

# The IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation

## Disaster Risk Management in the Region of Latin America

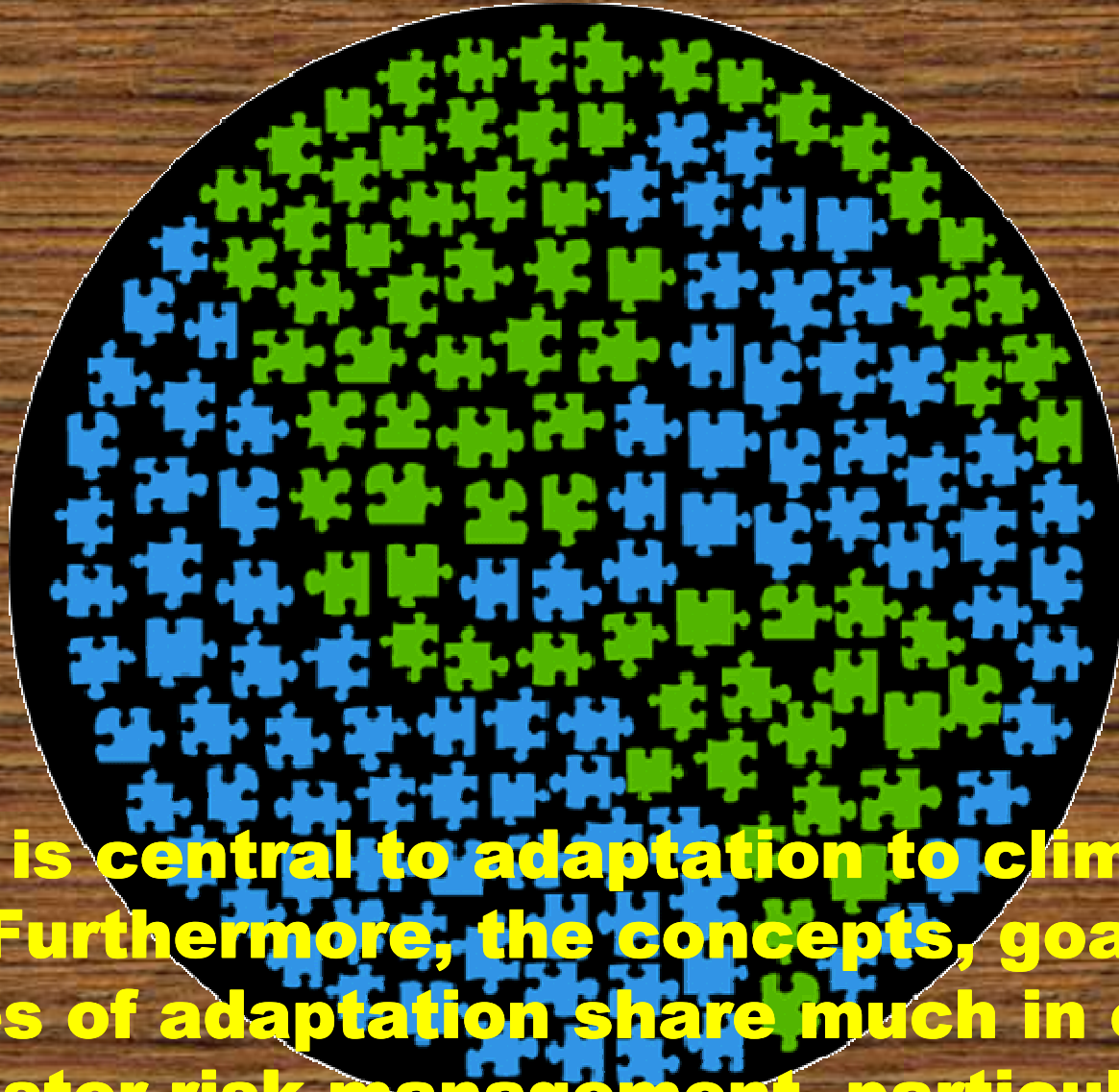
**Úrsula Oswald Spring**  
**National Autonomous University of Mexico (CRIM-UNAM)**  
**First MRF-Chair on Social Vulnerability of UNU-EHS**  
**National Coordinator of Water Research in Mexico**

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## II. SREX: Key messages in LA



