SWISS NGO DRR PLATFORM

DRR terminology and concepts

Thematic note for the F2F 2015 (30.10.2015)

I. DRR at the international level

The evolution of Disaster Risk Reduction (DRR)

The increased frequency and intensity of disaster events is observed all over the world, which goes in hand with an increase of associated losses. [1].

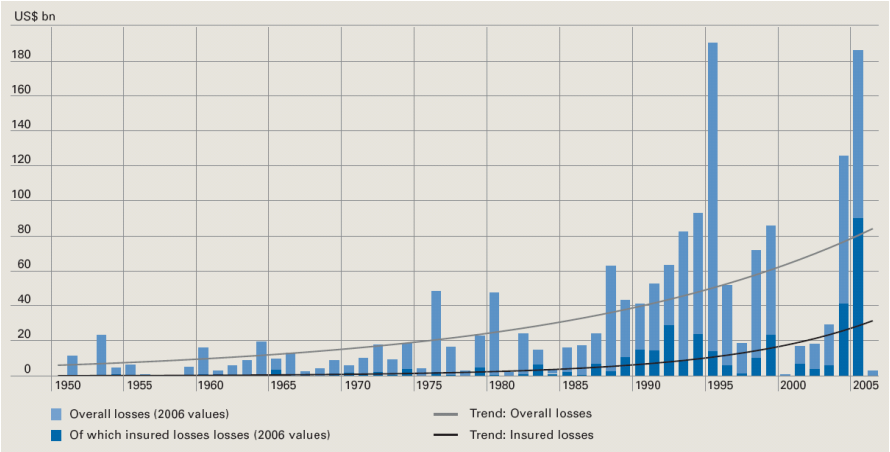
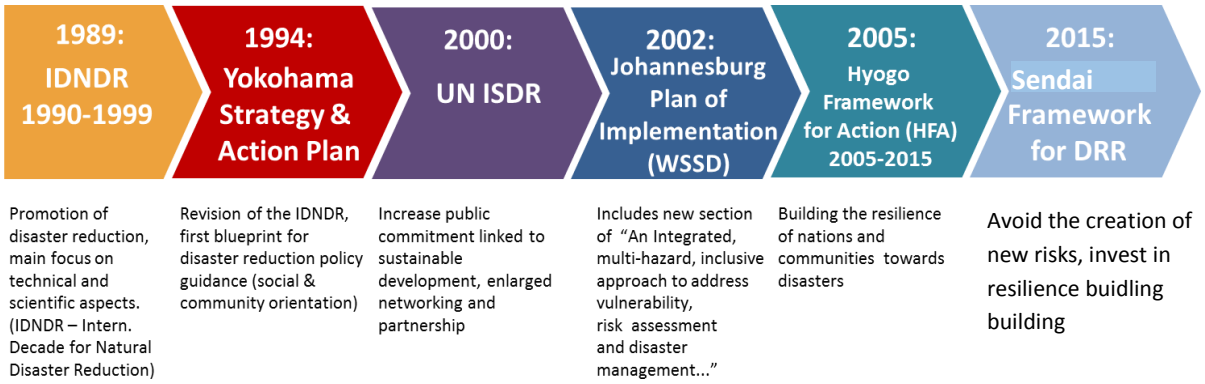


Fig.: Increment of disaster events since 1950, WMO, 2009

The concept of Disaster Risk Reduction (DRR) has evolved to a widely adapted framework to reduce the risks of natural hazards. Over the past two decades, the UN International Decade for Natural Disaster, the Yokohama Conference (1994), the World Conferences on Disaster Risk Reduction (WCDRR) in 2005 and 2015 have contributed to a significant shift in the concept of disaster management towards a **more comprehensive understanding and a forward looking and longer term strategy for anticipating and managing risk**. This implied a change in the concept of vulnerability and hazards by drawing more attention to the **underlying causes of social vulnerability to hazards**. During this time, the today used concept of DRR was developed giving particular emphasis on proactive measures (prevention and preparedness) instead of being reactive to disasters.

