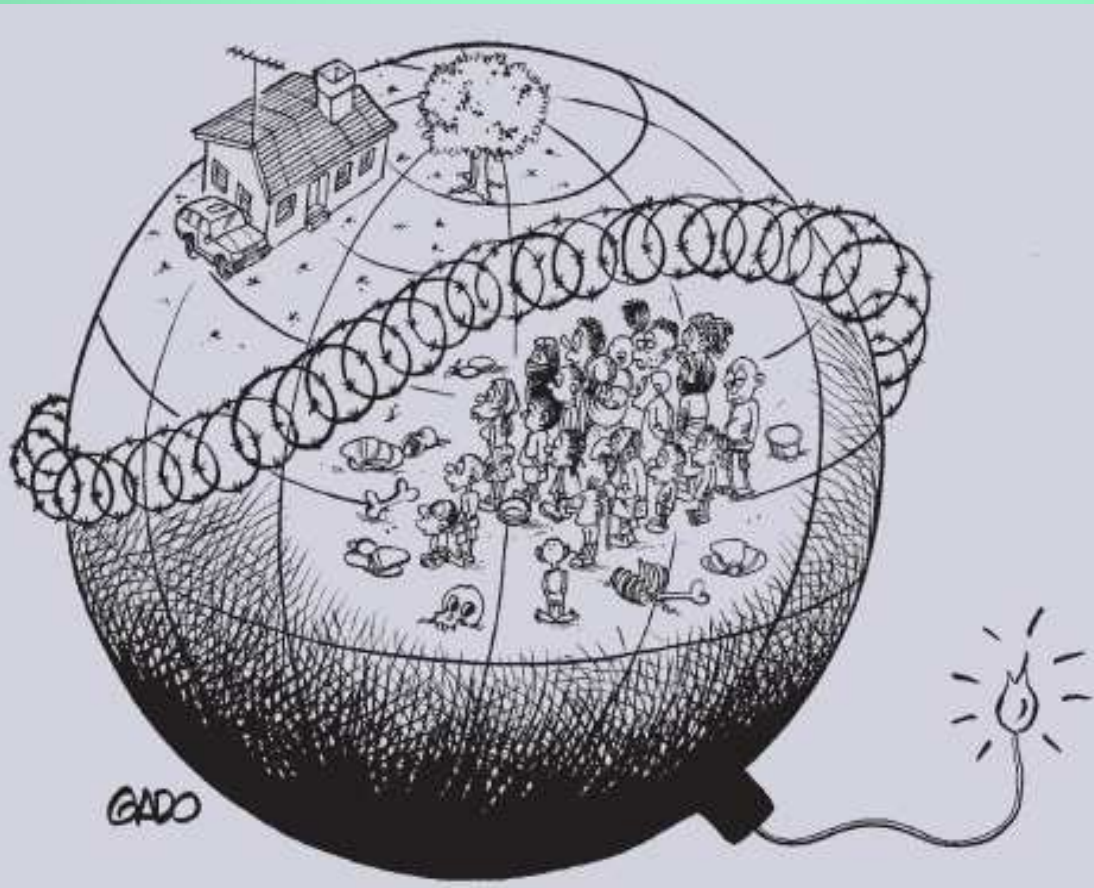


**University of California, Berkeley**

# **Climate Change and Social Vulnerability from a HUGE perspective**

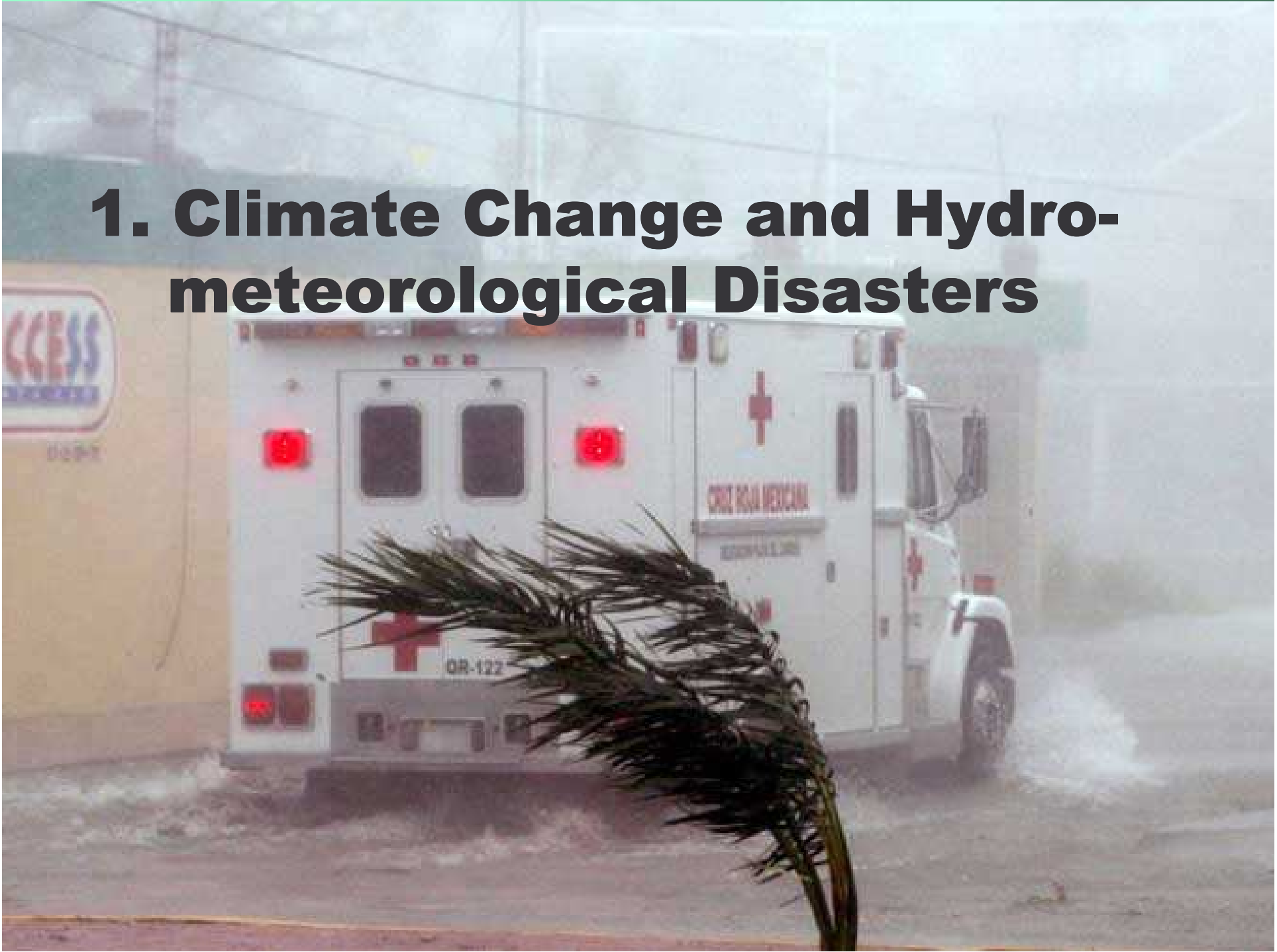


**Úrsula Oswald Spring**  
**CRIM-UNAM**  
**MRF Chair UNU-EHS**  
**30 of March 2008**

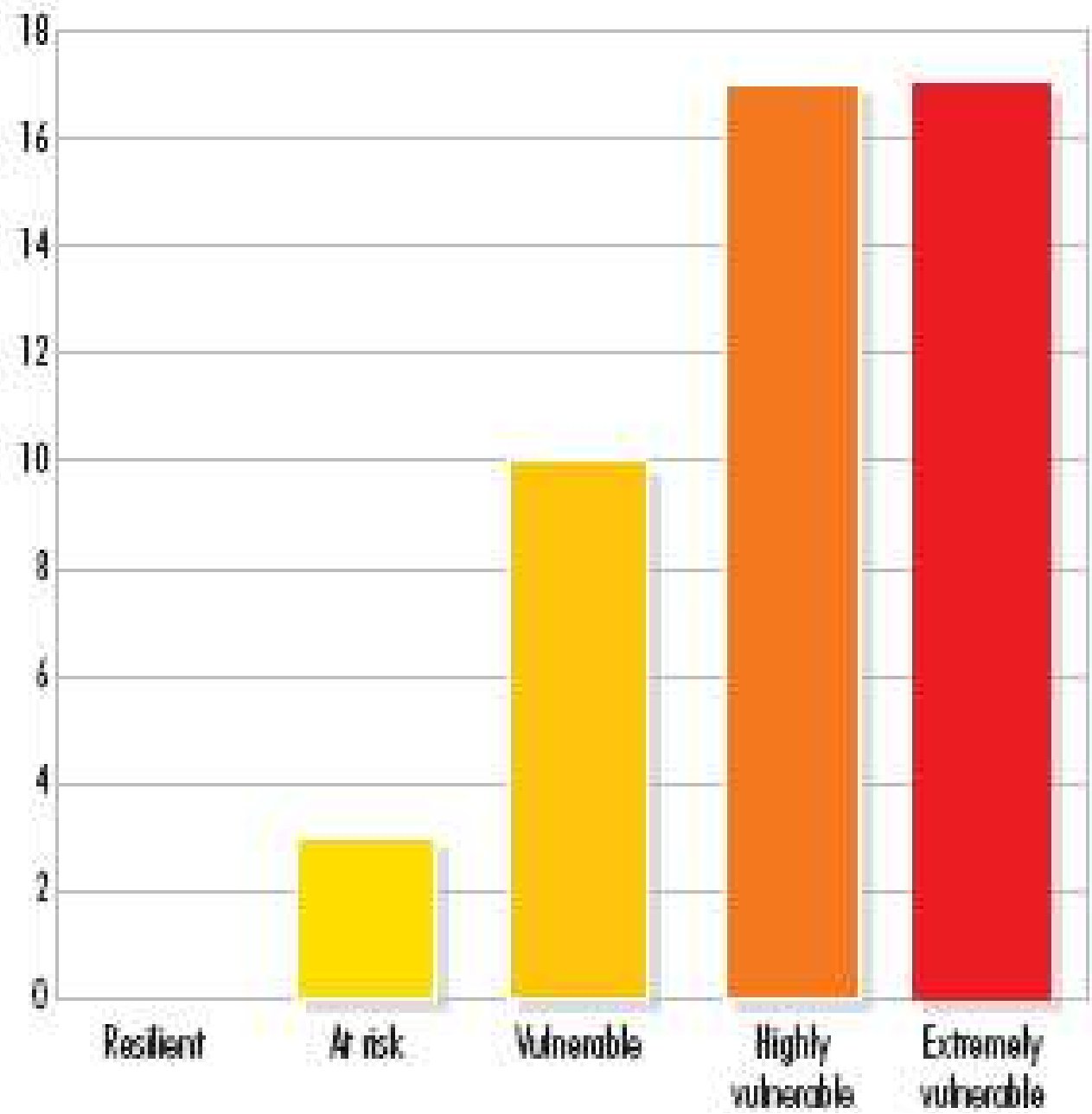
# Contents

- 1. Climate Change and Hydro-meteorological Disasters**
- 2. Social Vulnerability**
- 3. Human, Gender and Environmental Security**
- 4. Gender differences: an obstacle for resilience building**
- 5. Coping Capacities and multi-resilience building**
- 6. Women's Role and Complex Identities**
- 7. Conclusions: HUGE threats and a HUGE security**

