Bridging gaps:

Integrating gender into climate-responsive Disaster Risk Management

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Climate change sets a new challenge for disaster risk management as it increases the frequency and severity of extreme weather events, disproportionately impacting vulnerable and marginalized communities. Women face added risks due to their social roles, biological differences, cultural norms and limited access to resources, that have been historically overlooked and encounter numerous challenges that increase their vulnerability and exposure to disaster-related dangers. Effective anticipation and mitigation of climate-related disasters must consider gender disparities to ensure that interventions effectively address the specific needs and vulnerabilities of women and girls, thereby enhancing overall resilience and promoting more equitable outcomes in the face of climate-related challenges. Besides, it also appears crucial to integrate the active participation and empowerment of women in disaster risk governance to ensure women have a say in the solutions that are designed for them.

INTRODUCTION

As the world faces multiple crises, in part driven by climate change, immense pressure is placed on communities, leading to an even clearer need for achieving gender equality. Women, who are often disproportionately affected by disasters, face unique social, geographical, and physiological vulnerabilities that can exacerbate their risk of harm in the event of crises. These stark realities highlight the critical need to integrate gender considerations into disaster risk management (DRM) strategies. This article starts with a summary of DRM and a brief review of existing international policy frameworks for managing crisis situations that aid evidence-informed decision-making and enhance the effectiveness of crisis management efforts. This is followed by a brief overview of hazards and their risks to human health and where relevant their relationship to climate change, emphases the importance of DRM. It then delves into examining the unique vulnerabilities faced by women and the importance of integrating a gendered perspective into DRM frameworks as a sustainable solution to enhance resilience.

AN INTRODUCTION TO DISASTER RISK MANAGEMENT (DRM)

The United Nations office for Disaster Risk Reduction (UNDRR) defines disaster risk management[1] as '*the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.*'

The World Health Organisation (WHO) documents that health disaster risk management emphasizes the critical importance of prevention, preparedness and readiness, together with response and recovery, to save lives and protect health. The WHO Health Emergency and Disaster Risk Management Framework[2] (Health EDRM) issued in 2019 outlines the need to work together, highlighting how the whole health system can and must be fundamental in all of efforts for DRM.

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In this framework, it was reported that emergencies and disasters take a profound toll on people's health. The WHO indicated that over 170 million people will be affected by conflict every year, and another 190 million by disasters. Yet the overall impact on people's health is much more significant. For example, some of these emergencies and disasters will be large national, regional or even global crises, from cyclones and drought to major outbreaks; and others will be more localized, like traffic collisions and fires, but can still result in devastating consequences for human life.

Reducing the health risks and consequences of emergencies is vital to local, national and global health security and to build the resilience of communities, countries and health systems. Such events hinder development for years and jeopardize universal health coverage along with other development agendas. For example, COVID-19 showed us that these crises can overwhelm health systems and decimate the economies that fund them.

All communities are at risk, including from infectious disease outbreaks, conflicts, and natural, technological and other hazards. The health, economic, political and societal consequences of these events are often severe. Climate change, unplanned urbanization, population growth and displacement, antimicrobial resistance and state fragility are increasing the frequency, severity and impacts of many types of hazardous events.

In the health domain, the International Health Regulations[3] (IHR) (2005) have been critical and developed in response to epidemics that once devastated Europe. While disease outbreaks and other acute public health risks are often unpredictable and require a range of responses, the IHR provide an overarching international law that is legally-binding on 196 countries, including the 194 WHO Member States. It defines countries' rights and obligations in handling public health events and emergencies that could spread across borders. These regulations create rights and obligations for countries, including the requirement to report public health events, and outline the criteria to determine whether a particular event, such as COVID-19, constitutes a 'public health emergency of international concern'.

