Needs for disaster reduction to enable development and the benefits of the proposed African program

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On Integrated Research on Disaster Risk (IRDR)

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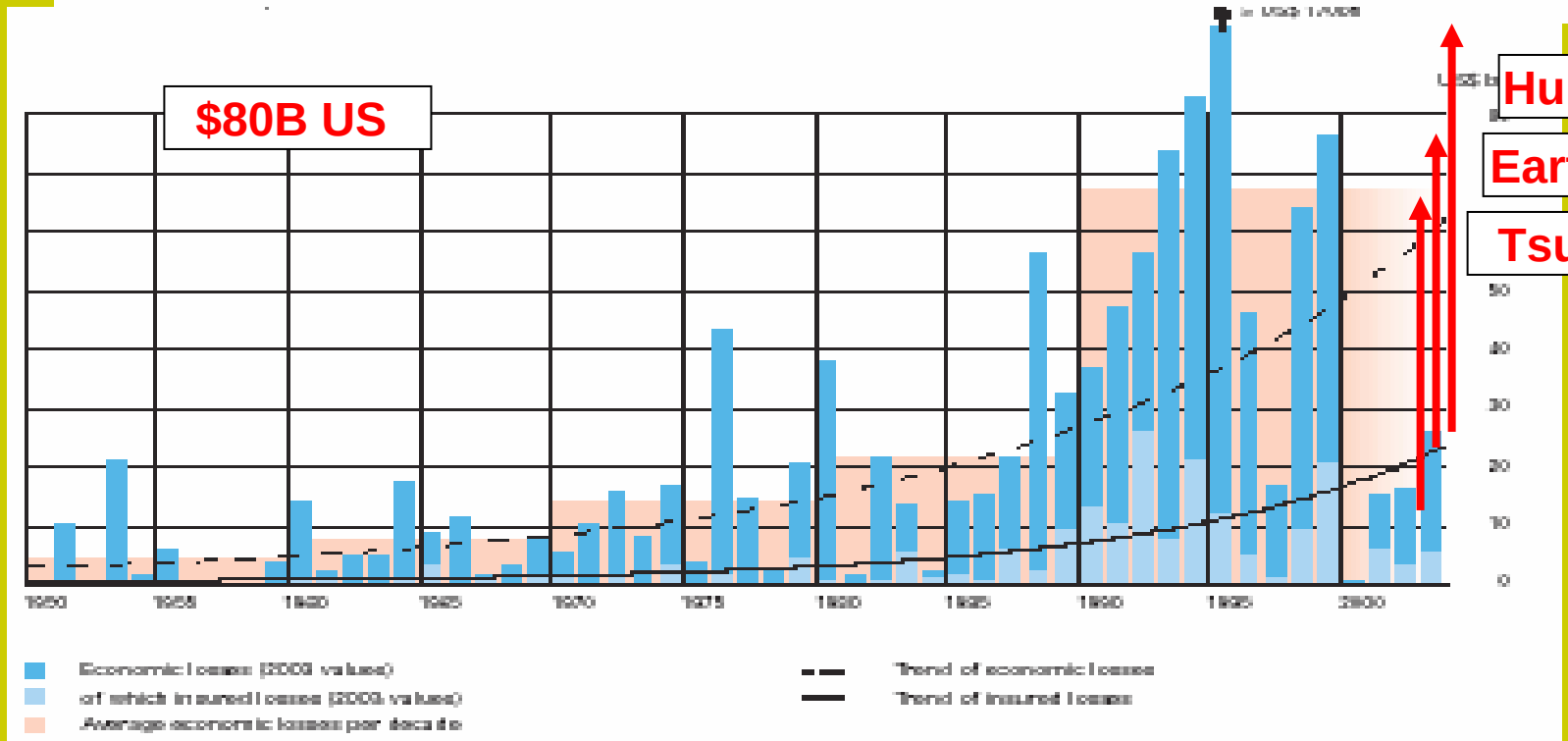
Distribution of natural disasters: by origin
(1900-2003, by decades*)

65 99 200 280 470 PER YEAR

	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2003	Total
Hydrometeorological	28	75	56	74	128	280	511	795	1575	2139	1444	7105
Geological	36	26	32	38	53	58	94	128	234	283	152	1134
Biological	5	12	10	3	3	3	40	65	167	351	297	956
Total	69	113	98	115	184	341	645	988	1976	2773	1893	9195