**Learning is central to adaptation to climate change. Furthermore, the concepts, goals, and processes of adaptation share much in common with disaster risk management, particularly its disaster risk reduction component**

# Biggest disasters in 3 decades





# Managing risks of disasters in a changing climate benefits from an iterative process



*Learning-by-doing and low-regrets actions can help reduce risks now and also promote future adaptation*

## 2. Higher vulnerability, exposure, severity and frequency of climate events increase disaster risks

Impacts from weather and climate events depend on:



*nature and severity of event*



*vulnerability*



*exposure*

### 3. Increasing exposure of people and assets is the major cause of changes in disaster losses, especially when people lack insurance and governmental support

Effective risk management and adaptation are tailored to **local** and **regional** needs and circumstances

- changes in climate extremes vary across regions
- each region has unique vulnerabilities and exposure to hazards
- effective risk management and adaptation address the factors contributing to exposure and vulnerability



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**4. Economic losses from climate-related disasters have increased, with large spatial and interannual variation, but are higher in industrialized countries, while fatalities are higher in developing countries.**

# **Managing the risks: hurricanes in Mexico, Central America and the Caribbean**

## **Risk Factors**

- population growth
- increasing property value
- higher storm surge with sea level rise

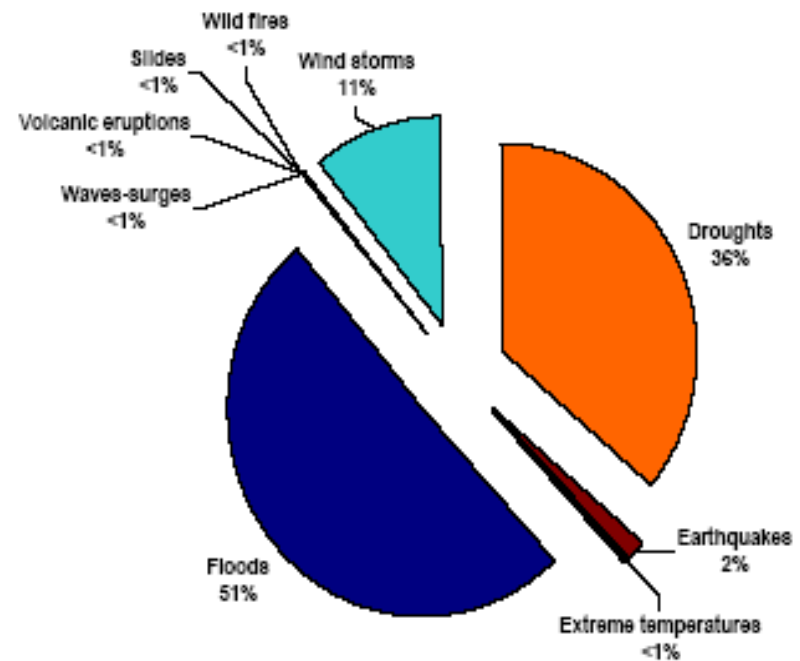
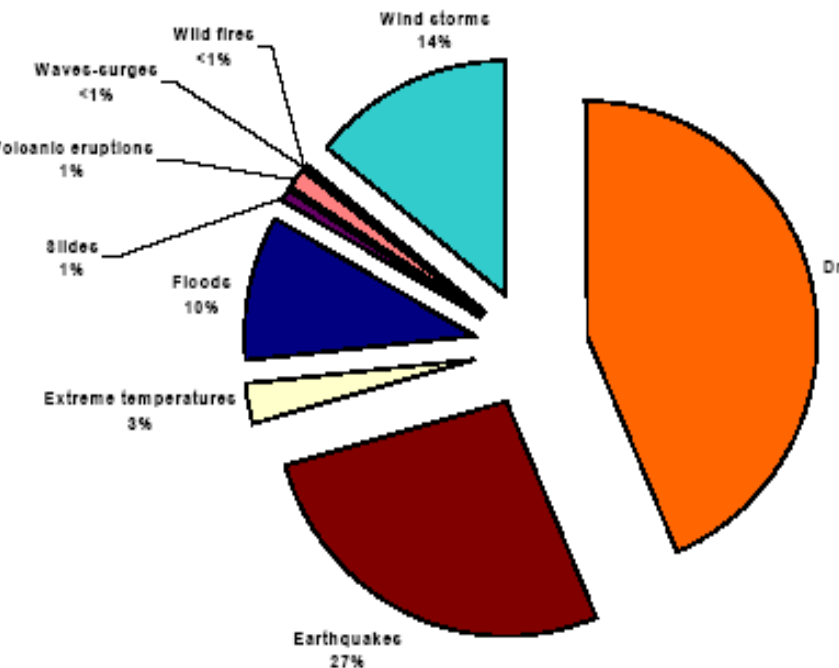


