Asia-Pacific
Economic Cooperation

TFEP02/2008A/02

Hazards, Disasters and Vulnerability in the Asia - Pacific region: reality and challenges

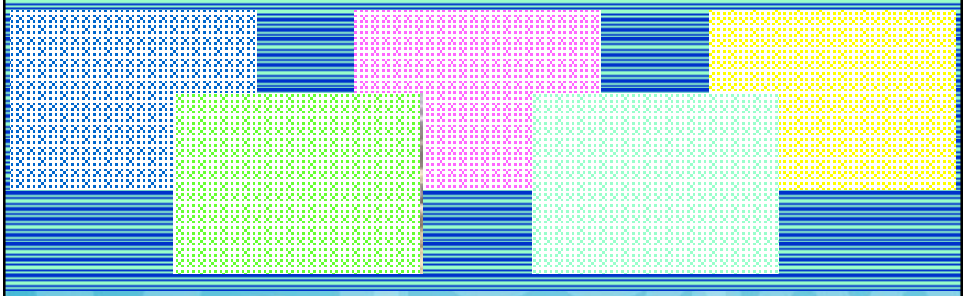
Submitted / Presented by: Chinese Taipei

Dialogue among APEC economies, business community, key international and regional partners on emergency preparedness

Ha Noi, Viet Nam
24-25 April 2008

Hazards, Disasters and Vulnerability in the Asia - Pacific region: reality and challenges

- Are we moving toward more disasters?!



Wei-Sen Li

Science and Technology Center for Disaster Reduction (NCDR)

Chinese Taipei

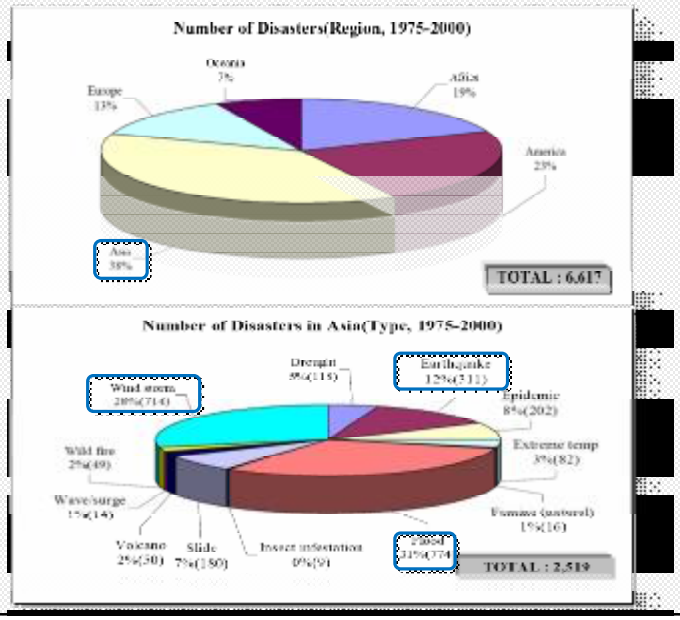
Outline

- Disaster profiles in Asia
  - **Occurrence, Causalities, Damage**
- Disasters induced by Urbanization
  - **Growth tendency, Induced problems**
- Climate Change
  - **Possible threats, Strategies**
- Future Prospects of Disaster Risk Reduction
  - **Technology, International Cooperation, policies...**
- Conclusions
  - **Learn from disasters, not taught by disasters**