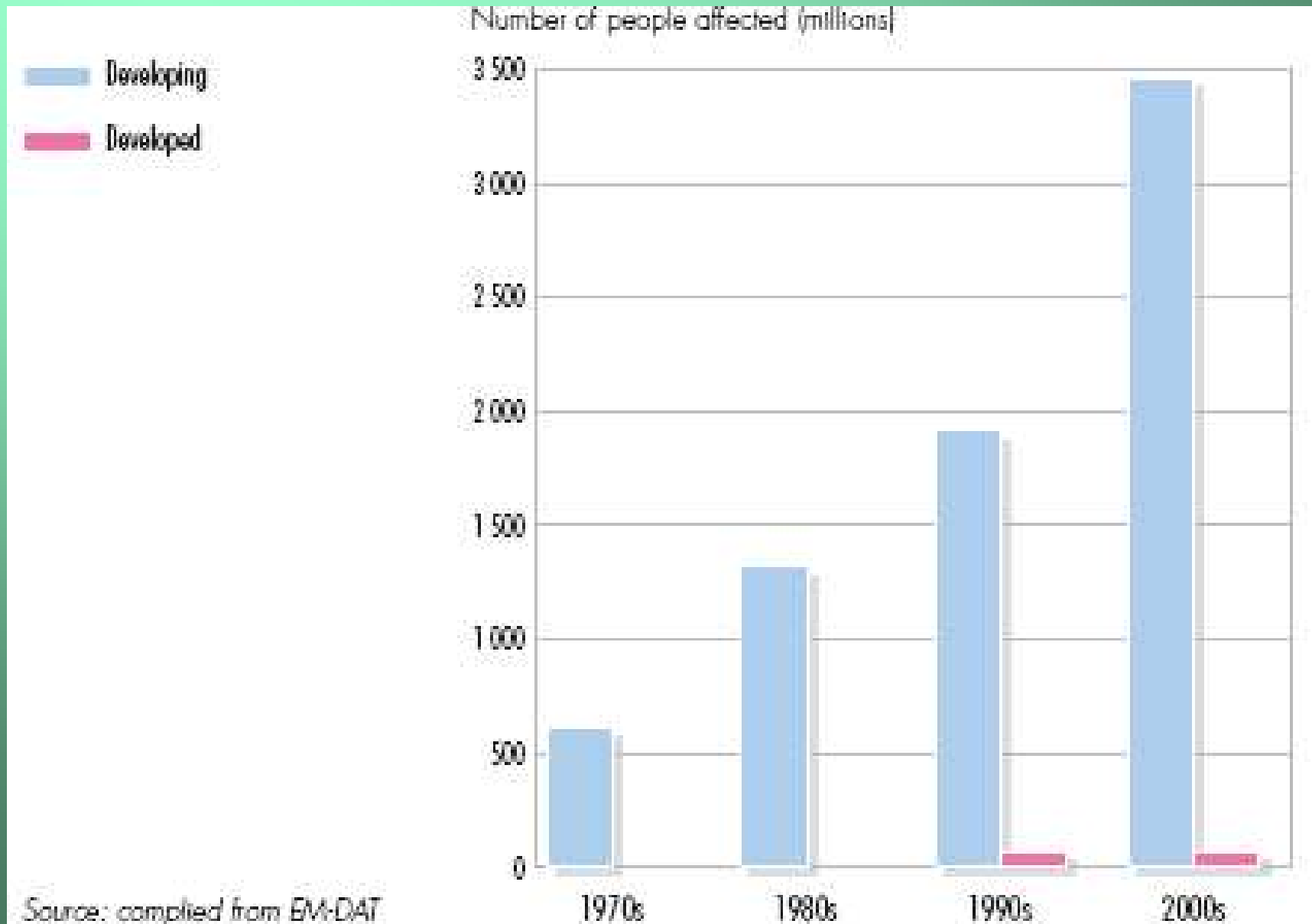
# **1. Climate Change and Hydro-meteorological Disasters**



# Number of Countries at Risk: UNEP

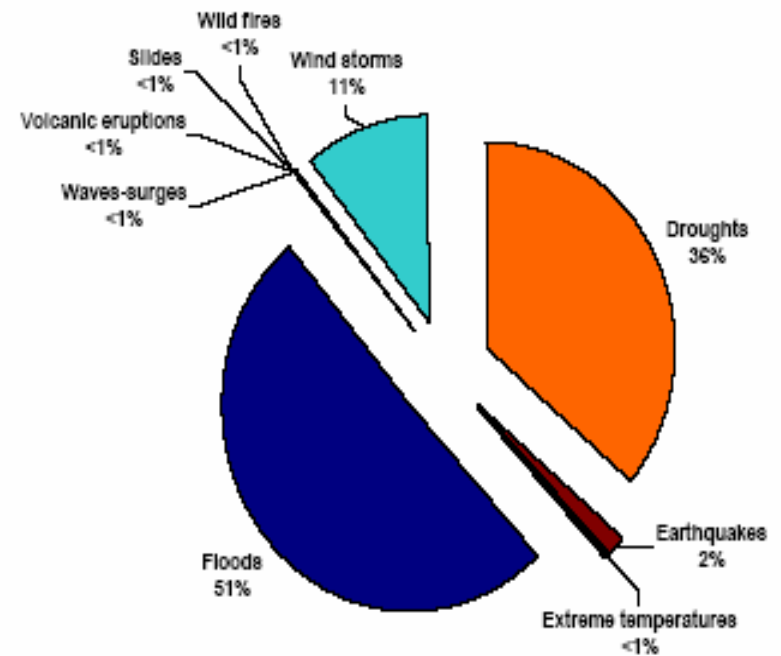
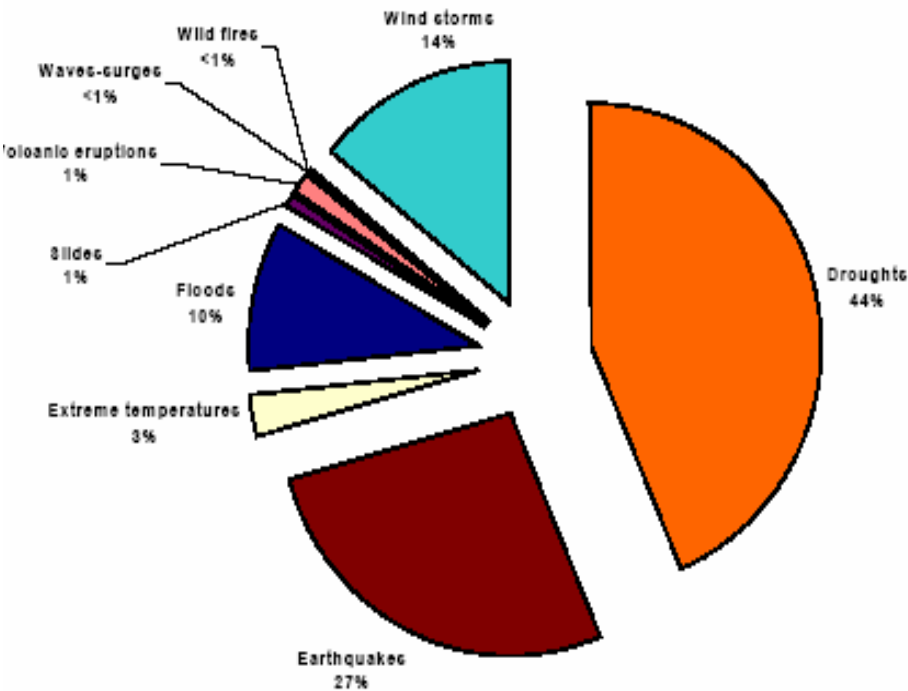


# Persons Affected by Disasters





# Deaths and Affected Persons (1974-2003): 30 years



(1) injured + homeless + affected

**Total: 2'066,273 deaths;**

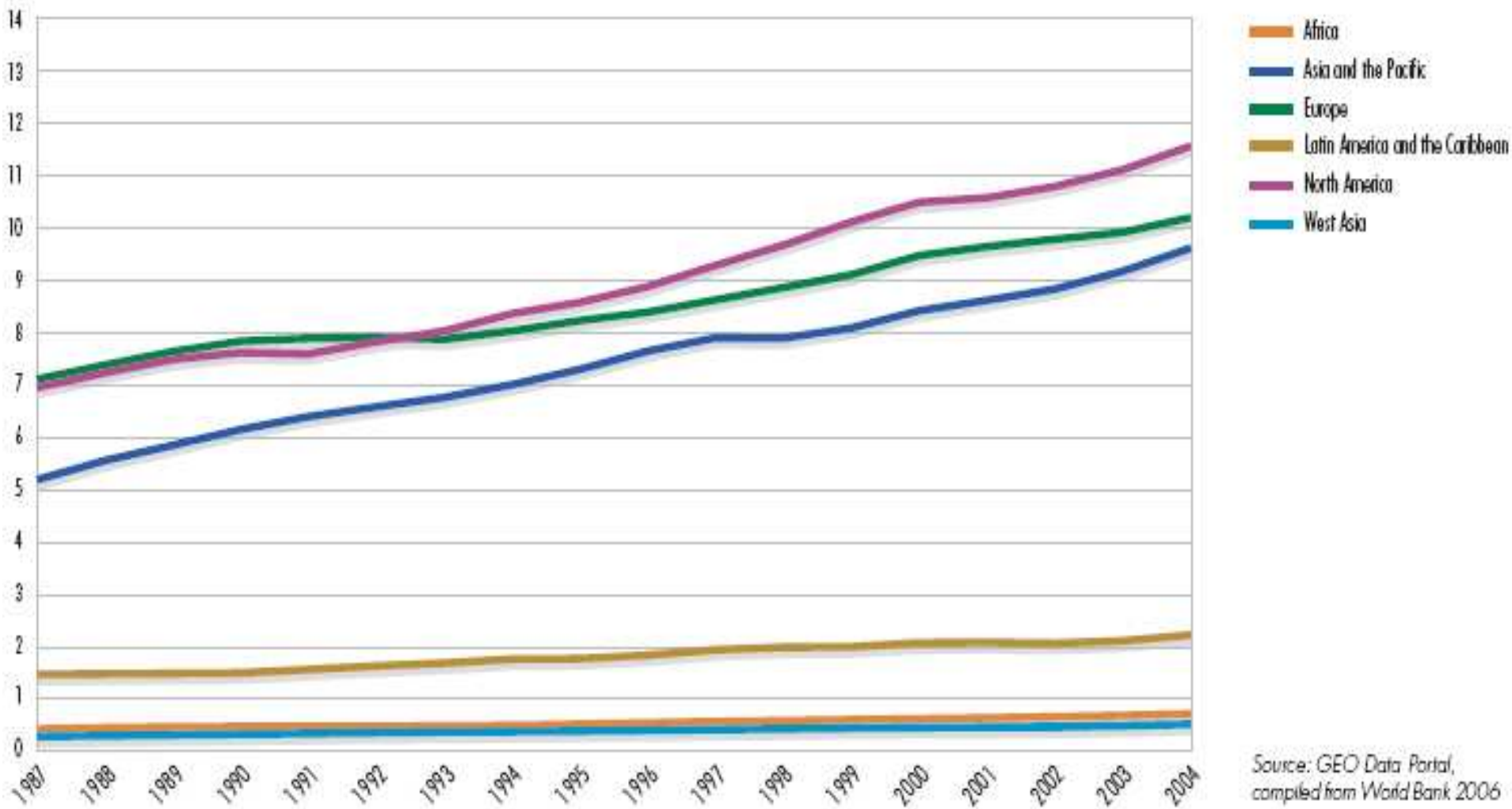
**5'076'494,541 affected persons**

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

# Economic Costs for Disasters

Figure 6.1 GDP by GEO region

trillion constant US\$ (2000)





