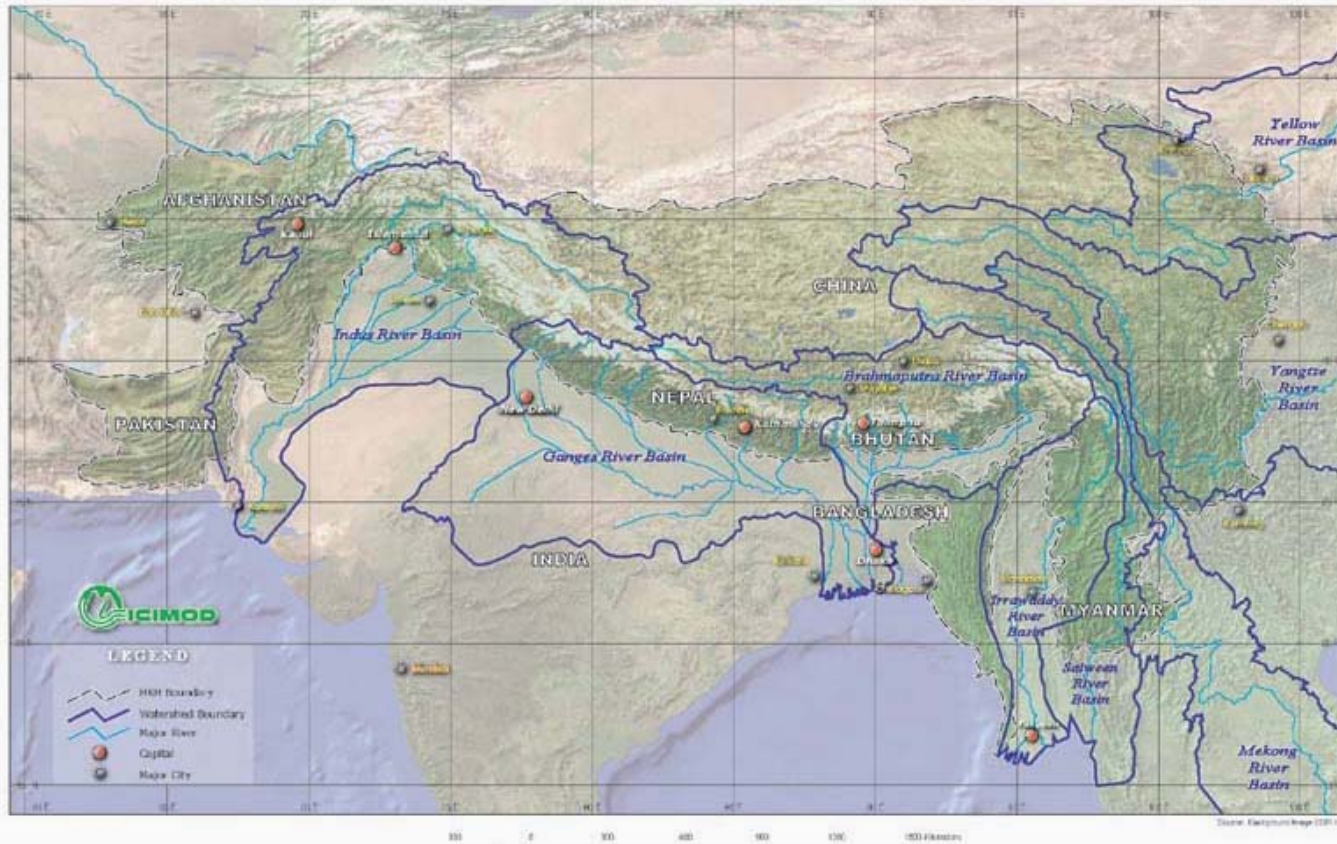


Regional Cooperation for Flood Forecasting and Information Exchange in the Hindu – Kush Himalaya region