Sound disaster risk management is essential to safeguard development and implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030[4] (Sendai Framework), the Sustainable Development Goals (SDGs), the Paris Agreement on Climate Change (Paris Agreement), the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts[5] (WIM), the UNFCCC Santiago Network,[6] and other related global, regional and national frameworks. In line with the recently adopted United Nations Pact for the Future,[7] key statements that are valuable to consider include:

- *"The **achievement of gender equality**, the empowerment of all women and girls and the full enjoyment of their human rights and fundamental freedoms without discrimination" (paragraph 7)*
- *The need to "prioritize urgent action to address critical environmental challenges and implement measures to reduce disaster risk and build resilience, [...] noting the importance for some of the concept of **climate justice**" (paragraph 18)*
- *The importance of promoting "**a disaster risk-informed approach** to sustainable development that integrates disaster risk reduction [...] at all levels" (action 6 paragraph g).*

1 United Nations Office for Disaster Risk Reduction. (n.d.). Disaster risk management. https://www.undrr.org/terminology/disaster-risk-management.

2 Disaster Risk Management and Resilience (DDR). (2019, July 30). Health Emergency and Disaster Risk Management Framework. https://www.who.int/publications/i/item/9789241516181.

3 World Health Organization. (2023). International health regulations. https://www.who.int/health-topics/international-health-regulations#tab=tab_1.

4 The Sendai Framework for Disaster Risk Reduction 2015-2030 is a global agreement providing Member States with guidance and concrete actions to reduce the risk of disaster. It is a milestone in international disaster risk reduction efforts. To read more: https://www.undrr.org/media/16176/download?startDownload=20241030.

5 The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts was established during COP19 (in 2013) to address loss and damages associated with the impacts of climate change in developing countries. To read more: https://unfccc.int/topics/adaptation-and-resilience/workstreams/loss-and-damage/warsaw-international-mechanism.

6 The UNFCCC Santiago Network was established during COP25 (in 2019) to facilitate technical assistance in developing countries particularly vulnerable to adverse effects of climate change. It helps implement the functions of the Warsaw International Mechanism described above. To read more: https://unfccc.int/santiago-network/about.

7 The Pact for the Future, adopted in September 2024 by world leaders during the Summit of the Future, is a list of 56 pledges across a broad range of themes (peace and security, climate change, sustainable development, digital cooperation, human rights, gender, youth and future generations...), adapting international cooperation to today's realities. To read more: https://www.un.org/sites/un2.un.org/files/sotf-pact_for_the_future_adopted.pdf.

These frameworks aid evidence-informed decision-making, guide policy development, and enhance the effectiveness of crisis management efforts. While countries have strengthened capacities to reduce the health risks and consequences of emergencies and disasters through the implementation of multi-hazard disaster risk management and health system strengthening, many communities remain highly vulnerable to a wide range of hazardous events.

AN INTRODUCTION TO HAZARDS

Fragmented approaches to different types of hazards, an over-emphasis on reacting to events rather than preventing them, insufficient preparedness for response, and gaps in coordination within the health system, and across sectors, have hindered the ability of communities and countries to achieve optimal development outcomes, particularly for public health.

Understanding risks and their associated impacts is crucial for effective DRM. By comprehensively identifying and assessing hazards, policymakers and practitioners can better anticipate and mitigate threats, thereby enhancing community resilience to disasters.

The UNDRR, in collaboration with the International Science Council (ISC) has played a pivotal role in this regard by responding to calls for 'a data revolution, rigorous accountability mechanisms and renewed global partnerships'. The UNDRR-ISC Hazard Definition and Classification Review: Technical report[8] and its Supplement provide important resources to support disaster risk reduction, aligned with the Sendai Framework, the Sustainable Development Goals, and the Paris Agreement on Climate Change. They offer a common set of hazard definitions to Governments and stakeholders to inform their strategies and actions on risk reduction and management. Specifically, these documents support the development and updating of national and local disaster risk reduction strategies and loss databases, as well as the integration of disaster risk reduction into national statistics, legal frameworks, and regulatory systems for public and private policy, financing and investment.