## **Risk Management/ Adaptation**

- better forecasting
- warning systems
- stricter building codes
- regional risk pooling

Projected globally: *likely* increase in average maximum wind speed and associated heavy rainfall (although not in all regions)

# 30 years of fatalities and people affected by disasters (1974-2003)



(1) injured + homeless + affected

**Total: 2.066.273 dead**

**5 076 494 541 affected**

**Source:** Hoyois and Guha-Sapir (2004)



# 5. Gender vulnerability and women's discrimination increase vulnerability of exposed communities: even non-extreme events can have extreme impacts in loss of lives and livelihood

## Managing the risks: drought in the context of food security in the drylands

### Risk factors

- more variable rain
- ecosystem degradation
- hotter days
- discrimination of women
- poor health and education conditions



### Risk Management/Adaptation

- improved water management
- sustainable farming practice
- drought-resistant crops
- drought forecasting

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## 6. Climate change impacts on rainfed agriculture can produce hunger



- 80% of world's agricultural area generates 63% of food in **rainfed** fields; drylands cover 40% of land with 40% of people
- one billion of people is **hungry**; 2050: 10-20% more risk of hunger (WFP); CC may increase hunger in 10 million children in 2030; each day 27,000 people die from hunger (3 million children/year)
- **Upgrading** rainfed agriculture & orchards in hand of women produce social, food, economic & environmental benefits

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**7. Indigenous people are highly vulnerable and at risks during extreme events: hurricane Stan (2005)**





# 8. Managing the risks: sea level rise in tropical Small Island Developing States

## Risk Factors

- shore erosion
- saltwater intrusion
- coastal populations
- tourism economies



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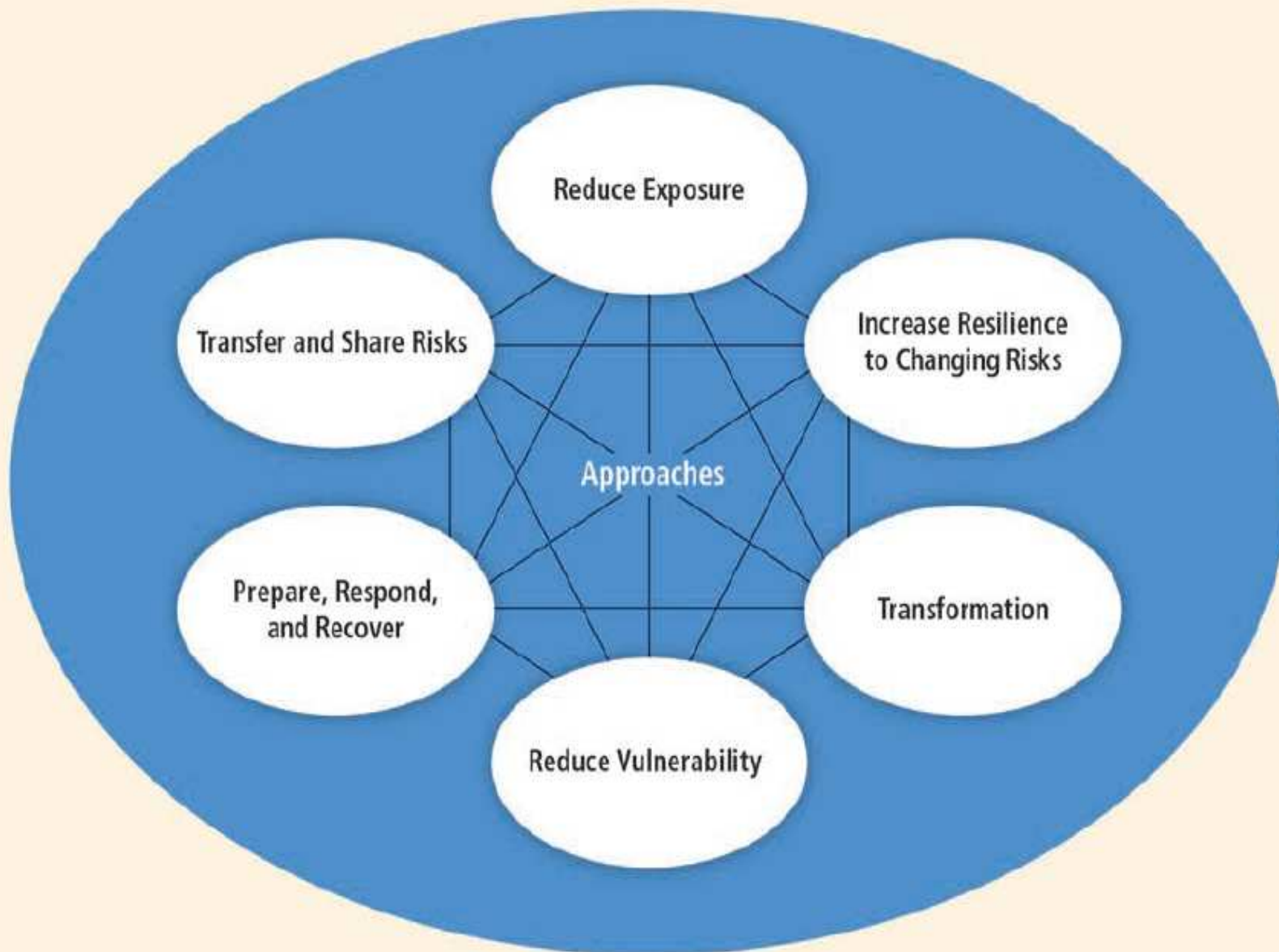
## Risk Management/Adaptation

