Disaster Risk Reduction: Concept and Mandate

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Overview

- Concepts: Disaster, Vulnerability, Risk and Resilience
- DRR and its linkage with development and climate change adaptation
- Sendai framework and Space agencies
- Mandate

Disaster

The term disaster is derived from the Latin roots ***dis*** and ***astro***, meaning “away from the stars” or, in other words, an event to be blamed on an unfortunate astrological configuration.

Disasters occur when a hazard risk is realized.

There is a caveat to this definition:

To be considered disastrous, the realized hazard must overwhelm the response capability of a community.

Centre for Research on the Epidemiology of Disasters (CRED)

EM DAT International data base of Disasters

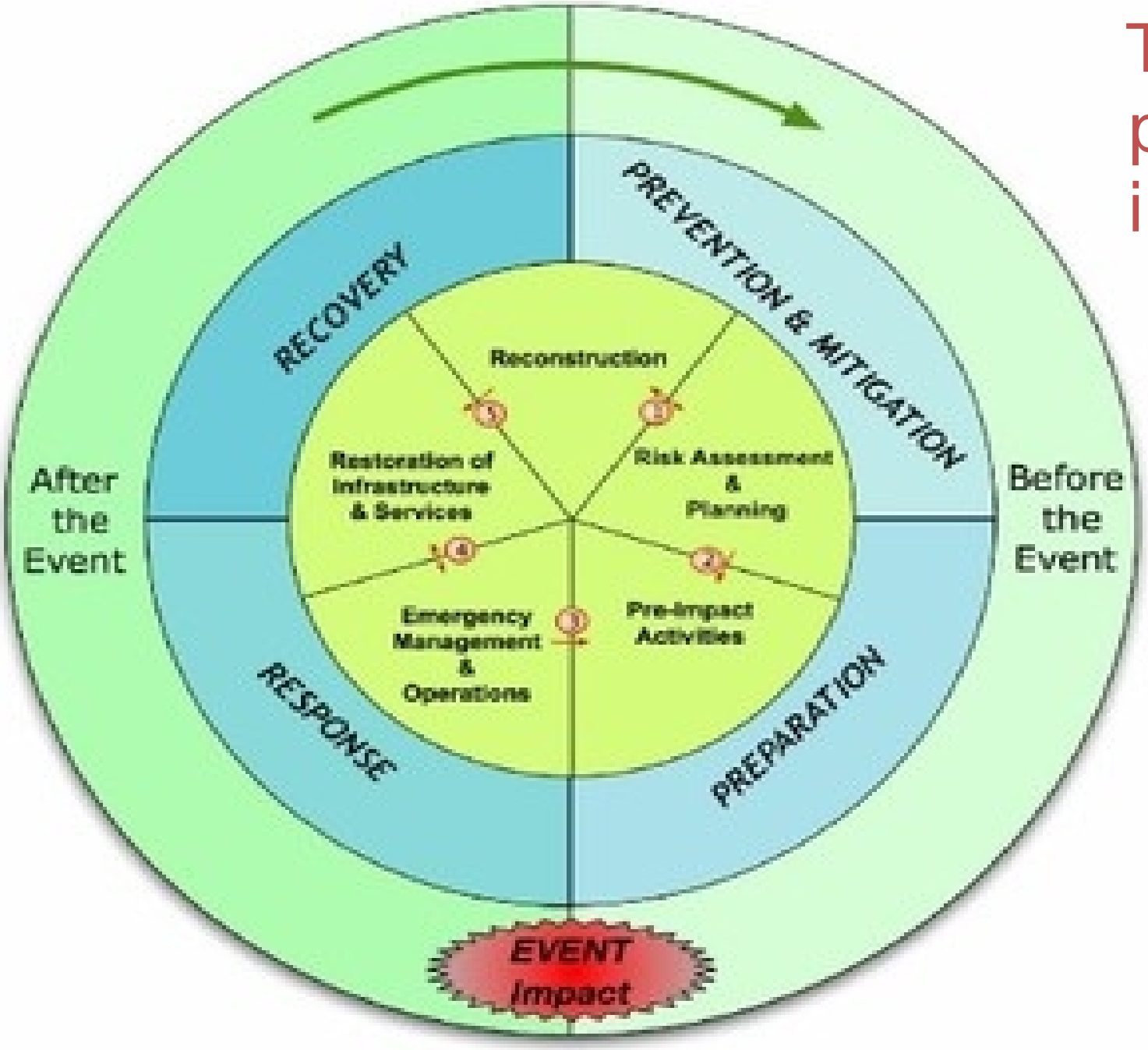
http://www.emdat.be/

For a disaster to be entered into the database at least one of the following criteria must be fulfilled:

1. Ten (10) or more people reported killed
2. Hundred (100) or more people reported affected.
3. Declaration of a state of emergency.
4. Call for international assistance.

EM-DAT data include the main following

Disaster number	A unique disaster number for each event (8 digits: 4 digits for the year and 4 digits for the disaster number - i.e.: 19950324)
Country	Country(ies) in which the disaster has occurred
Disaster group	Three groups of disasters are distinguished in EM-DAT: natural disasters, technological disasters and complex emergencies
Disaster type	Description of the disaster according to a pre-defined classification
Date	When the disaster occurred. The date is entered as follow: Month/Day/Year
Killed	Persons confirmed as dead and persons missing and presumed dead (official figures when available)
Injured	People suffering from physical injuries, trauma or an illness requiring medical treatment as a direct result of a disaster
Homeless	People needing immediate assistance for shelter.
Affected	People requiring immediate assistance during a period of emergency; it can also include displaced or evacuated people.
Total affected	Sum of injured, homeless, and affected.
Estimated Damage	Several institutions have developed methodologies to quantify these losses in their specific domain. However, there is no standard procedure to determine a



Technology plays a role in each phase

Vulnerability

- Central concept in disaster studies and
- Provides a conceptual link to examine the relationship between:
  - hazards,
  - cultural practice and the context of people's experiences,
  - disasters and development.

VULNERABILITY

Derived from the Latin term ***vulnerabilis*** means **“to wound,”**

Vulnerability is a measure of the propensity of an object, area, individual, group, community, country, or other entity to incur the consequences of a hazard.

It refers to conditions determined by physical, social, economic and environmental factors or processes which increases the susceptibility of a community to the impacts of hazards

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Vulnerability defines a disaster as well as its impacts

Socially constructed and demand different levels of analysis.

From the practical and policy approach, 4 broad categories of vulnerability in disaster contexts may be identified:

- **Vulnerable Groups** (anthropogenic – psycho-social, socio-cultural, economic & physical vulnerability)
- **Regional Dimension** (Geographic and geo-political vulnerability – physical, congestion, isolation, remoteness etc.)
- **Vulnerable Structures** (Habitat related Engineering and Built environment)
- **Technology Induced** (at individual levels and at larger levels)

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Vulnerability- Definitions

Pearce 2000: The susceptibility of people, property, industry, resources, ecosystems, or historical buildings and artifacts to the negative impact of a disaster. It is a function of people, place, preparedness, and time.

