Resilience to
Disasters and Climate Change

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Key Terminologies

- Hazard
- Risk
- Vulnerability
- Exposure
- Disaster
- Disaster Risk Reduction (DRR)
- Climate Change Adaptation

Hazard

- A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

- Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards).

Risk

- The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

- Risk is expressed by the formula

   Risk = Hazards x Vulnerability

Some disciplines also include the concept of exposure to refer to the physical aspects of vulnerability.

Vulnerability

- The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

- The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard

- Capacities are factors which can increase the ability of people to cope with hazards that include skills, knowledge and resources, for example

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Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Disaster

- A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

- A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster Risk Reduction (DRR)

- The conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Adaptation

- Adaptation refers to *"adjustments in ecological, social or economic **systems/processes/practices** in response to climate change"* (HRBA manual)

- Adaptation involves adjustments to **decrease the vulnerability** of communities, regions, and nations to climate variability and change and in **promoting sustainable development** (IPCC 2001).

- **Adaptation** will be necessary to address impacts resulting from the warming which **is already unavoidable** due to past emissions (IPCC, 2007).

Resilience

- **Resilience systems** mean systems that **enable people** to effectively **prepare for, respond to and recover** from disasters, including addressing **underlying causes** of vulnerability.

- **Resilient communities** have the **capacity** to **absorb** stress or destructive forces and **recover** through resistance or adaptation.

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Disaster Risk Reduction and Adaptation
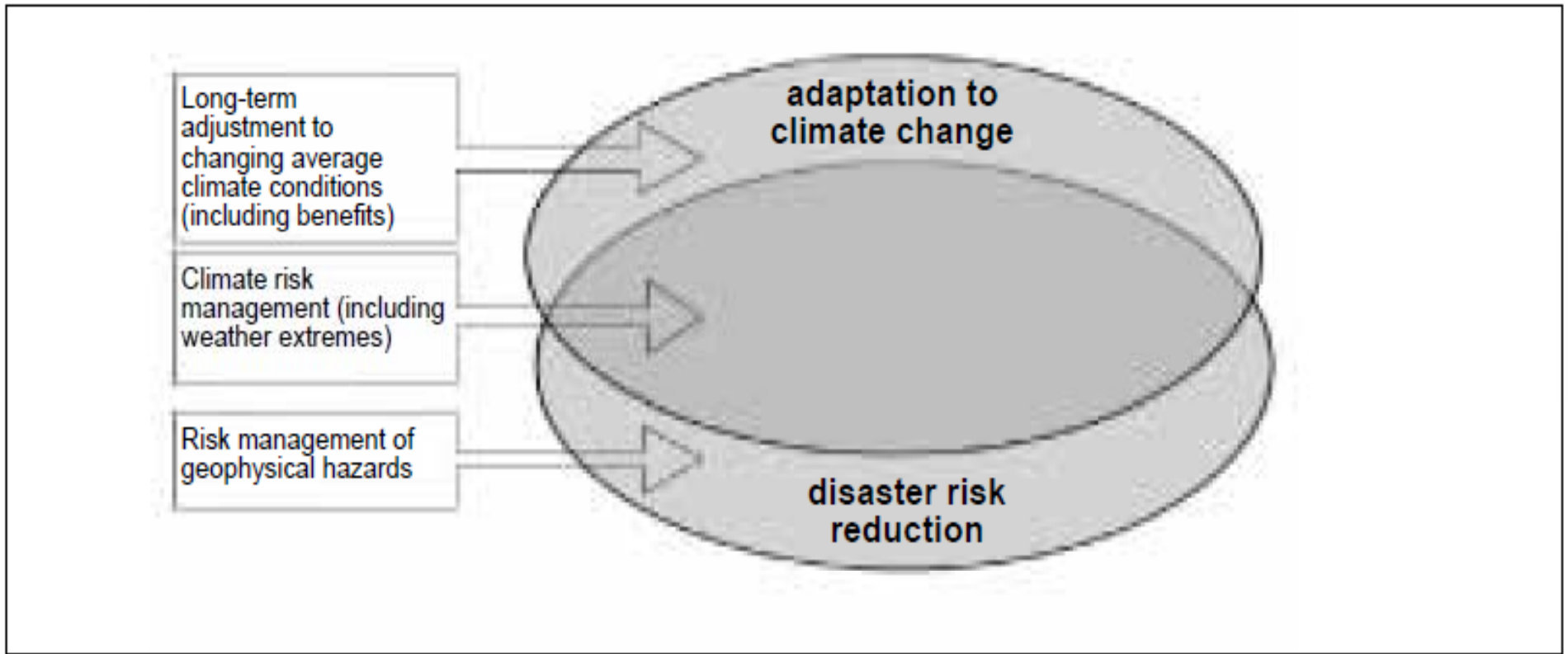
- Similarities
    - Similar aim of building resilience
    - Vulnerability analysis, capacity building policy influencing etc
    - Poverty reduction and addressing underlying risk factors
    - Mainstreaming and integration
    - High on political agenda

- Differences:
    - Hazard type (Hydro-meteorological)
    - Timescale (past and future trends)
    - Design limits for infrastructural measures
    - Limits to existing capacities and resources

=> Adapted from "Linking climate change adaptation and disaster risk reduction" report by Tearfund, 2008.

