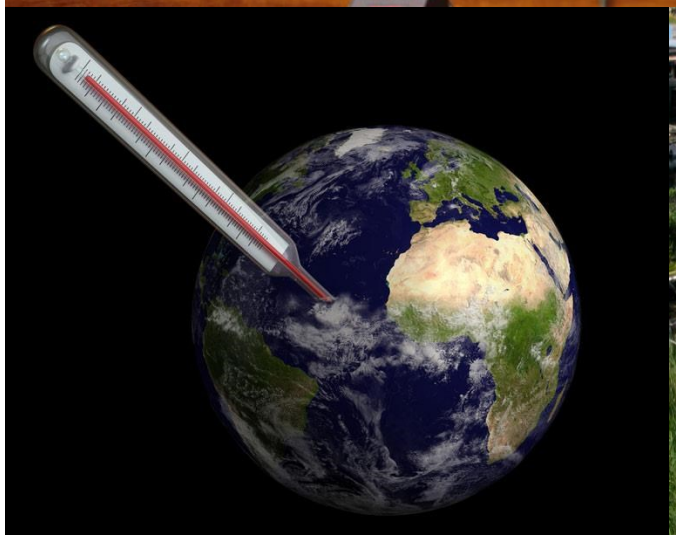
Water related disasters due to changing climate

THA 2015 International Conference on "Climate Change and Water & Environment Management in Monsoon Asia".
Bangkok, Thailand , January 28 - 30, 2015

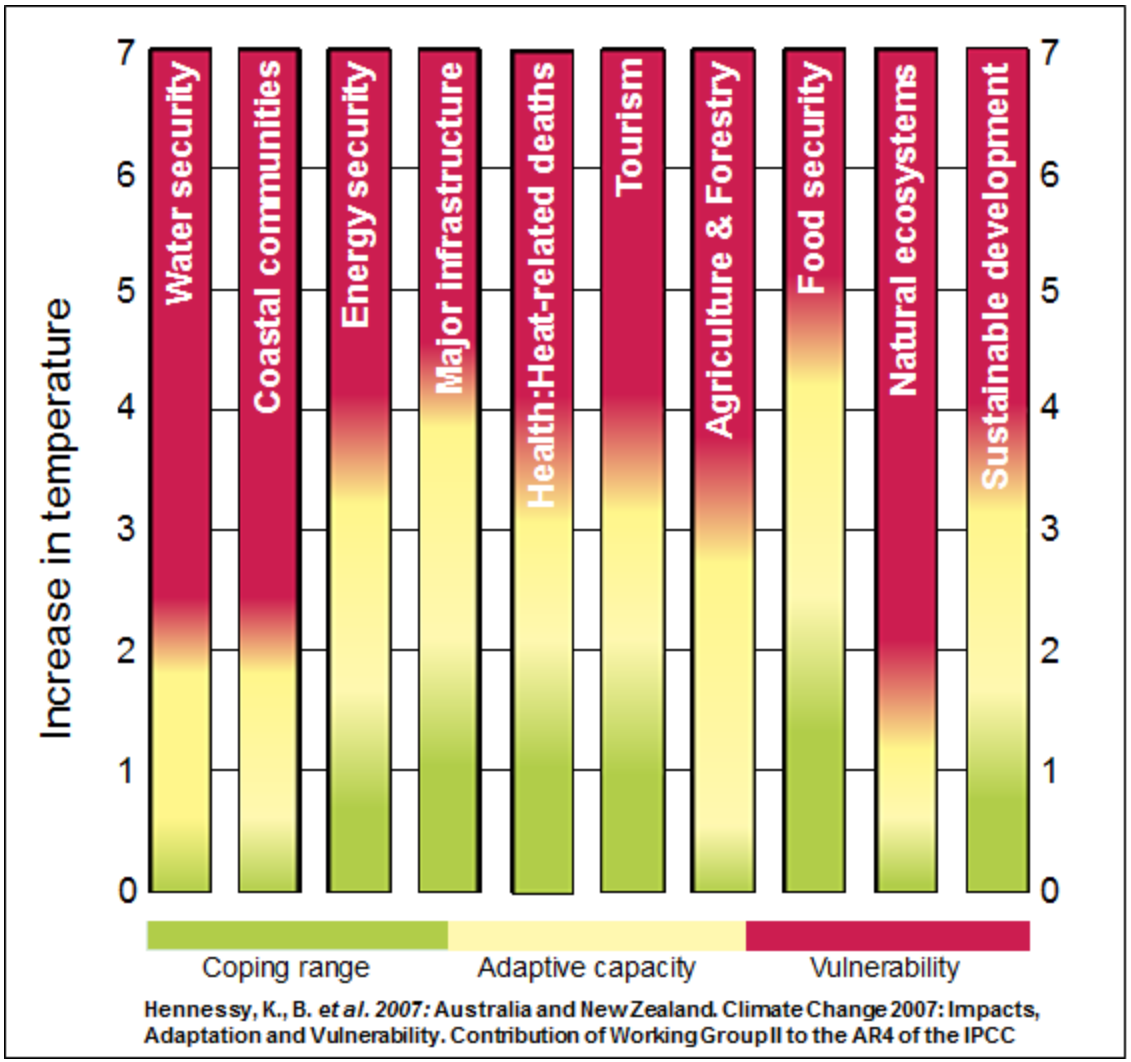
Dr. Gwang-Jo Kim
Director
UNESCO Asia and Pacific Regional Bureau for Education


CLIMATE
SUMMIT 2014
SECRETARY-GENERAL
PRESIDENT HOLLANDE



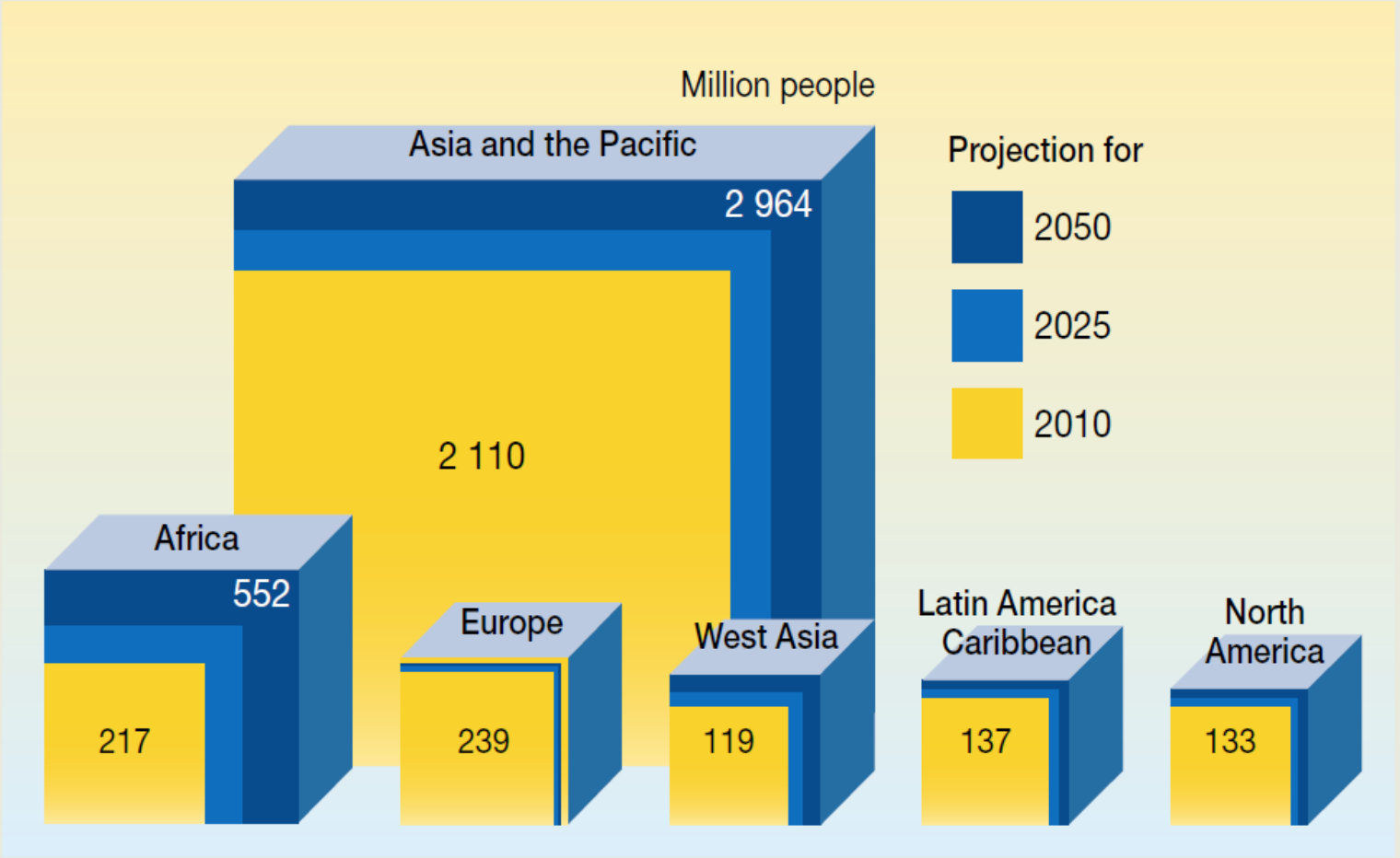

To the rest
Of the World Please
Could you Prepare
a Place for my
country to stay.

