

**“Advancing human security through knowledge-based approaches to reducing vulnerability and environmental risks“**

# **United Nations University Institute for Environment and Human Security (UNU-EHS)**



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*Advancing Knowledge for Human Security and Development*

# **The Significance of Governance in Mitigating Water-Related Disasters**

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## General definition

**Governance** deals with the processes and systems by which organizations and societies operate.

**Governance** possesses notion of „*steering*“ in contrast to the notion of „*driving*“

**Governance** implies „power to...“ contrasted by „power over...“

## UNDP's definition

**Governance** defines the exercise of political, economic and administrative authorities in the management of a country's affairs at all levels.

**Governance** is a neutral concept comprising the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interest, exercise their rights and obligations as well as their differences.

**Good governance** addresses and fosters the allocation and management of resources to respond to collective problems, it is thus characterized by:

## Good governance

- participation → adequate/equal opportunity placing concerns for all stakeholders.
- transparency → sharing information anytime for communication & decision-making.
- accountability → officials answer to all stakeholders. dissemination of information!
- rule of law → clear communication of rules, applications & proposed outcome
- effectiveness → requiring competence, sensitivity & responsiveness. Formulate goals.
- equity → similar cases treated similar ways

## Major challenges

- Increasing flood losses, affected people as well as number and magnitude worldwide
- Flood plains play important role for livelihood of large portions of the world's population – losses have to be reduced, benefits be strengthened
- Coordinated input to the UN International Decade for Action: „Water for Life“ (2005-2015)
- 520 million people affected each year
- Today 1bn. people live in path of 100-year flood
- 2bn. people vulnerable to floods in 2050

Source: Bogardi, 2005

# Major challenges

## Economic losses due to natural disaster (-2004)

Year	Country, region	Event	Losses* (Bn. US\$)	Insur. Losses* (Bn. US\$)
1995	Japan, Kobe	Earthquake	100	3
2004	USA, Caribbean	Hurricane season	60	30
1994	USA, Northridge	Earthquake	44	15.3
1998	China, Jangtse	Flood	30	1
1992	USA, Florida	Hurricane Andrew	30	17
1996	China, Jangtse	Flood	24	0.5
2002	Europe	Flood	21.5	3.5
1993	USA, Mississippi	Flood	16	8
1990	Europe	Storms	15	10.2
1995	North-Korea	Flood	15	./.
1988	Armenia, Spitak	Earthquake	14	./.
2004	Indian Ocean	Tsunami	10	1
2003	Europe	Drought	13	<1

2005	USA, Ls., Ms. & Fl. + further states	Hurricane Katrina and subsequent extreme floods	100	~50
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## Death tolls due to natural disaster (-2004)

Year	Country	Event	Death toll
1970	Bangladesh	Storm surge	300,000
1976	China	Earthquake	290,000
2004	Ind. Ocean	Tsunami	220,000
1991	Bangladesh	Storm surge	140,000
1970	Peru	Earthquake	67,000
1990	Iran	Earthquake	40,000
1988	Armenia	Earthquake	25,000
1985	Columbia	Vulcano eruption	24,700
1976	Guatemala	Earthquake	22,700
1963	Bangladesh	Storm surge	22,000
2003	Europe	Drought	>20,000
2004	USA, Carrib.	Hurricane season	2,000

2005	USA, Ls., Ms. & Fl. + further states	Hurricane Katrina and subsequent extreme floods	1000
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\*non-inflational clear-up



