

# **Disaster Reduction for Sustainable Development**

**January 2005**

**Satoru NISHIKAWA  
Cabinet Office JAPAN**

**The Challenge we face in 21<sup>st</sup> Century  
Disaster Reduction  
is a **MUST** for  
Sustainable Development**

- **A single disaster can wipe out annual GDP of a country.**
- **Natural Disasters can be the biggest obstacle to social security of a country.**

# Numbers of Victims of Recent Natural Disasters in Asia

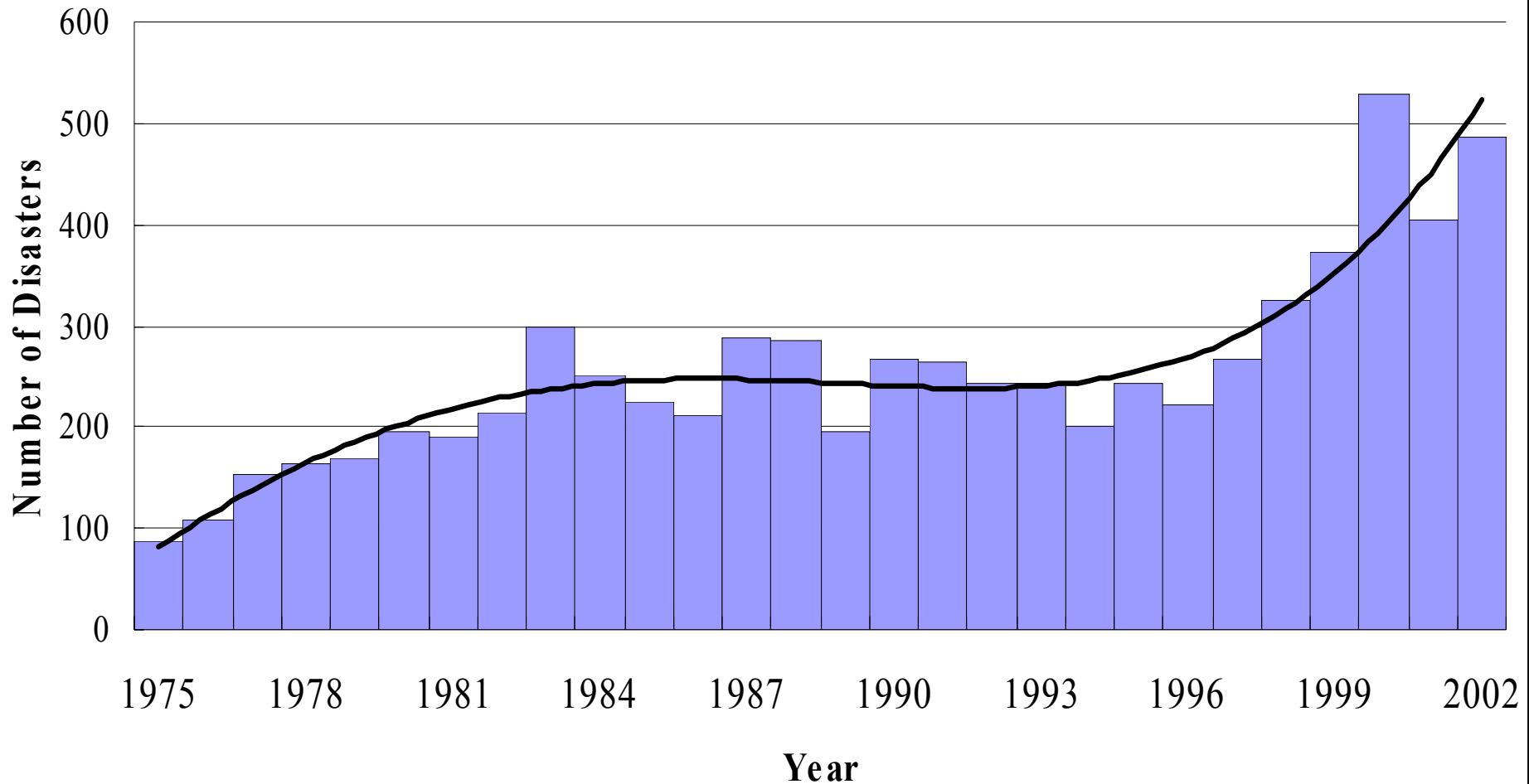
Year	Country	Disaster	Number of Dead and Missing
1998	Afghanistan	Earthquake	4,700
	PNG	Tsunami	2,600
1999	Turkey	Earthquake	15,500
	Taiwan	Earthquake	2,300
	India	Cyclone	9,500
2001	India	Earthquake	13,805
2002	Afghanistan	Earthquake	More than 800
	Korea	Typhoon	246
2003	Sri Lanka	Landslide	236
	Iran	Earthquake	26,200
2004	Bangladesh	Flood	628
	India	Flood	1,195
	Philippines	Typhoon	1,692
	Indian Ocean	Tsunami	More than 150,000

