

Water Issues and Capacity Building in Asia

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Outline

- ❑ **Major water issues**
- ❑ **Capacity development needs**
- ❑ **Capacity development programs**

Major water issues in Asia

□ Water Scarcity

- Looking at the future it is clear per capita consumption is going to increase both due to population growth as well as economic growth in many parts of Asia, especially in the densely populated areas, currently under water stress.

□ Flood Disaster losses

- Increasing urbanization, Extreme events

□ Climate change

- Global Warming
- Aerosols
- Seasonality

Responses: WEHAB

- ❑ The WEHAB initiative was proposed by UN Secretary-General Kofi Annan as a contribution to the preparations for the World Summit on Sustainable Development (WSSD). It seeks to provide focus and impetus to action in the five key thematic areas of water, energy, health, agriculture and biodiversity that are integral to a coherent international approach to the implementation of sustainable development and that are among the issues contained in the Summit's Draft Plan of Implementation.
- ❑ Action Plan on Water

Water Action Areas .. 3 & 4

- ❑ Action Area 3: Develop integrated water resources management (IWRM) frameworks, including integrated coastal area and river basin management (ICARM), and prepare and implement water management action plans at the country level.
- ❑ Action Area 6: Strengthen disaster preparedness planning processes at the country level to protect the poor from the impact of water-related disasters (floods and droughts), particularly in low-lying countries and small island developing states.

WHAT DID WE LEARN ?

- ❑ Major investments have been made in infrastructure stocks, but in too many developing countries these assets are not generating the quantity or the quality of services demanded.
- ❑ Technology alone is not enough. Appropriate technology maximizes the value of investments
- ❑ Capacity Development is essential for sustainable water management and disaster reduction.

Capacity Development

- ❑ **Emphasis on developing local capacity**
 - Address local conditions (ex, data deficiency, low cost, maintenance)
- ❑ **Transfer of advances in technology and knowledge**
 - New tools
 - Data sources
- ❑ **Promoting networks to utilize capacity and knowledge**
 - Resource sharing
 - Institutional networks

Target groups

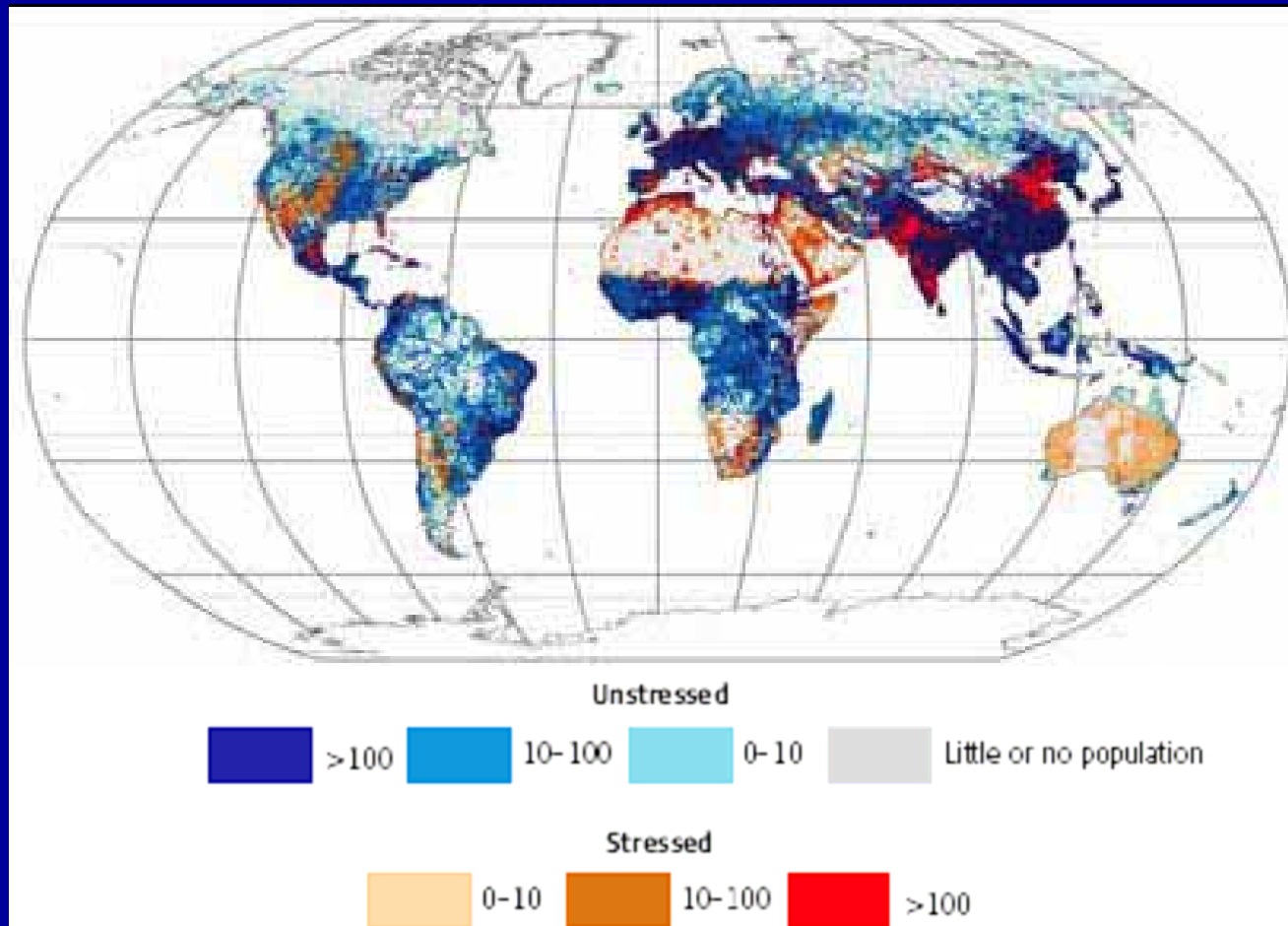
- **Researchers / Post graduate**
 - Customizing existing knowledge to suit local conditions supported by global experiences
- **Professional / Practitioners**
 - Introducing new methods, tools, standards
- **Administrative / Local governments**
 - Over view of technology and science

