



CREWS Operational Procedures Note No 5

People-Centered Risk-Informed Early Warning Systems

People-Centered Risk-Informed Early Warning Systems in CREWS

The [CREWS Operational Plan: Delivering at Scale 2021-2025](#) puts people at the center by engaging actively with and encouraging collaboration between local level actors, for effective impact-based multi-hazard early warning systems leading to early action.

In the plan the People-Centered Risk-Informed component of the CREWS Value Proposition states: “Local organizations and communities are listened to and engaged so that investments are co-developed and driven by the needs of those dependent on timely and accurate warnings and climate information, especially vulnerable people.”

The Operational Procedures (OPs) are presented in 3 sections which outline the rationale and the steps required to transition to a more people-centered risk-informed approach in CREWS operations.

This introductory section presents the rationale, background and principle for people centered early warning systems in CREWS.

Part A gives procedural direction to CREWS Steering Committee, Implementing Partners and Secretariat on roles and responsibilities required to operationalise and measure CREWS commitment to this value proposition.

Part B defines what success looks like and proposes recommendations on how to measure it in CREWS context.

The Operational Procedures recognize that people-centered, risk-informed early warning systems require a level of integration across all of CREWS work given its cross-cutting nature, including convergence with, and strengthening further, gender considerations. The Operational Procedures also recognize that success will require adaptability and continuous documenting and learning, both within CREWS operations and with other development partners.

In summary, this Operational Procedure supports CREWS to deliver on its people-centered risk-informed commitment through:

- elaborating the importance of people-centered, risk-informed approaches, how they are to be applied through thoughtful inclusion and multi-stakeholder collaboration in CREWS projects, and how they result in more effective and impactful early warning systems.
- Steering Committee, with support from the Secretariat, providing direction, guidance and knowledge for systematically including people-centered, risk-informed early warning system principles and approaches in CREWS projects.
- Implementing Partners ensuring effective people-centered, risk-informed principles and approaches are resourced and integrated into the design, implementation, monitoring and reporting of CREWS projects including by and through engagement of relevant partners and people most-at-risk.
- measurement of success including assessment of people-centered, risk-informed early warning system approaches and impacts in terms of early action taken, development of indicators as part of CREWS Monitoring and Evaluation framework and inclusion of people at risk or the organisations representing them in determining, reporting on and learning from success.

- recommending alignment and integration of this Operational Procedure with other CREWS Operational Procedures to ensure strategic priorities are harmonised and coherent.

CREWS will also develop a detailed guidance document for a coherent and explicit people centred risk informed approach in the design, implementation and monitoring of early warning system initiatives. This will be a separate document developed by CREWS, guiding practical implementation in detail following a co-production approach, for use by CREWS Implementing Partners and other organisations working in Early Warning Systems.

Rationale and Background

1. CREWS was established in 2015 with the aim to strengthen the availability of multi-hazard early warning systems in LDCs and SIDS. CREWS work is underpinned by a set of principles which ensure that programmes are country-driven and target the populations most at risk from climate change impacts and disasters; projects are gender-responsive and engage women and girls; and projects are people-centered and driven by the needs of end-users. These principles are mutually reinforcing and aim toward the common goal of early warning systems resulting in early action and saving lives and livelihoods.
2. The principles that guide CREWS operations include that early warning systems are most effective when they are multi-hazard, impact-based and when they are integrated into local and national strategies to reduce and manage the risk of disasters and adapt to climate change impacts and events at different timescales (one tool in a broader toolbox).
3. Applying these principles requires the collaboration of multiple institutions in countries around clear procedures. It also requires that the people and organizations that need to receive warnings, and who will be required to act, are involved in the design of the early warning systems.
4. CREWS considers all four elements of early warning systems (See Figure 1) to be equally important for ultimately reducing the social, economic and environmental impacts of extreme events. Hence each element, whether applied alone or together with other elements, involves the participation of people most at risk in differing ways directly or indirectly and/or is informed by robust knowledge of people most at risk. They are recipients or end-users of early warning systems and also the first responders, taking action themselves and organising for action by others (response); they disseminate warnings and inform choice of formats, languages and channels of communication (dissemination); they participate in risk assessment and contribute knowledge and capacity on risks (risk), and they contribute to observation, data and local forecasting knowledge. Where a project focuses on national to regional level early warning detection, analysis and forecasting, a people-centered approach involves accessing information on the targeted group of people at risk directly or indirectly at least at design stage and understanding how the project connects through other early warning elements being undertaken by other stakeholders to ultimately achieve early action by at-risk people.
5. The CREWS national and regional outputs are aligned with the early warning elements, as shown in Figure 1.