U.N. ISDR, 2002: A set of conditions and processes resulting from physical, social, economical and environmental factors, which increase the susceptibility of a community to the impact of hazards

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VULNERABILITY IN PERSPECTIVE

"We have lost what little land we had, many have lost their houses and everything they owned. The means of livelihood are gone, The soil erosion is breaking up our traditional way of life. We have to migrate to the city and look for manual labour for survival…"

A woman from Uttarakhand after the deluge of 2013

Bangladesh Cyclone 2007

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Disasters compel a reappraisal of societal goals

- Problems are brought into sharper focus by disasters
- Inherent weaknesses in a society can no longer be ignored
- Forced to examine why the poor are affected more in a disaster

HIGHLIGHT THE NEED TO WORK AT MORE FUNDAMENTAL CHANGES

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DRR and FOCUS ON THE VULNERABLE

Today there is greater recognition that the ever increasing risk posed by disasters and climate change can only be contained by putting the planet's vulnerable people at the centre of

disaster response and humanitarian advocacy

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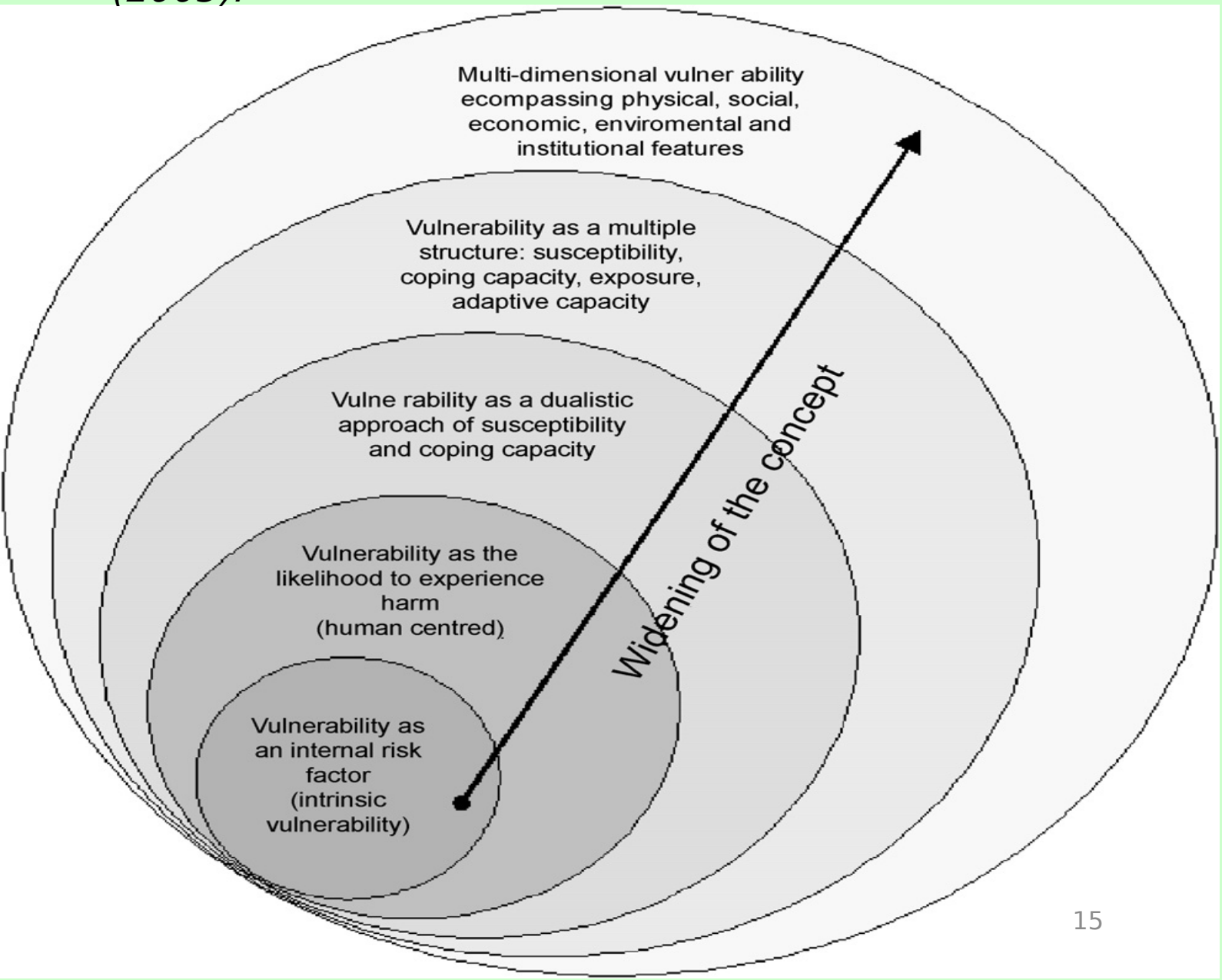
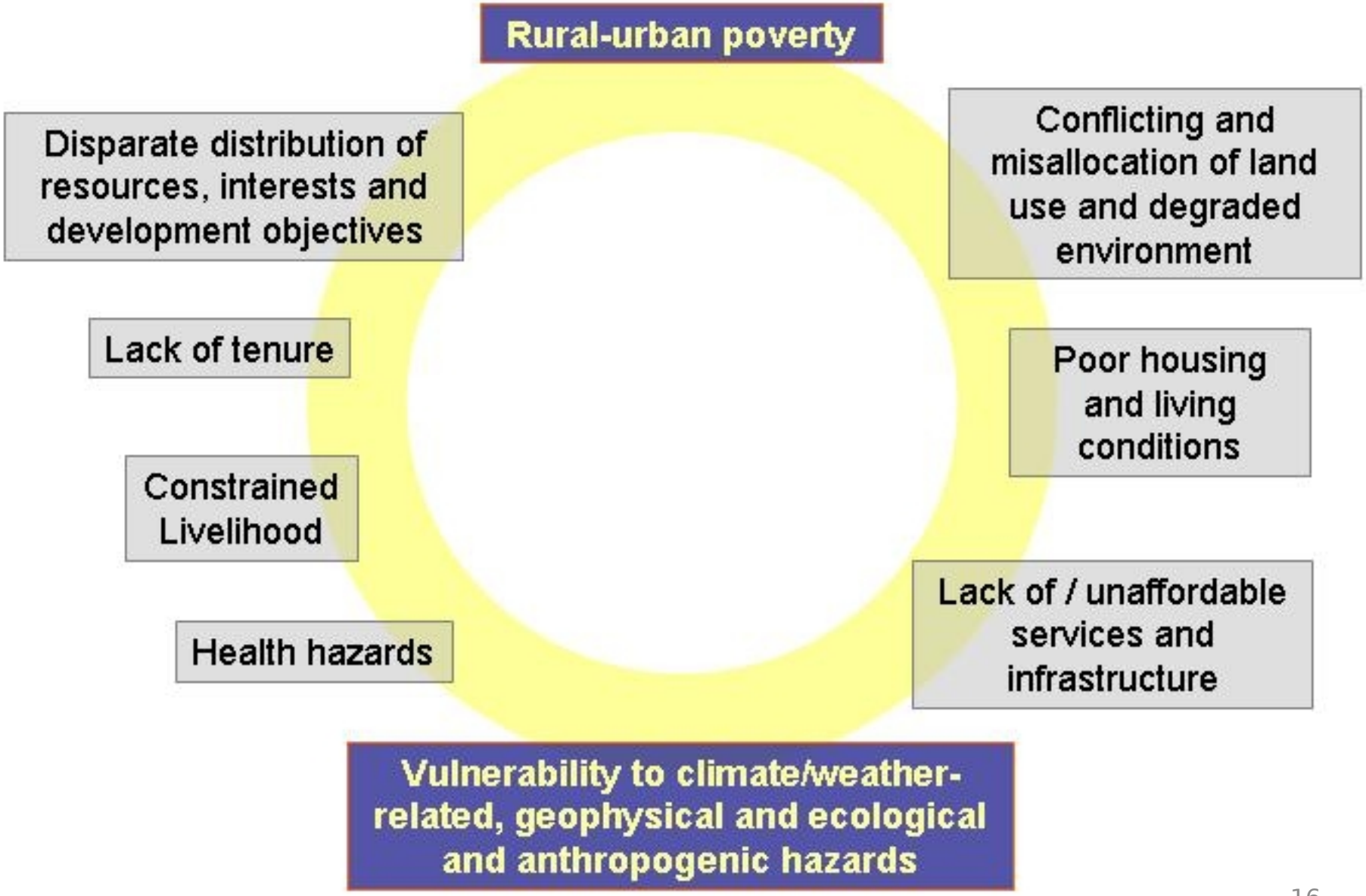
The spheres of vulnerability: *Source: Birkmann (2005).*