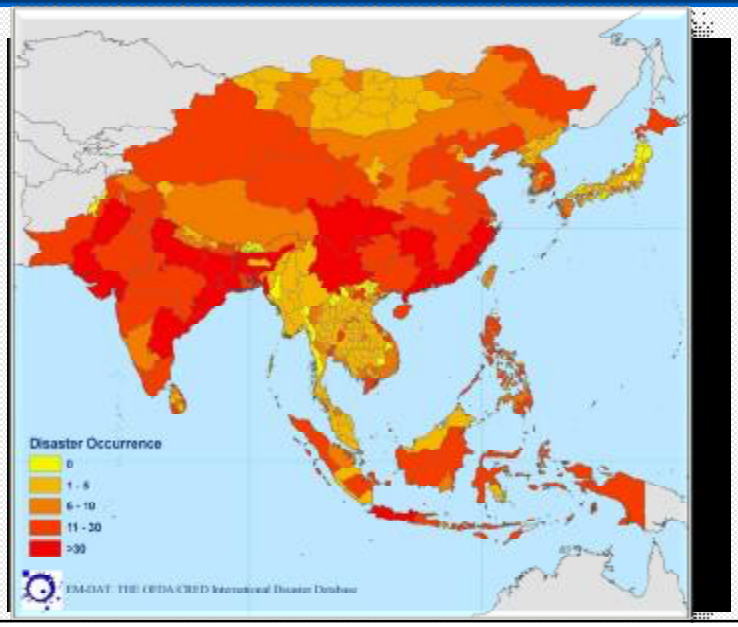
Disaster Profile

Origen	Phenomena / Examples
Hydro-meteorological hazards Natural processes or phenomena of atmospheric , hydrological or oceanographic nature. 	• Floods, debris and mudflows • Tropical cyclones, storm surges, wind, rain and other severe storms, blizzards, lightning, snow storm • Drought, desertification, wildfires, temperature extremes, sand or dust storms • Permafrost, snow avalanches
Geological hazards Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin, such as mass movements. 	• Earthquakes, tsunamis • Volcanic activity and emissions • Mass movements, landslides, rockslides, liquefaction, sub-marine slides • Surface collapse, geological fault activity

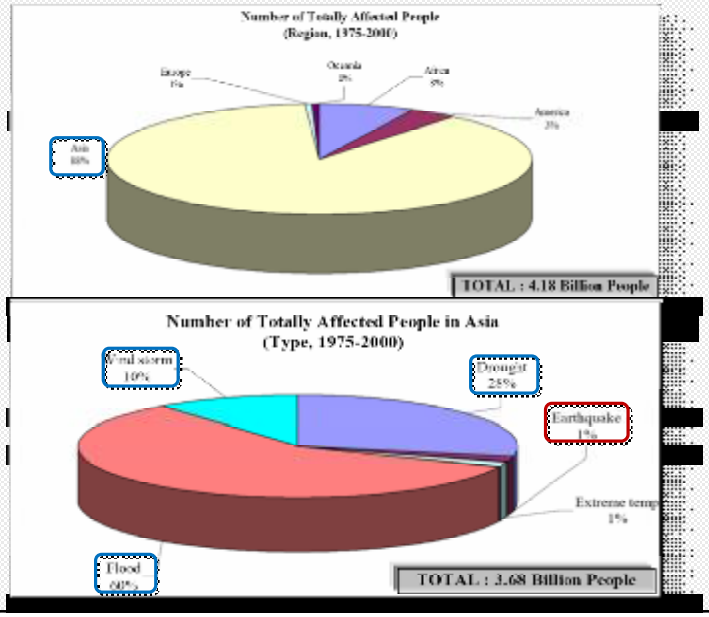
Disaster Occurrence



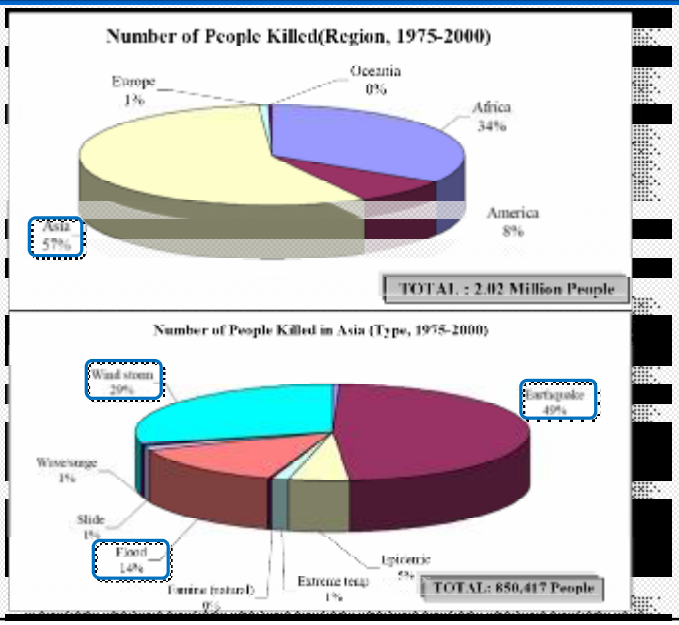
National disaster occurrence by first administrative level boundaries: 1975-2004