- early warning systems
- maintenance of drainage
- regional risk pooling
- relocation

## Santo Domingo

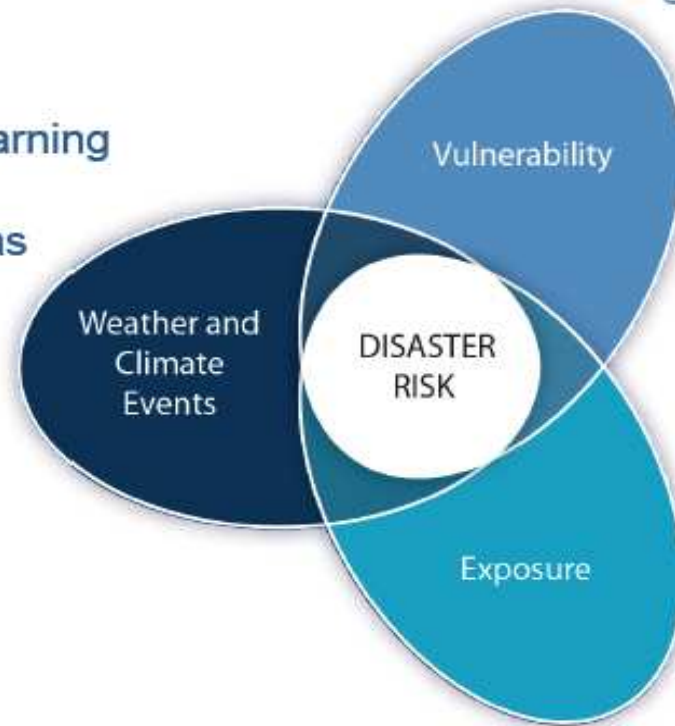
Projected globally: *very likely* contribution of sea level rise to extreme coastal high water levels (such as storm surges)

## Adaptation and Disaster Risk Management Approaches for a Changing Climate



# 9. Information and training on vulnerability, exposure, climate extremes, disaster risk management, and resilience-building help people reducing risks, and get prepared to unknown risks

- improved forecasting for warning systems
- reduction of greenhouse gas emissions



