Midterm Review

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030

Good Practices in Disaster Risk Reduction

Extracted from formal submissions to the Midterm Review of the Sendai Framework

31 March 2023

UNDRR
UN Office for Disaster Risk Reduction

Introduction

Adopted by Member States in the United Nations General Assembly in June 2015,[1] the Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework) was the first of a series of pivotal agreements established that year, which together sought to chart navigable pathways for humans and ecosystems to 2030 and beyond. In the Sendai Framework, States adopted an insightful and prescient framework, one that called for a critical shift in how the world deals with disasters – moving prevailing approaches away from managing disasters after the fact, to managing risks *before* they manifest as shocks. Responsibility for this was situated not only with government offices, institutions or entities responsible for disaster and crisis management, but with all stakeholders, requiring an '*all-of-society*' and '*all State institutions*' engagement and partnership[2] for its achievement.

The Sendai Framework has undoubtedly played a decisive role in generating international momentum in improving risk knowledge and information, providing a common language and a framework for significant national efforts. The steady growth in the number of countries that have reported on Sendai Framework implementation over the years is itself an indicator of increasing commitment to a more nuanced understanding of risk. The many inspiring breakthroughs and success stories all over the world are yielding results, and several good practices can be replicated and scaled up to address existing gaps.

This document seeks to distil good practices from the findings and recommendations identified in The Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 (MTR SF)[3], emerging from over seventy Voluntary National Reports (VNRs) submitted by Member States following national consultations and reviews, as well as formal submissions of non-State stakeholders, meetings, interviews with experts and practitioners, policy documents, strategic and guidance documents, and thematic studies. Bringing this global expertise to scale will be critical to accelerate progress towards accelerating implementation of the Sendai Framework and thus risk-informed sustainable development.

The following sections highlight good practices in disaster risk reduction (DRR) that correspond to the Sendai Framework's four priority areas. While the good practices included provide valuable insights on the way forward, in that they are drawn from the submissions of Member States and stakeholders to the MTR SF, they should not be treated as exhaustive.

As such, this document must be read in conjunction with the report of the *Main findings and recommendations of the midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030* (A/77/640) and the *Report of the midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030*. It is recommended that these examples be treated as points of departure for further discussion and scale-up at regional and global levels.

[1] A/RES/69/283.

[2] Paragraph 19(d) and Paragraph 19 (e) of the Sendai Framework

[3] For the *Report of the Main Findings and Recommendations of the MTR SF*, the *Report of the MTR SF*, as well as the full repository of submissions and all information related to the Midterm Review of the Sendai Framework please see https://sendaiframework-mtr.undrr.org/

Summary of Good Practices

Priority 1: Understanding disaster risk			
	Country / Region	**Good Practice**	**Page**
1	**Ecuador**	With financial support from grassroots women's organisations, leaders from *Fundación de Mujeres Luna Creciente* conducted **risk mapping** to identify women's vulnerabilities due to COVID-19.	2
2	**Burundi**	**Involvement of local communities in identifying and assessing disaster risks**, through devolved data collection governance structure.	2
3	**Gambia**	**Involved of local communities in identifying and assessing disaster risks**, through devolved data collection governance structure.	2
4	**European Commission**	**INFORM** – A multi-stakeholder forum supported by the European Commission Disaster Risk Management Knowledge Centre to develop shared, quantitative analysis relevant to humanitarian crises and disasters	3
5	**Ethiopia**	**Woreda Disaster Risk Profiling** – A programme providing high resolution data, disaggregated by geographic areas and population categories in order to develop a more evidence-based disaster risk management strategy in support of risk-informed development planning.	3
6	**United States of America**	**Collection and utilization of social vulnerability information** by the Federal Emergency Management Agency to better tailor disaster response.	4
7	**Norway**	Mandated publicly available **DRR data that is translated into common language** to make it easier for DRR responsible organisations.	5
8	**Thailand**	**Thai Disaster App** – Helping to provide timely information about disaster situations to the public.	5
9	**Kazakhstan**	Recognized the **potential of social media platforms and communicating DRR risk information** through mass SMS, TV, TikTok, and YouTube.	
10	**Japan**	Improved **clarity on disaster communications**, including through the amendment of the Basic Act on Disaster Management, to review evacuation information and consolidate evacuation recommendation.	5
11	**Tanzania**	**Requires 30% of the budget for road repair and maintenance to be set aside for marginalized groups** such as women, persons with disabilities, and youth.	6
12	**Mauritius**	**Community Disaster Response Program (CDRP) – Developed abilities of local communities to respond to disasters and foster a risk-reduction culture** by empowering volunteers in vulnerable areas.	6

	Country / Region	Good Practice	Page
13	**Thailand**	**Community based disaster risk management** that us frequently **centered around local communities**, including sub-district administrative organizations, municipalities, and vilage communities	6
14	**Indonesia**	Using stories, songs, poems, and lullabies as way of communicating **local early warnings**.	6
15	**Australia**	**Embracing Indigenous knowledge** and **nature-based solutions** to tackle climate-change-induced disaster risks.	7
Priority 2: Strengthening disaster risk governance to manage disaster risk			
16	**Costa Rica**	Legally mandates **all institutions to allocate budgets for prevention and emergency response**.	8
17	**Australia**	**Systemic Disaster Risk Handbook** – The programme **targets leaders in government, business and communities** across all sectors, and beyond those traditionally responsible for emergency management**.**	9
18	**Greece**	**Enhanced cross-border cooperation** for inclusive systems regarding heat and wildfire risk governance.	10
19	**Caribbean Region**	**Established Regional Response Mechanism** (RRM) to address the capacity constraints faced by Small Islands and Developing States (SIDS) in Caribbean Region.	11
Priority 3: Investing in disaster risk reduction for resilience			
20	**Fiji**	In meeting CRPD obligations, **allocated 0.22 percent of national budget to persons with disabilities** (2020 - 2021).	12
21	**Australia**	**Disaster Ready Fund** – **Invest** up to A$ 200 million per year from 2023 - 2024 **in disaster prevention and resilience initiatives.**	12
22	**The Philippines**	**Equipped local governments with enabling structures, plans, funds, and a dedicated DRRM Office**, through Disaster Reduction and Disaster Risk Management Framework and Law.	13
23	**The Philippines**	Utilized **catastrophe bonds to enable a swift pay-out for recovery efforts** following Typhoon Odette.	16
24	**Grenada**	Implemented **disaster clauses that allow for an immediate debt moratorium** in the event of economic impacts caused by disaster.	16

	Country / Region	Good Practice	Page
25	**Barbados**	Implemented **disaster clauses that allow for an immediate debt moratorium** in the event of an economic impact caused by disaster.	16
26	**New Zealand**	Implemented various measures to **expand insurance coverage and enhance earthquake mitigation**.	16
Priority 4: Enhancing Disaster Preparedness for Effective Response and to "Build Back Better" in Recovery, Rehabilitation, and Reconstruction			
27	**Colombia**	**The Escuela de Incidencia Politica con Enfoque de Genero – Gender-approach Advocacy Training Series that address identified training gaps** for women to be involved in political process and DRR processes.	17
28	**Morocco**	**Recently updated seismic building regulations**.	18
29	**The Republic of Korea**	Established **national and local disaster-related psychological recovery support groups** composed of government officials and private-sector experts.	18
30	**Canada**	Placed **strong focus on increasing the resilience of critical infrastructure**, enshrined in the National Strategy and Action Plan for Infrastructure.	18
31	**Liberia**	**Established National Public Health Institute of Liberia (NPHIL)** to **address weaknesses in public health** systems identified during Ebola outbreak.	20
32	**Tanzania**	**Enhanced border security** during COVID-19 as a **result of lessons learned** from Ebola outbreak.	20
33	**Zimbabwe**	**Pfumvudza Farming** – Climate Proofed Presidential Inputs Scheme that aims to **enhance household food security with minimal financial commitments** from the government	20
34	**Cambodia**	**Platform for Real-Time Information for Security and Management (PRISM)** – **Interactive web-based dashboard** that **integrates satellite and remote sensing data**, **field information**, and **socio-economic data** from early warning systems to **generate actionable climate information**.	22

1. Priority 1: Understanding disaster risk

Since 2015, DRR stakeholders have recognized the critical importance of **reliable and interoperable data in capturing various aspects of disaster risk**. Data that includes the underlying drivers of vulnerability, exposure and resilience among at-risk populations, assets and ecosystems. However, many DRR stakeholders across the globe still lack sufficient data necessary for implementing effective disaster risk management (DRM) strategies.

1.1. Collection and utilisation of granular data for more inclusive and equitable DRR

The collection and utilisation of disaggregated data is crucial for identifying and mitigating potential hazards, improving targeted emergency response, and facilitating informed decision-making. Granular data that considers the unique vulnerabilities of certain groups within society – such as women, older persons, persons with disabilities, lower-income households, and children – allows for more effective targeting of root causes and drivers, as well as scarce DRR resources. Without data on these groups, disaster vulnerabilities remain invisible and unattended.

Respondents to the MTR SF outlined that progress in this area has been inadequate. Primarily, there has often been a lack of prioritisation or inclusion of vulnerable groups in data collection processes. Although resources may exist, many countries have taken broad approaches to data collection or lack mandates for disaggregated data collection. Decisions that are made are thus frequently not supported by evidence that represents real vulnerabilities within income groups and households. Additionally, there is a lack of technical or financial capacity for collecting localised or disaggregated data.