THE POVERTY-HAZARDS NEXUS



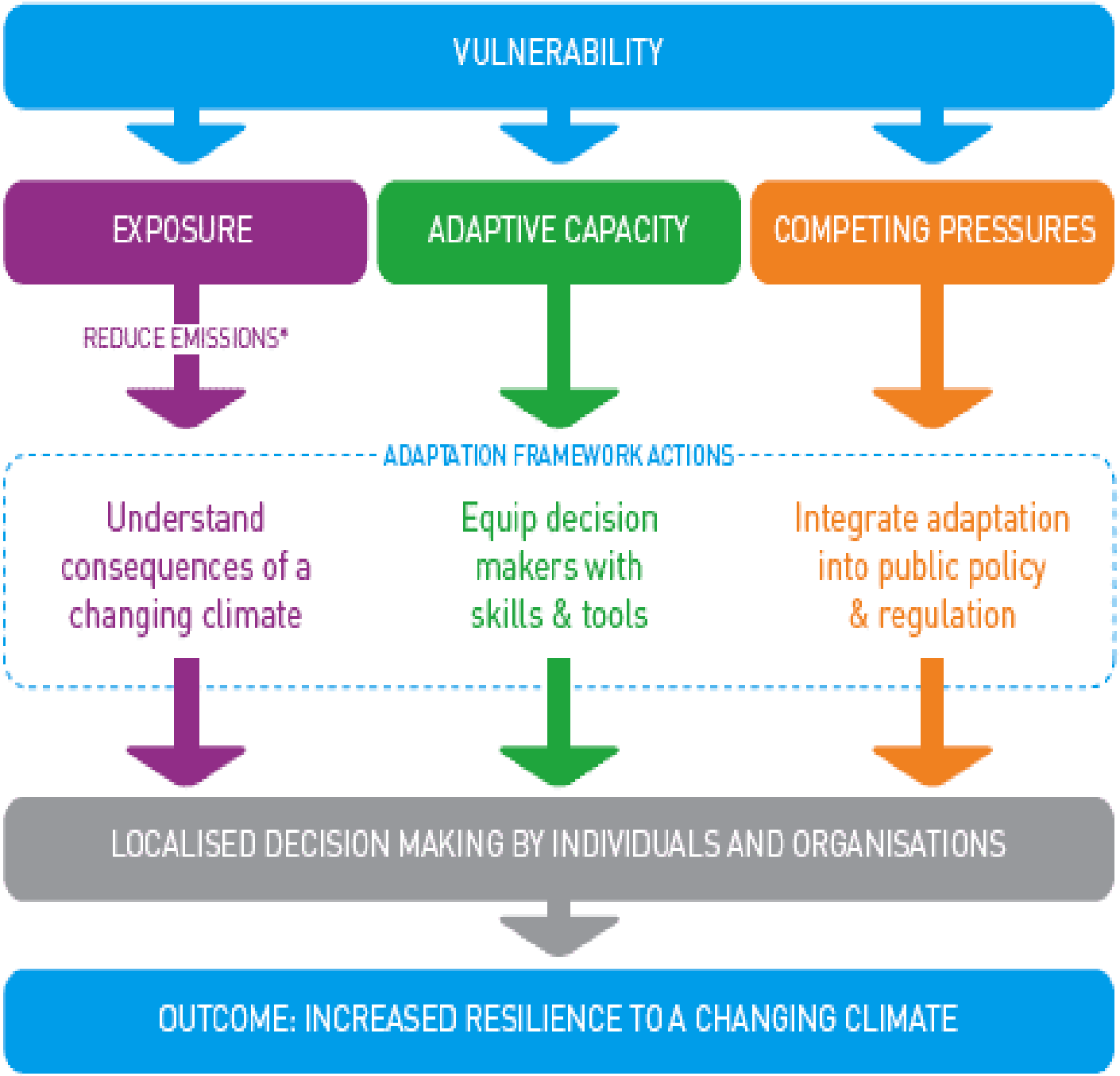
Vulnerability Analysis (VA)

Vulnerability refers to resources and coping abilities of a specific community to a specific hazard.

It varies considerably within smaller social and economic groups which form a larger community.

Mapping vulnerability…(technology enabled)

VA: Characterizes the exposed population and property and the extent of injury and damage that may result from a natural hazard event of a given intensity in a given area.