## Ratio of Amount of Damage to GDP (Asia) (1975-2002)

Armenia	1988	Earthquake	908%
Mongolia	1996	Wild Fire	192%
Mongolia	2000	Wind Storm	97%
Lao, PDR	1993	Wind Storm	27%
Nepal	1987	Flood	26%
Georgia	1991	Earthquake	22%
Mongolia	1990	Wild Fire	21%

Source: ADRC, Japan, based on EM-DAT, CRED, and WDI, World Bank 2003

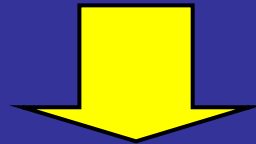
## Trend of Disasters Occurred in the World (1975-2002)



Source: ADRC, Japan and CRED-EMDAT, Universite Catholique de Louvain, Brussels, Belgium, 2002

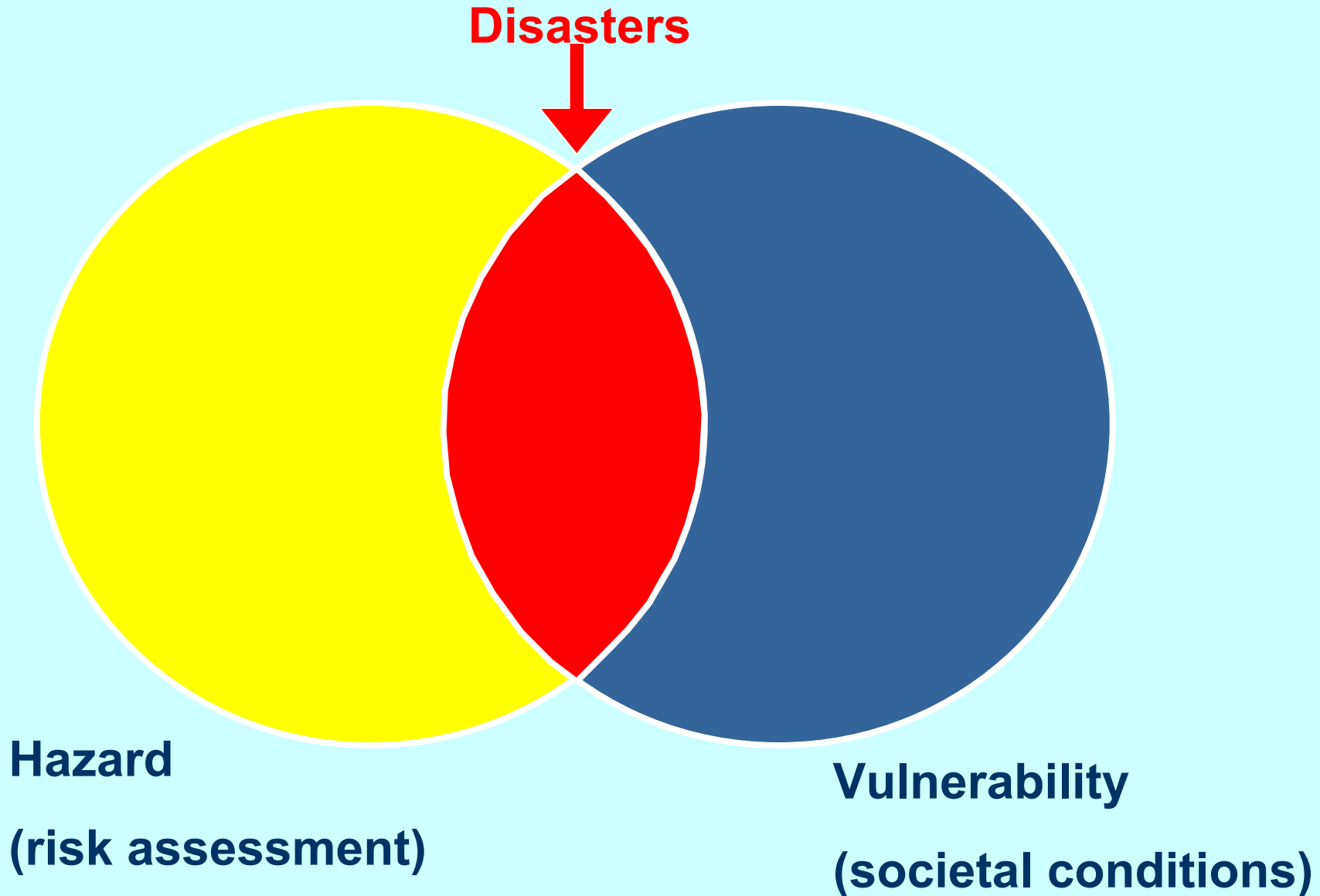
# What if Istanbul is hit by major earthquake ?

