



PEOPLE CENTERED EARLY WARNING SYSTEMS:

LEARNING FROM NATIONAL RED CROSS AND RED CRESCENT SOCIETIES



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CONTENT

ACKNOWLEDGMENTS	6
EXECUTIVE SUMMARY	7
ABBREVIATIONS AND ACRONYMS	9
BACKGROUND	11
OBJECTIVE	11
METHODOLOGY	12
LIMITATIONS OF REPORT	12
KEY TERMINOLOGY	13
Early Warning System (EWS)	13
Community EWS (CEWS)	13
Early warning early action (EWEA)	13
Forecast-based Action (FbA)	13
Forecast-based Financing (FbF)	13
Impact based forecasting	13
INTRODUCTION	14
The International Federation of the Red Cross and Red Crescent Societies (IFRC)	14
<i>Role of Red Cross Red Crescent Climate Centre (RCCC)</i>	15
IFRC's Policies, Strategies and Tools that focus on or link with Early Warning Systems	16
Placing People at the Centre	16
<i>Protection, Gender and Inclusion</i>	17
National Red Cross and Red Crescent Societies	17
Auxiliary Status	17
NEPAL	18
Country overview	18
Institutional and legislative context for disaster risk management	18
Nepal's early warning systems	19
Nepal Red Cross capacity and auxiliary role	20
<i>Figure 1 – Early warning system governance arrangements under the new federal system.</i>	21
Nepal Red Cross' previous / current early warning systems and FbF work	22
<i>Metrics in place</i>	25
<i>Linking with CREWS projects</i>	25
Conclusions	25
PACIFIC REGION	26
Regional overview	26
The Pacific's early warning systems	26
Pacific National Societies' capacities and auxiliary role	27
Institutional and legislative context for disaster risk management	30
Pacific countries' National Red Cross Societies previous / current early warning system and FbF work	30
<i>Linking with CREWS</i>	33
Conclusions	33

MALAWI	35
Country overview	35
Malawi's early warning systems	35
Malawi Red Cross' (MRCS) capacity and auxiliary role	36
Institutional and legislative context for disaster risk management	36
<i>Figure 2 - Malawi's disaster management institutional structures at different levels and MRCS's role</i>	37
<i>Malawi Red Cross' previous / current early warning systems and FbF work</i>	38
<i>Metrics in place</i>	39
Linking with CREWS	39
Conclusion	40
OVERALL CONCLUSION	41
RECOMMENDATIONS	43
How IFRC / RCCC / National Societies can contribute to CREWS and other early warning system projects	43
National Societies' possible contribution to early warning systems and FbF at local level (sub-national level including local government & communities)	43
National Societies possible contribution to early warning systems and FbF at National level	44
IFRC and RCCC possible contribution to early warning systems and FbF	44
ANNEX 1 - IFRC EARLY WARNING SYSTEM APPROACHES	46
<i>Figure 3 – IFRC's Key Early Warning System</i>	46
<i>Figure 4 –IFRC's Early Warning Systems Framework.</i>	47
IFRC's Early Warning System Cross-Cutting Themes	47
<i>Figure 5 – IFRC's Early Warning System Cross Cutting themes</i>	47
ANNEX 2 - IFRC'S POLICIES, STRATEGIES AND TOOLS THAT FOCUS AND/OR LINK TO EARLY WARNING SYSTEMS AND FbF	48
ANNEX 3 – KEY INFORMANT INTERVIEWS	50
ANNEX 4 - GLOBAL EXAMPLES IFRC'S AND NATIONAL SOCIETIES' GOOD PRACTICES	51
Local level - National Societies' early warning systems and FbF work	51
National level - National Societies' early warning systems and FbF work	52
Regional level - National Societies' early warning systems and FbF work	52
ANNEX 5 – BIBLIOGRAPHY	53
ANNEX 6 – TERMS OF REFERENCE	58

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EXECUTIVE SUMMARY

The Climate Risk and Early Warning Systems Initiative (CREWS) is a financial mechanism that funds Least Developed Countries (LDC) and Small Island Developing States (SIDS) risk informed early warning services. CREWS is implemented by three partners: the World Bank and its Global Facility for Disaster Reduction and Recovery (GFDRR), the World Meteorological Organization (WMO) and the United Nations Office for Disaster Risk Reduction (UNDRR).

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the largest humanitarian network in the world. It aims to build coherence between the humanitarian, development and climate change agenda whilst promoting and implementing integrated risk management approaches, including early warning systems at the national and local level.

At the 11th meeting of the CREWS Steering Committee, it invited the CREWS Secretariat to investigate the added value of partnering with the IFRC in future CREWS projects – specifically, how the IFRC can support CREWS to move towards a stronger operational focus on people-centred early warning systems.

This report studies the IFRC and National Red Cross and Red Crescent Societies' (National Societies) on-going work linked to people-centred early warning systems, anticipatory action, and forecast-based financing (FbF) approaches.

Section 1 provides an overview of the purpose and methodology for the report, along with the terminology and basis for the IFRC and National Societies' work related to people centred early warning systems, anticipatory action and FbF. The IFRC has a wide range of relevant policies, strategies and tools, including innovative platforms to scale up rapid sharing of actionable information in local languages (targeting different audiences within communities). It is advancing an end-to-end approach to early warning systems and promoting initiatives such as the Common Alerting Protocol (CAP). It also boasts of an extensive network which is comprised of a combination of actors playing at all levels from community/local/national/regional and global levels possessing a diverse range of expertise from scientific, programmatic, stakeholders engagement and implementation.

Section 2 explores the current and on-going roles of IFRC, the Red Cross Red Crescent Climate Centre (RCCC) and National Societies in Nepal, Malawi and the Pacific (including Solomon Islands and Palau) in early warning systems and FbF. This includes a contextual analysis of the country and regional hazards, and broader disaster risk governance of each respective country, along with the unique auxiliary role each National Society plays.

In Nepal, the role of the Nepal Red Cross Society (NRCS) as an auxiliary to government and its membership to all levels of disaster management committees, as well as its depth of connection with communities through its network of volunteers, could be maximized to enhance people-centred early warning systems. The importance of people-centred early warning is embedded in NRCS' strategies and policies and it has capacities to enable the connection with community-based disaster risk management and/or security programmes. With additional institutional support, the NRCS could expand its role as a key interlocutor with communities and local government in early warning systems.

The National Societies in the Pacific Region are seen as playing an important role in preparing and activating early warning systems, including maintaining the link between upstream and 'last mile' components of engaging communities. To expand this pivotal role, institutional strengthening of National Societies is necessary.

The Malawi Red Cross Society (MRCS) is well positioned with its unique interlocutor role between community and government to expand and strengthen its coordination remit at the national and sub-national level and continue to play a key interlocutor role between community, sub-national and national levels, as it continues to advocate for people-centred approaches. Further strengthening of the MRCS systems to tailor early action messages and report on the impact of early warning systems/forecast-based forecasting is necessary to institutionalize and expand support on early warning and FbF.

Section 3 makes recommendations of the roles that National Societies, IFRC and RCCC are able to play in terms of enhancing early warning systems and, more recently, implementing FbF approaches. These roles vary between countries and regions and are heavily influenced by the governments and National Societies' capacities and resources. It was clear from the case studies that engaging the IFRC network in CREWS projects would facilitate a closer connection between the "last mile" and the "first mile" early warning systems, a key link between early warning and early action at the ground level. The unique breadth and depth of work and partnerships covered by the IFRC network, along with its long-term engagement at the national and community levels, are important elements for scaling up early warning systems in the most vulnerable communities. It is important to acknowledge that in order for the IFRC network, including RCCC and National Societies, to undertake these roles, continued investment in the institutional strengthening is needed to ensure their readiness and ability to sustain their support in the development and maintenance of people-centred early warning systems.



ABBREVIATIONS AND ACRONYMS

BDRCS	Bangladesh Red Crescent Society
CBDRM	Community-Based Disaster Risk Management
CCA	Climate Change Adaptation
CCST	Country Cluster Team (IFRC)
CEWS	Community Early Warning System
CREWS	Climate Risk and Early Warning Systems Initiative
DFAT	Department of Foreign Affairs and Trade (Australia)
DHM	Department of Hydrology and Meteorology (Nepal)
DREF	IFRC's Disaster Relief Emergency Fund
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EOC	Emergency Operations Centre
EPoA	Emergency Plan of Action
EWEA	Early Warning Early Action
EWS	Early Warning System
FAO	Food and Agriculture Organization of the United Nations
FbF	Forecast-based Financing
FbA	Forecast-based Action
FINPAC	Finnish-Pacific Project
GCF	Green Climate Fund
GFDRR	Global Facility for Disaster Reduction and Recovery
ICIMOD	International Centre for Integrated Mountain Development
IFRC	International Federation of Red Cross and Red Crescent Societies
INGO	International Non-Governmental Organization
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Countries
MFAT	Ministry of Federal Affairs and Trade (New Zealand)
MoFAGA	Ministry of Federal Affairs and General Administration (Nepal)
MRCS	Malawi Red Cross Society
NGO	Non-Governmental Organization
NRCS	Nepal Red Cross Society
NS	National Red Cross / Red Crescent Society
PGI	Protection, Gender and Inclusion
PNS	Partner National Societies
PRCS	Palau Red Cross Society
RCCC	Red Cross Red Crescent Climate Centre
SDGs	Sustainable Development Goals

SIDS	Small Island Developing States
SIRC	Solomon Islands Red Cross Society
SGBV	Sexual and Gender Based Violence
SPREP	Secretariat of the Pacific Regional Environment Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organization

BACKGROUND

The Climate Risk and Early Warning Systems Initiative (CREWS) was launched by five countries at UNFCCC COP21 in December 2015. Since then, three additional countries have joined and are contributing to the Trust Fund. As of the end of 2020, 57 vulnerable countries benefit from CREWS country and regional projects, supported by 14 country / regional projects with approximately \$60 million USD committed. CREWS measures its progress against a results based framework of six national-level outputs¹, a regional-level output² and a global-level output.

The CREWS Operational Plan 2021–2025 calls for a stronger operational emphasis on developing early warning services that are people-centred and related operational procedures to guide future investments. The findings of this report are expected to contribute to this operational plan and procedures.

The CREWS Steering Committee at its 11th Meeting invited the CREWS Secretariat to investigate the added value of partnering with the International Federation of Red Cross and Red Crescent Societies (IFRC) in future CREWS projects – specifically, how the IFRC can support CREWS to move towards a stronger operational focus on people-centred early warning systems.

CREWS is also developing a compilation of country practices related to operationalizing early warning systems in LDCs and SIDS focused on impact-based early warning systems. The enclosed country case studies will also contribute to this compilation.

OBJECTIVE

The objective of the report is to investigate the IFRC's and National Red Cross and Red Crescent Societies' (National Societies) on-going commitment to people-centred early warning systems approaches, along with anticipatory action and Forecast based Financing (FbF). The report will document examples of existing IFRC and National Societies' work, with a focus on Malawi, Nepal and the Pacific region (Solomon Islands and the Republic of Palau). The report will, in turn, contribute to a body of evidence, identifying the opportunities and benefits of engaging, through the IFRC, in CREWS projects more systematically, including as part of the project design phase.

1 Output 1: Hydrometeorological service delivery improved

Output 2: Risk information generated for impact-based forecasts and early warnings

Output 3: Information and communication technology strengthened

Output 4: Preparedness and response plans strengthened and accessible

Output 5: Awareness on early warning improved

Output 6: Gender-sensitive capacity-building programmes initiated

World Meteorological Organization. (2019). *CREWS Report Series Annual Report 3 – 2019: Accelerating Life-saving Action, Maximizing Finance Effectiveness Climate Risk and Early Warning Systems for Least Developed Countries and Small Island Developing States.*

2 Regional Output: Regional capacities for early warning strengthened.

World Meteorological Organization. (2019). *CREWS Report Series Annual Report 3 – 2019: Accelerating Life-saving Action, Maximizing Finance Effectiveness Climate Risk and Early Warning Systems for Least Developed Countries and Small Island Developing States.*

METHODOLOGY

The report endeavours to highlight the extensive work on early warning systems undertaken by the IFRC, including the Red Cross Red Crescent Climate Centre (RCCC), National Societies and Partner National Societies (PNS), and how this work and expertise could benefit CREWS projects. Drawing conclusions based on the analysis of existing studies and materials, supplemented by information obtained through key informant interviews.

Previous foundational work of the IFRC that was reviewed as part of the report includes:

- IFRC (2012) *Community Early Warning System: Guiding Principles* - which outlines the four interconnected elements of all IFRC / National Society supported early warning systems work, as well as guidance on 13 cross cutting themes (see Annex 1).³
- IFRC (2014) *Community Early Warning Systems Training Toolkit – Field Guide*: a step by step guide for National Societies to identify possible early warning systems needs and how to work with communities.
- IFRC (2021) *Connections between National Society Preparedness for Effective Response and Forecast-based Financing*.

The methodology for the report therefore comprised of the following:

- Review of the above materials.
- Desktop study of other relevant IFRC and their National Societies policies, tools and operational documents, as well as CREWS initiatives (see Annex 2).
- Review of over 80 documents of secondary research and operational reports on early warning systems and FbF in Malawi, Nepal and the Pacific (with a specific focus on The Republic of Palau and the Solomon Islands).
- Interviews with 29 key internal and external stakeholders referred to as *EWS Survey* (see Annex 3 for a list of identified stakeholders).

LIMITATIONS OF REPORT

This report seeks to highlight some of the key opportunities and challenges faced by the IFRC, National Societies and communities it works with through specific examples and case studies. It is not intended to provide a comprehensive analysis of all early warning systems, Early Warning and Early Actions (EWEA) and Forecast-based Financing (FbF) work that the IFRC and their National Societies currently contribute to. The case studies offer an overview of existing initiatives in select countries, but is not representative of all the EWEA and FbF work within the IFRC network.

³ IFRC. (2012). *Community Early Warning System: Guiding Principles*.

KEY TERMINOLOGY

To ensure there is agreement on the subjects central to the report, such as early warning system, the key terminology is outlined below.

Early Warning System (EWS)

*An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events.*⁴

Community EWS (CEWS)

*CEWS is understood to be an effort by or with, but not for, a community to systematically collect, compile and/or analyse information that enables the dissemination of warning messages that when actionable can help the community (or others 'downstream') reduce harm or loss from a hazard (or threat) event (or process).*⁵

Early warning early action (EWEA)

*Early Warning, Early Action refers to "routinely taking humanitarian action before a disaster or health emergency happens, making full use of scientific information on all timescales."*⁶

Forecast-based Action (FbA)

*The practical manifestation of 'early warning early action' is Forecast-based action (FbA) mechanisms that initiate early actions when a forecast event surpasses a pre-determined magnitude and probability.*⁷

Forecast-based Financing (FbF)

*Forecast-based Financing (FbF) enables access to humanitarian funding for early action based on in depth forecast information and risk analysis.*⁸

Impact based forecasting

*Impact-based forecasting enables anticipatory actions and revolutionizes responses to weather and climate crises: turning forecasts and warnings from descriptions of what the weather will be into assessments of what the weather will do enables organizations and individuals across the world to anticipate and take action to mitigate the impacts brought by weather and climate events.*⁹

4 UNISDR. (2017). *Terminology on disaster risk reduction*.

5 IFRC. (2012). *Community Early Warning System: Guiding Principles*, p14.

6 IFRC. (2008). *Early Warning Early Action*, p1.

7 IFRC. (2020). *The Checklist on Law and Disaster Preparedness and Response*.

8 IFRC. (2019). *What is Forecast based Financing?*

9 IFRC and UK Met Office. (Date). *The Future of Forecasts: Impact-based Forecasting for Early Action*.

INTRODUCTION

Over the last two decades, great strides have been made in early warning systems, driven by global agreements such as the Hyogo Framework for Action and the subsequent Sendai Framework for Disaster Risk Reduction (Target A, B, and G), the Paris Agreement on Climate Change and Sustainable Development Goals (SDGs) (Targets 1.5 and 3.D).¹⁰ All these global agreements advocate for more people-centred approaches, however the literature reviewed on early warning systems identifies the link between forecast information and communities taking early action requires considerable attention.¹¹

From these initiatives, mechanisms to support the establishment and strengthening of early warning systems have been developed, including the CREWS initiative. However, despite significant investment in climate change adaptation and mitigation initiatives, the latest IPCC reports observe that the impacts of climate change continue to grow. In part due to the increased frequency and intensity of extreme weather events that continue to undermine livelihoods of the most vulnerable people and communities.¹²

THE INTERNATIONAL FEDERATION OF THE RED CROSS AND RED CRESCENT SOCIETIES (IFRC)

The IFRC has a mandate to coordinate and support the development and strengthening of the global network of 192 Red Cross and Red Crescent National Societies. This includes 165,000 local branches and over 11 million volunteers, who together make up the global reach and local presence in IFRC's development and humanitarian work.¹³ As the largest humanitarian network in the world, the IFRC aims to build coherence between the humanitarian, development and climate change agendas whilst promoting and implementing integrated risk management approaches at the national and local level.

