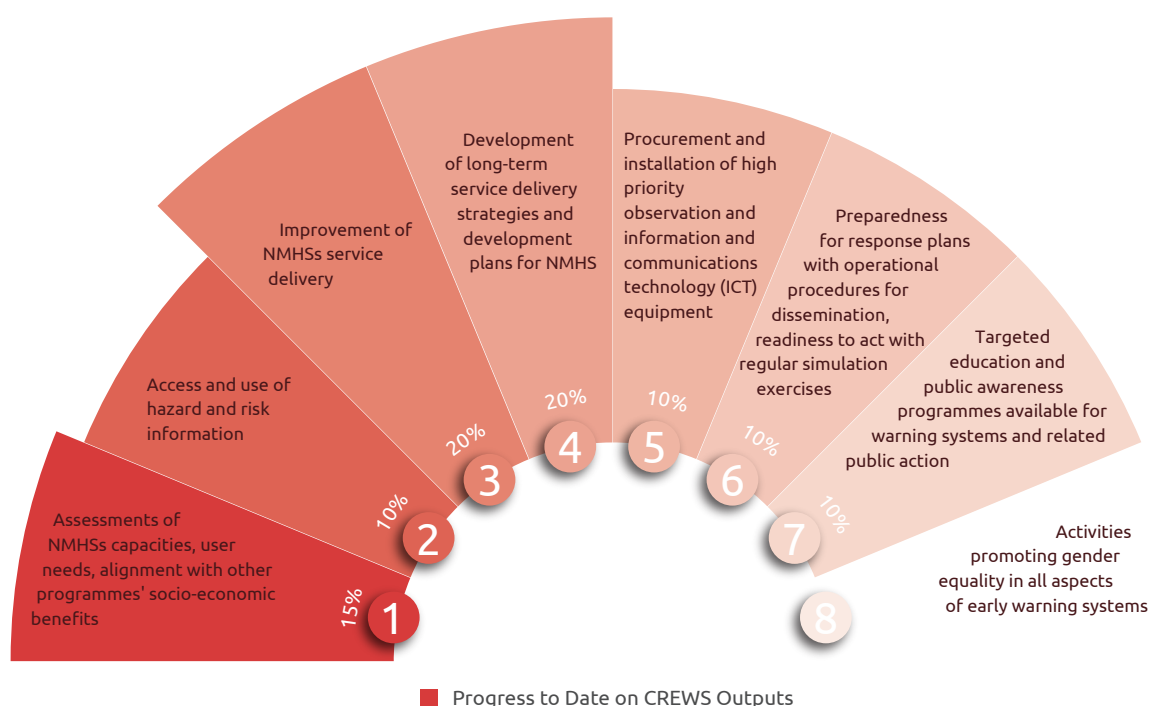**Quartier Yagma, Burkina Faso**

© WMO/Visigalli

Results 2017

Four country projects, one regional project and one global project were approved by mid-2017. In the initial project stage, countries set up organizational and institutional arrangements, assessed needs, identified technical specifications and planned their work. They made progress on activities pertaining to the eight CREWS Outputs identified by the Steering Committee in the CREWS Monitoring and Evaluation Framework and reproduced below. By the end of 2017, the greatest progress had been toward Outputs 1, 3 and 4, as illustrated. The following section highlights some initial results for each of the projects.

Progress to Date on CREWS Outputs

Improvement of NMHSs service delivery

Development of long-term service delivery strategies and development plans for NMHS

Procurement and installation of high priority observation and information and communications technology (ICT) equipment

Preparedness for response plans with operational procedures for dissemination, readiness to act with regular simulation exercises

Targeted education and public awareness programmes available for warning systems and related public action

Access and use of hazard and risk information

Assessments of NMHSs capacities, user needs, alignment with other programmes' socio-economic benefits

Activities promoting gender equality in all aspects of early warning systems

15% 10% 20% 20% 10% 10% 10%

1 2 3 4 5 6 7 8

■ Progress to Date on CREWS Outputs

Niger is exposed to hazards like floods. In 2012 Niger suffered the worst floods for 40 years, and this year over 100 people have died due to flooding. In the past, information and warnings were not accessible to the people living in exposed neighbourhoods. We have received funding from CREWS in order to improve early warnings so we can inform people of the risks. We are really happy about this support.