The following good practices have been found effective for enhancing the collection and utilisations of granular data:[4]

- **Mandating the collection of disaggregated data.** All data collection efforts must focus on the collection of disaggregated data.[5] Further, the collection and utilisation of this data in DRR planning should be legally mandated with a need for special considerations and measures for ensuring vulnerable groups' unique disaster risks are accounted for. Governments must mandate the devolution of data collection in order to utilise local expertise.[6] For instance, in Ecuador, with financial support from grassroots women's organisations, leaders from Fundación de Mujeres Luna Creciente conducted risk mapping in six provinces to identify women's vulnerabilities due to COVID-19, such as increased domestic violence, loss of livelihoods and income, and increased workload. Through utilising women's expertise, disaggregated information related to women could be gathered more effectively.[7]
- **Support the collection of disaggregated data with financial and technical resources.** Governments must commit financial and technical resources to data collection efforts. This should be complemented with efforts to improve capacity, technical skills, and inclusion of a breadth of DRR stakeholders. In Burundi and Gambia for instance, the government involves local communities in identifying and assessing disaster risks. This is facilitated through devolved data collection governance structures, which include regional and district disaster committees mandated to include local leaders, women and youth groups, regional authorities, and village development committees. [8]

[4] For more related information please refer to UNDRR & UNDP, (2022), "Data and digital maturity for disaster risk reduction: Informing the next generation of disaster loss and damage databases" accessed at https://www.undrr.org/publication/data-and-digital-maturity-disaster-risk-reduction-informing-next-generation-disaster and UNDRR (2022), The Global Assessment Report on Disaster Risk Reduction: Chapter 11 From big data to better decisions (pg. 160 – 178)
[5] See Ethiopia example below
[6] See USA example below
[7] Regional Thematic Report: LAC Women's Network for DRR Working Group. Prepared for the Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030
[8] Burundi, Voluntary National Report, (pg. 9). and Gambia, Voluntary National Report, (pg. 4)

- **Exploiting the full potential of new technology for data collection and analysis.** Technological developments, such as satellite-based technologies, can allow for the generation of large data sets, including geospatial data, that can provide information on land use, topography and population density.
- **Establishing centralised and publicly available data platforms and identifying gaps.** DRR actors must commit to establishing centralised and publicly available data platforms for DRR information to better facilitate evidence-based decision-making and prioritisation of DRR interventions.[9] This information should be shared across sectors, institutions, ministries, and borders to ensure that DRR data is accessible and widely available in easily understandable formats. For instance, as undertaken by INFORM, a multi-stakeholder forum supported by the European Commission Disaster Risk Management Knowledge Centre for developing shared, quantitative analysis relevant to humanitarian crises and disasters.[10]

From the Ground Up: How Ethiopia's focus on localized data is transforming disaster resilience[11]

Impact and Context

Ethiopia is a country prone to various natural and man-made hazards and risks, including drought, flood, landslides, and conflict. When realised, such disasters frequently have significant economic and human costs. The country's diverse geography also presents challenges for disaster risk management, as each zone has unique risks and vulnerabilities. Recognizing the need for granular and comprehensive risk data that reflects this diversity, the Government of Ethiopia initiated the Woreda Disaster Risk Profiling (WDRP) programme in 2016.

Stakeholders

The WDRP programme involved the Government of Ethiopia and all 485 woredas in Ethiopia. A Woreda is the most local administrative division in Ethiopia and is managed by local government.

Methodology and Approach

The programme aimed to provide high resolution data, disaggregated by geographic areas and population categories in order to develop a more evidence-based disaster risk management strategy that would support risk-informed development planning. The WDRP programme involved collecting data on hazards, risks, and vulnerabilities in all 485 woredas. This data has been used to develop risk profiles for each woreda, and DRR and contingency plans were created in over 350 districts.

Innovation and Key Success Factors

The programme's focus on geographically disaggregated and multidimensional data produced at the lowest administrative level possible, has ensured that plans are tailored to the specific risks and vulnerabilities of each district. This programme has significantly improved the country's ability to understand and address risks, prepare and respond to disasters, and thus minimize negative impacts on local communities.

Replicability and Scaling

The programme's focus on localised data, involvement of local government stakeholders, and multidimensional approach can be adapted in other contexts to develop risk-informed disaster management strategies.

[9] The creation of centralised national data platforms was identified in Voluntary National Reports from: Bhutan, Egypt, and Norway
[10] INFORM, European Commission Disaster Risk Management Knowledge Centre at https://drmkc.jrc.ec.europa.eu/inform-index
[11] Ethiopia, Voluntary National Report (pg. 6)

Closing the Divide: How the USA is using social vulnerability information for more effective disaster risk management (DRM)[12]

Impact and Context

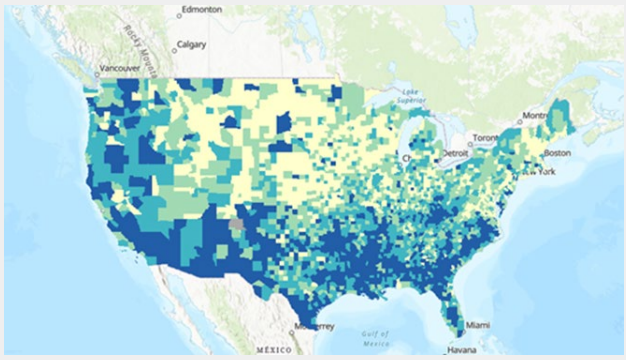
In the United States of America, the Federal Emergency Management Agency (FEMA) has been collecting and utilizing social vulnerability information to better tailor disaster responses.

Stakeholders

The project involves the Federal Emergency Management agency which works closely with other federal, state, local agencies, local communities and NGOs.

Methodology and Approach

Using collected vulnerability information, FEMA provides targeted support to those who are most vulnerable in the aftermath of a disaster. This involves providing additional resources to survivors in areas with higher levels of social vulnerability, such as low-income areas.



Innovation and Key Success Factors

By incorporating social vulnerability information into their operational decisions, FEMA is better able to ensure that their disaster response efforts are equitable and that vulnerable communities needs are not left behind in the aftermath of a disaster.

Replicability and Scaling

By incorporating social vulnerability information into their operational decisions, FEMA is better able to ensure that their disaster response efforts are equitable and that vulnerable communities needs are not left behind in the aftermath of a disaster.

1.2. Communicating data at the local level

Evidence has repeatedly shown that effective DRR relies on clear and actionable communication of information. Clear communication can build awareness of disaster risks, enhance preparedness, and contribute to *all-of-society* resilience. Engaging with local communities who are most at risk is important for building trust between communities and DRR practitioners, leading to greater collaboration and a greater likelihood of successful disaster response and recovery efforts. Governments throughout their Voluntary National Reports (VNR) clearly outline that they have learned the hard way, that the effectiveness of emergency alerts depends on the ability of individuals' and businesses' to act upon them. Despite this, there has been mixed success reported by participants in the MTR SF in communicating disaster risk information successfully at the community level.

Misaligned, ineffective or inadequate communication has been cited as a significant concern. Even with increased understanding of disaster risk at the national or government level, this does not often transcend to the community level. Countries outline that local disaster risk is often still perceived as natural or

[12] United States of America, Voluntary National Report (pg. 8). Image: FEMA CDC Vulnerability Index at https://www.fema.gov/node/cdc-social-vulnerability-index

inevitable rather than manageable.[13] In these instances, communication channels are reported to be ill-performing or absent.

Good practices on developing strong communication for DRR including the following:[14]

- **Increasing accessibility to risk information and ensuring an *all-of-society* approach in DRR planning.** Governments must prioritize the translation of DRR information into the primary languages of local communities so ensuring that people can understand, prevent and reduce risk, and prepare and react appropriately to disasters. [15]
- **Having clear, simple and locally relevant instructions** ensures that local communities can understand and thus act upon complex information. Information shared at the right time and in an understandable way by trusted sources can save countless lives and help keep people safe. The Government of Norway for instance, has mandated that publicly available DRR data is translated into common language, thereby making it easier for DRR responsible organisations to access data even if sources use different terms.[16]
- **Utilising diverse communications technologies.** Utilising multiple communication channels has been effective in enhancing risk communication. Governments must optimise the use of text messages, cellular phone, and online alerts as effective ways to reach large communities during crisis. For example, in Thailand, the "Thai Disaster Alert" app helps provide timely information about disaster situations to the public. In Kazakhstan, the government recognizes the potential of social media platforms and communicates DRR risk information through mass SMS, TV, TikTok, and YouTube.[17] These technologies allow for rapid and real-time communication, ensuring that during critical moments appropriate actions can be taken, response times improved, and coordination enhanced.

Bridging the Information Gap: How Japan is improving disaster resilience through better targeted and designed communication[18]

Impact and Context

Japan experienced significant losses due to delayed evacuations during heavy rains in 2018 and a typhoon in 2019, despite having advanced early warning systems in place. A critical point was that local communities could not understand what actions were recommended. To address this, the government endeavoured to improve the clarity of its disaster communications.

Stakeholders

The Japanese government, local governments, and local communities

Methodology and Approach.