Estimated total loss of $140B US in 2004 due to natural disasters

Global Impacts of Natural Hazards

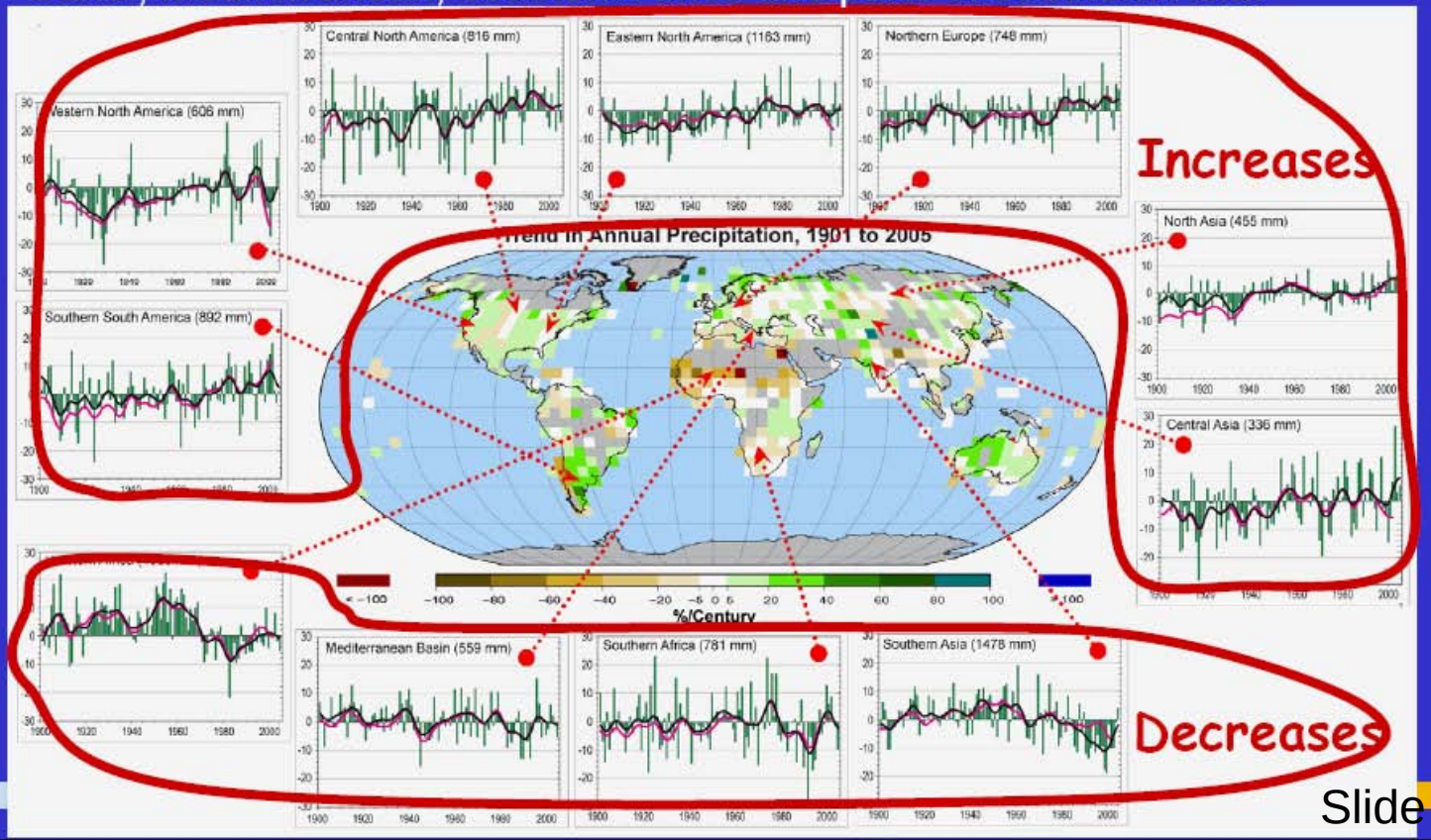
(Slide from Gordon A. McBean)

- Does this increase in disasters from the Environmental hazards a signal of increased global **vulnerability** to environmental hazards?

