

OVERVIEW OF DISASTER RISK REDUCTION, DISASTER RISK MANAGEMENT, RISK-INFORMED DEVELOPMENT, AND RESILIENCE



Photo: UN Women

Explaining disaster risk

Disaster Risks are the potential loss of life, injury, or destroyed or damaged assets that could occur to a system, society, or a community in specific time. They result from the interaction of exposure to hazards (such as droughts, floods, cyclones, earthquakes, epidemics, and locust invasions et al.) with physical location, vulnerability (sensitivity to hazards governed by socio-economic and cultural factors amongst others), and capacity to cope.

$$\text{Disaster Risk} = \frac{\text{Exposure to Hazards} \times \text{Vulnerability}}{\text{Capacity to cope}}$$

Hazards: common hazards in Africa that trigger disasters include droughts, floods, cyclones, earthquakes, epidemics, locust invasions, environmental degradation, and technological hazards. Climate change and variability have exacerbated the frequency and intensity of hydro-meteorological hazards.

Exposure: poor and vulnerable communities are usually forced by their circumstances, to live in hazardous, often high-risk areas (e.g., low-lying coastal areas, volcanic slopes, river floodplains). In Africa and economically poorer regions of the world, disaster risks are closely related to poverty. Poor people tend to live and work in hazardous and marginalised areas that are more exposed to disasters.

Vulnerabilities: exposure to the above hazards and vulnerability to disasters is increasing due to multi-dimensional poverty, rising inequalities, unplanned urbanisation, climate change, unsustainable land use, infrastructure stress, and poor governance.

Capacity: this combines all the strengths, attributes, and resources available within an organisation, community, society, or individual to manage and reduce disaster risks and strengthen resilience. Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership, and management.

Disaster risk reduction (DRR)

Disaster risk reduction (DRR) aims to reduce the impacts of natural hazards such as earthquakes, floods, droughts, and cyclones, through an ethic of prevention and mitigation.

Historically, dealing with disasters focused on emergency response, but towards the end of the 20th century it was increasingly recognised that disasters are not natural (even if the associated hazard is) and that it is only by reducing and managing exposure and vulnerability to hazards, that we can prevent and reduce losses and alleviate the impacts of disasters.

Since we cannot reduce the severity of natural hazards, the main opportunity for reducing risk lies in reducing vulnerability and exposure. Reducing these two components of

“There is no such thing as a ‘natural’ disaster, only natural hazards.”

risk requires identifying and reducing the underlying drivers of risk, which are particularly related to poor economic and urban development choices and practice, degradation of the environment, poverty, climate change, and important inequalities, which create and exacerbate conditions of **hazard**, **exposure** and **vulnerability**. Addressing these underlying risk drivers will reduce disaster risk, lessen the impacts of climate change and, consequently, maintain the sustainability of development.

DRR is part of sustainable development, so it must involve every part of government, society, non-governmental organisations and the professional and private sectors. It therefore requires a people-centred and multi-sector approach, building resilience to multiple, cascading and interacting hazards, and creating a culture of prevention, mitigation and resilience. Consequently, DRR includes strategies designed to:

- **Avoid new risks** - through regulations and practices, which avoid the creation of new hazards (e.g. environmental degradation), vulnerability factors or exposure e.g. land use planning, laws to prevent the overuse of natural resources, climate change mitigation;
- **Address pre-existing risks** - through disaster risk reduction i.e., preventing impact through advance measures that avoid impacts of existing hazards, vulnerability factors and exposure (e.g., enforcing resilience building codes) or mitigate/reduce the adverse impacts of hazards, vulnerability factors or exposure (e.g., planting mangroves);
- **Share/transfer and spread risk** - to shift the financial or impacts from one party to another in order to prevent disaster losses creating additional poverty (e.g., formal mechanisms such as insurance, catastrophe bonds or informal mechanisms e.g., emergency funds, community seed banks, community networks).

“We need to manage risks, not just disasters.”

BOX 1

Definitions

Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.