## Session 3: Governance and Integrated Flood Management



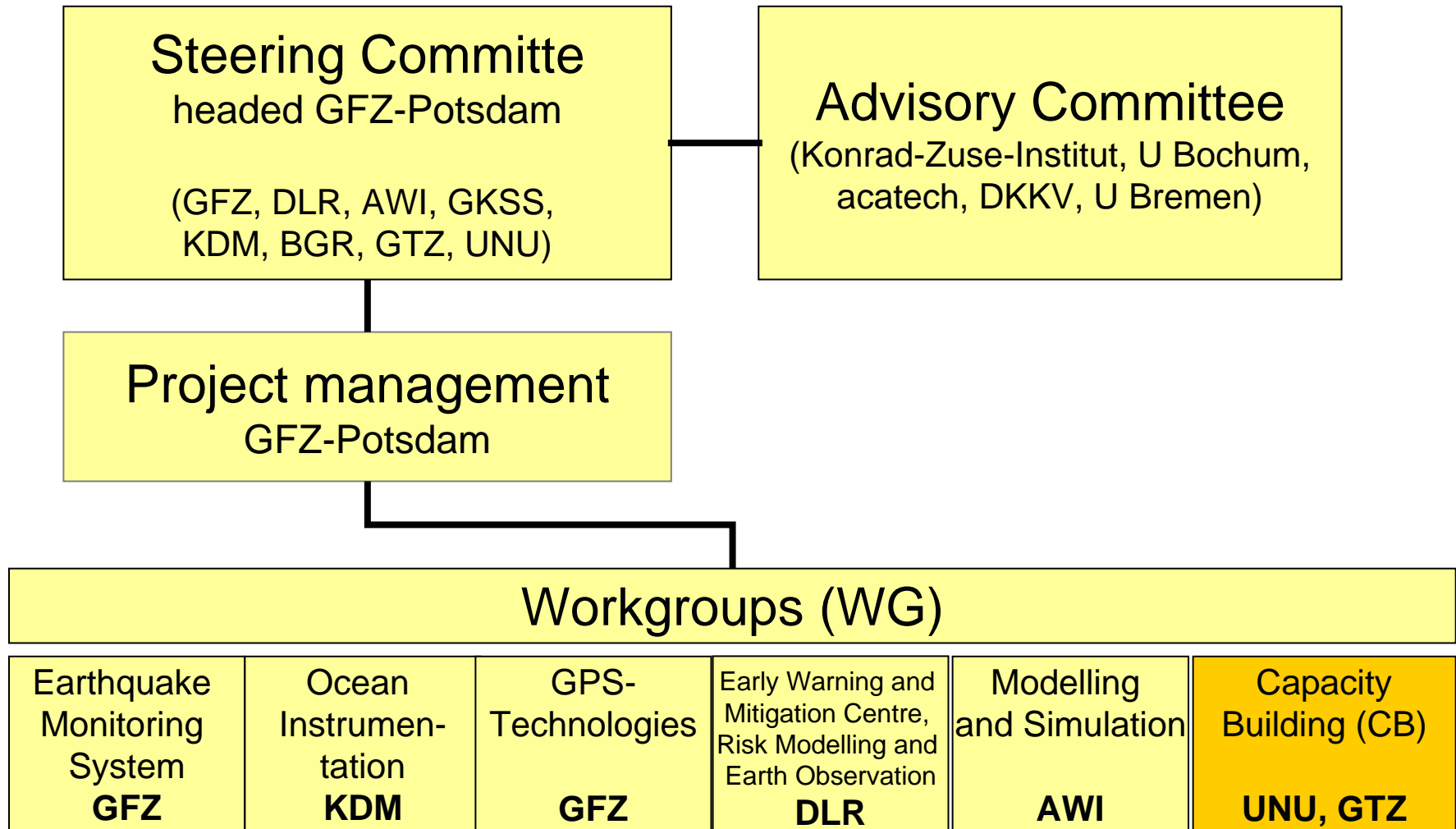
- Lack of public awareness and preparedness (early warning systems)
- Loss of indigenous knowledge

Lhoknga, Indonesia, 21.1.0  
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# Core elements of Tsunami Early Warning System (GI-TEWS)