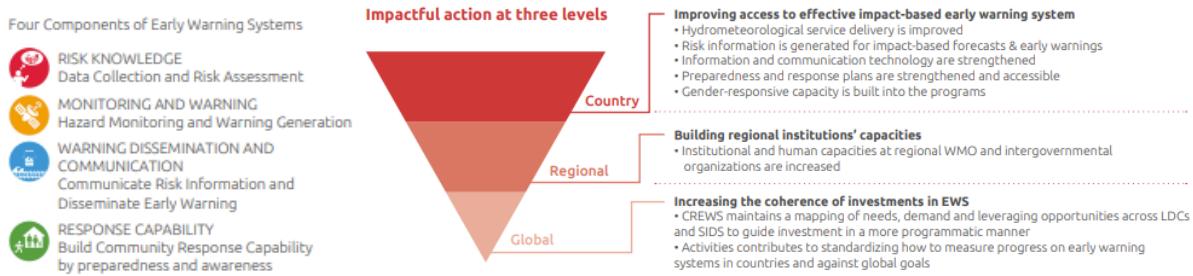


Figure 1. Four elements of Early Warning Systems and CREWS outputs (Source: CREWS Secretariat Results Monitoring Framework)

6. CREWS operations are supported by three implementing partners, the World Meteorological Organization (WMO), the World Bank/Global Facility for Disaster Reduction and Recovery (WB/GFDRR) and the United Nations Office for Disaster Risk Reduction (UNDRR). The three organizations collaborate closely in projects but apply their individual organisational agreed operational standards, norms and guidelines to their work with countries. These include a range of guidelines that actively promote a people centered risk-informed approach, key among these are listed in Box 1 and some examples are included in the guidance document.

Box 1. Key Implementing Partner (WMO, UNDRR, WB/GFDRR) documents related to people centered, risk informed early warning systems

WMO and UNDRR 2018: [Multi-hazard Early Warning Systems: A Checklist: Outcome of the first Multi-hazard Early Warning Conference](#)

WMO 2018: [Step-by-step Guidelines for Establishing a National Framework for Climate Services](#)

WMO 2015 & 2021: Guidelines on Multi-hazard Impact-based Forecast and Warning Services, [Part I 2015](#) and [Part II 2021](#)

UNDRR 2015: [Sendai Framework for Disaster Risk Reduction 2015-2030](#)

UNDRR 2021: [STRATEGIC FRAMEWORK 2022 -2025](#)

UNDRR 2020: [Africa Road Map for Improving the Availability, Access and Use of Disaster Risk Information for Early Warning and Early Action, including in the Context of Transboundary Risk Management](#)

UNDRR [Words into Action \(WiA\) guidelines](#)

WB/GFDRR 2022: [Inclusive Approaches to Disaster Risk Management — A Qualitative Review](#) (English). Washington, D.C.: World Bank Group.