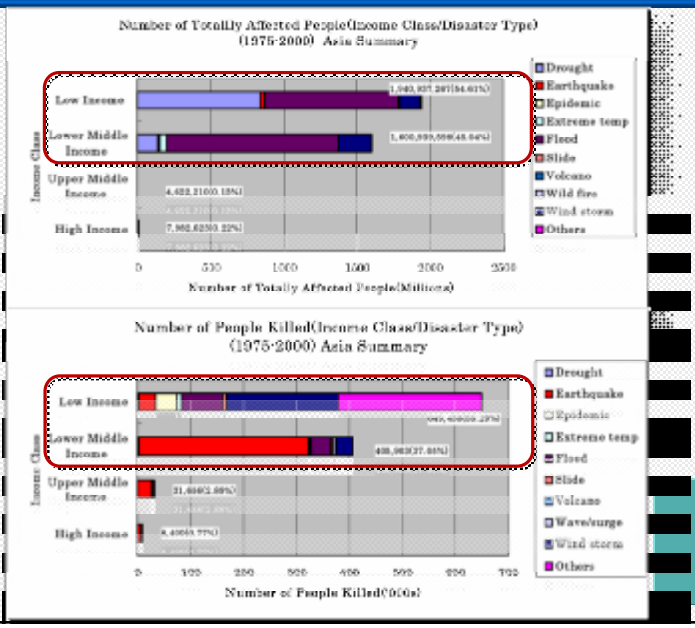
Affected People



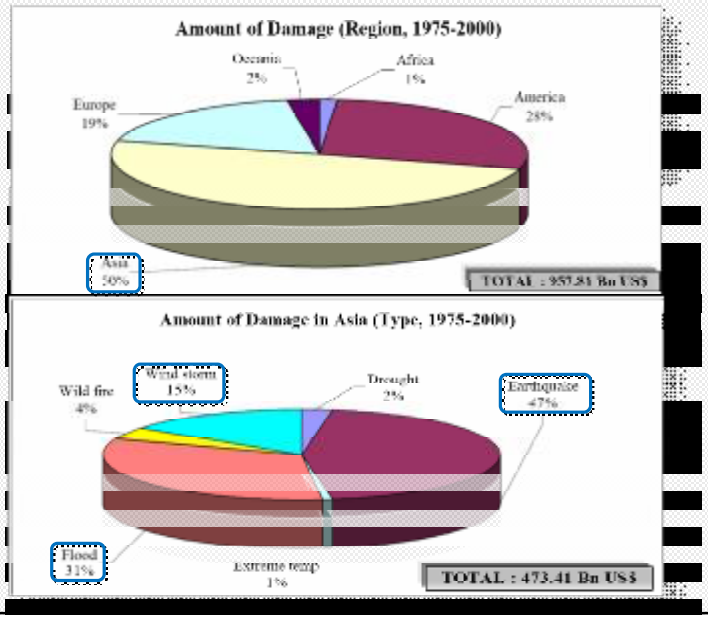
Killed People



Incomes vs. Affected & Killed People



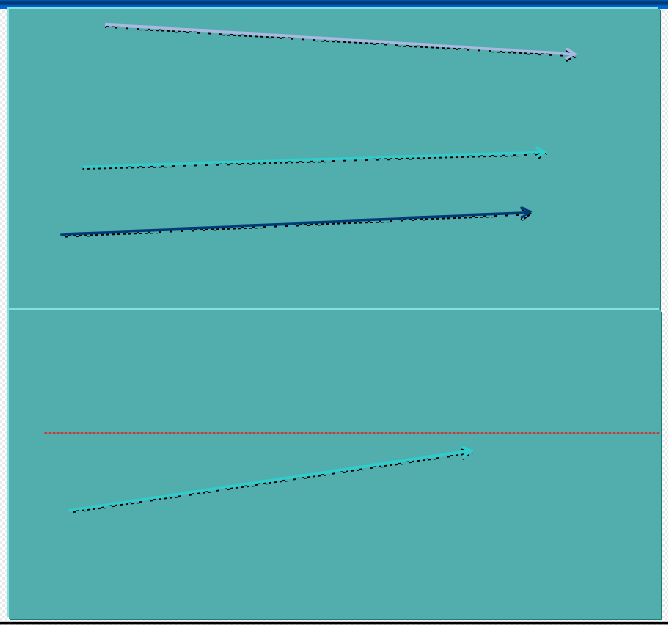
Damage Analysis



Brief Summary about Natural Disaster in Asia

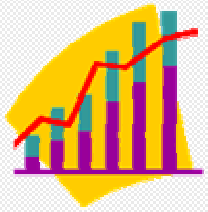
- Disaster Occurrence:
  - **Flood(31%), Wind Storm(28%), Earthquake(28%)**
  - ***Sum of above: 71%***
- Affected People:
  - **Flood(60%), Drought(28%), Wind storm(10%)**
  - ***Sum of above: 98%*, Earthquake(1%)**
- Killed People:
  - **Earthquake(49%), wind storm(29%), Flood(14%)**
  - ***Sum of above: 92%***
- Damage:
  - **Earthquake(47%), wind storm(31%), Flood(15%)**
  - ***Sum of above: 93%***

Tendency of Urbanization (1/2)



Tendency of Urbanization (2/2)