The above is not a full or systematic coverage of the all aspects of capacity development needs. However, I hope it will provide a starting point for our discussions.

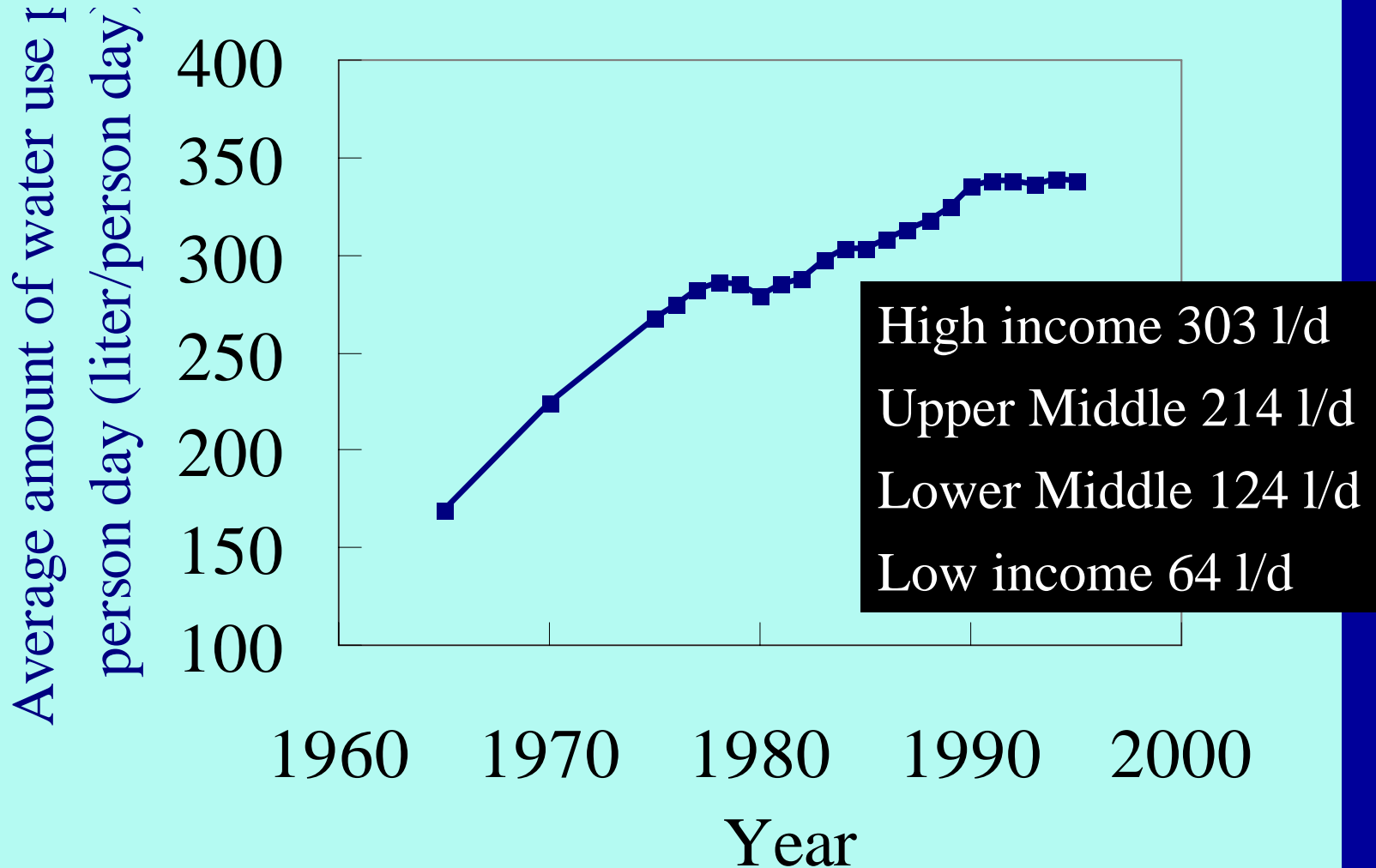
Thank You for your Attention

Water stressed regions - WWA

Population (in thousands) above (reds) and below (blues) water stress threshold (RWS=0.4)