VULNERABILITY
EXPOSURE
ADAPTIVE CAPACITY
COMPETING PRESSURES
REDUCE EMISSIONS*
ADAPTATION FRAMEWORK ACTIONS
Understand consequences of a changing climate
Equip decision makers with skills & tools
Integrate adaptation into public policy & regulation
LOCALISED DECISION MAKING BY INDIVIDUALS AND ORGANISATIONS
OUTCOME: INCREASED RESILIENCE TO A CHANGING CLIMATE

Risk

- Inevitable & Interwoven part of life
- Risk involved in crossing road, driving a vehicle, decisions we make etc.
- Risk in negative connotation: harm, uncertainty, loss etc.
- Risk in positive connotation:

  Desired risk e.g. adventure sports;

  Acceptable risk e.g. jobs involving risk -fire-fighting, army, etc.

Risk

The **probability** of
harmful consequences or expected losses
resulting from interaction between
a hazard and vulnerable conditions

Risk = Hazard X Vulnerability

- Risk Tolerance
- Risk Perception

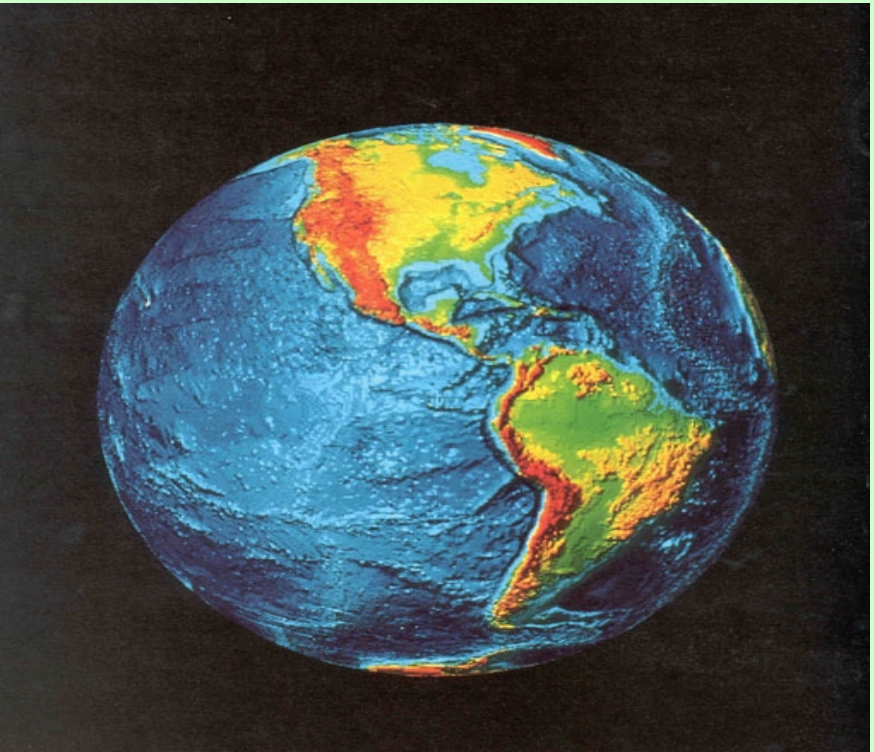
DISASTER RISK

Is the set of failures that occur when:

1. recurring events (e.g floods, earthquakes, ...,) intersect at a point in space and time,
2. when and where people and communities (i.e., a set of habitats, livelihoods, and social constructs) are not prepared to respond or “build back better.”

Global Risks are Rising

- Exposure of People and Assets in all countries has increased faster than
- decrease in vulnerability,
- thus generating new Risks



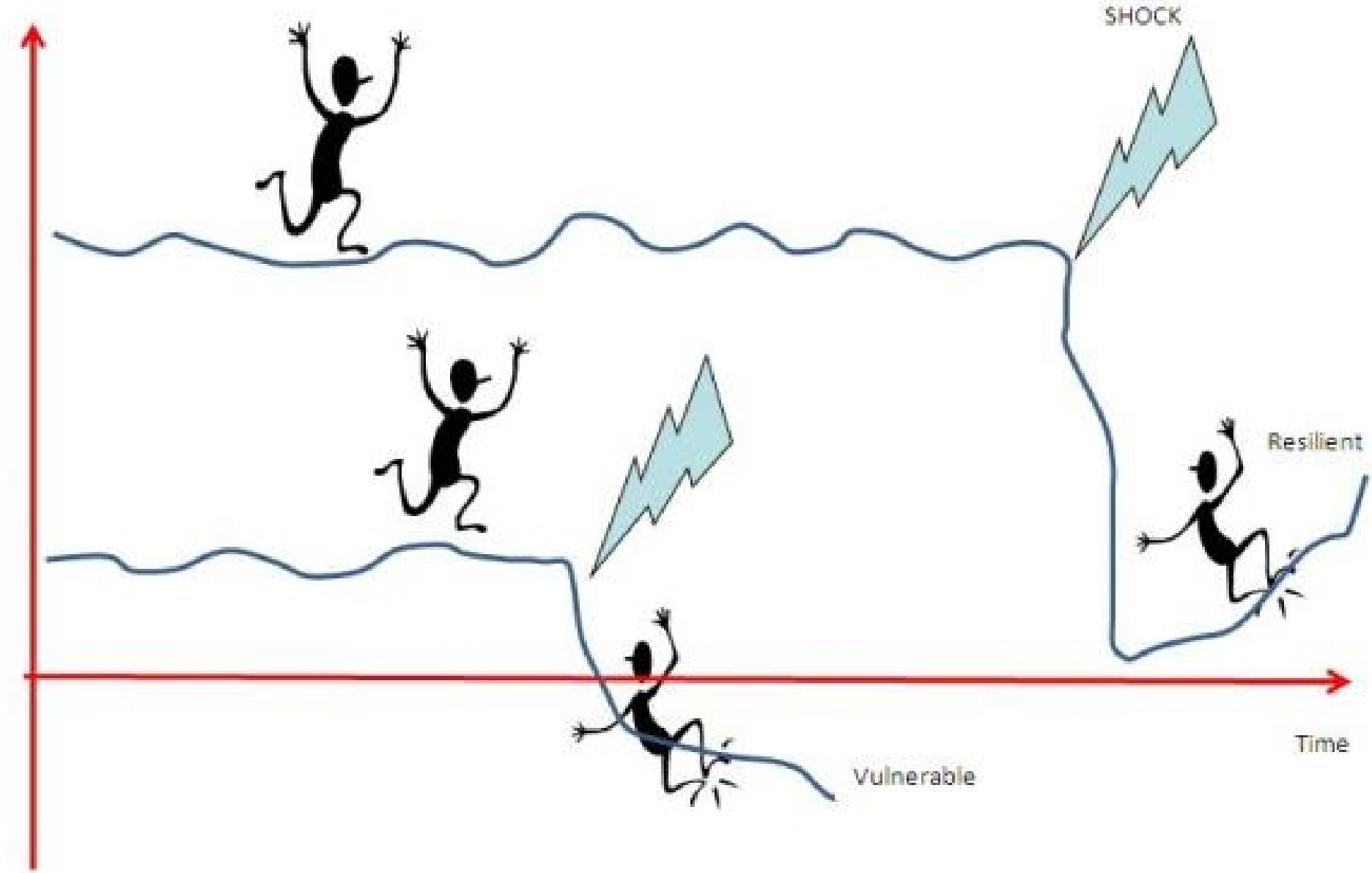
- Floods
- Severe Windstorms
- Earthquakes
- Droughts
- Volcanic Eruptions
- Etc.