The changes involved organising evacuation information into five alert levels that local communities can intuitively understand. The Basic Act on Disaster Management was also amended to review evacuation information and consolidate evacuation recommendation and instruction into a single "evacuation instruction" to promote easy understanding. In

[13] For instance, see Viet Nam, Voluntary National Report (pg. 12)
[14] For more information refer to: UNDRR (2017), Public communication for disaster risk reduction accessed at https://www.undrr.org/publication/public-communication-disaster-risk-reduction and UNDRR (2022), The Global Assessment Report on Disaster Risk Reduction: Why risk communication is essential (pg. 7), Advancing Risk communication (pg. 124 – 138, and Pg. 111 – 120).
[15] For more information refer to: UNDRR, (2019) "Disaster Displacement: How to reduce risk, address impacts and strengthen resilience (pg. 41) accessed at https://www.preventionweb.net/files/58821_wiadisasterdisplacement190511webeng.pdf
[16] Norway, Voluntary National Report (pg. 4)
[17] Thailand, Voluntary National Report (pg. 13) and Kazakhstan, Voluntary National Report (pg. 17)
[18] Japan, Voluntary National Report (pg. 5)

addition, the Act was revised to oblige municipalities to create "individual evacuation plans" for vulnerable groups such as the older persons and persons with disabilities.

Innovation and Key Success Factors

Japan's approach to disaster communication is innovative as it emphasises clear and concise messaging. The key to success factors of this approach is clear and easily understood language, the consolidation of evacuation recommendations, and the creation of targeted or differentiated plans for vulnerable groups.

Replicability and Scaling

By prioritizing clear and concise communication and promoting individualized evacuation plans for persons most at risk, Japan demonstrates a proactive DRR communication strategy that is both effective and scalable to other contexts.

1.3. Ensuring that inclusion is at the core of DRR practice – gender, disability, persons most at risk, and local, traditional and Indigenous knowledge

DRR stakeholders have recognized the importance of full, equal and effective inclusion in risk management and recovery planning. Specifically, the Sendai Framework calls for special attention to women and girls, people with disabilities, rural populations, Indigenous peoples, ethnic and linguistic minorities, migrants, displaced individuals, gender and sexual minorities, youth, and older persons. There remain vast swathes of the world's population for whom sustainable recovery from the pandemic, sustainable energy transitions, or benefits of education and training or the digital revolution remain elusive.

In recent times, there has been an increased focus on integrating local, traditional, and Indigenous knowledge (LTIK) into DRR efforts. LTIK refers to the knowledge and practices that communities develop over generations based on their cultural, social, and ecological contexts. The unique insights and experiences of these groups can provide valuable information on the risks and vulnerabilities that communities face, thereby enhancing disaster risk management. Integrating LTIK in DRR efforts ensures that practices are culturally sensitive and appropriate, fostering a sense of ownership and empowerment at the local level.

The extent of inclusion of marginalized groups and integration of LTIK in DRR practices still varies widely among different countries. Addressing these challenges and ensuring that inclusion does not remain just a "box-ticking" exercise without substantive policy implementation, must be pursued by all DRR stakeholders. In light of this, the following best practices have shown positive results in ensuring that inclusion is central to DRR practice:[19]

- **Mandate communication with and inclusion of marginalised groups.** This can include targeted outreach such as community consultations, to ensure that marginalised groups are included in DRR decision-making processes. For example, in Tanzania, the government requires that 30 per cent of the budget for road repair and maintenance be set aside for marginalized groups such as women, persons with disabilities, and youth. This allocation also involves mandatory participatory consultation processes.[20]
- **Sustained and predictable funding for local level DRR**, including financial, technical, and human resources, should be mobilized towards DRR initiatives at the local level.[21] This challenge is often a key roadblock; for example, Poland outlines that within its internal government survey conducted

[19] For instance, disability inclusion in DRM is criticised as a "box-ticking" exercise with often minimal evidence that discourse has translated into action. Progress is still often anecdotal or imagined. (Regional Thematic Report: Disability inclusion in DRR in the Pacific prepared for the Midterm Review of the Sendai Framework, (pg.6))
[20] Tanzania, Voluntary National Report (pg. 15)
[21] Refer to The Philippines example below

at the sub-national level, one-third of respondents reported that the budget available for risk management was insufficient. [22]

- **Strengthen the capacity of marginalised and local groups to participate in DRR.** To further promote inclusion of marginalised groups, governments can support the technical capacity of civil society organizations (CSOs), and local communities to participate in DRR processes. [23] For example, the Community Disaster Response Program (CDRP) in Mauritius has been designed to develop the local community's ability to respond to disasters and foster a risk-reduction culture by empowering volunteers in vulnerable areas.[24] Further, Thailand's approach to DRM is frequently centred around concepts of community-based DRM. This approach involves providing DRR training to strengthen local communities, including sub-district administrative organizations, municipalities, and village communities, with priority given to high-risk areas.[25]
- **Actively utilise LTIK in resilience building and DRR practices.** [26] By incorporating the unique perspectives and experiences of local communities, we can develop more effective, sustainable, and culturally appropriate strategies to reduce disaster risks and enhance community resilience. Such efforts must be facilitated by communicating and working with LTIK holders on DRR programmes and ensuring that DRR management is a process of co-creation. A good illustration of potential benefits is offered by Indonesia, whereby during the 2004 tsunamis in Aceh, the Simeulue indigenous community reported only 7 casualties out of a population of 87,000 compared to a striking 130,000 deaths reported by total inhabitants in Aceh. This was attributed to the local early warning system that were communicated using stories, songs, poems and lullabies. [27]

Nature's Shield: How Australia is embracing indigenous knowledge and nature-based solutions to tackle climate-change-induced disaster risks[28]

Impact and Context

Australia is highly vulnerable to climate change-induced disasters such as bushfires. In recent years the frequency and intensity of bushfires has increased resulting in significant economic, human and ecological costs. Nature-based solutions (NBS) pose a cheap, scalable, and effective means for addressing these growing challenges. In this context the Climate-Ready Restoration Pilot project in Australia aims to enhance landscape resilience and decrease bushfire risk through incorporating traditional and Indigenous knowledge and practices into landscape restoration and management. The project's focus on planting designs is expected to decrease the frequency and intensity of bushfires, thereby reducing the significant economic, human, and ecological costs associated with them.

Stakeholders

The project is a collaboration between Greening Australia and the World Wildlife Fund, in partnership with traditional owners, Indigenous rangers, community organizations, and land managers on Australia's east coast.

Methodology and Approach

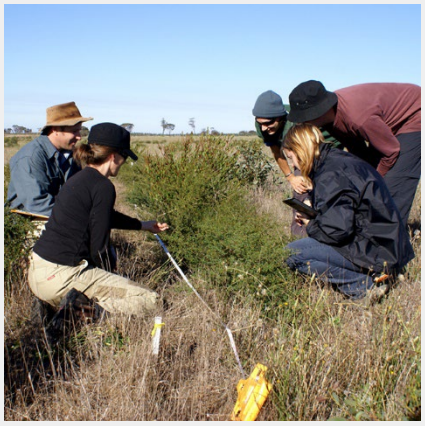
The project's focus is on incorporating traditional knowledge and practices into landscape restoration and management, such as controlled burning and habitat management. By working with traditional

[22] Poland, Voluntary National Report (pg.12)
[23] Some other States that reference training of local level organisations responsible for DRR include Argentina, Bhutan, Costa Rica, Egypt, Kazakhstan, Mexico, Morocco, Trinidad and Tobago, and Türkiye
[24] Mauritius, Voluntary National Report (pg. 28)
[25] Thailand, Voluntary National Report (pg.14)
[26] For more see UNDRR (2008), "Indigenous Knowledge for Disaster Risk Reduction: Good Practices and Lessons Learned from Experiences in the Asia-Pacific Region" at https://www.unisdr.org/files/3646_IndigenousKnowledgeDRR.pdf
[27] Thematic Study: Diverse Knowledge Systems prepared for the Midterm Review of the Sendai Framework (pg. 7)
[28] Australia, Voluntary National Report (pg. 64). Image: https://www.greeningaustralia.org.au/

owners and Indigenous rangers, the project is also helping to preserve and promote traditional knowledge and practices, which have been used for centuries to manage the landscape.

Innovation and Key Success Factors

The use of traditional and indigenous knowledge and practices in conjunction with nature-based solutions is an innovative approach to addressing climate change-induced disaster risks. The collaboration with traditional owners and indigenous rangers also promotes the preservation and promotion of traditional knowledge and practices, which have been used for centuries to manage the landscape.



Replicability and Scaling

The use of nature-based solutions and traditional knowledge and practices is a cost effective, scalable, and effective approach to addressing climate change-induced disaster risks.

2. Priority 2: Strengthening disaster risk governance to manage disaster risk

Priority 2 of the Sendai Framework acknowledges that robust disaster risk governance is essential for reducing disaster risk and enhancing resilience. It emphasizes that effective DRR is people-centred, participatory, inclusive, and accountable. It reiterates the importance of empowering communities and individuals to take ownership of disaster risk reduction efforts and involving them in all stages of the disaster risk management cycle. There has undoubtedly been significant yet varied progress in this area since 2015.

