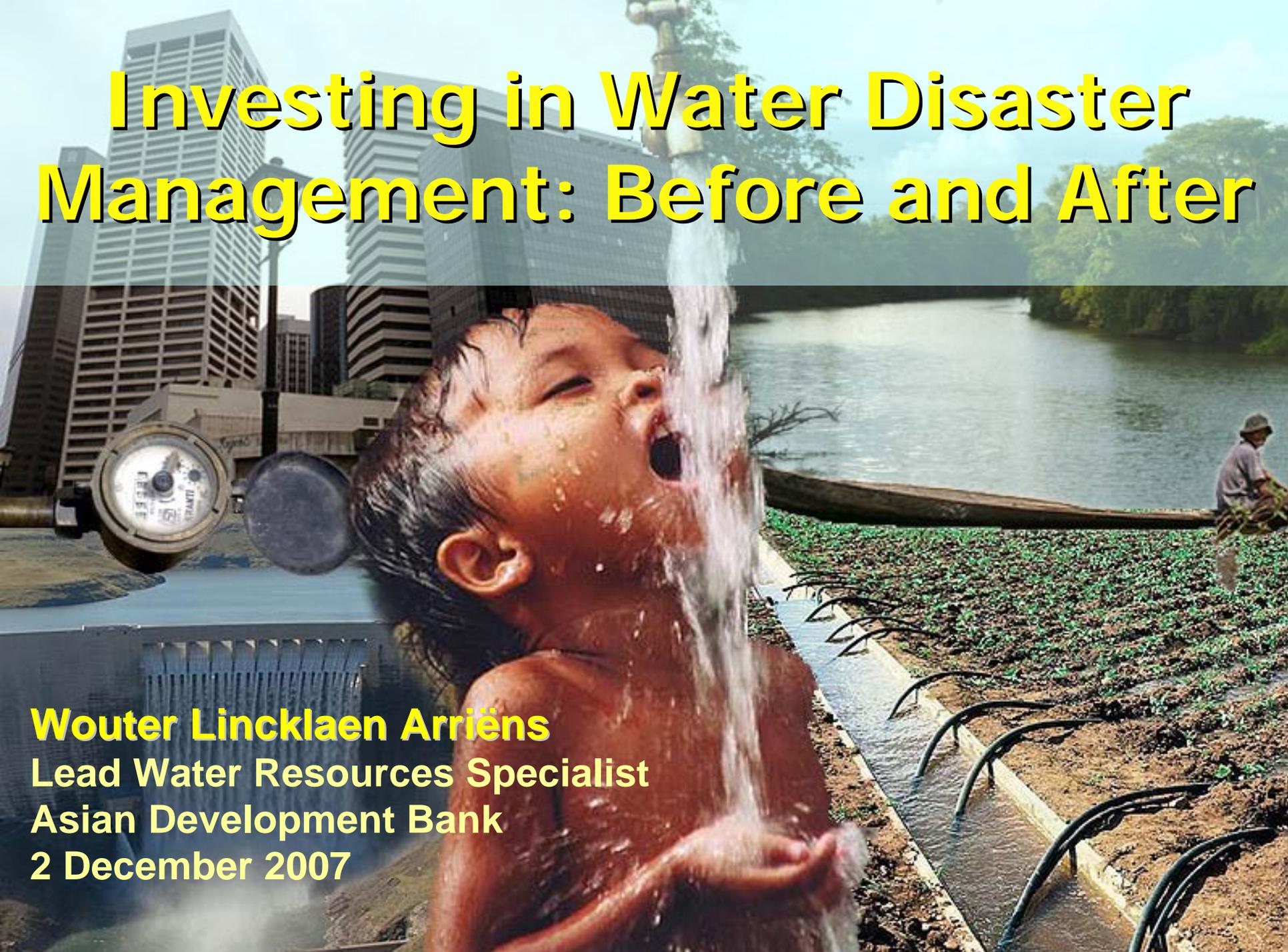


Investing in Water Disaster Management: Before and After

A collage image featuring a child drinking water from a public tap, a water meter, a river, and a worker in a field.