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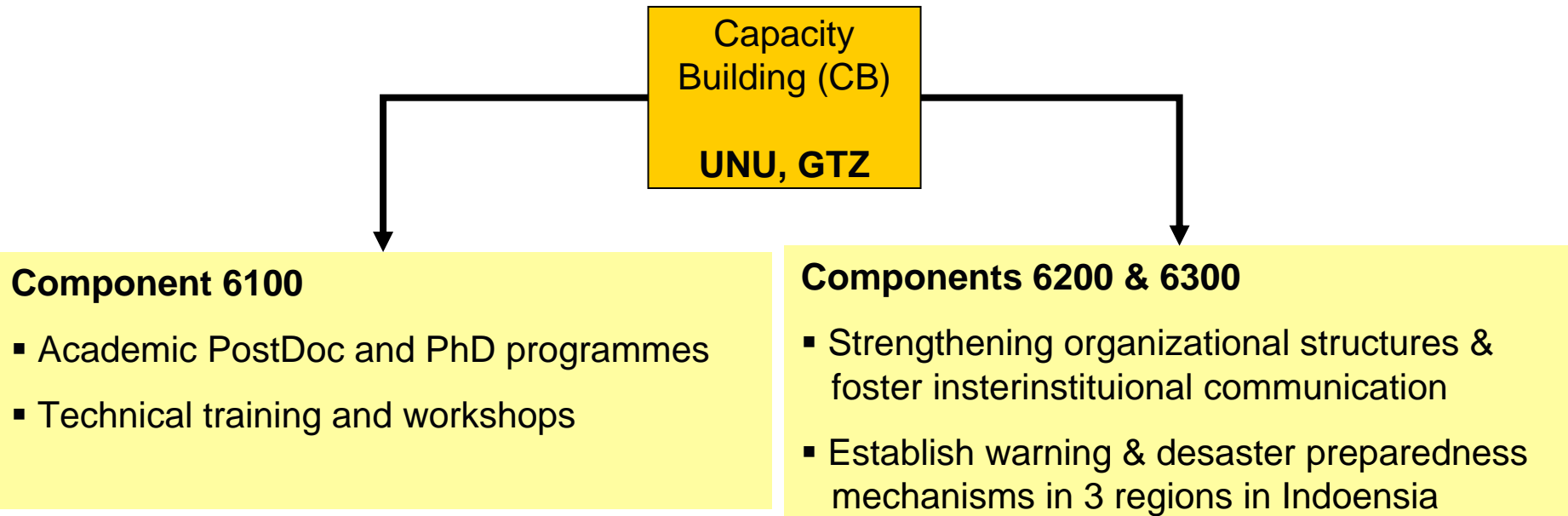
## Components of (tsunami) early warning systems:

**Level 1: Monitoring/measuring natural hazard (tsunami)**

**Level 2: Risk-based forecast of potential impact**

**Level 3: Dissemination of warning (chain)**

**Level 4: Onset of anticipated response after warning is issued -> evacuation**



## Session 3: Governance and Integrated Flood Management



MunichRe, 2005



MunichRe, 2004

- Lack of political and public awareness (...but every aspect and all consequences were known by scientists)
- Loss of trust and confidence in decision-makers and scientific community