GFDRR 2019: [Citizen Engagement Action Plan 2019-2023](#)

7. Early warnings failing to be accessed, understood or to result in early response and action have been seen in widely differing contexts – for example in the devastation in Southern Africa caused by Cyclone Idai in 2019, in the Caribbean and the US during Hurricane Ida in 2021, and in the volcanic eruption and tsunami in Tonga in 2022. At the same time the urgency and importance of effective actionable systems is escalating with the increasing frequency, severity and geographic scale of extreme events. Madagascar experienced four years of drought leading to widespread dependence on food aid at the end of 2021 only to be hit by 4 tropical storms/cyclones within one month in January to February 2022. This is

the challenging context within which early warning systems must provide timely and actionable information and advisories for multiple hazards often with overlapping timescales which enable effective early responses to multiple hazards affecting the same area. Active engagement with the people who are and will be affected has become an imperative.

8. “People” include a wide range of groups that play central and leading roles in our societies, some highly at risk, as well as institutions representing and providing services to them. They require targeted and adapted information and/or warnings that lead to early action, aiming to leave no-one behind. These at-risk groups may include: women, men, youth, children, especially girls and young women, older persons, persons with disabilities, indigenous people, poor, marginalised and displaced people, people in exposed locations facing context specific, localised hazards, people whose livelihoods depend on climate sensitive natural resources (eg farmers, pastoralists), geographically isolated people, people facing cultural, legal or other discrimination, organisations providing vital but at-risk services and more.
9. The need for people-centered risk informed early warning systems that lead to early action is endorsed and supported at many levels in international fora and related agreements and frameworks. Most notably the [Sendai Framework for Disaster Risk Reduction](#) and the United Nations Climate Change [Paris Agreement](#), against which CREWS measures the impact of its work.
10. The message has been further amplified by the call from the UN Secretary General in 2022 for all people on earth to be covered by early warning systems, by the recent launch of the [Risk-Informed Early Action Partnership](#) (REAP), as well as by the [International Federation of Red Cross and Red Crescent Societies](#) (IFRC) and its joint report with CREWS: [Learning From National Red Cross And Red Crescent Societies](#), the [InsuResilience Global Partnership](#), the [Alliance for Hydromet Development](#) and the [Anticipation Hub](#), by key regional organizations in Africa, the Caribbean, the Indian Ocean and in Asia and the Pacific, and by multi-lateral financing mechanisms such as the [Green Climate Fund](#) (GCF).
11. The CREWS Operational Plan 2021-2025 commits to developing Operational Procedures to enable systemised application of people-centered risk-informed approaches in all CREWS work. The existing [CREWS Operational Procedures Note No1 Programming and Project Development](#) is being updated to reflect current practices and embed these approaches in project development and management.
12. In recognition that men, women, youth, elders and children access information and warnings through different channels and may act on warnings in different manners, the 6th Meeting of the CREWS Steering Committee adopted the [Operational Procedures Note No.3 on Gender-Sensitive Programming](#). It aimed to ensure that CREWS, through its investments, contributes to the ability of relevant national and local institutions to provide gender-sensitive and disability-inclusive early warning systems and climate risk information and recognizes the increasing leadership role of women in local and national early warning systems.
13. The 6th CREWS Steering Committee also decided to develop the Operational Procedures on people-centered risk-informed early warning to further strengthen country operations recognising more factors, beyond gender (for example, age, disability, wealth, location and culture), that influence the different ways in which people access and respond to early

warnings. Concrete plans were agreed in the 12th and 13th SC meetings alongside development of the CREWS Operational Plan.

14. At the 14th SC meeting, initial thinking on the Operational Procedures was endorsed by the Steering Committee and the International Federation of the Red Cross and Red Crescent Societies (IFRC) produced a report with CREWS: People-centred Early Warning Systems: Learning from National Red Cross and Red Crescent Societies on their lessons with the approach.
15. The People-Centred Risk Informed Early Warning System Operational Procedures draw from these commitments and are also derived from discussions, evidence and good practice among partners and projects, IFRC, members of the Risk and Early Action Partnership (REAP), policies and strategies of the Steering Committee members and others. It is anchored in the current CREWS entry points and feasible scope and scale for progressing good practice approaches in projects and programmes.