Wouter Lincklaen Arriëns
Lead Water Resources Specialist
Asian Development Bank
2 December 2007

Outline of Presentation

- **Realities and Trends**
- **ADB policies on water-related disaster management**
- **Past and Future Assistance**
- **Key Initiatives in the Region**

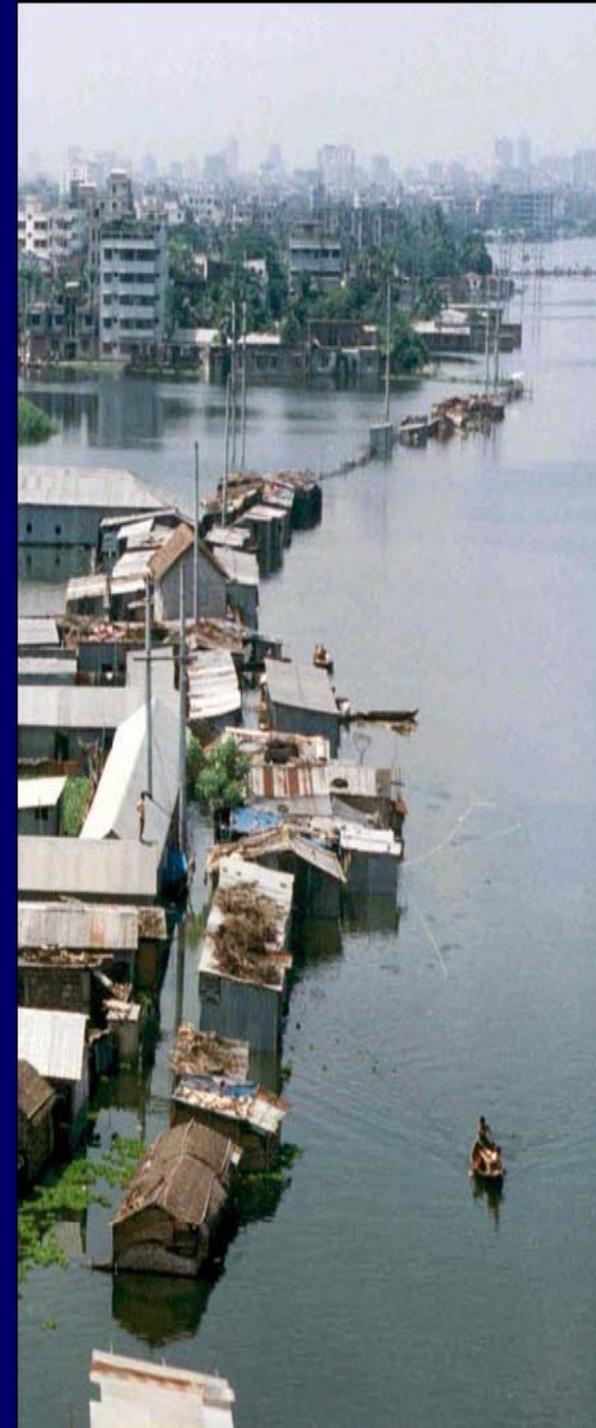


Realities and Trends