## **2. Social and regional vulnerability**

**We women and men, the indigenous Mam, Mocho  
and Kachiquel, the poorest peasants and excluded  
from Mexico**

**The Sierra Madre of Chiapas**



**Octobre 2005 « STAN »**



**« STAN » destroyed the few we had...**

**40% of land and forest were destroyed**





**Nothing survived**



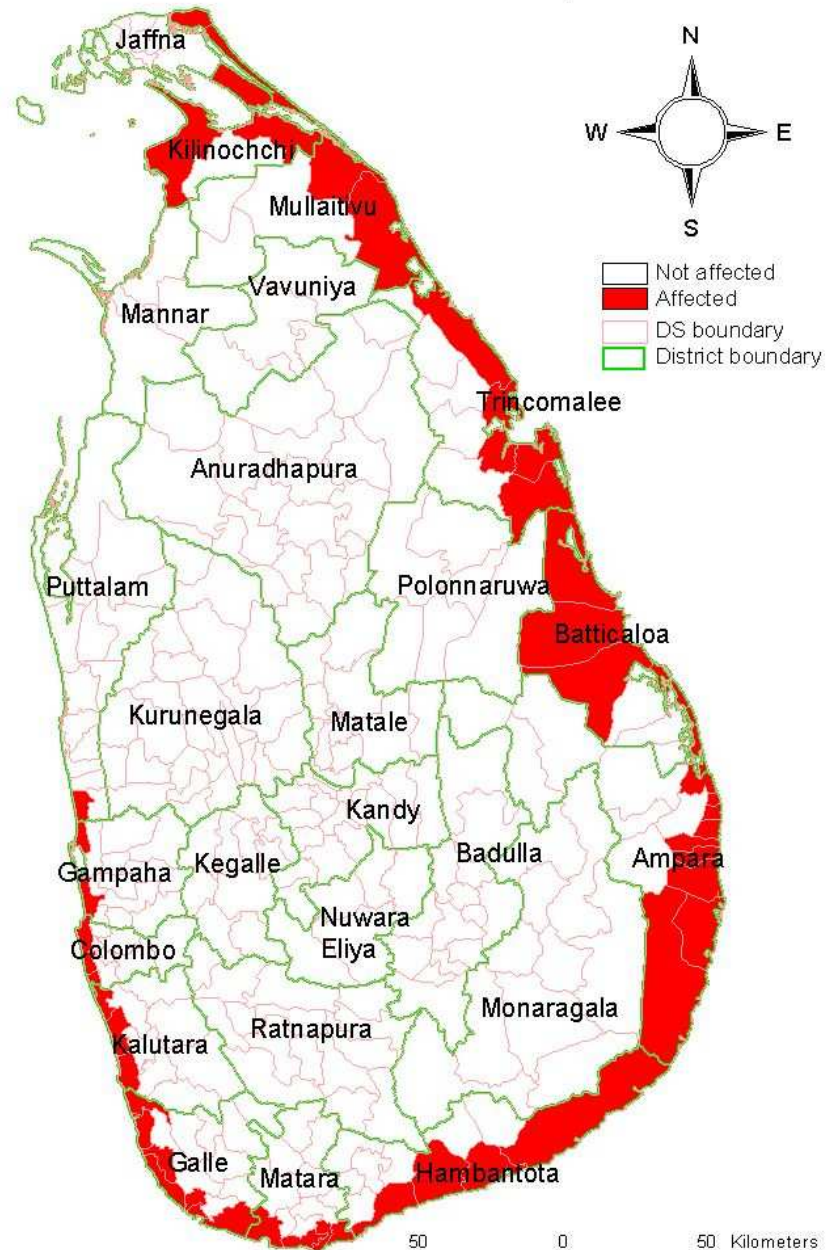


# Regional Vulnerability



Source: Siri Hettige – University of Colombo  
Sarath Amarasinghe – University of Ruhuna  
Nishara Fernando – University of Colombo

DS Divisions of Sri Lanka, Affected by the Tsunami



Source: Department of Census and Statistics



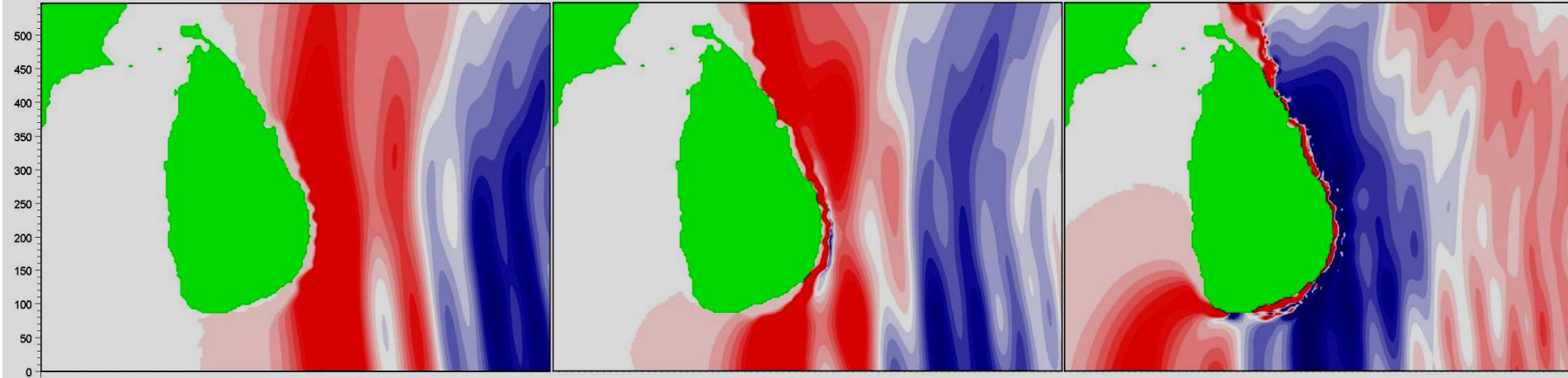
# Variability of Wave Attack

(snapshots from a computer simulation)