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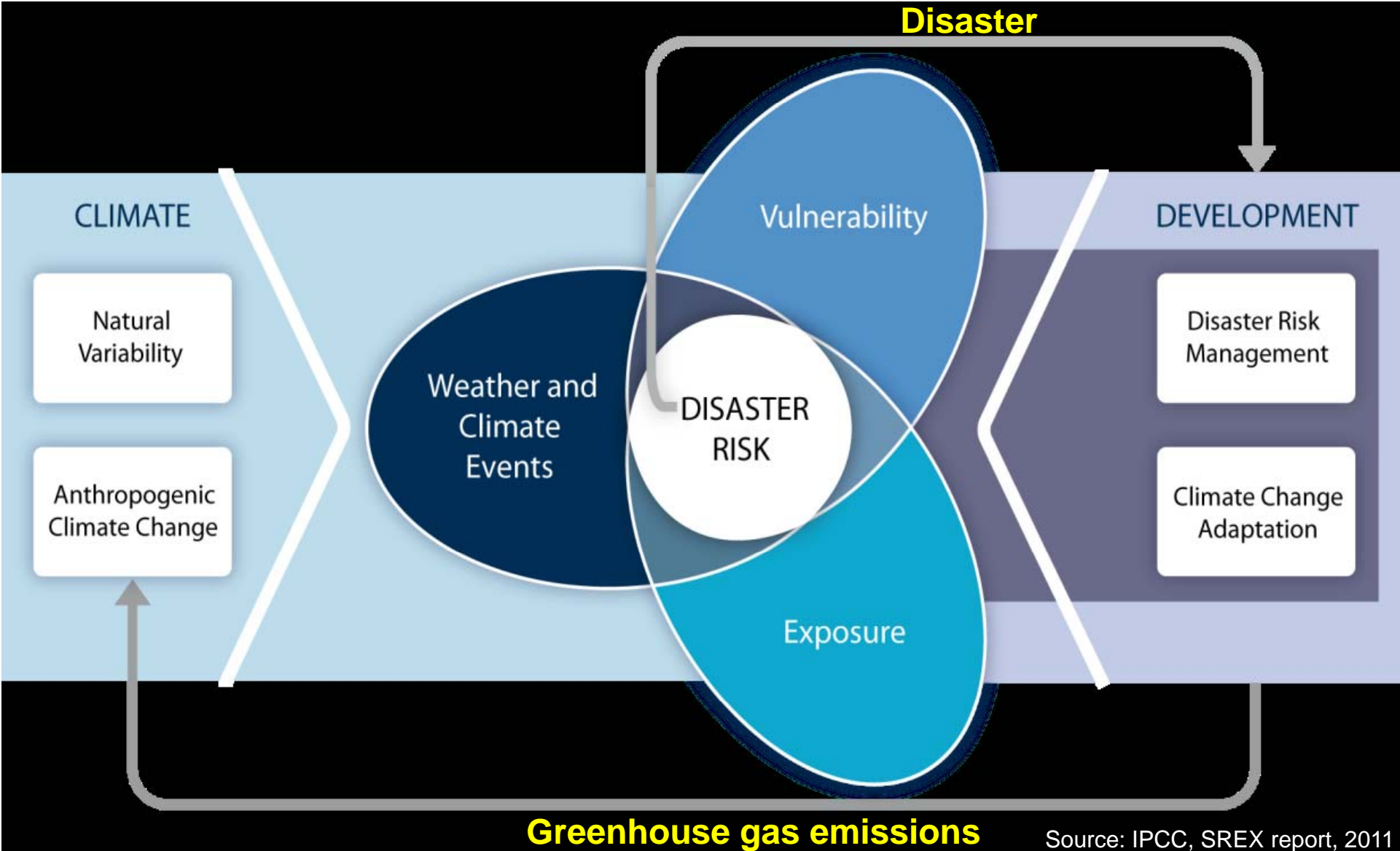# Overlap between DRR and climate change adaptation

Long-term adjustment to changing average climate conditions (including benefits)

Climate risk management (including weather extremes)

Risk management of geophysical hazards

adaptation to climate change

disaster risk reduction

Source: Mitchell and Van Aalst 2008

Disaster-Development-Climate 'nexus'