Operationalising People Centered Risk Informed Early Warning Systems in CREWS

16. People centered risk informed early warning systems involve the use of multi-stakeholder co-production processes with collaboration among government, private sector and civil society actors including people most at risk, and other programmes, across the early warning systems value chain and elements. That is, to realise early action by people most at risk requires both their engagement and that of a wide range of actors working together towards a shared goal.
17. To translate these principles into operational realities by CREWS implementing partners, requires collaboration at the early stages of programming between a number of institutions, such as national meteorological organisations and civil protection, sector ministries, national disaster management offices, regional institutions, international agencies such as IFRC and REAP members and, importantly, local organizations representing the users of the warnings who bring vital local knowledge and relationships.
18. Action and collaborating actors are needed at the most appropriate level from regional, national and sub-national down to community level. Mainstreaming people centered processes in policy and plans (such as the National Framework for Climate Services (NFCS) and National Adaptation Plans (NAPs) also supports in-country capacity, commitment and sustainability.
19. End-users' explicit involvement in co-production, planning and decision making across the early warning systems value chain and strengthening their capacity, ownership and agency helps to overcome common barriers to effective early action. That is, it helps to understand how risks are perceived and the drivers and barriers to early action; identify practical multi-hazard impact-based forecasts and warnings with and for different end user groups; increase reach and access to warning information; build trust and understanding in warnings received; overcome resistance or delay in taking action; ensure actions are relevant and feasible for all vulnerable groups including those most at risk and enable co-production of feedback loops for end-users to inform continual improvement of the systems.
20. Tools and data platforms are needed that are adapted to the local context and support targeted, risk informed warning dissemination and anticipatory decision making. Countries can benefit from existing technologies and related expert advisory services.

21. The CREWS Operational Plan Strategic Results and Actions 2021 to 2025 respond to the above opportunity and challenge of people centered early warning systems through committing to:
- Ensure relevant local partners, including women and groups most at risk are engaged in the project design from the start, in relation to the scope and purpose of the project, and their input is collected and integrated.
 - Understand and integrate local and traditional knowledge, risk perceptions, and context on an ongoing basis during the implementation phase.
 - Develop tools and capacity to monitor, forecast and aggregate risk data, using technologies adapted to the local context with a view to promote people-centered and impact-based warnings.
 - Develop, in consultation with the CREWS Implementing Partners (IPs) and relevant stakeholders, the CREWS Operational Procedures on People-Centred Early Warning.
22. To achieve these goals, timelines for programming need to be adapted to allow sufficient levels of consultations, engagement of at-risk people, local organisations and actors across the early warning systems value chain in developing, implementing and monitoring warning systems and respecting and responding to their priorities over time. Projects need to allocate sufficient funds for building capacity to implement and sustain people-centred risk informed approaches, including resources for monitoring the impact of these aspects for continual improvement. Institutions and development partners working on the projects may need to adapt their operational procedures to allow for this.
23. It is important that these people-centered considerations are a fundamental aspect of design, implementation and monitoring of CREWS projects. These Operational Procedures recognise that CREWS projects cannot address all requirements of people-centered risk-informed early warning services alone, or cover all of the early warning services elements and value chain. They also recognize expectations and approaches related to people-centered considerations are different depending on the scale at which the activities are carried out (regional, national, local). The role and contribution of CREWS will be determined through CREWS Implementing Partners ensuring that a thoughtful and structured people-centered risk-informed approach informs decisions for early action and protection of people and assets during and after warnings and responses. It requires CREWS to identify gaps to bridge, the added value of CREWS projects and potential for leveraging other sources of finance.

Part A CREWS Operational Procedures and Roles and Responsibilities for People-Centred, Risk-Informed Early Warning Systems

This section presents the roles and responsibilities of each entity in the CREWS structure with regard to operationalising the people-centered risk-informed principle, aligned with the CREWS Governance document.