Climate change will affect everyone …



Hennessy, K., B. *et al. 2007:* Australia and New Zealand. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the AR4 of the IPCC

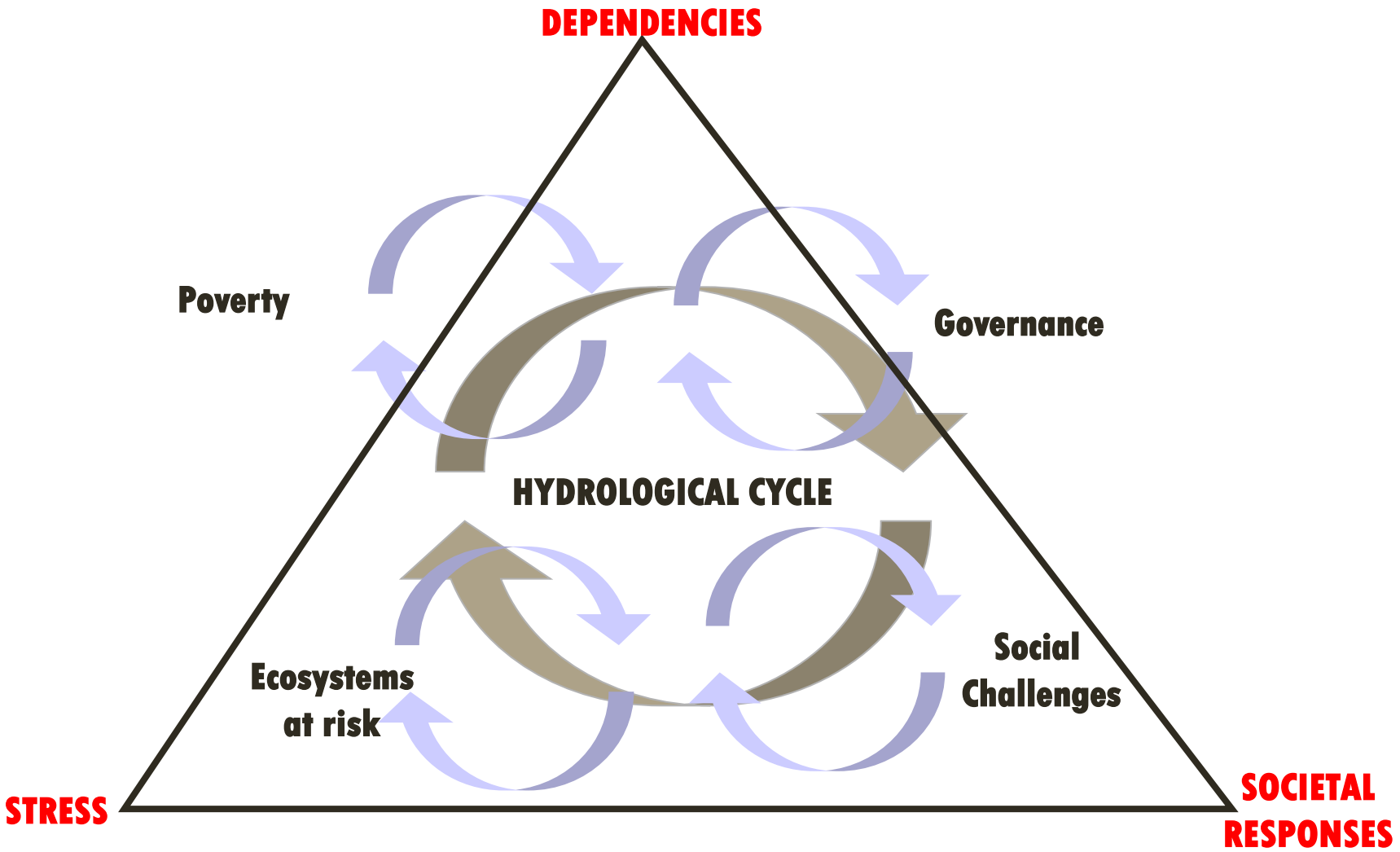
Population living in river basins where freshwater withdrawal exceeds 40 per cent of renewable resources



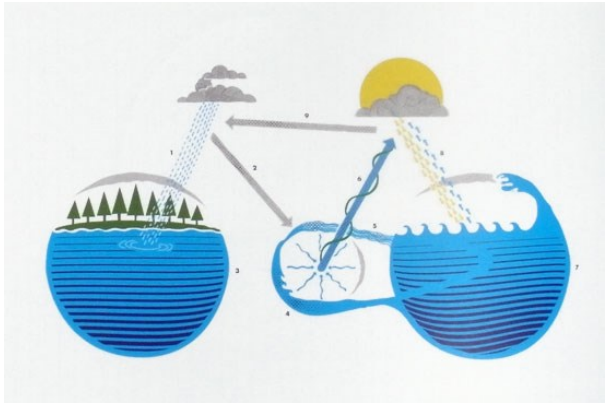
Population by region was calculated averaging the results forecasted by the scenarios of the GEO-4 report using the WaterGAP modeling.

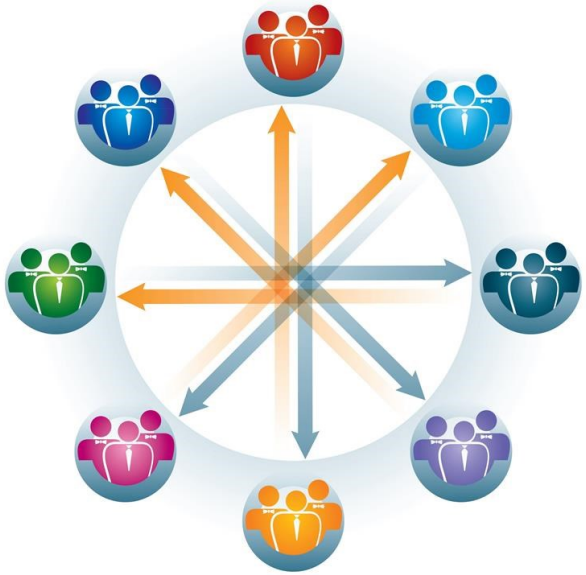
Source: Fourth Global Environment Outlook (GEO-4 report), UNEP, 2007.

Hydrological System




HAIYAN
Tropical Storm
Severe Typhoon
Super Typhoon
Myanmar
Laos
Thailand
Vietnam
Cambodia
Philippines
Malaysia
11 Nov
6:00 GMT
10 Nov
6:00 GMT
9 Nov
6:00 GMT
8 Nov
6:00 GMT
Source: Hong Kong Observatory



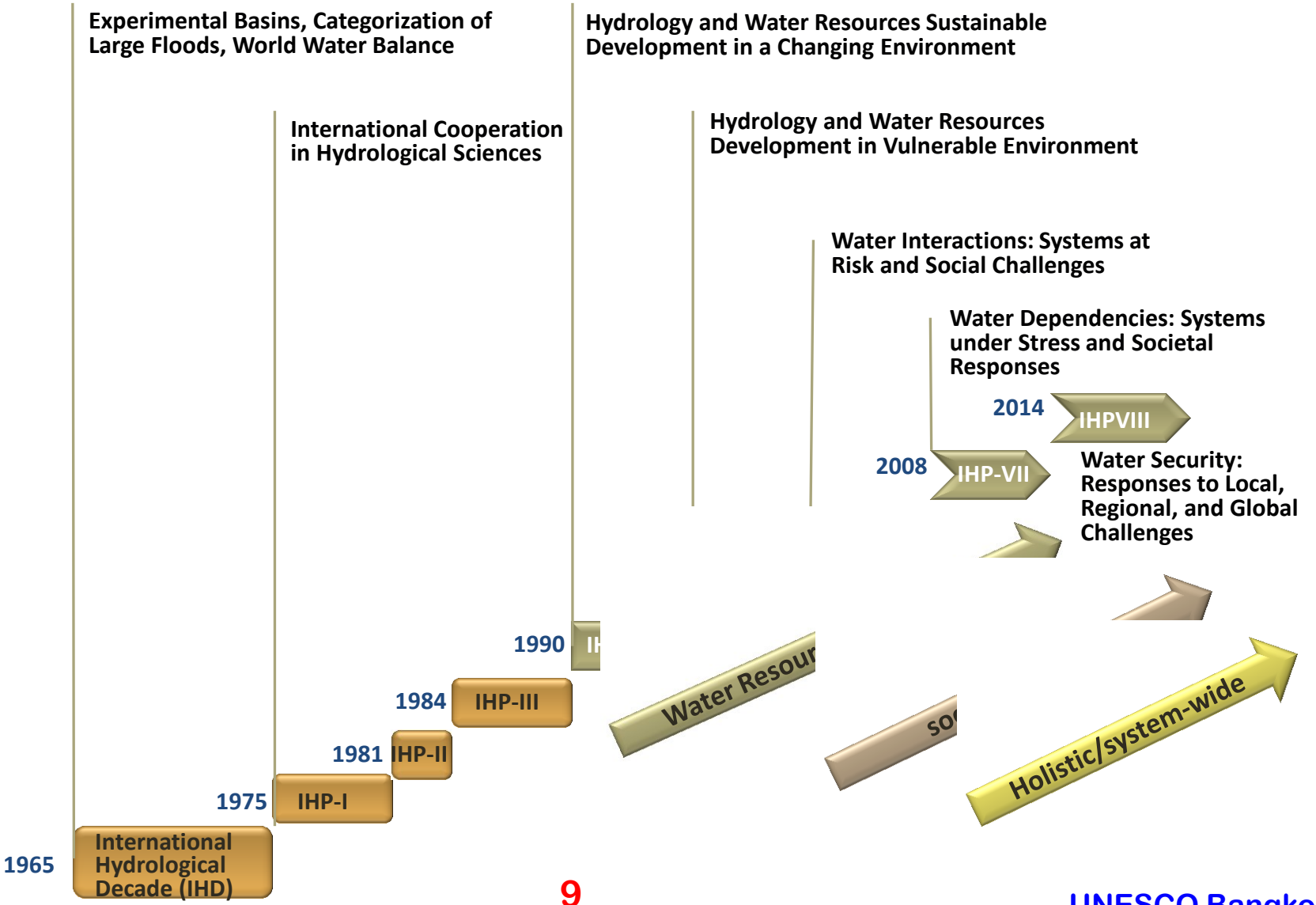


ASEAN Academic Networking in Water & Disaster Management and Climate Change

The UNESCO Water Family

- International Hydrological Programme (UNESCO-IHP)
- UNESCO-IHE Institute for Water Education
- World Water Assessment Programme
- 18 Water related Institutes/Centers under the auspicious of UNESCO
- 29 Water related UNESCO Chair Professors