IFRC views people centred approaches as essential to ensuring information and warnings reach the most vulnerable communities, who can then act on them.¹⁴ The IFRC recognises that communities are the first responders in protecting themselves and vulnerable people. The IFRC has a wide range of relevant policies, strategies and tools, including innovative platforms to scale up rapid sharing of actionable information in local languages (targeting different audiences within communities). It is advancing an end-to-end approach to early warning systems and promoting initiatives such as the Common Alerting Protocol (CAP). IFRC has established and rolled out tools such as the Roadmap to Community Resilience and the Enhanced Vulnerability and Capacity Assessment tools to support this work and further improve the application of risk information and knowledge in scaling-up climate-smart, community-led action and to strengthen National Society's engagement.

It has established a strong network of global partners, with engagements within the wider humanitarian sector and cross-sector initiatives with government, academe and private sector.

One such initiative is the Risk-informed Early Action Partnership (REAP), a partnership initiated at the 2019 Climate Action Summit, bringing together stakeholders from the climate, development and humanitarian communities to drive a transformational shift to anticipatory action, connected to longer term risk management and climate change adaptation. The IFRC is both the Host of the REAP, and a board member.

IFRC also has other partnerships to collaborate on learning, quality assurance, advocacy and development of innovative solutions in disaster risk financing including with the World Bank Disaster Risk Financing and Insurance Programme, Centre for Disaster Protection and InsuResilience Global Partnership.

10 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

11 Wilkinson, E., Weingartner, L., Choularton, R., Bailey, M., Todd, M., Kniveton, D. & Cabot Venton, C. (2018). *Forecasting hazards, averting disasters: Implementing forecast-based early action at scale* (Overseas Development Institute).

12 IFRC, Danish Red Cross, Red Cross Red Crescent Climate Centre. (2016). *The added value of Red Cross Red Crescent National Societies in the development of National Adaptation Plans*.

13 IFRC. (2015). *Global Review on Volunteering*.

14 IFRC/ (2012). *Community Early Warning System: Guiding Principles*.



Scaling up of climate action is an absolute priority for IFRC. With predictions becoming a reality, in relation to the impacts of climate change, the unprecedented numbers and needs for migrants and displaced people and public health crises, the need to act now is more urgent than ever before.

Early warning and early action (EWEA) efforts are integrated in the IFRC network's wider disaster risk management work. Each of the components of the network – i.e., the IFRC Secretariat including Headquarters, Regional and Country Cluster teams, National Societies and the RCCC – perform a unique role in close partnership with each other.

As the Secretariat for 192 National Societies worldwide, IFRC supports National Societies to scale up their climate- and disaster risk reduction (DRR)-related activities and programmes, providing leadership, technical assistance, peer-to-peer exchange, knowledge management, coordination and project management support. The IFRC Secretariat provides, legislative advocacy support and mobilizes critical resources to reduce and meet the unprecedented needs through National Societies. IFRC also enhances approaches and tools to scale up climate-smart DRR efforts worldwide and strengthen the capacity and performance of National Societies.

National Societies, through their chapter and local branches and as auxiliaries to their government are able to directly engage local governments and communities to implement early warning and early action. National Societies drive local solutions to local needs. National Societies can strengthen existing national early warning systems, linking them appropriately to end users through community early warning systems, and solidifying connections between early warning systems and FbF.

In parallel, at the local level, National Societies can support community based early warning systems to enable Red Cross and Red Crescent volunteers to take an active role in monitoring risks that impact their communities. This approach provides the opportunity to both issue and respond to warnings that arise from local monitoring, especially for remote communities or where national early warning systems are undeveloped and unable to reach all at-risk areas. Such a people-centred approach is essential to ensure that warnings reach the most vulnerable communities, that they are easy to understand, and that early action is taken

Role of Red Cross Red Crescent Climate Centre (RCCC)

The RCCC's mission, as one of the IFRC reference centres, is to help the Red Cross and Red Crescent Movement and its partners reduce the impacts of climate change and extreme weather events on vulnerable people. The RCCC was established by Netherlands Red Cross (NLRC) and the IFRC in 2002 and has staff dispersed in all regions to support IFRC and partners.

In pursuing its mission, RCCC brokers science, policy, practice and innovation and provides support to National Societies in their efforts to implement the **Movement Ambitions to Address the Climate Crisis**. It supports technical capacities and provides strategic knowledge and advice on climate action and climate-smart programming. Among other services, RCCC:

- provides guidance and tools to National Societies and their partners to make their programming 'climate-smart'; this includes offering a range of training materials and facilitating engaging (virtual) capacity building sessions and policy dialogue events
- Assists National Societies to collaborate on enhancing accessibility and usability of climate information enabling early action across timescales and supports with awareness raising efforts
- Conducts research into climate science to strengthen humanitarian action and policies
- Provides technical assistance and develops participatory methods to link climate information and humanitarian operations
- Contributes to policy, law and investments dialogues by drawing on both practical experience and scientific research; this includes support to the Movement's statutory meetings and processes to promote climate risk management as an area of focus.
- Advocates in climate policy forums on behalf of the most vulnerable and supports in country policy dialogues

RCCC works on applying scientific weather and climate forecasts to help predict potential disaster and long-term change. This enables humanitarian organizations and vulnerable people to respond sooner, and to prepare for changing risk patterns to reduce the loss of lives and livelihoods.

The RCCC teams in the regions coordinates and collaborates with the IFRC teams to provide specific climate-related scientific analysis and technical advice and FbF programme support to National Societies and their partners. Both teams work together in building national and local early warning early action and FbF capacities of National Societies where there are gaps. The RCCC also has a wealth of expertise and experience in FbF from which it draws lessons to assist National Societies.¹⁵



15 IFRC, Danish Red Cross, Red Cross Red Crescent Climate Centre. (2016). *The added value of Red Cross Red Crescent National Societies in the development of National Adaptation Plans*.

IFRC'S POLICIES, STRATEGIES AND TOOLS THAT FOCUS ON OR LINK WITH EARLY WARNING SYSTEMS

Since 2006 the IFRC has developed a range of policies and strategies to support National Societies with early warning systems, early warning early action and FbF (see Annex 1 for a summary of IFRC's history and how it places early warning systems as a strategic priority).

IFRC's Early Warning System Framework strongly recommends, based on previous learning and best practices, that early warning systems at any level link into and build on other disaster risk reduction/management, resilience or climate change adaptation/mitigation efforts.¹⁶ Therefore the IFRC integrates its early warning systems work into four existing organizational and programme areas: resilience, disaster risk reduction and climate change adaptation, disaster preparedness and disaster response. Annex 2 summarizes IFRC's key policies, strategies and tools from these four programmatic areas that also focus on or link with early warning systems.

Placing People at the Centre

The Grand Bargain was one of the outcomes of the World Humanitarian Summit in May 2016. It is an agreement between some of the largest humanitarian donors and agencies, including the IFRC. Signatories to the Grand Bargain made commitments, among others, to increasing the localization of humanitarian and where possible development aid. Since then, the IFRC together with Switzerland have been the co-convenors of the Localisation Workstream to increase resources, including capacity development, to national and local responders.¹⁷

IFRC's Strategy 2030 proposes an urgent shift of leadership and decision making to the most local level — placing communities at the very centre of change. These commitments have renewed importance in the context of a broader, global shift among donors, policymakers, and practitioners towards increased participation of affected populations in the humanitarian sector. IFRC Strategy 2030 recognizes that **building trust and accountability with communities is one of the seven key transformations needed to rise to existing and emerging global challenges such as climate change, increased disasters triggered by natural hazards, migration and epidemics.**¹⁸

IFRC views people-centred approaches as essential to ensuring information and warnings reach the most vulnerable communities, who can then act on them.¹⁹ The IFRC recognizes that communities are the first responders in protecting themselves and vulnerable people. IFRC has established and rolled out tools such as the Roadmap to Community Resilience and the Enhanced Vulnerability and Capacity Assessment tools to support this work and further improve the application of risk information and knowledge in scaling-up climate-smart, community-led action and to strengthen National Societies' engagement.²⁰

Protection, Gender and Inclusion

The IFRC and National Societies have committed to integrating protection, gender and inclusion throughout their institutions, programmes and operations, and advocacy.²¹ Building on IFRC's *Strategic Framework on Gender and Diversity Issues 2013-2020*, the IFRC's forthcoming 2021 Protection, Gender and Inclusion policy aims to ensure a dynamic approach that promotes the incorporation of gender and diversity as the foundation for all action to be safe and inclusive. This policy sets out the IFRC's collective understandings and commitments to protection, gender and diversity, and inclusion. In addition, specific strategies, frameworks and tools are to be developed to support implementation.

16 IFRC. (2012). *Community Early Warning System: Guiding Principles*.

17 IFRC. (2018). *Localization Policy Brief*.

18 IFRC. (2019). *Closing the Gap: A strategy to strengthen community engagement and accountability in Africa 2020-2023*.

19 IFRC. (2012). *Community Early Warning System: Guiding Principles*.

20 IFRC. (2019). *Asia Pacific Region Strategic Plan*.

21 See for example: IFRC Strategic Framework on Gender and Diversity Issues 2013-2020, and IFRC Minimum Standard Commitments to Gender and Diversity.

NATIONAL RED CROSS AND RED CRESCENT SOCIETIES

National Societies bring a strong understanding of the operational and cultural context, as well as a wealth of connections to local communities and authorities through their network of community-based volunteers, members, staff and branches. This network provides proximity to and acceptance from communities of the National Society and its services throughout a country.

Auxiliary Status

National Societies have a unique status as a legally recognized auxiliary to their governments for humanitarian assistance. This extraordinary auxiliary relationship with States is reflected in international law through the Geneva Conventions of 1949, as well as its legal and governance structure. Each National Society is established by national law and occupies the position of “auxiliary to the public authorities in the humanitarian field”, as reflected in the Statutes of the Red Cross Movement.²² This auxiliary role is described as:

“a specific and distinctive partnership, entailing mutual responsibilities and benefits, based on international and national laws, in which the national public authorities and the National Society agree on the areas in which the National Society supplements or substitutes public humanitarian services.”²³

National Societies use their auxiliary status to act as an interlocutor between communities and governments. Supporting their governments to address both the root causes and humanitarian consequences through action that is community-based and tailored to local needs. For example, as part of different countries’ COVID-19 responses, National Societies existing presence at the national and local levels often resulted in quick action in supporting their Government’s response.

Recent research found **IFRC and their National Societies have supported early warning work in 140 countries over the last decade, with at least 281 early warning system projects.**²⁴ This has involved working with National Hydrometeorological Services, National Disaster Management Agencies, local governments and community end users to agree on early warning system procedures and pre-approved plans to launch forecast based early action for extreme weather events.²⁵

IFRC and National Society’s roles are further explored throughout the case studies and examples from other countries around the world (see annex 4 for further examples).

22 International Red Cross and Red Crescent Movement. (1986). *Statutes of the International Red Cross and Red Crescent Movement*. Adopted by the 25th International Conference of the Red Cross and Red Crescent at Geneva 1986, amended in 1995 and 2006.

23 International Red Cross and Red Crescent Movement. (2007). *Resolution 2*. Adopted by the 30th International Conference of the Red Cross and Red Crescent, 2007.

24 IFRC. (2021). *IFRC: advancing an end-to-end approach to early warning systems. Study report* (unpublished).

25 IFRC & UK Met Office. (2019). *The future of Forecasts: Impact-based forecasting for early action*.

Country overview

Nepal is one of the most disaster-prone countries in South Asia with frequent flooding, landslides, earthquakes and exposure to the negative impacts of a multitude of other hazards that occur annually, including cold and heatwaves.²⁶ Nepal has over 6,000 rivers and rivulets flowing from north to south, with almost 80% of annual precipitation falling during the summer monsoon season (June–September).²⁷ Flooding occurs annually with devastating impacts, with the 2017 floods affecting 35 of the 77 districts, with over 190,000 houses destroyed or partially damaged, displacing thousands of people.²⁸

Nepal is part of the Hindu Kush Himalaya region and is classified as a least developed country on the Human Development Index (HDI) (142 out of possible 189 countries assessed).²⁹

Institutional and legislative context for disaster risk management

The establishment of early warning systems in Nepal began in an ad hoc manner in the early 2000s, with international non-government organizations (INGOs), partnering with the IFRC and Nepal Red Cross Society (NRCS) to establish early warning systems with the Ministry of Environment's Department of Hydrology and Meteorology (DHM).³⁰ In 2009 the National Strategy for Disaster Risk Management identified early warning systems as a priority action, creating a cohesive vision for early warning systems under the leadership of DHM.³¹ The Nepal Risk Reduction Consortium in 2011 subsequently instigated significant up-stream investment in early warning systems through the World Bank, UNDP, ICIMOD and down-stream investment by INGOs (Practical Action, Mercy Corps) and NRCS.³²

Since then, the Disaster Management legal frameworks and institutional arrangements have developed significantly, with several key pieces of legislation coming into effect: Disaster Risk Reduction and Management (DRRM) Act 2074 (2017), the Local Government Operation Act 2074 (2017), along with National Policy for Disaster Risk Reduction 2075 (2018) and Disaster Risk Reduction National Strategic Action Plan 2018-2030.³³ These Acts and frameworks also outline a new National Disaster Risk Reduction Management Authority, as well as priority areas, roles and responsibilities of Government actors, the NRCS and other stakeholders. The *Disaster Risk Reduction National Strategic Action Plan 2018-2030* clearly outlines the government's intentions for the scaling up of early warning systems and exploring the use of FbF:

"flood early warning system needs to be expanded to other major and small river basins. This requires investment in developing, operationalizing and strengthening multi-sectoral impact based, multi-hazard forecasting and early warning system. Multi-hazard early warning system at the federal, province and local levels need to be developed through participatory process, using the information obtained by assessing the social and cultural requirements, particularly the needs of women, elderly persons and children including the requirements of the users."³⁴

Although the Government of Nepal encourages multi-hazard early warning systems, none currently exist.³⁵ Cross over does exist however in the use of NRCS district chapters and volunteers to deliver messages in their role as an interlocutor between local government and communities.

26 Government of Nepal Ministry of Home Affairs. (2019). *Nepal Disaster Report*.

27 Government of Nepal Ministry of Home Affairs. (2019). *Nepal Disaster Report*.

28 Government of Nepal, Ministry of Energy, Water Resources and Irrigation, Department of Hydrology and Meteorology. (2019). *Standard Operating Procedure for Flood Early Warning System in Nepal*.

29 UNDP. (2019). *Human Development Report 2019: Inequalities in Human Development in the 21st Century: Mozambique*.

30 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system; opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

31 Government of Nepal. (2009). *National Strategy for Disaster Risk Management*.

32 IFRC. (2012). *Nepal Risk Reduction Consortium: Flagship 4 Community Based Disaster Risk Reduction: Handbook*.

33 Oxford Policy Management. (2020). *Disaster risk reduction and management in Nepal: Delineation of roles and Responsibilities*.

34 Government of Nepal. (2018). *Disaster Risk Reduction National Strategic Plan of Action 2018-2030*.

35 EWS Survey.

In addition to these dramatic developments in disaster management in Nepal, in 2015 constitutional and governance reforms changed Nepal into a federal structure, with responsibilities for many early warning systems in the process of being devolved to sub national governments. This will include the management of physical infrastructure of hydro-met stations and operating monitoring systems. Many of these newly formed 753 municipal governments (spread across seven new provinces) continue to have very little financial or technical capacity to carry out these roles.³⁶ It's important to note in the new federal structure, DHM only have a couple of non-technical regional personnel and sit outside of sub-national disaster management committees.³⁷ In this transition period, NRCS continues to play a critical role in disaster management at the sub-national level, supporting governments with the technical aspects of disaster and climate management, including early warning systems and FbF.