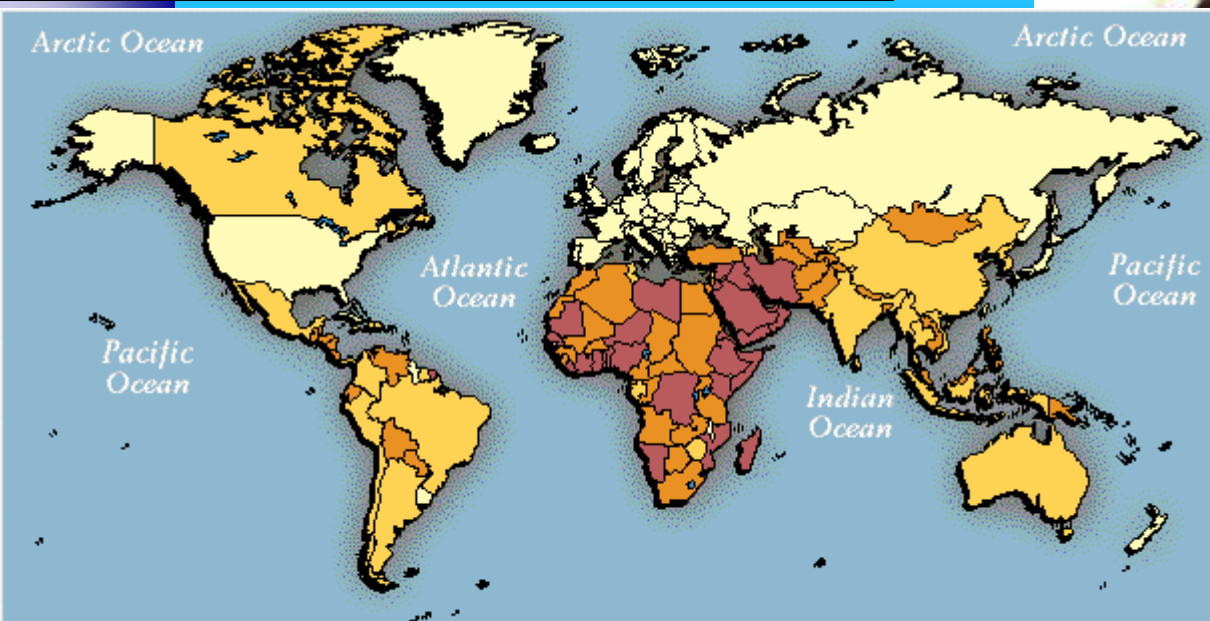
Water Consumption Change in Japan



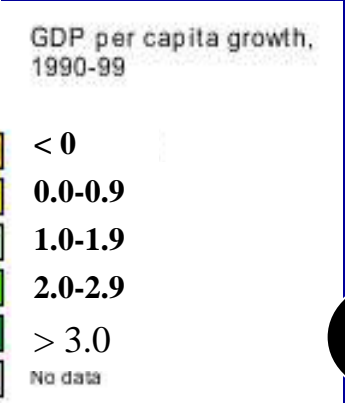
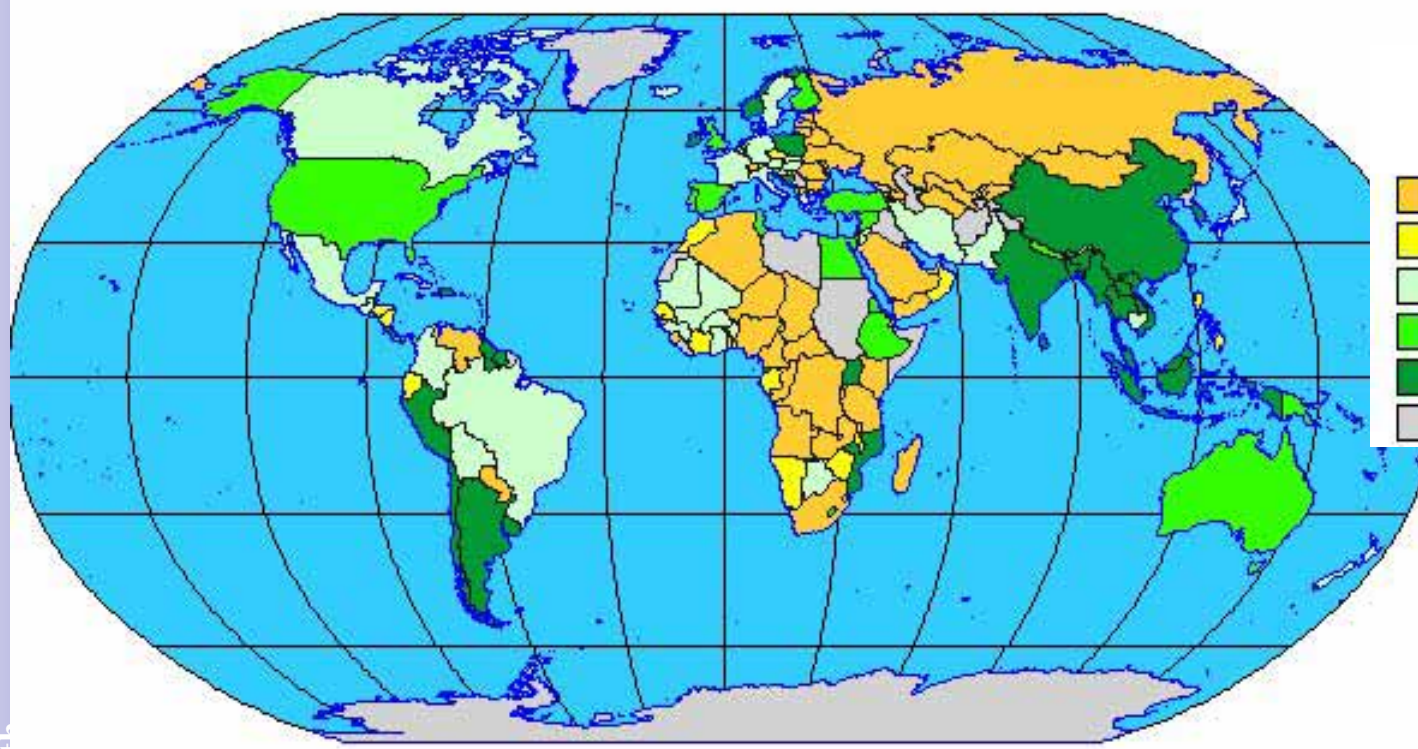
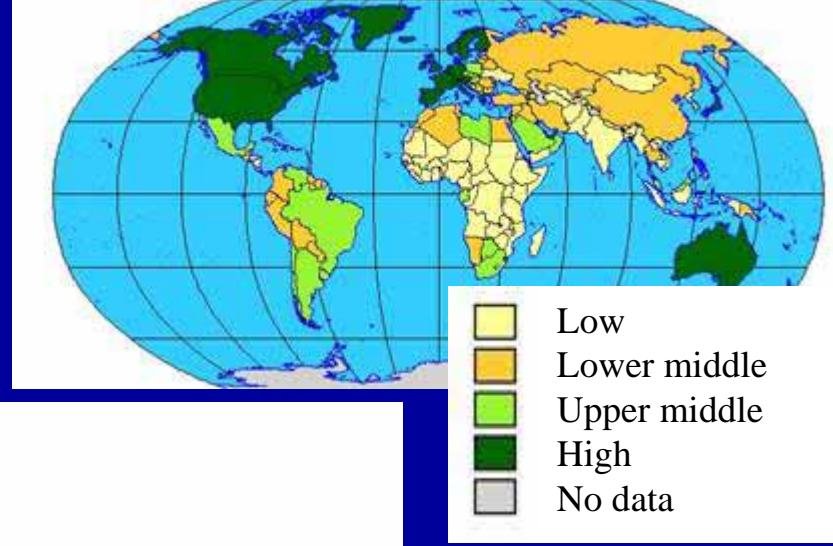
Water consumption also change with time - economic development