Increase in large-scale disasters over the last 50 years

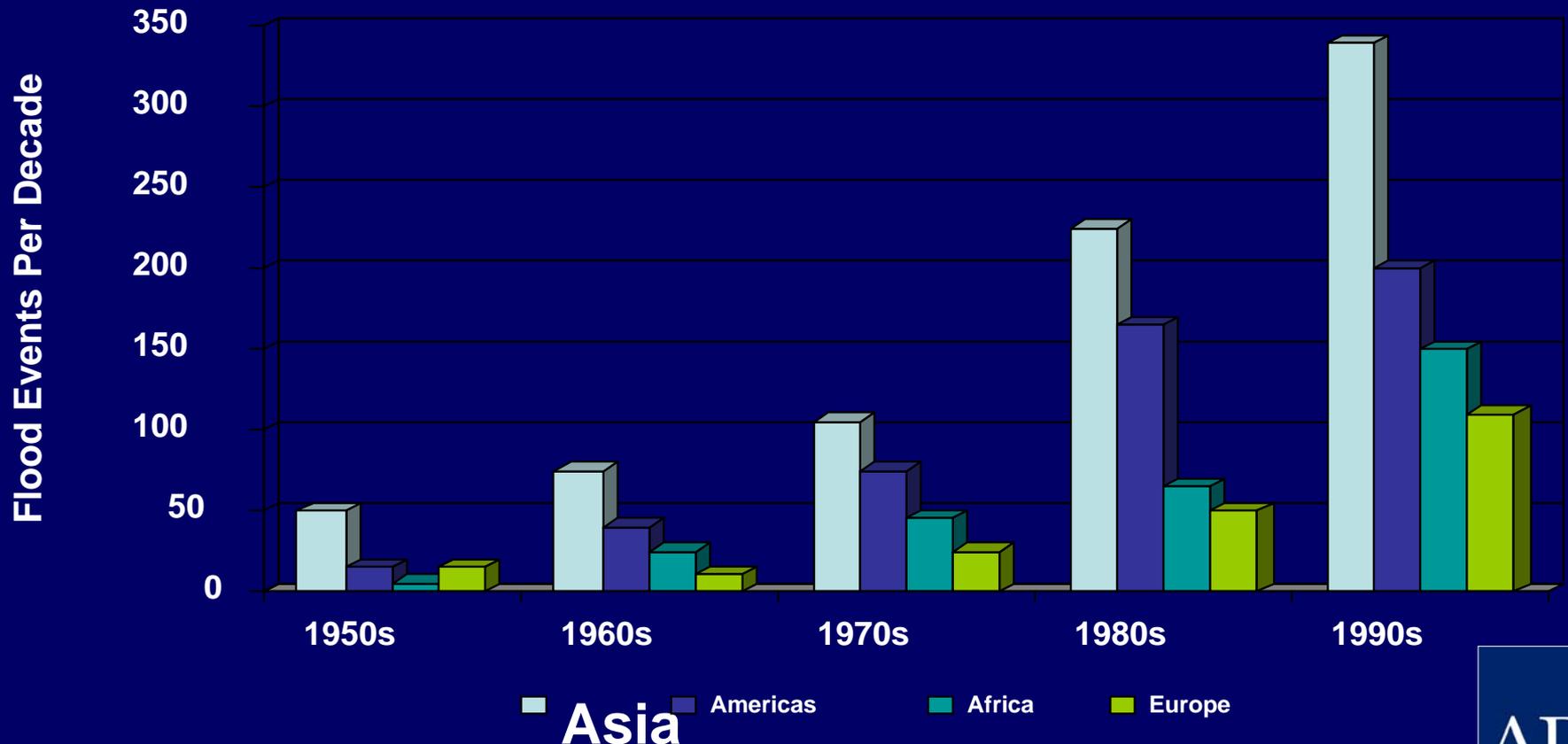
In Asia-Pacific:

- Water-related disasters are increasing faster than others
- Average no. of people killed per year (2001- 2005) is the largest: around 63,000 people, or 91% of the world's total deaths
- Accounts for 49% of the world's total damage due to natural disasters in the last century