Mats Eriksson

**Water, Hazards and Environmental Management,
International Centre for Integrated Mountain Development
(ICIMOD)**

Major River Basins of the HKH-region

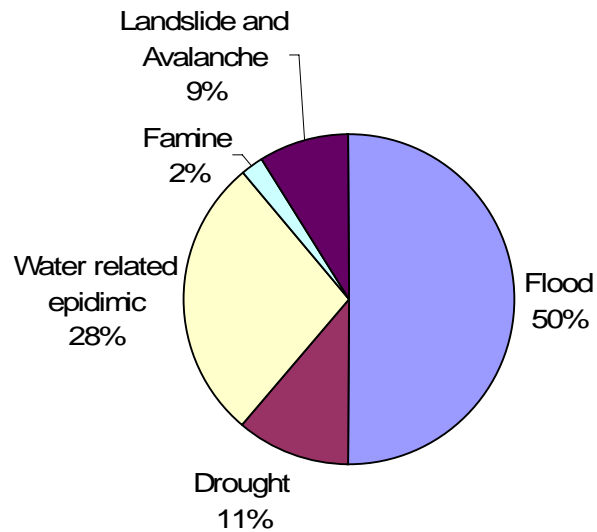


Indus
Ganges
Brahmaputra
Irrawaddy
Salween
Mekong
Yangtze
Yellow

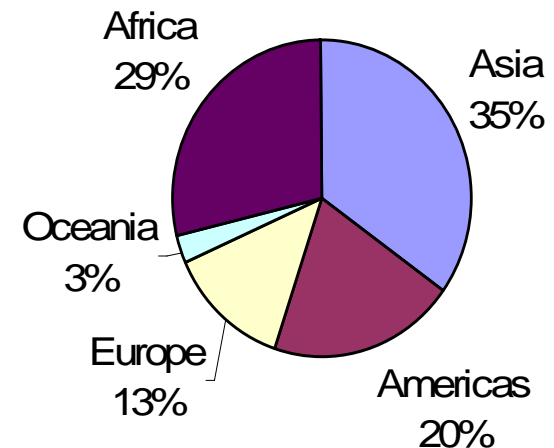
Sustenance to over 150 million people in the Himalayan Region

World Water related Natural Disasters (1990-2001)