Population (Global Scenario)

Population growth rate



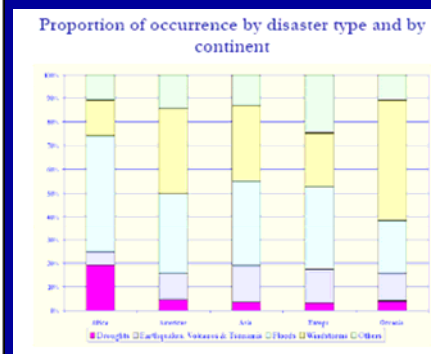
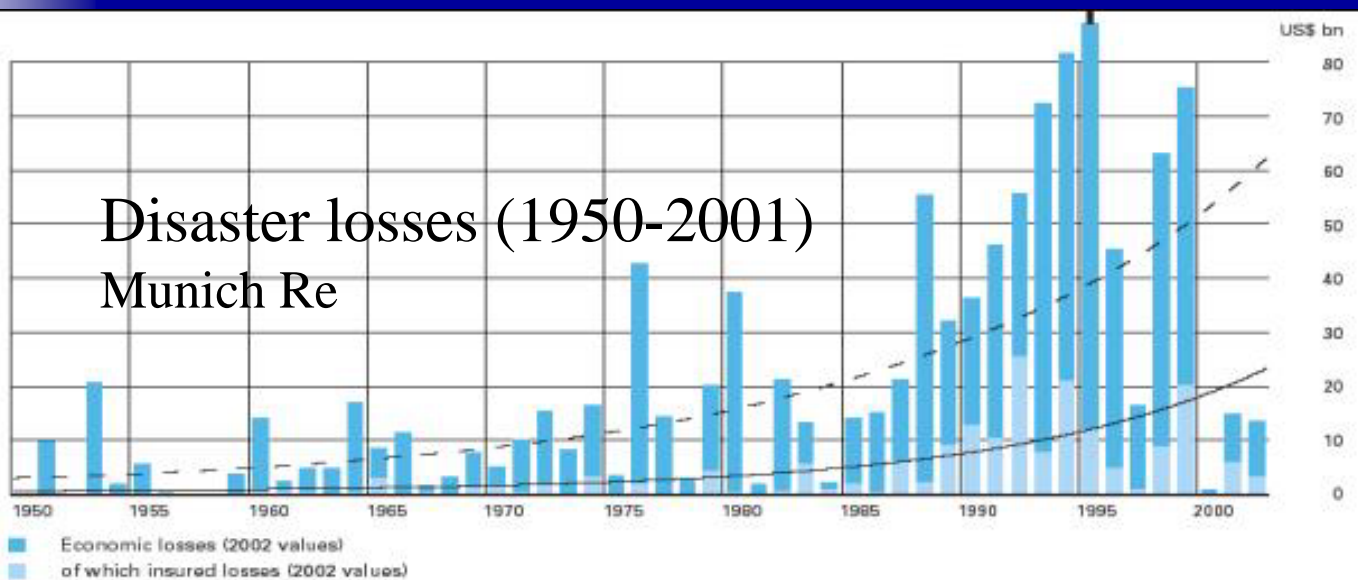
World GDP Growth