Evolution of IHP: From Hydrological Science to Integrated Science, Policy, and Society

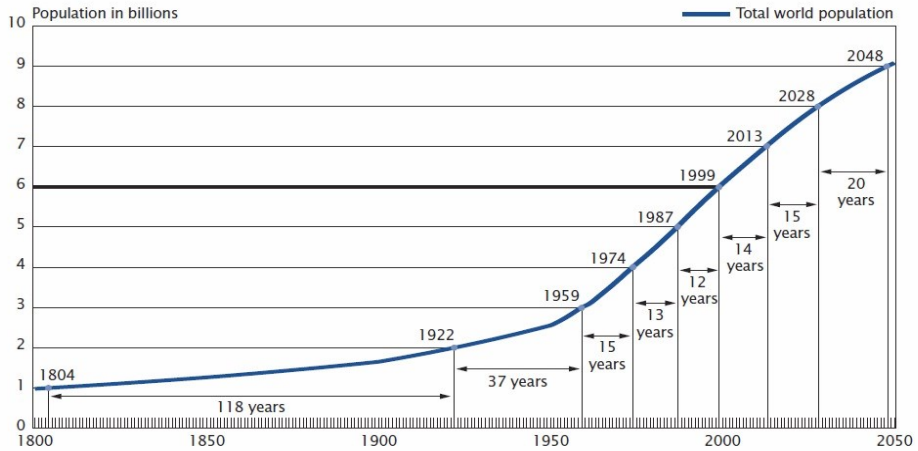


IHP-VIII 2014-2021

- Geo-Political Changes
- Technological Changes
- Population Growth and Life Style
- Climate Change

World Population Crisis

Figure 1.
Time to Successive Billions in World Population: 1800-2050
The sixth billion accrues to world population in record time!



Source: United Nations (1995b); U.S. Census Bureau, International Programs Center, International Data Base and unpublished tables.

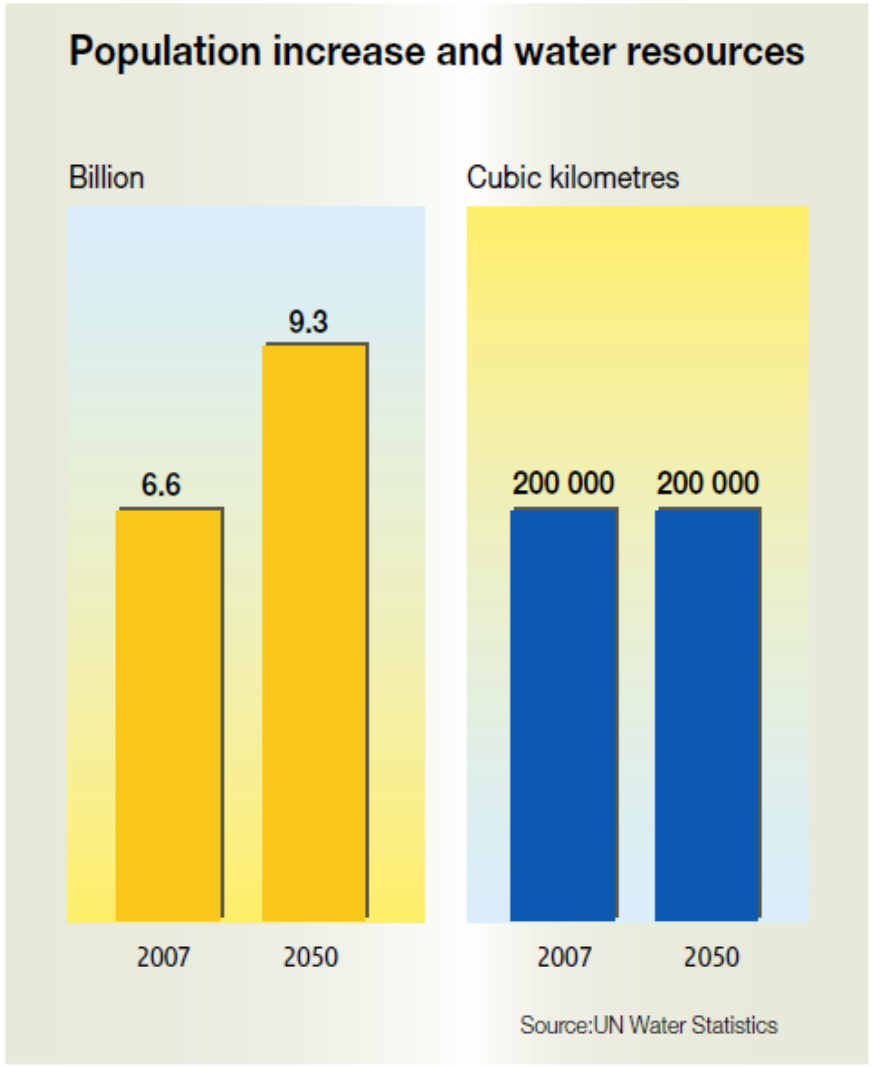


Figure 20: The world's water resources will not change, but the human population and its demands on supply are growing rapidly. Meeting these demands will require wise investment in how we use and reuse our water (UN Water Statistics).

UN WORKING AS ONE

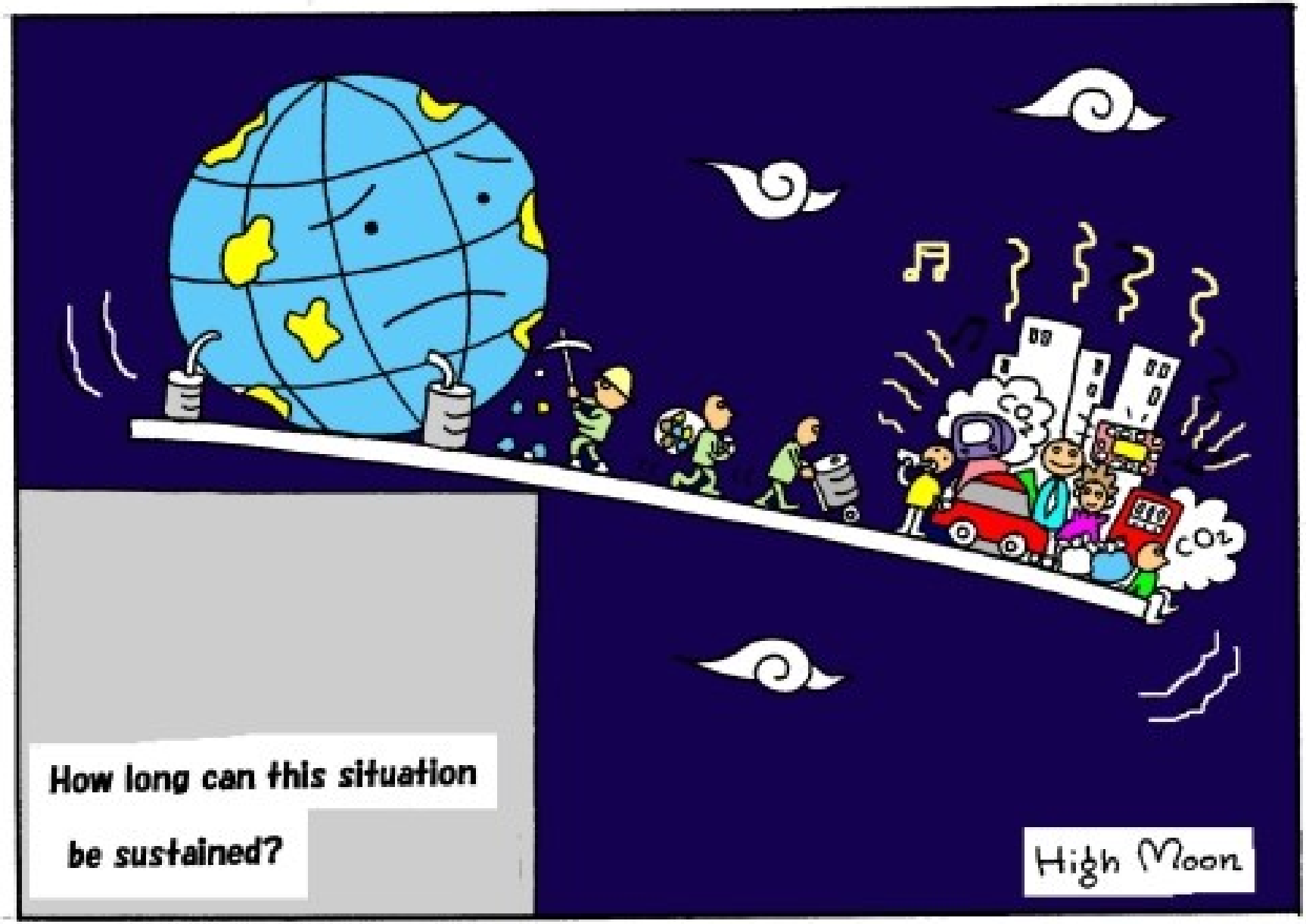
UNDESA, UNECA,
UNECE, UNECLAC,
UNESCAP and UNESCWA