Flood Disasters By Decade and Continent

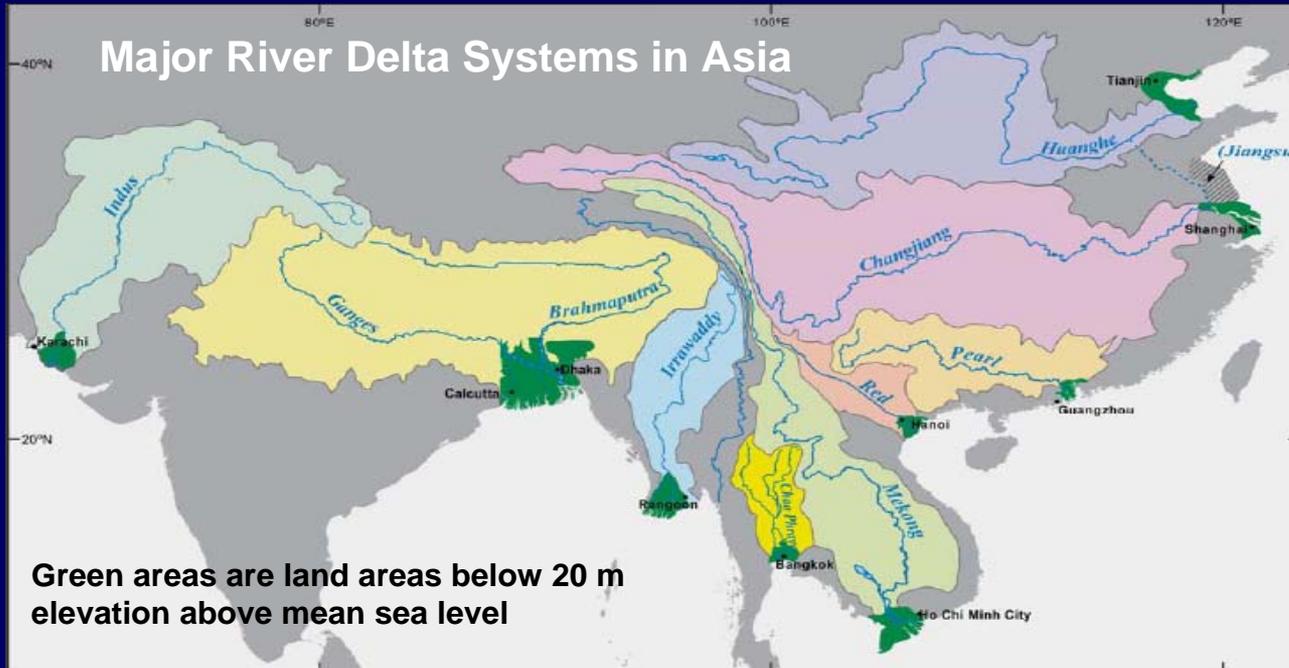
Flood events per decade



Source : ICUS/INCEDE April/June Newsletter (2003)



Major Asian Cities Located in Deltas



High Susceptibility to Any Flood Regime Change from Land and/or Ocean



Key Messages

Countries and communities need to:

- Improve their disaster preparedness**
- Protect high-value assets**
- Manage floods**
- Learn to live with floods**

“Flood management involves taking measures to avoid floods from becoming disasters

Flood control is a structural means to keep a river within its channel, and reflects the idea that floods are bad. “

Ian Fox, former ADB staff



What Asian leaders

say:

“Total flood control is not possible.” – State Office of Flood Control and Drought Relief, PRC

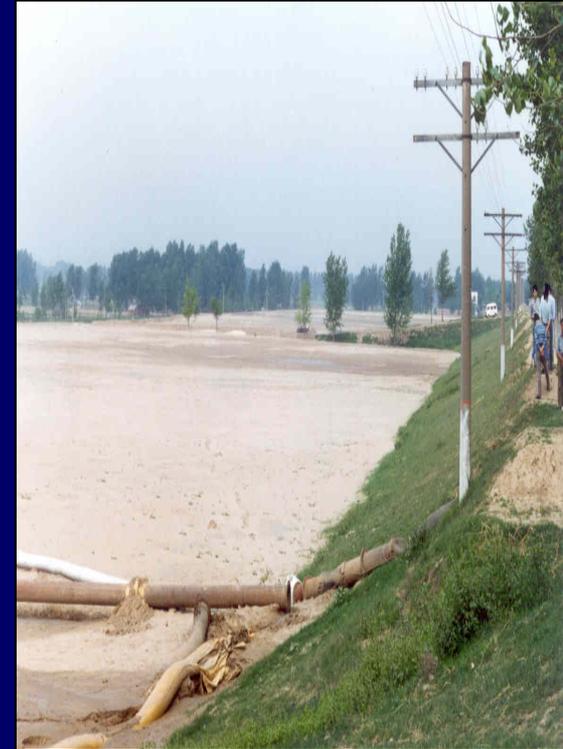
“Total flood control in Bangladesh is neither feasible nor desirable.” – Local Government Engineering Department, Bangladesh

“China is now updating its concept from flood control to flood management.” -- China Institute of Water Resources and Hydropower Research, PRC

“Flood waters have inundated the area for the past three seasons – this is a long enough period to review our approach.” – Agriculture Minister, Viet Nam

Flood Management Approach

- **Manage rather than react to floods**
- **Provide emergency evacuation measures for vulnerable communities**
- **Use affordable flood control embankments, mindful of risk and long-term maintenance costs**
- **Protect urban areas to high standards**
- **Protect rural areas to minimum standards**



Flood Management Approach

cont'd

- Incorporate traditional coping mechanisms in project design
- Make provisions for releasing excess water in consultation with residents of receiving areas
- Consider flood insurance to protect vulnerable communities and discourage development in flood zones



Living with floods



Floating school that moves with seasonally changing level of Cambodia's Tonle Sap Lake.