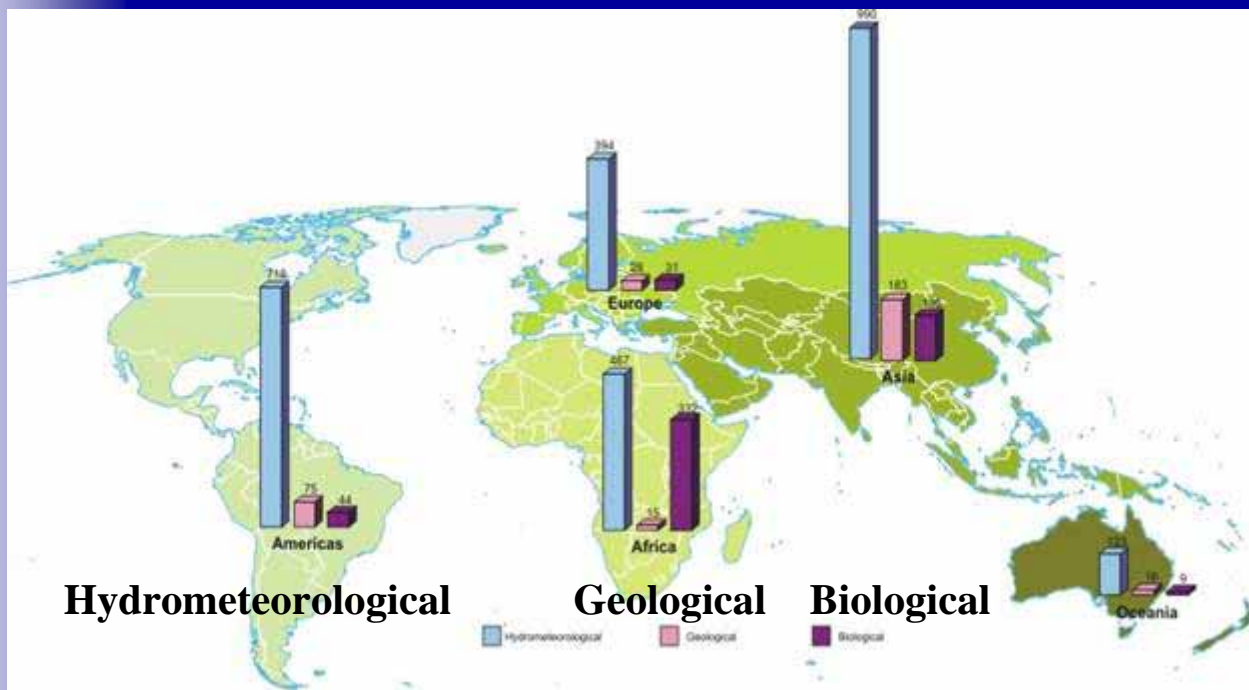
Does domestic water consumption increase with GDP growth?

Global Disaster Characteristics

Disaster losses (1950-2001)
Munich Re



CRED



Source: ISDR based on EMDAT

Urbanization

Urban floods

- It is well established that urbanization increase both flood magnitude and flood frequency



Catastrophic floods

- HAZARDS of VERY HIGH MAGNITUDE that occur RARELY are causing increased losses world wide.
- In 1950-59 there were 20 major disasters causing 38 billion US\$ damage, in 1990-99 there were 82 such events causing US\$ 535 billion of damage.

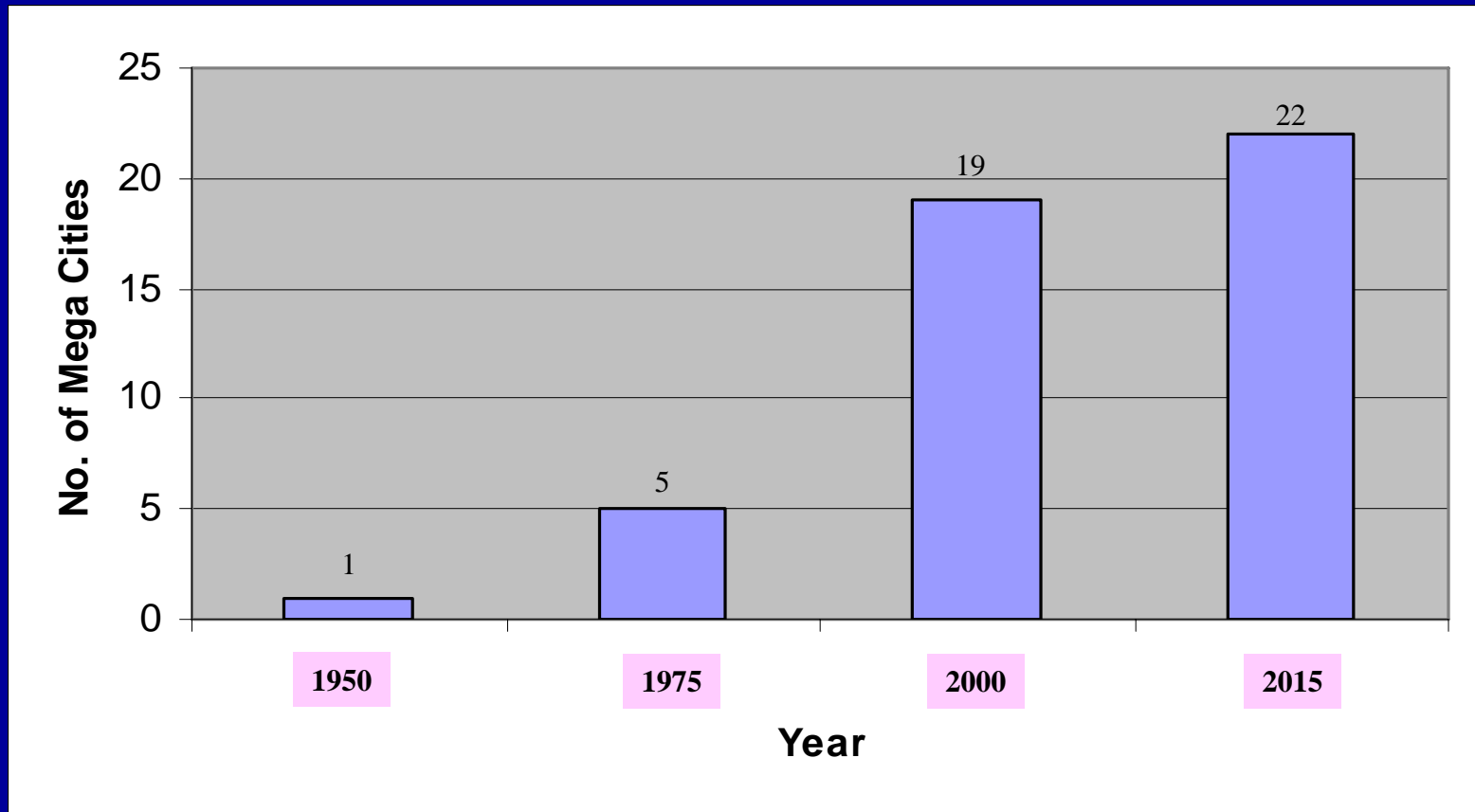
Mega Cities: Over 10 Million Inhabitants