In 2020, NRCS district chapter in Surkhet (Mid-West Nepal) jointly with Practical Action approached the newly appointed Provincial government, advocating for the inclusion of early warning systems in Provincial and District Emergency Operation Centres (EOCs) and for the allocation of Government budget to fund early warning system work. The Provincial government in return requested NRCS with Practical Action to develop a strategic action plan for early warning systems. This plan is currently in the process of being finalized and will be used to formalize funding for early warning systems by Government.³⁸

Nepal's early warning systems

There are several early warning systems that have been established at the national and sub-national levels for different hazards, with different scopes and scales, including Glacial Lake Outburst Floods (GLOFs), floods, landslides and cold and hot weather. To date there is limited integration of these systems with each other, all of which have largely been project led by bi-lateral and multi-lateral partnerships with the DHM and the Department of Geology. Funding for early warning systems in Nepal is primarily derived from the World Bank, ICIMOD, USAID and the European Union.

DHM's mandate is to monitor all the hydrological and meteorological activities in Nepal and remains responsible for research directorate, technical assistance, high level coordination and monitoring.³⁹ DHM maintains 51 hydrological stations and 282 meteorological stations across the country, which includes the forecasting of hydro meteorological events and possible impacts in advance. There are 27 flood forecasting stations and a number of other community level stations, with upstream communities supplying precautionary information to downstream communities, such as the rise in water levels of the rivers.⁴⁰ This simple 'watch and warn' system for floods in Nepal relies on real-time monitoring of data often by manual gauge readers, with increasingly more sophisticated forecasting from DHM.

Despite IFRC's leadership of the Community-Based Disaster Risk Management (CBDRM) Platform (formerly Flagship 4) and its efforts to gain oversight of the community based early warning system initiatives in Nepal, it is difficult to build a cohesive picture of its community based early warning systems coverage. As community based early warning systems are often not integrated with the national system.⁴¹

In 2018, DHM published their first Standard Operating Procedures (SOP) for the Flood Early Warning System in Nepal, defining the roles and responsibilities of stakeholders. Studies since have shown that there is currently a limited understanding of DHM's SOPs by sub-national level stakeholders.⁴²

36 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

37 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

38 EWS survey.

39 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

40 Nepal Government (2019) *Disaster Report*.

41 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

42 Budmiri et al. (2019). Communicating complex forecasts: an analysis of the approach in Nepal's flood early warning system. *Geoscience Communication*.

DHM acknowledges that although there have been advancements in modelling, hydro-meteorological networks and transmission of information through digital technologies, the ‘last mile’ approaches continue to be limited.⁴³ DHM goes on to identify the primary gaps in the early warning systems relate to research and development, capacity building of human resources, inter-sectoral coordination and connecting with local communities.⁴⁴ The literature suggests that key barriers to Nepal’s early warning systems extend not only to communicating of messages, but access to information, and understanding risk.⁴⁵

FbF in Nepal began approximately seven years ago with the World Food Programme and Practical Action working with DHM to develop capacity at the national and sub-national level.⁴⁶ NRCS with the Danish Red Cross and IFRC have been complementing this work, focusing on the practical implementation of trigger based early action protocols specifically in two districts: Bardiya and Kailali.⁴⁷ In 2019 the Danish Red Cross with the RCCC undertook a FbF feasibility study that outlined the opportunities, creating a road map for FbF in Nepal, specifically on the development and implementation of flood early action protocols within Nepal Red Cross. As part of taking this work forward, a FbF working group has been established to advance and advocate for FbF initiatives in Nepal.

Nepal Red Cross capacity and auxiliary role

Nepal Red Cross was established in 1963 and has an extensive network throughout the country, with a total of 117,617 active volunteers.⁴⁸ NRCS is the only humanitarian organization with an operational presence in all 77 districts (with 77 district chapters).⁴⁹ There is no Red Cross Law in Nepal, however in practice NRCS acts as an auxiliary to national and sub-national governments.

In NRCS’ 7th Development Plan (2016–2020), the organizations guiding strategy, early warning systems are acknowledged as a key thematic area. In addition, Protection, Gender and Inclusion is integrated as a standard component of all of NRCS work, supported by NRCS’ *Protection Gender and Inclusion Mainstreaming Guidelines*. NRCS was recognized for its innovative work on inclusion at the 2018 Asian Ministerial Conference for Disaster Risk Reduction, using a target group approach and social network analysis to reach vulnerable groups in urban communities.⁵⁰

NRCS’ role is articulated in the key Government policies and strategies as a critical stakeholder in disaster risk management and response. Several sources however noted the complication of the lack of Red Cross Law in the last two years with the change of leadership of the country. Sources noted that these issues were not prevalent at the sub national level and had not interfered with the NRCS acting as an implementing partner.⁵¹

NRCS district chapters often act as the implementing partner for not only NRCS, IFRC and PNS, but for INGOs, who recognize the value of the NRCS networks and presence in communities and with local government. Several sources noted that working with NRCS district chapters was part of their sustainability strategy.

| “NRCS staff and volunteers are in the communities long after we leave.”⁵²

43 Department of Hydrology and Meteorology. (2018). *Standard Operating Procedure (SOP) for Flood Early Warning System in Nepal*.

44 Department of Hydrology and Meteorology. (2018). *Standard Operating Procedure (SOP) for Flood Early Warning System in Nepal*.

45 Budmiri et al. (2019). Communicating complex forecasts: an analysis of the approach in Nepal’s flood early warning system. Geoscience Communication

46 Red Cross Climate Centre. (2019). *Nepal Forecast Based Financing Feasibility Study*.

47 Danish Red Cross. (2019). *The benefits of being prepared: impacts, benefits, costs and outlook of disaster risk reduction in Nepal*. Danish Red Cross, Nepal Red Cross Society.

48 IFRC. (2018). *Federation Wide Databank and Reporting System: Nepal Red Cross*.

49 Nepal Red Cross Society. (2017). *Annual Report*.

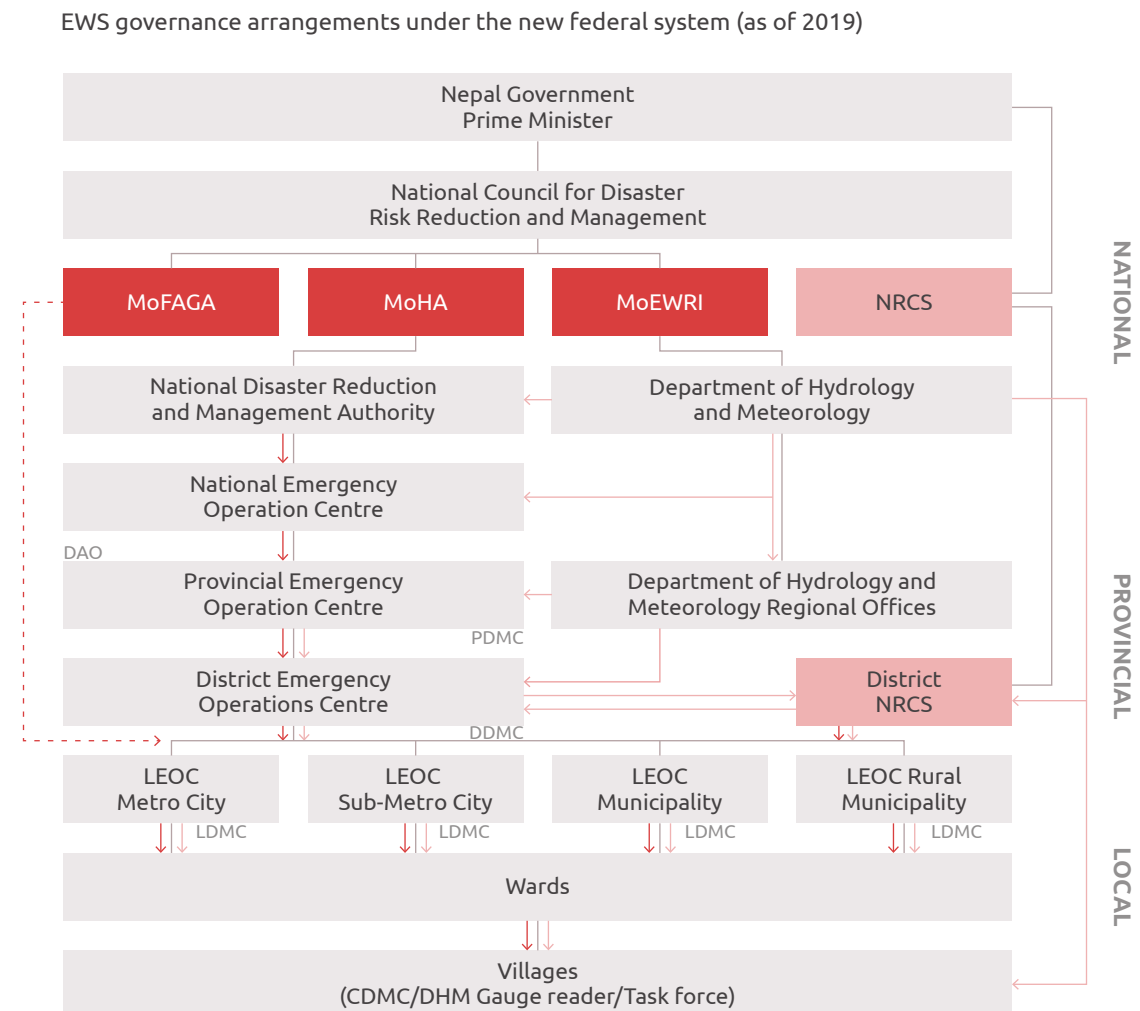
50 Nepal Red Cross and British Red Cross. (2018). *Participatory Campaign Planning for Inclusive DRR Knowledge and Messaging in Nepal*.

51 EWS Survey.

52 EWS Survey.

Several sources observed that the institutional capacity varies greatly across NRCS' 77 district chapters, noting that district chapters who experience regular disasters are well practiced with vulnerability and capacity assessments, early warning system protocol and disaster response. District chapters that have not benefited from external project support over the last decade, often lack vital infrastructure and comprehensive understanding of early warning system forecasting and management systems.

Figure 1 – Early warning system governance arrangements under the new federal system.⁵³



At the National, Provincial, Local and community level, NRCS are recognized as an integral part of early warning systems. Figure 1 outlines its institutional role in key committees' sitting under the National Council for Disaster Risk Reduction and Management, as well as its mandated role in Provincial (PDMC), District (DDMC) and community (CDMC) disaster management committees.

The NRCS Disaster Management Strategy integrates early warning systems into its community-based disaster risk management (CBDRM) work. Practically this means that all CBDRM projects include four basic elements of early warning systems, i.e. risk information, warning communications, response capability and monitoring.

In a recent analysis of early warning systems in Nepal, NRCS was the only organization assessed to be involved in the above four functions of early warning systems.⁵⁴

53 Meechaiya, C., Wilkinson, E., Lovell, E., Brown, S. & Budimir, M. (2019). *The Governance of Nepal's Flood Early Warning system: opportunities under federalism*. BRACED Resilience Intel Paper. London: BRACED.

54 Kafile, SK. (2017). *Disaster Early Warning Systems in Nepal: Institutional and Operational Frameworks*. J Geogr Nat Disast 7: 196.

Although NRCS has worked in over 20 districts on early warning systems there is still significant work to be done to expand the impact of 'last mile' initiatives across the country. With one review of 2017 Flooding noting:

"there is currently limited capacity to understand, interpret, and translate DHM technical forecast information into meaningful actions. Even the flood alerts issued by DHM 24 hours in advance were hardly used by the disaster managers and local governments to support their emergency planning, and there were limited efforts to mobilize resources internally for disaster preparedness."⁵⁵

IFRC in Nepal are the co-lead of the emergency shelter cluster and actively participate in the UN Humanitarian Country Team (HCT). IFRC continues to provide secretariat support to the CBDRM Platform (formerly Flagship 4), chaired by the Ministry of Federal Affairs and General Administration (MOFAGA), in an effort to enhance coordination and standardization of tools for community resilience, including advocating that all CBDRM work in the country connect to early warning systems (as part of its nine minimum characteristics of a disaster resilient community).⁵⁶ NRCS and IFRC as the Secretariat of the CBDRM Platform, have engaged in policy dialogue with various stakeholders and support the dissemination of best practices in community programming, emphasizing the role of local actors in sustaining local development strategies that leave no one behind.⁵⁷ In 2020, IFRC led the development with MOFAGA of a disaster and climate risk management checklist for the new municipal governments - *Municipal Disaster Risk Governance Assessment Tool*. The Tool includes early warning systems and FbF and is in the process of being piloted by NRCS.⁵⁸

The Danish Red Cross have led the institutional development and strengthening of FbF with the NRCS. This has included the development of an internal NRCS Standard Operating Procedure for early warning systems and forecast based financing. In 2018 a Danish funded pilot programme for the monsoon season in one district (Bardiya) was introduced, however the FbF did not trigger instead a simulation exercise was carried out. The exercise was viewed as extremely useful in raising awareness of the benefits of FbF and has led to the development of a FbF mechanism that links Early Action connectivity with the Social Protection system.⁵⁹

Since January 2020 the RCCC and Climate Development Knowledge Network (CDKN) and the UK Met office are supporting NRCS, DHM and NDRRMA, through Asia Regional Resilience to Changing Climate (ARRCC), to pilot impact-based forecasting (IBF) services in Nepal. The programme primarily focuses on delivering new technologies and innovative approaches to help vulnerable communities use weather warnings and forecasts to better prepare for climate related shocks.

Nepal Red Cross' previous / current early warning systems and FbF work

NRCS has been implementing early warning systems as part of community-based disaster management programmes in more than 20 districts of Nepal.⁶⁰ Current FbF work is being undertaken in six districts.

NRCS work at the sub-national level with District chapters and communities has a strong component on risk awareness raising. This includes things like seasonal hazard mapping with vulnerable communities, systematically collecting data through vulnerability and capacity assessment, planned evaluation routes, search and rescue training and first aid training.⁶¹ All disaster preparedness, resilience and response work in NRCS begins with a vulnerability and capacity assessment that involves both community members and synthesising secondary data to inform risks. This information is currently

55 Bhandari, D., Uprety, M., Ghimire, G., Kumal, B., Pokharel L., Khadka P. (2018). *Nepal flood 2017: Wake up call for effective preparedness and response*, Rugby, UK: Practical Action.

56 IFRC. (2012). *Nepal Risk Reduction Consortium: Flagship 4 Community Based Disaster Risk Management Handbook*.

57 IFRC. (2020). *CBDRM platform website*. <https://cbdrplatform.org/>

58 Government of Nepal. (2020). *Municipal Disaster Risk Governance Assessment Tool*.

59 EWS Survey.

60 EWS Survey.

61 Bhandari, D., Uprety, M., Ghimire, G., Kumal, B., Pokharel L., Khadka P. (2018). *Nepal flood 2017: Wake up call for effective preparedness and response*, Rugby, UK: Practical Action.

being digitized in the NRCS' Disaster Information Management System; however, it remains separate from DHM and other Government hazard mapping systems.⁶²

NRCS, with support from the Danish Red Cross and IFRC have made significant improvements in information management systems between national and district levels. This includes the standardized training with the government and deployment of trained personal to support NRCS district chapters and local government prior to and post a disaster through the ACT mechanism. This has included funding of a NRCS staff member to sit in the District EOC to train staff and monitor weather forecasts, to support the activation of early warning systems. Currently this ACT mechanism has only been rolled out to a handful of districts.⁶³

NRCS is renowned for its local response capacity and is mentioned as a key provider of services in the Government's National Disaster Response Framework over 30 times. NRCS' volunteers and staff often serve in local task forces and committees to prepare for and respond to disasters. However, lack of consistent funding across the country places pressure on local NRCS district chapters to meet high expectations set at the national level by Government. For example, due to the severe lack of Government infrastructure and resources during the 2017 Floods in Birtamod, the NRCS district chapter had to stretch its six focal points to cover the entire district, with several communities left without any help.⁶⁴

In Jhapa district, in the south east of the country, prior to the 2017 Flooding the NRCS district chapter had been working with vulnerable communities for several years as part of their CBDRM work. This work involved elements of early warning systems including conducting training on evacuation routes, identifying and constructing safer places, translating warning messages into local languages and working with the local government to relay information quickly to potentially affected communities.