- human loss estimated to 73,000 ~ 87,000 deaths !
- economic loss estimated to 24.5 ~ 27.8 % of annual GDP of TURKEY !

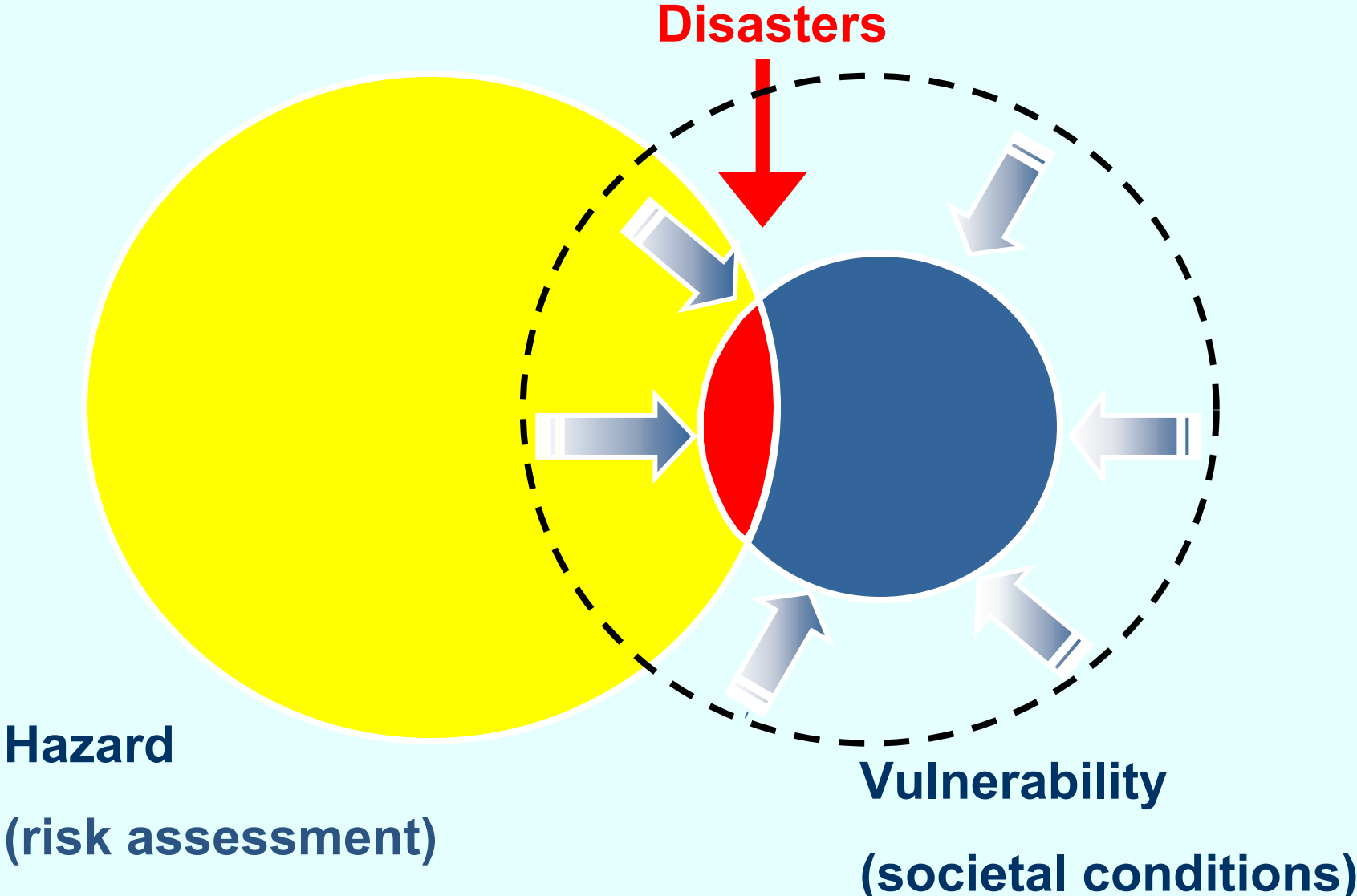


Great threat to social stability of TURKEY

# Hazards Confronting Vulnerable Communities Cause Disasters



# Less Disasters





**How ?**

# The Disaster Reduction Cycle

Pre-Disaster Phase