Laouan Magagi
Minister for Humanitarian Action and Disaster Management, Niger

Result: Hydrometeorological capacities and services assessed

• Burkina Faso's national meteorological agency, ANAM, applied WMO Integrated Global Observing System (WIGOS) methodology

The assessment revealed that most weather stations in the country were not sending data to a central location as needed for forecasting and modeling. An identified priority to enable ANAM to provide early warning is for it to connect to the weather stations, centralize the data, share it with global centers that model climate and weather, and use it to develop its own models. In early 2018, ANAM will receive training in France for seasonal and sub-seasonal forecasting, in Cairo for sand and dust storm forecasting and in Germany to manage sharing of national data to the global climate observing system, in order to improve the quality of model outputs from the global data processing and forecasting system.

Meteorologist checks temperature readings at weather station in Burkina Faso. (Photo credit: WMO)

• The Democratic Republic of the Congo Government adopted CREWS implementation plan

To build the resilience of populations at risk, technical assistance is targeted at restoring the capacity for basic observing, forecasting and service delivery of the National Agency for Meteorology and Remote Sensing, MettelSat. CREWS support will strengthen national institutions involved in early warning for heavy precipitation, extreme weather forecasting for aviation, fluvial navigation and urban flooding, in close collaboration with large investment projects in the country for meteorology, urban development, multimodal transportation and aviation.

• Pacific Region CREWS resources were reallocated based on a preliminary assessment of the meteorological development in the region

The first CREWS Project Steering Committee of the Pacific Region called for an adjustment in project activities to meet the desired outcomes across the region. This reallocation will enable wave and coastal inundation forecasting for Kiribati and Tuvalu, the installation of an automatic weather station for Tokelau, and improvements of basic communications infrastructure for Cook Islands, Fiji, Kiribati, Nauru, Niue, Tokelau and Tuvalu. These investments include computers and internet connections, required for communication with the Regional Specialized Meteorological Centre Nadi, weather observation and monitoring.

CREWS project beneficiaries in the Pacific identified some basic needs that aren't covered by larger investments in the region, such as simple communications equipment. CREWS supports small investments that make a big difference.

Lina Sjaavik,
CREWS Pacific region project manager, WMO

• Mali adopted a holistic investment plan for modernization of hydro-meteorological and early warning services under the National Framework of Climate Services

Based on an in-depth assessment of national capacities and constraints, the Government has finalized an operational plan to address institutional strengthening and capacity development for the Mali Meteorological Service, the National Directorate of Water, the Food Security Commission and Civil Protection. The plan includes the development of operating procedures for warning and rapid response; protocols for information exchange; improvements in collecting, managing, archiving, analyzing and sharing information; and support for the management of exposure and vulnerability data. The investment plan for the Mali CREWS project also supports response planning and preparedness for resilient recovery.

Results 2017

Result: Risk information generated for early warnings

• Mali, Niger and the Democratic Republic of the Congo began development of national risk geoportals for flood risk assessment and impact forecasting

The countries catalogued hazard, exposure and vulnerability information for inclusion in national risk geoportals (accessible both online and offline by national entities). The geoportals will enable the agencies responsible for disaster preparedness and response, meteorology, hydrology, and food security to easily share risk information and support decision making for flood warnings.
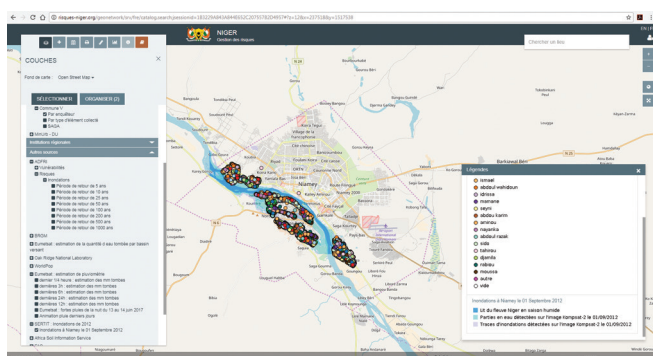
Niger's geoportal available at www.risques-niger.org

• Tuvalu, Pacific Region, began preparation of a national policy on drought early warning

Government officials and other stakeholders joined a workshop in 2017 to begin developing a national drought policy that can be considered for adoption by the Tuvalu Government. Regional experts provided technical assistance and will continue to provide their support to Tuvalu officials in 2018 through an initiative undertaken in coordination with the Integrated Drought Management Programme (IDMP).