Risk Analysis

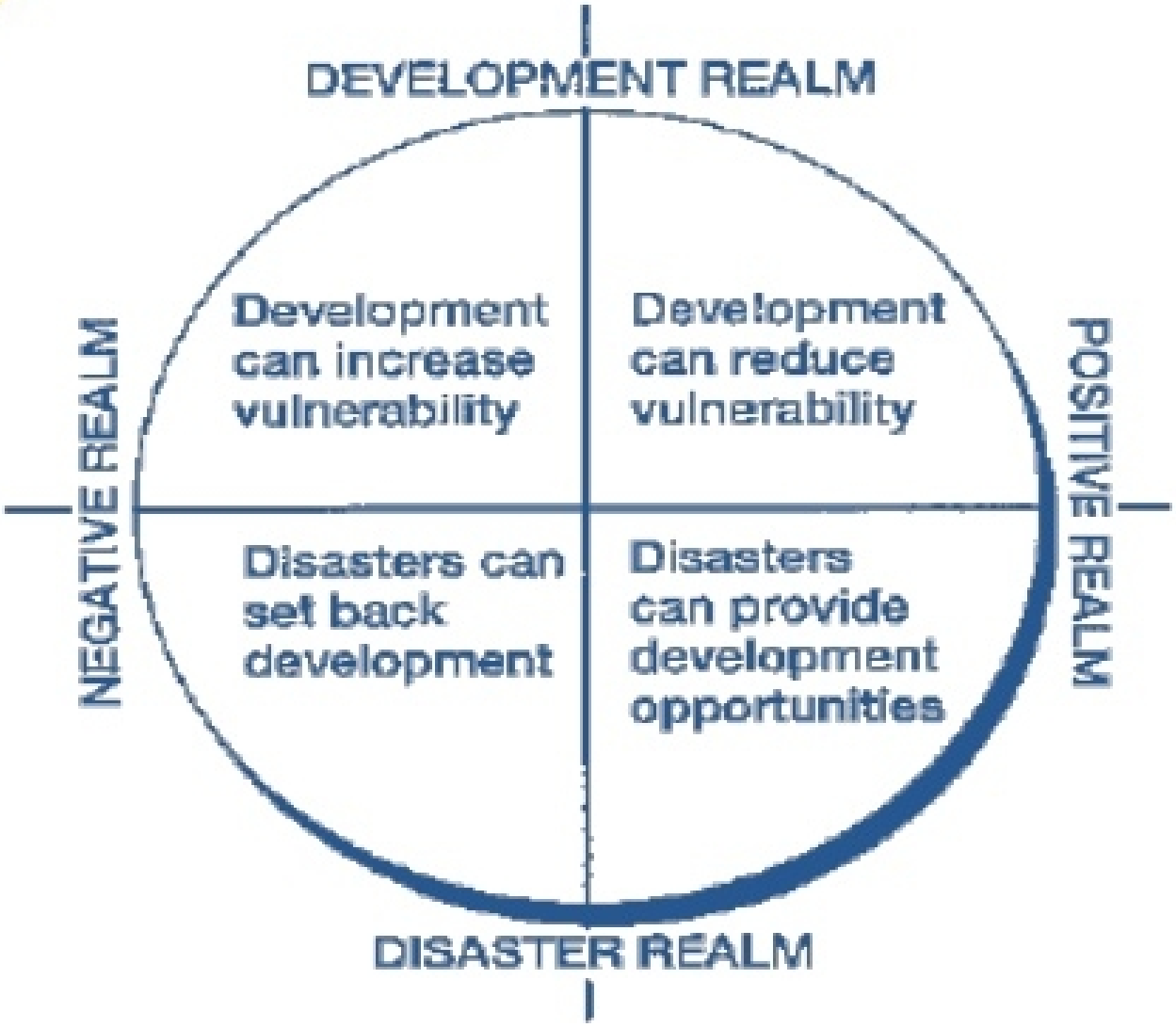
Involves identifying, measuring or estimating and evaluating risk.

A comprehensive risk analysis includes a full probability assessment (Technology enabled) of various levels of hazards as well as probability assessments of impacts (Technology enabled- modelling) on structures and population