Types of water-related natural disasters

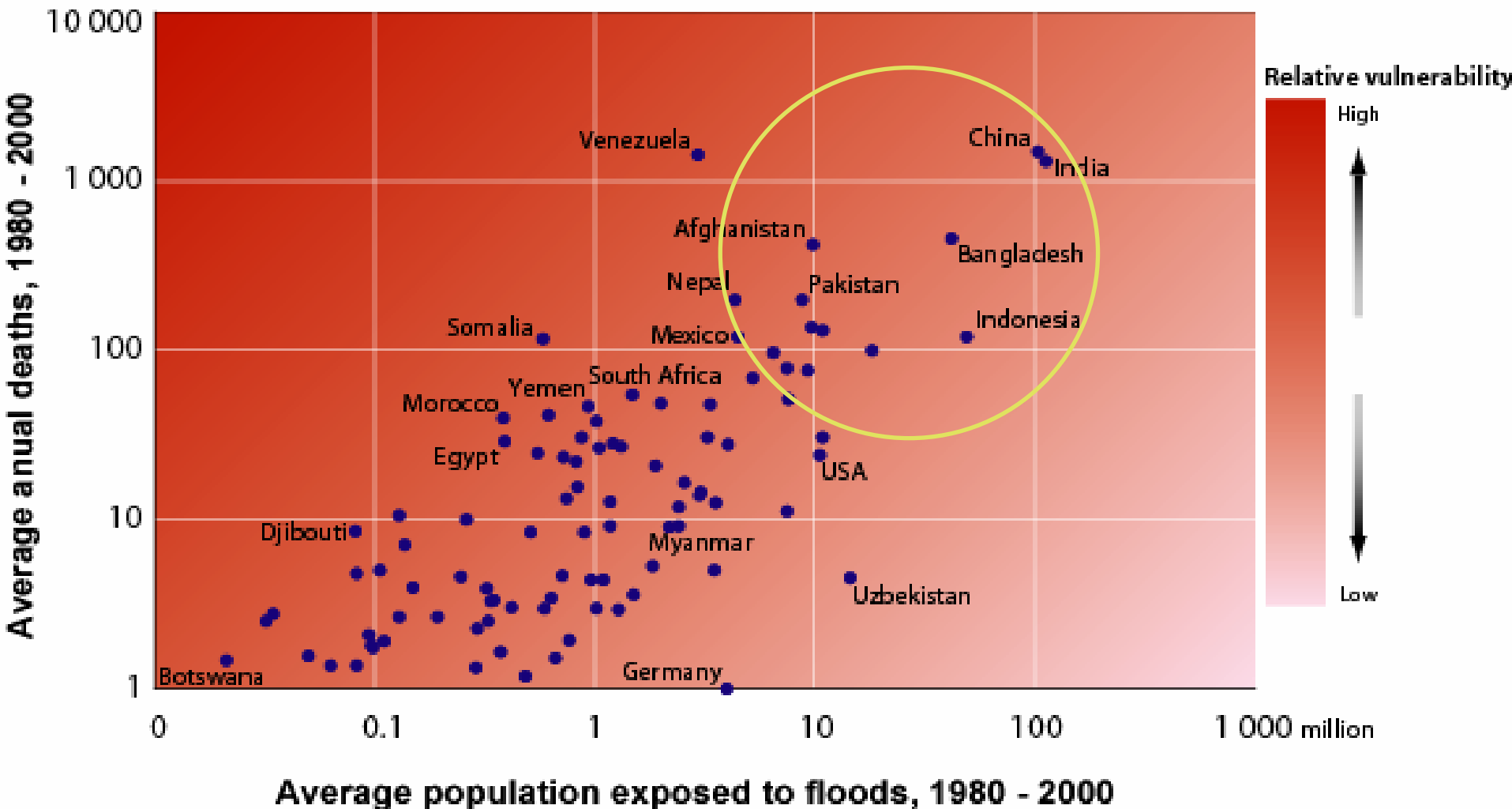


Distribution of water related natural disasters



Source: *Water for people water for life, World Water Assessment Programme, 2003*

Relative Vulnerability for Floods



Source: *Reducing Disaster Risk, A Challenge for Development*, 2004, UNDP

Natural Hazards in the HKH region

Induced by Precipitation

- Riverine Floods
- Flash Floods
- Mass movements
 - Landslides
 - Debris flow



**Poor people
always suffer
the most!**

**Among them
women and
children are
hardest hit!**



Key Issues:

- Transboundary rivers
- Lack of exchange of data, especially across national boundaries
- Not adequate lead time
- Diversity of technical, scientific and institutional know-how
- Some bilateral agreements exist
- Regional mechanism



The way forward:

- 1) Improved *observation* network
 - 2) Improved *information* sharing
 - 3) Training and public awareness
 - 4) and most important:
An institutional framework for cooperation!
- = the 4 pillars of the HKH-HYCOS project

The Hindu Kush – Himalayan Hydrological Cycle Observing System (HKH – HYCOS)

Establishment of a Regional Flood Information System in the Hindu Kush - Himalaya

- A regional component of the World Hydrological Cycle Observing System (WHYCOS)
- **Goal:** to minimize the loss of lives and property by reducing flood vulnerability in the HKH region
- **Objective:** to enhance regional cooperation among the countries in the HKH region for the timely exchange of flood data and information
- - ***“Making information travel faster than the floods”***

Three phases of the project:

- Phase 1: Feasibility study and infrastructure testing (completed)
- Phase 2: Detailed planning and pilot project implementation (financial partners sought)
- Phase 3: Full-scale region wide flood information system