IPCC Assessments point to a link between Climate change and changes in the pattern of hydro-meteorological hazards

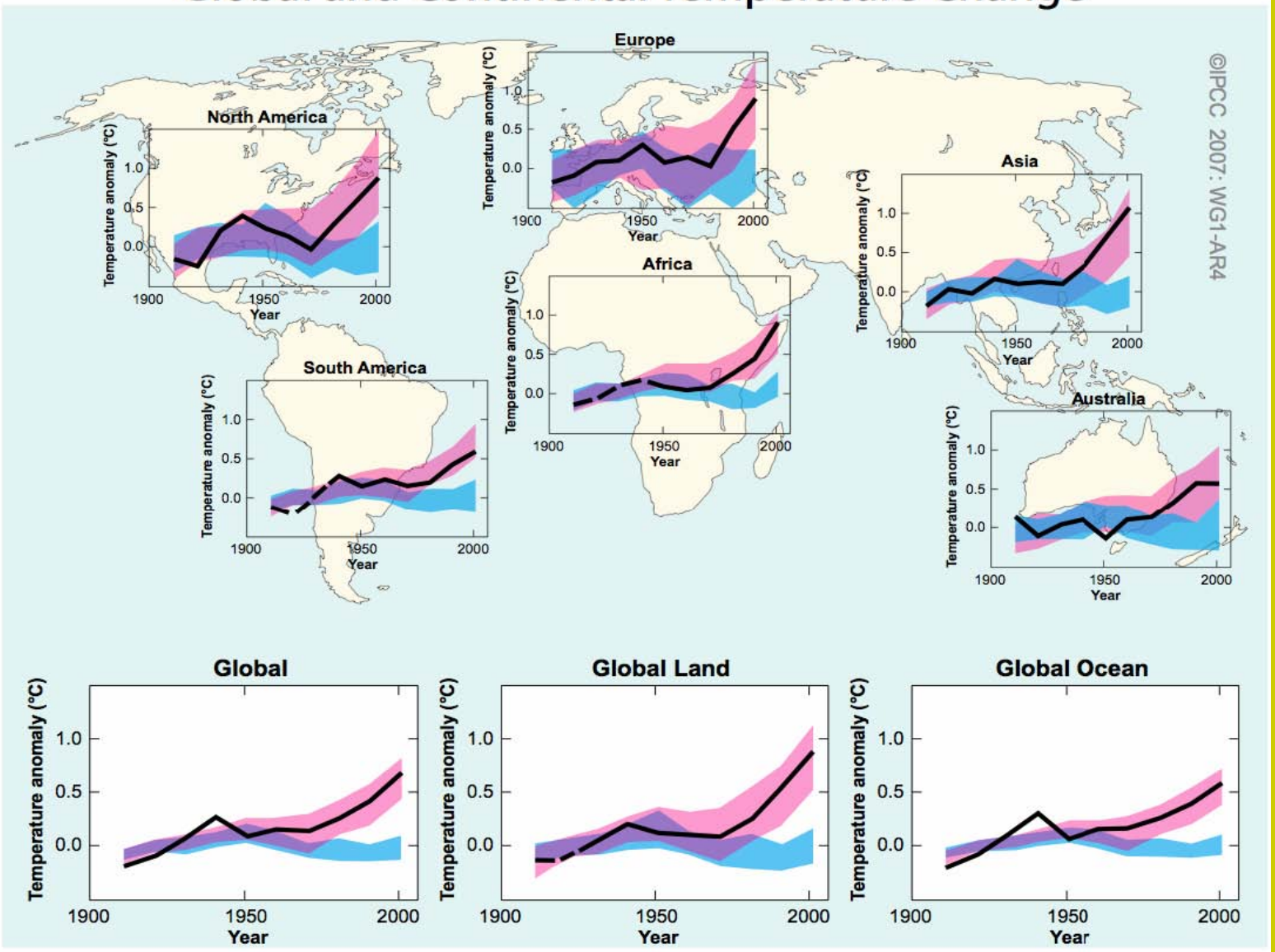
Precipitation (rain & snow) is variable – but there is evidence for systematic change

Precipitation has increased in eastern parts of North and South America, northern Europe and northern and central Asia – and decreased in the Sahel, Mediterranean, southern Africa and parts of southern Asia.