In August 2017, during torrential rain, the NRCS Jhapa district chapter continuously monitored the DHM website for rising river water levels and were in constant contact with the local government. One of the NRCS community team leaders, Ms Khatiwada, called several communities she worked with on Friday 12 August at 9.30pm. Based on the information from DHM website, local government and in conversation with her NRCS district chapter colleagues she asked the people in the community to relocate to the allocated safer place. Approximately 50% of the households moved to pre-identified safer places, but she received several calls around 4am from households who did not receive the message and who's houses were now flooded. Distraught, she informed people that they needed to hold on and wait for light, when she and the local search and rescue team, made up of NRCS staff, volunteers and the local police would assist them. At dawn, leaving her young child with a neighbour, she made her way with the search and rescue team that had been trained as part of the CBDRM work, to the still rising flood waters across from the community. The local search and rescue team cut down banana trees to make a raft, as they had practiced during their NRCS training, to assist people to evacuate from their homes. Fortunately, all the community members were relocated safely. In another area upstream NRCS as part of the Community Disaster Management Committee used bamboo and rope to safely evacuate community members, before distributing relief materials.⁶⁵

62 EWS Survey.

63 Danish Red Cross. (2019). *The benefits of being prepared: impacts, benefits, costs and outlook of disaster risk reduction in Nepal*. Danish Red Cross, Nepal Red Cross Society.

64 Government of Nepal, Ministry of Energy, Water Resources and Irrigation, Department of Hydrology and Meteorology. (2019). *Standard Operating Procedure for Flood Early Warning System in Nepal*.

65 EWS Survey.



*Photo 1- Ms Khatiwada (Nepal Red Cross Society staff) guides NRCS staff, volunteers and community members to evacuate to safety during the 2017 floods.
Source – Nepal Red Cross Society.*

Sources all noted that the NRCS' strong relationships with government, network throughout communities and experience in disaster relief and response were unparalleled in Nepal. Some INGO's partner directly with NRCS at the district level, with NRCS performing the role of an implementing partner. One source noted:

"NRCS are recognized by many stakeholders, hence it's easy to introduce a [EWS/FbF] project when in partnership with NRCS district chapters and easy to get government ownership."⁶⁶

NRCS district chapter with Mercy Corps and other concerned stakeholders have developed a sustainable funding mechanism with local government to ensure the maintenance of early warning systems in Kailali district in the far west of Nepal. The funding mechanism called Kailali District Flood Early Warning System Fund Management Committee has been going for 11 years and identifies key activities for the year, and with government and stakeholder funding.

NRCS has invested in strengthening its Community Engagement and Accountability programming and its integration across all programming it does at community level. All NRCS projects are designed with communities, through participatory processes. Often community members become Red Cross volunteers, creating sustainability once project funding ceases.

NRCS, with the British Red Cross as part of its Urban Resilience programme, developed the Participatory Campaign Planning process to tailor the messages and the means of communication for 28 vulnerable target groups (including single female headed households, people with disabilities, unemployed youth, dalit). The vulnerable groups through a participatory process created their own warning and risk information messages with the view to influence behavioural change of those community members. These included messages being translated into local languages and being made user-friendly for blind and deaf people.⁶⁷

66 EWS Survey.

67 British Red Cross & Nepal Red Cross. (2018). *Participatory Campaign Planning for inclusion DRR knowledge and messages in Nepal.*

Metrics in place

There is currently no systematic metrics in place to measure the impact of NRCS' role in early warning systems or FbF, either at the project level or institutionally. However, in 2010 Mercy Corps conducted a cost benefit analysis of their investment in early warning systems in the Terai region, where NRCS district chapters were one of their implementing partners. The study concluded that similar investments in community-based disaster risk reduction programmes (that included 'last mile' early warning systems) could "expect to save 4.37 times their original investment."⁶⁸

Linking with CREWS projects

There are currently no specific CREWS projects in Nepal.

Conclusions

NRCS' role as an auxiliary to government and its membership to all levels of disaster management committees, as well as its depth of connection with communities through its network of volunteers puts it in a unique position to undertake people centred early warning systems. However, a direct relationship between NRCS and DHM is relatively new and needs further support in formalizing their partnership.

NRCS recognizes the importance of early warning systems in its strategies and policies, with cross cutting themes such as protection, gender and inclusion and community engagement and accountability interwoven into their programmes. NRCS also acknowledges that stand-alone early warning system interventions are largely unsustainable and need to be connected with CBDRM and/or economic security programmes.

NRCS early warning systems work, however, is largely project based and NRCS would benefit from greater institutional support at the headquarters and district levels for the expansion of its role as a key interlocutor with communities and local government in early warning systems. This could look like supporting dedicated capacity for early warning systems in the form of a focal person in high-risk districts and provinces, creating a network of early warning system focal persons cross the country to compliment the work of the government. Without this institutional support, inexperienced district chapters in early warning system would be unable to contribute to an early warning system project. Other basic elements of early warning systems like disaster preparedness and response (like search and rescue training and equipment and establishing contingency plans) all require strengthening to ensure that all district chapters have the capacity to carry out these activities. NRCS is renowned for its thorough data collection through vulnerability and capacity assessments and initial rapid assessments post disaster. However, the digitization of this data and use of it by district chapters and local governments needs further support.

Although some initial work has begun FbF remains a relatively new concept with NRCS and its district chapters. It requires significantly more investment and understanding throughout the institution in order to be scaled up.

It is critical for NRCS and IFRC to develop metrics of measurement of their impact in early warning systems and FbF work moving forward.

68 Rorick MM., White BA. (2010). Cost Benefit Analysis for Community Based Disaster Risk Reduction in Kailali, Mercy Corps Nepal.

PACIFIC REGION

Regional overview

The Pacific region, according to the Secretariat of the Pacific Regional Environment Programme (SPREP), includes 21 Pacific Island countries and territories.⁶⁹ There are 14 Small Island Developing States (SIDS) within the Pacific region,⁷⁰ developing countries with specific social, economic and environmental vulnerabilities.⁷¹

All countries within the Pacific region face increasing weather variability from the impact of climate change and the cyclical effects of El Niño/Southern Oscillation. These countries regularly face natural hazards including tropical cyclones, flash floods, river floods, high winds, coastal inundation (including storm surges, and tsunamis), earthquakes, droughts, and volcanic eruptions.

The Pacific's early warning systems

There have been significant upstream investments in early warning and response systems in recent years at the regional and national level across the Pacific. Investments have largely been funded by external government organizations such as SPREP, UNEP (Green Climate Fund), CREWS, WMO, World Vision, IFRC and National Societies (through the FINPAC). Projects have worked in partnership with National disaster management offices and hydrometeorological services (Met Services). These projects run for a finite period, with sources and literature both suggesting that sustainability of investments and reaching the 'last-mile' users is deeply challenging.⁷² Governments, donors and implementing partners alike acknowledge that whilst the investment has increased, it has been fragmented, and unable to cover the expanse of entire geographical regions and countries.⁷³ An analysis of the Pacific early warning systems by leading experts found that the limited infrastructure and enormity of the Pacific area created challenges in communications and the tailoring of messages.⁷⁴ In addition the small and often under resourced Government Met Services vary widely.

Global and regional early warning systems established and currently operational include IOC-UNESCO (tsunami and earthquakes), WMO (tropical cyclones and typhoons) and ICAO (including Tropical Cyclone Advisory Centre). Regional forecasting and early warning systems arrangements are often grouped by hazard and include regional climate centres such as the WMO RA-V Pacific Regional Climate Centre Network, the Pacific Meteorological Desk and Partnership and the Regional Specialized Meteorological Centre for Tropical Cyclones. The World Health Organization also provides support in tracking health risks, in partnership with national health services.

Solomon Islands

The Solomon Islands is an archipelago comprising of 992 islands, grouped into nine administrative provinces. Only one-third of the islands are populated. The Solomon Islands Government's Meteorological Service has a multi-hazard climate early warning system that monitors and provides early warnings for tropical cyclones, heavy rain, strong winds, tsunamis and drought.⁷⁵ The Solomon Islands' Meteorological Service, with Solomon Islands National Disaster Management Office, also issue early warnings for malaria.

69 American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Marianas, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Wallis.

70 Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

71 UN-OHRLLS. (2011). *Small Island Development States – Small Islands Big(ger) Stakes*.

72 EWS Survey

73 Power, S., Alexander, K. & Hoebreck, C. (2019). *Early warning and response systems in the Pacific and Timor-Leste: How to make a lasting difference on the ground*.

74 Power, S., Alexander, K. & Hoebreck, C. (2019). *Early warning and response systems in the Pacific and Timor-Leste: How to make a lasting difference on the ground*.

75 Solomon Islands Meteorological Service *CLEWS Solomon Islands*.

The Republic of Palau (Palau)

In Palau typhoon and drought early warning systems are coordinated through government agencies. The National Emergency Committee, of which the Palau Red Cross (PRC) is a member, is responsible for issuing early warnings with the National Weather Service.⁷⁶ The national radio service is one of the main ways early warnings are disseminated, with high frequency radios used for the outer islands.

Pacific National Societies' capacities and auxiliary role

Pacific National Societies in smaller island states are often marked by smaller organizations, running with only a few full-time staff undertaking multiple roles, their volunteers spread out over a number of remote islands with limited and inconsistent communication and physical access.

IFRC

The IFRC Country Cluster Team (Pacific) in Suva provides support to all the National Societies within the Pacific region including technical advice, fundraising, programme management and monitoring of regional projects, advocacy and coordination with regional bodies and operational support for preparedness and response to disasters. The IFRC's Early Warning System guidebooks and toolkit have been used extensively in the Pacific and formed the basis of designing the FINPAC project, which in turn became the basis of designing CREWS North Pacific project.⁷⁷

The regional IFRC team (which is linked directly with the RCCC) also sit on Pacific Island Forum Secretariat technical working groups, under the Framework for Resilient Development in the Pacific regional governance arrangements, including one working group focused on disaster risk finance. This group is currently developing its strategic framework for the Pacific region which aims to coordinate key stakeholders and have an overview of the different disaster financing mechanisms, to foster resilient financing, financial protection and knowledge brokering.

The RCCC team in the region sits alongside the IFRC team and provides specific climate related technical advice and programme management support to IFRC and National Societies.

Solomon Islands

The Solomon Islands Red Cross Society (SIRC) have a small headquarters in Honiara and four branches in Malaita, Rennell-Bellona, Temotu and Western provinces. SIRC has approximately 35 staff and over 480 volunteers. SIRC was recognized as an official auxiliary to the Solomon Islands Government by the Solomon Islands Red Cross Act 1983.⁷⁸ The Solomon Islands National Disaster Management Office operates under the National Disaster Council Act 1989. The SIRC has a clear role in disaster management in the country and are mandated to undertake initial damage assessment in communities on behalf of the government post disasters. SIRC has been part of the National disaster risk management arrangements and supported coordination as a member of the National and Provincial Disaster Operations Committees.⁷⁹

⁷⁶ Republic of Palau. (2016). *National Disaster Risk Management Framework 2010* (Amended 2016).

⁷⁷ EWS Survey.

⁷⁸ Solomon Islands Red Cross Society Act 1983.

⁷⁹ Solomon Islands National Disaster Council. (2018). *National Disaster Management Plan*.

The SIRC's current strategic plan's goals are to 'improve community resilience, build a strong national society and strengthen influence and partnerships'⁸⁰, putting the community at the core of SIRC's work. The SIRC works in partnership with the IFRC and other PNS, and sometimes as the implementing partner for INGOs. INGOs build on SIRC's connection with communities in remote islands and on-going community presence to support community participation in programmes, in addition to their technical expertise in first aid and emergency response training.⁸¹ Sources shared:

*"we are relying on IFRC and the National Red Cross Society to bridge the relationship between Met Services and the community."*⁸²

The SIRC works on a wide range of programmes including disaster management, climate change adaptation, blood donor recruitment, health promotion, social welfare, first aid, restoring family links, the family visits programme, youth development, volunteer development, fundraising activities and dissemination of international humanitarian law and humanitarian principles.

The FINPAC project (2013–2017) in 14 Pacific countries, focused on improving livelihoods of communities by delivering effective weather, climate and early warning services. The project, funded by the Finnish Government was implemented through the Secretariat of the Pacific Regional Environment Programme (SPREP), Pacific National MET offices, IFRC and Pacific National Societies, including Solomon Islands, Vanuatu and Palau. An important feature of FINPAC was the National Societies' work with communities to strengthen their ability to use and apply meteorological data and information and to develop appropriate plans to address climate change and disasters. National Societies facilitated participatory processes with communities including things like vulnerability and capacity assessments, reaching agreement with communities on non technical language to explain forecasts and subsequent action needed by the community.⁸³ One source observing that the:

*"FINPAC project really highlighted how important it is to bring in more traditional knowledge as people understand this more than the weather information given to them."*⁸⁴

One source external to SIRC stated that the partnerships forged in the FINPAC project created an appetite for the Solomon Islands:

*"Met Service to understand community perspectives and how their early warnings can be more effective. The Red Cross are there to support this."*⁸⁵

Another external source observed:

*"The National Met Services don't have the money or network to go to communities. So we encouraged them to use arms and legs of Red Cross who can easily access communities."*⁸⁶

Sources and literature both noted that the lack of National government resourcing of Met Services and ability to connect with communities undercuts the sustainability of community based early warning systems. One source noted that:

*"this can only be solved by helping communities use their traditional knowledge and connect early warning forecasts to this knowledge. Red Cross can do this, they are everywhere."*⁸⁷

80 Solomon Islands Red Cross Society. (2017). *Strategic Plan 2017-2020*.

81 EWS Survey.

82 EWS Survey.

83 IFRC. (2019). *Early warning systems: best practice examples from the Pacific* (presentation).

84 EWS Survey.

85 EWS Survey.

86 EWS Survey.

87 EWS Survey.

Building on the collaborative partnership forged in the FINPAC project, SIRC negotiated a Memorandum of Understanding (MoU) between themselves and the Solomon Islands Meteorological Services formalizing their collaboration on climate and weather services and early warning early action work.⁸⁸ A representative from the Solomon Islands Meteorological Services highlighted that FINPAC's facilitation between the Met service and end-users had a significant impact on how they think about early warning messages.

“Now we are keen to have more insight into community that would improve our engagement.”⁸⁹

Furthermore, FINPAC has shaped future investments in early warning systems in the country, with organizations such as World Vision International. World Vision used the learning from the FINPAC project to include a partnership with SIRC and support things like translating knowledge products into local pidgin.

One source shared that this partnership had resulted in key relationships being built between communities and the Met office. During Cyclone Harold, the community contacted the Met Service directly for an update and activated their contingency plan. Something that had never occurred previously.⁹⁰

The Solomon Islands Meteorological Service has since gone on to become the first Pacific Met Service to produce a national version of the Early Action Rainfall Watch (a regional service made possible through a partnership between the Australian Bureau of Meteorology, SPREP and the RCCC).

Palau

Palau Red Cross Society (PRCS) was established by the Palau National Congress through House Joint Resolution 5-24-3 on 31 July 1997 and a few months later was admitted to the IFRC.⁹¹

PRCS works across Palau through its two branches, North Branch and Central Branch, and focuses on providing disaster preparedness and response services, first aid training, blood donor recruitment and health care services. An active member of the National Emergency Management Office (NEMO), the Palau Red Cross Society has a formal role in building community capacity in disaster preparedness and responding to emergencies with emergency shelter. As part of PRC's current strategic plan, they identify 'enhancing community resilience' as their strategic goal 2. Of note is Output 2.1.3, 'support the development and implementation of low-cost, low-tech community based early warning early action initiatives.'⁹²

In 2010 the Government of Palau approved its National Disaster Risk Management Framework (revised in 2016). In 2015, the government adopted the Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development 2015. It has no specific early warning systems policies or frameworks.

Institutional and legislative context for disaster risk management

Each country in the Pacific has its own institutional and legislative context for disaster risk management and climate change. IFRC has been instrumental over the last ten years in the region, supporting the development of 15 Pacific countries' Disaster Law Programmes, with over ten countries currently supported to update their legislative frameworks.⁹³

88 EWS Survey.

89 IFRC. (2017). *More than response: Building partnerships to engage communities in preparedness and early warning systems in the Pacific – DRR in Action case study.*

90 EWS Survey.

91 IFRC South East Asia Resilience Library.

92 Palau Red Cross. (2020). *Annual report.*

93 IFRC. (2020). *Disaster Law programme: Ten years in the Pacific.* Published 21 Oct 2020.

The Pacific Meteorological Council was created in 2010, as a subsidiary to SPREP to coordinate and provide scientific and technical program and activities of Meteorological Services in the Pacific region.⁹⁴

Whilst there appears to be a strong appetite for each country's Met Service to act independently, they are mostly reliant on regional information. Several sources noted that the National Met Services lack the staff and resources to scale up their role. One source observed that formally most Red Cross National Societies are connected with the National Met Services under their auxiliary status to government. Prior to the FINPAC project it was perceived that there was very little interaction between the National Society and the Met Services. National Societies strong connection is attributed in part to IFRC's role in investing in relationship building between the Met Services and National Societies.