- Milestone in 2008:
  - **The first time, over half global population, 3.3 billion people, will be living in urban areas.**
  - **Almost 5 billion by 2030.**
- In the 20th century:
  - **The world's urban population grew from 220 million to 2.8 billion.**
- Growing trend in urban area
  - **2008 50%**
  - **2003 48%**
  - **1950 30%**
  - **1800 2%**



Issues for Urban Area

Property	•Infrastructures: Buildings, Public utilities •Lifeline: Bridges, Communications, Pipeline •Service: Public, Commercial
Population	•High density: Social-economic impact •**Aging population**: Create new demand •Globalization: cultural diversity •Social relationship
Resources	•Hardware: Construction & Installation •Software: Awareness, Education •Emergency Relief: Stockpiles, Shelters
Plans	•Reasonable scenario-based planning •Practical performance-based evaluation •All-hazard approach •Urban plan, Land use, development, **aging city**

Hurricane Katrina

In New Orleans Before Katrina

- **Decision:** The mayor decided to issue an evacuation order over 48 hours before landfall.
- **Hesitation:** dissemination of the order was delayed for almost 30 hours because of staff confusion about issues that should have been resolved in the planning process.
- **If not:** If most households had not left before the official evacuation order, the death toll would have been even higher.
- **Under- & over- estimate**: too many households remained because they underestimated their danger (overestimated the protection from the levees).
- **Low income citizens:** There was inadequate transportation support for those with unreliable automobiles or none at all (at least one-third of households in the city).

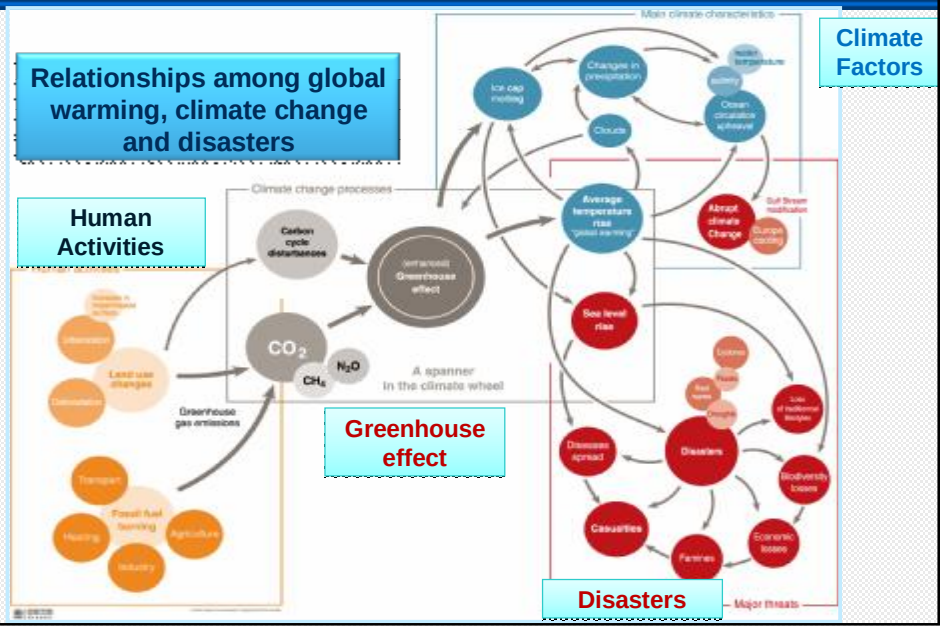
In New Orleans After Katrina (1/2)

- **Below-standard shelters**: After the city flooded, many of those who remained were forced out of their homes and into the *Superdome and Convention Center*.
  - **Neither of these facilities was stocked with food and water or had emergency generators.**
- **Poor coordination**: U.S. Coast Guard helicopters were immediately active in search and rescue operations.
  - **These were supported later by search and rescue teams from other states, which experienced significant coordination problems.**
- **Displaced families:** Victims were transported to mass care facilities throughout the country; some separated households took weeks to reconnect with family members.

In New Orleans After Katrina (2/2)