2.1. Distributed responsibility for DRR and integration in legal frameworks

The MTR SF calls for a shift in disaster risk governance, away from single entity responsibility to risk governance arrangements in which responsibility for prevention and risk reduction is assumed by multiple authorities. Disaster risk governance is increasingly supported by legal and regulatory frameworks that reflect shared responsibility for risk-informed decision making and investment. Good practices supporting the effectiveness of legal mandates within DRR include:[29]

- **Establish integrated coordination mechanisms.** Coordination mechanisms must be established between responsible bodies among different sectors and levels of government. Coordinated risk assessments across different sectors, that drive risk-informed decision-making and investment that considers potential impacts on risk creation or avoidance, and risk propagation or reduction before it manifests as a shock or disaster, is imperative. These should encompass for instance institutions with mandates for finance, economy, health, education, social services, energy, agriculture, transportation and infrastructure development.
- **DRR activities should be integrated into legal mandates in all sectors and at all levels of government.** This can involve the inclusion of DRR considerations in all public projects, private investment decisions, and development planning. Legal mandates also enhance accountability and assign responsibility, which incentivizes risk-informed decision-making, and DRR action. For example,

[29] For more on this topic refer to "Effective law and regulation for disaster risk reduction: a multi-country report" (UNDP & IFRC, 2014) at https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP_CPR_DRR_fullreport2013.pdf

Costa Rica has legal mandates in place to ensure that all institutions allocate budgets for prevention and emergency response. Additionally, all public investment projects are required to evaluate climate-related risks.[30]

- **Establish policy and legal frameworks for the devolution of DRR.** Governments must commit to creating national policies and legal frameworks that support the devolution of DRR responsibilities. These should be accompanied by legal provisions for resourcing, government support, and accountability mechanisms. Mandates must ensure that roles and responsibilities are clearly defined. For instance, the Seychelles notes that although resources have been allocated for local risk reduction, unclear legal mandates make it difficult to implement DRR policy at the local level. [31]

2.2. Mainstreaming DRR in the implementation of other instruments and tools for comprehensive risk management

In recent years, comprehensive risk management approaches are increasingly seen as vital in addressing the complexity and systemic nature of risks. [32] For DRR initiatives to be successful they must consider complex and multifaceted risk factors – such as those posed or exacerbated by hazards, conflict, climate change, gender, income disparities, and rapid urbanisation among others. A number of good practices that have strengthened such integration efforts have been:

- **Strengthening national risk governance.** Countries must strengthen national risk governance to include *all State institutions* in DRR processes. At present, lack of comprehensive national legal frameworks for DRR have hampered progress in this area. This includes mechanisms to strengthen coordination across ministries and institutions; this might include establishing or strengthening national platforms for DRR, or similar. Risk must be understood as part of the "everyday vernacular of integrated governance."[33]

Tools for Tackling Systemic Risk: Australia's Systemic Disaster Risk Handbook[34]

Traditional single-hazard views of DRR are being challenged by the increasing frequency and complexity of disasters. As economic and population growth lead to greater exposure and interdependencies, there is a need for DRR to better address systemic risks. Given this context, the Australian Institute for Disaster Resilience has developed the "Systemic Disaster Risk Handbook".

The handbook targets leaders in government, business and communities across all sectors, and beyond those traditionally responsible for emergency management. It provides principles for systemic DRR, inclusive governance and decision-making to build resilience and sustainability.

It supports risk reduction that focuses on systemic risks and resilience rather than hazard-by-hazard approaches. It seeks to ensure that systemic risks are considered in a meaningful way in all decision-making processes, including risk assessment, and help align efforts to enable sustainable economic, social, environmental and governance outcomes. Tools like these are useful for assisting DRR stakeholders in transitioning their work and advocacy towards systems-based approaches and a more holistic understanding of risk.

[30] Costa Rica, Voluntary National Report. (pg.20)
[31] Seychelles, Voluntary National Report (pg. 11)
[32] See the Voluntary National Reports of Bhutan, Burundi, Cambodia, Guatemala and Mauritius
[33] Literature Review: Risk Governance prepared for the Midterm Review of the Sendai Framework
[34] Australian Institute for Disaster Resilience (2021) "Systemic Disaster Risk Handbook" Available at https://knowledge.aidr.org.au/resources/handbook-systemic-disaster-risk/

- **Build capacity across sectors:** DRR stakeholders must foster governance mechanisms that enable collaboration between sectors, organisations, agreements, stock takes, conferences, and communities to integrate DRR throughout all processes. DRR stakeholders must invest in building capacity across multiple related sectors such as climate change adaptation (CCA), and development. Notably, Member States call for DRR to be actively integrated in the Sustainable Development Goals Summits, the Summit of the Future, the Fourth UN Conference of SIDS, and the Third UN Conference for LLDCs.[35]

Displacement and Disaster: The need for a new integrated strategy for displacement and DRR

The Sendai Framework calls for furthering risk reduction polices and strategies that reduce disaster displacement risks. Displacement is one of the key consequences of both sudden and slow-onset hazards. The increased prevalence of extreme weather events often fuelled by climate change, together with other hazards, are displacing millions of people annually, eroding resilience and deepening poverty. In 2019 alone, around 1,900 disasters brought on 24.9 million new displacements in 140 countries and territories across the world.[36] This represents the highest number of displacements recorded since 2012 and is three times the number of displacements induced by conflict and violence.[37]

To address this growing challenge there is a need to better integrate displacement considerations into the design and implementation of DRR initiatives. Disaster loss data systems, risk assessments and the Sendai Framework Monitor with its global set of standardised indicators are potentially useful platforms to strengthen collective commitments, capacities and practices in this regard. Gaps around data on internal disaster displacement and displacement triggered by rapid-onset disasters must be addressed. Interaction between DRR and displacement organisations must be fostered further.

2.3. Regional and sub-regional governance

Contributors to the MTR SF have acknowledged the significance of improving regional and sub-regional governance mechanisms for DRR since 2015. Regional governance mechanisms have been critical in enhancing coordination among regional stakeholders, facilitating better sharing of DRR resources, knowledge, and capacity, and addressing transboundary risks that cannot be managed at the national level alone. In DRR practice, such mechanisms have enabled resource sharing, joint risk assessments, greater coverage of Multi-Hazard Early Warning Systems (MHEWS) and coordinated response and recovery efforts. For regions with limited resources, where a single disaster can incur costs equivalent to annual GDP, pooling resources in this manner has been shown to yield significant benefits.[38]

The following good practices have been identified as effective for enhancing the effectiveness of regional cooperation mechanisms:

- **Providing incentives for improved cooperation at the regional level.** Countries must prioritise the establishment of regional mechanisms and build political will through advocacy, and public awareness campaigns that build regional shared responsibilities for DRR. Such efforts must also be complemented by clearly communicating the benefits and successes of such efforts.
- **Allocate resources to regional DRR mechanisms.** Regional DRR mechanisms have an essential role to play in mobilizing advocacy, targeted solutions and support to address cross-border

[35] Based on A/RES/77/164 paragraph 59
[36] Referenced in the IOM report from the Internal Displacement Monitoring Centre, (2020) Global Report on Internal Displacement. Geneva. Available at www.internal-displacement.org/global-report/grid2020/
[37] Ibid
[38] See the Caribbean example below

challenges. Moving forward, it is imperative that regional assets, knowledge and technical expertise best support countries in important transitions. Explicit funding should be allocated to regional DRR governance mechanisms or forums to do so. For instance, the establishment of the European Forum for Disaster Risk Reduction (EFDRR) has facilitated the development of a beneficial roadmap for regional governance mechanisms. This has resulted in cross-border collaboration and discussions, such as the efforts led by Greece to enhance cross-border cooperation for inclusive systems regarding heat and wildfire risk governance. [39]

- **Establish legal and institutional frameworks.** Governments should develop legal and institutional frameworks that align closely with existing policies and frameworks. This requires a commitment to close engagement with key stakeholders, such as legal experts, policymakers, and CSOs.

Coming Together: How the Caribbean is enhancing disaster resilience through regional response mechanisms[40]

Impact and Context

The Caribbean region has faced multiple challenges, from disasters emanating from natural hazards, economic shocks, and health crises. These challenges have identified the need for improved regional cooperation mechanisms to ensure that resources are extended, coordination is enhanced, and coverage of MHEWS is expanded. The Regional Response Mechanism (RRM) was established in 2015 to address the capacity constraints faced by SIDS in Caribbean region.

Stakeholders

The RRM involves SIDS in the Caribbean and includes collaboration between government agencies, civil society and international partners.

Methodology and Approach

Since its establishment, the RRM has had a substantial impact on consolidating finance, reducing overlap, and improving coordination in the region. It has also allowed Caribbean States to better negotiate with a unified voice at the global level. The RRM has enabled increased technical expertise, improved access to anticipatory financing, and better prepositioning of emergency supplies. The latter is one of the principal achievements of the RRM, helping reduce response times and ensure that supplies are readily available in times of emergency.

Innovation and Key Success Factors

The RRM approach of enhancing the region's capacity to prepare for and respond to disasters, reduce duplication of efforts, and ensure that responses are needs-based and country-driven has been both innovative and effective.

[39] Regional Thematic Report: Innovative Governance in European and Central Asia prepared for the Midterm Review of the Sendai Framework (pg.6)
[40] Caribbean Regional Report for the Midterm Review of the Sendai Framework (pg. 29)

3. Priority 3: Investing in disaster risk reduction for resilience

Priority 3 of the Sendai Framework emphasizes the importance of prioritizing investments in DRR to promote sustainable development and enhance resilience. It also notes the imperative for business, professional associations and private sector financial institutions, including financial regulators and accounting bodies to integrate disaster risk management into business models and practices through risk-informed investment and the development of normative frameworks and technical standards[41].

Since 2015, the need for greater and more diverse investments in DRR is universally recognised. Many countries note increasing recognition of the returns that investments in disaster prevention can yield. Investments in DRR for resilience have grown since 2015, and come in various forms, including but not restricted to developing risk-informed investments, investment in resilient infrastructure, in early warning systems, and growing access to insurance and risk transfer mechanisms. However, any growth in investment in DRR for resilience has been inadequate, as evidenced by rising direct and indirect costs of disasters.