26/12 08:50

26/12 09:00

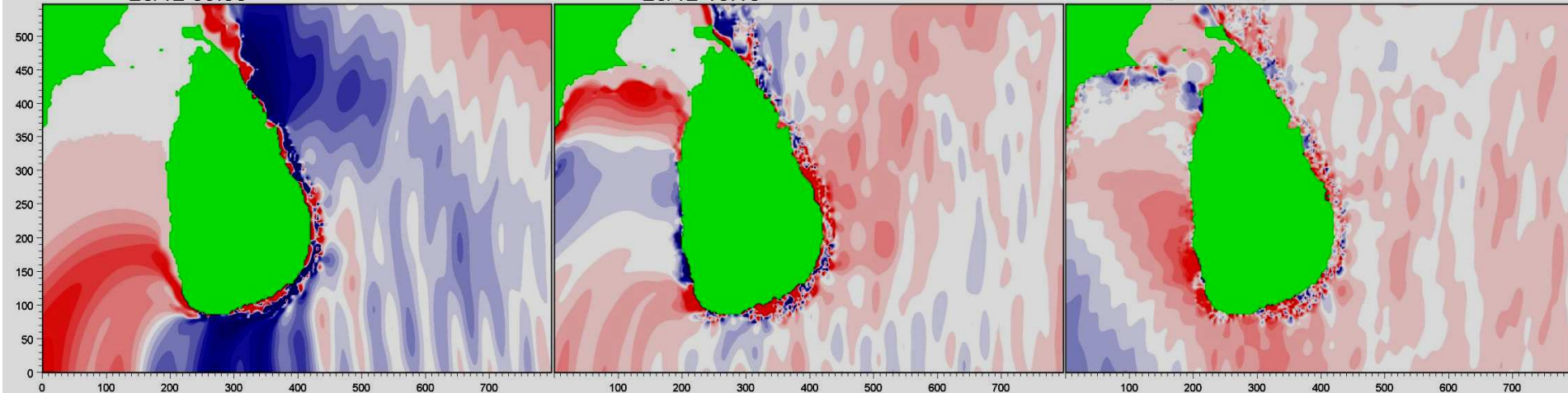
26/12 09:20



26/12 09:30

26/12 10:15

26/12 11:40

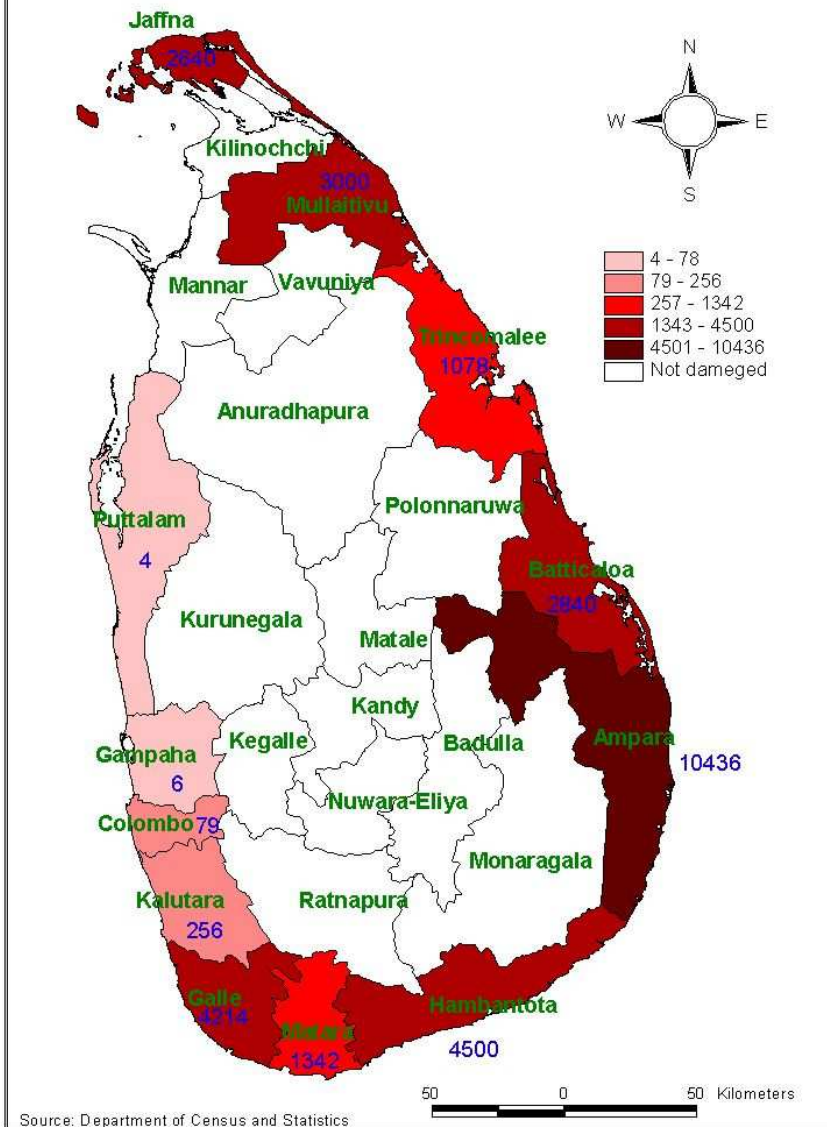


red = raised sea level  
blue = lowered sea level

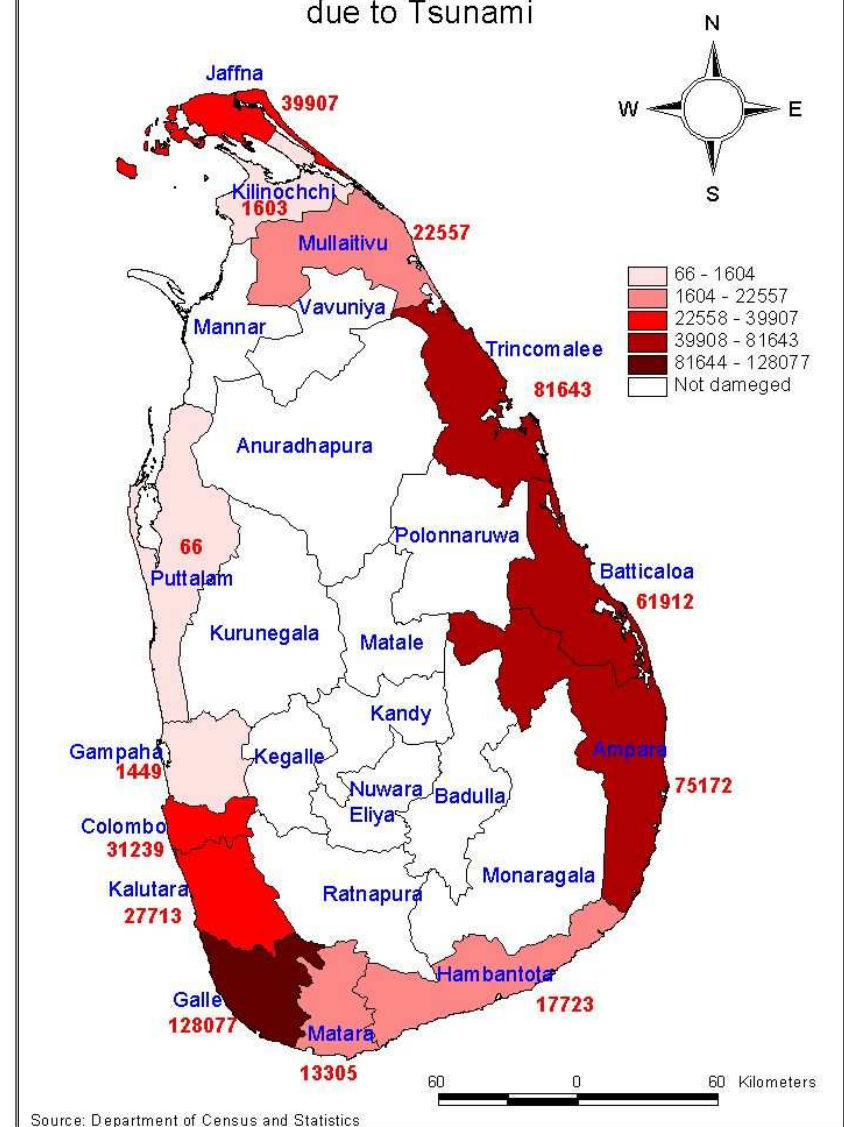
by courtesy of DHI Water & Environment

# Regional Vulnerability in Disasters

Number of Reported Deaths due to Tsunami



Number of Reported Displaced Persons due to Tsunami



Source: Siri Hettige – University of Colombo  
 Sarath Amarasinghe – University of Ruhuna  
 Nishara Fernando – University of Colombo

## 6.4. Dead and Missing: Gender and Age Bias

### Gender (%)

### Marital status (%)

### Educational status (%)

Female	<b>65.3</b>	Never married	45.1	1-5	<b>36.4</b>
Male	34.7	Currently married	49.3	6-10	<b>32.7</b>
Total	100 (72)	Widowed	5.6	O/L	12.7
		N/A	1.4	A/L	16.4
		Total	100 (72)	Higher education	1.8
				N/A	23.6
				Total	100 (72)

### Age (%)

### Activity (%)

1-4	13.9	Student	<b>27.4</b>
5-9	11.1	Household work	21.0
10-17	11.1	Unemployed	12.9
18-25	1.4	Employed	<b>27.4</b>
26-35	13.9	Unable to work	11.3
36-45	6.9	N/A	13.9
46-55	<b>16.7</b>	Total	100 (72)
56-70	9.7		
71>	15.3		
Total	100 (72)		

Source: Siri Hettige – University of Colombo  
 Sarath Amarasinghe – University of Ruhuna  
 Nishara Fernando – University of Colombo

# **Focus of the Talk and Main Questions**

- Why are women and other social vulnerable groups so highly exposed to natural risks and hazards?
- What are the possible policies and measures to improve resilience for these social groups and to reduce their risks?



A photograph showing a woman in a light-colored shirt and a patterned skirt walking through a deforested area. The ground is covered with dry leaves and branches. In the background, there are several large, fallen tree trunks and a few children standing or sitting. The overall scene suggests a rural, possibly agricultural, setting where deforestation is occurring.

### **3. Human, Gender and Environmental Security**

# Human, Gender and Environmental Security (HUGE)

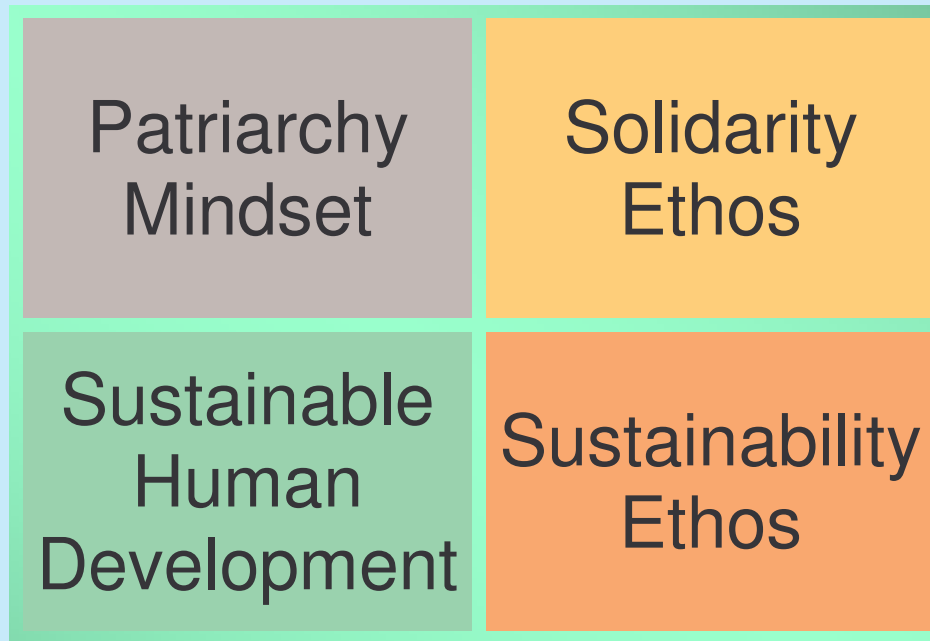
Degree of expansion	Denomination (security of what?)	References object (security of whom)?	Value at risk (security of what?)	Sources of threat (security from whom and for what?)
No expansion	National Security (political, military)	The Nation-state	Sovereignty, territorial integrity, power relations	Other states, terrorism, sub-state actors, guerrilla, terrorists, AMD
Incremental	Societal Security	Nations, societal groups, social movements	National unity, identity, governance, tolerance, cosmovision	Nations, migrants, alien cultures, mass media, internet
Radical	Human Security	Individuals, humankind	Survival, quality of life, livelihood, equality, development	State, globalization, elites, terrorism, organized crime, social gaps
Ultra-radical	Environmental Security	Ecosystem, humankind, green-house gases, toxics	Sustainability, industrialization, consumption, development, modernization, future	Nature, global change, global warming, population growth, development pattern, resilience
Trans-radical	Gender Security	Gender relations, indigenous, minorities, children, elders, vulnerable groups	Equity, equality, identity, solidarity, social representations, culture, and cosmovision	Patriarchy, totalitarian institutions (governments, churches, elites), dominant culture, intolerance, violence

# Gender Security & Identity

- Refers to the process of consciousness raising to be a human being; a **men or a women**.
- Gender security is **taken for granted**. The relations are linked to the **status as gender** –indigenous, poor, minority, women- in relation to the **model of reference**.
- **Equity and identity** are values at risk. The source of threat comes in first instance from the **patriarchal and violent order**, in hands of hierarchical institutions, non-democratic governments, churches and élites.
- The **symbolic distribution** assigns the male the **public space**: production, *res publica*, *homo sapiens*; and the women the **private** one: reproduction, home, *homo domesticus*. The distribution of power acquires generic forms. Men exercise a hierarchical and vertical **power of domination and superiority**.

**Patriarchal Hegemony has a  
Negative Influence on Solidarity**  
(i.e., as patriarchy increases, solidarity decreases)  
? ? ? ? ? ? ? ? ? (-)

(-)  
**Sustainable  
Human  
Development?**  
has a  
**Negative  
Influence on?**  
**Patriarchy**  
(i.e., as human  
integral  
development  
increases,  
patriarchy  
decreases)  
?  
?  
?  
?