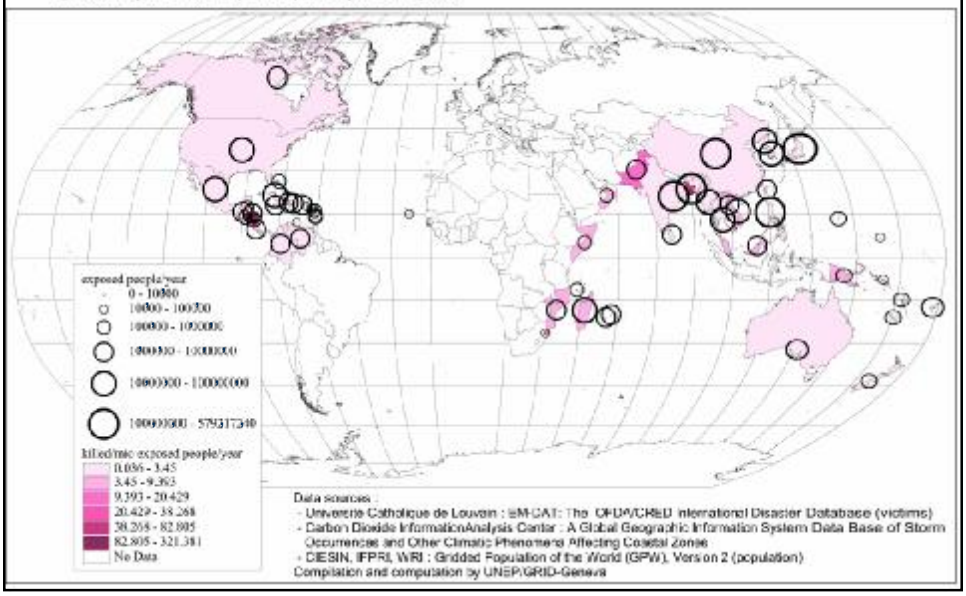
- **Medical and elders**: Medical care was a serious problem during the storm and immediately afterward.
  - **The staff of some nursing homes abandoned their patients before the hurricane struck and some of these patients drowned when the city flooded.**
  - **A few hospitals remained in operation during the emergency, but few people in the city could reach them.**
- **Evacuee settlement**: Finally, access into New Orleans and other impact areas was tightly controlled in the storm's aftermath.
  - **Counties with minimal damage (St. Charles and Jefferson, west of New Orleans) prohibited entry until a week later.**