3.1. Establishing dedicated national and local DRR financing

Adequate financing is a fundamental element of effective DRR. However, Member States and stakeholders participating in the MTR SF, have also identified that public sector budget allocations and expenditures towards DRR have been significantly lower than for other national development priorities.[42] The benefits of assigned financing for DRR are significant. Primarily, it allows for long-term resilience building measures rather than ad-hoc initiatives and knee-jerk reactions that only respond to disasters. Without dedicated funding, it is easy for countries to defer these activities. Furthermore, dedicated funding for DRR ensures accountability and transparency of resource allocation as it facilitates tracking how and what resources are being used for, and allows for the impact of DRR initiatives to be better measured. Towards 2030, improving and establishing dedicated DRR financing mechanisms must be a priority, with good practices such as: Enhancing the effectiveness of financing for DRR can be achieved by implementing the following good practices:

- **Establish dedicated national financing.** This involves creating legal frameworks, engaging with key stakeholders and advocating for the importance of investing in DRR to build support for financing mechanisms.[43] Examples of financing mechanisms could include national insurance funds, risk pooling mechanisms, or tax levies. These financing mechanisms can ensure a steady and predictable source of funding for DRR, which is critical for effective planning and implementation. For example, in the Republic of Korea, large-scale disasters such as the COVID-19 pandemic or other catastrophes that require additional public funding are managed through subsidies and funds that act as stabilizing sources. These subsidies and funds are regularly accrued from specific taxes as mandated by law and are disbursed during emergency situations. During the COVID-19 pandemic, these subsidies and funds were promptly disbursed to support small businesses, vulnerable groups, and disease control activities.[44]
- **Identify gaps in public spending on DRR and track spending.** Member States must track and identify gaps in DRR funding. Beyond isolated exercises, for example the risk-sensitive budget reviews conducted in 16 African countries[45], at present, DRR expenditure is largely unaccounted for in budget tracking. This makes it difficult to quantify benefits or identify areas with insufficient spending.[46] For instance, in the Pacific it was found that funding allocations for inclusion of

[41] Paragraph 36(c) of the Sendai Framework for Disaster Risk reduction 2015-2030
[42] As the MTR SF outlines it still often only accounts for less than 1 per cent of States national budgets
[43] See Australia example below
[44] Republic of Korea, Voluntary National Report (pg. 49)
[45] UNDRR 2020. Disaster Risk Reduction Investments in Africa – Evidence from 16 Risk-sensitive Budget Reviews https://www.undrr.org/publication/disaster-risk-reduction-investment-africa-evidence-16-risk-sensitive-budget-reviews
[46] Based on A/RES77/164 OP40; E/FFDF/2021/3 paragraph 17; A/77/640 paragraph 104

disability in DRR initiatives are not well documented or easily identifiable. A recent initiative to identify national budget allocations for meeting CRPD obligations, suggests 0.22 per cent of Fiji's national budget, 2020-2021 was allocated to persons with disabilities.[47] In addition, to enhance political support for DRR financing, practitioners need to advocate the benefits of preventative financing more clearly.

- **Establish local DRR financing funds.** To reap the benefits of devolution, governments must ensure that finances are adequately allocated to the local level. [48] This includes establishing local DRR financing funds, which can support community-level DRR initiatives and build local resilience.

Budgeting for Disaster Risk: How Australia's dedicated DRR fund is paying off in disaster risk reduction[49]

Impact and Context

The Sendai Framework calls for dedicated funds to be allocated to DRR activities to ensure adequate and measurable funding. Recognizing the increasing need to invest in DRR, the Australian government has established a new Disaster Ready Fund (DRF) to invest up to A$200 million per year from 2023-24 in disaster prevention and resilience initiatives. Further, the Government of Australian, along with state and territory governments, jointly committed A$261 million over five years from 2019-20 towards the Disaster Risk Reduction Program (DRRP).

The DRRP is designed to reduce the risk and impact of disasters in Australia and support the implementation of the National Disaster Risk Reduction Framework (NDRRF).[50] In addition to the DRRP, other investments in recovery from bushfires and other disasters mean that total DRR funding in Australia is even higher.

Stakeholders

The stakeholders involved in the establishment of the DRF and DRRP include the Australian government, state and territory governments, and organizations involved in disaster risk reduction.

Methodology and Approach

The Sendai Framework's call for dedicated funds to be allocated to DRR activities was recognized by the Australian government, leading to the establishment of the DRF and DRRP. These funds are designed to support the implementation of the National Disaster Risk Reduction Framework (NDRRF).

Innovation and Key Success Factors

The Australian government's establishment of a dedicated DRR fund demonstrates its commitment to investing in measures that improve the country's resilience to disasters. By investing in disaster prevention and resilience initiatives, the government aims to provide long-term and sustainable means to reduce the impact of disasters on the country. This better ensures the challenges of ad-hoc or disorganised financing for DRR are overcome.

Replicability and Scaling

In establishing a dedicated DRR fund, the Australian Government ensured adequate resourcing for measures that improve the country's resilience to disasters. Other countries should similarly consider establishing similar dedicated funds to enhance their DRR efforts.

[47] This is not only a problem in Pacific or Fiji but rather points to an overall trend in this area, from (Regional Thematic Report: Disability inclusion in DRR in the Pacific prepared for the Midterm Review of the Sendai Framework, (pg.9))
[48] For instance, in the Philippines the establishment of local DRM funds as outlined below (Philippines, Voluntary National Report)
[49] Australia, Voluntary National Report (pg. 7)
[50] A breakdown of the funding can be seen on pg. 30 of Australia's Voluntary National Report

Building Resilience from the Ground Up: How mandating adequate financing is empowering local communities for DRR in the Philippines[51]

Impact and Context

Despite the growing recognition of the importance of devolving DRR planning and management to the local level, a significant challenge remains: many vulnerable and disaster-prone areas have reported inadequate financial and legal resources to support the devolution of responsibilities. As many contributors to the MTR SF note, there continues to be a need for not only delegating decision-making power to the local level but also ensuring that local governments are adequately equipped with the resources they need to carry out effective DRR plans.

The Philippines for example recognizes the importance of devolving DRR planning and management to the local level, ensuring that adequate resources are provided to support these efforts

Stakeholders

Local governments in the Philippines are the primary stakeholders for this initiative. The Disaster Risk Reduction and Disaster Risk Management (DRRM) Framework and Law have equipped them with enabling structures, plans, funds, and a dedicated DRRM Office to support DRR efforts.

Methodology and Approach

Each local government unit (LGU) is mandated to establish a Local DRRM Officer and Office, assisted by a minimum of three staff, to develop and implement DRRM programmes in their respective communities. LGUs are required to allocate at least 5 per cent of their estimated revenue to fund DRRM programmes and measures, with 30 per cent set aside as a Quick Response Fund for relief and recovery programmes.

Innovation and Key Success Factors

The key innovation is that the Philippines has mandated for adequate financing at the local level. This has enabled the empowerment of local governments with resources and responsibilities necessary to build resilience and implement effective DRM initiatives.

Replicability and Scaling

In allocating supporting resources to devolved DRR plans, the Philippines is empowering local governments with resources and responsibilities, to be able to build towards a more resilient future. Other governments must ensure that devolution of DRR responsibilities is accompanied by both adequate financial and legal mandates.

3.2. Making DRR a core duty of the global financial system

The Sendai Framework and related frameworks have advanced new and innovative approaches to resource allocation and capital deployment in pursuit of their outcome and goal. These include **risk disclosure initiatives, financial regulatory inquiries, credit ratings, and principles for infrastructure investments and stress-testing**, which have made encouraging progress since 2015 in addressing these challenges.

Amid global monetary tightening, subdued consumption and modest private investments, judicious government spending will remain critical for steering economic recovery worldwide, more so towards DRR. It is thus imperative to develop supportive and accommodative fiscal measures to accelerate progress

[51] The Philippines, Voluntary National Report (pg. 3)

towards Sendai Framework implementation. The following measures could be undertaken to address challenges in this area:

- **Integrate DRR into the mandates of central banks and other financial and regulatory institutions.** For a more holistic approach to DRR the financial sector needs to better account for, accurately price and disclose disaster risk. To this end, governments should mandate DRR considerations into central banks and other financial or regulatory institutions.[52] For example, high-profile voluntary reporting protocols and regulations such as the Taskforce on Nature-Related Financial Disclosures, and the U.S. Securities and Exchange Commission have proposed reporting rules on climate change. Other existing platforms which identify good practices and devise approaches to amend financial regulations for resilience include the Network for Greening the Financial System, the Coalition of Finance Ministers for Climate Action, the Financial Stability Board, and accounting bodies.
- **Ensure that DRR risks are considered by the private sector.** Member States and DRR stakeholders should push to have disclosure of disaster risks in business operations, asset valuations, credit assessments, lending and investment decisions. For instance, the International Sustainability Standards Board was formed in 2021 and issues guidance for reporting standards for private sector companies on climate change, with future risk related topics to follow.
- **Credit Rating Agencies (CRAs) to reassess their approach to risks.** Member States and DRR stakeholders could request lengthening the CRA time-horizon beyond the traditional three years, creating long-term ratings to better account for risks. Countries should also not be reflexively penalized by CRAs for seeking debt assistance after disasters strike but rather the country's readiness and action on DRR should be given proper weight, including participation in some of the financial instruments referenced above which have DRR conditionality attached to them. CRAs could assist Member States in better understanding how DRR investment may improve their rating.

Risk-informed investing through proper pricing and accounting for disaster risks: How climate risk disclosure initiatives are showing the way[53]

In some jurisdictions financial regulation is beginning to recognise: a) exogenous systemic threats like climate change, habitat loss and pandemics as destabilising to economic growth and stability, and b) the conduct of financial actors as exacerbating or mitigating the systemic threat, including undermining the trust of the regulatory system itself.