- better education and awareness
- sustainable development

- asset relocation
- weather-proofing assets
- early warning systems



# Central America: social and environmental vulnerability



**El Salvador**



**Costa Rica**

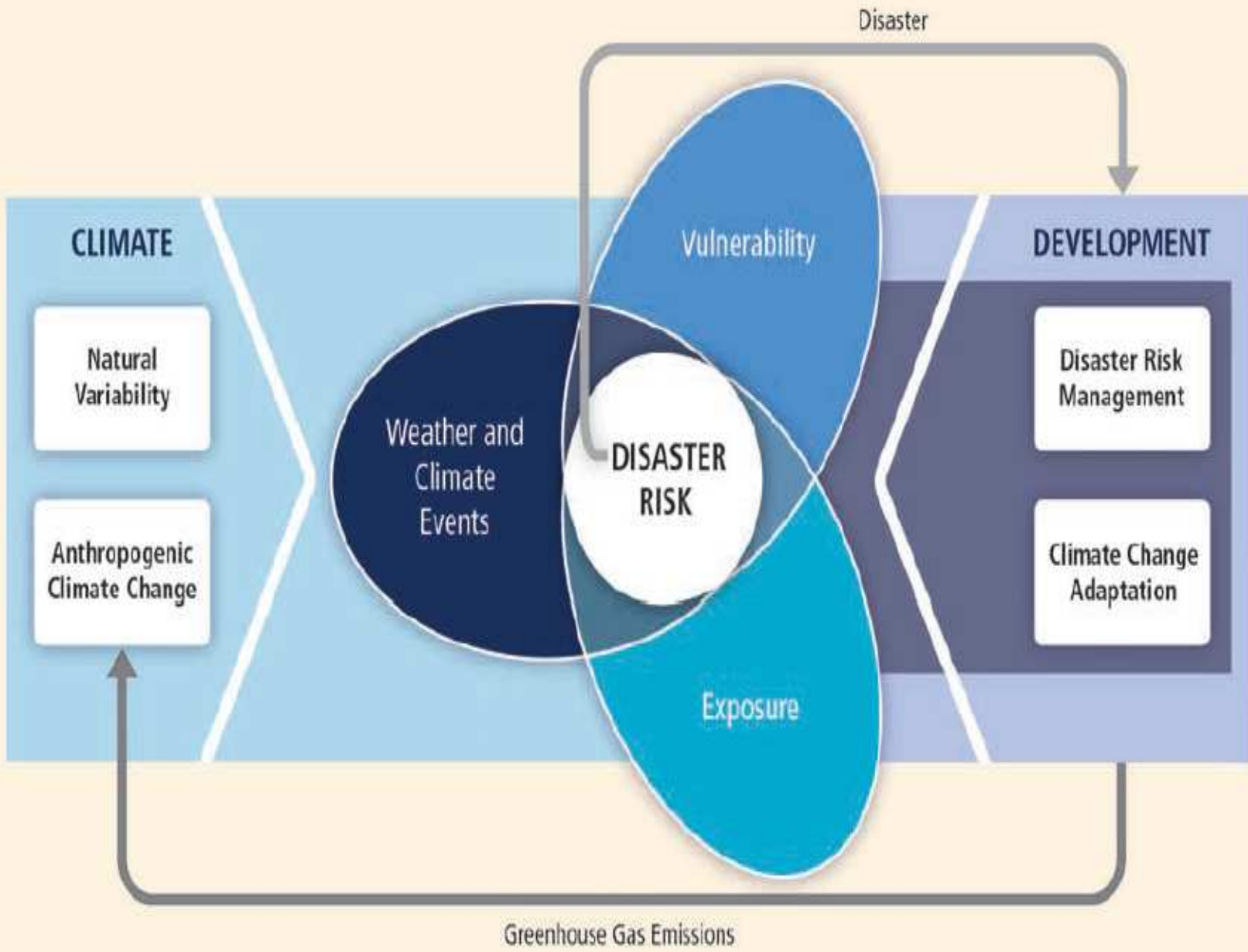


**Nicaragua**

# 10. Actors involved in DRM: society, government and business



# 11. How can assessed knowledge lead to preventive behavior at the local, national and global level?





There are strategies that can help **manage disaster risk now** and also help improve people's livelihoods and well-being



The most effective strategies offer **development benefits** in the relatively near term and **reduce vulnerability** over the longer term