8 UNDRR (2020), Hazard Definition and classification review : Technical report, https://www.undrr.org/publication/hazard-definition-and-classification-review-technical-report.

Figure 1: **UNDRR/ISC hazard information according to eight hazard types**

Source: Reproduced from Fahad S Malik and Anna Schwappach, UK Health Security Agency

The UNDRR/ISC Hazard Information Profiles[9] catalogues 302 hazards worldwide and is now available online.[10] This tool serves as a valuable resource for harmonizing knowledge on hazards and provides crucial insights to inform DRM efforts globally ***(Figure 1)***.

CLIMATE AS A DRIVER OF HAZARDS

Climate change is not a hazard *per se* but is recognised to exacerbate hazards by increasing their frequency, intensity, and complexity. Impacts are interconnected, with the Intergovernmental Panel on Climate Change (IPCC) projecting increasingly complex risks.[11] For example, rising temperatures melt polar ice caps, causing sea-level rise and coastal flooding, which heighten the risk of storm surges.

Climate change-related disasters impact human health both directly and indirectly. Direct risks include the projected tripling of heat-related deaths by 2050, while indirect risks relate to the weakening of social determinants of health, such as access to healthcare, clean water, and sanitation.

Additionally, socio-economic disparities exacerbate the impacts of disasters on marginalised and vulnerable communities. Understanding climate change impacts requires considering social dynamics, which shape how populations experience and respond to these challenges. Social factors include the organization of society (e.g., maturity of healthcare systems and urbanization), as well as vulnerabilities related to social stratification.

> *"The impact of climate change is not gender-neutral, as women are disproportionately vulnerable to disasters. Gender disparities in access to resources, decision-making power, and cultural norms often amplify women's susceptibility to extreme events."*

9 Ibid.

10 United Nations Office for Disaster Risk Reduction (UNDRR). (2024). Hazard information profiles (HIPs) online reference. https://www.preventionweb.net/drr-glossary/hips.

11 Intergovernmental Panel on Climate Change. (2022). Headline statements from the summary for policymakers. https://www.ipcc.ch/report/ar6/wg2/resources/spm-headline-statements/.

VULNERABILITY AND GENDER IN DRM

The Sendai Framework outlines the inclusive, all-of-society approach that must be taken to reduce disaster risk and considers the specific vulnerabilities and capacities of different groups, including women, children, the elderly, and persons with disabilities. It acknowledges the specific vulnerabilities that women face in disasters, due to pervasive gender inequality across all societies, while recognizing their indispensable role in risk reduction efforts. The Sendai Framework emphasizes that a gender equitable[12] and universally accessible approach is key, and calls for the mobilization of women's leadership in building resilience as they already contribute significantly, but often informally, through participation in disaster management and as agents of social change.[13]

THE GENDERED IMPACTS OF CLIMATE CHANGE

The impact of climate change is not gender-neutral, as women are disproportionately vulnerable to disasters. Gender disparities in access to resources, decision-making power, and cultural norms often amplify women's susceptibility to extreme events, leading to higher mortality rates and reduced access to relief and recovery assistance.

From a physiological standpoint:

The increasing frequency of extreme heat events drives a disproportionate heat-related morbidity and mortality among women,[14] due to biological vulnerabilities such as reduced heat dissipation through sweating and decreased radiative cooling. These vulnerabilities interact with socio-economic factors, as women often lack access to healthcare and cooling facilities due to concerns for their own safety or limited personal transportation options.

Among women, certain groups face heightened vulnerabilities during disasters, with pregnant women and young girls of reproductive age being particularly at risk. Pregnancy introduces additional physiological challenges, for example, an increase in temperatures in the week preceding delivery can lead to stillbirth. Rising temperatures favour the spread of vector-borne illnesses like malaria and dengue fever which are linked to worse maternal and neonatal outcomes. Access to essential prenatal care and medical assistance may be limited during disasters, increasing the risk of pregnancy-related complications. Additionally, displacement and loss of infrastructure in the aftermath of such events may disrupt access to maternity services and contraception, placing pregnant women and sexual and reproductive health at further risks.