Living with floods cont'd

The floor level of this school, 5km from the shoreline of Cambodia's Tonle Sap lake, is 10 m above dry season water level. This is above maximum water level for most floods.



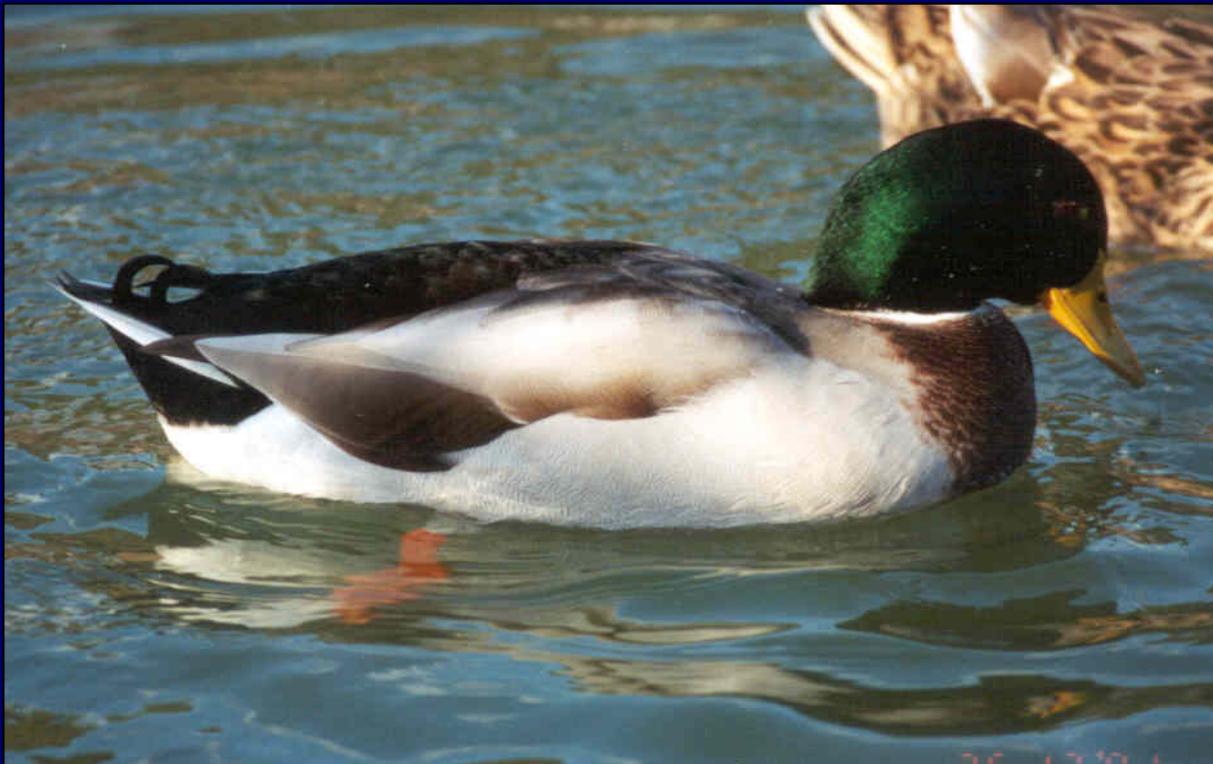
Living with floods cont'd

In the flood corridor of China's Yellow River, villages are being relocated on raised platforms...



Living with floods cont'd

Maximize the beneficial impacts of floods
and conserve wetlands.