Graphic: DRR an agenda in progress, ISDR, 2009; modified



[1] Global assessment reports UNISDR, http://www.unisdr.org/we/inform/gar

Sendai Framework for DRR (SFDRR)

At the international level the cornerstone of DRR is the new **Sendai Framework for Disaster Risk Reduction 2015 – 2030** (SFDRR, also post-2015 Hyogo Framework for Action or HFA 2) which was elaborated at the World Conference on DRR in Sendai/Japan in March 2015 and adopted by 187 countries. The UN International Strategy on Disaster Risk Reduction (UNISDR) is mandated for the coordination and monitoring of the SFDRR. The essence of the SFDRR are stated in its outcome, goal and four priorities for action:

Four priorities of the SFDRR:

1. Understanding disaster risk;
2. Strengthening disaster risk governance to manage disaster risk;
3. Investing in disaster risk reduction for resilience;
4. Enhancing disaster preparedness for effective response, and to "build back better" in recovery, rehabilitation and reconstruction.

Outcome: 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.

Goal: **Prevent new and reduce existing disaster risk** through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.

II. The concept of Disaster Risk Reduction

Components of disaster risks

A hazard in itself does not lead necesarry to a disaster. Disater result when a natural hazard impacts on a vulnerable, exposed and /or badly prepared community. Indeed, a crucial point about understanding disasters is that they are not purely the results of natural events, but the product of social, political and economic context in which they occur.

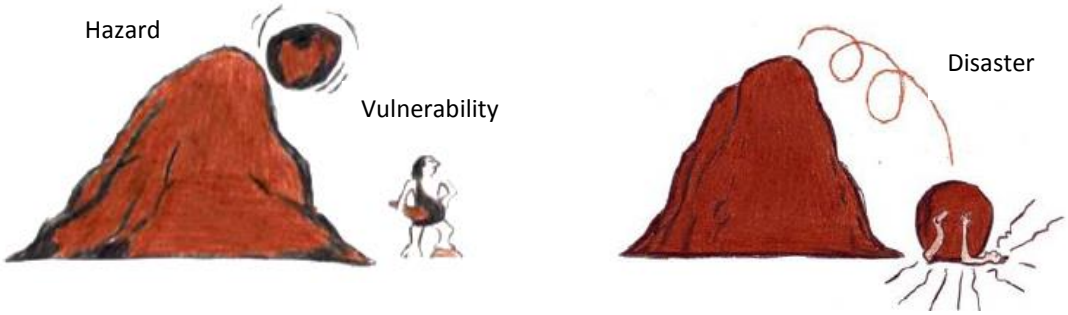


Fig. Illustration of hazard, vulnerability and disaster

Hazard: A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage[3]. A hazard is characterized by its location, magnitude / intensity and its frequency/probability.

According to UNISDR, the different types of hazards are classified as:

1. Hydrological	2. Geological	3. Biological	4. Technological
• Floods • Drought	• Landslides •Eearthquake	• Pests • Epidemies	• Nuclear accidents

It can further be distinguished between:

- **Sudden onset disasters** (e.g. floods, cyclones, earthquake)
- **Slow onset disasters** (e.g. drought, desertification)

Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic, environmental and institutional factors. Vulnerability varies

significantly within a community and over time[3]. A key variable in determining vulnerability is the question of „exposure“.
People are differently vulnerable. The degree of vulnerability, and thus of disaster impact, is defined by social variables such as gender, age, health status, ethnicity, religion and socio-economic status. A full understanding of such social factors is necessary to identify the underlying causes of disasters and thus try to prevent and reduce them[2].

Disaster: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.
Disasters are often described as a result of the combination of three elements:
- the exposure to a hazard;
- the conditions of vulnerability that are present;
- the insufficient capacity or measures to reduce or cope with the potential negative consequences.

Risk: The combination of the probability of an event and its negative consequences (impact).

$$\text{Risk} = \frac{\text{Hazard x Vulnerability}}{\text{Capacities}}$$

The concept of DRR and its measures

In the past DRR interventions focused rather on humanitarian interventions right after a disaster event through rescue, recovery and reconstruction. Later aspects of preparedness/preparation were added. Prevention, considering DRR as not only humanitarian but also a development topic, was included subsequently. It is crucial to shift the focus away from merely responding to disasters, and to focus particularly **on disaster prevention and preparedness**.