Global warming and Climate change

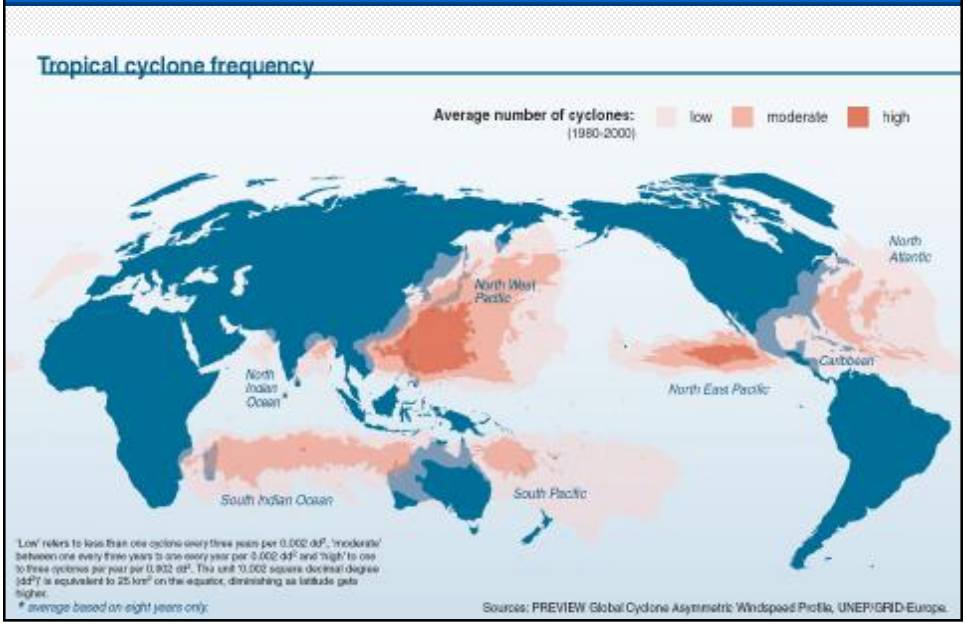


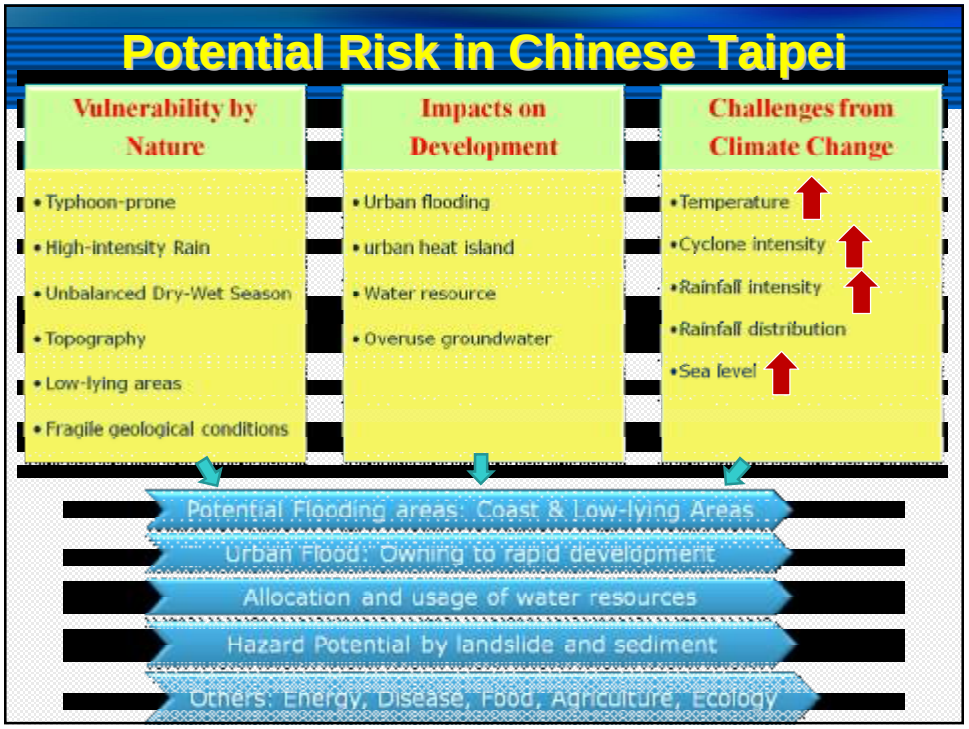
Exposure to cyclones

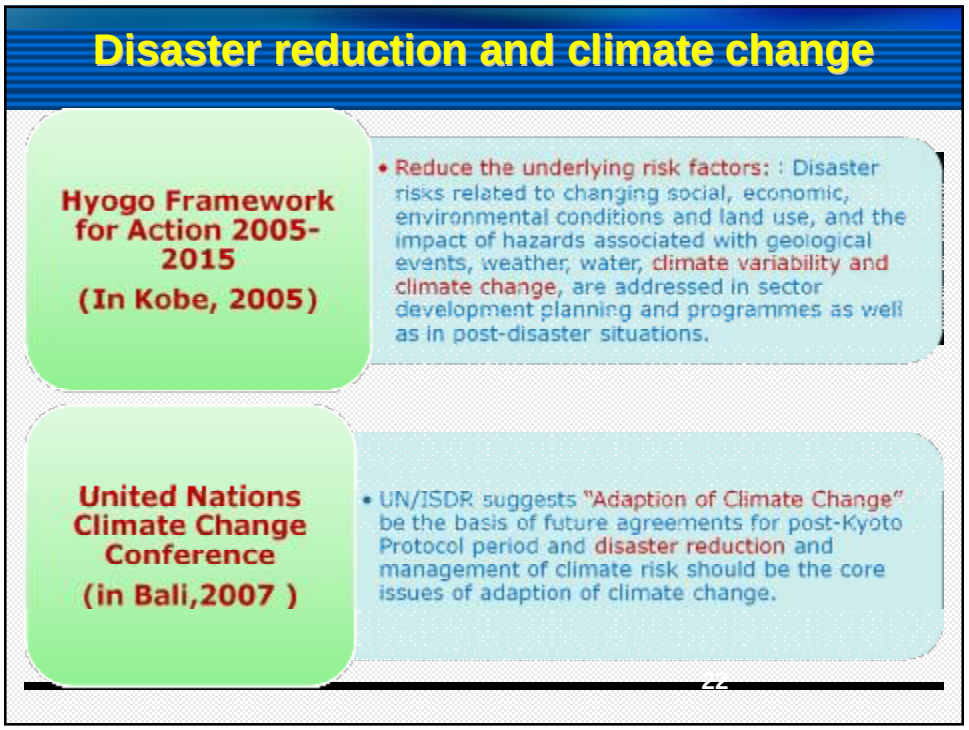
Figure 10: Map of Vulnerability and Physical Exposure to Cyclones