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ADB's Disaster & Emergency Policy: Historical Perspective

Date	Title	Description	Trigger
1987 (R74-87)	Rehabilitation Assistance to Small Countries Affected by Natural Disasters	Simple repair to pre-disaster status Projects completed within 3 years	South Pacific proposal to establish special facility to assist DMCs affected by tropical cyclones
1989 (R191-88)	Rehabilitation Assistance After Disasters	Policy extended to all developing member countries	IDNDR (1990), Bangladesh floods, Nepal earthquakes, Philippine typhoons, Sri Lanka conflicts
2004 (R71-04)	Disaster and Emergency Assistance Policy (DEAP)	Strategic assistance; disaster and post-conflict; 2 or 3 year project completion	ADB Long-Term Strategic Framework (2001-2015) - poverty reduction focus

Lessons from Implementing ADB's Disaster-Related Policies

- Countries should develop comprehensive disaster risk reduction strategies and mainstream it into national development policy, with links to various sector policies
- Link international agreements (like Hyogo Framework for Action) to national strategies, local actions, and support from various partners

ADB Disaster and Emergency Assistance Policy, 2004

- Strengthen support for **reducing disaster risk** in developing member countries
- Provide **rehabilitation** and reconstruction assistance following disaster
- Leverage activities through developing **partnerships**
- Principal funding mechanism: Emergency Assistance Loan
- Lessons from 2004 Indian Ocean tsunami: (i) value of community consultation; (ii) coordination with development partners; (iii) incorporation of local capacity building into project designs



Nature of assistance

- Emergency assistance **after** a natural disaster and conflict event
- **Post**-disaster rehabilitation projects
- Disaster mitigation and preparedness projects (**before**)
- Development projects with **mitigation** features (e.g., flood management schemes)



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ADB Water Disaster Management Projects