?  
?  
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?  
?  
?  
(+)  
**Solidarity  
has a  
Positive  
Influence on  
Sustainability**  
(i.e., as solidarity  
increases,  
sustainability  
increases)

(+)? ? ? ? ? ? ? ? ?  
**Sustainability has a  
Positive Influence on Human Development**  
(i.e., as sustainability increases, human development increases)



# HUGE

- Human, Gender and Environmental Security (HUGE) is a widened concept of security that combines an **ample gender concept** (including children, elders, indigenous, vulnerable groups) with a **human-centered** focus on **environmental security** and **peace** challenges.
- HUGE analyzes **patriarchal, violent and exclusive structures** within family and society, questioning the existing process of **social representation-building** and **traditional role assignation** between genders for overcoming **violence & discrimination** against women .
- Reorients 'human security' to **equity and development** through social organization, specific governmental policies, private ethical investments and legal reinforcements.
- As a **holist concept**, HUGE revises '**environmental security**' and proposes policy for a healthy environment, integral management of natural resources, prevention and remediation practices that reduce vulnerability of hazard impacts.

- It analyzes processes for empowering hazard-prone countries and vulnerable (women, exposed groups) to improve their **resilience** through **bottom-up organization** that is reinforced by **top-down policies** and **institutions**, (capable to guarantee effective early warning and evacuation, disaster support and reconstruction in regions affected by social and natural disasters).
- The concept examines the **consolidation of a ‘huge’ solidarity process** of **sustainable** and intra and intergenerational **equality** and development, reinforced by international and local **collaboration** and **nonviolent conflict management**.
- HUGE studies social, environmental, human, cultural and identity concerns together with solidarity, resilience, **peace-building** and **equity practices** in contexts of increasing insecurity, dangers and fragility. Alternatives by are **socialized** by social movements.



## **4. Gender differences: an obstacle for resilience building**



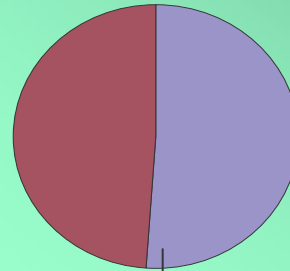
Gender Equity Indicator	Lowest Country	Worldwide Average	Highest Country	Countries Reporting	Year Reported
Ratio of girls to boys in primary education	0.63	0.95	1.03	163	2001
Ratio of girls to boys in secondary education	0.46	0.69	1.39	144	2001
Ratio of girls to boys in tertiary education	0.15	1.13	3.36	116	2001
Ratio of literate women to literate men	0.42	0.93	1.09	123	2004
Women's share in salaried office employment (%)	6.1	40.26	55.9	136	2003
National parliament seats held by women (%)	0	14.43	49	182	2005
U.N. Gender Equity Index (combined male-female parity in economic, political, and resource decisions)	0.123	0.551	0.908	78	2003

Source: United Nations Statistics Division (UNSD), 2005  
<http://unstats.un.org/unsd/demographic/products/indwm/ww2005/tab4b.htm>

# Inequality for Women

## Women in the World

50.3%



67%

68%

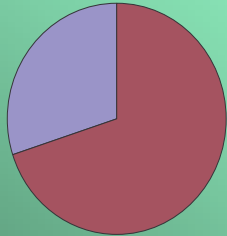
36%

41%

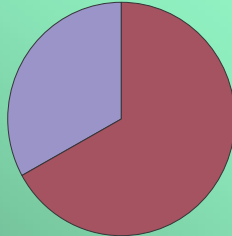
70%

12%

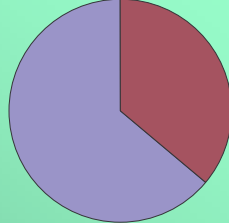
113%



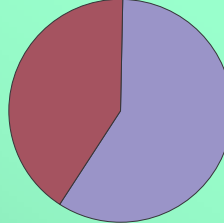
**Illiterate  
Adults  
1 billion**



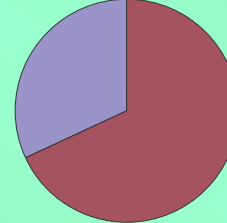
**Without Access  
to Basic School  
300 million**



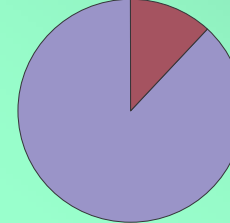
**With Access  
to Secondary  
School**



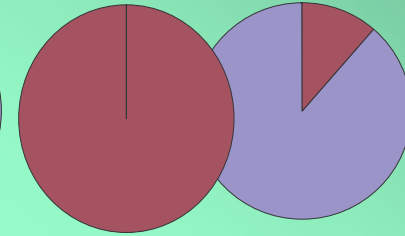
**% of Women  
infected by  
HVI/AIDS of  
all Infected**



**Extreme  
Poverty**



**Representation  
in  
Parliament**



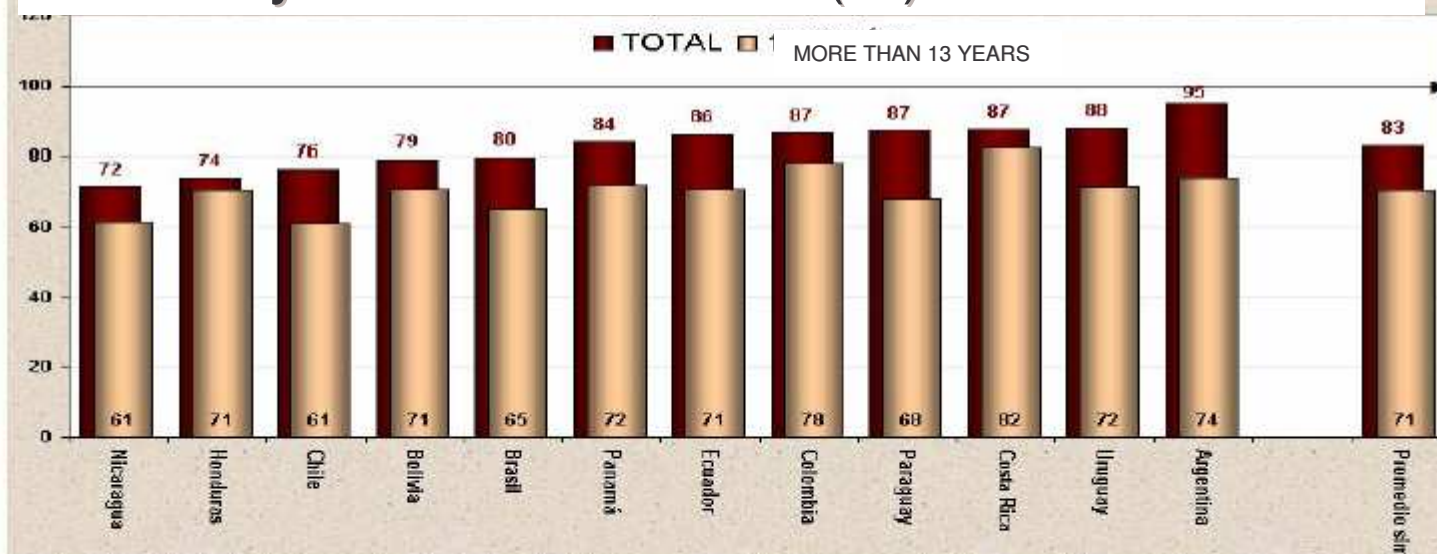
**Charge of Daily Work  
for Women in  
Developing  
Countries  
(% of Work of Men)**

**Source: UNIFEM, 2000, 2007; UNAIDS, 2000**

**90% of all Maternal Dead occurs in Developing Countries: (500,000 dead/year)**

# Gender differences in income with same education and training in LA

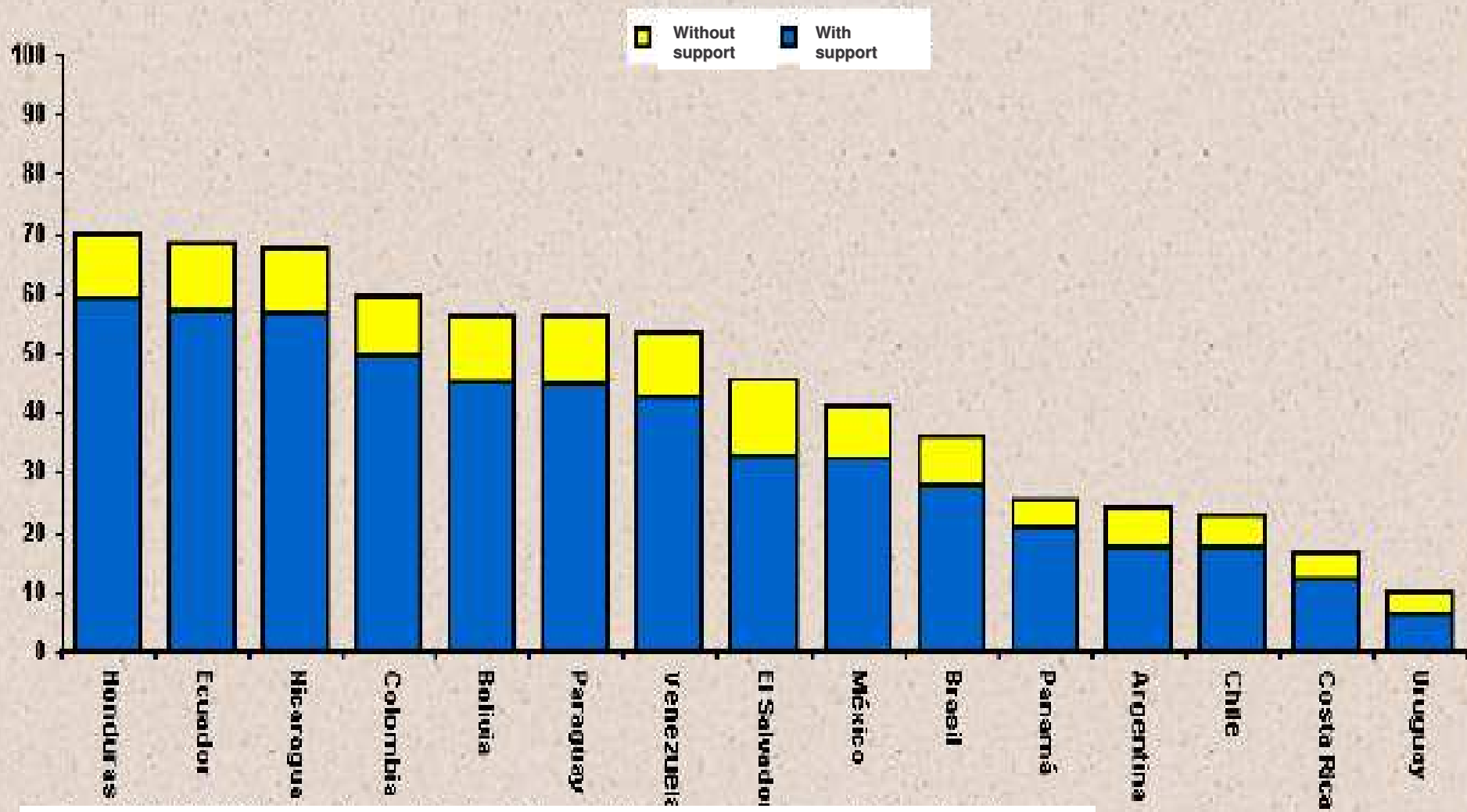
Income of men and women: total and with more than 13 years of instruction (%)