In 2017 the Financial Stability Board (FSB) – a network of central banks – issued the recommendations of its Taskforce for Climate-Related Financial Disclosures (TCFD). The TCFD framework was aimed primarily at large companies. Wide take-up would bring coherence to how they disclose the risks they face from climate change (notably financial risks), how they modelled the expected impacts, their governance and risk management strategy, and the metrics and targets they monitored in pursuit of their strategy.

TCFD is regarded as the moment climate change received official recognition by the macro-economic community as a first order systemic economic threat.

The approach of the TCFD has been extended to the issue of biodiversity and ecosystem services, with the creation of the Taskforce for Nature-related Financial Disclosures (TNFD).

[52] For more see "The UN Sendai Framework: how it connects to the global financial system" prepared for the Midterm Review of the Sendai Framework
[53] MTR SF Thematic Study - The Sendai Framework: how it connects to the global financial system. (UNDRR 2023)

3.3. Change the nature of donor funding and improve access

The Sendai Framework emphasises the need for access to sustainable and predictable financing for DRR. In countries, where national financial resources for DRR activities are insufficient – particularly LDCs, LLDCs, and SIDS – Official Development Assistance (ODA) serves as the primary source of funding for DRR efforts. This is especially valuable for countries where the economic impact of a single disaster can put entire economies at risk.[54] In such cases, external support is essential in enabling countries reduce risk, build resilience against disasters, and minimize their devastating effects. By offering financial and technical assistance, ODA can help reduce the vulnerability of countries to natural hazards and support realisation of sustainable development goals.

Many Member States raised concerns about challenges they face in accessing sustainable and predictable DRR funding through donor resources. The following measures are reflecting some of the good practices in this area:

- **Simplify the application process and consolidate funding streams.** This would involve reducing bureaucratic hurdles and eliminating unnecessary requirements, for instance, combining applications for multiple financing streams such as CCA, DRR, and development funding. Such challenges are particularly acute for countries with limited human resources, who report difficulties in navigating the complex and time-consuming application processes that are typically required to access DRR ODA.[55]
- **Provide technical assistance for applications.** This can involve training and support for developing strong proposals, as well as support in navigating complex funding processes.
- **Ensure donor funding is led and prioritised by recipient needs.** As highlighted by Ethiopia, donor programmes operating within the country frequently fail to effectively communicate or coordinate with larger national DRM plans.[56] Suggestions to address this include establishing dialogue platforms between recipient countries and donors or funding existing government programmes or liaising with local CSOs.[57] This would require a more participatory approach to decision-making that empowers recipients to identify their needs and priorities, rather than imposing top-down solutions. This should promote more long-term resilience planning rather than short-term and ad-hoc responses.

3.4. Enhancing access to insurance and promoting risk financing innovation

Risk transfer mechanisms are important options in enhancing resilience and fostering effective recovery from disasters. Insurance for example, affords some vulnerable communities and countries financial protection from potentially catastrophic consequences of disasters. For some vulnerable populations insurance mechanisms are vital to their recovery efforts. Whilst progress in both breadth and innovation has been noted by Member States since 2015, globally penetration rates for disaster risk insurance remain low. This is particularly true for regions and countries most vulnerable to disasters, such as LDCs and SIDS.

Progress in expanding access to, and uptake of insurance mechanisms has been hindered by several challenges. Firstly, the cost of insurance can be a barrier to access, with premiums too expensive for some individuals, governments, or communities, particularly in low-income and vulnerable populations – which in turn can exacerbate risks and losses when risks are realised. Even when insurance products are available, uptake can be limited due to lack of awareness, trust, or understanding of insurance mechanisms. Governments may also appear reluctant to promote or mandate insurance mechanisms for DRR due to

[54] See SIDS Regional Report for the Midterm Review of the Sendai Framework
[55] Ibid
[56] Ethiopia, Voluntary National Report (pg. 21)
[57] For instance, as called for by Tanzania. (Tanzania, Voluntary National Report)

concerns about potential disincentives that could be created and/or due to capacity constraints. The reality is limited coverage in lower-income or vulnerable populations.

Lastly, the insurance and financing landscape may not be favourable due to the limited nature and number of available insurance products, appropriate regulatory frameworks, or an insurance market unable to absorb and manage risks. This is particularly true as the increased risks of climate change-induced disasters mean that some communities are practically uninsurable. [58]

The following best practices have been found to be effective methods for improving access to risk transfer mechanisms:

- **Government support to access insurance mechanisms addressing the vulnerabilities of specific population groups.** Governments could encourage the provision of subsidies or financial incentives to increase affordability, access and uptake of insurance among low-income and vulnerable populations.[59] Establish partnerships with insurance providers and CSOs to promote awareness and understanding of insurance mechanisms for DRR. Develop regulatory frameworks and policy guidelines to ensure that insurance mechanisms are accessible, affordable, and equitable for all. For example, Mexico outlines the importance of risk transfer mechanisms within national legal frameworks as crucial instruments for local governments.[60]
- **Expanded use and scale up of innovative risk financing mechanisms.** Governments must explore and promote the use of innovative risk financing mechanisms, such as catastrophe and resilience bonds, or disaster debt moratoria. For example, the Philippines utilized catastrophe bonds to enable a swift pay-out of $52 million for recovery efforts following Typhoon Odette. Similarly, Grenada and Barbados have implemented disaster clauses that allow for an immediate debt moratorium in the event of an economic impact caused by a disaster. [61]
- **Global and regional risk pooling and cooperation.** Governments should promote global or regional pooling of risks through international insurance mechanisms, so as to increase the DRM capacities of low-income and vulnerable countries. [62] To support the development and implementation of risk-sharing mechanisms for DRR, governments should support regional cooperation and establish partnerships with international organizations and regional bodies. [63]

[58] For more on this topic refer to (UNDRR & ICMIF, 2017) "From protection to prevention: The role of cooperative and mutual insurance in disaster risk reduction" accessed at https://www.undrr.org/media/49169/download
[59] See New Zealand example below
[60] Mexico, Voluntary National Report (pg.2)
[61] The Philippines, Voluntary National Report (pg. 34) and (Caribbean Regional Report for the Midterm Review of the Sendai Framework)
[62] Such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Insurance Company (PCRIC)
[63] Such as the African Union African Risk Capacity (ARC)

From Risk to Resilience: New Zealand's approach to enhancing access to risk transfer mechanisms[64]

Impact and Context

The role of insurance in effective DRR policy is critical in some contexts. New Zealand has one of the highest levels of residential property insurance in the world, and insurance plays a critical part in a community's recovery in New Zealand. With increasing disaster risks globally, governments must come up with innovative ways to expand access to insurance. Recognising this, New Zealand has implemented various measures to expand insurance coverage and enhance earthquake mitigation.

Stakeholders

The government, Toka Tū Ake EQC, and owner-occupiers of units and apartments living in earthquake-prone buildings experiencing financial hardship are the main stakeholders.

Methodology and Approach

In 2021, the Minister Responsible for the Earthquake Commission (EQC) announced that there would be an increased amount of insurance risk taken on by Toka Tū Ake EQC[65], doubling the insurance cap from $150,000 to $300,000 (NZD). This ensures that private insurance cover remains available and affordable. Additionally, Toka Tū Ake EQC recently secured a record level of reinsurance of $7.2 billion (NZD) on the international market, an increase on the previous year by $470 million (NZD).

New Zealand's government has also provided targeted financing for risk mitigation of earthquake-prone buildings, seeking to make these buildings more resilient to seismic shocks. The Residential Earthquake-Prone Building Financial Assistance Scheme was established in 2020, allowing owner-occupiers of units and apartments living in earthquake-prone buildings experiencing financial hardship to access borrowing of up to $250,000 (NZD).

Innovation and Key Success Factors

The success in New Zealand has been a result of working closely with national insurers and targeting for specific hazards or vulnerable communities.

Replicability and Scaling

New Zealand can serve as a blueprint for other countries to adopt similar policies and strategies to expand insurance coverage and mitigate disaster risks whilst improving resilience.

[64] New Zealand, Voluntary National Report (pg. 32)
[65] Toka Tū Ake EQC is a New Zealand Government entity investing in natural disaster research, education, and provides insurance to residential property owners.

4. Priority 4: Enhancing disaster preparedness for effective response and to 'build back better' in recovery, rehabilitation and reconstruction

The Sendai Framework brought a holistic notion of resilience incorporating well-balanced DRR measures through its fourth priority, from building back better (BBB) to restoring sustainable livelihoods, using participatory, local knowledge to enhance preparedness and promoting inclusive growth within planetary boundaries.

Risk reduction and resilience have since served as useful framing concepts for addressing disasters more proactively and for supporting global efforts to achieve the 2030 Agenda and all the key global environmental and development processes. Putting resilience at the centre enhances risk prevention and mitigation, and reduces economic, environmental and human losses in the event of a crisis, thereby reducing human suffering and protecting development gains. Building resilience can also stimulate risk-informed economic activity through the diversification of investments in businesses, households and livelihoods.

Despite growing recognition of BBB principles, contributors to the MTR SF note that there has been the least progress in this priority of the Sendai Framework. This lack of progress represents an opportunity for considerable gains in the second half of the period of implementation of the Sendai Framework, not least in the following areas.