"The FINPAC project was transformational in building relationships and forming national coordination teams/ committee between National Society / Met Service / NDMO."⁹⁵

Many National Societies are now in various stages of formalizing their role in early warning systems, but in most cases the relationship between the two organizations is largely informal and operationally focused.

Pacific countries' National Red Cross Societies previous / current early warning system and FbF work

Funding for National Societies early warning system and FbF work in Pacific countries has primarily been supported by GCF, Government of Finland, DFAT, MFAT, European Union and Government of Lichtenstein.

In the Solomon Islands the SIRC continues to work in partnership with the Met Services as part of their MOU. SIRC also has an on-going partnership with World Vision International, to support community participation and identification of early action and traditional knowledge in outer island communities.

In 2016 IFRC and the RCCC in partnership with local National Societies conducted a scoping study for FbF in the three Pacific countries (Solomon Islands, Fiji, Papua New Guinea). The study identified the Solomon Islands' droughts and dry spells as the most appropriate hazards that FbF could be integrated with. In 2017 a roadmap was developed with Solomon Islands National Disaster Management Office, Meteorological Service, key sector ministers and Food and Agriculture Organisation of the UN and communities. The roadmap involved identifying drought thresholds that formed the basis of an FbF trigger system (under the Solomon Island National Drought Plan).



94 SPREP. (2017). Pacific Islands Meteorological Strategy 2017-2026.

95 EWS Survey.

In Vanuatu, prior to and after the category five Tropical Cyclone Pam in 2015, the National Society, in partnership with CARE International and the National and local Governments worked together in several remote communities to establish community-based disaster risk management committees. The National Societies also supported the community and its committees to establish early warning systems, with a specific focus to encourage women to engage in decision making processes.






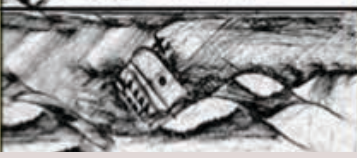
CATEGORY	LAND IMPACT DESCRIPTION	SEA STATE CONDITION	SEA STATE DESCRIPTION
Tropical Low Strong Winds	[Tropical Low] Negligible house damage to old thatch houses and some garden crops like banana trees. Whistling heard in power and telephone wires, whole trees in motion. Strong winds over open flat land of 46 - 62km/h.		Large waves begin to form, white foams crests are more extensive from breaking waves. White foams blown in streaks along wind direction.
Category 1 Gale Force	[Tropical Cyclone] Twigs break off trees. Slight structural damage occurs – roofing dislodged, larger branches break off. Garden crop damage. A Category 1 TC's strongest winds are GALEs with typical gusts over open flat land of 63 - 87 km/h.		Moderately high to high waves of greater length, dense streaks of foam
Category 2 Storm Force	[Tropical Cyclone] Considerable structural damage. Trees uprooted, heavy damage to some crops. Risk of power failure. A Category 2 TC's winds are STORM force with typical gusts over open flat land of 125 - 169 km/h.		Very high waves with over hanging crests, dense white streaks, tumbling of sea becomes heavy with visibility affected
Category 3 DESTRUCTIVE HURRICANE FORCE WINDS	[Severe Tropical Cyclone] Some roof and structural damage. Some local thatch houses destroyed. Power failures likely. A Category 3 cyclone's strongest winds are DESTRUCTIVE winds with typical gusts over open flat land of 170 - 224 km/h.		Phenomenal high waves, sea is covered with long white patches of foam, the air is filled with foam and spray, visibility very seriously affected
Category 4 VERY DESTRUCTIVE HURRICANE FORCE WINDS	[Severe Tropical Cyclone] Significant roofing loss and structural damage. Many thatch houses destroyed and blown away. Dangerous airborne debris. Widespread power failures. A Category 4 cyclone's strongest winds are VERY DESTRUCTIVE winds with typical gusts over open flat land of 225 - 279 km/h.		
Category 5 CATASTROPHIC HURRICANE FORCE WINDS	[Severe Tropical Cyclone] Extremely dangerous with widespread destruction. A Category 5 cyclone's strongest winds are CATASTROPHIC winds with typical gusts over open flat land of more than 279 km/h.		

Table 1 - Tailored early warning messages in Vanuatu that provide visual and impact description of the different cyclone categories for communities. This was produced in partnership with Red Cross Climate Centre, Vanuatu Red Cross and Vanuatu Met Service.

A study carried out after Tropical Cyclone Pam found that in communities that were supported to establish these committees (who undertook risk assessments and practiced evacuation procedures prior to the cyclone) acted quickly, early and collectively. In contrast, other communities who had received no support evacuated at the last minute and often were not able to save important physical assets.⁹⁶ In addition, it was found that alerts received for the impending cyclone were heard widely across communities, but those without Disaster Risk Reduction support often did not take the alerts seriously or there impact was not fully comprehended by people. Illustrating that trusted and contextualised information is essential in creating action at the local level.⁹⁷

96 Webb, J. (2016). *Does Gender Responsive Disaster Risk Reduction Make a Difference? A comparative study of Category Five Tropical Cyclone Pam in Vanuatu.* Commissioned by CARE International.

97 Webb, J. (2016). *Does Gender Responsive Disaster Risk Reduction Make a Difference? A comparative study of Category Five Tropical Cyclone Pam in Vanuatu.* Commissioned by CARE International.

To date there is no other FbF systems established in the region, although the IFRC in partnership with RCCC, are keen to work with National Societies on drought FbF systems in the future and are exploring ways to pilot FbF through the anticipatory (Disaster Relief Emergency Fund (DREF) mechanism. One source attributed the scoping study and roadmap processes with Government and stakeholders as having a huge influence on the design of future programmes including the Climate Inclusion Ocean and Support programme which aims to expand drought forecasting and includes a component to develop standard operating procedures for an FbF 'lite' system.⁹⁸ In addition, the recent DREF allocation to EWEA in Tuvalu ahead of potential worsening drought conditions is the first drought DREF for early action in the Pacific and is one example where IFRC, the CC and National Societies are finding ways to use systems and mechanism more strategically in the Pacific context.

Since 2017 the IFRC with the RCCC, the Secretariat of the Pacific Regional Environment Programme (SPREP), the Australian Bureau of Meteorology have conducted a monthly Regional Early Action Rainfall Watch, sharing seasonal rainfall monitoring and forecast bulletins across the Pacific to National Societies. At the regional level IFRC and RCCC supported National Societies to interpret weather forecasts, including rainfall outlook and rainfall status information against pre-identified alert levels and corresponding preparedness actions.⁹⁹ The National Societies subsequently use this information to inform their preparedness planning.

The Tuvalu Red Cross for example, mobilised their volunteers to support households to maintain water harvesting systems in response to a high alert level for wetter than normal weather conditions.¹⁰⁰ In Papua New Guinea the above average rainfall predicted in 2018 prompted the National Societies to check their emergency response stock, connect frequently with the National Met Office for updates and undertake preparedness activities with communities.¹⁰¹ The latest *Early Action Rainfall Watch for March-May 2021* advises action for dry conditions. Specifically, it suggests the National Societies in Kiribati, Tuvalu, Cook Islands (Northern), Papua New Guinea Islands, and Solomon Islands take a series of actions to prepare for worsening dry conditions. Actions include things like coordinating with Meteorological Office and National Disaster Management office to coordinate preparedness activities and promoting health and hygiene practices with the most vulnerable communities.¹⁰²

There have been a number of workshops over the last two years on impact based forecasting with Met Services, National Governments and stakeholders, however nothing concrete has been developed to date.

SIRC in partnership with Solomon Islands Meteorological Service, the National Disaster Management Office and local media worked together to create a low-cost, low-tech community early warning system in Lord Howe. Lord Howe is a congested settlement that routinely faces hazards such as king tides and storm surges, cyclones, tsunamis, earthquakes, health issues and droughts.

SIRC drawing on its community participatory tools and approaches identified with the community the alert levels and how this information would be shared throughout the community. It was agreed that a truck horn would be used as a siren in conjunction with a solar-powered traffic lights (red, yellow and green) for flood-monitoring activities. A notice board is also present that reminds people of what the colours mean and the agreed action to take. The community early warning system was tested through a simulation exercise testing the siren and evacuation route and a week later a real tsunami warning was activated for Solomon Islands and all community members were evacuated following their community response and evacuation plan.¹⁰³

98 EWS Survey.

99 Red Cross Climate Centre. (2021). *Regional Rainfall Watch for Pacific IFRC and National Societies March – May 2021*.

100 IFRC. (2018). *From Climate Information to Community Action*.

101 IFRC. (2018). *From Climate Information to Community Action*.

102 Red Cross Climate Centre. (2021). *Regional Rainfall Watch for Pacific IFRC and National Societies March – May 2021*.

103 EWS Survey.



In the Pacific the IFRC and RCCC, in association with UNEP and SPREP, have an upcoming project funded by GCF in five countries (Marshall Islands, Palau, Cook Island, Niue and Tuvalu). Likely starting in early 2022, the project will focus on enhancing Climate Information and Knowledge Services for resilience in five island countries of the Pacific Ocean. The RCCC will support in the area of FbF in Cook Islands, Niue, Palau, Federated States of Micronesia and Tuvalu as an innovative mechanism whereby early actions can be pre-planned based on credible forecasts, and are funded and implemented before a climate shock to minimise losses and damages caused by climate-related hazards therefore reducing the need for humanitarian assistance in their aftermath. Using a combination of FbF mechanisms with impact-based forecasting can be a transformative means of improving disaster preparedness and enabling more efficient management of government budgets and/ or other funding mechanisms to promote the shift from traditional post-disaster response to pre-event early action. Specific activities included are: developing FbF Roadmaps towards defining thresholds and triggers, building capacity for FbF and supporting to develop Early Action Protocols (EAPs).¹⁰⁴ In advance of the GCF funding, the Government of Lichtenstein is supporting with preparatory research in two of these GCF target countries, Palau and Tuvalu to scope EWEA behaviours in several communities, with research due to be completed end 2021.

Linking with CREWS

The CREWS Pacific SIDS project is a Pacific regional project implemented by WMO, and in partnership with SPREP, National Met Services and the Pacific Community and others. The project aims to enhance the capacity of Pacific island countries Hydro-Met services to predict extreme and high impact hydro-meteorological events and associated risks to alert exposed populations.¹⁰⁵ The project is implemented in Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Nauru, Niue, Republic of Marshall Islands, Palau, Samoa, Solomon Islands, Tokelau, Tuvalu, Tonga, and Vanuatu.

In 2020, additional funding was allocated for the CREWS Pacific SIDS Project, resulting in the project CREWS Pacific SIDS 2.0. In addition to WMO, UNDRR and World Bank GFDRR will be implementing partners.

¹⁰⁴ Red Cross Climate Centre. (2020). *New UNEP programme centred on early warning will support climate resilience in Pacific island nations.*

¹⁰⁵ SPREP. (2020). Community based early warning systems introduced through CREWS project (November 10).

Conclusions

At a national level, the National Society, with support from IFRC and RCCC, utilises its auxiliary status to support government and facilitates community participation into provincial and national disaster risk management arrangements. In some cases, this includes acting as the interlocuter between communities and National Met Services and helping to contextualise early warning messages to create early action. In addition the on-going work of the IFRC regional team further strengthens National Societies' roles with Government through the updating of disaster law and governance frameworks.

The National Societies are seen as playing an important role in preparing and activating early warning systems, including maintaining the link between upstream and 'last mile' components of engaging communities. To expand this pivotal role, institutional strengthening of National Societies is necessary, including the support of dedicated long term people / teams in each national society and within the IFRC who work towards creating momentum and significant change that EWEA requires. One source noted that an expanded early warning system workforce within IFRC and National Societies would help negate any disruption when National Societies experience changes in leadership.

National Societies also need support in integrating EWEA into all of its programmes, along with the appropriate equipment necessary to communicate with remote branches and play a response role.¹⁰⁶

There is an obvious need to strengthen the metrics and capturing impact of IFRC and National Societies investments in early warning systems and FbF, with one source observing...

| *"Monitoring and evaluation components tend to be poorly done and is directed towards project outputs and not longer term outcomes."*¹⁰⁷

The IFRC, RCCC and National Societies are consistent in their strategic documents and goals that community-based approaches to early warning systems are only effective when there is buy-in and support from the community. Subsequently investments with IFRC and National Societies need to consider how they will link into or support broader community-based programming.

At the regional level the added value of IFRC and RCCC quality control, technical support, and coordination with regional bodies has begun to support consistent implementation across various National Societies. In addition, the regional work of the RCCC has had significant impact in supporting strong partnerships between National and regional Met services, creating a strategic link between IFRC / the National Societies and National Governments Met services.

106 (2018). FINPAC Final Evaluation and EWS Survey.

107 EWS Survey.

MALAWI

Country overview

Malawi's most significant and reoccurring hazards are floods, droughts and subsequent food insecurity.¹⁰⁸ The country has experienced significant flooding in 2009, 2015 and 2019. In March 2019 Cyclone Idai brought heavy and persistent rains which led to severe flooding across Malawi's southern districts. More than 868,900 people were affected, including more than 86,980 people displaced across fifteen districts in southern Malawi.¹⁰⁹ Droughts continue to contribute to food insecurity, with severe food crisis experienced in 2005, 2012, 2016 and 2017.¹¹⁰ Modelling suggests that the severity and frequency of disaster and climate triggers will only increase in the coming years.¹¹¹ The IPCC's Fifth Assessment Report identifies Malawi as a country at high risk to the adverse effects of climate change.

Malawi falls within the Southern African region and is classified as a least developed country on the Human Development Index (HDI) (172 out of possible 189 countries assessed).¹¹² With 85% of the population residing in rural areas, the majority are reliant on rain-fed agriculture and subsistence farming, and experience high levels of food insecurity, lack of access to basic services such as water and sanitation and health care.¹¹³

Malawi's early warning systems

Malawi has early warning systems in place for floods, droughts, epidemics and famine. The flood early warning system is led by Department of Disaster Management and chaired by Department for Climate Change and Meteorological Services. Sources shared that there is significant fragmentation between the different early warning systems.¹¹⁴ The need for improved coordination across Government departments and projects that support both upstream and downstream strengthening of early warning system across the country was also highlighted by sources and the literature.¹¹⁵

There has been significant investment in upstream capacity of flood early warning systems in Malawi over the last few years. UNDP is one of the key actors in forecasting floods in and are funding an expansion of the ODSS (Operational Decision Support System) including the establishment of automatic river gauges and sub-catchments in the Central and Northern regions. World Bank is another key actor who is currently supporting the Government of Malawi to undertake a flood risk assessment of the Shire basin to inform local disaster risk reduction and risk management planning. This will include the development of hydraulic models in order to produce appropriately accurate flood inundation data across the Shire River Basin. HydroTalents is also working with the Department of Water Resources to expand ODSS (funded by UNDP).

The GCFS programme, with Malawi Red Cross as the 'on the ground' partner, strengthened the community use river gauges and early warning messages through the Village Civil Protection Committees and volunteers. Early warning alerts at the community level were disseminated in conjunction with the alerts issued by Department of Climate Change and Meteorological Services.

For flood early warning, alerts and warnings are issued either by Department for Climate Change and Meteorological Services for climate & weather forecasts and flash floods, or the Department of Water Resources provides flood modelling & riverine flood forecasts. These alerts and warnings are then disseminated from national to district level by Department of Disaster Management Affairs and rely on Malawi Red Cross Society (MRCS) volunteers in many cases to circulate these messages to the community level.

108 World Bank. (2019). *Disaster Risk Profile: Malawi*.

109 IOM. (2019). *Malawi 2019 Humanitarian Compendium*.

110 World Bank. (2019). *Disaster Risk Profile: Malawi*.

111 Malawi Government. (2019). *Malawi 2019 Floods Post Disaster Needs Assessment (PDNA)*.

112 UNDP. (2019). *Human Development Report 2019: Inequalities in Human Development in the 21st Century: Mozambique*.

113 IOM. (2017). *Spaces of vulnerability and areas prone to natural disaster and crisis in six SADC countries*.

114 EWS Survey.

115 Norton, R., MacClune, K., and Szönyi, M. (2020). *When the unprecedented becomes preceded: Learning from Cyclones Idai and Kenneth*. Boulder, CO: ISET International and the Zurich Flood Resilience Alliance.