Result: Hydrometeorological operations strengthened

• Burkina Faso hydrometeorological institutions improved their access to global forecasting products

The national meteorology agency, ANAM, and the national hydrological service, DGRE, can now access forecasting products from the European Center for Medium-Term Weather Forecasting, which will be complemented with training in 2018. WMO prepared an agreement with Météo-France to develop ANAM's capacity for seasonal and sub-seasonal forecasting needed for agriculture. In the context of the West Africa CREWS project, another agreement is underway with Deutscher Wetterdienst and Koninklijk Nederlands Meteorologisch Instituut to support extreme weather forecasting through a "cascading" process involving global forecasting centers, the Dakar Regional Specialized Meteorological Centre and the national meteorological and hydrological services. The national hydrological service, DGRE, will also strengthen its hydrological monitoring and forecasting capacities.

• In the Pacific Region, women and men meteorologists were trained in weather presentation in Nadi, Fiji

Ten workshop participants from the Fiji Meteorological Service learned to use audiovisual equipment, to prepare timed messages and expressive weather TV graphics, and to present effectively. The weather reports will be made available first through social media channels and later televised pending agreement with the national broadcaster.

Fiji meteorologist training for TV weather presentation. (Photo credit: RSMC Nadi)

Weather and climate prediction has dramatically improved over the last decades. Providing better forecasts in countries can be achieved through so-called "cascading forecasting process" to increase the reliability and decrease the lead time of severe weather warnings to the people who need them most. WMO's Severe Weather Forecast Demonstration Project (SWFDP) involves global centres passing on high value information to regional centres that develop daily guidance on severe weather for use by national meteorological centres for the issuance of more accurate and timely warnings to their population. This proven process was implemented successfully in southern Africa, eastern Africa, South East Asia and in the Pacific sub-regions. CREWS is accelerating its roll-out in low-income countries and Small Island Developing States.

Abdoulaye Harou,
Chief of Data Processing and Forecasting Division, WMO

- **Niger identified hydrometeorological infrastructure and capacity needs**

The national meteorological service, DMN, and the national hydrological service, DGRE, identified the need for improved internet connection and improved access to global and regional outputs, such as precipitation estimates and predictions. WMO is preparing specific support including the training of forecasters for the interpretation and use of this information derived particularly from Numerical Weather Prediction and satellites. The support will enable the production of warnings for extreme hydrometeorological events with sufficient lead time to take protective action to save lives and property.

Result: Long-term service strategies for National Meteorological and Hydrological Services established

- **Pacific Region CREWS partners completed assessment of the need for strategic plans and meteorological bills (for parliamentary approval) for the National Meteorological and Hydrological Services**

In 2017, the Fiji Meteorological Service finalized its strategic plan, and Tuvalu and Tokelau began development of their strategic plans. The strategies and bills will include measures to improve capacity to provide hydrometeorological services, based on a detailed assessment of current capacities.

- **In the Democratic Republic of the Congo, the national meteorology agency Mettelsat and CREWS partners carried out an institutional and legislative assessment of the capacity of Mettelsat to deliver hydromet services in the country**

The assessment is informing the development of a national strategic plan to reinforce the development and delivery of hydrometeorological services to users in the country, and an action plan for the implementation of the national strategy.

Result: Preparedness for warning response strengthened

- **Niger early warning institutions, led by Civil Protection, began developing a national flood warning code**

The national flood warning code builds upon the national civil protection law of March 2017, and will provide the basis for preparing specific standing operational procedures for each institution for rapid warnings for flooding and extreme weather.

Meteorologists in Niamey, Niger, checking equipment at a weather station. (Photo credit: CREWS)

- **Palau, Federated States of Micronesia, Fiji, Tuvalu, Niue and Nauru participated in Common Alerting Protocol (CAP) workshops**

124 representatives of the meteorological and emergency management agencies of the Pacific Region discussed use of this international standard to send public alerts and warnings. The workshops also enabled participants to develop a strategy for using the protocol in the agencies' public alerts. In Nauru, for example, participants, including the Minister of Health and Education, developed a policy recommendation to the Cabinet to implement CAP in the country.