Prevention

Mitigation

Preparedness Phase

Preparedness

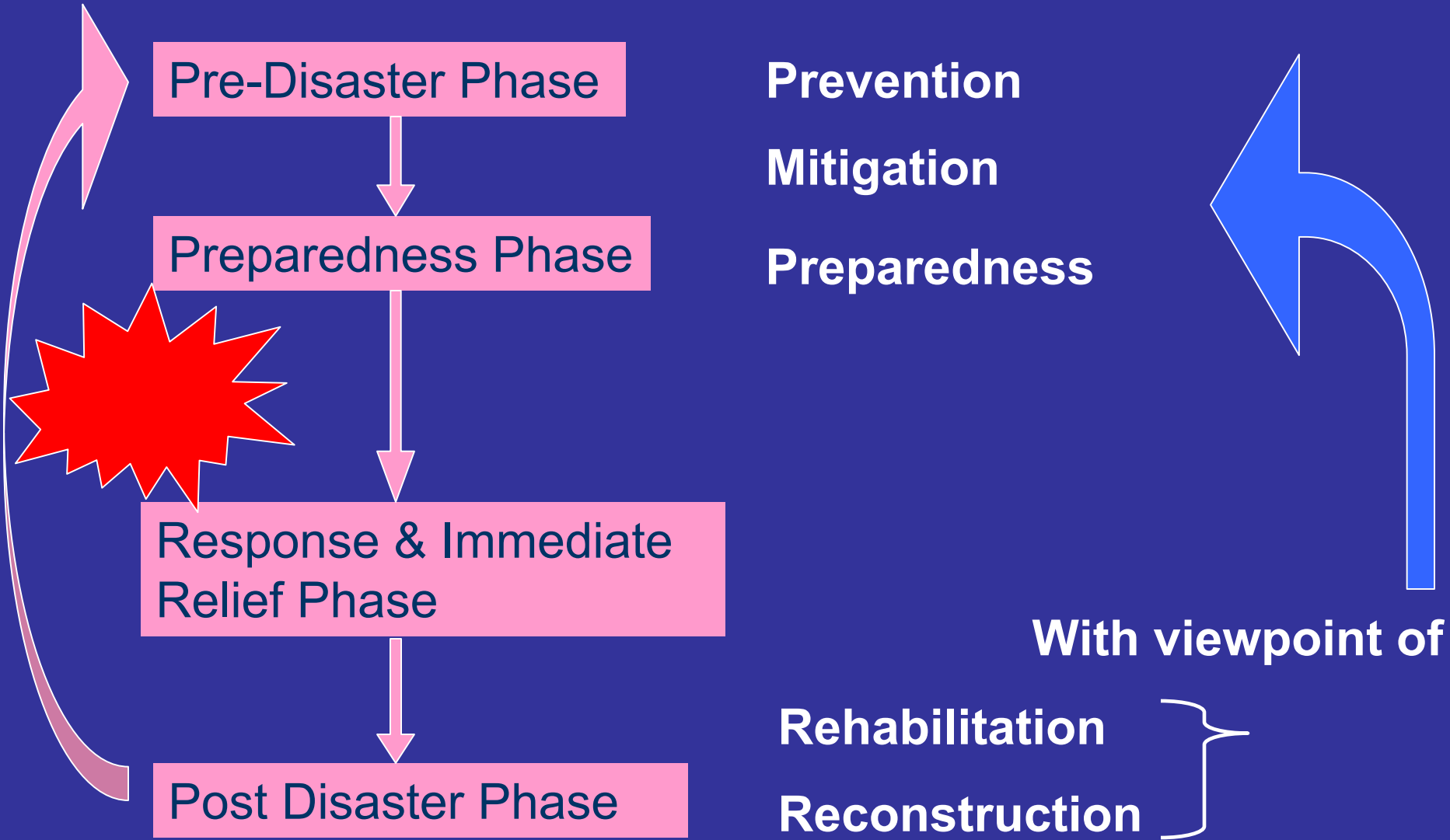
Response & Immediate Relief Phase

Post Disaster Phase

Rehabilitation

Reconstruction

With viewpoint of



# Coordination Mechanism

- Regional Planning
- Social Infrastructure Works
- Agriculture & Forestry
- Health & Sanitation
- Environment