Sources shared the efforts of the community based early warning teams that MRCS and other INGOs have established are not tracked at the national level, and there is a distinct lack of input from the community level in the design of upstream early warning systems.¹¹⁶

Malawi Red Cross' (MRCS) capacity and auxiliary role

The MRCS began in 1932, and in 1966 was recognised as an auxiliary to Government for its role as a voluntary aid organisation by Act 51 of Parliament.¹¹⁷ MRCS has a presence in all of Malawi's 28 districts, with over 30,000 volunteers across 33 divisions. These volunteers are active at the community, village and district levels and are trained in areas like shelter construction, vulnerability and capacity assessments, initial rapid assessments, first aid, community outreach, and search and rescue.¹¹⁸

MRCS has a strong reputation for its community work and disaster relief support with Governments as its role as the largest humanitarian agency in Malawi.¹¹⁹ Over the last decade it has broadened its disaster management ethos to include the full scope of disaster risk management. The MRCS Strategy 2015-2019 for example identifies early warning systems as a priority.

Institutional and legislative context for disaster risk management

The last decade of Malawi's disaster risk management sector has been marked by transition, moving from response focused to a more comprehensive disaster risk management approach. With key institutional frameworks approved; the National Disaster Risk Reduction Framework (2010), the National Disaster Risk Management Policy (2012), the 1991 Disaster Preparedness and Relief Act Review (2014) and the Disaster Risk Management Bill (2018).

The Malawi Growth and Development Strategy III, 2017-2022 also provides a policy basis for disaster risk management in Malawi in conjunction with the National Disaster Risk Management Policy. Other policy instruments that are supportive to disaster risk management include the National Climate Change Management Policy (2016) and National Resilience Strategy 2018-2030. Pillar 2 of the National Resilience Strategy emphasises the need to; mainstream disaster risk management across sectors and administrative levels (outcome 2.1), flood prevention and control (outcome 2.2), and effective early warning systems (outcome 2.3).



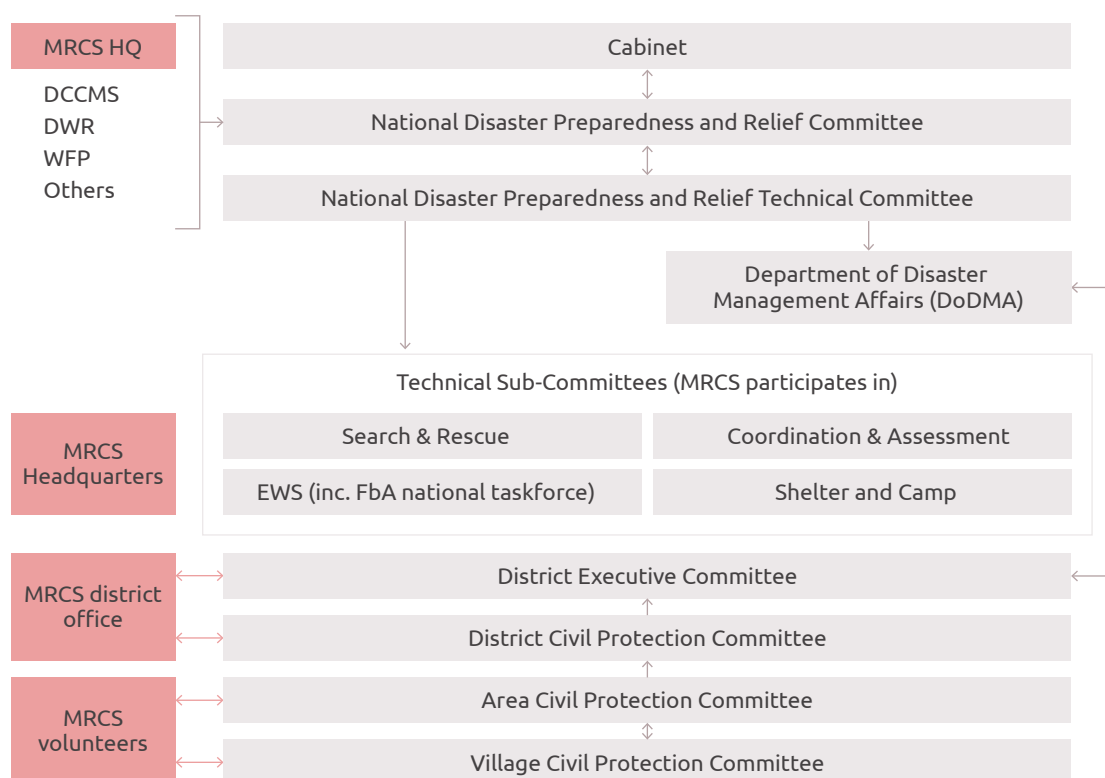
116 EWS Survey.

117 Malawi Government. (1968). *Malawi Red Cross Society Act*. Chapter 18:09 of the Laws of Malawi.

118 Malawi Red Cross Society. (2018). *Feasibility study on forecast based financing / trigger based action in Malawi*.

119 Malawi Government. (2019). *Malawi 2019 Floods Post Disaster Needs Assessment (PDNA)*.

Figure 2 - Malawi's disaster management institutional structures at different levels and MRCS's role.¹²⁰



At the national level, the National Disaster Preparedness and Relief Committee and its eight sub-committees, including early warning systems, provide technical support for the implementation of the DRM strategy and policies.¹²¹ The Department of Disaster Management Affairs coordinates the implementation of programmes and disaster response under the Office of the President.

As illustrated in figure 2, MRCS is a member of the Civil Protection Committees and participates in all coordination meetings at national, district, area and village levels. MRCS also co-chairs the shelter and camp management clusters, as part of the UN cluster system.¹²²

At the sub-national level, MRCS works closely with District, Area and Village Civil Protection Committees, the District Executive Council and follows community-based targeting approaches to reach consensus on who are the most vulnerable households, such as single female headed households, people with disabilities and the elderly. MRCS does not allow traditional chiefs to be directly involved in the targeting processes, but registration teams do their best to include them in terms of information sharing and explaining the processes.¹²³

MRCS has led emergency relief programmes (including floods and droughts) throughout the country, with support from IFRC and Partner National Societies (PNS). The IFRC Southern Africa Cluster Office and the Africa Regional office provide on-going technical and regional coordination support to MRCS on such issues as disaster law, protection, gender and inclusion, early warning systems, FbF and throughout disaster operations.¹²⁴ Danish and Belgium Red Cross provide in-country support and work in partnership with IFRC, RCCC and MRCS to advance MRCS' work in FbF and early warning systems throughout the southern region of the country.¹²⁵

120 Malawi Government. (1991). *Disaster Preparedness and Relief Act*.

121 UNISDR. (2015). *Malawi - National progress report on the implementation of the Hyogo Framework for Action (2010-2015)*.

122 IFRC. (2020). *Emergency Appeal Final Report – Malawi Floods* (September).

123 IFRC. (2020). *Closing the Gap A strategy to strengthen community engagement and accountability in Africa 2020-2023*.

124 IFRC and Malawi Red Cross Society. (2019). *Disaster Law in Action: Leveraging the Auxiliary role to effect Legislative Change*.

125 Malawi Red Cross and Netherlands Red Cross. (DATE). *Indigenous knowledge and early warning systems in the Lower Shire Valley in Malawi*.

Malawi Red Cross' previous / current early warning systems and FbF work

There has been significant headway in weather forecasting in Malawi.¹²⁶ Sources and literature alike note the key challenge of linking early warning to early action at the community level.¹²⁷

Cognizant of this gap in early action, the MRCS, with Danish Red Cross over the last four years have been partnering with the three key Government departments to develop forecast based actions for floods (Department of Disaster Management Affairs, Climate Change and Meteorological Services and Water Resources).¹²⁸ As part of this work MRCS is supporting the national forecast based action taskforce to establish frames for triggers and anticipatory actions to be implemented, specifically focusing on Chikwawa and Nsanje districts that they have strong community based early warning systems established. This work builds on 15 years of early warning systems work the MRCS has undertaken throughout the country. In the last seven years, MRCS in partnership with Danish Red Cross (EU funded) have established community based early warning systems in southern districts of Malawi which informed the development of MRCS' 2017 Standard Operating Procedures for FbF trigger-based actions.¹²⁹ MRCS' partnership with GFCS has further strengthened this work.

MRCS is currently planning to establish an Impact based Forecasting dashboard based on the Operational Decision Support System flood-forecasts, adding additional layers of flood extent maps and Unified Beneficiary Register (social protection register).¹³⁰

In December 2020 the Department of Climate Change and Meteorological Services released an official forecast of Tropical Cyclone Chalane, expected to affect Malawi in six days. MRCS developed early actions for districts based on the official updates from the Government and secondary forecasts (UNOCHA and the Department of Disaster Management).¹³¹ Concurrently Danish Red Cross approved funds to support MRCS with the implementation of early actions in six targeted southern districts to prepare and increase readiness to respond to any potential disaster caused by Tropical Cyclone Chalane.

In Nsanje district the MRCS district chapter activated its volunteers in coordination with the District /Area / Village Civil Protection Committees, identifying and assessing 39 evaluation centres and clearing evacuation routes. MRCS volunteers also carried out awareness activities for early action (anticipatory) including community meetings and door to door communication.¹³² MRCS FbF anticipatory action focused on supporting the most vulnerable, in particular women who are disproportionately affected by the impact of the loss of crops. Fortunately, Tropical Cyclone Chalane was significantly downgraded and no large flooding occurred.

Early warning systems is incorporated in MRCS' standard community-based disaster risk management and climate change adaption programming. These programmes focus on the community and district levels and include the mapping of high-risk flooding areas, mapping communication pathways and identifying evacuation routes. MRCS play a significant role in supporting the completion of the Government contingency plans carried out at the sub-national (district) level. However, at community level these plans seem to be completed sporadically, with MRCS focusing their limited resources on supporting communities that regularly experience flooding to complete the plans (namely in the southern region of the country).

In March 2019, the Nsanje and Chikwawa MRCS district chapters received an alert from the Department of Climate Change and Meteorological Services through the Department of Disaster Management Affairs and MRCS. The messages instructed that it was necessary to prepare for possible flooding and strong winds from upcoming Tropical Cyclone Idai.

126 Malawi Government. (2019). *Malawi 2019 Floods Post Disaster Needs Assessment (PDNA)*.

127 Malawi Government. (2019). *Malawi 2019 Floods Post Disaster Needs Assessment (PDNA)*.

128 EWS Survey.

129 Malawi Red Cross and IFRC. (2019). *Early Warning Early Action Initiatives Saves Lives in Nsanje District*.

130 EWS Survey.

131 IFRC. (2019). *Emergency Plan of Action (EPoA) Malawi Floods*.

132 EWS Survey.

Early warning messages were shared by the MRCS volunteers and the Area/Village Civil Protection Committees to the up-stream and down-stream communities through cell-phones, megaphones, community meetings, door to door, community radios and the playing of radio Jingles. Messages were shared in multiple languages.

The impact of Cyclone Idai in Nsjane district was 16, 118 households displaced to 41 Camps and only 1 recorded death. Despite this impact, it is general agreed that this was a significant improvement on the saving of lives and livelihoods compared to the 2015 floods where no early warning early action mechanisms were in place.¹³³

For community based early warning systems many of the river and rain gauges are still manually read by community members. Often gauges are not maintained by the local or national government, after initially being established by non-government project funding.¹³⁴ Sources confirmed that MRCS supports ground proofing, comparing forecasts to real time observation, but its challenging, as the Department of Water Resources lacks the funding to pay gauge readers for their work.¹³⁵

Sources shared that trust levels in flood forecasting are still low, as it presents a dynamic decision-making model that is in conflict with the Government of Malawi systems. Sources acknowledged that more work needs to be done in sensitising people across government and MRCS of the benefits and scope of FbF and forecast based actions.

The IFRC southern Africa cluster provides technical support for the Early Action Protocol for Floods, and once approved will make the MRCS eligible to access Forecast Based Action funding through the IFRC's Disaster Relief and Emergency Fund (DREF). The DREF will consists of three funding streams, for pre-positioning of stock, for readiness activities, and for early actions activities (once triggered).

RCCC Malawi, have been supporting MRCS (through Danish Red Cross) on the initial set up of FbF - guiding the setup of the working group, engagement with DoDMA, collaboration with other actors such as UNOCHA, providing guidance on trigger development and selection of early actions and discussions towards development of Early Action Protocol.

Metrics in place

There is currently no systematic metrics in place to measure the impact of MRCS' role. MRCS response post 2019 floods was not able to draw on any metrics of the direct benefits of forecast based actions, however multiple sources cited that MRCS' early actions achieved a great deal with the limited time and resources. This was partly attributed to the pre-existing district preparedness and the introduction of cash at district level in the days following the warning.¹³⁶ Preparedness activities included things like the development of community and household contingency plans, rehabilitation of river-gauges for monitoring water levels.¹³⁷

All reporting is currently paper based, with Danish Red Cross eager to pilot other tools like daily photos of river paths to capture changes.

Linking with CREWS

There is currently no specific CREWS project in Malawi, however it is marked as a country of interest. If a CREWS project were to occur in the future in Malawi, MRCS would be well positioned to support national level outputs; 4 (preparedness and response plans strengthened and accessible), 5 (awareness on early warning improved) and 6 (gender sensitive capacity-building programmes initiated).

133 EWS Survey.

134 EWS Survey.

135 EWS Survey.

136 EWS Survey.

137 EWS Survey.

Conclusion

Strengthening the extensive MRCS volunteer network through training of volunteers and funding of volunteer management would allow greater reach of volunteers with communities to establish and maintain early warning systems. There is also a greater need for the prepositioning of search and rescue equipment, communication equipment for volunteers and staff, as well maintenance of rain gauges.

The coordination mechanisms established such as the FbA taskforce (which MRCS was instrumental in establishing) and Early Warning Systems technical subcommittee play an important role in bringing the major actors for early warning systems in the country. However coordination was highlighted as requiring strengthening both vertically and horizontally - between the different government departments, new donors working on early warning systems and FbF, in addition to up/down stream aspects of early warning systems. MRCS is well positioned with its unique interlocuter role between community and government to expand and strengthen its coordination remit at the national and sub-national level and continue to play a key interlocuter role between community, sub-national and national levels, as it continues to advocate for people-centred approaches.

Both literature and sources highlighted the need for investment in broader capacity building of early warning system and FbF within MRCS such as dedicated human and financial resources. Further support to institutionalise early warning systems and FbF into MRCS, including its expansion to other district chapters, through dedicated staff was also cited as a necessary resource for scaling up to occur. In addition, further strengthening of the MRCS systems that tailor early action messages and report on the impact of early warning systems / FbF appears necessary.

Several sources articulated the need to create greater awareness of the scope of FbF and how it impacts programmes and fits into the wider MRCS strategies and processes. As part of this, the integration of FbF in MRCS' community disaster and resilience programmes would create greater awareness of the benefits of the FbF and early warning systems throughout the country and not just the southern regions.

Sustainability of MRCS' services remains challenging with early warning systems and FbF work largely funded by external sources. In those districts with higher risk of flooding there is a greater chance of sustainability of investment, however basic equipment maintained is necessary and often unaffordable.



OVERALL CONCLUSION

The IFRC, RCCC and National Societies have a significant number of early warning system strategies, policies and tools. These have been used to create a wealth of experience and good practices in designing, implementing and responding to triggers of community based early warning systems using participatory tools that focus on placing people in the centre.

Whilst acknowledging the significant advances in technology and forecasting capabilities, the IFRC consistently advocates for a more people-centred approach to early warning systems. The IFRC recognises that communities are the first responders in protecting themselves and vulnerable people. IFRC has established and rolled out tools such as the Roadmap to Community Resilience and the Enhanced Vulnerability and Capacity Assessment tools to support this work and further improve the application of risk information and knowledge in scaling-up climate-smart, community-led action and to strengthen National Society's engagement.

Many sources articulated that early warning systems are an integral part of community-based disaster risk management work in National Societies, with stand-alone early warning systems viewed as being ineffective and short sighted. Many sources observed that FbF is still in its infancy, with new collaborations bolstering support to mainstream this concept and its benefits within the IFRC and National Societies.

As auxiliary to the Government, National Societies are able to play a key role in better articulating the civil protection (evacuating, preparing and saving people from hazards) and contingency planning (humanitarian, providing support to affected communities). With guidance from the RCCC, National Societies are able to provide key recommendations on better using science for early warning systems, early action and FbF.

National Societies' play an important institutional early warning system role in the countries they work in. This institutionalised role in disaster management spans from the community to national levels. Making National Societies well placed to support the identified gap in community engagement and 'last mile' component in early warning systems. All National Societies reviewed use vulnerability and capacity assessments and risk mapping as standard tools to understand the local risk context and connect with vulnerable groups. These tools and maps however are not consistently well integrated with the National Society's own systems or linked in with Government systems.