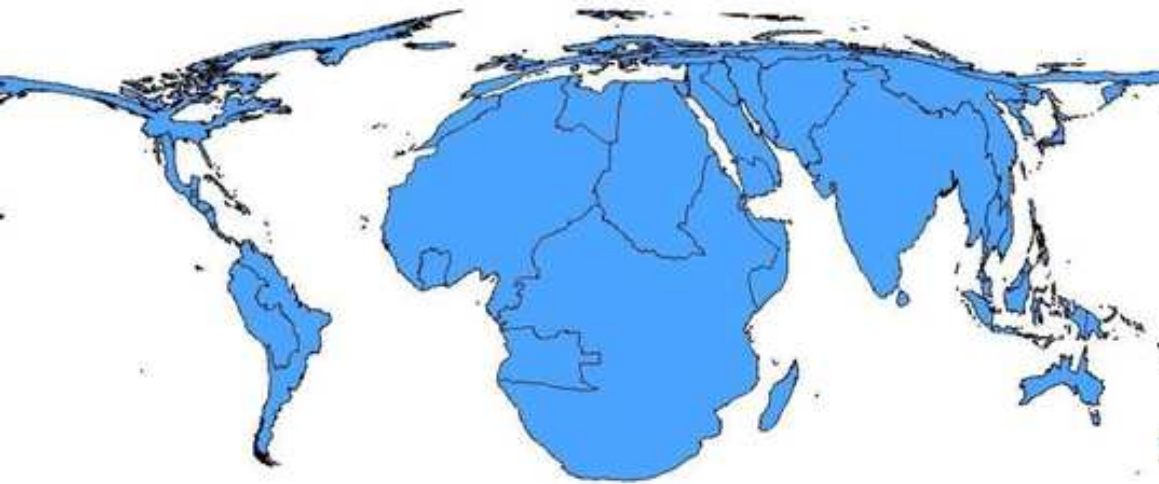
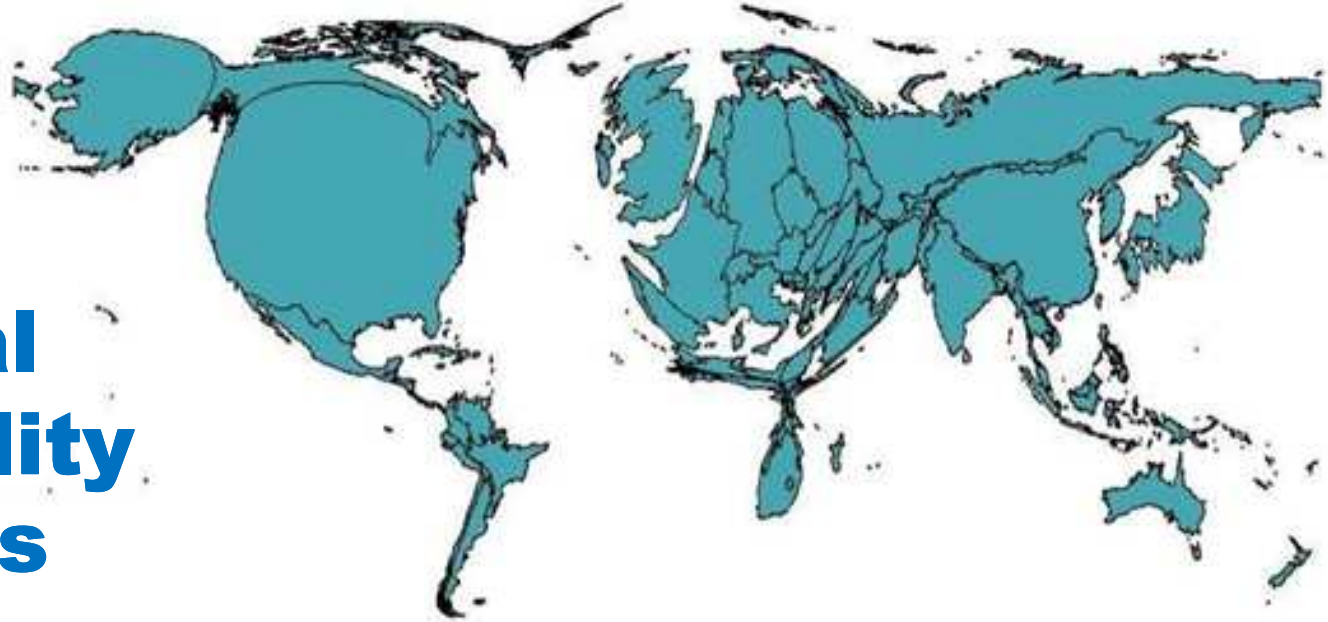
# Alternatives: Water harvesting, Nasca, Peru



How to produce sustainable alternatives of water harvesting and water saving technologies with gender perspective?