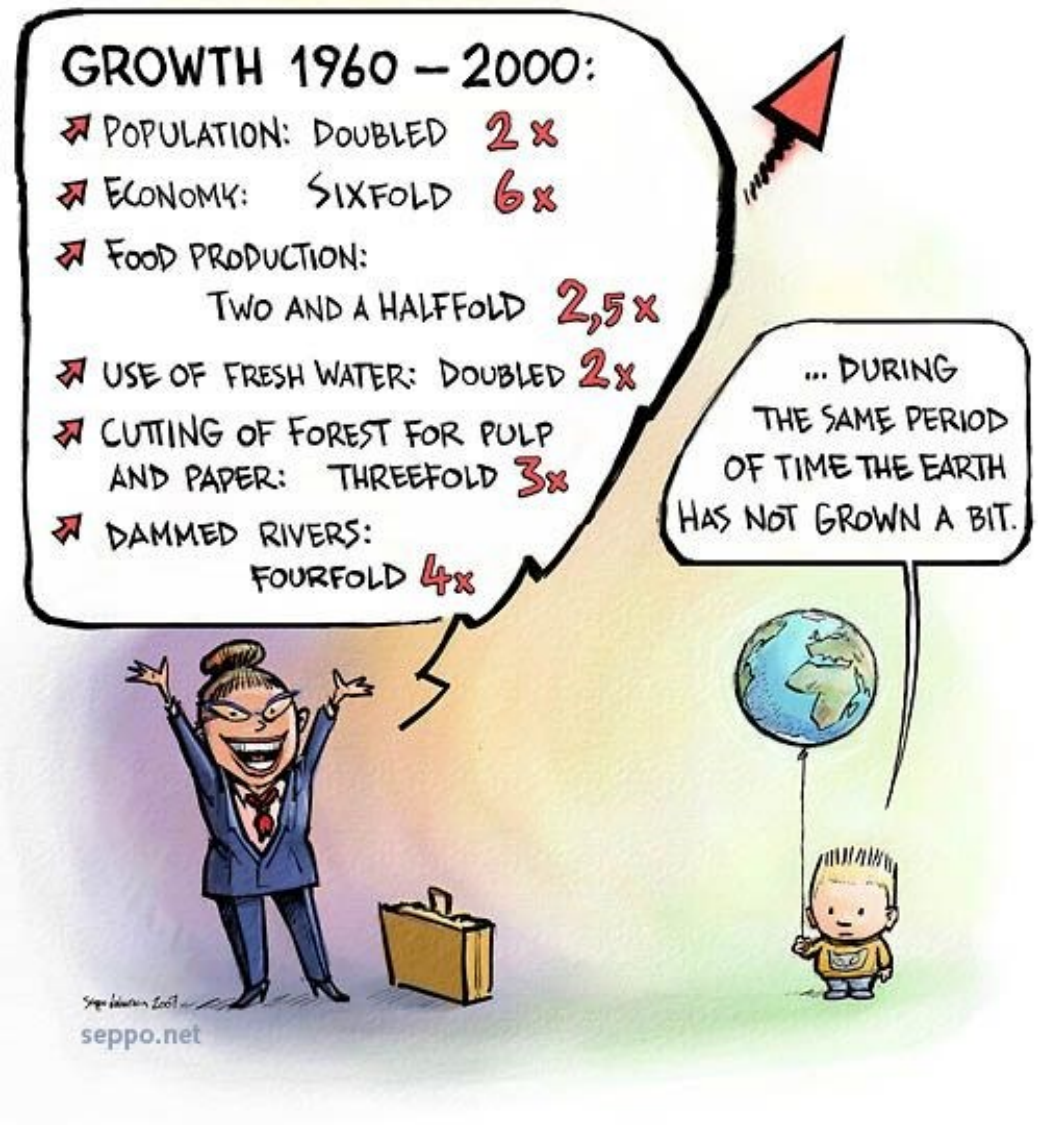
United Nations
Climate Change Secretariat

United Nations
Educational, Scientific and
Cultural Organization

International
Hydrological
Programme

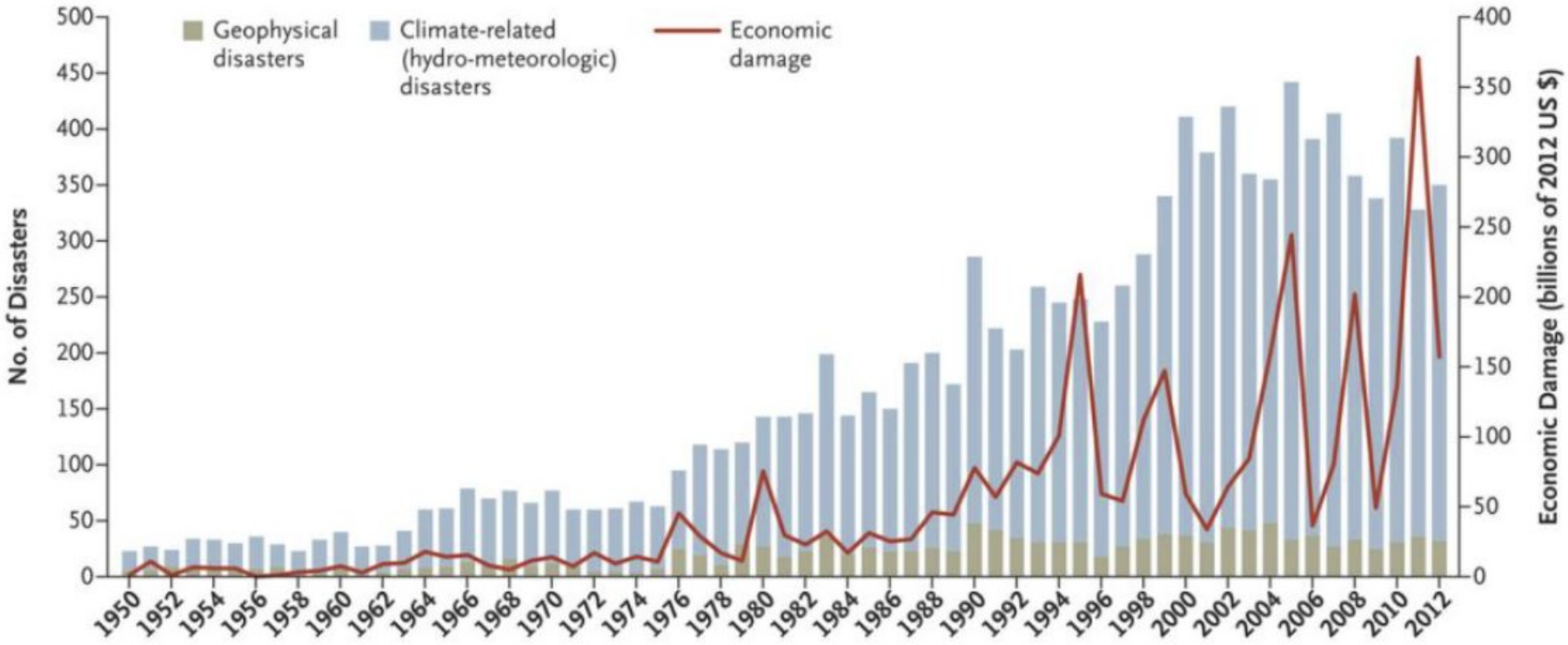
UNESCO-IHE Institute for Water Education (Delft, The Netherlands)