IPCC,2007

Slide from C. Justice



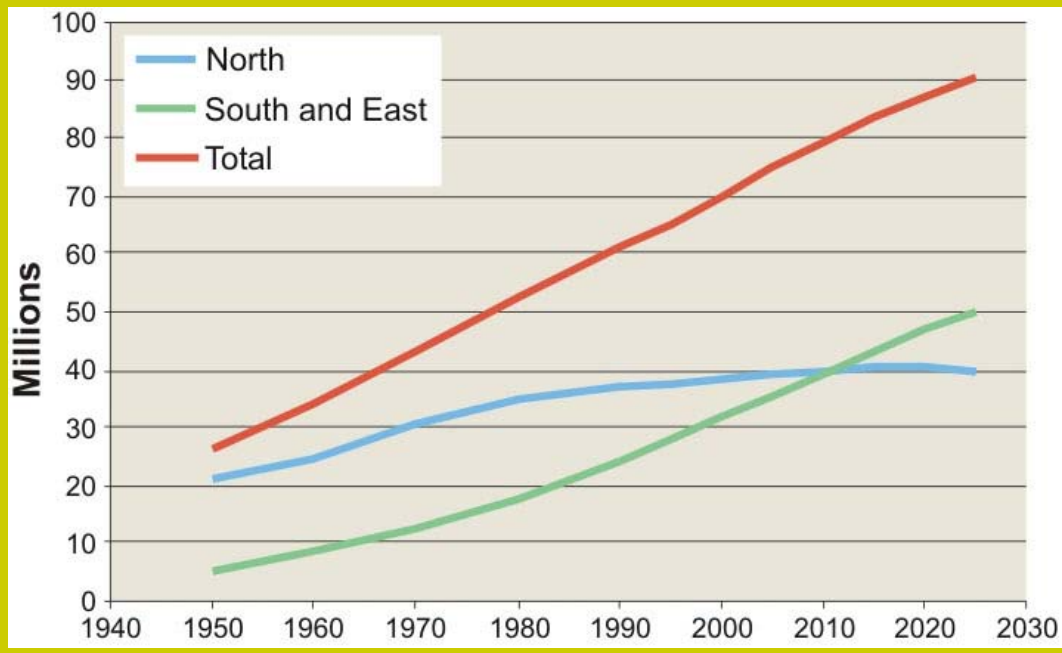
Observed continental- and global-scale changes in surface temperature: Blue = natural: Red = due to anthropogenic forcing: Black line = Decadal averages of observations (1906–2005) (***4th IPCC WGI SPM***)

Fires in Greece 2007: Loss of Life, Mass Evacuations, Loss of Property, Economic Costs

Slide from Chris Justice

Land Use Changes in the European Mediterranean have had a role too:

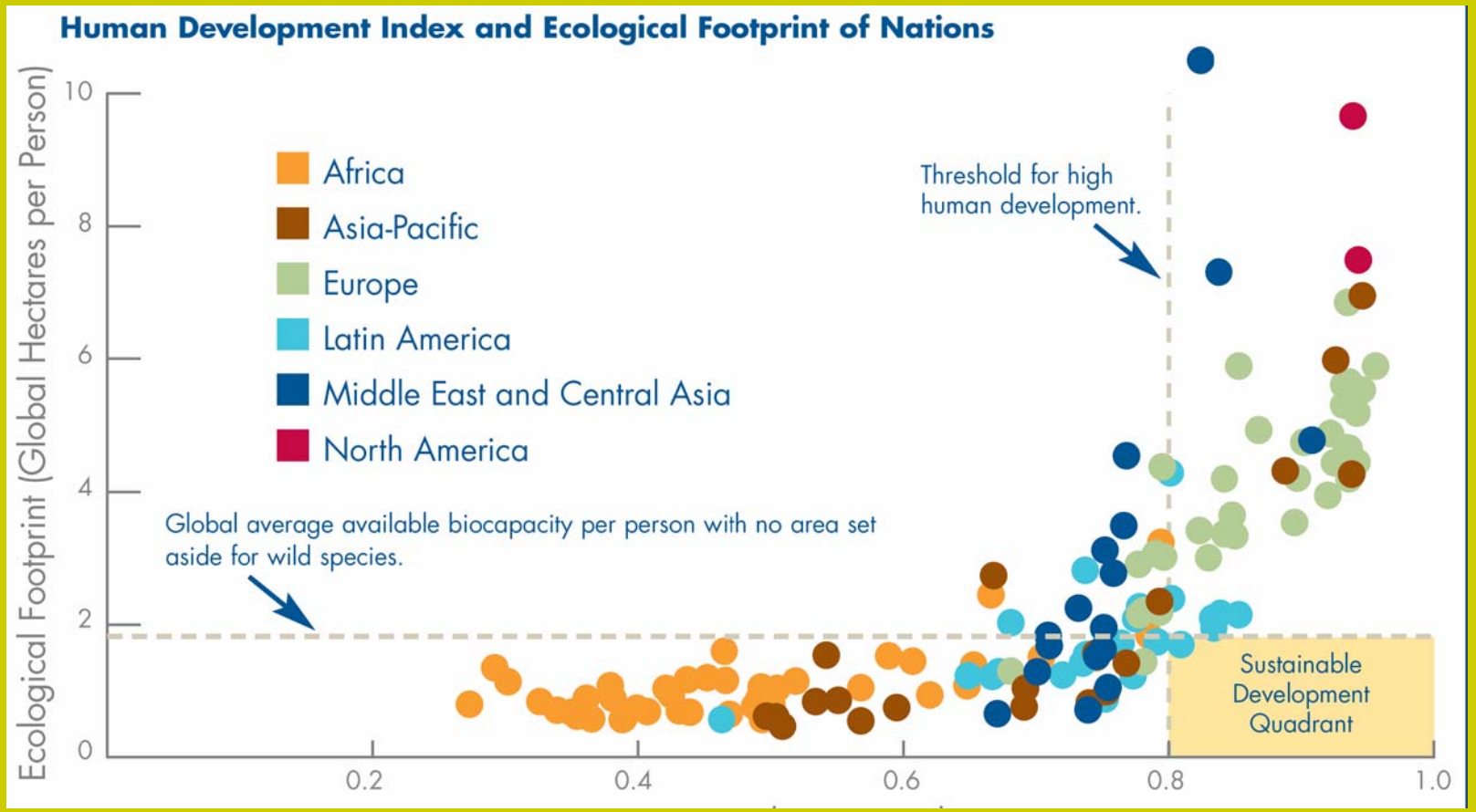
- Socio-economic changes during the last decades are closely reflected in changes in fire occurrence
- Rural depopulation is increasing land abandonment and consequently fuel accumulation
- Tourist pressure
- Urbanization in coastal areas