Annotation: Disaster risk reduction is the policy objective of disaster risk management, and its goals and objectives are defined in disaster risk reduction strategies and plans.

Disaster risk reduction strategies and policies define goals and objectives across different timescales and with concrete targets, indicators and time frames. In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, these should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

A global, agreed policy of disaster risk reduction is set out in the United Nations endorsed Sendai Framework for Disaster Risk Reduction 2015-2030, adopted in March 2015, whose expected outcome over the next 15 years is: “The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.”

Source: UNDRR – Terminology - <https://www.undrr.org/terminology#D>

Disaster risk reduction elements

Prevention: activities and measures to avoid existing and new disaster risks (often less costly than disaster relief and response). For instance, relocating exposed people and assets away from a hazard area.

Mitigation: the reduction or limitation of the adverse impacts of hazards and related disasters. For instance, constructing flood defences, planting trees to stabilise slopes, and implementing strict land use and building construction codes.

Transfer: the process of formally or informally shifting the financial consequences of particular risks from one party

to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party. For instance, insurance including micro-insurance.

Preparedness: the knowledge and capacities of governments, professional response and recovery organisations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent or current hazard events or conditions. For instance, installing early warning systems, identifying evacuation routes and preparing emergency supplies

DRR Activities can be described as:

- **non-structural** (e.g., policy-making, land-use planning, awareness-raising); and
- **structural** (e.g. improving infrastructure quality and resilience through the implementation of building codes).

Identifying and understanding risk

This is the foundation of risk reduction. Awareness, identification, understanding and measurement of disaster risks are all clearly fundamental underpinnings of disaster risk management (UNISDR, 2015b). Disaster risk reduction is about decisions and choices, including a lack of communication, so risk information has a key role in decision making:

- **Risk identification:** because the damages and losses caused by historical disasters are often not widely known, and because the potential damages and losses that could arise from future disasters (including infrequent but high-impact events) may not be known at all, DRR can be given a low priority. Appropriate communication of robust risk information at the right time can raise awareness and trigger action.
- **Financial protection:** disaster risk analysis was born out of the financial and insurance sector’s need to quantify the risk of comparatively rare high-impact natural hazard events. It plays a critical role, as governments increasingly seek to manage their [sovereign financial risk](#) or support programmes that manage individual financial risks (e.g., micro-insurance or household earthquake insurance).
- **Resilient reconstruction:** risk assessment can play a critical role in impact modelling before an event strikes (in the days leading up to a cyclone, for example), or it can provide initial and rapid estimates of human, physical, and economic loss in an event’s immediate aftermath.

Moreover, risk information for resilient reconstruction needs to be available before an event occurs, since after the event, there is rarely time to collect the data needed to inform resilient design and land-use plans.

Disaster management and disaster risk management

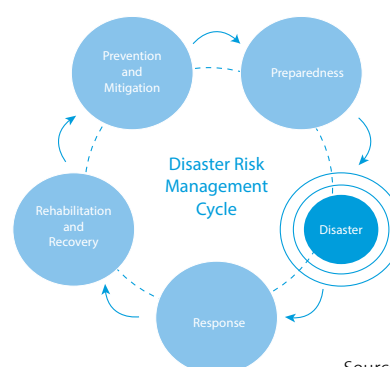
Disaster management is the organisation, planning and application of measures preparing for, responding to and recovering from disasters. *Note: Disaster management may not completely avert or eliminate the threats; it focuses on creating and implementing preparedness and other plans to decrease the impact of disasters and “build forward better”. Failure to create and apply a plan could lead to loss of life, damage of assets and lost revenue.*

Emergency management is also used, sometimes interchangeably, with the term disaster management, particularly in the context of biological and technological hazards and for health emergencies. While there is a large degree of overlap, an emergency can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.

Disaster risk management is the application of disaster risk reduction and disaster management policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk (through humanitarian response and recovery), contributing to the strengthening of resilience and reduction of disaster losses.