CREWS Steering Committee:

1. Ensure financing decisions include the allocation of sufficient time and resources for effective inclusion of good practice people-centered risk informed approaches in design and project preparation, implementation and monitoring of projects and effective modalities to support this are put in place.
2. Encourage Implementing Partners to both draw upon their institutional expertise and partner with other relevant organisations in delivering on the people-centered risk-informed principles and Operational Procedures.
3. To increase the effectiveness of people-centered risk-informed approaches taken in CREWS projects, consider the use of the Accelerated Support Window to support participatory studies, assessments, stakeholder mapping and other activities that will fill knowledge gaps and lay a foundation for people-centered risk-informed early warning systems.
4. Encourage Implementing Partners and the CREWS Secretariat to continuously learn and document practices, approaches and impacts of people-centered risk-informed early warning systems and encourage exchanges within and across regions.

CREWS Secretariat

5. Ensure these Operational Procedures are applied when reviewing new projects, including assessing that sufficient time and resources have been allocated, during design, in establishing collaborative arrangements, in the inception phase, implementation and in measuring of outcomes and impacts. Review and update programming and other CREWS Operational Procedures, M&E framework and templates to be in line with the people-centered risk-informed Operational Procedures as needed and as requested by the Steering Committee.
6. Consider integrating the modalities for operationalising, monitoring and reporting on the CREWS people-centered and gender responsive core values, so as to demonstrate their common goals of inclusivity, and integrate both into the Programme and M&E Operational Procedures.
7. Incorporate indicators, as required, and monitor the implementation of the people-centered risk-informed early warning systems principle at CREWS programmatic level and on a long-term basis, using outcomes to propose updates. Develop and apply mechanisms for quality assurance of the inclusion of a people-centered principle or approach in the monitoring and evaluation frameworks in project proposals.
8. Provide Implementing Partners with revised guidance and updated templates for project proposals, inception phase, reporting, monitoring and learning to ensure inclusion and visibility of people-centered risk-informed early warning systems in all project documentation.
9. Provide knowledge products specific to people-centered risk-informed considerations to ensure good practices are documented, analysed and shared among all stakeholders involved in implementing CREWS projects and more widely.

10. Ensure that CREWS operations are aligned and consistent with good practice principles in global initiatives that endorse people-centered risk-informed early warning systems.

CREWS Implementing Partners

CREWS Implementing Partners will uphold and promote people-centered risk-informed early warning systems through their strategic, advisory and financing roles. The following operational procedures recognise that the Implementing Partners work with and through their regional, national and local partner institutions to design and deliver CREWS projects.

11. Allocate sufficient time and resources for effective and collaborative people-centered risk-informed processes in all project phases and early warning system elements, recognising the diversity and agency of stakeholders involved, and engaging as relevant with early warning providers, communicators, recipients, first responders and people-centered local and expert organisations on an ongoing basis from design stage through implementation and monitoring, towards achieving early action.
12. Seek ways to increase investment and allocation of time and resources to continue detailed design processes with key stakeholders after project approval, for example through the use of project inception phases, and using options for review and revision of logframes, to allow for flexibility to respond to evolving user needs and opportunities.
13. Incorporate, as appropriate, multi-stakeholder engagement, dialogue, co-production and participatory approaches on people-centered risk-informed early warning systems in the process to design and implement projects, aligned with good practices and principles.
14. Draw on people-centered expertise within and beyond IP institutions to support the design and implementation process, including but not limited to expertise among relevant local and national organisations, such as the National Societies of the Red Cross and Red Crescent and others with presence and capacity in the project areas.
15. Review, as required, internal procedures to better enable projects to partner with and transfer funds to, local and expert institutions to lead participatory, inclusive and collaborative people-centered risk-informed processes and empower locally led decisions.
16. Ensure people centered approaches, activities and outcomes are effectively included in monitoring, progress reporting, reviews and evaluations of the CREWS funded operations, linked to the CREWS Monitoring and Evaluation (M&E) framework and Operational Procedure.
17. Include people-centered risk-informed aspects in the project logframe, theory of change processes and monitoring plans, including measurable indicators, baselines and quality assurance mechanisms, in line with this OP and updated templates for project proposals, monitoring frameworks and progress reports. This may include testing the logframe against people centered risk-informed principles and developing multi-stakeholder feedback, monitoring and learning systems which track people centred engagement, early actions taken and their impact at project inception phase.
18. Apply people-centered risk-informed approaches in both national and regional projects and in projects that focus on one of the four early warning system elements, or more than one element.