Tropical Cyclone Risk



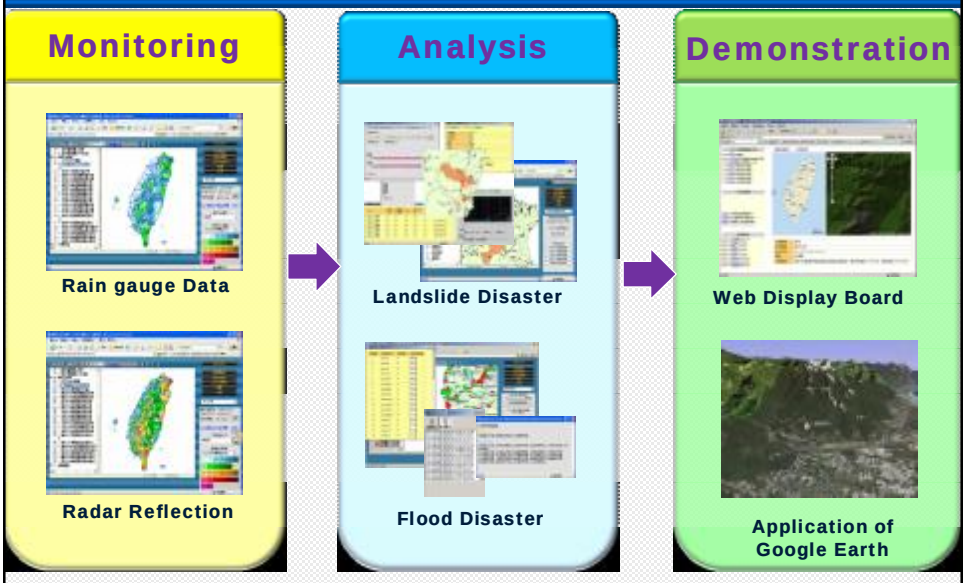

Potential Risk in Chinese Taipei
Vulnerability by Nature
• Typhoon-prone
• High-intensity Rain
• Unbalanced Dry-Wet Season
• Topography
• Low-lying areas
• Fragile geological conditions
Impacts on Development
• Urban flooding
• urban heat island
• Water resource
• Overuse groundwater
Challenges from Climate Change
•Temperature
•Cyclone intensity
•Rainfall intensity
•Rainfall distribution
•Sea level
Potential Flooding areas: Coast & Low-lying Areas
Urban Flood: Owning to rapid development
Allocation and usage of water resources
Hazard Potential by landslide and sediment
Others: Energy, Disease, Food, Agriculture, Ecology


Disaster reduction and climate change
Hyogo Framework for Action 2005-2015
(In Kobe, 2005)
• Reduce the underlying risk factors: : Disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.
United Nations Climate Change Conference
(in Bali,2007)
• UN/ISDR suggests "Adaption of Climate Change" be the basis of future agreements for post-Kyoto Protocol period and disaster reduction and management of climate risk should be the core issues of adaption of climate change.

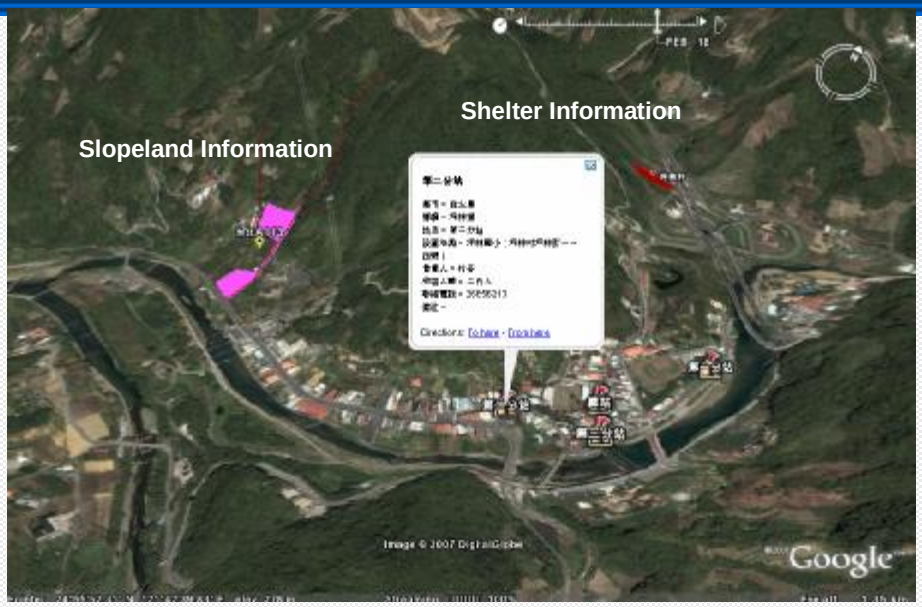
Disaster Risk Reduction

- Tools
  - **Risk Assessment *to indentify the risk potential***
  - **Information-Communications-Technology based (ICT based) systems using GIS demonstration *to demonstrate vulnerability and help decision.***
  - **End-to-End information dissemination *to facilitate timely response.***
- Concepts
  - **Pre-disaster recovery plan not just post-disaster recovery**
  - **Education, disaster perception, public awareness,**