CAP workshop participants in Nadi, Fiji. (Photo credit: RSMC Nadi)

- **Niger early warning agencies prepared study tour**

The five institutions responsible for Niger's early warning services prepared a study tour in France focusing on extreme weather forecasting, flood modelling, food security and civil protection, and municipal-level emergency preparedness. The study tour is organized with representatives of all five institutions involved in early warning, creating an opportunity to exchange lessons learned in France and to develop trust and collaboration. The institutions will later be jointly involved in the development of local preparedness plans, operational procedures for rapid warning, strategies for public education and awareness, and joint training.

Results 2017

- **Mali began development of a comprehensive disaster risk reduction curriculum focusing on early warning**

The country's four collaborating early warning agencies agreed on the guidelines for the curriculum to be taught by practitioners at the University of Bamako. The curriculum will include existing courses, such as emergency medicine, as well as new courses like impact-based forecasting and risk mapping, and will be nationally accredited.

- **In the Democratic Republic of the Congo, Mettelsat, Civil Protection, provincial governments and communities collaborated to develop flood early warning systems in urban areas**

This collaboration will deliver flood early warning services and response capacity in pilot areas across the country, starting from the most vulnerable neighbourhoods of Kinshasa.

Result: Regional capacities for early warning strengthened

- **Rapid mapping of Caribbean capacity, gaps, needs and ongoing initiatives on early warning systems completed**

CREWS and its Caribbean partners carried out in early 2017 a stocktaking to identify potential investment opportunities in the region. After the worst hurricane season in recorded history devastated the Caribbean, the CREWS Steering Committee decided at the end of 2017 to approve a post-disaster assessment to ascertain which elements of the Caribbean's early warning systems had worked and to update the gaps analysis. The results of the assessment will help guide CREWS planned investment and that of others for the region.

Result: Investment in early warning promoted globally

- **Initiatives led to consolidate worldwide expertise on measuring effectiveness, to update global benchmarks and to take stock of advances in early warning systems**

The Government of Mexico, UNISDR, WMO and World Bank-GFDRR and CREWS supported the **Multi-Hazard Early Warning Conference**, held in Cancun, Mexico, on 22-23 May 2017. The Conference immediately preceded the UNISDR-organized Global Platform for Disaster Risk Reduction 2017 in the same venue and contributed its recommendations to the Platform.

The Conference brought over 450 experts from 95 countries, including from LDCs and SIDS supported by CREWS, to share advances and promote the replication of good practices in multi-hazard early warning systems. **CREWS contributed to ensuring that 41% of speakers and facilitators at the Conference were women**. CREWS also supported the preparation and public consultations at the Conference for the guides **Measuring Early Warning Access and Effectiveness** and **Multi-Hazard Early Warning Systems: A Checklist**.

Aida Diongue-Niang, Senegal, is recognized for her poster at the Multi-Hazard Early Warning Conference, Cancun, Mexico.
(Photo credit: WMO)

The recent Caribbean hurricanes demonstrated that high quality forecasts and timely warnings delivered to vulnerable communities, and then translated into preventive actions, helped to save many lives and reduce economic losses. Still there were issues, and it is expected that the findings of the review will help identify those issues critical to the region's ability to establish well performing early warning systems.

Vladimir Tsirkunov, Team Leader of GFDRR's Weather and Climate Information for Decision Support Program, World Bank