Source: IPCC, SREX report, 2011

International Policy work

Response of International Community

- For almost 2 decades now, the International Community has been addressing the issue of disaster reduction

- UN International decade for Natural Disaster Reduction in 1990s, World Conference on Disaster Reduction in Yokohama (1994) and Kobe Conference (2005) were steps in this direction

- The massive scale of destruction wreaked by tsunami fuelled a lot of discussion at Kobe that eventually led to the creation of Hyogo Framework for Action (HFA)

- This Framework sets five key global priorities with a common outcome: 'the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries'

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Hyogo Framework for Action (HFA)

The development and strengthening of institutions, mechanisms and capacities at all levels, especially the community, to build resilience to hazards

The integration of disaster risk reduction into sustainable development policies and planning at all levels

The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes

Goals

Ensure risk reduction is a national and a local priority with a strong institutional basis for implementation

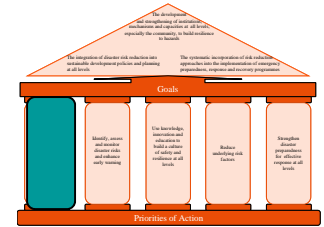Identify, assess and monitor disaster risks and enhance early warning

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Reduce underlying risk factors

Strengthen disaster preparedness for effective response at all levels

Priorities of Action

HFA : Priority 1

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
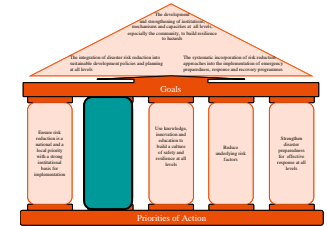
- DRR institutional mechanisms (national platforms); designated responsibilities
- DRR part of development policies and planning, sector wise and multisector
- Legislation to support DRR
- Decentralisation of responsibilities and resources
- Assessment of human resources and capacities
- Foster political commitment
- Community participation

HFA : Priority 2

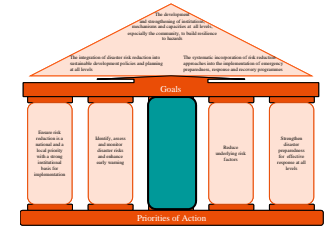Identify, assess and monitor disaster risks and enhance early warning

- Risk assessments and maps, multi-risk: elaboration and dissemination
- Indicators on DRR and vulnerability
- Data & statistical loss information
- Early warning: people centered; information systems; public policy
- Scientific and technological development; data sharing, space based earth observation, climate modeling and forecasting; early warning
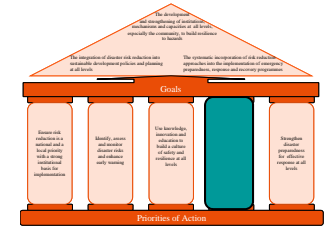- Regional and emerging risks

HFA : Priority 3

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

- Information sharing and cooperation;
- Networks across disciplines and regions; dialogue
- Use of standard DRR terminology
- Inclusion of DRR into school curricula, formal and informal education
- Training and learning on DRR: community level, local authorities, targeted sectors; equal access
- Research capacity: multi-risk; socioeconomic; application
- Public awareness and media
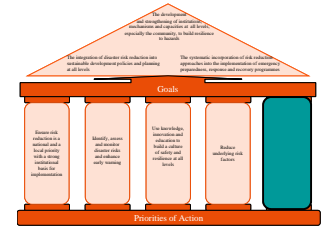
HFA : Priority 4

Reduce the underlying risk factors

- Sustainable ecosystems and environmental management
- DRR strategies integrated with climate change adaptation
- Food security for resilience
- DRR integrated into health sector and safe hospitals
- Protection of critical public facilities
- Recovery schemes and social safety- nets
- Vulnerability reduction with diversified income options
- Financial risk-sharing mechanisms
- Public-private partnership
- Land use planning and building codes
- Rural development plans and DRR

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HFA : Priority 5

Strengthen disaster preparedness for effective response at all levels

- Disaster management capacities: policy, technical and institutional capacities
- Dialogue, coordination & information exchange between disaster managers and development sectors
- Regional approaches to disaster response, with risk reduction focus
- Review & and exercise preparedness and contingency plans
- Emergency funds
- Voluntarism & participation

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HFA : Cross cutting issue

- A gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training

- Both communities and local authorities should be empowered to manage and reduce disaster risk by having access to the necessary information, resources and authority to implement actions for disaster risk reduction

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International developments on adaptation

- Cancun Adaptation Framework (2010)
- (Initial) Guidelines for National Adaptation Plans (NAP) (2011- 12)
- Adaptation Committee (2011-12)
- Loss and Damage work programme (2011-12)
- Green Climate Fund (2011)

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Thank You