National Societies often play a pivotal role in linking 'first mile' and 'last mile' communications in early warning systems. Monitoring and forecasting capacities for instance are available, however the servicing of specific communities with tailored warning messages requires resources and capacities which are often not available at national level. National Societies are well positioned to partner with National Meteorological Offices to support the joint production, dissemination and service delivery of authoritative warnings in local places.

The coordination role that National Societies play is often informal (and occasionally formalised in the case of IFRC's leadership of the CBDRM Platform in Nepal and Malawi's taskforce) and naturally extends to horizontal coordination at the national level. If the National Society was supported to play a more formal coordination role at the national level, this could negate duplication of project efforts and broader coverage of community based early warning systems throughout a country over time.

Many sources and literature note the benefit of Government and Non-Government projects working with National Societies, citing their long-term presence in communities and unparalleled networks, often making them a part of finite projects sustainability strategies. The sustainability of a National Society's capacity and reach across a country however requires considerable long-term investment. This institutional strengthening of National Societies needs to include things like early warning systems and FbF focal staff at national and sub-national levels, dedicated funding, further institutionalisation of early warning system and FbF within the National Society, coupled with national and regional technical support to develop these necessary skills and systems to scale up of early warning systems and FbF in a country.

Furthermore, the capacity of National Societies at the national and sub-national level varies greatly and is highly dependent on previous investments, level of prioritisation of early warning systems and FbF by the institution and its leaders, experience in disaster preparedness and regular funding streams. Of the country's profiled in this report there is currently no systematic metrics in place to measure the impact of a National Society's or IFRC's role in early warning systems or FbF, either at the project level or institutionally.



RECOMMENDATIONS

HOW IFRC / RCCC / NATIONAL SOCIETIES CAN CONTRIBUTE TO CREWS AND OTHER EARLY WARNING SYSTEM PROJECTS

There are different roles across various scales that IFRC, RCCC and National Societies play in early warning systems and more recently FbF. These roles vary between countries and regions and are heavily influenced by the Government's and National Society's capacities and resources.

It is a clear theme across the case studies that engaging the IFRC network in CREWS projects would facilitate a closer connection between 'last mile' and 'first mile' early warning systems and a key link between early warning and early action at the ground level. The unique breadth and depth of work and partnerships covered by the IFRC network, along with its long-term engagement at the national and community levels, are important elements for scaling up early warning systems in the most vulnerable communities.

However, it is important to acknowledge that in order for the IFRC, RCCC and National Societies to perform the recommended roles (outlined below) it is essential to invest in the ongoing organisational development that underpins the sustainability of these organisations and their networks. This institutional investment looks different for each specific country and regional area and could include support for National Societies to strengthen their volunteer management, capacity and resources for developing warning communications and response capability.

The following recommendations outline how the IFRC network including RCCC and National Societies contribute and add value to enhancing and scaling up end to end early warning systems and FbF.

National Societies' possible contribution to early warning systems and FbF at local level (sub-national level including local government and communities)

1. Continued development, strengthening and implementation of 'last mile' early warning systems, by connecting 'first mile' advances with 'last mile' end users.
 - E.g. Promoting through awareness campaigns, a culture of early warning and early action at school level, (such as orientations at all levels of primary and secondary schools).
2. Enhancing risk data at the lower administrative scale.
 - E.g. mapping uncharted territories, improving the systematic collection of disaster impacts data (in particular related to heatwaves).
3. Continued collaboration with national hydromet services to design and disseminate impact-based messages.
 - E.g. Co-design of early action messages with communities, local government and hydromet services, incorporating traditional knowledge.
4. Leveraging of existing relationships with government, non-government and other stakeholders to coordinate and create coherence across early warning systems.
 - E.g. Local level early warning system taskforce group with key government and stakeholders to co-fund preparedness measures.
5. Continued strengthening of local capacity for preparedness and response of National Society volunteers, local government, communities and other key stakeholders.
 - E.g. Search and rescue training, develop communication channels and contingency plans.
6. Reinforcing existing work with local government and communities to build risk knowledge and awareness.
 - E.g. Through processes like vulnerability and capacity assessments and risk mapping.

National Societies possible contribution to early warning systems and FbF at national level

7. Building on the National Societies' auxiliary status, continued strengthening of coordination between government, non-government early warning system / FbF stakeholders to build cohesive national early warning systems and FbF strategies, that enable sharing, learning and ensure complementarity of initiatives.
 - E.g. National Societies tracking different early warning system initiatives and able to identify gaps and possible areas of future investment.
8. Encouraging meaningful cooperation and information sharing across different government sectors for the production of impact-based forecasting services.
 - E.g. FAO's support to Governments to strengthen the food security early warning system mechanism is well understood and linked (where appropriate) to other early warning system mechanisms.
9. Monitoring and communicating risks and potential impact at the local level, noting barriers to implementation and strategies to overcome.
 - E.g. National Society Emergency Operation Centre working with its branch chapters to ensure that preparedness activities for upcoming flood seasons are completed.
10. Promoting learning between National Society's branches, local, sub-national and national government and other key stakeholders, to encourage the scaling up of early warning systems and FbF.
11. Promoting the inclusion of impact-based forecasting services within regional and national governmental policies and strategies.
12. Providing technical support to National Society district chapters and other key stakeholders to establish early warning systems and FbF.
 - E.g. Early warning early action triggers, tailoring messages and early actions.
13. Further integrating early warning systems and FbF processes into regular National Society disaster risk management and resilience operations and programmes.
 - E.g. RCCC supporting the National Society and Government to develop FbF Roadmap and identify triggers.
14. Supporting the development and implementation of metrics that measure the impact and evaluation of early warning system and FbF work.
 - E.g. Collection of data.

IFRC and RCCC contribution to early warning systems and FbF

15. Continued support to National Societies in building their institutional capacity to develop and manage early warning systems and FbF.
 - E.g. Development of Standard Operating Procedures, disaster information management systems, digitalisation of vulnerability and capacity assessments, monitoring risk, metrics for capturing impact and integration of cross cutting issues such as Protection, Gender and Inclusion support.
16. Advancing ongoing work with National Societies to develop partnerships with Hydro Met departments, to design impact-based forecasting and tailored messages for communities.
17. Providing continued due diligence and oversight of community based early warning systems and FbF strategies and programmes.
18. Increasing support to National Societies in connecting to funding opportunities for early warning system and FbF.
 - E.g. working with National Societies to develop Early Action Protocols connected to the IFRC's DREF mechanism.

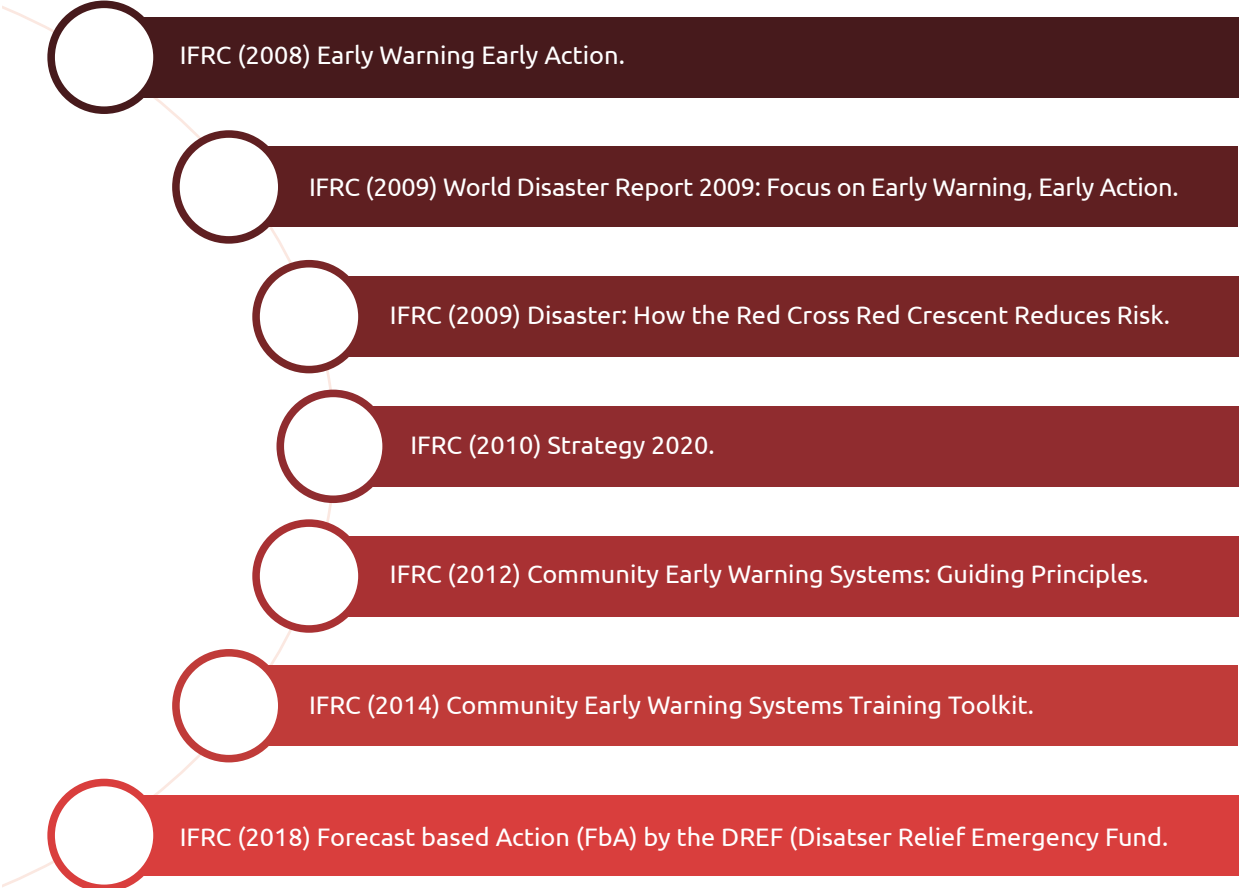
19. Continued provision of technical early warning systems / FbF support into regional and national IFRC / National Society programmes, strategies and operations.
 - E.g. Designing and disseminating regional early warning systems such as the Pacific's Regional Rainfall Watch, a
20. Monitoring and communicating risks and potential impacts across the region and to specific countries.
21. Coordinating with regional bodies and partners to enable sharing and learning to ensure complementarity of initiatives and reduce duplication of efforts including private sector, INGOs, NGOs and academia.
 - E.g. Representing the IFRC network at regional early warning and risk financing taskforces and committees.
22. Strengthened advocacy for 'last mile' user-friendly early warning system on behalf of communities and vulnerable groups.
23. Promoting the inclusion of impact-based forecasting services within regional and national governmental policies and strategies.



ANNEX 1 - IFRC EARLY WARNING SYSTEM APPROACHES

Since 2006 the IFRC has developed a range of policies and strategies to support National Societies with Early Warning Systems, Early Warning Early Action and Forecast based Financing (see figure 3). Much of this work is based on the learning post the Indonesia Tsunami.

Figure 3 – IFRC’s Key Early Warning System



In addition to the above milestones, Early Warning Systems were identified as a strategic priority by the IFRC in its Strategy 2020, a document that provides a strategic overview for the 192 National Societies it represents. Specifically, the strategy highlighted the importance of a reliable Early Warning Systems in saving the maximum number of lives, as well as protecting assets and livelihoods.¹³⁸

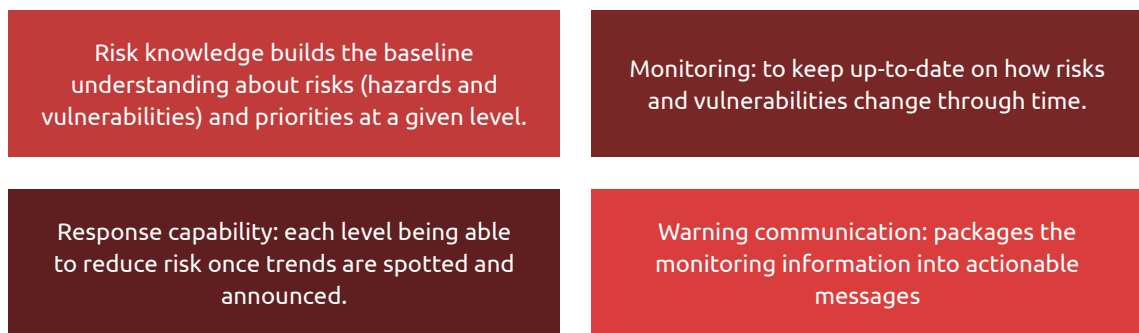
The IFRC continues to prioritise Early Warning Systems in its 2021-2025 Plan and Budget that identifies addressing climate and environmental crises as one of its five strategic priorities. With Early Warning Systems contained within the outcome 1.1 statement.

*Outcome 1.1: Communities and Red Cross and Red Crescent (RCRC) staff and volunteers undertake urgent action to adapt to the rising and evolving risks from climate and environmental crises.*¹³⁹

The IFRC’s approach to Early Warning Systems consist of four pillars that build on UNISDR’s definition (figure 4).

138 IFRC. (2012). *Community Early Warning System: Guiding Principles*.
 139 IFRC. (2020). *IFRC Plan and Budget 2021-2025*.

Figure 4 –IFRC’s Early Warning Systems Framework.¹⁴⁰



IFRC’s Early Warning System Cross-Cutting Themes¹⁴¹

It’s important to note that within IFRC’s Early Warning System Framework there are thirteen guiding principles that the IFRC support regional and country levels to consider, based on previous lessons learned and best practices around the globe (see figure 5).

Figure 5 – IFRC’s Early Warning System Cross Cutting themes



140 IFRC. (2012). *Community Early Warning System: Guiding Principles*, p15.

141 IFRC. (2012). *Community Early Warning System: Guiding Principles*, p25.

ANNEX 2 - IFRC'S POLICIES, STRATEGIES AND TOOLS THAT FOCUS AND/OR LINK TO EARLY WARNING SYSTEMS AND FBF

Linking EWS with DRM / CCA	IFRC approach	IFRC's Policies / Strategies / Tools
<p>Resilience and Early Warning Systems</p>	<p>Resilience is a key focus of IFRC's work with National Societies. It is linked to the concept of reducing vulnerability and enhancing community capacities to cope with and recover from shocks and disruption.</p>	<ul style="list-style-type: none"> • <i>IFRC Framework for Community Resilience</i> is at the core of IFRC's community work, merging its humanitarian principles and concern for immediate threats with longer-term sustainability approaches and institutional strengthening.¹⁴² • <i>Road Map to Community Resilience</i>; supporting things like community planning for disasters and climate change, and community and household disaster risk reduction and preparedness measures. • <i>Building Urban Resilience: A Guide for Red Cross and Red Crescent Engagement and Contribution</i>. • <i>The IFRC and Community Resilience: Communication Guidance for National Societies</i>.
<p>Disaster Risk Reduction and Climate Change Adaptation & Early Warning Systems</p>	<p>Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) policies and guidelines all include community focused outcomes through community-driven identification of key risk factors and taking pre-emptive measures to reduce or eliminate their impact. The IFRC has adopted a number of tools for working with communities to identify and address the immediate and longer-term risks which in turn inform the development of early warning systems.</p>	<ul style="list-style-type: none"> • <i>A Guide to Mainstreaming Disaster Risk Reduction and Climate Change Adaptation</i>. • <i>Framework for Climate Action Towards 2020</i>. • <i>Disaster risk reduction: a global advocacy guide</i>. • <i>Key determinants of a successful CBDRR programme</i>. • <i>CBDRR Practitioners Guidelines</i>. • <i>Disaster: How the Red Cross Red Crescent Reduces Risk</i>. • <i>Red Cross / Red Crescent Climate Guide</i>. • <i>Enhanced VCA (EVCA) Guidance and toolbox</i>. • <i>Integrating Climate Change and Urban Risks into the VCA Ensure Effective Participatory Analysis and Enhanced Community Action</i>. • <i>Guideline for Climate Risk Analysis</i> • <i>Effective Law and Policy on Gender Equality and Protection from Sexual and Gender-Based Violence in Disasters</i>. • <i>Public awareness and public education for disaster risk reduction: Action-oriented key messages for households and schools</i>. • <i>Minimum Standards for Local Climate-Smart Disaster Risk Reduction</i>. • <i>Checklist on Law and Disaster Risk Reduction (DRR Checklist) and Handbook on Law and Disaster Risk Reduction (both developed in partnership with UNDP)</i>. • <i>Action Plan for Humanitarian Adaptation to Climate Change</i> • <i>Forecast Based Financing Manual</i>