Population in coastal cities 1950-2025, Plan Bleu 2001

(Slide C. Justice, UMD)

Level of development: Using the Human Development Index & Ecological Footprint of Nations (2002 data): The lower right quadrant is where the minimum requirements for sustainability occurs



From Africa's Ecological Footprint FactBook – **No country meets the sustainability requirements**

There is a strong link between development, equity and disasters proneness

- Over half of disaster deaths occur in low human development countries even though only ~11% of people exposed to hazards live in these areas.
- Africa has the largest number of low human development countries, more than 30 in 2007
- Such countries suffer greater economic losses from disasters relative to their GDP e.g.:
- Mozambique floods - 1999/2000 - resulted in decrease in GDP growth rate from 10% to 2%

E.g.: While hazards such as fire are driven by weather - in Africa poverty and low technology development results in high reliance on fire for various livelihood activities

Due to low development- resources to handle large fire outbreaks, monitor & manage fire in general are limited in Africa

Slide by Cheikh Mbow, 5th SAFNet meeting 2004

- Most of these fires mostly damage natural systems – and as result they are not highly publicized

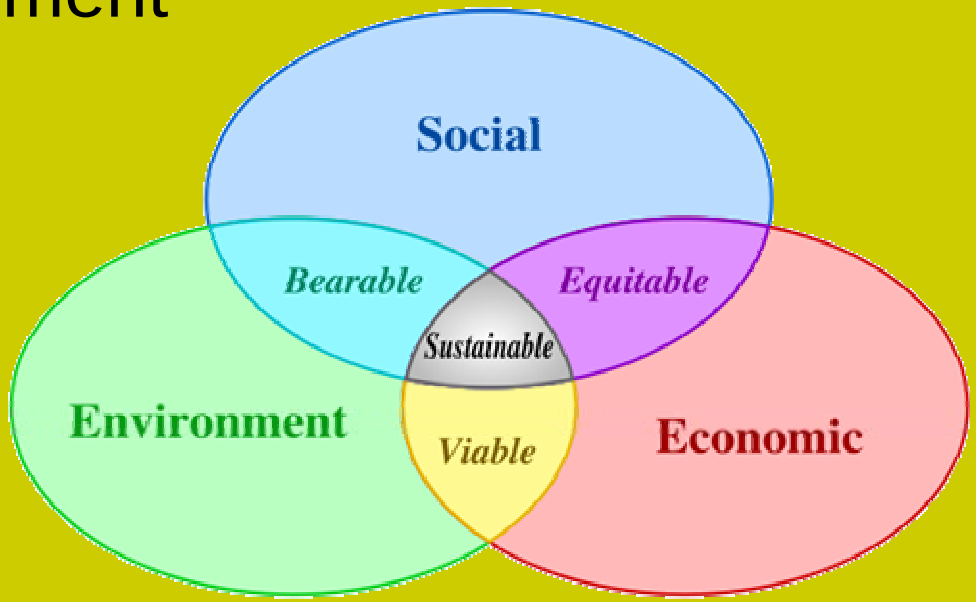
- – But in the long run they form some of the invisible erosive systems on livelihoods - increasing vulnerability to other hazards

HDR 2007/8: **Large scale & or frequent disaster events in developing countries**
Cause greater damage than immediate impacts that make headline news

- i.e. They impede recovery in interim periods
- Governments & donors tend to fund disaster relief & rehabilitation by reallocating resources from existing development programmes - creating a multiplicity of negative effects, further constraining & reversing development & deepening vulnerability.