Source: CEPAL, 2004, Unity of Women and Development



# Poverty in Household with Female Economic in LA (%)



Source: CEPAL, 2004, Unity or Women and Development



## **5. Coping Capacities and multi-resilience building**

# Risks



1999  
Winter Storm Lothar, Europe

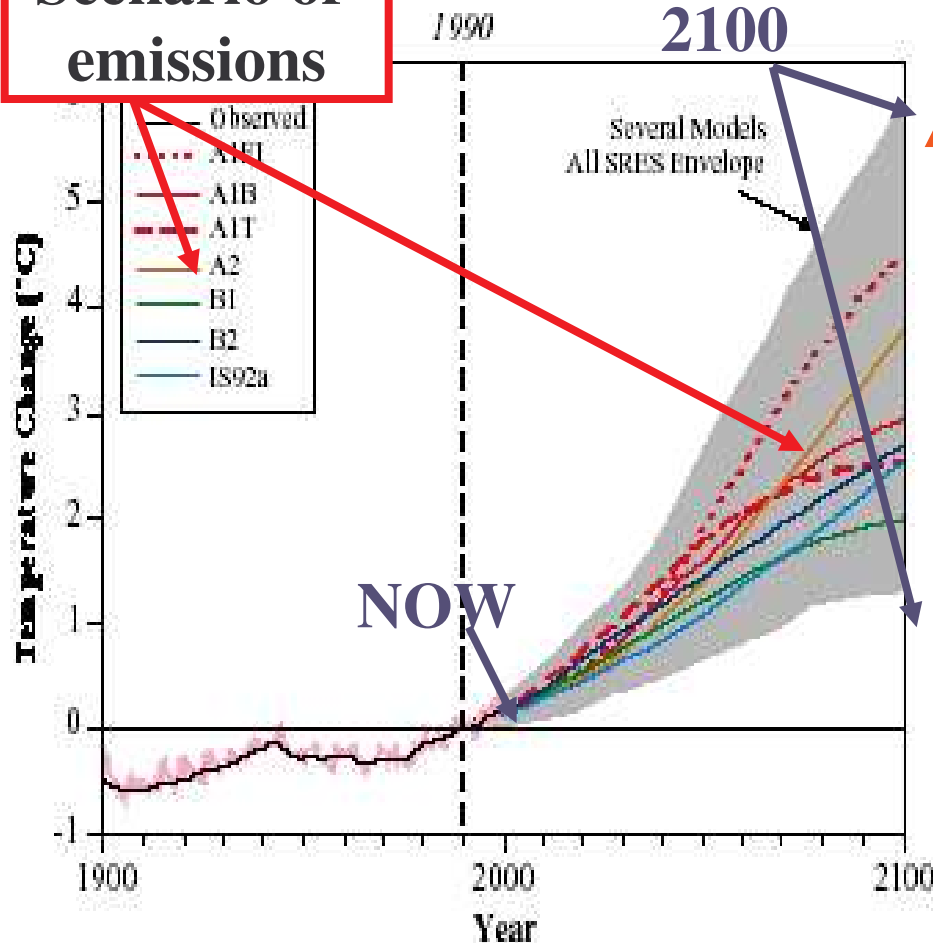


2000  
Flood, Mozambique

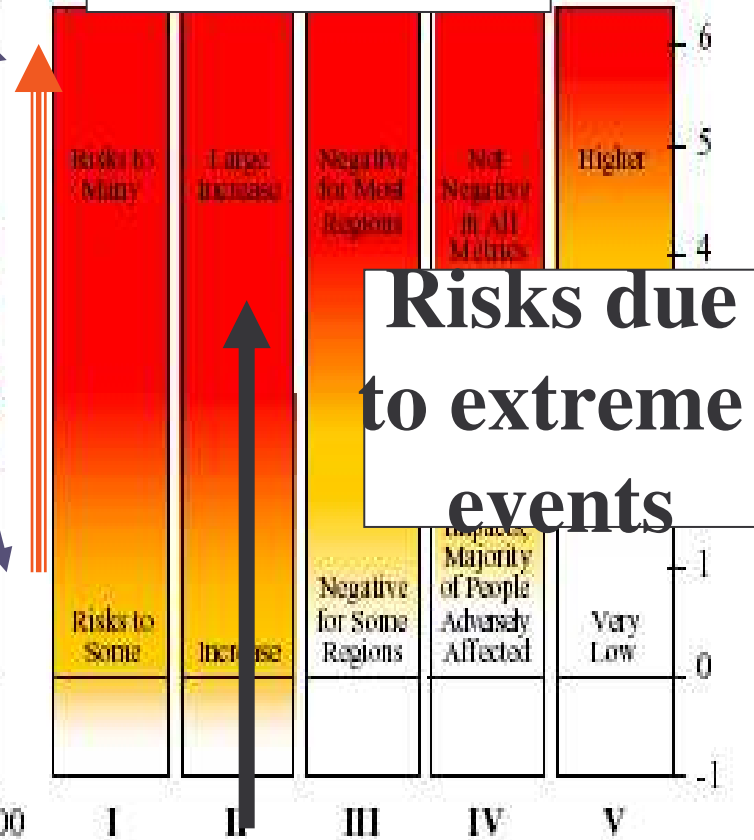
- Risk= **H**azards x **V**ulnerabilities (sometimes multiplied by **E**xposure to a physical threat, Segob, Mexico); **H** and **V** are estimated probabilistically; **E** in money.
- “The probability of harmful consequences or expected losses –deaths, injuries, property, livelihoods, economic activities, resulting from interaction between natural or human-induced hazards and vulnerable conditions” (ISDR, 2004: 6).
- Social contexts can change the perception of risks and their underlying causes.



## Scenario of emissions



## Risks

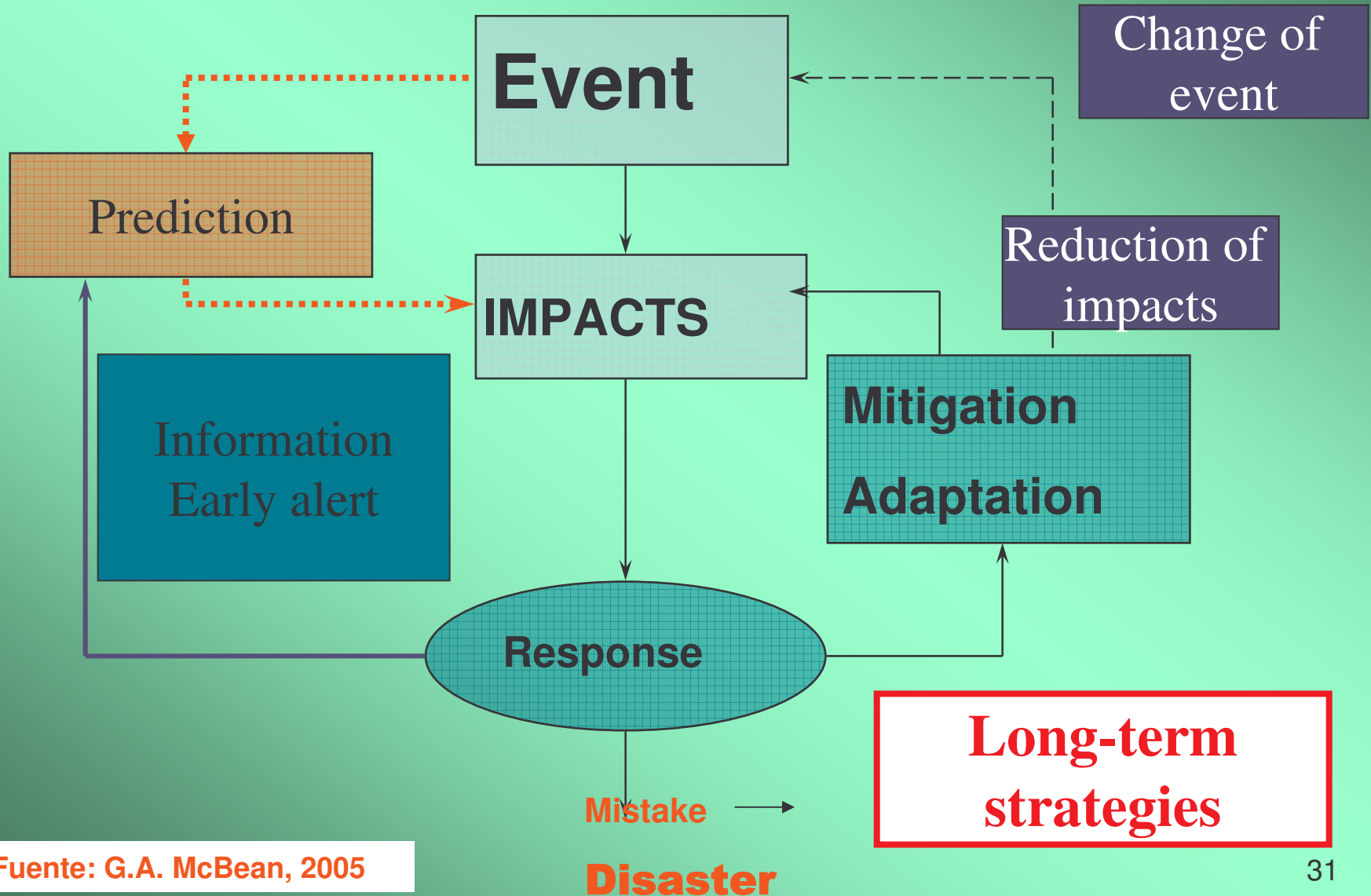


**Risks due to extreme events**

**Climate change increases risks**

**Climate will change during this century because governments have not take actions for mitigation**

# Response to events: anticipation, mitigation, adaptation in time and space



# Why are extreme events increasing?

- **More people, complex societies, society of consumption and GEC**
  - Megacities & poor countries are highly vulnerable
  - Old infrastructure and few maintenance in developed countries
  - Higher mobility and decision making where to live, work, relax and travel with high socio-environmental costs
  - Urbanization along rivers, coast, high plateau, former lakes
  - Society of consumption with high input of fossil fuel and amounts of waste
- **Social effects, discrimination, neglect and violence**
  - Greater social gaps within societies & between North and South
  - Megacities with high immigration, lack of infrastructure, violence
  - Transnational crime and public insecurity
  - Gender discrimination and GBV
  - Neglect of poor people: physical and economic stress to resource access
- **Human Interventions in ecosystems**
  - Changes of natural landscape
  - Emission of pollution and green-house gases
  - Exhaustion of natural resources
  - Greater demand and contamination of water
  - Destruction of biodiversity due to land use changes
  - Food insecurity and famine
  - New illnesses and epidemics