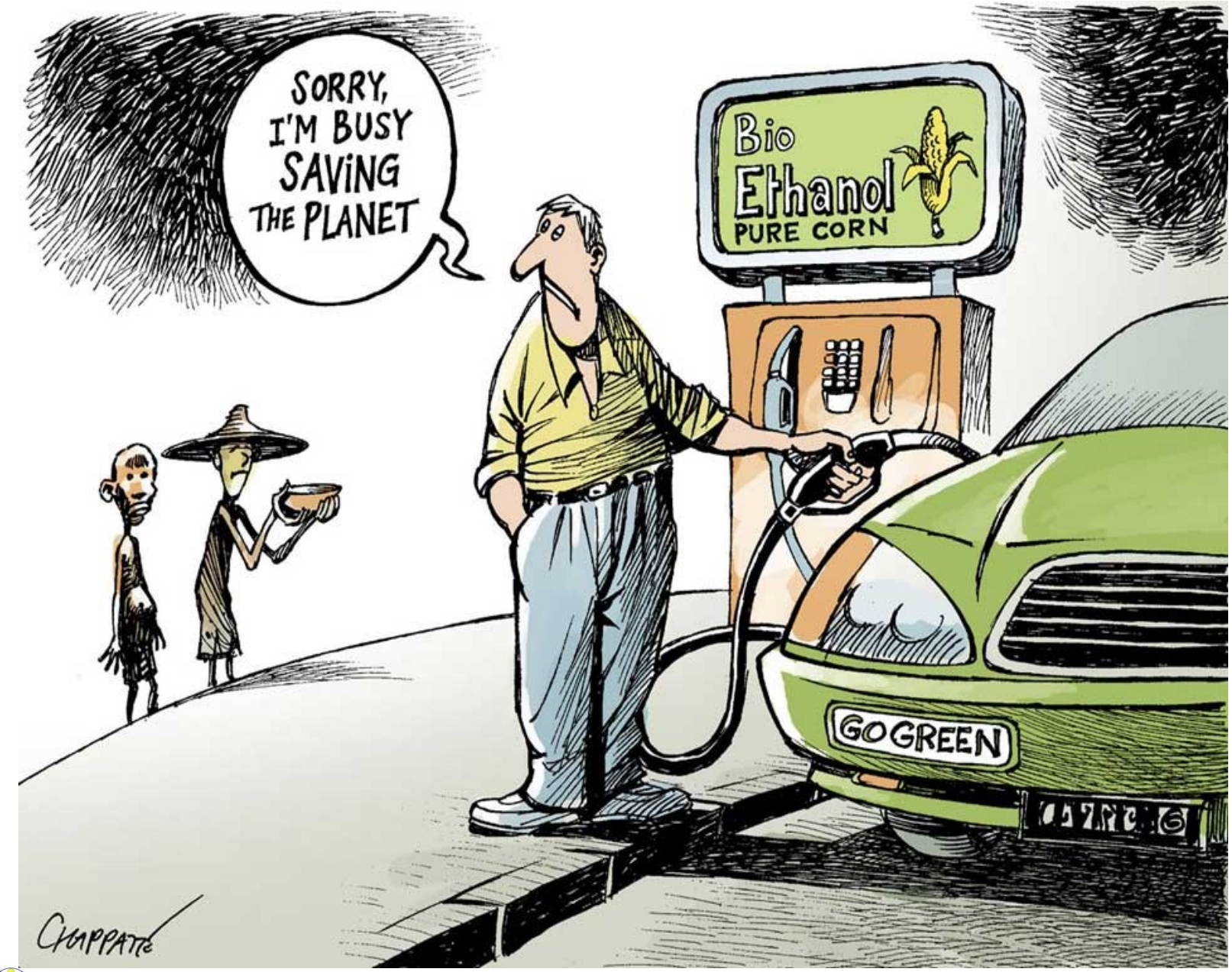

How long can this situation be sustained?
CO2
High Moon


GROWTH 1960 – 2000:
POPULATION: DOUBLED 2x
ECONOMY: SIXFOLD 6x
FOOD PRODUCTION: TWO AND A HALFFOLD 2,5x
USE OF FRESH WATER: DOUBLED 2x
CUTTING OF FOREST FOR PULP AND PAPER: THREEFOLD 3x
DAMMED RIVERS: FOURFOLD 4x
... DURING THE SAME PERIOD OF TIME THE EARTH HAS NOT GROWN A BIT.
seppo.net

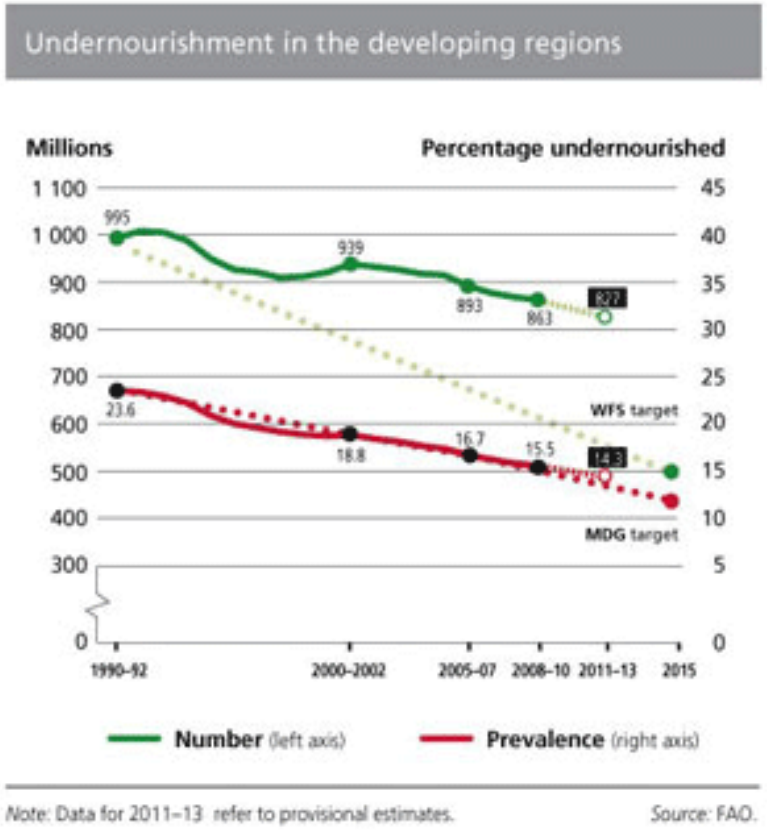

NATURAL RESOURCES
OCEANS

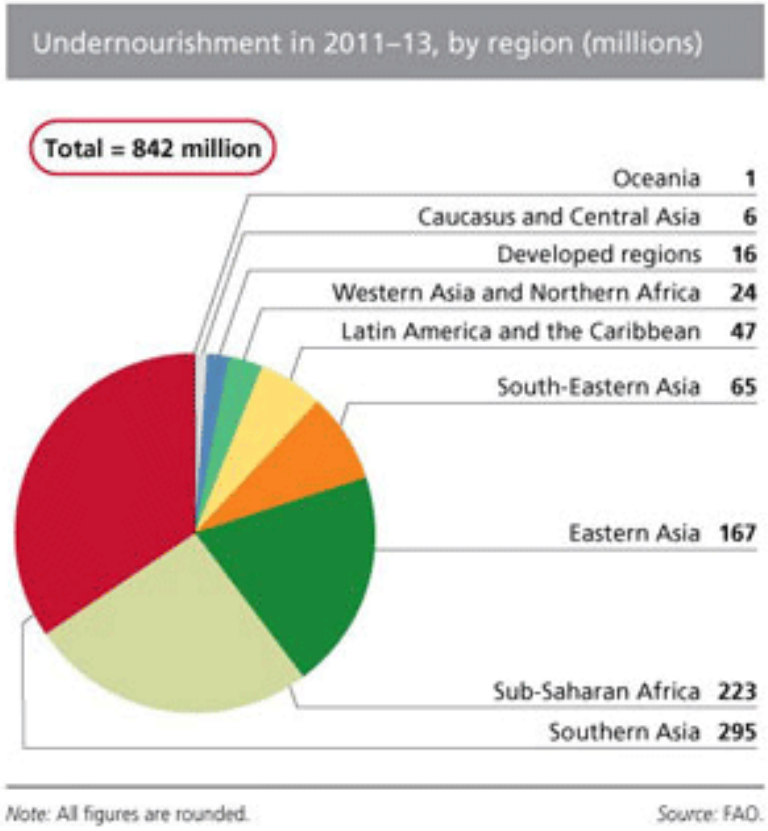
NUMBER AND TYPE OF NATIONAL DISASTERS, 1950-2012