RESILIENCE



Development and Disaster



DISASTER RISK REDUCTION

The idea and practice of reducing disaster risks through

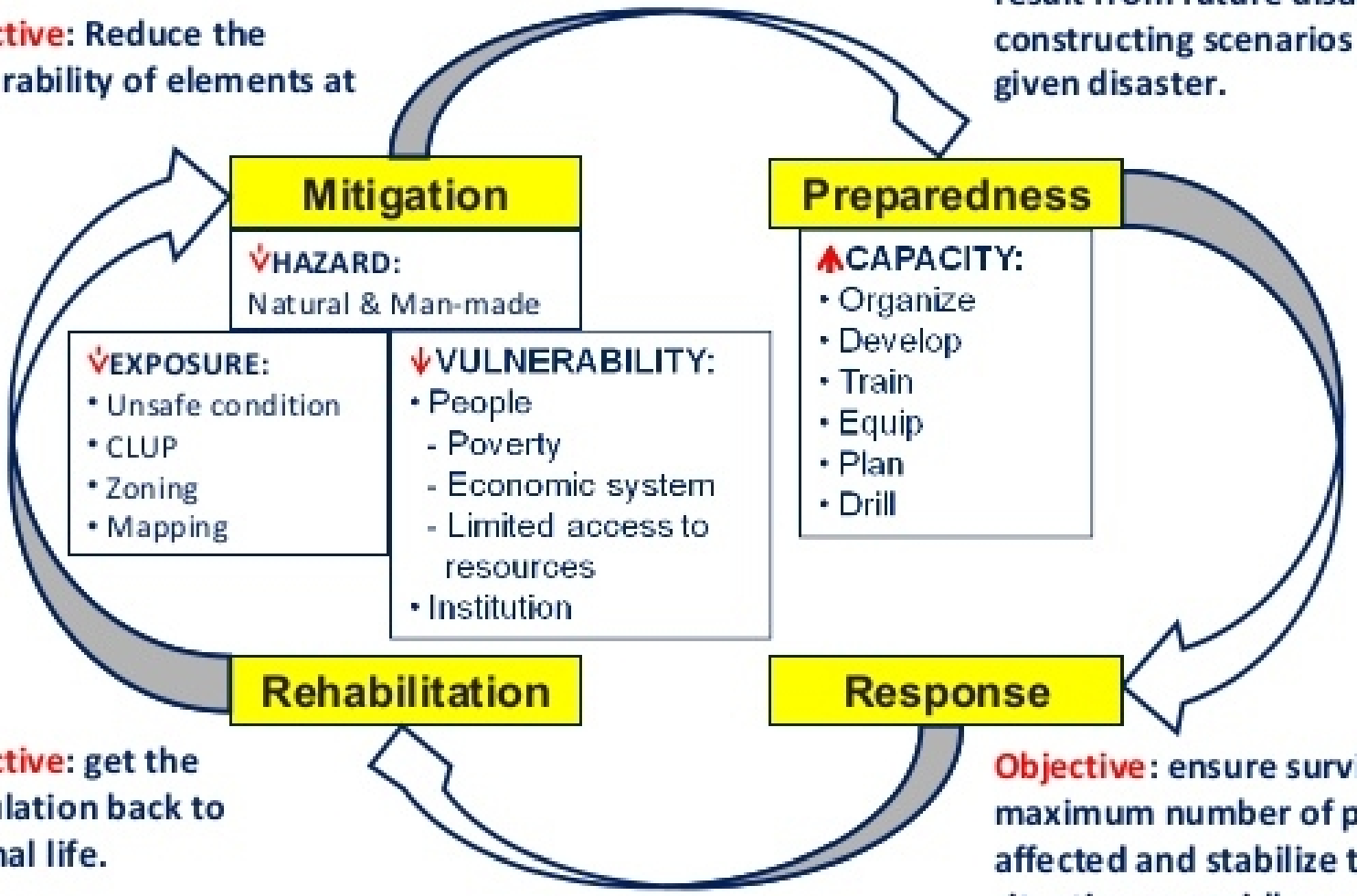
- systematic efforts to analyse
- and manage the causal factors of disasters, including through

  - reduced exposure to hazards,
  - lessened vulnerability of people and property,
  - wise management of land and environment, and
  - improved preparedness for adverse

DISASTER RISK REDUCTION

Objective: reduce losses that may result from future disasters by constructing scenarios to deal with given disaster.

Objective: Reduce the vulnerability of elements at risk

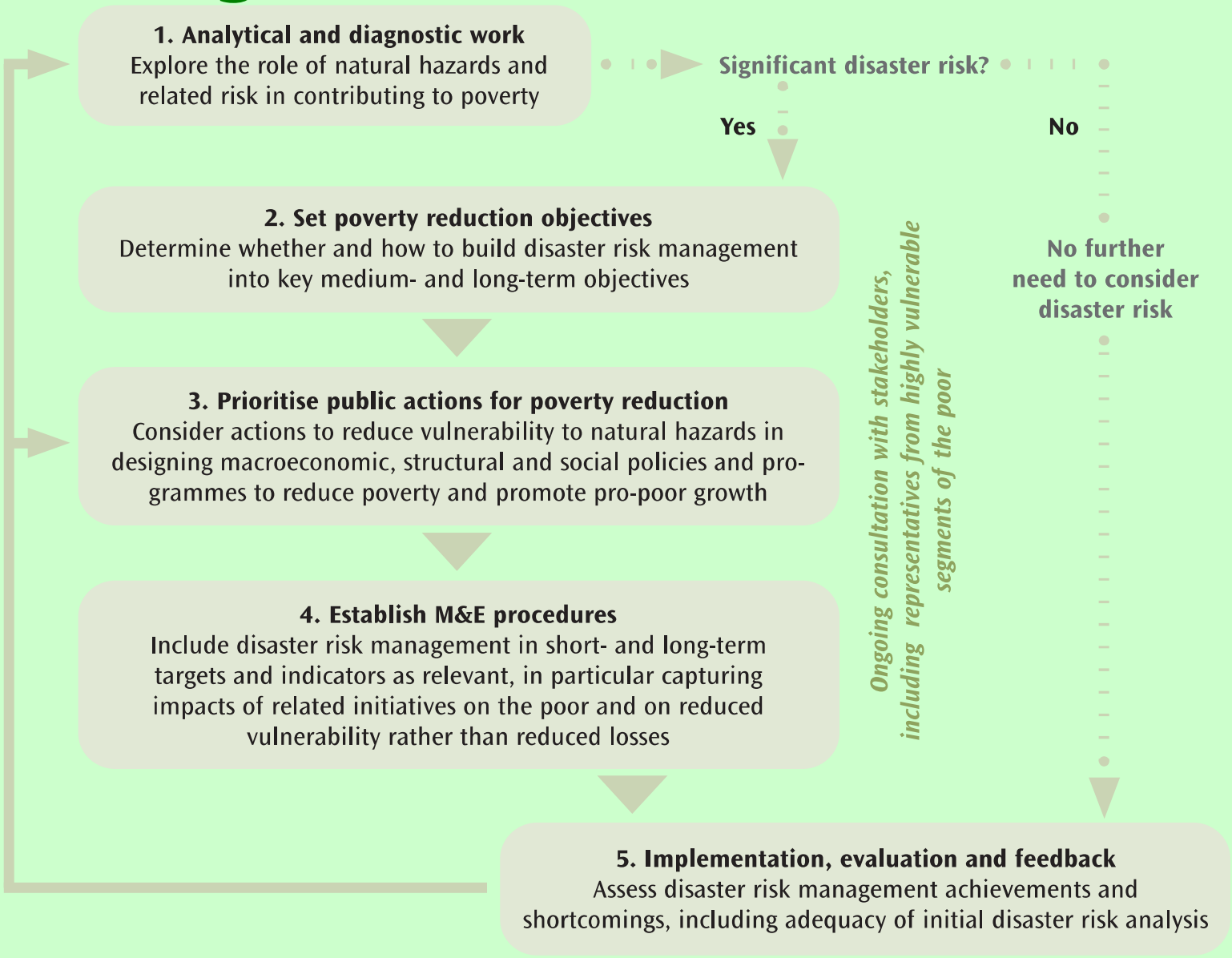


Objective: get the population back to normal life.