In 1950, there was only one Mega City in the world



New York City

How many Mega Cities are there now ?



**No. of Mega Cities In Asia: 11 (2000)
expected to increase to 13 in 2015**



Climate Change Impacts

□ Global warming

- Expected to increase intensities and frequency of rainfall
 - ❖ Landslides / debris flows
 - ❖ New types of floods – underground space

□ Aerosol

- Reduce shortwave radiation
- Reduce rainfall at low intensities
 - ❖ Adverse impact on Agriculture

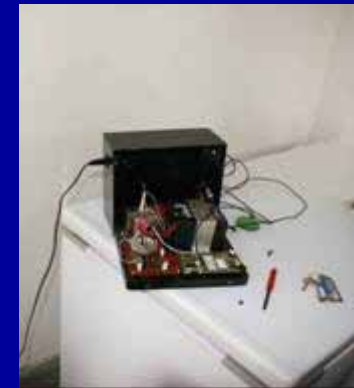
□ Seasonality

- Will onset of seasons change?
 - ❖ Adequacy of water infrastructure

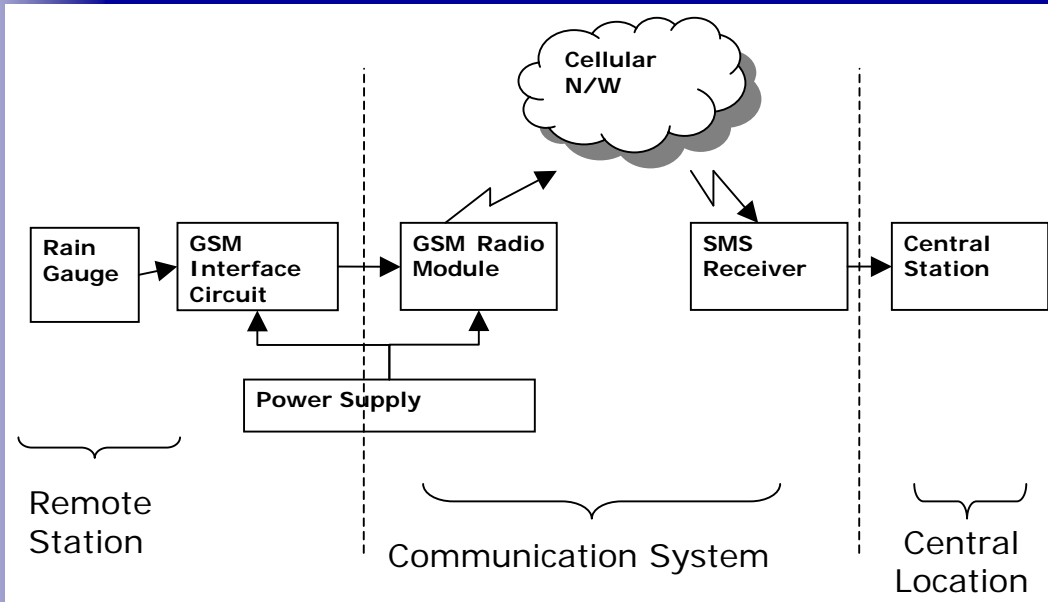


Student Research

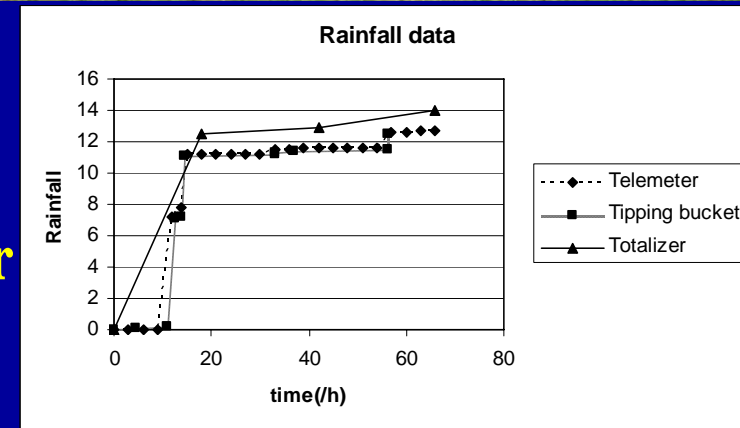
- ❑ **Post graduate student program**
 - Support/sponsor Master and Ph. D. programs, supervised jointly with partner institutions. – promote sandwich type programs
- ❑ **Examples of UNU programs**
 - Development of a low cost automated Rain gauges
 - Eco-hydrology studies
 - Water poverty
 - Real time rainfall forecasting



System – Adaptive, Dynamic



- ❑ Time to tips (0.1 mm) are recorded in the unit.
- ❑ Data transmitted via SMS at either fixed time interval or fixed rain accumulation level – both can be set remotely by SMS



Training opportunities for professionals and practitioners

- ❑ **Short duration training projects**
 - The mini projects focusing on field problems involving a group of professionals (JAXA/AIT)
- ❑ **Diploma programs**
 - Residential / at work combined curriculum (UN Virtual Academy)
- ❑ **Open Source Tools / Systems**



UNU Virtual Academy



Unique UN Virtual 'Academy' Aims to Improve Water Management Worldwide

Unprecedented Academic
Diploma from UN University
Offered to Graduates;
Course Assembled from Over 60
International Government,
Academic Sources

The WVLC can be previewed online at <http://wvlc.uwaterloo.ca>

In an effort to help raise the availability of safe water worldwide, the United Nations has created a unique new virtual 'academy' to teach the fundamentals of water management on a global level.

Created with materials from over 60 international sources, the 10-subject, 250-hour program course offers graduates an unprecedented academic diploma from the United Nations, the first ever authorized by the Tokyo-based United Nations University.