Part B Measuring progress in applying people centered risk informed early warning systems in CREWS

1. The measure of success of people centered risk informed early warning systems is seen in effective early action being taken by those affected, responders and local organisations and resultant savings and reduced losses in lives, livelihoods and assets. Such measurement can be challenging particularly when a project engages in only one or two of the early warning system elements. This section attempts to unpack what and how to monitor implementation and impact of a people centered risk informed approach to early warning systems in the context of the current status of monitoring in CREWS.
2. CREWS has an approved [Operational Procedures Note N° 2 Monitoring and Evaluation](#) (M&E) which allows for iterative development of more detailed guidance, approaches and tools. The CREWS Results Monitoring Framework presents CREWS Objective, Final Outcomes, Intermediate Outcomes and Outputs for national, regional and global scale projects. The Framework is endorsed in the Monitoring and Evaluation Operational Procedure and the CREWS Operational Plan for 2021 to 2025, which also includes a set of proposed CREWS Core Programming Indicators linked to high level outputs and outcomes.
3. In 2020, a WMO internal audit of the CREWS Initiative recommended developing programme indicators to reflect progress across the portfolio of projects to be included in an integrated Results-Based Management System that is aligned with global indicators (SDGs and Sendai).
4. The CREWS core programme indicators, include the following metrics of relevance:

of people living in areas covered by hazard forecasts and warnings for a given hazard

of at-risk people accessing early warning systems and services through their preferred channels

of projects which apply the CREWS Operational Procedure Note No 3 for Gender-Sensitive Programming to the project cycle (programming, operations, M&E)

of LDCs and SIDS that have generated risk information to enhance the early warning system

The core programme indicators, that are designed to be measured on a continuous basis across the portfolio of CREWS projects, did not include indicators regarding the timeliness and effectiveness of early actions taken by people and institutions following the issuance of a warning, as the case can be made that this is best measured on a case-by-case basis, through after disaster action surveys.

5. Also in 2020, the CREWS Steering Committee approved funding to WMO and UNDRR to consolidate the methodologies for measuring the effectiveness and success of early warning systems, in line with current practices of countries, the related Sendai Targets A and G and the Multi-Hazard Early Warning Checklist. LDCs and SIDS will benefit from trainings on how to measure the performance of their early warning systems and report against the Sendai Targets. CREWS aims to use the outcome to also guide its own progress measurement.
6. Implementation of the 2021 to 2025 CREWS Operational Plan (which builds on the six components of its value proposition and recognizes that M&E systems need further development), is an opportunity to consolidate indicators, include targets and baselines and develop and/or test methodologies to enable the measurement of progress and impact in relation to people centered early warning systems.

7. These Operational Procedures make the following recommendations for incorporating measurement of people centered risk informed early warning systems into CREWS operations at all levels. They build on methodological work done to date and are intended to be integrated in the revised M&E framework and custom indicators for CREWS projects and programmes and updated Operational Procedures No 2 on M&E.

7.1 Recommendations for methods and indicators to measure the success of people-centred risk-informed early warning systems.