142 IFRC (2014) *Framework for Community Resilience*.

Linking EWS with DRM / CCA	IFRC approach	IFRC's Policies / Strategies / Tools
Disaster Preparedness & Early Warning Systems	<p>Recognising that disasters or other emergency situations will occur, IFRC and National Societies undertake local, national and regional preparedness activities to ensure that the needs of affected populations are anticipated and planned for in advance. Important measures include preparedness for evacuation and forecast-based financing to make cash distributions ahead of an imminent disaster to support people to take lifesaving action and reduced the impacts of the disaster.</p>	<ul style="list-style-type: none"> • <i>Preparedness for Effective Response</i> • <i>Setting Up a National Disaster Preparedness and Response Mechanism: Guidelines for National Societies</i> • <i>Checklist on Law and Disaster Preparedness and Response (DPR Checklist).</i> • <i>Contingency Planning Guide</i> • <i>Community early warning systems: guiding principles</i> • <i>Training Toolkit for Community Early Warning Systems (CEWS)</i> • <i>Public awareness and public education for disaster risk reduction: Action-oriented key messages for households and schools</i> • <i>Guideline for Climate Risk Analysis</i> • <i>Manual for Forecast-based Financing</i> • <i>Early Warning > Early Action</i> • <i>FbF Shelter Early Action Guidebook</i> • <i>Impact-based Forecasting Guide</i> • <i>Connections between National Society PER and FbF</i> • <i>Forecast based Financing and Disaster Displacement: Acting early to reduce the humanitarian impacts to displacement.</i>
Disaster Response and Early Warning Systems	<p>At the core of much of the work of the IFRC and National Societies is the provision humanitarian assistance to people affected by disasters or other crises.</p>	<ul style="list-style-type: none"> • <i>Guidelines for Emergency Assessment</i> • <i>Checklist on the Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance</i> • <i>Guidelines for Cash Transfer Programming</i> • <i>Minimum Standards for Protection, Gender and Inclusion in Emergencies</i> • <i>Community-Based Surveillance: Guiding Principles</i> • <i>A Red Cross Red Crescent Guide to Community Engagement and Accountability (CEA)</i> • <i>Disaster Relief Emergency Fund DREF has provided funding for anticipatory actions</i> • <i>Closing the Gap: reconciling short-term disaster response with long-term risk reduction with 'forecast-based financing' (FbF)</i>

ANNEX 3 – KEY INFORMANT INTERVIEWS

Name	Title	Organisation
Phoebe Wafubwa Shikuku	FbF / EWS Coordinator	IFRC Africa Region
Raymond Etienne	Regional FbF Coordinator	IFRC Asia Pacific Region
Jurg Wilbrink,	DRR & FbF Adviser	IFRC CCST Southern Africa
Nicholas Callender	Disaster Risk Management Specialist	World Bank
Francis Samson Nkoka	Disaster Risk Management Specialist	World Bank, Malawi
Irene Amuron	Technical Adviser	Red Cross Climate Centre
Jean-Baptiste Migraine	Technical Coordinator	World Meteorological Organization
Marjorie Sotofranco		IFRC
Krystell Santamaría Muñoz	Senior Officer, National Societies Preparedness, Business Continuity	IFRC
Soren Boge	FbF delegate	Danish Red Cross (Malawi)
Aston Mulwafu	Head of Disaster Management	Malawi Red Cross
Patricia G Phiri	Nsanje Programme Coordinator	Malawi Red Cross
Cecilia C Banda	Chiwawa Programme Coordinator	Malawi Red Cross
Madhab Uprety	Adviser	Red Cross Climate Centre
Khem Raj Nepal	Programme Manager	IFRC Nepal
Niru Pradhan	EWS focal person	Nepal Red Cross
Santosh Neupane	Programme Manager	Nepal Red Cross
Anne-Sophie Petri	ECHO Programme Manager	Danish Red Cross, Nepal
Dinee Tamang	Resilience MERL Adviser	Mercy Corps
Dharam Uprety	Thematic Lead - Climate and Resilience	Practical Action - Nepal
Lemau Afamasaga	Disaster management coordinator,	IFRC - Country Cluster Delegation for the North Pacific
Olivia Warwick	Former Senior Climate Change Adviser (Pacific Region)	Red Cross Climate Centre
Trisha Wilden	Former Climate Change Adviser (Pacific Region)	Red Cross Climate Centre
Jen Stewart Manu	Climate and Resilience Delegate	IFRC - Country Cluster Delegation for the Pacific
Rene Jinon	Adviser	IFRC - Country Cluster Delegation for the Pacific
Lina Sjaavik	Project Officer	World Meteorological Organization
Cedric Hoebreck	Country Impact Manager	World Vision Australia
Vatina Devesi	Portfolio Manager DRR	World Vision Solomon Islands
Tessa Tafua	Associate Project Officer	World Meteorological Organization (Samoa)
Henry Taiki	Representative for the South-West Pacific	World Meteorological Organization
Salesa Nihmei	Meteorology and Climatology Adviser.	SPREP

ANNEX 4 - GLOBAL EXAMPLES IFRC'S AND NATIONAL SOCIETIES' GOOD PRACTICES

Local level - National Societies' early warning systems and FbF work

A review of 28 early warning systems in the Caribbean found the majority of projects had a national focus (51%), followed by regional (36%) and only 13% of projects targeted the 'last mile' community users.¹⁴³ Out of the 28 projects reviewed, the National Societies' were often cited as the lead implementing partner in outputs relating to community preparedness actions. For example, in an on-going ECHO funded programme for **Barbados, Cuba and Dominican Republic**, IFRC and respective National Societies strengthened the early warning system of 10 communities in coordination with the National Disaster Management Offices through activities like simulation drills, vulnerability and capacity assessments and training of community volunteers.¹⁴⁴

In 2015 the **Mongolian** Red Cross Society, with support from IFRC formed a partnership with the mobile service provider G-Mobile to streamline communications between the Red Cross to at risk communities. Specifically in times of disaster, text messages are sent to geographically defined segments of the population. Giving people instant access to lifesaving information delivered on their mobile phones in areas where previously the only means of issuing emergency warnings was through radio and television.¹⁴⁵

In **Mozambique**, in the context of cyclones, preparedness actions by the National Society include mapping and training volunteers in first aid and shelter and settlements, the creation of community working groups, and memorandums of understanding with community radio. This approach is based on a survey of impacts and community consultations in which community members stated that a lack of transportation to, and food and water in, cyclone shelters would deter them from evacuating.¹⁴⁶

In **Bangladesh**, a country frequently flooded; 6million people were affected by the 2017 floods and, another 7million people affected by the 2019 floods. The Bangladesh Red Crescent Society (BDRCS), with support from IFRC have been implementing community-based resilience programmes for several years. The aim of these programmes is to strengthen community resilience for effective response to multi-hazards and climate-induced phenomena for the most vulnerable people. Central to these programmes has been the 'last mile' implementation of Flood Early Warning System (including training of response volunteers, mock evacuation drills, and contingency planning). In a review of four specific communities where the Flood Early Warning System was activated in the 2019 floods, it was found that 90% of the community members BDRCS worked with received and acted on flood early warning messages to evacuate with their valuables before the flood waters hit.¹⁴⁷ The assessment also found that 70% of community response volunteers focused their help in supporting the most vulnerable community members – women, children and people with disabilities to evacuate safely.¹⁴⁸

143 Rahat, S. (date). *Desk review of Early Warning Systems (EWS) in the Caribbean*. An examination of the Levels of Investment Established to Strengthen the 4 pillars of Early Warning Systems at the Regional, Nation and Community Levels.

144 Rahat, S. (date). *Desk review of Early Warning Systems (EWS) in the Caribbean*. An examination of the Levels of Investment Established to Strengthen the 4 pillars of Early Warning Systems at the Regional, Nation and Community Levels. DIPECHO II project Strengthen integrated and cohesive preparedness capacity at a regional, national and community level in the Caribbean.

145 IFRC. (2015). *Red Cross and G-Mobile launch SMS system to deliver life-saving information across Mongolia*.

146 IFRC. (2019). *Mozambique Early Action Protocol Summary*.

147 Bangladesh Red Crescent Society. (2020). *Effectiveness of Flood Early Warning System to Reduce Economic Loss at Four Communities – Integrated Flood Resilience Programme*.

148 Bangladesh Red Crescent Society. (2020). *Effectiveness of Flood Early Warning System to Reduce Economic Loss at Four Communities – Integrated Flood Resilience Programme*.

National level - National Societies' early warning systems and FbF work

In **Mongolia** the National Society began collaborating with the UN's FAO in 2017 to investigate what information would give the best detailed picture of the likelihood, severity and impact of a dzud. Together, FAO and the Mongolian Red Cross used the same dzud risk map as the basis for planning their early interventions. In practice this meant that the information collected by the National Society's extensive branches in communities informs the wider response by FAO and other organisations.¹⁴⁹

In the days leading up to Cyclone Typhoon Kammuri in 2019 in the **Philippines**. The National Society, with support from the German Red Cross worked with local government authorities to monitor the situation with their established impact-based forecasting. The forecasting overlaid the wind speed forecast with data for indicators like poverty levels of areas, building types and historical impact of typhoons to identified priority provinces for evacuation support. National Society staff and volunteers supported communities to carry out shelter strengthening activities, with early harvesting of crops and evacuation of people and livestock to safer ground.¹⁵⁰

In **Peru** the National Society has mapped out different early actions specific to each region and relevant hazards (floods, of strong rains and extreme cold waves). Early actions for strong rains and floods include first aid training, provision of safe drinking water and hygiene kits, as well as strengthening and protecting houses.¹⁵¹

In **Bangladesh** in 2019 during heavy monsoon rains, the National Society was part of a coordinated inter-agency impact-based forecasts and warnings. The National Society worked in partnership with the Bangladesh Government to anticipate the likely impacts and released funds to help communities at risk ahead of a flood peak.¹⁵²

In **Nicaragua** the National Society's capitalised on its axillary status to institutionalise its role in supporting communities to engage in early warning system in the National Law (Nicaragua's Law 337 of 2000).¹⁵³

Regional level - National Societies' early warning systems and FbF work

In four countries in the Caribbean the IFRC and National Societies supported local communities to increase their preparedness through knowledge and tools transfer. In St Vincent and the Grenadines National Societies purchased and installed additional river monitoring equipment, training National Society volunteers on how to use and maintain the equipment and working with them to establish communication channels and the tailoring of EWEA messages.¹⁵⁴

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ANNEX 6 – TERMS OF REFERENCE

CREWS - IFRC CASE STUDIES: “ROLE OF NATIONAL RED CROSS AND RED CRESCENT SOCIETIES IN NATIONAL AND LOCAL EARLY WARNING SYSTEMS”

TERMS OF REFERENCE

CONSULTANCY SERVICES

1. Case Studies – the context

The Climate Risk and Early Warning Systems (CREWS) is a mechanism that funds Least Developed Countries (LDC) and Small Island Developing States (SIDS) for risk informed early warning services, implemented by 3 partners (World Bank/GFDRR, WMO and UNDRR), based on established operational procedures.

It was launched by 5 countries at UNFCCC COP21 in December 2015. Two additional countries have joined and are contributing to the Trust Fund since. As of the end of 2019, 44 vulnerable countries benefit from CREWS country and regional project support, supported by 11 country and regional projects with approximately USD 60 million committed.

The CREWS Steering Committee, at its 11th Meeting invited the CREWS Secretariat to consult and document the opportunity, the costs and implications of engaging with new partners, including the International Federation of Red Cross and Red Crescent Societies (IFRC) as part of the option for a CREWS Vision 2025 document and its ambition to prioritise people-centred early warning systems. The three proposed country case studies are part of the effort to document these opportunities, and the potential benefits of engaging National Red Cross and Red Crescent Societies, through the IFRC, in CREWS projects more systematically, and as part of the project design phase.

2. Scope of assignment

- Collection of information:
 - In order to give answers to the questions included in the proposed report outline (see annex I), the consultant will gather relevant information from a desk study of available relevant information as well as from the country context.
 - The necessary contact with people in the field are the responsibility of the consultant, in consultation with the IFRC.
 - Before starting the collection of information, a discussion will be organized between the consultant and the contact in IFRC, to go through the list of questions and clarify the expectations behind each and all questions of the list.
- Writing of a report:
 - The report should follow as much as possible the proposed Outline. If the consultant wishes to include different sections or additional analysis than what is contained in the report outline, this should be pre-agreed with CREWS and IFRC contacts.
 - If a question is not relevant, it has to be notified to the contact in IFRC.

4. Interactions during assignment

- The consultant is expected to work in close consultation with the relevant National RC/RC societies, the IFRC offices and other institutions in the concerned country as well as the global contact point in IFRC. Feedback will be provided to the consultant, as part of the interaction.
- The IFRC contact will be available during the whole assignment to support the consultant for possible clarification concerning the questions to be researched

- The interaction with the people in the field will be facilitated by the IFRC contact, but is left to the responsibility of the consultant.
- All outputs will be submitted to, reviewed and cleared by the Head of CREWS Secretariat, Mr John Harding and IFRC Ms Tessa Kelly.

Annex I:

CREWS RC/RC Case Studies

Report Outline

I. Executive summary:

II. Introduction:

- Introduction to the auxiliary role of National RCRC Societies and their strong and diverse engagement in national early warning systems around the world
 - Reference to existing literature and documentation of prominent NS examples (for example, Bangladesh)
-

III. Three country case studies that address:

a) Country context:

- Type of Hazards for which early warning systems are in place
 - Brief description of the RC/RC set-up/capacity and auxiliary role in country (generally specified in legislation)
 - Brief description of the institutional and legislative context for disaster risk management
 - Brief description of the early warning systems, roles and responsibilities, any planning tools (contingency plan, early action plan and other relevant Standard Operating Procedures) at the different levels, i.e. national to sub-national/communities.
-

b) Role of the National RC/RC society in the early warning systems, and if possible/relevant including a map that depicts their engagement.

- Brief description of the National Society's previous or current work on early warning early action (including Community Early Warning Systems and Forecast-based Action/Forecast-based Financing)
 - Description of the National Society's roles and responsibilities at the different levels i.e. national to sub-national/community
 - Nature of interaction with other national actors, relevant government authorities in disaster management and early warning system, and international actors as relevant (e.g Partner National Societies, UN, World Bank, etc)
 - The nature of the relationship with the NMHSs. Do they provide the forecasting, prediction and other weather, hydro and climate data required for the RC/RC to fulfil its function directly or through other relevant/mandated authorities involved in Early Warning and Early Action (e.g NDMO)?
 - Contribution to assessing vulnerability, exposed elements (including where applicable gender aspects and identification of high-risk locations)?
 - Roles or responsibilities with regard to dissemination of early warning information or messaging to communities
 - Contribution, if any, to Impact-based Forecasting service co-produced with other actors
 - Contribution to developing tailored and actionable messages on "what to do" based on forecast and alerts
 - Does the RC/RC society have a legal or regulatory framework for early warnings. Does it apply Standard Operating Procedures (if yes, give info about them)?
 - How has the work of the RC/RC society on EW been funded over recent years?
 - Description of any recent disasters, seasons, or specific hazards in which the RC/RC National Society played a role or contributed to the effectiveness of the early warning systems. Include quotes or other references that demonstrate the beneficial impact their role had in that situation.
 - Are there any metrics put in place to measure the impact of the RC/RC role? If not yet in place, is there any hint on how to measure the success in the future?
-

c) Challenge and areas for improvement

- What good practices, or aspect of RC/RC engagement would benefit from scaling-up or expanding
 - Would the National Society benefit from institutional strengthening on EWEA/EWS and if so how? Would such institutional strengthening be a prerequisite for them to engage or contribute to a CREWS project?
 - Are National Societies able to maintain sustainability of its services to assure EWS enables action by communities at risk?
-

d) Conclusions and recommendations

- Including any assessment of the potential role the National RCRC Society could play in a CREWS or other Climate information and early warning system project or investment
- Refer to the existing CREWS pipeline project (if it exists) and provide recommendations on how the implementing partners and the IFRC could facilitate the inclusion of the National Society in order to enable a more people-centred approach to the project.

IV. Overall conclusion

- Overall findings and conclusions on the role of National Societies in early warning systems and how in general, they could contribute to CREWS projects.
- Analysis of key opportunities for current pipeline projects of CREWS, including of countries outside of the case studies. In particular, drawing on a draft case study being prepared for Niger (under a different consultancy).

Additional references (list of websites, reports, etc.)



The CREWS Initiative gratefully acknowledges the contributions and support of:

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France
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Luxembourg



Netherlands



Switzerland



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Kingdom

CREWS Observers



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ACP



European
Commission



IFRC



UNDP
Empowered lives.
Resilient nations.



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