- **Hyogo Framework for Action (HFA):** a shift from managing disasters to reducing disaster is imperative.

This requires development policy frameworks that aim to address the three pillars of sustainable development



UN 2005 World Summit

It calls for the Implementation of the HFA and For addressing the MDGs

The needs for sustainable development leading to **disaster reduction** include:

- Capacity for informed governance & management at all levels based on:
- A clear understanding of the biogeophysical conditions & interactive process of human development to will help
  - **facilitate integration of development & disaster risk reduction & minimize cases of maladjusted developments that enhance vulnerability even to the moderate environmental hazard.**

Capacity building in the context of a disaster reduction is defined:

REUTERS/Yiorgos Karahalis,08/07

- As a combination of all the strengths and resources available within a community, nation or region **that can reduce the level of risk, or the effects of a disaster.**
- It must include physical, institutional, social or economic means, as well as skilled personal or collective attributes such as leadership and management from local to international level.

Capacity building is a cross-cutting theme in all the three objectives of the the ICSU Integrated Research on Disaster Risk (IRDR) P**rogramme & is formed by three objectives:**

- **Objectives of the capacity building theme are :**
- **To map capacity for disaster reduction**
- **To build self-sustaining capacity at various levels for different hazards**
- **To establish continuity in capacity building**

Mapping capacity in disaster reduction includes

- Institutions and coordination; effective governing systems; equity; physical infrastructure, human, financial & technology resources; indigenous knowledge systems

(AFP/Haris Karamaneas 24/08/07)

AIACC Limpopo climate change project, 2005

And include past & ongoing success stories in capacity building in disaster reduction

Mapping capacity allows us to establish:

AIACC Limpopo climate change project, 2005

- **The strengths and gaps in available capacities for different risks in different geographic locations and social systems i.e.:**
- Why do we have differences in capacity for the same hazard,
- ***What are the strengths of communities or geographical areas with high disaster reduction capacity***
- what are the sources of vulnerability in terms of capacity for the weak capacity areas and societies?

Sub-objective 2: A key step in developing self-sustaining capacity for disaster reduction

- Is to identify & develop the human & societal infrastructure needs for integrating disaster risk reduction into development agendas

Recognizing that these needs will vary across regions exposed to the same & or different hazards

Consider mechanisms for a capacity-enabling environment ***e.g. Measures for institutional commitment to the development of activities for which human resources have been developed***

Self-sustaining capacity building will need to consider that:

- There are temporal and spatial variation in vulnerabilities such that exposure to the same hazard can have vastly different social consequences in different countries, regions and situations, e.g. developing vs developing world; urban vs rural areas; low income vs high income groups etc