Global Goals and Targets Addressed by CREWS

Contributes to Sustainable Development Goals	Contributes to Sendai Framework	Contributes to Paris Agreement on climate change	Contributes to the Global Framework for Climate Services
1 NO POVERTY **6** CLEAN WATER AND SANITATION **2** ZERO HUNGER **11** SUSTAINABLE CITIES AND COMMUNITIES **3** GOOD HEALTH AND WELL-BEING **13** CLIMATE ACTION **5** GENDER EQUALITY	**Targets a, b and g** (a) reduce disaster mortality (b) reduce number of disaster affected people (g) increase early warning systems UN World Conference on Disaster Risk Reduction 2015 Sendai Japan Sendai Framework for Disaster Risk Reduction 2015 - 2030	**Articles 7c, 8.4(a), 9(4), 11.1 on early warning and support for LDCs, SIDS** 7(c) Strengthening scientific knowledge on early warning systems 8.4 Areas of cooperation: Early warning systems; emergency preparedness; slow onset events; comprehensive risk assessment and management; resilience of communities, livelihoods and ecosystems. 9.4. Financial resources for the least developed countries and small island developing States 11.1. Capacity-building for the least developed countries and small island developing States PARIS2015 UN CLIMATE CHANGE CONFERENCE COP21·CMP11	**Priority areas: agriculture and food security disaster risk reduction, energy, health, water** Enhanced observation and monitoring capabilities Enhanced capacity to forecast and provide analysis on extreme events Enhanced interaction between providers and users of climate information Risk assessment, and early warning systems and risk reduction in climate sensitive sectors through climate service delivery GFCS GLOBAL FRAMEWORK FOR CLIMATE SERVICES

Through the meetings we conducted with women and men farmers in villages in Tenado, Titao and Niangoloko we learned that if farmers are able to receive information from the radio for the previous 10 days about soil moisture and daily forecast, for example, it will allow them to choose seeding and fertilizing times. Through the CREWS project we'll be able to share 10-day forecasts that will enable farmers to optimize their productivity.

Michel Nikiema
CREWS Project Manager, ANAM, Burkina Faso

CREWS Commitment to Gender-Sensitive Programming

Gender-sensitive programming is a key programming principle that guides CREWS project development. It recognizes that women's empowerment is fundamental for building resilience and that men and women may access, process, interpret and respond to information and warnings in different ways.

Brigitte Collet
Ambassador for Climate Change Negotiations,
Renewable Energy and Climate Risk Prevention, France;
Chair of the CREWS Steering Committee

In 2017, the Steering Committee members, who are strongly committed to the principle of gender-sensitive programming, approved an Operational Procedures Note detailing the actions to be carried out. Implementing Partners, for example, committed to:

- Conduct a gender analysis at the beginning of the project

- Invite female experts and women's groups to planning meetings and capacity building opportunities

- Hold preparatory women-only meetings and separate trainings for men and women, if culturally appropriate

- Document and report on the number of women and men participating in relevant meetings and trainings. A minimum of 30% women's participation is expected of CREWS-supported meetings and trainings.

- Consider offering fellowships for women to increase their participation in climate information services and early warning systems

- Report on the proportion of CREWS funding spent on the inclusion of women in project activities in the project results report

- Strive to disaggregate data by gender in the preparation of impact assessments

- Identify any sexual discrimination issues in local partner institutions affecting the project and any measures the project can take to address concerns.