1998  
Hurricane Mitch, Central America



1998  
Blizzard, Canada and USA

# Challenges, Capacity and Resilience

- **Challenges** are a combination of potential and real institutional, societal, economic and political processes, that are able to deal with risks, fears and hazards.
- **Capacity** is “a combination of all the strengths and resources available within a community, society or organization that can reduce the level or risk, or the effects of a disaster.” (ISDR, 2004: 2)
- **Resilience** is “the capacity of a system, community or society potentially exposed to hazards **to adapt**, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is **capable of organizing itself** to increase its capacity for learning from past disasters for better futures, **protection** and to improve risk reduction measures.” (ISDR, 2004: 6)

- Resilience means in Latin *resilio*, referring to “return from a leap, jump, rebound”, and in common acceptation “elasticity”.
- In physic it represents the capacity of a material to recover the same form after having been exposed to extreme pressures.
- In the social field it refers to the “human capacity which permits persons after having passed through adverse situations to be not only safe but also **transformed through this experience**”
- Gloria Laengle defines it as “the capacity of human being to **overcome difficulties** and at the same time **learning** from the errors”.
- Ángela Quintero refers to “the **capacity** of a family **to adapt** and reconstruct from the adverse situation”
- Helena Combariza defines “human resilience is the capacity of an individual or social system **to live well and develop** positively, irrespective of the difficult conditions and even being reinforced and **transformed**”.

# How is Vulnerability Assessment Functioning

It involves collecting and analyzing data in a participative way and with concern-building on:

- Type of hazards and frequency
- Elements at risk and how to reduce them
- Mapping specific hazard prone locations and resettlement of people at risk
- Socioeconomic conditions and type of shelter
- Identification of social vulnerable
- Gender and family structure
- Genuine coping strategies
- Learning process from previous disasters and capabilities building
- Training for evacuation and environmental restoration
- Evaluation of training and hazard mitigation process



## **6. Women's Role and Complex Identities**



# Women's Role and Perception

Women's roles and social identity are manifold:

- **reproductive** (child-bearing, nurturing and maintenance of households)
- **productive** (livelihood support, food production, survival strategies, jobs)
- **social** (integrating family and community as a whole)
- **psychological** (stabilizing personal relations and emotions)
- **cultural** (historic memory of family, clan and village, myths)
- **Self-perception** of women: weak, incapable and depending on men, creating social vulnerability
- **Societal** women's work force is taken for granted and considered without or with less economic value, producing a historical discrimination, which got consolidated during thousands of years (USA: 40% of GDP).

# Gender diversity and values

## Women contribute subjective and objective values

### *Subjective values (social identity):*

- **Caring** about their families, children, neighbors and those in need
- Positive **self-esteem** in crisis situations
- Emotionally **stabilizing** families before, during and after a disaster
- Guardians of **traditions** and values
- Locally attached

### *Objective values (social representation):*

- **Flexible**, adaptable and able to shift activities immediately by diversifying (refugee camps, survival activities, collection, reconstruction, services, agriculture, reforestation, ecotourism,)
- Open to **collaborate** in rescue activities
- Generate **survival strategies** in case of disasters
- **Contribute** to the national economy
- Create **local employments**, incomes and stabilize emigration
- Generate **political stability**
- Collaborate in **conciliation of conflicts**

# Women and Disasters Management

## Water and food production in hand of women:

- Under normal conditions women produce **half of world food**; in developing countries even 60% to 80%;
- But women in México only **own** 17% of their land & in Africa 2%
- Women practice **survival strategies** in coping with **long-term disasters** such as economic crises and **famine**.
- They contribute in Africa to:
  - 33% of the paid labor force
  - 70% of agricultural labor days
  - 60-80% of subsistence production
  - 100% of food transformation
  - 80% of food storing
  - 90% of spinning and weaving
  - 60% of harvesting and market activities
  - 2% own land or have land rights (FAO, 2002)

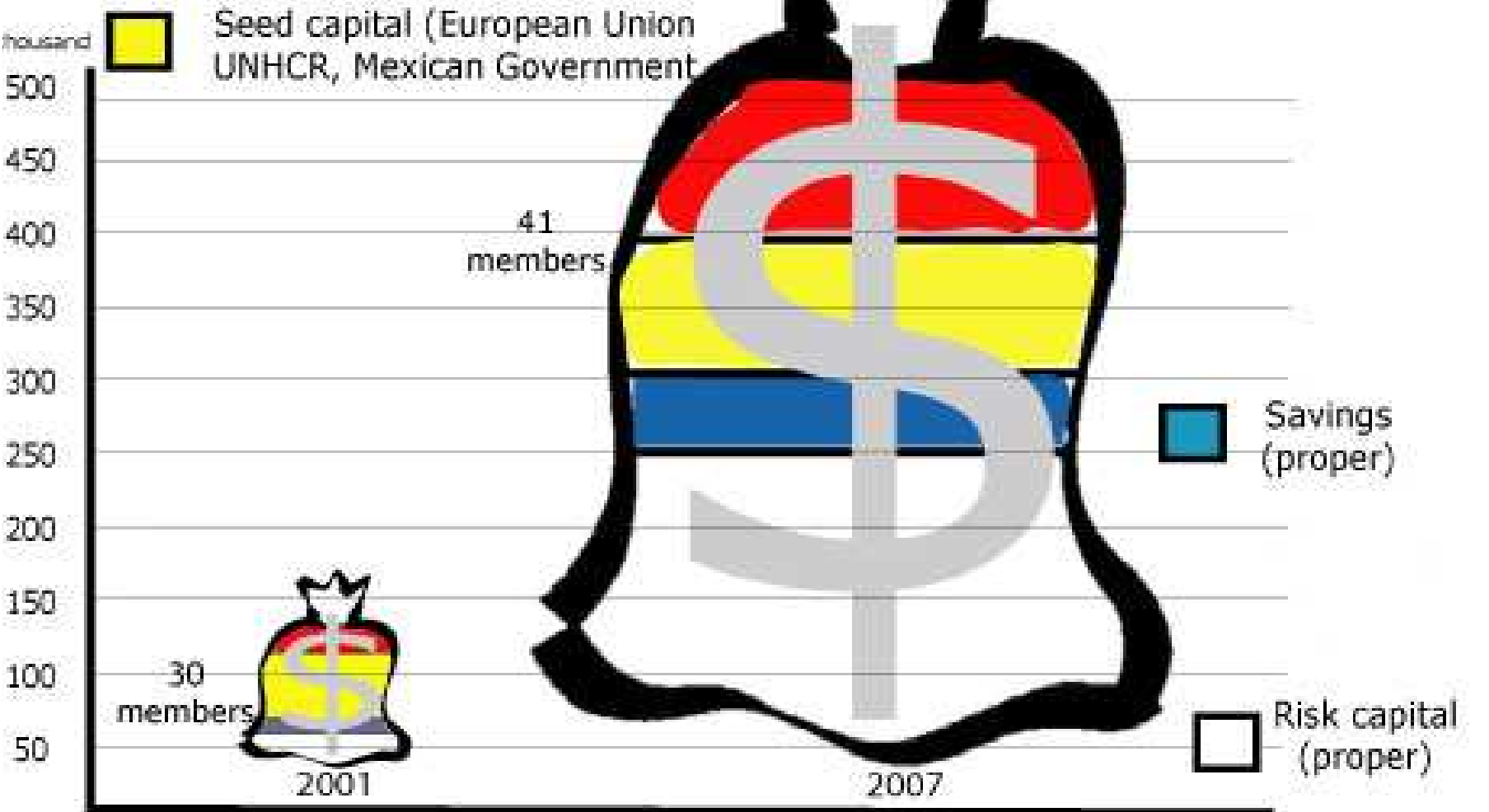
# Survival strategies in poor countries

(Oswald 1991, 2008)

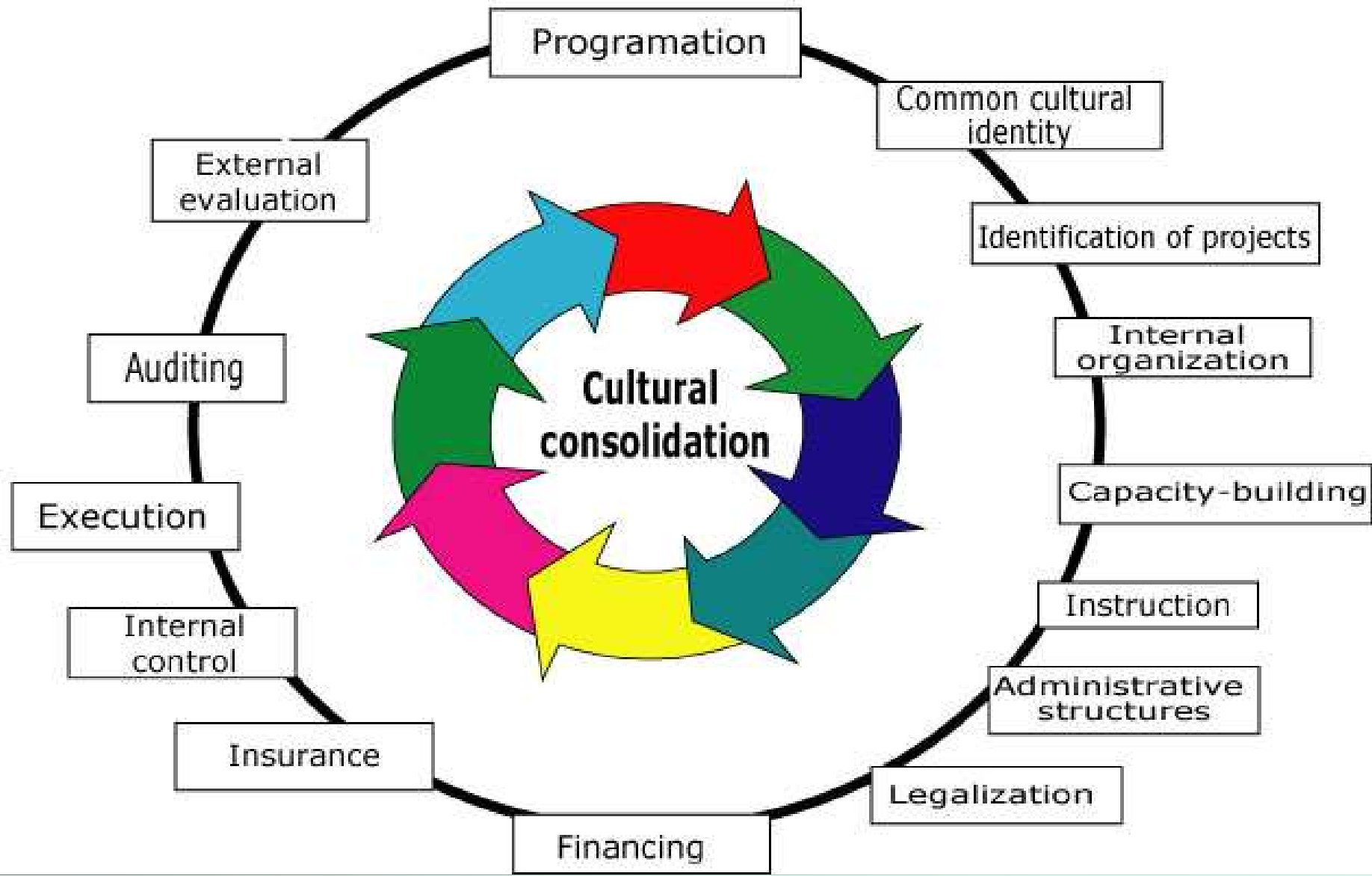
1. Cooperation during massive rural migration to urban slums
2. Illegal occupation of marginal and risky land
3. Construction of shelter with precarious materials (waste)
4. Complementary cash income due to chronic unemployment of men
5. Selling unnecessary good
6. Credits and micro-credit systems with familiars and neighbors
7. Economic crises threaten food supply and family survival
8. Recollection of perished fruits and vegetables at central market
9. Collective popular kitchens
10. Rotation of women in community work (kitchen, child rearing, vigilance)
11. Common struggle for basic services (electricity, water, roads, community center)
12. Communal efforts for regularization of land and services
13. Struggle for public subsidies and poverty alleviation programs
14. Temporary paid work (washing, ironing, cleaning)
15. Multiple activities: services, handicrafts, food selling, grocery (in windows)
16. Social organization against organized crime and gangs
17. Empowerment and fight against intra-family violence
18. Social and economic consolidation of colony and families