12 United Nations Office for Disaster Risk Reduction. (2024). Gender inequality. UNDRR. https://www.undrr.org/implementing-sendai-framework/sendai-framework-action/gender.

13 World Health Organization. (2014). Gender, climate change and health. https://www.who.int/publications/i/item/9789241508186.

14 Sorensen, C., Murray, V., Lemery, J., & Balbus, J. (2018). Climate change and women's health: Impacts and policy directions. PLOS Medicine, 15(7).

From a socioeconomic standpoint:

When disasters strike, women are less likely to survive due to long-standing gender inequalities. For example, in the 2004 Southeast Asia tsunami, four times as many women as men died in affected areas. As caregivers, women often stay behind to look for their children and other relatives. Moreover, in these areas, women and girls may not be taught how to swim or climb trees which means that they could not escape when the wave hit the coast.

From a geographical standpoint:

Women living in disaster-prone areas face heightened risks due to their location, which exposes them to recurrent hazards such as floods, fires, and earthquakes. These areas often lack adequate infrastructure and emergency services, limiting women's access to life-saving resources and support during disasters. Additionally, the geographical remoteness of many disaster-prone regions exacerbates challenges related to evacuation, communication, and access to healthcare. The socio-economic disparities further affect women, limiting their ability to prepare for, cope with, and recover from disasters.

From women's heightened exposure to violence in crisis settings:

Reports indicate a growing recognition that affected populations during disasters face various forms of gender-based violence. For example, during 'lock downs' associated with COVID-19, during emergency evacuations and displacements, the risks of sexual and physical violence, intimate partner violence, forced early marriage, trafficking and sexual exploitation or forced/domestic labour are heightened. Prolonged recovery and reconstruction after disasters can leave displaced women and girls in camps and shelters where they are at heightened risk of experiencing violence.[15]

> *"When disasters strike, women are less likely to survive due to long-standing gender inequalities."*

From the various layers of vulnerability:

As stated by UN Women:[16] '*Looking at the way in which various forms of inequality often operate together and exacerbate each other, it is clear that climate change risks are acute for indigenous and Afro-descendent women and girls, older women, LGBTIQ+ people, women and girls with disabilities, migrant women, and those living in rural, remote, conflict and disaster-prone areas*'.

Multiple factors heighten the vulnerability of certain groups of women. An elderly woman belonging to an ethnic minority group and residing in a disaster-prone area faces multiple layers of vulnerability and risks. She may encounter various barriers in accessing essential resources and services and experience discrimination or marginalization amid the challenges posed by disasters. By acknowledging and addressing the intersecting inequalities, inclusive and equitable strategies can be developed to promote social justice in the face of disasters.

THE NECESSITY OF INTEGRATING GENDER CONSIDERATIONS IN DRM

Despite considering many vulnerabilities, disaster risk management still has shortcomings. The lack of consideration for gender is now a significant challenge in DRM that has prompted community and UN organisations to design solutions.

UN Women[17] has led a valuable initiative to build women's resilience to disasters via their Women's Resilience to Disasters (WRD) programme which proposes a comprehensive package to strengthen women's resilience to disasters and threats, including climate change and COVID-19. The objectives for WRD countries are to adopt gender-responsive decision-making and governance systems; and enable targeted action to build the resilience of women and girls. Their aim is to provide a 'one-stop shop' for gender-related disaster and climate resilience knowledge. It brings together practitioners, policymakers, and activists who support women and girls affected by disasters, climate change, and other threats. The programme seeks to bridge the gaps between gender equality, social inclusion, disaster risk reduction, climate change adaptation, and resilience by:

- *Sharing evidence on the gender and intersectional dimensions of disaster and climate risks;*
- *Sharing women's perspectives, experiences, and good practices; and*
- *Providing consolidated access to data, research, resources, tools, and expertise.*

15 Thurston, A. M., Stöckl, H., & Ranganathan, M. (2021). Natural hazards, disasters and violence against women and girls: A global mixed-methods systematic review. BMJ Global Health, 6, e004377. https://pubmed.ncbi.nlm.nih.gov/33958379/.