Civil Protection & Relief

Scientific & Engineering Research

National Coordinating Bodies

Local Gov'ts, Communities, Mass Media, NGOs



People

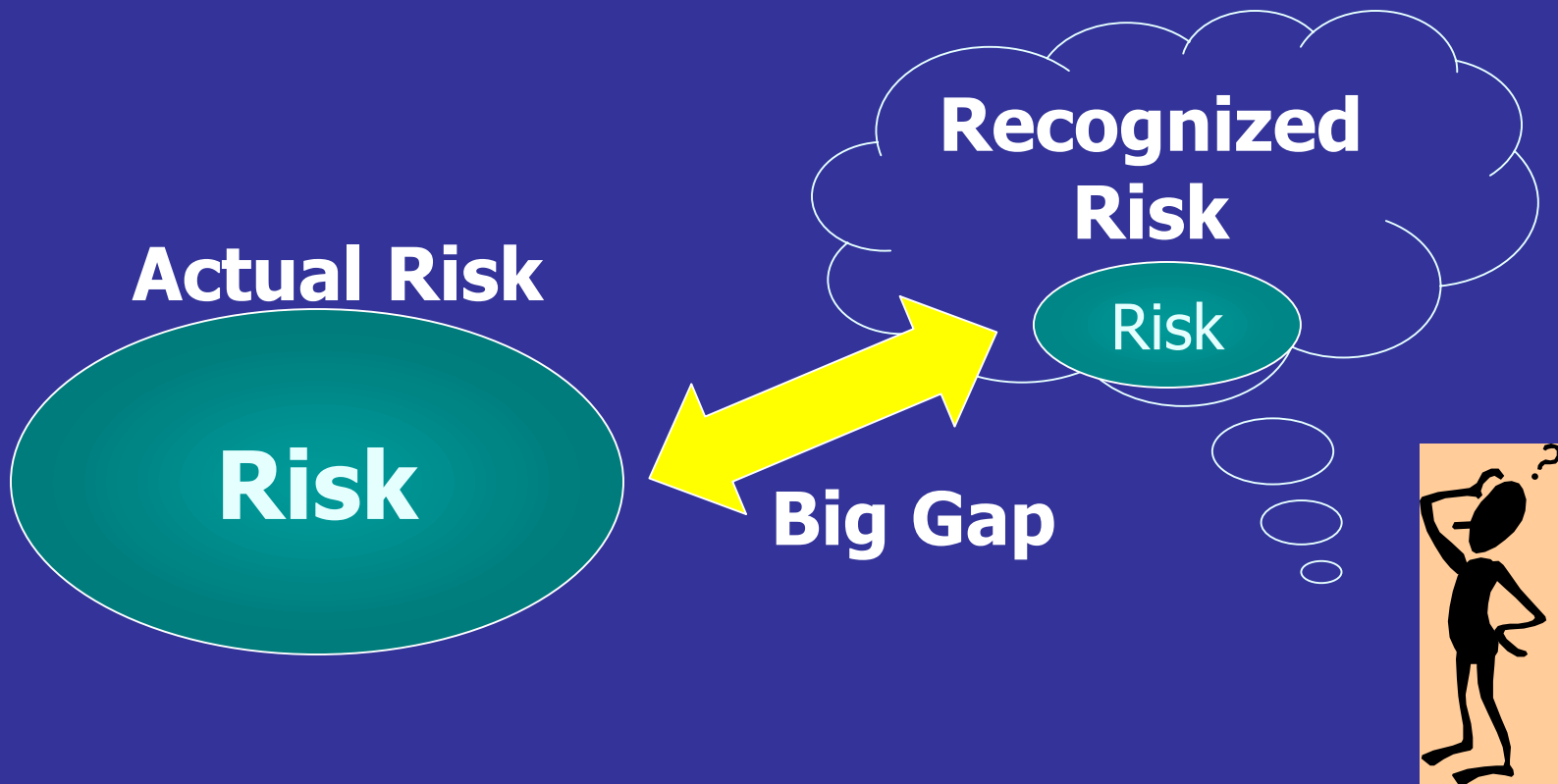
# Risk Information

- Early Warning
- Hazard Mapping

**is vital for action**

**Information is Vital!