Participating countries: Pakistan, India, Nepal, China, Bhutan, Bangladesh

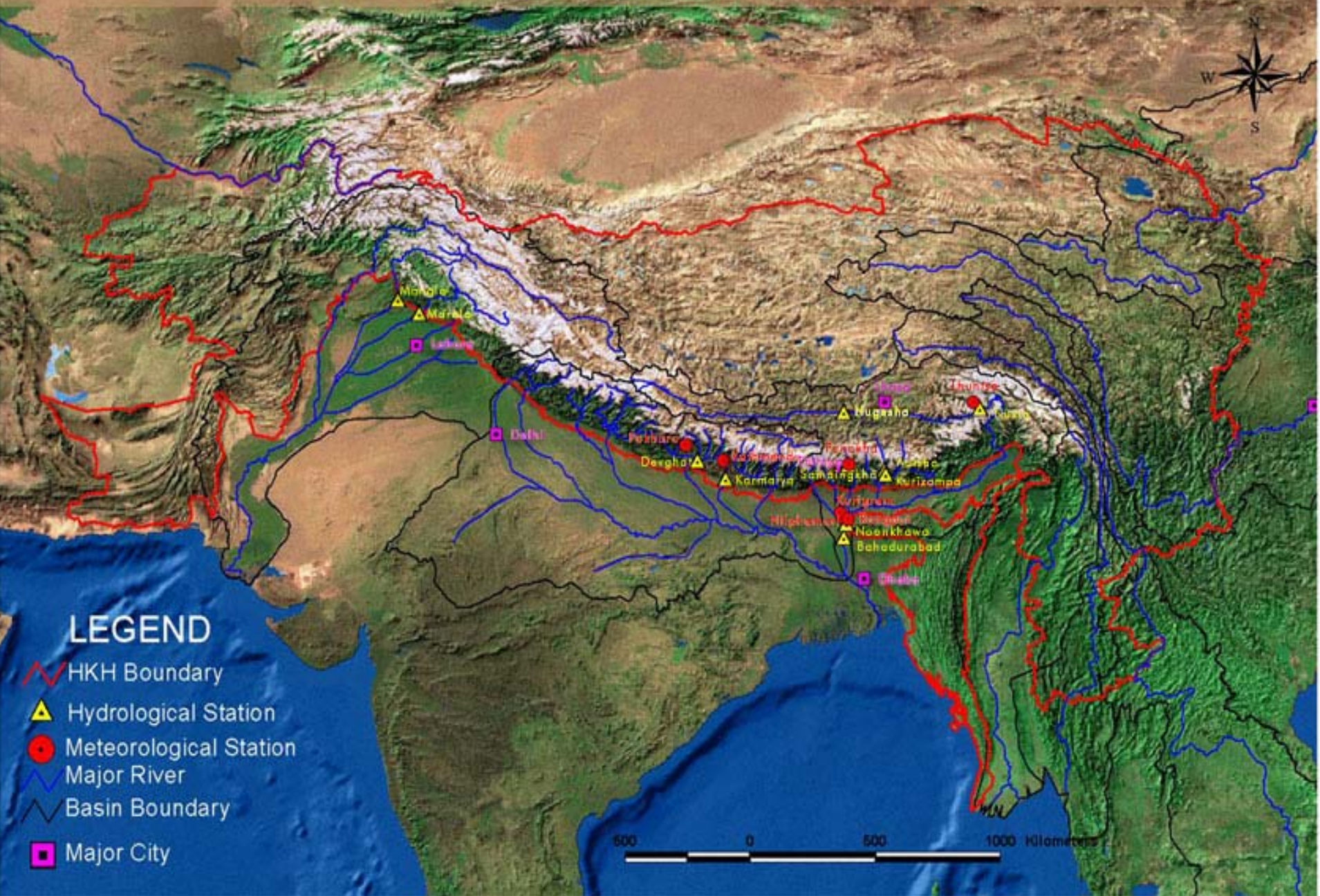


Regional Flood Information System in the HKH Region Stations Selected for Pilot Phase