# **12. Global responsibility and ethics**

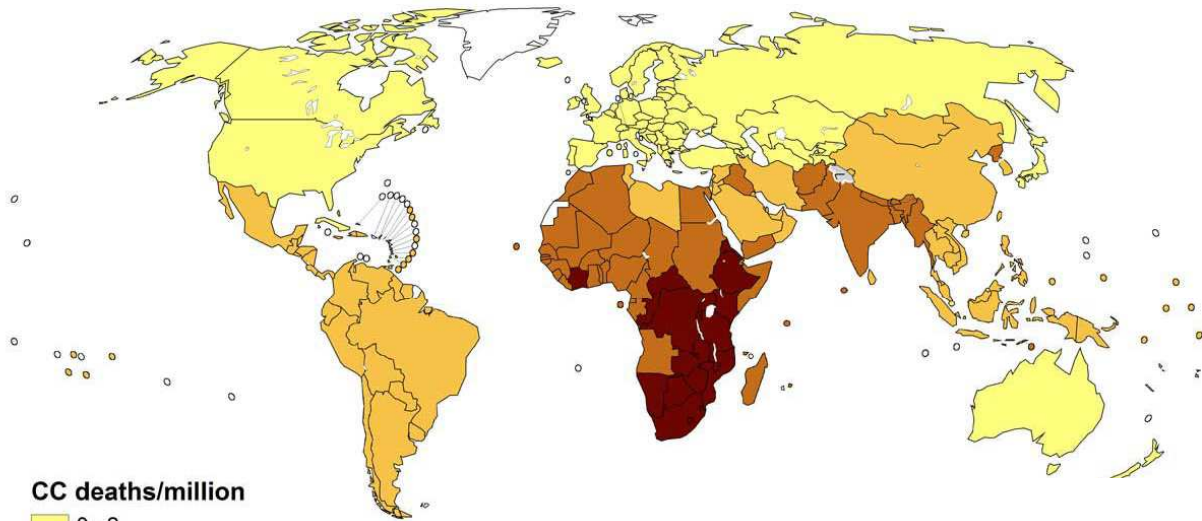


Patz et al., 2007





# Deaths from climate change

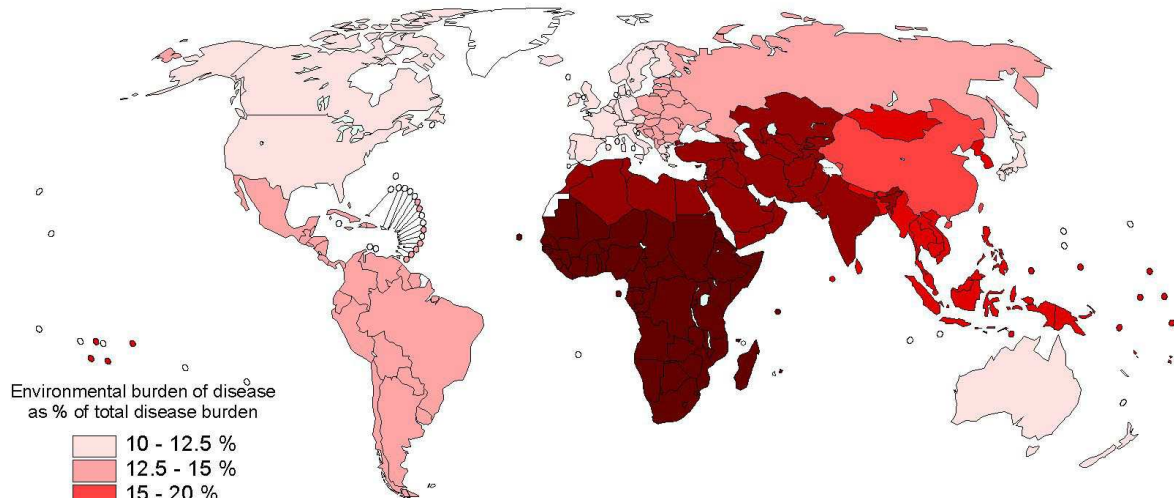


## CC deaths/million

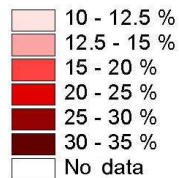


Estimates by WHO sut  
Copyright WHO 2005.