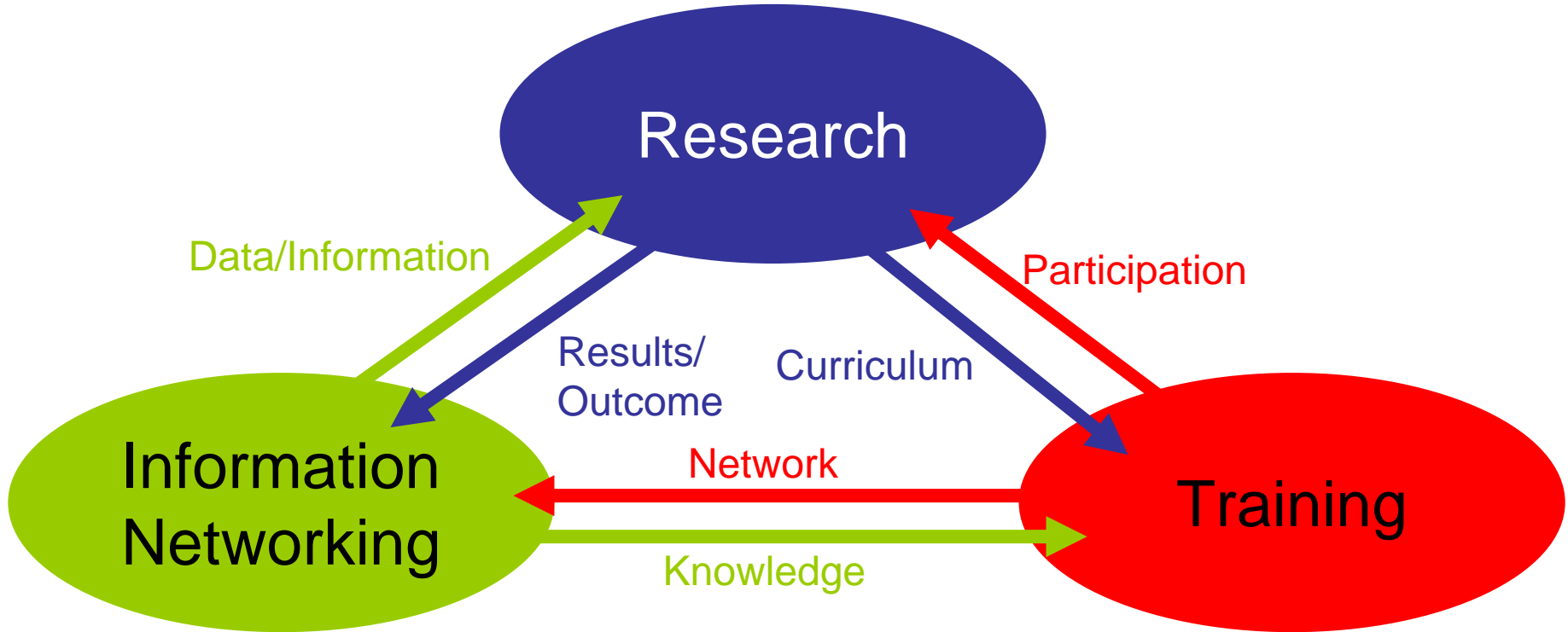
NOAA,



NOAA,

# Preventing and reducing water-related disasters

## International Centre for Water Hazard and Risk Management (ICCHARM)



# Preventing and reducing water-related disasters

## **International Centre for Water Hazard and Risk Management (ICHARM)**

- Contributing to World Water Development Report (WWDR)
- **Promoting the International Flood Initiative (IFI)**
- Expanding the Global Flood Alert System (GFAS) and IFNet
- Interdisciplinary studies, hydrological observations and data processing
- Developing database regarding water-related disasters
- Creating international/interdisciplinary network
- Planning and conducting training for administrators and experts mainly in developing countries



# Promoting the International Flood Initiative (IFI)

*„International Flood Initiative/Programme (IFI/P) promotes an integrated approach to flood risk management in order to reduce fatalities, property losses, environmental effects and hardship that result from floods and at the same time consider long-term benefits from floods and use of flood plains“*

- Vulnerability (UNU-EHS, IIASA)  
Estimating social, political, health, ecological & economical impacts
- Flood Risk Management (IAHS, ICHARM, UNESCO, WMO)  
Multi-hazard analysis, data collection, modelling, flood hazard mapping, structural & soft measures
- Governance and Participation (IIASA, USACE, ADPC)  
People-networking, institutional reform, development of stakeholder processes
- People-centred EW and EM (WMO, UNISDR, IFNet)  
Effective forecasting and early warning, effective communication, preparedness, response to warning



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# Thanks for your kind attention!

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