Loans

1972- Oct 2007

- \$3.41 billion
- 57 projects in 22 countries

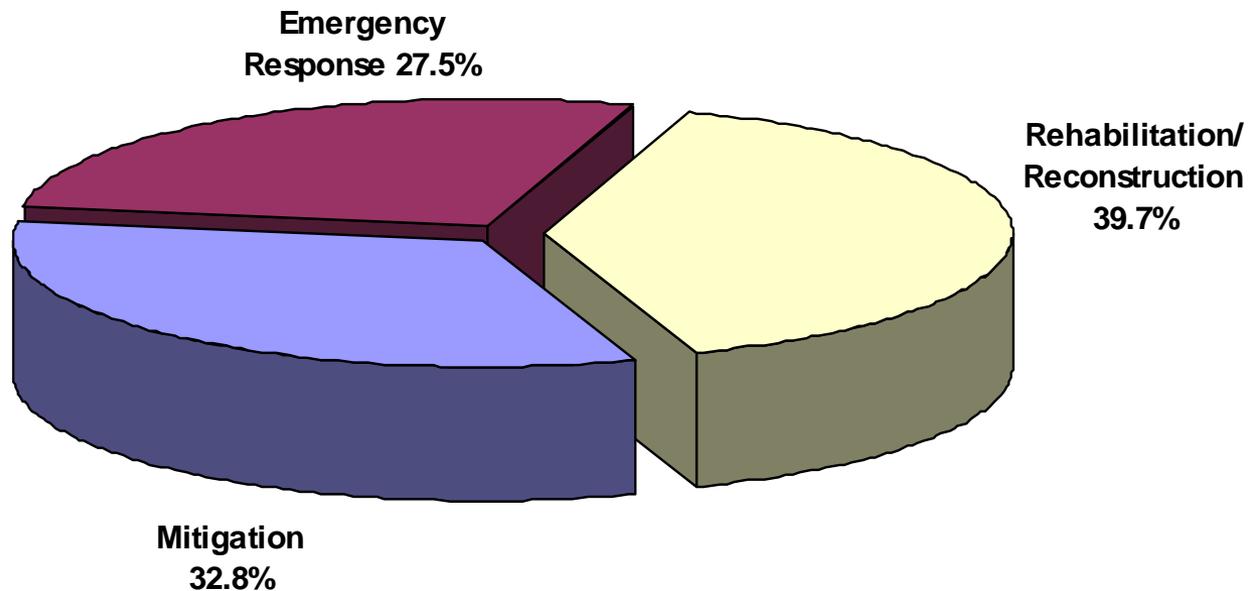
2008-2010

- \$1.19 billion
- 9 projects in 2 countries



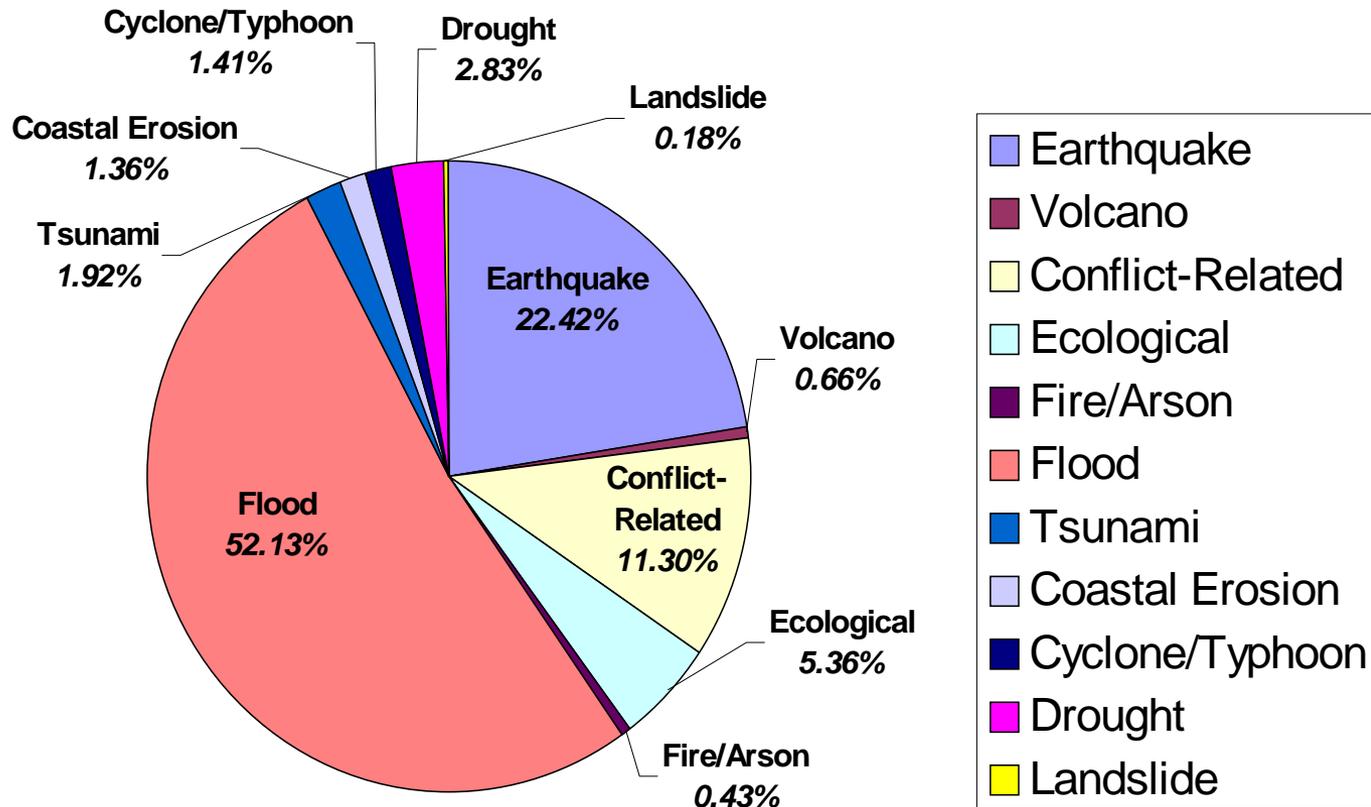
Assistance Before and After

ADB Assistance by DRM Area (June 1987–August 2007)



Flood Assistance > 50%

Disaster-Related Loans (June 1987-August 2007)



Key Lessons from Projects

- **Combine structural and nonstructural measures in a comprehensive flood management approach**
- **Address operation and maintenance of project assets**
- **Increase engineering investigations before and during detailed design to avoid very costly structural failures**
- **Make space for public participation in project planning**



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Key Initiatives in the Region

- **ADB Water Financing Program (2006-2010)**
- **ADB Water Financing Partnership Facility**
- **Asia Pacific Water Forum**
- **Network of Asian River Basin Organizations**