# Environmental burden of disease globally

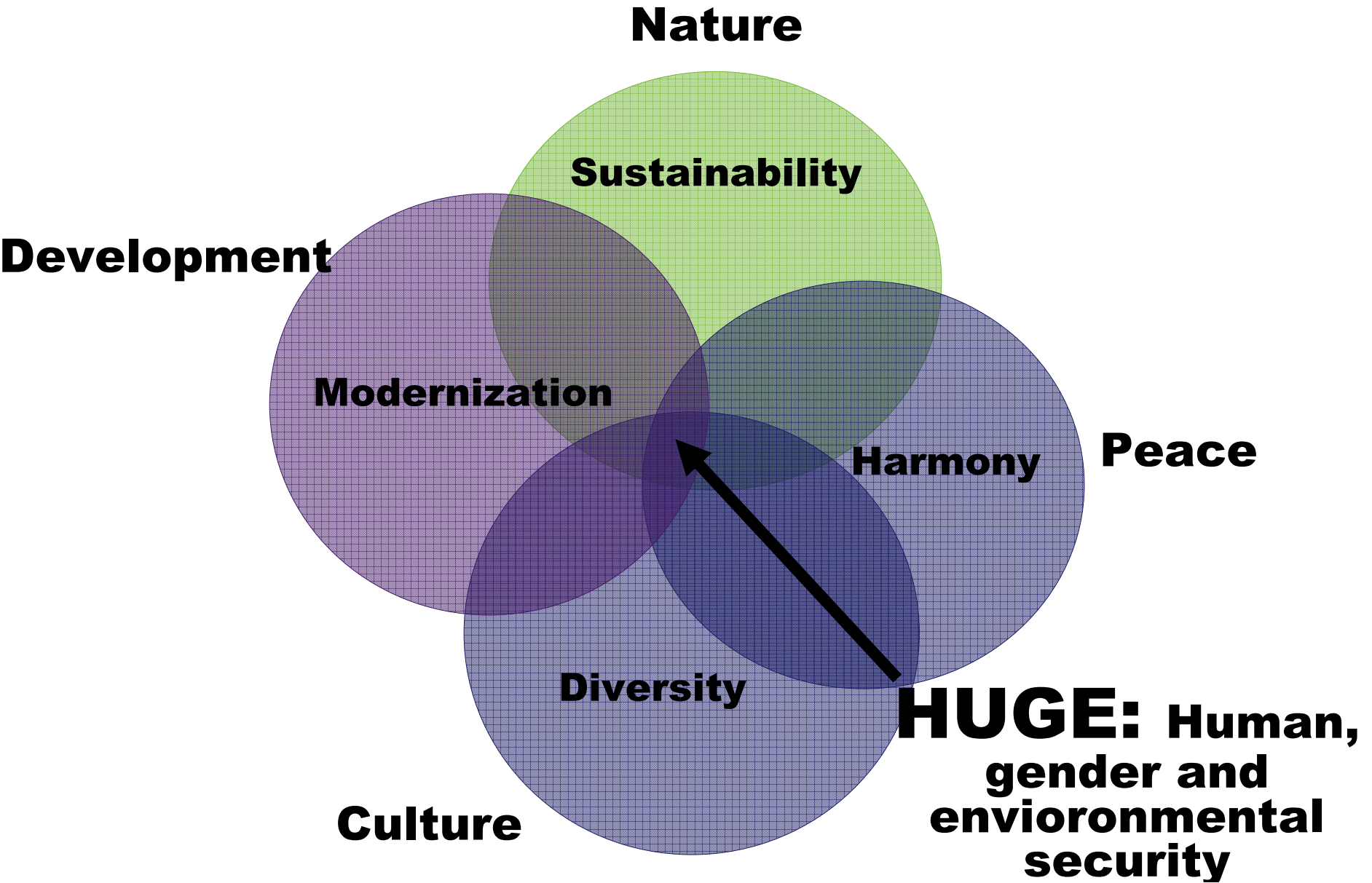


Environmental burden of disease  
as % of total disease burden



Based upon data in Smith, KR, Corvalan, C, Kjellstrom, T (*Epidemiology*, 1999)  
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# Sustainable development with peace



# Thank you for your attention



There is evidence that anthropogenic influences, including increasing atmospheric greenhouse gas concentrations, have changed these extremes