Sub-objective 3: To establish continuity in capacity building

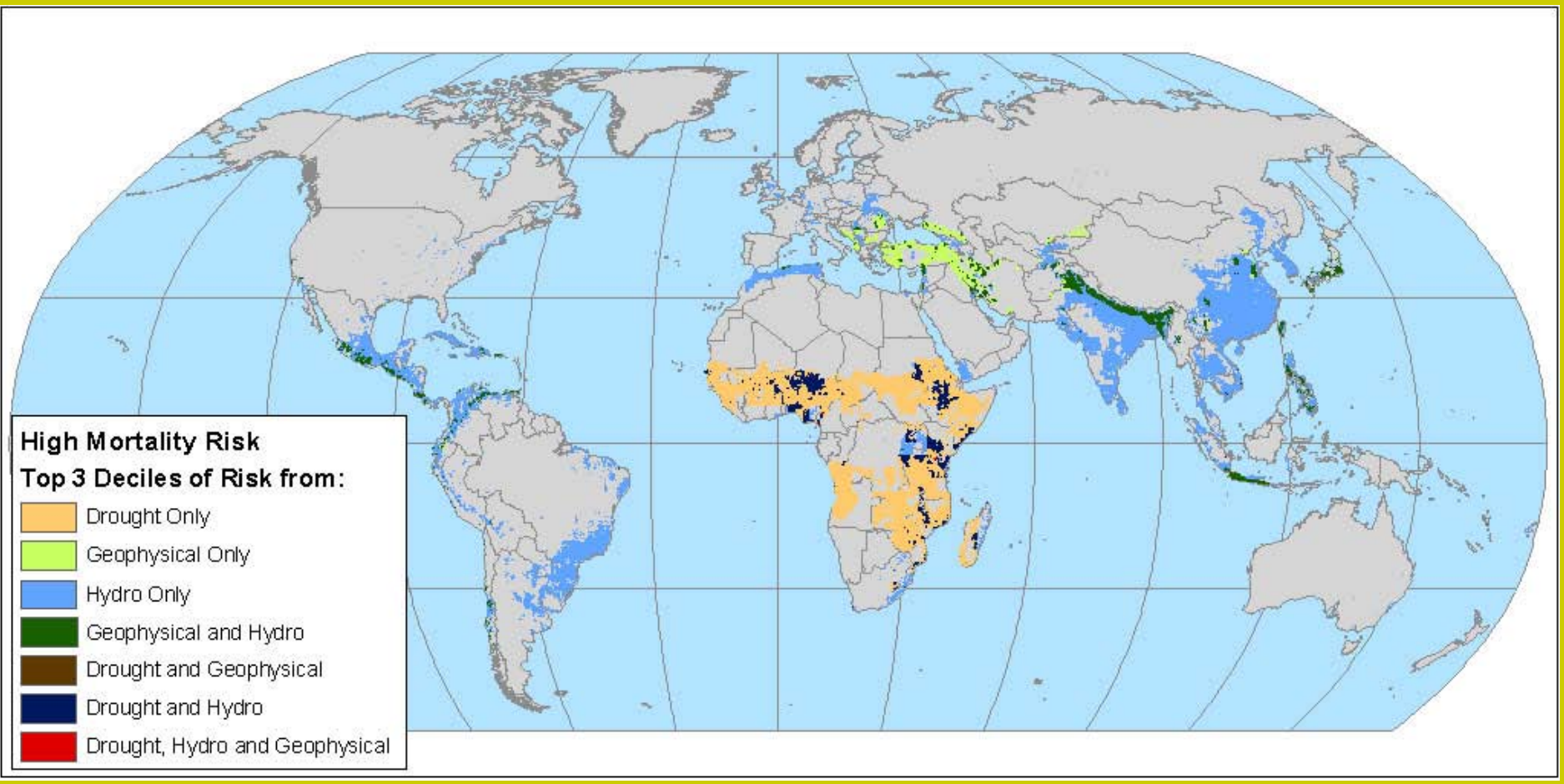
- The drive for capacity building should be within the region/country/community initiatives
- Multinational capacity-based initiatives will require long-term programmes –
- **A global network of Long-term hazards research** will help to enhance and nurture capacity building for different hazards at various levels.
- ***Wide consultation with e.g. ISDR and other appropriate organizations is critical in building the foundation for a self-sustaining capacity to disaster reduction***

Disaster reduction has not been a priority In Africa

- There has been greater focus on reacting to emergencies
  - Feeding continuity of a vulnerable system
- **Africa still lacks far behind in terms of provision of information required for disaster risk reduction.**
- ***Most critical is the lack of capacity in terms of human, institutional & material resources for a range of disaster reduction needs including:***