Water Financing Program 2006-2010

ADB goes for doubling of water investments

3 key investment areas

Rural water – improve health and livelihoods

Urban water – sustain economic growth in cities

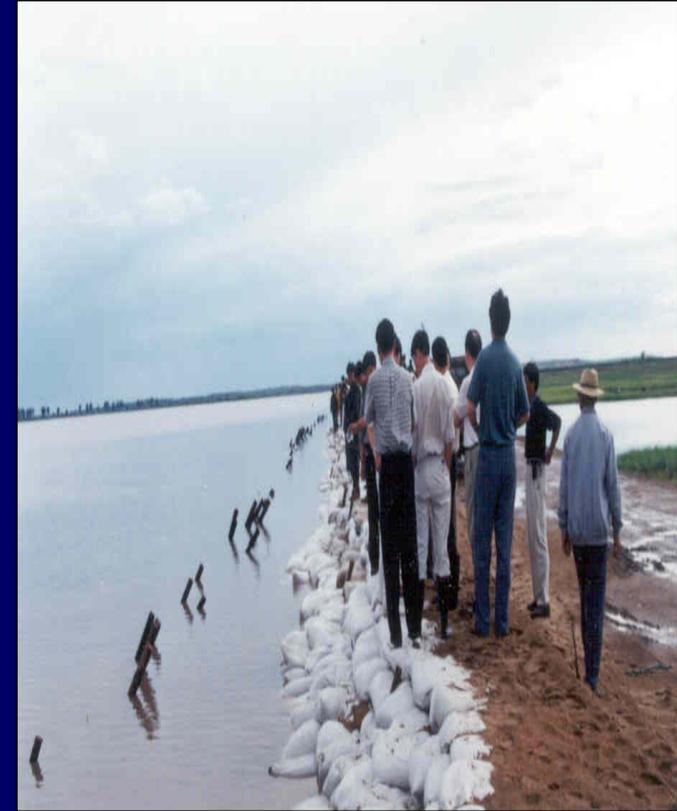
Basin water – IWRM, flood management,
healthy rivers

See <http://adb.org/Water/Operations/WFP/default.asp>



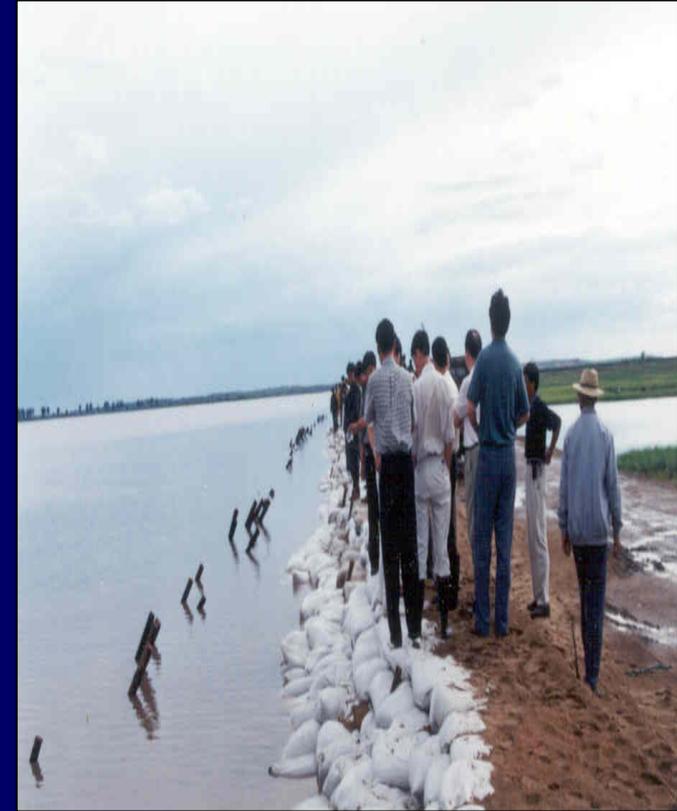
ADB-ICHARM Collaboration

- Work together in projects to reduce flood risk for 100 million people under ADB's Water Financing Program 2006-2010
- Support regional cooperation for integrated flood management in Asia Pacific
- Cooperation agreement and start in 2008



ADB-ICHARM Collaboration cont'd

- Project assistance may include: capacity development in local riverside communities, high-tech flood forecasting, flood hazard mapping, emergency evacuation procedures, flood proofing approaches
- Regional cooperation may include Asian indices for social vulnerability and preparedness
- Projects expected to include: Bangladesh, India, Indonesia, countries of the lower Mekong basin, Pacific islands, and People's Republic of China



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