The CREWS Monitoring Framework was revised to monitor implementation of the gender-sensitive principle. Implementing Partners will report regularly on progress of a specific Output on "promoting gender equality in all aspects of early warning systems".
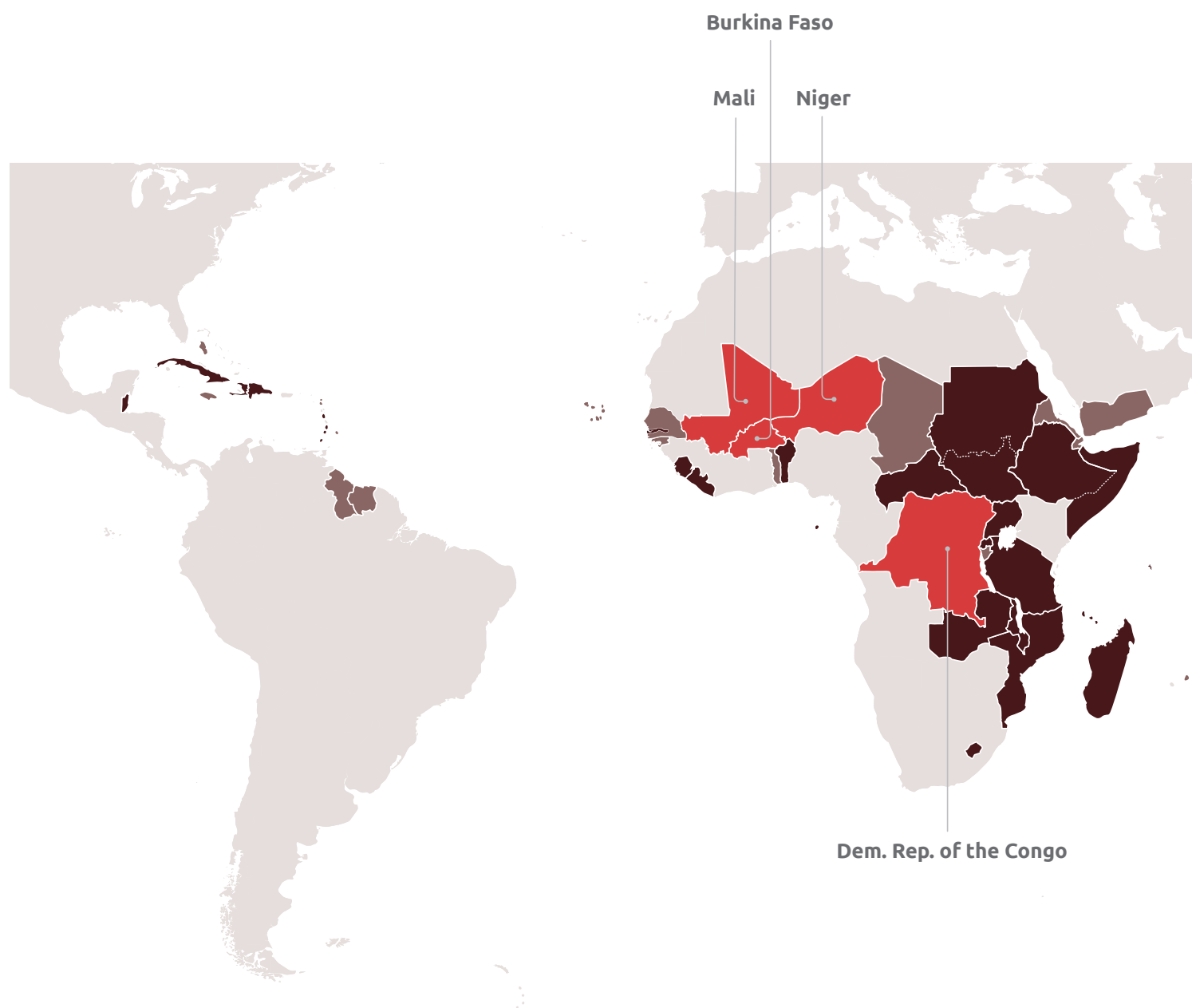
Since the (water-level) meter arrived and was installed here it really helped us prepare to go to safe places to hide from such threats as flooding and cyclones.

Alice Kini
Ghautina community, Solomon Islands

CREWS Today and Tomorrow

Burkina Faso

Mali

Niger

Dem. Rep. of the Congo

Map Legend*

Receiving CREWS support (Total 19 LDCs and SIDS)

Identified early warning systems as priority in Intended Nationally Determined Contribution (INDC) or Nationally Determined Contribution (NDC) (Total 40 LDCs and SIDS)

Indirect reference to early warning systems in INDC or NDC (e.g., disaster risk reduction as adaptation priority) (Total 26 LDCs and SIDS)

* All LDCs and SIDS are eligible for CREWS support. LDCs and SIDS not highlighted in this map may have identified their early warning needs in other national plans or strategies.

Federated States
of Micronesia

Kiribati

Republic of
Marshall Islands

Tokelau

Cook Islands

Palau

Samoa

Nauru

Vanuatu

Tonga

Solomon
Islands

Tuvalu

Niue

Papua New Guinea

Fiji

Finances 2017

As of 31 December 2017, in USD Millions

	Total	% of Total
Donor Pledges and Contributions		
Contributions	22.20	100.0%
Pledges	-	0.0%
Total Pledges and Contributions	**22.20**	**100.0%**
Cumulative Resources		
Resources received		
Cash Receipts	17.63	78.9%
Investment Income Earned	0.16	0.7%
Total Resources Received	**17.79**	**79.6%**
Resources Not Yet Received		
Contributions Not Yet Received	4.57	20.4%
Pledges	-	0.0%
Total Resources Not Yet Received	4.57	20.4%
Total Potential Resources (A) *(in USD millions)*	**22.36**	**100.0%**
Cumulative Funding Decisions		
Projects	14.36	81.7%
Fees	1.78	10.2%
Administrative Budget	1.43	8.1%
Total Funding Decisions Net of Cancellations (B)	**17.57**	**100.0%**
Total Potential Resources Net of Funding Decisions (A) - (B)	**4.79**	
Funds Available		
Funds Held in Trust with No Restrictions	2.70	
Approved Amounts Pending Cash Transfers	2.48	
Total Funds Available to Support Steering Committee Decisions	**0.22**	