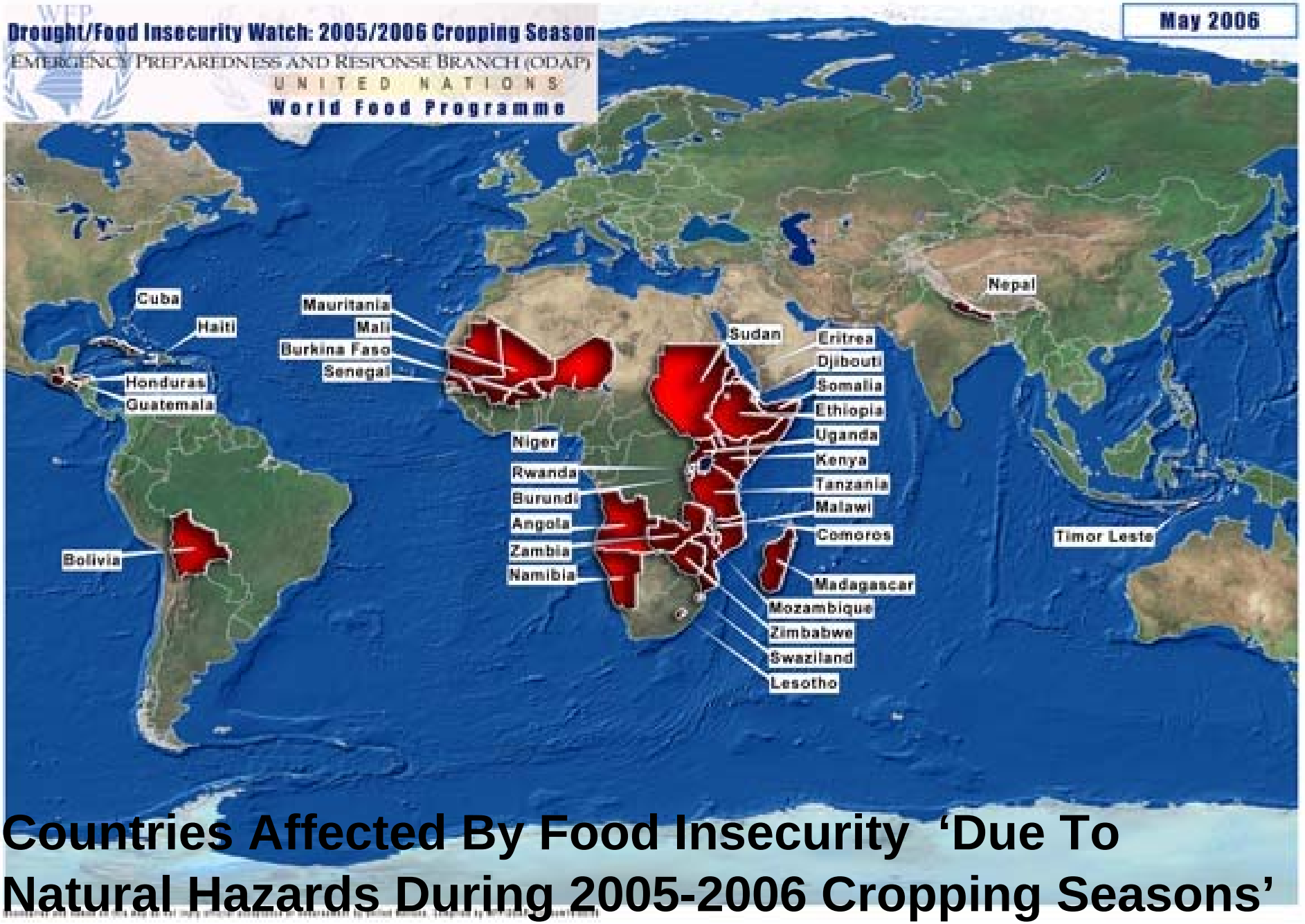
  Characterizing risk, identifying hazards, exposure levels and vulnerabilities, & developing early warning systems & integrating this information in national & regional development goals.

Hazards and disasters are poorly documented over Africa



(Dilley et al., 2005, Natural Disaster Hotspots: A Global Risk Analysis, World Bank).

In general: Drought & combinations of drought and hydro-meteorological hazards dominate both mortality and economic losses in Sub-Saharan Africa



Countries Affected By Food Insecurity 'Due To Natural Hazards During 2005-2006 Cropping Seasons'

ICSU Regional Office for Africa (ROA)– based in Pretoria South Africa has produced a Science Plan on: **Natural & Human induced Hazards & Disasters in Sub-Saharan Africa**

- The program covers hydro-meteorological and Geophysical hazards
- The ICSU ROA Science plan proposes a multidisciplinary, inter-institutional & multi-sectoral programme linking disaster risk science with policy-making processes & outreach activities to develop a comprehensive long-term capacity over the continent.

The goal being to make science benefit society:

- Facilitate exchange of scientific information & sharing of ideas across borders.
- Inform on risk of disasters and provide guidance to policy makers and governments.
- *Improve integration of risk reduction into development, humanitarian policy & planning for sustainable development.*
- Support & build strong institutions in Africa for education and research at national & regional levels aimed at reducing natural & human-induced disasters
- Reduce vulnerability of the poor through building capacity and livelihood resilience to disaster risk**.**

In conclusion: The ICSU ROA disaster programme will help

- Support the implementation of the **Hyogo Framework for Action (HFA) and contribute in building the framework for addressing MDGs in Africa**
- The ultimate goal of the ICSU ROA initiative is to build a foundation that is required to use science to facilitate the development of socio-economic systems that are not hazard prone and have a capacity to absorb and recover from hazards.

- **This is a major challenge towards capacity building and the use of science in sustainable development in Africa.**