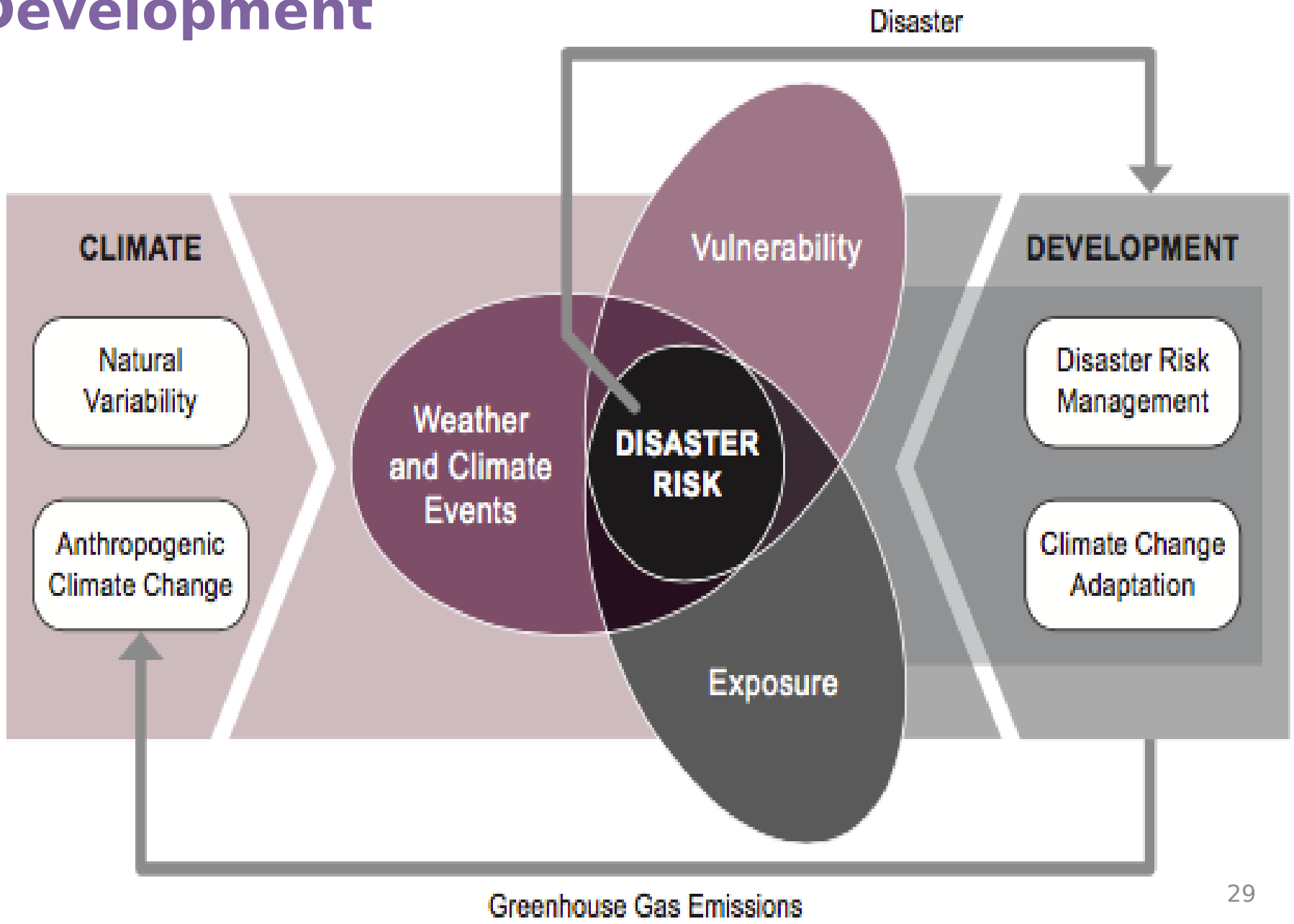
Objective: ensure survival of a maximum number of people affected and stabilize the situation as rapidly as possible to re-establish essential services.

"Be Better; Build Better"

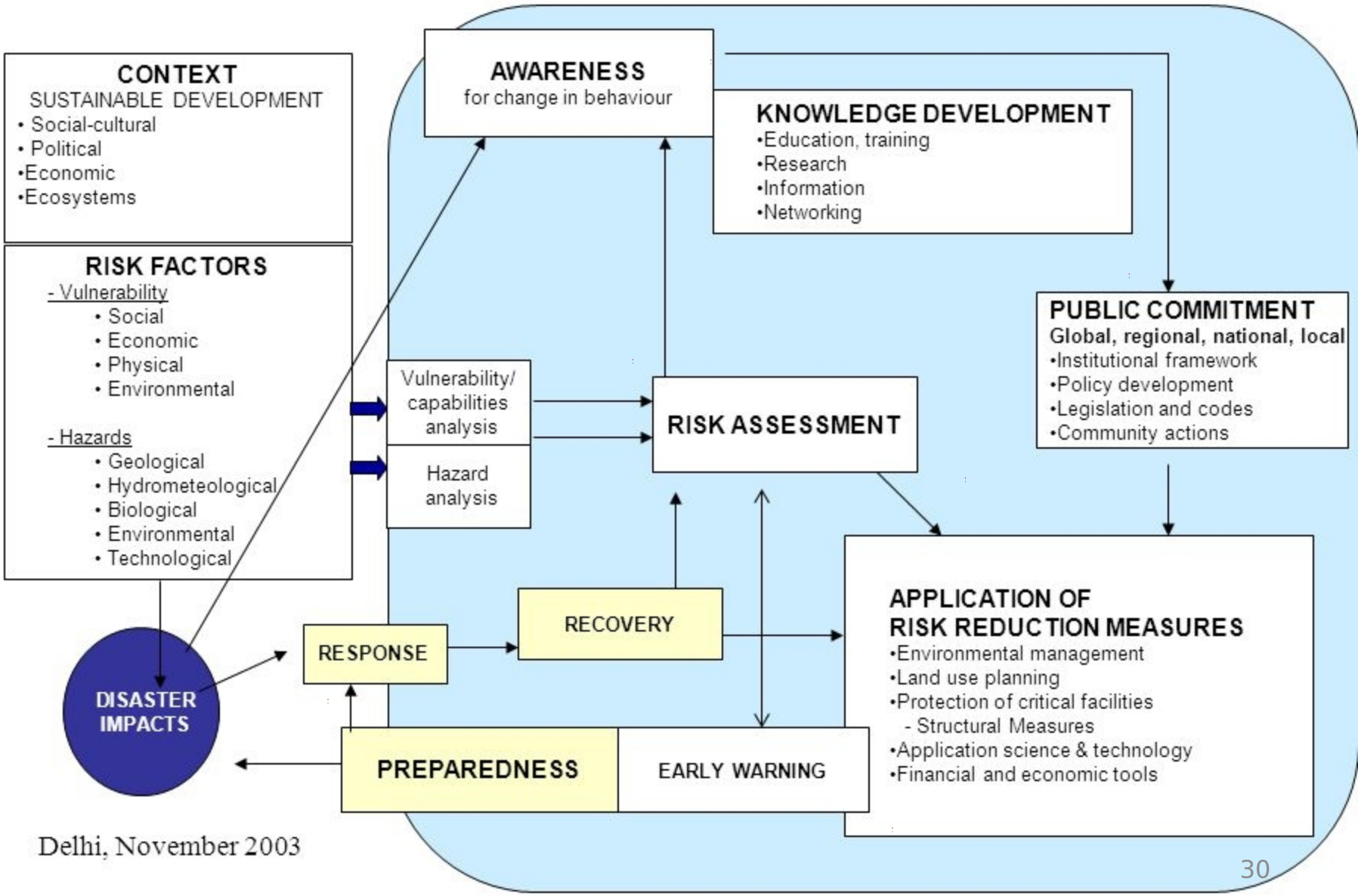
Integrating DR into poverty reduction strategies