4.1. Investing in resilience for building back better

The Sendai Framework calls for a comprehensive approach that involves strengthening resilience of individuals, communities, and systems. Yet, for many countries these proactive, and long-term investments are frequently lacking. Many countries have recognized these challenges and some good practices for enhancing investment in resilience include the following:

- **Address vulnerabilities and strengthen resilience at the household level.** Governments must invest in empowering individuals with knowledge, skills and resources necessary to prepare for, cope with, and recover from disasters. This should include education activities, providing access to essential resources and social protection mechanisms, and providing psychosocial support.

  For example, the Escuela de Incidencia Política con Enfoque de Género (Gender-approach Advocacy Training Series) was established in Cali, Colombia to address identified training gaps for women involved in political processes, and thus DRR policies. It provides women of diverse backgrounds a space to acquire knowledge and practices for political participation and social activism, with the aim of incorporating the gender perspective into local public policy.[66]

- **Build livelihoods resilience.** DRR organisations must work to create and promote sustainable and diversified livelihoods that can withstand and adapt to changing risks and uncertainties. This may include, providing access to finance, markets, and technology to support growth and economic recovery.

  For example, the Women's Resilience to Disasters (WRD) programme run by UN Women aims to provide targeted action to support women's livelihoods from the impacts of disasters.[67] Findings show that in most cases, productivity and wellbeing can be improved through increased access to basic services, materials and infrastructure, along with training and capacity building regarding sustainable management of vulnerable land and water resources. This is particularly important as climatic variability and extreme weather events are threatening traditional farming and livestock-raising practices.

[66] Regional Thematic Report: LAC Women's Network for DRR Working Group (WG) Prepared for the Mid-Term Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030
[67] UN Women, Report for the Midterm Review of the Sendai Framework for DRR

- **Strengthen the resilience of ecosystems.** Governments must invest in natural ecosystems. This involves protecting and restoring ecosystems and biodiversity, promoting sustainable resource management and land use, and integrating ecosystem-based approaches into DRR and CCA strategies.
- **Strengthen health systems and social protection measures.** Member States, CSOs, and DRR stakeholders should focus on ensuring that essential health services and social protection programmes are accessible and inclusive, to reduce risks prior, and strengthen coping capacities when disasters manifest.[68]
- **Invest in infrastructure resilience.** Governments must invest in infrastructure resilience. This should involve designing and implementing plans to build critical infrastructure that can withstand and adapt to disasters, thereby minimizing disruptions to essential services and economic activities.[69] Governments should introduce and enforce building codes that address countries' unique disaster vulnerabilities. For example, the government of Morocco recently updated seismic building regulations with this concern in mind.[70] Additionally, governments should introduce legal mandates to ensure that private investments are informed by relevant disaster risks.

How the Republic of Korea is addressing the psychological impacts of disasters[71]

Impact and Context

Psychosocial support is often neglected from responses to single and multiple shocks or stresses. The Republic of Korea has recognized the need to address the psychological impacts of disasters on individuals, particularly in the wake of the COVID-19 pandemic.

Stakeholders

The Republic of Korea has established national and local Disaster-related Psychological Recovery Support Groups composed of government officials and private-sector experts to ensure that mental health support is readily available at disaster sites and ensure that 'no one is left behind'.

Methodology and Approach

The nation has been allocating increasing resources to support the mental health of disaster-vulnerable groups and victims. To ensure that mental health support is readily available at disaster sites and ensure that 'no one is left behind', the Republic of Korea has established national and local Disaster-related Psychological Recovery Support Groups. These groups are activated in the event of a large-scale disaster to provide psychosocial support to those affected.

Innovation and Key Success Factors

Recognising the psychosocial impacts of disasters and investing in addressing them is the key innovation in this case study.

Replicability and Scaling

The Republic of Korea's approach to addressing the psychological impacts of disasters can be replicated by other countries seeking to address the psychological impacts of disasters on individuals.

[68] As shown above this also includes incorporating lessons learnt from past health related disasters (i.e. as seen with the Ebola crisis)
[69] See Canada example below
[70] Morocco, Ministère de l'Intérieur and Direction de la Gestion des Risques Naturels, *Rapport National pour l'évaluation à mi-parcours du Cadre d'Action de Sendai sur la Réduction des Risques de Catastrophes 2023* (2022). Available at https://sendaiframework-mtr.undrr.org/publication/morocco-voluntary-national-report-mtr-sf.
[71] Republic of Korea, Voluntary National Report (pg. 31, 35)

Resilient by Design: Canada's infrastructure investment to combat disasters[72]

Impact and Context

In Canada, the government has placed a strong focus on increasing the resilience of critical infrastructure. Enshrined in the government's National Strategy and Action Plan for Critical Infrastructure, which outlines a comprehensive all-hazards risk management approach that aims to strengthen the resilience of critical infrastructure and help communities adapt to changing climate conditions.

Stakeholders

The Canadian government is the primary stakeholder in this initiative, but it also involves other public and private sector entities responsible for infrastructure development and revitalization.

Methodology and Approach

For the development and revitalization of public infrastructure, the Canada Community-Building Fund provides predictable, long-term funding of $2.3 billion CAD per year. Moreover, recognizing the need for strategic investments in resilience, the Canadian government has launched the Disaster Mitigation and Adaptation Fund (DMAF) in 2018, committing $2 billion CAD over 10 years to support structural and natural infrastructure projects aimed at building resilience in communities impacted by natural hazards triggered by climate change. The fund has already supported a range of projects, including flood and wildfire mitigation infrastructure, and the rehabilitation of stormwater management systems.

Innovation and Key Success Factors

The DMAF represents an innovative approach to disaster mitigation and adaptation by providing funding for structural and natural infrastructure projects to build resilience in communities impacted by natural hazards triggered by climate change. The key success factors include the long-term funding provided by the Canada Community-Building Fund and the establishment of a comprehensive all-hazards risk management approach through the National Strategy and Action Plan for Critical Infrastructure.

Replicability and Scaling

The establishment of investment strategies such as this for resilient infrastructure and disaster mitigation is completely replicable by other countries.

4.2. Addressing emerging risks

As the Sendai Framework emphasises, DRR requires a multi-hazard and multisectoral approach to risk reduction. Addressing emerging risks such as those posed by rapid technological change, breaching planetary boundaries, food systems vulnerabilities, biorisks and climate change, must be a priority for DRR policymakers. [73] Climate change, for instance, is already provoking food and water shortages, mass migration, and more frequent and intense hydrometeorological hazards.

Addressing emerging risks requires an integrated approach, with a focus on prevention, preparedness, and resilience-building. However, many countries struggle with planning for emerging risks, often prioritising more immediate concerns over risks that are perceived as more abstract.

[72] Canada, Voluntary National Report (pg. 26)
[73] For more on this refer to the MTR SF Thematic Studies on: Planetary Boundaries; Existential Risk and Rapid Technological Change: Advancing Risk Informed Development; Global Food Systems – Understanding Risk, Transforming Towards Resilience.

Take the COVID-19 pandemic, the lessons of which have not been fully integrated into disaster risk reduction plans. The reasons are many, but one primary issue is a lack of awareness stemming from inadequate risk assessment processes, which fail to identify and analyse emerging risks in a timely and comprehensive manner. Furthermore, even when risks are identified, many countries lack the financial and human resources necessary to take necessary preventative and preparedness actions.

Short-term thinking prevails in respect of emerging risks, and the political will to invest in long-term disaster resilience initiatives is often lacking. As the UN Secretary-General states "short term thinking or knee-jerk fiscal austerity that exacerbates inequality and increases suffering that could put the SDGs farther out of reach"[74] must be avoided. To better respond and anticipate such emerging risks, the following good practices highlight possible pathways forward:

- **Integrate emerging risks into legal frameworks.** Governments must develop or revise laws and regulations to explicitly include emerging risks in the scope of DRR and disaster management.[75] Establish legal requirements for identifying and assessing emerging risks in planning and implementation. They must ensure that legal frameworks provide for the allocation of resources and responsibilities to manage emerging risks.
- **Integrate emerging risks into plans, strategies and policies.** Member States must incorporate emerging risks into national and local plans, strategies, and policies, including those for DRR. They should develop methodologies and tools for identifying and analysing emerging risks and incorporate them into risk assessments and contingency plans. To this end, the Global Risk Assessment Framework (GRAF)[76] seeks to provide a standardized approach for assessing emerging risks and their potential impacts. Further, Member States and stakeholders should ensure that DRR plans are flexible and adaptive to the dynamic nature of emerging risks, including inherent uncertainties.
- **Rebalance fiscal stimulus to stimulate risk-informed sustainable development.** While substantial heterogeneity in fiscal conditions exists among countries, governments may target, and crowd in private investment in critical sectors, including in education, health, agriculture, energy, transportation, new technologies, and climate change mitigation and adaptation, mobilising resources from civil society and international organisations also. Strategic public investment in these sectors has offered social returns, and strengthened resilience to economic, social and environmental shocks. Financial resilience and preparedness can be further strengthened through risk-sharing and risk transfer mechanisms.
- **Awareness raising and education campaigns on emerging risks.** DRR organisations must foster political support and commitment for addressing emerging risks in risk reduction through advocacy and awareness-raising activities. For example, the inclusion of DRR and risk disclosure in the Kunming-Montreal Global Biodiversity Framework adopted in December 2022, provides the opportunity to scale-up risk reduction through organisations and constituencies working to protect biological diversity and reduce biodiversity loss. DRR stakeholders need to strengthen political leadership and governance structures to prioritize and promote the integration of emerging risks in DRR planning and implementation.