Nowadays, it is a recognized fact that different aspects of DRR are of importance at different stages: before, during and after an event for an **integrated risk management.**

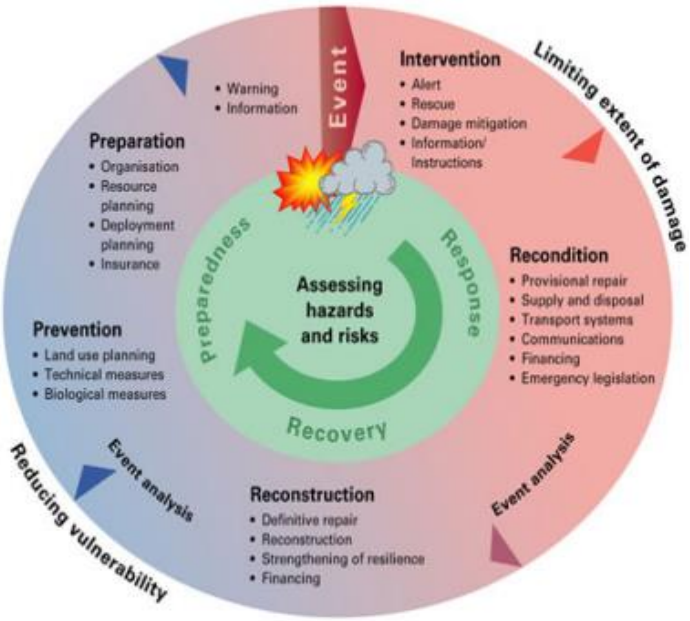


Fig. Integrated risk management cycle FOCP / FOEN 2001/12.

DRR is a **conceptual framework to systematically avoid and limit disaster risks and associated losses** in lives and the social, economic and environmental assets of communities and countries[3].
DRR aims at reducing risk through reduced exposure, reduced vulnerabilities and/or strengthened capacitie through according measures in order to enhance the resilience of communities and their livelihoods.

$$\text{DRR} = \frac{\text{Reduced exposure x reduced vulnerabilty}}{\text{Increased capacities}}$$

[2] C.f. Clot, N. and J. Carter, 2009: DRR in the context of livelihoods and gender
[3] UNISDR, 2009: Terminology

There are different types of measures in order to avoid (prevent) a disaster or to reduce (mitigate) the its impact, as illustrated in the figure bellow.

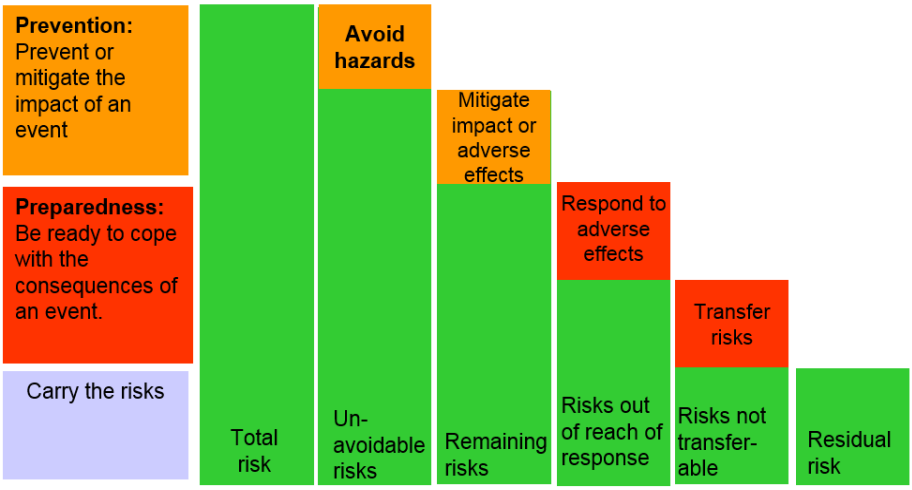


Fig: Risk stair case (SDC) with different DRR options reducing the total risk

- **Preventive measures:** The outright avoidance of adverse impacts of hazards and related disasters (to completely avoid potential adverse impacts through action taken in advance). E.g. dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones.
- **Mitigation measures:** The lessening or limitation of the adverse impacts of hazards and related disasters.
- **Preparedness measures:** The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.
- **Transfer mechanisms:** Formal insurance systems or funds might be options, but also informal mechansms of local communites / civil socuiety networks.