Linking DRR with Climate change and Development



Framework for Disaster Risk Reduction



Delhi, November 2003

teps to successful mainstreaming D

SENDAI FRAMEWORK

- **World Conference on Disaster Risk Reduction**
- **Hisorty**
- **Latest at Sendai**

(March 2015)

Sendai Framework for DRR

Expected 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

13 Guiding Principles

7 Global Targets

① Mortality
② Affected people
③ Direct economic loss
④ Damage to medical and educational facilities
⑤ DRR strategies
⑥ Support to developing countries
⑦ Access to early warning

Priorities for Action

Focused action at national and local levels & global and regional levels

Priority 1	Priority 2	Priority 3	Priority 4
Understanding disaster risk	**Strengthening disaster risk governance to manage disaster risk**	**Investing in disaster risk reduction for resilience**	**Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction**

Roles of Stakeholders

Civil society, volunteers, community (women, children and youth, persons with disabilities, etc.)

Academia, scientific and research entities and networks

Business, professional associations and financial institutions

Media

International Cooperation and Global Partnership

General considerations

Means of implementation

Support from international organization

Follow-up actions

Sendai Cooperation Initiative for Disaster Risk Reduction

1 Basic Concept

- Disasters are an obstacle to poverty eradication and sustainable development, and thus a threat to human security.
- **Mainstreaming of disaster risk reduction** (DRR) – introducing the DRR perspective in all development policy and planning – is important. Clearly positioning DRR in the post-2015 development agenda is important from the perspective of resource mobilization.
- High attention to the efforts for "adaptation" at the climate change negotiation where an agreement is required by the end of this year. Firm DRR efforts will contribute to the climate change negotiation.
- Japan will build with the international community a society that is resilient to disasters by sharing with the world its knowledge and technology as a country advanced in DRR.

2 Basic Policies

- Japan attaches particular importance to the three points in DRR policies outlined below, building on the experience of the past 10 years since the formulation of HFA.

  (1) Investment in DRR from the long-term perspective
  Prior investment in DRR is more cost-effective than post-disaster emergency response and recovery and contributes to sustainable development.

  (2) Build Back Better
  The post-disaster phase provides an opportunity to implement drastic measures to build countries and regions that are resilient to disasters.

  (3) Collaboration between the central governments and various actors
  Addressing with networks including local governments, private companies, NGOs/CSOs, international organizations and regional organizations, with the central government taking the initiative.

- Japan will take the following perspectives into consideration in implementing cooperation.

  (1) The human security approach and **promoting women's participation** (women, children, the elderly and persons with disabilities)
  (2) Cooperation based on the perspective of adaptation to the impacts of climate change
  (3) Utilizing Japan's knowledge and technology

  ⇨ Cooperation through effectively combining (i) non-material assistance, (ii) material assistance and (iii) global and region-wide cooperation.

3 Concrete Measures

DRR cooperation totaling to 4 billion US dollars and training of 40 thousand from 2015 to 2018

Non-material assistance

Assistance for establishing laws, institutions and systems, human resource development and other technical assistance

- Laws and regulations relating to DRR (basic acts on disaster countermeasures, laws and regulations on the use of land / building standards)
- Basic DRR plans, master plans for flood control, master plans for urban planning, land-use plans, urban planning
- Assistance to and strengthening setup of DRR branches in government
- Assistance to build and strengthen partnership systems among the public and private sectors and NGOs
- Disaster risk assessment (development hazard maps, research assistance for adaption to climate change, etc.)
- Technologies for disaster observation, prediction and warning (ICT, earth observation, geospatial information)
- Community-based DRR, disaster education
- Human resource development, training, technology transfer for DRR policy planning and emergency disaster relief
- Training to promote women's leadership in DRR

Material assistance

Economic and social infrastructure development with Japanese technology as prior investment in DRR ("quality growth")

- Countermeasures against flooding, debris flow, landslides and storm surges, forest improvement for disaster reduction
- Satellites necessary for disaster observation, perdition and warning, and information and communication infrastructure
- Improvement of buildings quality (earthquake resistance, wind resistance)
- Provision of equipment related to DRR
- Transportation, lifeline and public facilities resilient to disasters, DRR-related information and communication facilities
- Recovery and reconstruction assistance

Global and region-wide cooperation

Assistance for UNISDR and IRP, region-wide cooperation

- Assistance for the monitoring of the global targets and the improvement of its methods, as well as for the development of indicators
- Development of international disaster statistics
- Dissemination of information on good practices of "Build Back Better" including efforts from the Tohoku region
- Assistance for efforts to build region-wide institutions and systems (Sentinel Asia, Asian Disaster Reduction Center, AHA Centre, etc.)
- Assistance for countermeasures against climate change (including Green Climate Fund (GCF))
- Collaboration between regional cooperation of each region and Japan's bilateral cooperation


4 PRIORITIES FOR ACTION
Priority 1
Understanding disaster risk
Policies and practices for DRR should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment.
Priority 2
Strengthening disaster risk governance to manage disaster risk
Disaster risk governance at the national, regional and global levels is of great importance for an effective and efficient management of disaster risk.
Priority 3
Investing in disaster risk reduction for resilience
Public and private investment in DRR are essential to enhance the economic, social, health & cultural resilience of persons, communities, countries, their assets, as well as environment
Priority 4
Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction
Strengthened disaster preparedness for response, recovery, rehabilitation and reconstruction are critical to build back better
National and local dimensions
Regional and global dimensions

Sendai Framework: what is new?

- Shift from disaster management to **disaster <u>risk</u> management;**
- Shift from "**what to do?**" to "**how to do?**"
- Focus on **<u>people-centred</u>** preventive approach to DRR

Expectations from the group of space agencies

through its expertise and technologies

-beyond disaster monitoring after a disaster occurs

-support disaster risk management

-support disaster risk assessment

-user friendly

-support risk informed decision making

-support recovery efforts

-share progress in Global Platform and Regional Platform

Proposed commitments of GEO-DARMA initiative is welcome to support these elements

As of now DRR is an uphill task
But worth undertaking....
And technologies
can aid & support!!

THANK YOU