- Pledges and contributions by donor
- Cumulative resources
- Cumulative funding decisions

Note: sub-totals may not add up to due to rounding

In USD millions

Contributor	Currency	Pledge in Currency of Contribution	Effective (or signed) Contribution	Receipts in Currency of Contribution	Receipts in USDeq. a/
Australia	AUD	5.00	5.00	2.00	1.53
France	EUR	10.00	10.00	10.00	10.79
Germany	EUR	3.00	3.00	3.00	3.13
Luxembourg	EUR	1.00	1.00	1.00	1.07
Netherlands	USD	3.35	3.35	1.13	1.13
Total Contributions Received					**17.63**

a/ Represents actual USD receipts

Source: Climate Risk and Early Warning Systems Trust Fund Financial Report, Prepared by the World Bank as CREWS Trustee, 31 December 2017

Note: totals may not add up due to rounding

CREWS Results Monitoring

CREWS monitors its impact against its overall objective, the outcomes and outputs contained in the CREWS Monitoring Framework, summarized below, and the CREWS Project Proposals. The CREWS monitoring approach and the Monitoring Framework are found in the "CREWS Operational Procedures Note No2, Monitoring and Evaluation".

CREWS Implementing Partners report twice a year. The Steering Committee assesses project results and overall impact of the initiative, promoting accountability for resources. The Secre-

tariat reports annually to the Steering Committee on the performance of CREWS. The short Annual Reports, produced in March of each year, draw information from CREWS Project Progress Reports received from the Implementing Partners during the reporting period. This document constitutes the first CREWS Annual Report.

CREWS project proposals and reports are available at www.crews-initiative.org.

CREWS Objective

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rate between 2020-2030 compared to 2005-2015 (Sendai Framework for Disaster Risk Reduction 2015-2030 Target A)

Final Outcomes

Significantly increase the capacity to generate and communicate effective, impact-based, multi-hazard early warnings and risk information to protect lives, livelihoods, and assets in LDCs and SIDS (Aligned with Sendai Framework Target G)

Intermediate Outcomes

Increased prioritization of and investment in early warning

Increased accuracy and timeliness of weather forecasts and early warning

Outputs

National

1. Assessment of institutional capacities of National Meteorological and Hydrological Services (NMHSs), user needs, ongoing and planned programmes, and socioeconomic benefits of hydromet services and early warning

2. Hazard and risk information of exposed populations and assets to guide early warning systems and climate and weather services

3. Improvement of NMHSs' service delivery

4. Development of long-term service delivery strategies and development plans for NMHSs

5. Procurement and installation of high priority observation and information and communications technology (ICT) equipment

6. Preparedness for response plans with operational procedures for effective early warning dissemination, readiness to act with regular simulation exercises

7. Targeted education and public awareness programmes available for warning systems and related public action

8. Activities promoting gender equality in all aspects of early warning systems

Regional

Assessment of institutional capacities of regional centers to meet NMHSs' needs in LDCs and SIDS

Training for regional WMO and intergovernmental organizations to provide regional climate/ weather services to LDCs and SIDS

Global

Investments are increased and better coordinated to address early warning service delivery gaps

For more information visit **www.crews-initiative.org** or contact us at **crewsinfo@wmo.int**

CREWS gratefully acknowledges the contributions of its Members.

CREWS Members

Australia	France (Chair)	Germany	Luxembourg	Netherlands

CREWS Observers

Canada	Japan	New Zealand	Norway	Switzerland	USAID	ACP

Implementing Partners

WORLD METEOROLOGICAL ORGANIZATION   WORLD BANK GROUP   GFDRR Global Facility for Disaster Reduction and Recovery   UNISDR United Nations Office for Disaster Risk Reduction