It can further be distinguished between:

- **Structural measures**: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;
- **Non-structural measures:** Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through public policies and laws, public awareness raising, training, education but also advocacy and policy dialogue.

III. DRR and related topics

Resilience

There is at the moment a strong tendency away from focusing on vulnerability towards resilience. However, it remains challenging to define and measure resilience in its practical aspects to assess the community's level of disaster resilience.
Various definitions of resilience exist. A defined by UNISDR Resilience is **the ability of a system,** community or society exposed to hazards **to resist, absorb, accommodate to 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.

DRR and Development

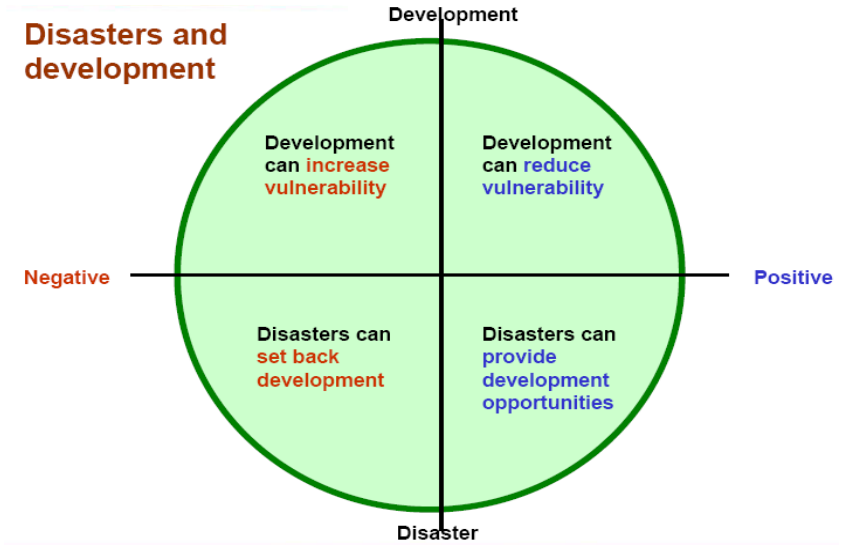
In alignment with the development of the DRR concept, disasters have been increasingly perceived as cause and consequence of inadequate development and no longer simply as unavoidable aberrations. Human interventions and development processes are being recognized as fundamental

in causing and exacerbating disasters as well as preventing or mitigating them and thus are intimately connected to the process of development. A disaster can eradicate years of development efforts in a few minutes or hours through direct and indirect impacts of one single disaster event. Further, development efforts and choices made by communities and nations can create new risks or enhance existing ones.

Various studies underline that:

- Disasters are causes and consequence of development failings;
- Development can increase or decrease disaster risk depending on how it is managed;
- Disasters can reduce the chances of achieving the MDGs/SDGs;
- Disaster risk reduction can have positive developmental dividends[4].

Fig.: Disasters and development, UNDP, 2005.

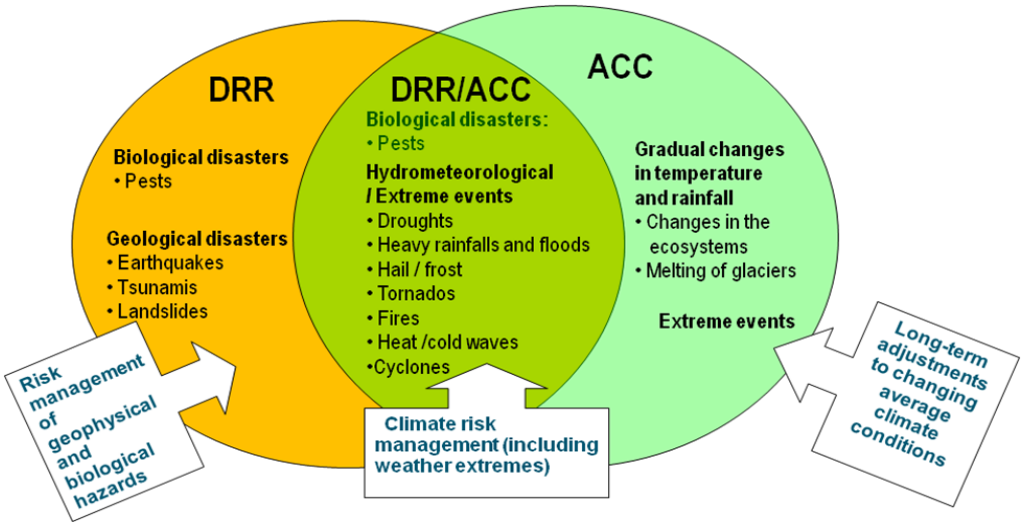


Food crises are, for example, often the result of long-term failures in development, producing chronic food insecurity and extended slow-onset disaster. Good development and effective DRR are both needed if such crises are to be avoided in the future.