**

## **Risk Perception Gap**



**Need for Generating  
Realistic Disaster Scenario**

# Information is Vital!

## Development of Early Warning Tech.



Volcanic  
Eruption  
Warning!

Flood Warning!



Tsunami  
Warning!

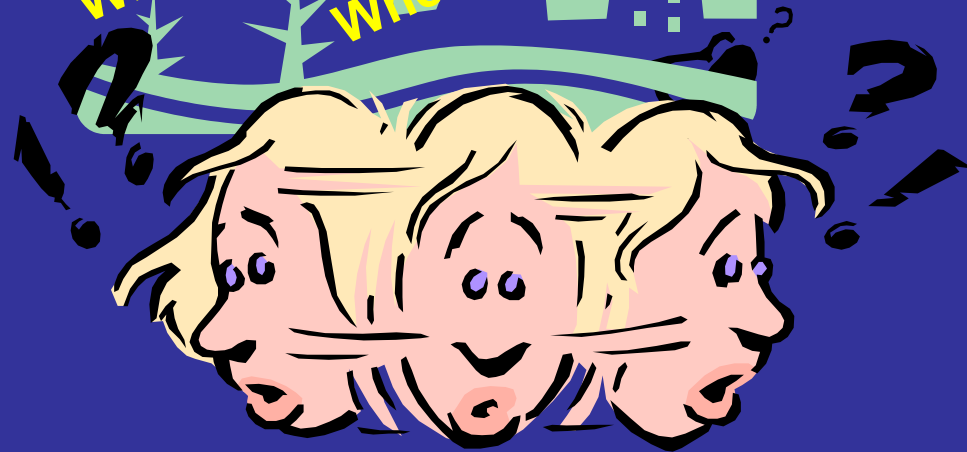
## Less Community Awareness

Which way to  
be taken?



What to do?

Where to go?