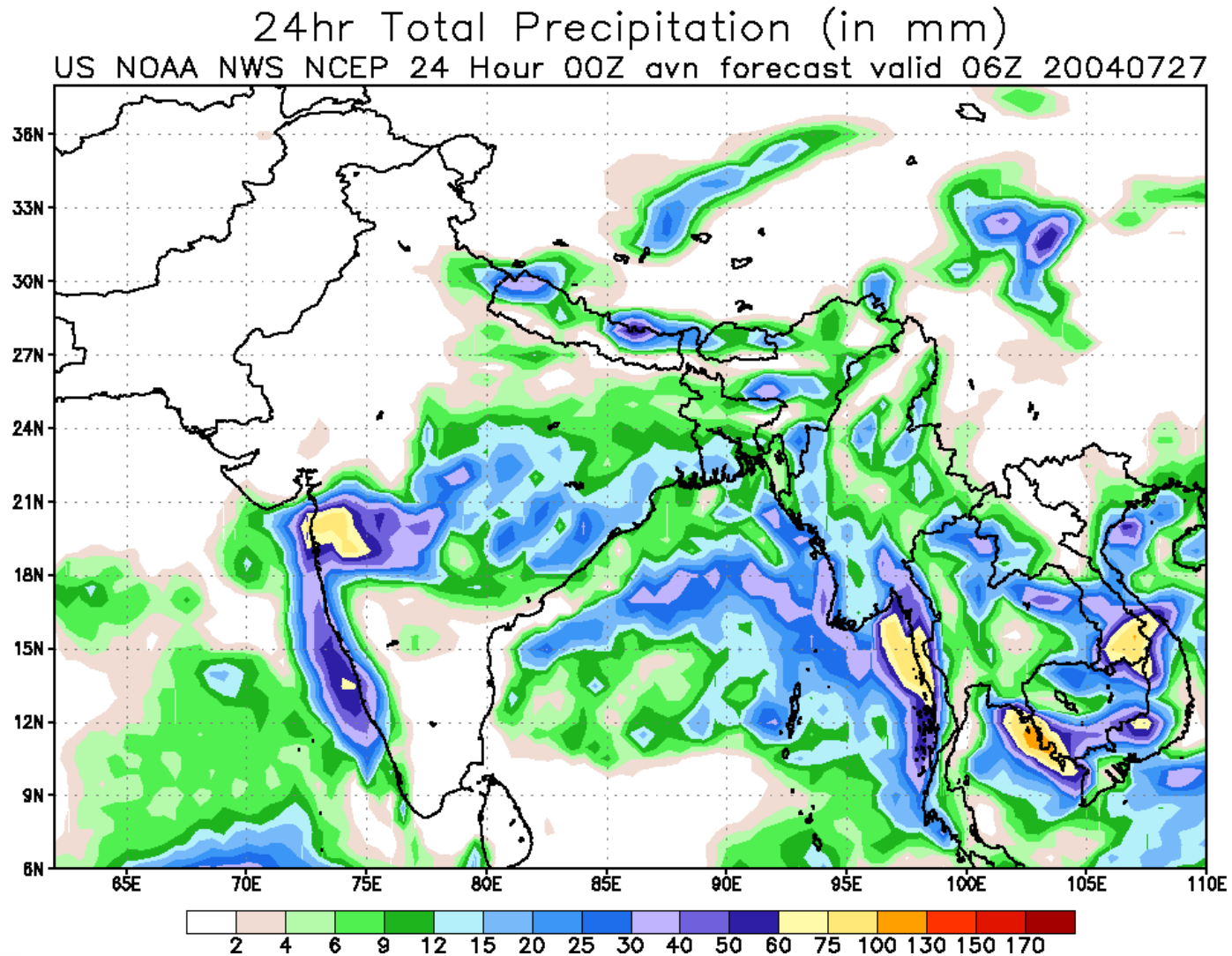
LEGEND

- HKH Boundary
- Hydrological Station
- Meteorological Station
- Major River
- Basin Boundary
- Major City

Scale: 0 to 1000 Kilometers



Satellite Rainfall Estimation



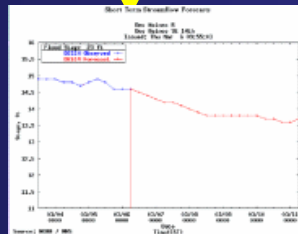
End-to-End Forecast Process



Data



Communication



Forecast

Decision
Support

Notify

Coordinate

Actions



Source: NOAA website

Conclusions

- A regional institutional framework for cooperation is crucial!
- Political commitment is necessary
 - e.g. for sharing of data
- Building of trust and conflict prevention are bonus effects
- Natural Disaster Management as part of Natural Resources Management
- Projects = Processes

The background of the slide features a blue-toned landscape with rolling mountains and a dense forest of evergreen trees. The sky is a light blue gradient.

THANK YOU!

J.C. Scott (1999): “to empower individuals and communities, threatened by natural hazards, to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life and damage to property, or to fragile environments”