Linkages between DRR and Adaptation to Climate Change

DRR and Adaptation to Climate Change (ACC) are both strategies to respond to risks and contribute to strengthen the resilience of local communities and their livelihoods. Whereas DRR tackles all types of hazards and focuses on current extreme events, ACC only deals with climate and its variations and focuses on long-term adjustments to changes in mean climatic condition based on climate scenarios.

Fig. Relation between DRR and ACC, Intercooperation, 2007



There are principally two points of encounter between DRR and ACC:

- the increase in risks both in frequency and intensity related to the climate system, in this case mainly hydro-meteorological extremes
- the appearance of new risks due to the changing climate including new hydro-meteorological risks, biological disasters (e.g. pests or illnesses).

[4] ODI, 2005: Humanitarian Response to Natural Disasters -a briefing paper

Further information on DRR

DRR basics:

- Sendai Framework for Disaster Risk Reduction 2015-2030, UNISDR (2015). www.wcdrr.org/uploads/Sendai_Framework_for_Disaster_Risk_Reduction_2015-2030.pdf
- UNISDR, Terminology on DRR, http://www.unisdr.org/we/inform/publications/7817

Country profiles with hazard/risk maps, disaster statistics and other documents on DRR:

- UNSDR Country profiles http://www.preventionweb.net/english/countries/
- Prevention web (of UNISDR): http://www.preventionweb.net/english/
- Global Assessment Report on DRR (UN ISDR) http://www.preventionweb.net/english/hyogo/gar/2015/en/home/index.html
- World Disasters Report 2015 (IFRC) http://ifrc-media.org/interactive/world-disasters-report-2015/

Introduction movies DRR:

- Integrated Disaster Risk Management for A Resilient World: https://vimeo.com/122963385
- 10 things you should know about DRR: https://vimeo.com/142153857

DRR Networks/Platforms:

- Swiss NGO DRR platform: http://www.drrplatform.org
- SDC DRR network: http://www.sdc-drr.net
- Global Network of Civil Society Organisations for Disaster Reduction (GNDR) http://www.globalnetwork-dr.org

Further information related to DRR & water, floods management

Institutions and networks

- UN Water http://www.unwater.org/topics/water-related-hazards/en/
- WMO DRR Programme http://www.wmo.int/pages/prog/drr/
- SDC RésEAU water network https://www.shareweb.ch/site/Water
- Swiss Water & Sanitation Consortium *http://waterconsortium.ch/*
  Swiss Water Partnership http://www.swisswaterpartnership.ch/

Projects and initiatives

- Associated programme on floods management (AFPM), WMO http://www.apfm.info/
- Guide on Cities and Flooding: Integrated Urban Flood Risk Management, GFDRR https://www.gfdrr.org/sites/gfdrr/files/urban-floods/urbanfloods.html
- Global floods resilience program Zurich Foundation https://www.zurich.com/en/corporate-responsibility/flood-resilience

Background documents

- Water and Disaster Risk: a contribution by the UN to the consultation for the 3rd UN World Conference on DRR (2014) http://www.preventionweb.net/english/professional/publications/v.php?id=38763
- World Water Development Report (WWDR), UN World Water Assessment Programme http://unesdoc.unesco.org/images/0023/002322/232273e.pdf (facts and figures 2015) http://www.preventionweb.net/files/43492_waterfor.pdf (WWDR report 2015) http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/wwdr4-2012/ (WWDR 2012 Managing Water under Uncertainty and Risk)
- Water and disasters 2000-06, UN water (factsheet) http://www.unwater.org/fileadmin/user_upload/unwater_new/docs/water_disasters.pdf

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