# Information is Vital!

## Hazard Mapping as a Tool for Effective Early Warning



Safe Evacuation  
Route



Understanding of  
Hazardous Areas

Appropriate Risk Awareness  
of Local Communities

+



Early Warning

=



Safe Evacuation

# Information via Media

## Information



(Source: Japan Weather Association)



# NHK (Japan's Public Broadcasting) TV Screen Image - 1

showing Seismic Intensity by Miyagi-ken Earthquake on 26 July 2003



within 5 minutes  
after the  
Earthquake  
with/without  
Tsunami Warnings

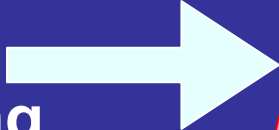
# Vital Information



**Reduce Damage by Disasters**

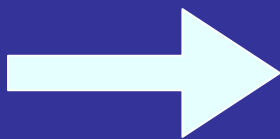
# How can we really reach the people at risk?

Anti-Seismic  
Structural Engineering



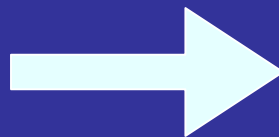
Local Housing

Satellite Imagery  
of Typhoon by  
Meteo-Sats

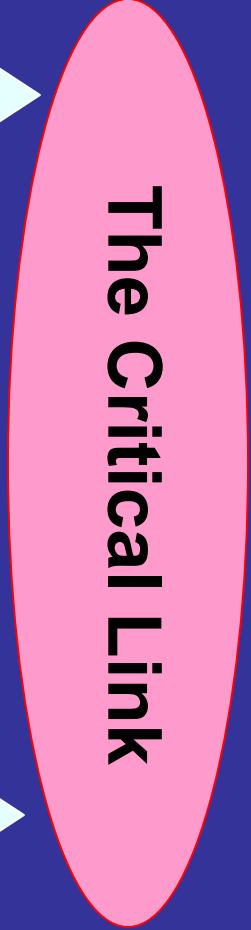


People in Low Basins

Tsunami-Warning  
by PTWC



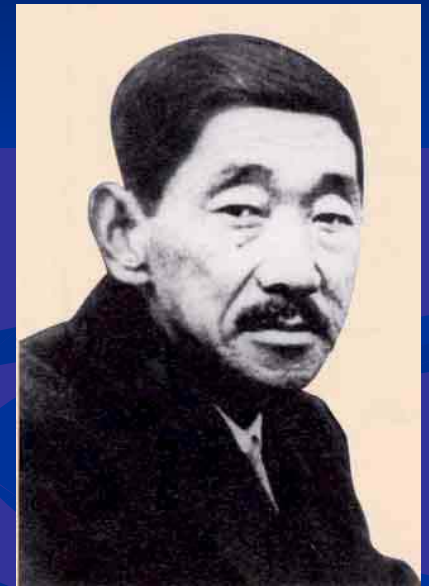
Fishing Villages



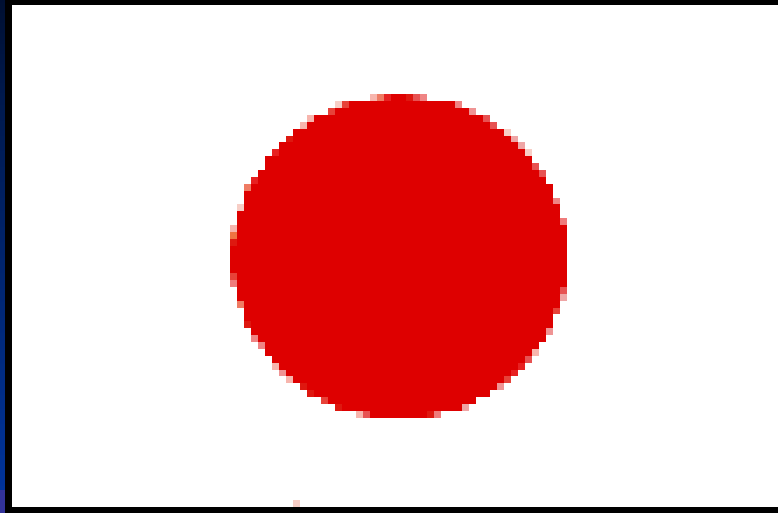
The Critical Link

Proverb by Japanese Physics Scientist  
Dr. Torahiko TERADA (1878-1935)

「天災は忘れた頃にやってくる」



**“Natural Disasters will hit us by the  
Time people have forgotten about it”**



**THANK YOU**