[74] World Economic Situation and Prospects (WESP) 2022
[75] See USA Voluntary National Report
[76] Developed by UNDRR

Addressing Systemic Food Risks: Tackling climate change risks for resilience in Zimbabwe[77]

Impact and Context

The Government of Zimbabwe recognises the threat that climate change poses to the resilience of food systems within the nation and is undertaking multiple programs and projects to address this systemic risk. These programs have helped to broadly improve food security and address climate risks in the country.

Stakeholders

The stakeholders involved in these initiatives include the Government of Zimbabwe, farmers, and local communities.

Methodology and Approach

The broad range of initiatives have undertaken a range of different approaches to address the challenges posed by climate change on food systems. This includes the following. The Pfumvudza Farming practices (Climate Proofed Presidential Inputs Scheme) aims to enhance household food security with minimal financial commitments from the government. The scheme encourages local Pfumvudza/Conversation Agriculture concepts based on the principles of minimum soil disturbance, mulching to conserve moisture, timeliness (of operations) and adoption of good agronomic practices. Over 2.8 million households benefited from the program last season with 3 million households expected to benefit in the 2022-23 season.

In addition, the Accelerated Irrigation Rehabilitation and Development Plan seeks to minimise the negative impacts of uneven rainfall, enable increased crop production and productivity, ensure food security, and improve economic outcomes for farmers. The plan entails inter alia land rehabilitation and irrigation schemes.

Furthermore, the Livestock Development Plan also recognizes that climate change has prompted an increase in animal disease outbreaks. The Government's Small Stock Growth Plan for Climate Adaptation targets small ruminants in arid areas for climate proofing.

Finally, the Government is developing the National Traditional Grains Strategy and Agro-Ecology policy which are aimed at promoting the commercialisation of drought tolerant traditional grains and to draw on LTIK for climate resilience.

Innovation and Success Factors

The key success factors of these programs involve identifying key climate risks to food security to the country and investing in clear strategies to address them. These solutions address the core problem whilst utilising LTIK or available resources with limited additional financial commitment required from the government. These initiatives success are strongly related to their practicality and feasibility.

Replicability and Scaling

The key success factors include promoting the commercialisation of drought-tolerant traditional grains, drawing on LTIK for climate resilience, and enhancing household food security with minimal financial commitments from the government.

[77] Zimbabwe, Voluntary National Report (pg. 7-8)

From Crisis to Preparedness: Sub-Saharan Africa's holistic approach to health risks and DRR[78]

African nations that had implemented policies to address pandemic risks were better equipped to handle the COVID-19 pandemic. For instance, Liberia established the National Public Health Institute of Liberia (NPHIL) to address weaknesses in public health systems identified during the Ebola outbreak. The collaboration between the NPHIL, the Ministry of Health, and other institutions helped strengthen infection prevention and control efforts significantly during the COVID-19 pandemic. Similarly, Tanzania's enhanced border security during COVID-19 was a direct result of lessons learned from the Ebola outbreak. These examples highlight the importance of investing in post-disaster efforts to address systemic risks.

4.3. Expanding MHEWS coverage

Evidence suggests that countries reporting adequate Multi-Hazard Early Warning System (MHEWS) coverage have far lower mortality rates compared to those that have little or no early warning systems. [79] MHEWS provide timely and accurate information to communities, and decision-makers to enable them to prepare for and respond to hazards. Yet, global coverage remains inadequate and unequal. As of 2022, only 95 countries have reported the existence of MHEWS.[80] In fact, one in three people globally are still not adequately covered by early warning systems.[81]

Progress in MHEWS coverage has largely been restricted to Member States with greater technical and financial capacities. However, LDCs, LLDCs and SIDS which often struggle with the costs of imports and debt servicing, compounded by the consequences on the most vulnerable countries and populations of the climate crisis, can often have complete reliance on donors for MHEWS.

The following good practices were proven effective in terms of improved MHEWS coverage and impact:

- **Utilise new technologies to expand access to MHEWS.** The use of new technology such as Satellite Data and artificial intelligence (AI) for large data sets can be utilised to reduce the cost and improve the coverage of MHEWS.[82] Satellite data can provide real-time information on weather patterns and natural hazards, so improving the accuracy and timeliness of early warning messages. Mobile phone technology can also be used to disseminate early warning messages, particularly in remote areas where other communication infrastructure is lacking. Furthermore, these technologies generate large data sets that can be analysed with machine learning algorithms to provide insights that would not be feasible to obtain through manual methods. [83]
- **Create dedicated MHEWS financing frameworks.** Establishing dedicated funding mechanisms for MHEWS can help to ensure that these systems are adequately resourced and sustained over the long term. This could include the integration of MHEWS funding into formal DRR budgets and plans. Additionally, ensuring that donor funding plans include maintenance and uptake of MHEWS is important.[84]

[78] Tanzania, Voluntary National Report and Liberia, Voluntary National Report
[79] As reported in the MTR SF
[80] Ibid
[81] In Africa, the numbers are even starker, with 60 per cent of people lacking coverage (as noted in the MTR SF)
[82] For more see (UNDRR, 2022) "Global Assessment Report on Disaster Risk Reduction – Chapter 11: Big data to better decisions"
[83] Ibid
[84] To this end the Early Warnings for the UN SG's All Initiative aims to invest $3.1bn to achieve universal coverage of MHEWS by 2027 (The Executive Action Plan for the Early Warnings for All initiative at https://news.un.org/en/story/2022/11/1130277)

- **Utilise regional governance mechanisms to share MHEWS burdens.** Regional governance mechanisms can help coordinate MHEWS efforts across borders, particularly for hazards that affect multiple countries. By sharing resources and expertise, countries can reduce the costs and increase the effectiveness of MHEWS. Regional frameworks can also facilitate information-sharing and collaboration among institutions, communities, and other stakeholders involved in disaster risk reduction.[85]
- **Expand technical capacity.** Building the technical capacity of meteorological and hydrological services, disaster management agencies, and other relevant organizations should be fostered to improve the quality and effectiveness of MHEWS.[86]

The Final Frontier of Disaster Response: How Cambodia is using satellite data to save lives and enhance MHEWS coverage[87]

Impact and Context

Recent technological advancements, such as the use of satellites, offer a potentially low-cost and effective way to enhance the coverage of MHEWS. This is particularly important for developing countries, where the cost of setting up and maintaining traditional ground-based monitoring systems can be prohibitively expensive.

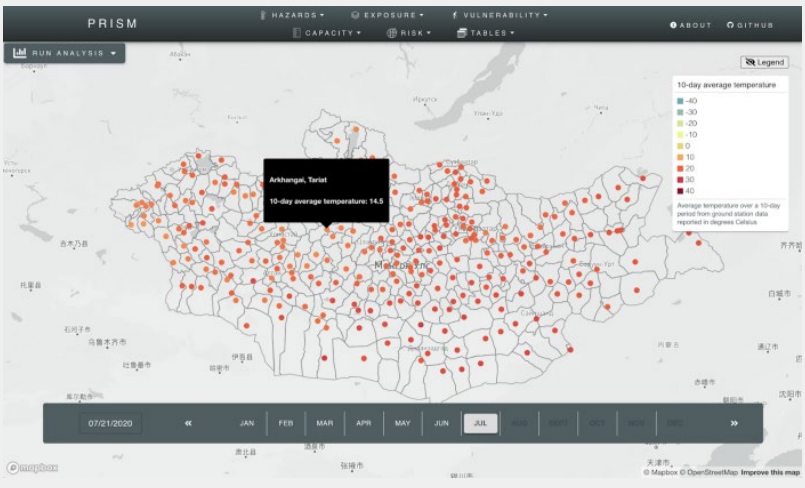
In recognition of these benefits, the Government of Cambodian, in partnership with the United Nations World Food Programme, has developed the PRISM (Platform for Real-time Information for Security and Management) dashboard to expand access to MHEWS and improve DRR in the country.

Stakeholders

The Government of Cambodian, in partnership with the United Nations World Food Programme, developed the PRISM dashboard. Decision-makers and local communities in vulnerable areas are also important stakeholders.

Methodology and Approach

PRISM is an interactive web-based dashboard that integrates satellite and remote sensing data, field information, and socioeconomic group data from EWS to generate actionable climate information. The PRISM dashboard enables decision-makers to quickly identify areas that are vulnerable to natural hazards such as floods, droughts, and landslides.



These data are supplemented with data about COVID-19 cases as well as health vulnerabilities and capacities for a more holistic picture and to address complex and cascading risks from natural-biological hazards and other multi-hazard scenarios (AHA Centre, 2022)

This information is then used to provide early warnings to the local communities in those areas, allowing them to take necessary actions to reduce the

[85] Organisations involved in this include: the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), the Caribbean Meteorological Organization (CMO), the African Unions African Risk Capacity (ARC), and the European Civil Protection and Humanitarian Aid Operations (ECHO)
[86] For instance, the Climate Risk Early Warning Systems (CREWS) Initiative
[87] Cambodia, Voluntary National Report (pg. 8). Image: PRISM Dashboard Example, from https://innovation.wfp.org/blog/introducing-prism-wfps-climate-hazard-monitoring-system-making-global-impact

impact of the disasters. Additionally, during the pandemic this data was supplemented with data about COVID-19 cases and health vulnerability to provide the government with information to better address the cascading risks form natural biological hazards.

Innovation and Key Success Factors

Through the utilization of satellite data and innovative technology, Cambodia has established a model for effective disaster risk reduction efforts. Satellite technology is useful for overcoming local financial and capacity constraints for MHEWS.

Replicability and Scaling

This tool has demonstrated its potential for use in other regions to help increase capacity to address disaster risk and prepare for future events, ultimately providing better protection for citizens.