Hardware

Cluster Workstations

Pre-post processing computer

High-powered workstation

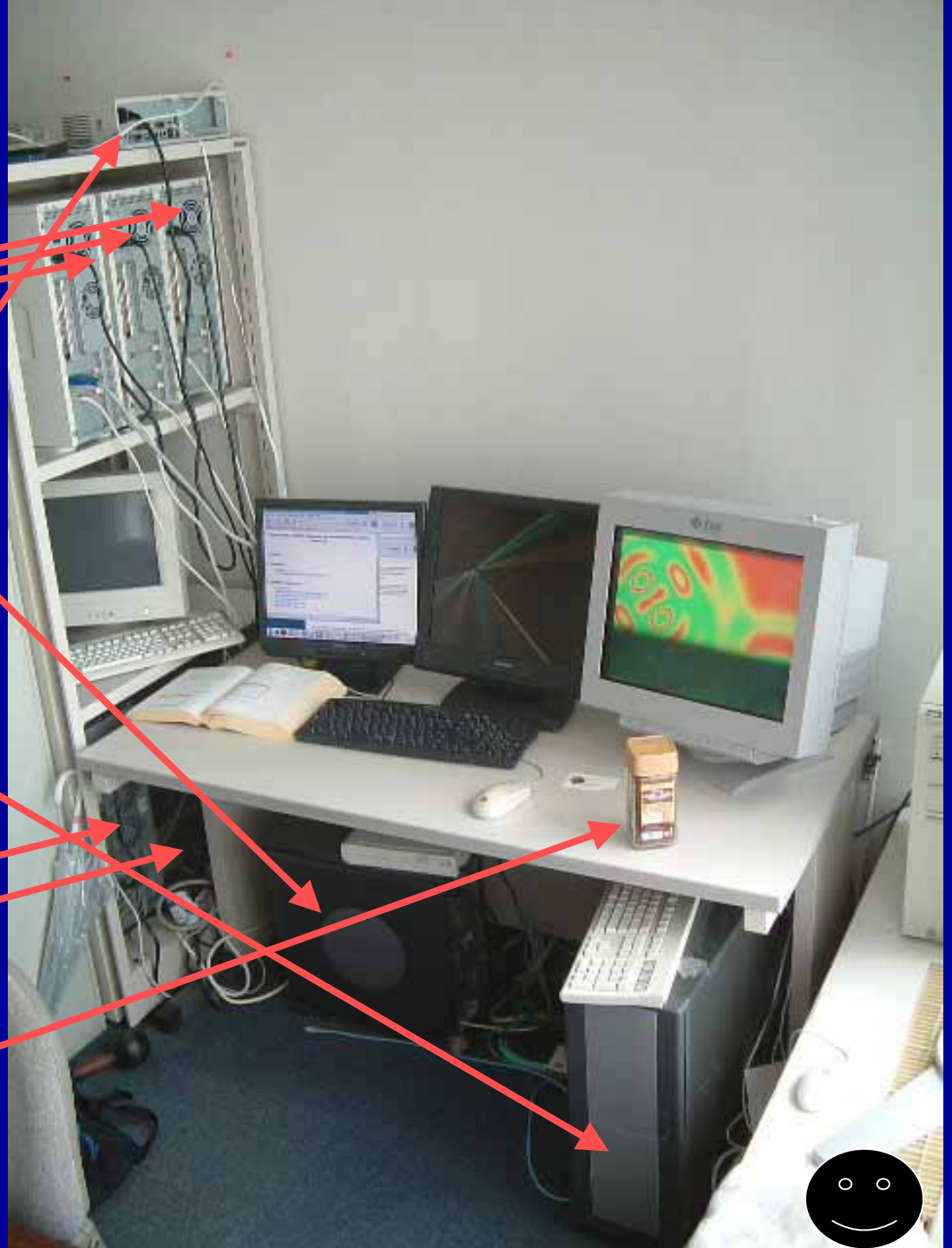
DNS server

Additional workstation

Server

Gateway/Router

Coffee



Over view for Administrators and Policy makers

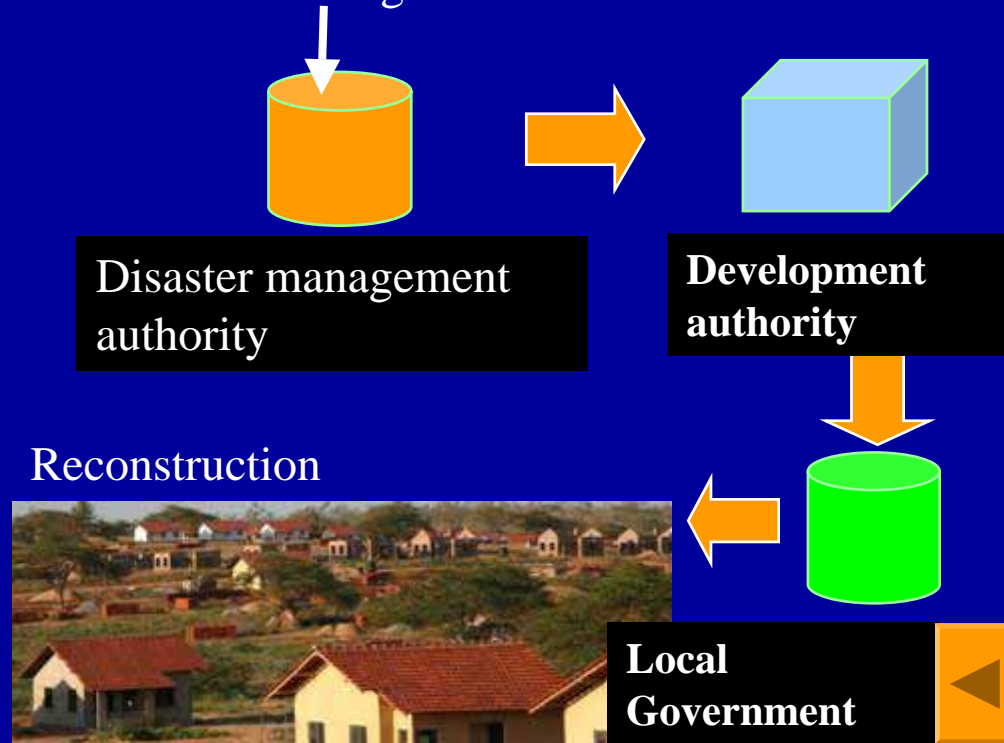
- ❑ **Administrators, especially local government officers need targeted programs to grasp (Bkk WS topic)**
 - Online learning
 - **Short term courses**

Why local government

- Local government is involved in implementing development programs as well as reconstruction after disasters
- A knowledge of disaster risk management would be very useful in getting required guide lines, especially when disaster management authority is weak



Reconstruction guidelines



Reconstruction

Local Government



Online courses

- ❑ **Just completed a 13 module course on DMHA facilitated by University of Hawaii**
- ❑ **Plan a DM course targeting Local Gov. officilas**

Disaster Management and Humanitarian Assistance (DMHA)

Plan 642: Seminar in Disaster Management and Humanitarian Assistance

Offered by:

Department of Urban and Regional Planning
College of Social Sciences, University of Hawai'i at Manoa
Through the University of Hawai'i Outreach College

In collaboration with:

Asia Institute of Technology, Pathumthani, Thailand	United Nations University, Tokyo, Japan
East-West Center, Honolulu, Hawaii, U.S.A	University of the Ryukyus, Okinawa, Japan
Keio University, Tokyo, Japan	University of the South Pacific, Suva, Fiji
National University of Samoa, Apia, Samoa	

University of Hawaii Instructors:

John Egan
Instructor of Record

Location: TBA

Days: Wednesdays (HST)

Time: 6:00 PM to 9:00 PM (HST)

Starting Date: September 27, 2006 (HST)

This is a pilot course between the education and research institutions listed above. The course offers advanced professionals and students interested in environmental studies, planning, and resource conservation and management an opportunity to learn from a diverse faculty from each of the participating institutions as well as distinguished guest lecturers from regional and international organizations. The course is offered through a multiple site video teleconference that connects all participating educational institutions with students on respective campuses.

This course focuses on disaster management, mitigation and environmental and emergency planning with an emphasis on affected populations on an international level.

This course covers the following topics:

Disasters, Disaster Management, Disasters Development (its affects to populations and the environment), Vulnerability and Resilience, The Nature of Hazards and Measures to Address Risks, Climate Related Hazards, Seismological Events, Epidemics and Plagues, Infrastructure of Disaster Management, Hazard Mitigation, Earth Observing Systems.

To register or if you have any questions, please contact Allison Tai (Tel: 956-2895, allison@tipg.net) or Dana Singer (Tel: 956-7381, dsinger@hawaii.edu).