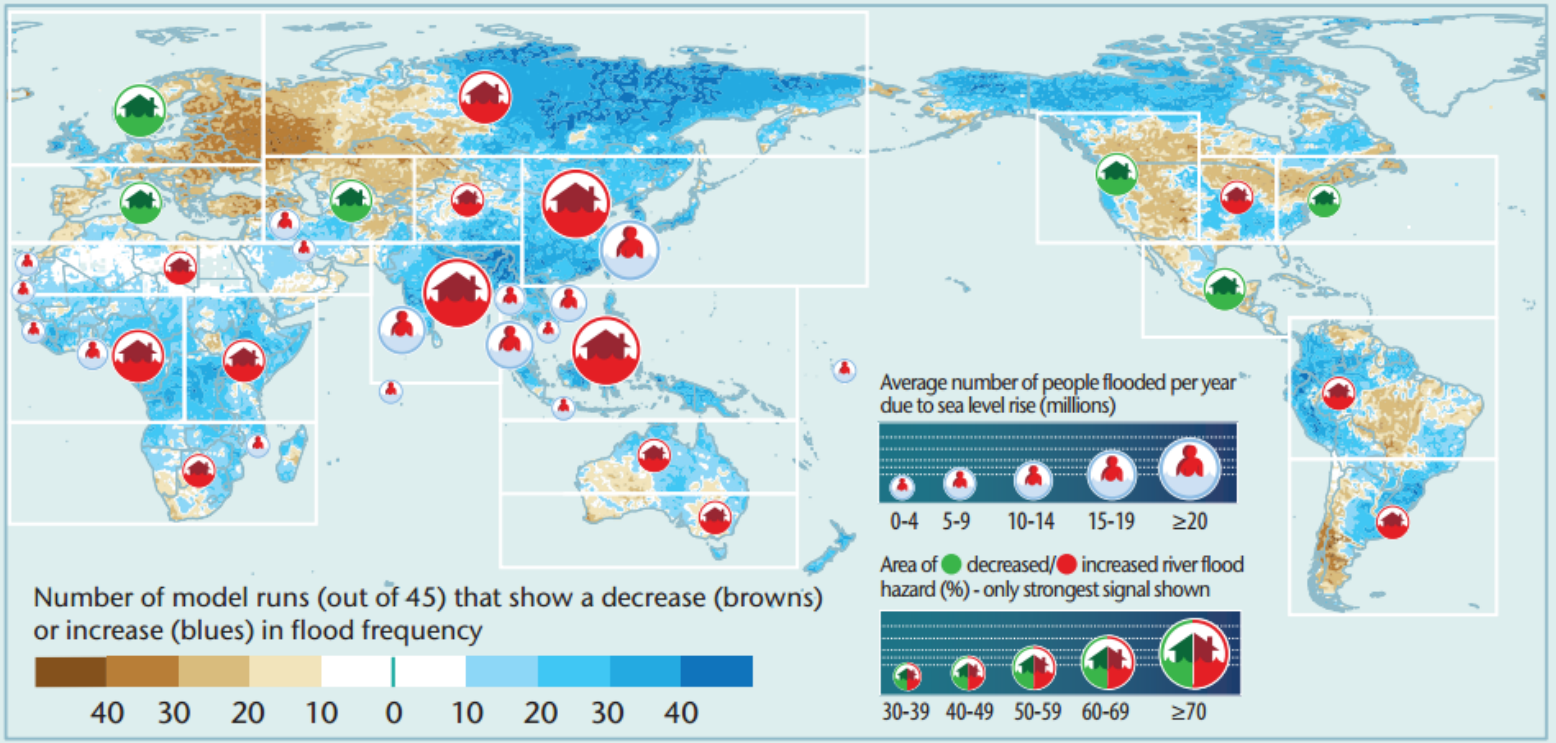

SORRY, I'M BUSY SAVING THE PLANET
Bio Ethanol
PURE CORN
GO GREEN
CHUMPATTE

Water is key to food security



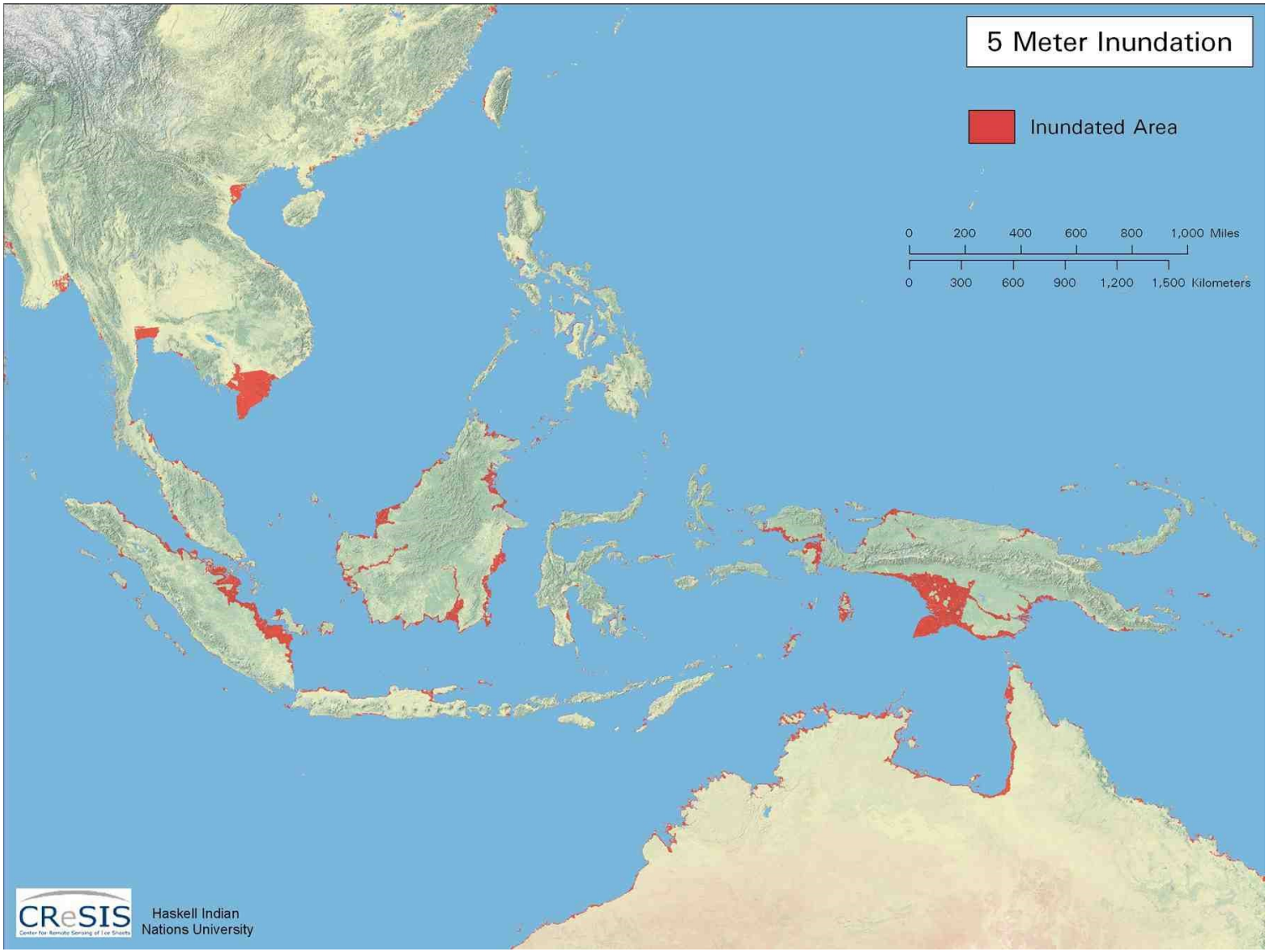


Future change in flood frequency and annual number of people affected by coastal flooding



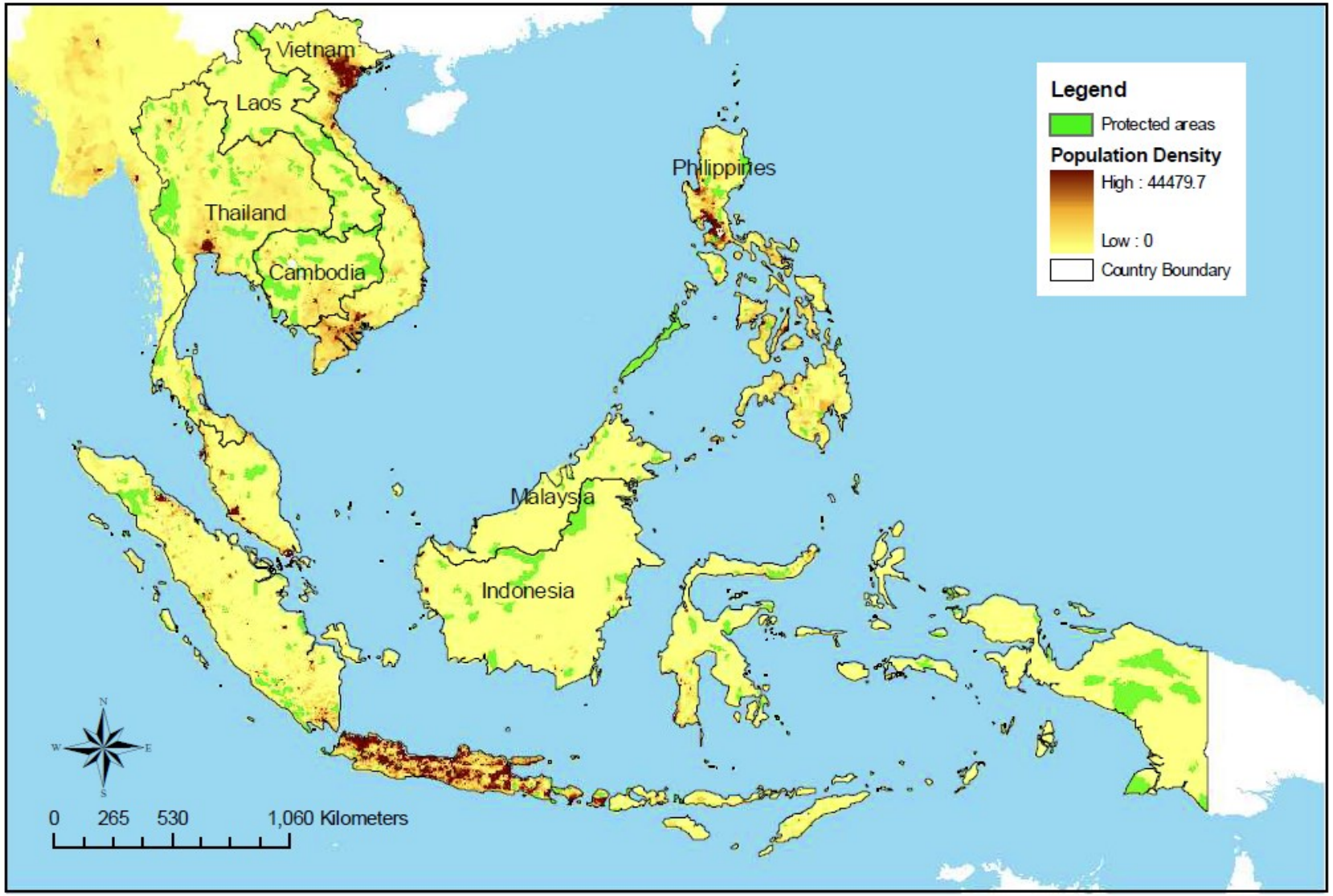
The flood icons show the percentage of the area within a region that is projected to have an increase or decrease in flood frequency, while the background spatial pattern shows the level of confidence across the models in this change (increase or decrease). Also shown are the average numbers of people projected to be affected by coastal flooding, assuming no additional adaptation, for a selection of the worst affected countries.

Source: Human Dynamics of Climate Change, by British Foreign and Commonwealth Office (FCO) and UK Met Office