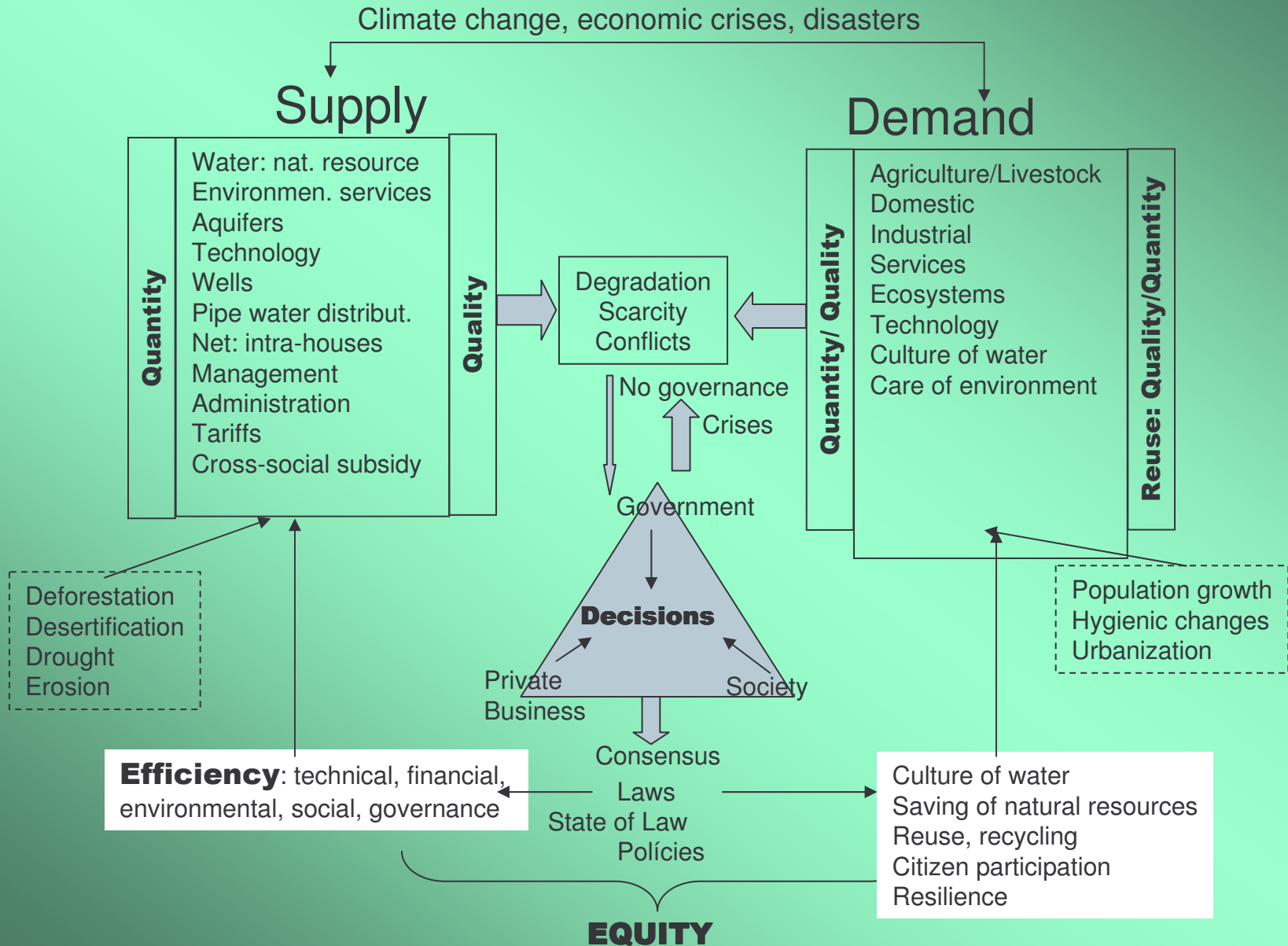
# Self-sufficient Micro-business in Campeche, Mex.



# Model of self-reliant entrepreneurship



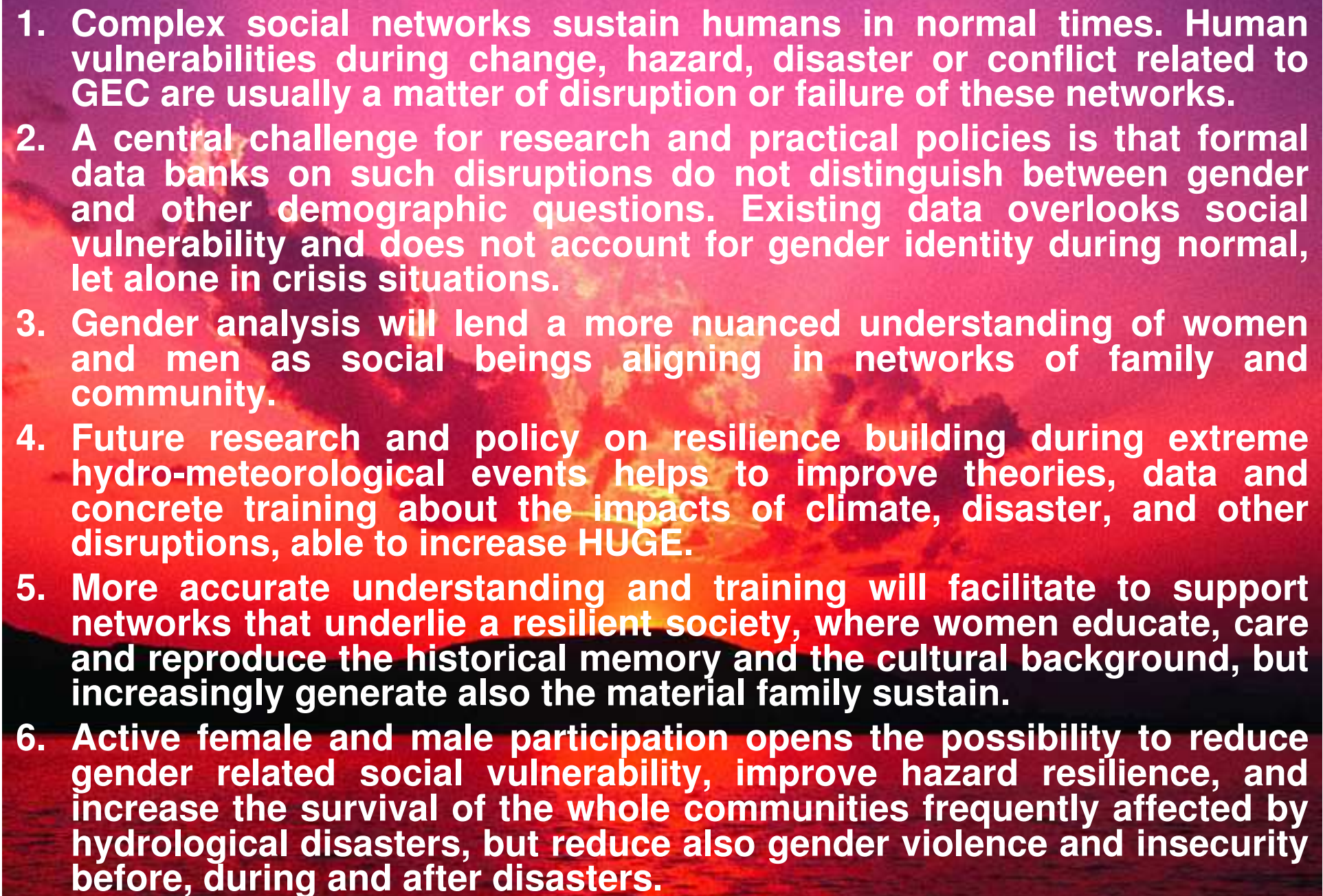
# Efficiency and Equity with Natural Resources





## **7. Conclusions: a HUGE security for HUGE threats**



- 
1. **Complex social networks sustain humans in normal times. Human vulnerabilities during change, hazard, disaster or conflict related to GEC are usually a matter of disruption or failure of these networks.**
  2. **A central challenge for research and practical policies is that formal data banks on such disruptions do not distinguish between gender and other demographic questions. Existing data overlooks social vulnerability and does not account for gender identity during normal, let alone in crisis situations.**
  3. **Gender analysis will lend a more nuanced understanding of women and men as social beings aligning in networks of family and community.**
  4. **Future research and policy on resilience building during extreme hydro-meteorological events helps to improve theories, data and concrete training about the impacts of climate, disaster, and other disruptions, able to increase HUGE.**
  5. **More accurate understanding and training will facilitate to support networks that underlie a resilient society, where women educate, care and reproduce the historical memory and the cultural background, but increasingly generate also the material family sustain.**
  6. **Active female and male participation opens the possibility to reduce gender related social vulnerability, improve hazard resilience, and increase the survival of the whole communities frequently affected by hydrological disasters, but reduce also gender violence and insecurity before, during and after disasters.**



**Thanks for your attention**

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[http://www.afes-  
press.de/html/download\\_oswald.html](http://www.afes-press.de/html/download_oswald.html)