Disaster risk management includes management of all the phases of disasters, post disaster and pre-disaster risk management i.e., disaster risk reduction and preparedness (Pre-disaster or normal times), Early warning, Early action and humanitarian response (During disasters) Rehabilitation, Reconstruction and Recovery (Post disasters) and disaster risk reduction in all these phases.

FIGURE 1
The Traditional DRM cycle



Source: UN-SPIDER

Risk informed development and resilience

The adoption of the Sendai Framework for Disaster Risk Reduction (DRR) in 2015, saw an important paradigm shift towards:

- **Firstly, understanding** the complex and often interconnected ecosystem of **risk drivers and root causes of vulnerability to natural hazards** including poverty, climate change, environmental degradation, and gender inequality;
- **Secondly, strengthening disaster risk governance** for managing disaster risks to ensure that risk reduction, risk-informed recovery, and resilience are complementary mechanisms, involve all actors and affected people, and reduce the need for humanitarian response;
- **Thirdly, scaling up investment in disaster risk reduction** for resilience by embedding risk management into the DNA of development, and mainstreaming gender-responsive risk reduction and resilience across all the sustainable development goals and sectors; and
- **Lastly, strengthening preparedness** including early warning systems and “building forward better” to ensure risk informed recovery.

Importantly, rather than traditional risk-first approaches, which have focused on standalone DRR or CCA policies and projects, which are not formally linked to national development planning, budgetary systems of national development systems - there has been a move to **development first approaches**, which bring risk into the development agenda with a focus on mainstreaming to ensure risk-informed development and resilience development.¹

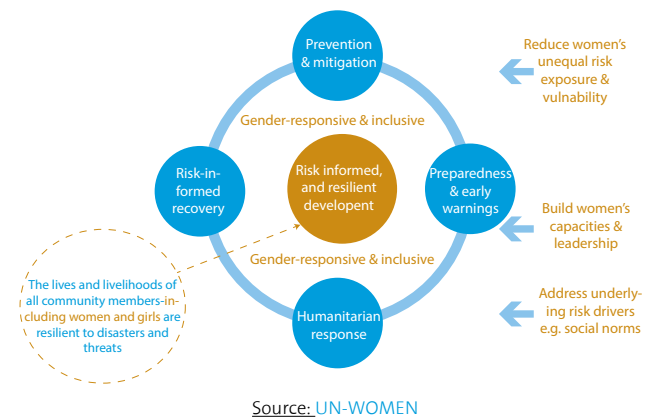
Risk-informed development is a risk-based decision process that enables understanding of multiple concurrent threats and complex risks to and arising from development decisions and acting on that knowledge. Risk-informed development cannot be only understanding; it also requires action. Risk-informed development allows for development to become a vehicle to reduce risk, avoid creating risks and build resilience. Sustainable development initiatives will fail unless they are risk-informed. Risk-informed development integrates global initiatives and framework agreements into development,

including Agenda 2030 for Sustainable Development, the Sendai Framework, the Paris Agreement and the World Humanitarian Summit, alongside recent declarations and policy processes on refugees and migrants.

Disaster resilience is the ability of a system, community, or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Improving climate resilience involves assessing how climate change will create new or alter current climate change induced disaster risks and taking steps to better cope with these risks.

FIGURE 2
Linking DRR, humanitarian response, recovery and development



Source: UN-WOMEN

¹ See [Risk Governance: Building Blocks for Resilient Development in the Pacific](#)

RESOURCES:

UNDRR – Terminology: <https://www.undrr.org/terminology>

[Disaster Risk Reduction and Management \(DRRM\) Online Course](#): The course has been designed by Humanitarian Leadership Academy to provide an in-depth overview of DRRM to humanitarian professionals interested in expanding their knowledge on DRRM.

[Disaster Risk Reduction and Management Pathway for East Africa Online Course](#): This Disaster Risk Reduction and Management (DRRM) course has been designed to provide an in-depth overview of DRRM to humanitarian professionals in East Africa interested in expanding their knowledge on DRRM.



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