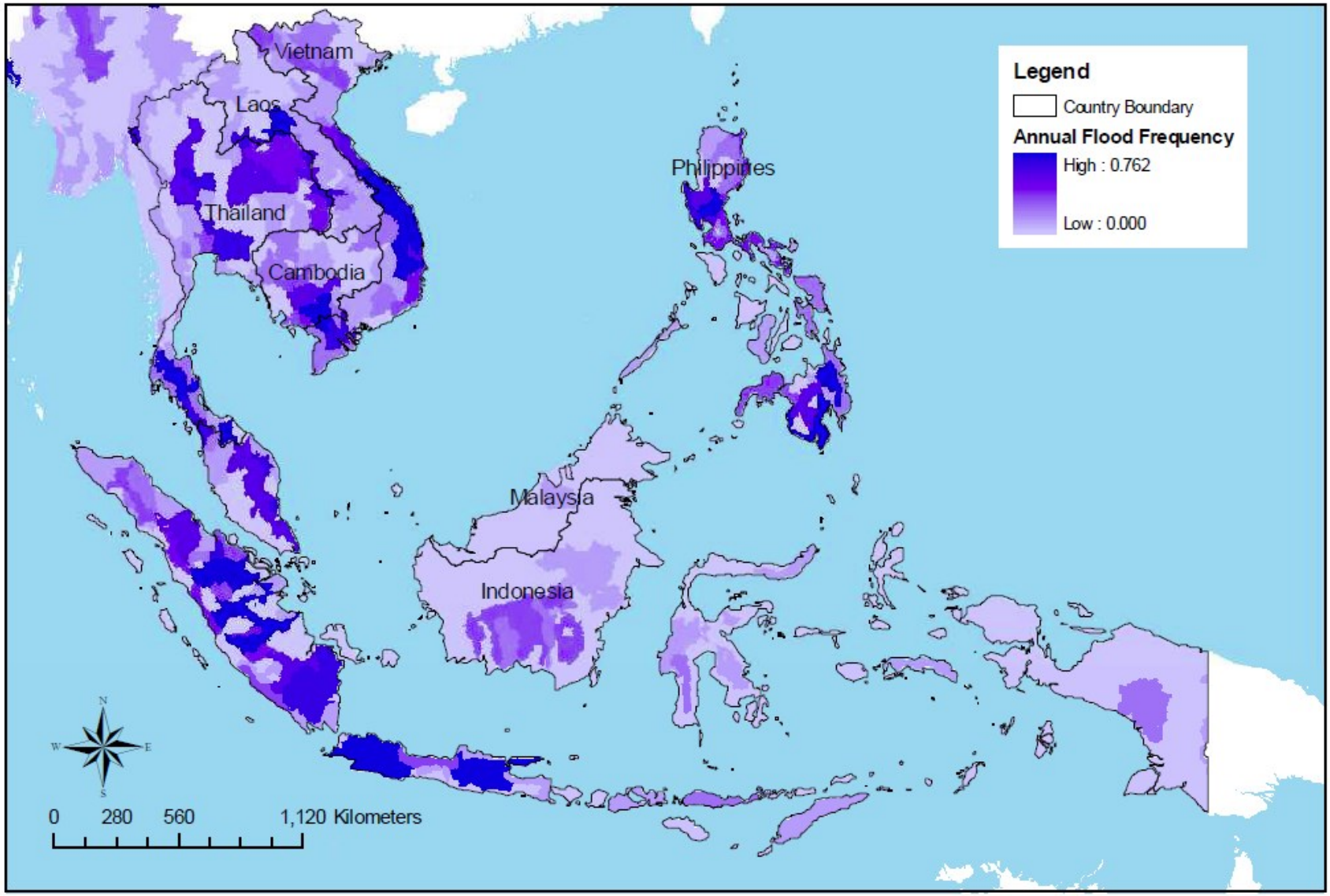
Projected sea level rise (5 m) for Southeast Asia. Population at risk in the inundation area is calculated at over 183.4 million people (Rowley et al. 2007)

Human (population density) and ecological (protected areas) sensitivity map of Southeast Asia



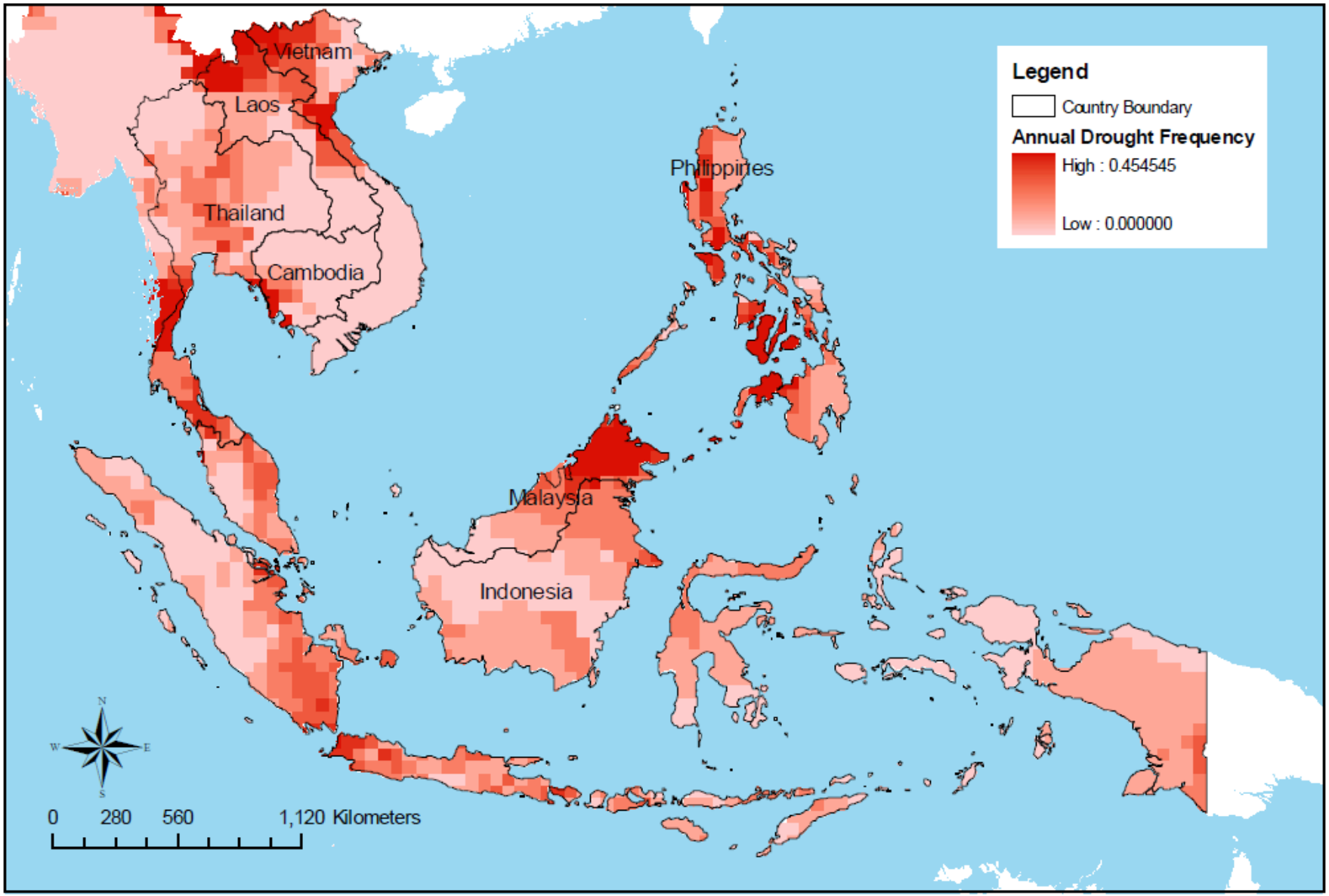
Source: Arief Anshory Yusuf & Herminia A. Francisco, 2009

Flood Frequency in Southeast Asia



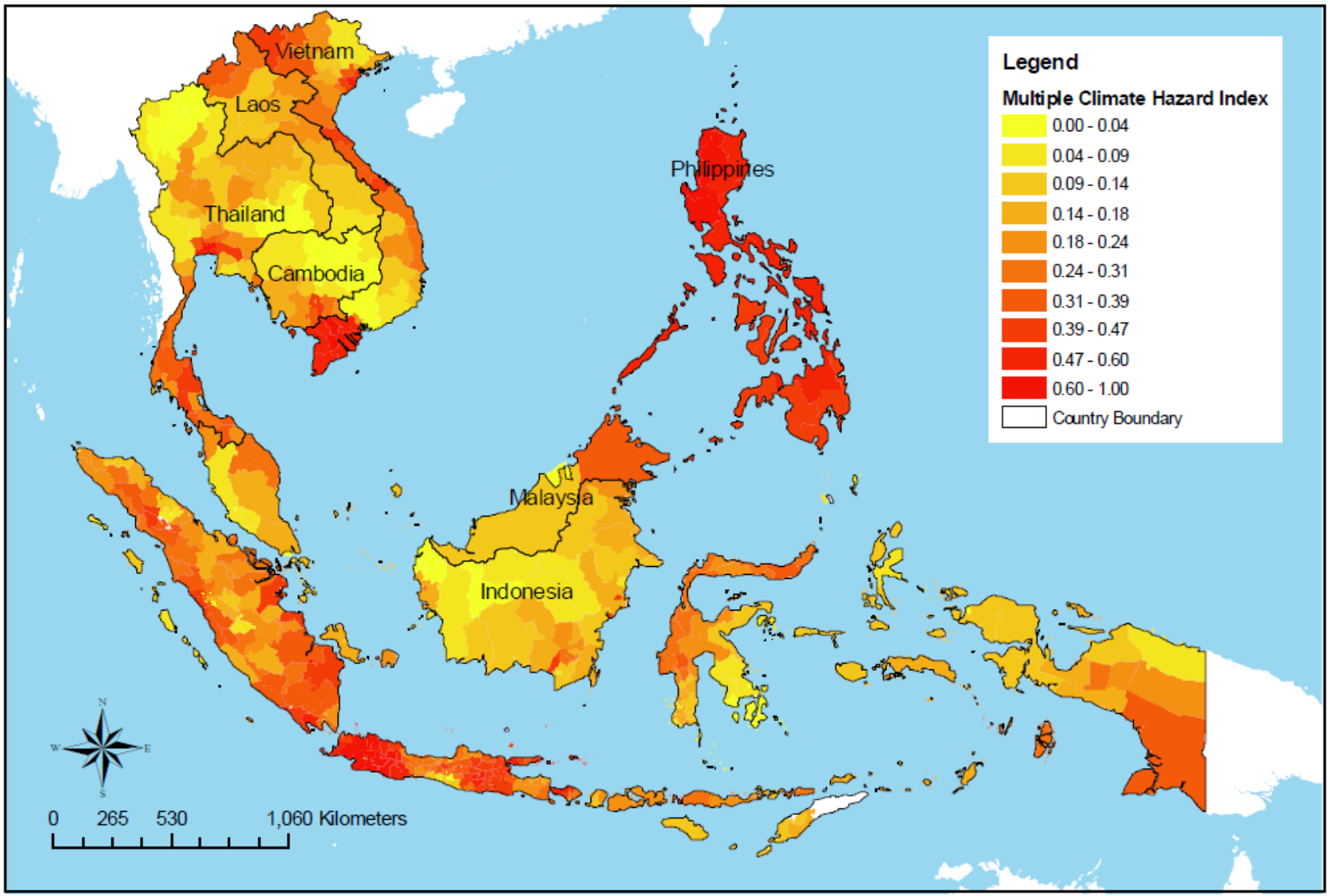
Source: Arief Anshory Yusuf & Herminia A. Francisco, 2009