The Implementing Partners, through their respective systems and the CREWS Initiative overall should consider aligning and strengthening their M&E Frameworks and results-based management system over time with respect to people- centered risk-informed early warning systems, drawing on the most relevant and effective methods from the following list:

- tracking and documentation of the links between CREWS project implementation of different early warning system elements and the ultimate early actions taken by people most at risk, local organisations and institutions.
- indicators and methods to measure perceptions of risk and of value / effectiveness of early warning products and tools by people most at risk.
- strengthening and standardizing indicators and methods for measuring coverage, reach, access, communication, understanding, trust and interpretation of early warnings, effectiveness, reliability and timing of predictions.
- indicators and methods for measuring the use of early warning systems, changes in behaviour as a result, benefits gained through early actions and the impact of these actions on the lives and activities of different at-risk groups.
- tracking and documentation of stakeholder engagement and participation in the design, decision making, delivery and monitoring of people centered risk informed early warning systems and of implementation of agreed roles by different actors, including different vulnerable groups and institutions. This will include monitoring changes in access and barriers to participation, feedback and two-way communications by different targeted people at risk.
- tracking and documentation of changes in early warning system governance, capacity and the implementation of all relevant early warning system elements with respect to involvement of people and institutions affected at different levels and locations.
- use of qualitative as well as quantitative indicators and methods and disaggregated data (gender, age, disability¹, vulnerability etc) for measurement of change, including by the recipients of early warning systems, to understand the drivers and barriers to success as well as scale of disproportionate impact for different vulnerable groups.
- establish baselines for each of the above parameters at the start of projects, including disaggregation by gender, age and disability.

¹ For example using internationally validated methodology such as the Washington Group questions: <https://www.washingtongroup-disability.com/>, with inclusion of physical, environmental, information and communication and attitudinal barriers (in accordance with the UN Convention on the Rights of Persons with Disabilities).

- Conduct mid-term, end-term and post-project evaluations to assess sustainability of people centered approaches in design, implementation and monitoring and evaluation systems in continued post project early warning systems, integrated into the project budget and workplans.

7.2 Recommendations for developing and using Monitoring and Evaluation approaches and tools that support people centered risk informed early warning systems.

Implementing Partners through their respective systems and the CREWS initiative should consider and draw incrementally from the following list to strengthen the people-centered aspect of project M&E and continuing M&E of early warning systems during and beyond the project:

- Include participation, as relevant to the project context, by people at risk, local actors and / or project partners in agreeing to the specific measures of success, the design of M&E systems and indicators and agreement on common standards, tailored to context and with integration of relevant local knowledge. This may include their feedback on effectiveness and value of their participation and the approaches used to include them.
 - Explore and test interactive and multi-stakeholder and community-based systems for people-centered monitoring, evaluation, accountability and learning, for example: use of outcome mapping, most significant change approaches, monitoring change in people's perceptions of risk and triggers for action, including access to and ability to act on early warnings, in vulnerability assessments and baselines. Employ household surveys, focus groups, key informant interviews at baseline, midline and endline. Refer to monitoring and evaluation approaches, for example by the [Monitoring & Evaluation framework for the InsuResilience Global Partnership, REAP Framework for Action](#) (2021) and broader M&E systems such as [NAP Global Network](#) support to national adaptation policies and plans.
 - Establish and sustain feedback mechanisms or two-way communication systems for affected people to share monitoring information on their access, hazards considered, timing of access, early action and impacts of early warning systems with early warning system providers and intermediaries at all timescales including how they are integrated with regular forecasts and climate services. Use of innovation in digital applications, social media and mobile phone use for crowd sourced data collection and feedback can enable this at scale.
 - Sustain support to countries and partners on what and how to measure early warning effectiveness and people's participation in the systems, for example, include M&E and learning systems in national plans, strategies, National Frameworks for Climate Services (NFCs) and standard operating procedures (SOPs) and implement systematic (after-action) reviews on early warning effectiveness following warnings of a certain level. These can be linked to national government monitoring against the Sendai Framework Targets and more broadly the Sustainable Development Goals (SDGs), National Adaptation Plans (NAPs) and National Determined Contributions (NDCs)
 - Create and resource opportunities for joint learning among all actors – including people and institutions providing, receiving and using early warning systems and /or peer-to-peer and cross project learning.
8. The recommendations in point 7 will be reviewed by the Steering Committee and integrated as agreed into the CREWS M&E Operational Procedure and M&E and reporting framework.