16 UN Women Headquarters. (2022). Explainer: How gender inequality and climate change are interconnected. UN Women. https://wrd.unwomen.org/index.php/explore/insights/explainer-how-gender-inequality-and-climate-change-are-interconnected.

17 UN Women. (n.d.). Women's resilience to disasters knowledge hub. UN Women. https://wrd.unwomen.org/.

In March 2024, the Sendai Gender Action Plan[18] (Sendai GAP) was launched to support implementation of the Sendai Framework with a renewed focus on accelerating progress toward gender equality and reducing disaster risk. It aims to ensure that disaster risk reduction efforts are gender-responsive and that they actively promote and support women's empowerment and leadership. It emphasizes the mutually reinforcing goals of gender equality and disaster risk reduction, as well as recognizes that gender inequalities exacerbate the impacts of disasters. The Sendai GAP involves analysing how gender norms, roles, and relations shape disaster risks and impacts, integrating this understanding into planning, implementation, monitoring, and evaluation efforts.

Examples of recommendations included in the Sendai Gender Action Plan:

The Sendai GAP includes 33 concrete actions under 8 key objectives aimed at implementing comprehensive, gender-responsive measures that address the vulnerabilities faced by women. The examples below illustrate how the GAP aims to address all areas of women's vulnerabilities:

- *Action 24 promotes* ***anticipatory actions that overcome social norms and barriers****, such as making emergency drills and risk communications accessible to all women.*
- *Action 27 focuses on* ***gender-responsive recovery****, to alleviate the negative impacts of domestic work that commonly fall on women and girls. For example, it recommends planning for emergency water supplies to address the additional burdens and security risks women face when collecting water after disasters.*
- *Action 18 promotes* ***gender mainstreaming into risk-informed development****, emphasising investments in resilient medical facilities to provide continuity of sexual and reproductive health services during disasters.*
- *Action 14 aims at* ***increasing participation of women and gender stakeholders in DRM****, advocating for quotas to ensure at least of one-third representation of women in national and subnational committees advising the government on disaster risk reduction.*

To further support the integration of a gendered perspective in DRM, it is fundamental to improve disaggregated data collection and analysis, as required by the Sendai Framework, on the distinct impacts of disaster related climate change on men and women, as well as on how emergencies affect differently across physiological, economic, social and psychological dimensions. A deeper understanding of gender differences is required to effectively inform DRM policies.

CONCLUSION

Climate change significantly exacerbates risks, making effective DRM more critical than ever. As the frequency and severity of natural disasters increase, the need for robust DRM strategies that can mitigate these impacts and enhance community resilience becomes paramount. However, while DRM is essential, it has its limitations in addressing specific vulnerabilities, especially those related to gender. Women face unique physiological, socioeconomic, and geographic vulnerabilities during and in the aftermath of disasters, which DRM alone may not fully address.

The international frameworks, *inter alia*, the Sendai Framework, the Sustainable Development Goals, Paris Agreement on Climate Change, the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, the Santiago Network, United Nations Pact for the Future and other related global, regional and national frameworks are essential for DRM. In line with the recently adopted of the Gender Action Plan to support the implementation of the Sendai Framework, this represents a significant milestone in acknowledging and addressing these disparities, emphasizing the importance of moving towards gender-responsive disaster risk reduction efforts.

By embedding gender considerations into all aspects of policy and planning, we can ensure that the unique vulnerabilities faced by women are addressed and also promotes a more equitable and resilient society capable of withstanding the growing challenges posed by climate change.

18 UNDRR. (2024). What is the Sendai Gender Action Plan? United Nations Office for Disaster Risk Reduction. https://www.undrr.org/news/what-sendai-gender-action-plan.