Drought frequency in Southeast Asia



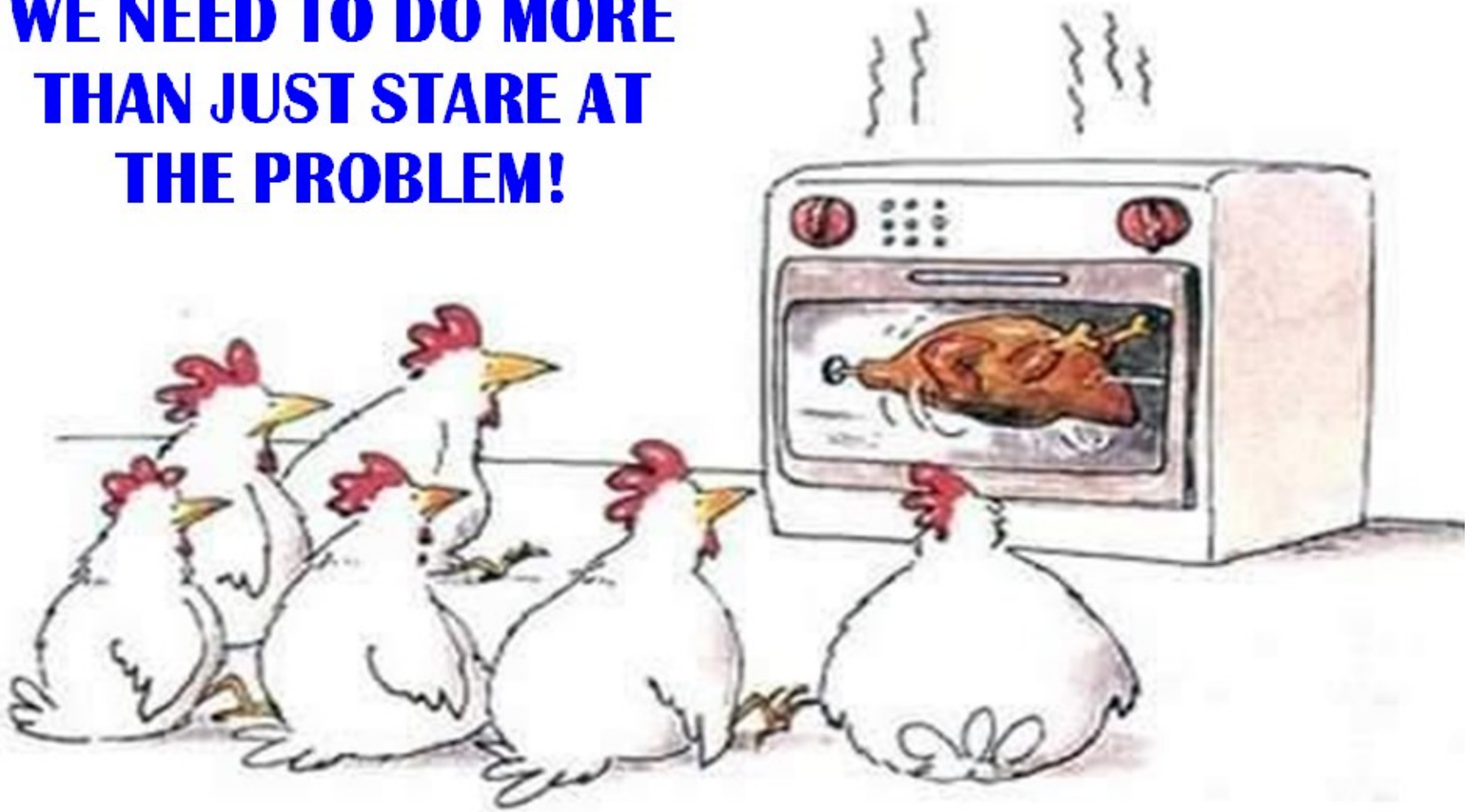
Source: Arief Anshory Yusuf & Herminia A. Francisco, 2009

Multiple climate hazard map of Southeast Asia

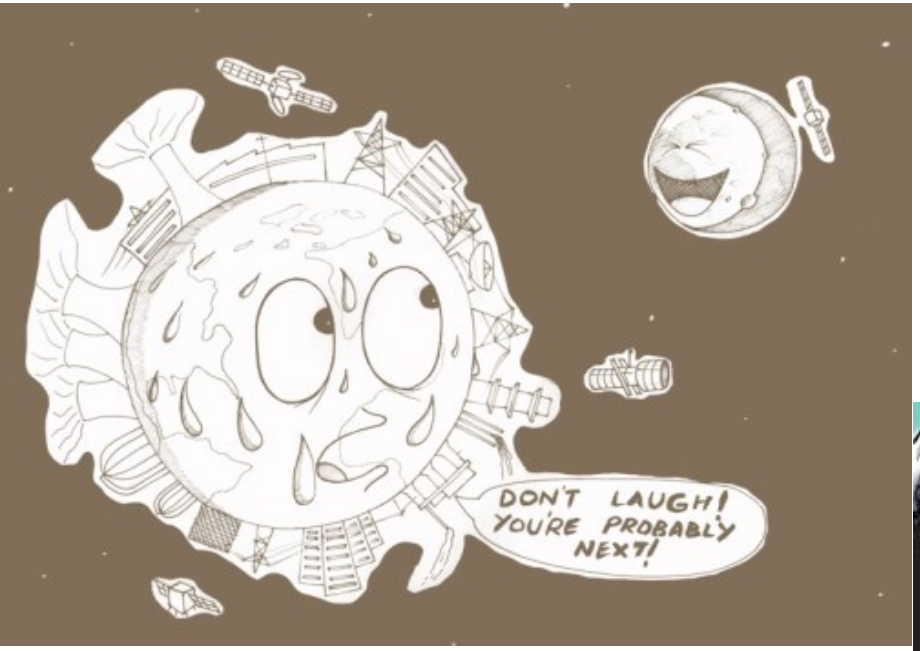


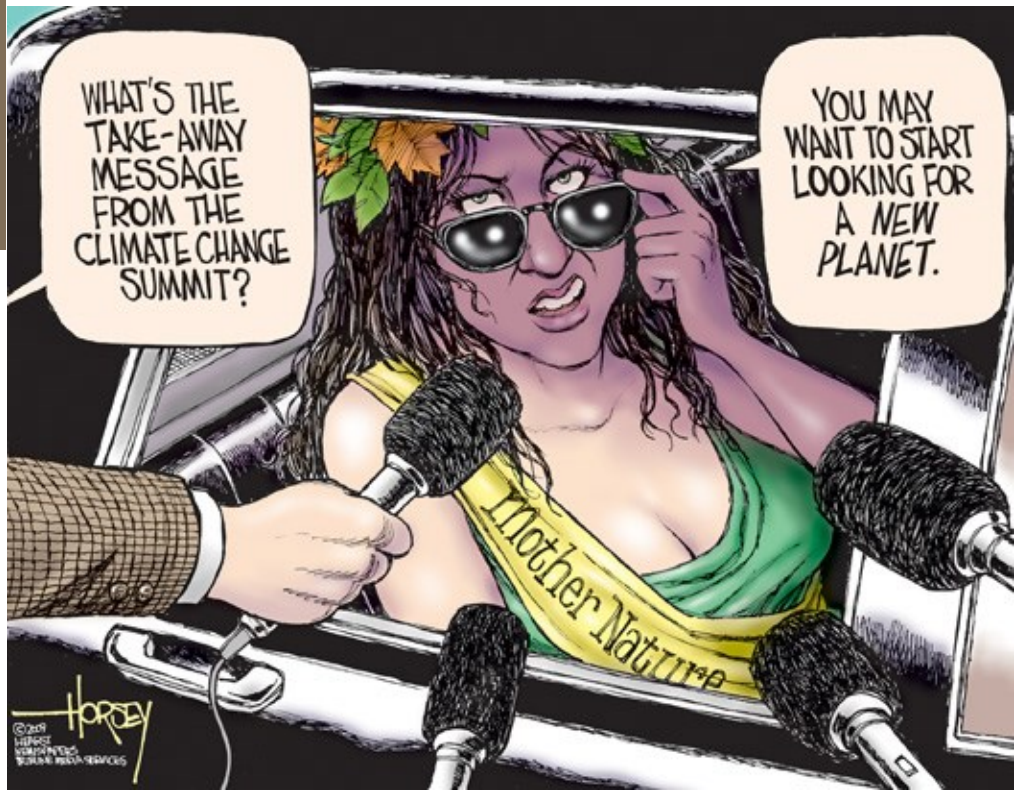
Source: Arief Anshory Yusuf & Herminia A. Francisco, 2009

WE NEED TO DO MORE THAN JUST STARE AT THE PROBLEM!



Otherwise road to ‘common’ hell





FINAL MESSAGES:

"Anybody who can solve the problems of water will be worthy of two Nobel Prizes, one for peace and one for science."

(*President John. F. Kennedy*)

- **Be the change that you want to see in the world**

- **There is a sufficiency in the world for man's need but not for man's greed**

Mr M K Gandhi

Thank You