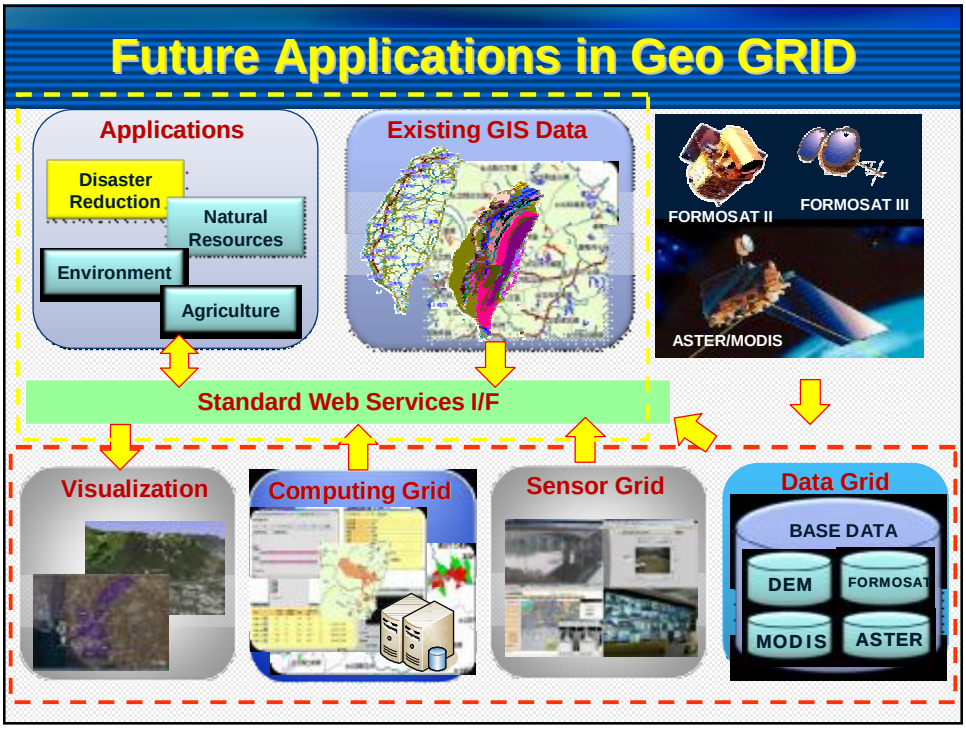
Elements of Integrated Information System



Display of Disaster Information in 3D Google Earth



Future Applications in Geo GRID



Elements in pre-disaster recovery plan

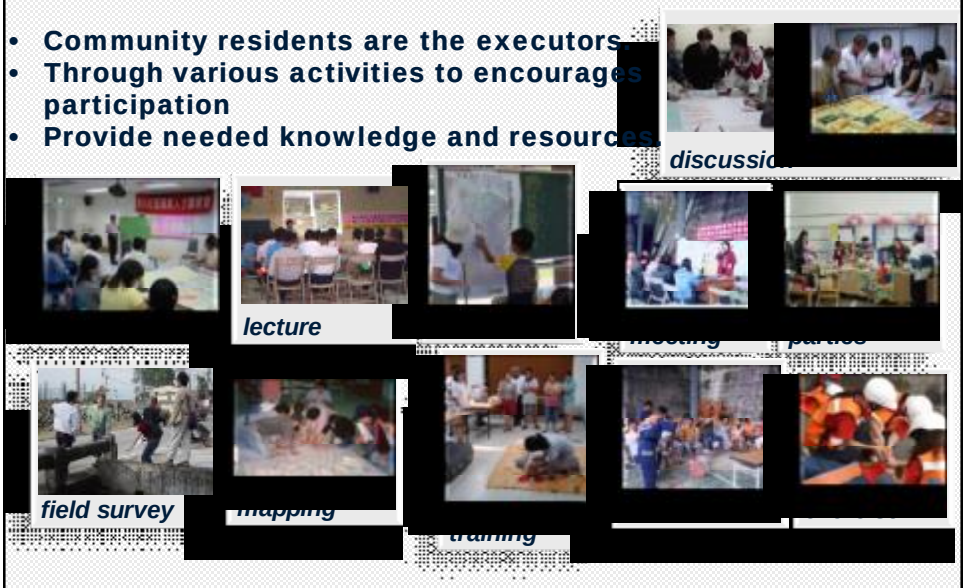
1	Coordination plus response	*Consensus on timely response originating from efficient and effective deployment including public and private sectors*
2	Information through Facilitation	*Platform for information exchange to cross boundaries and provide abundant references on reduction, preparedness, response, recovery*
3	Training by Experience	*Specific training courses provide by economies to cover regional disasters with the best practice from historical events*
4	Technology with Management	*Development and sharing of technology to ensure the better understanding of hazard distribution and provide directions for disaster reduction*

Public Private Partnership for Disaster Reduction

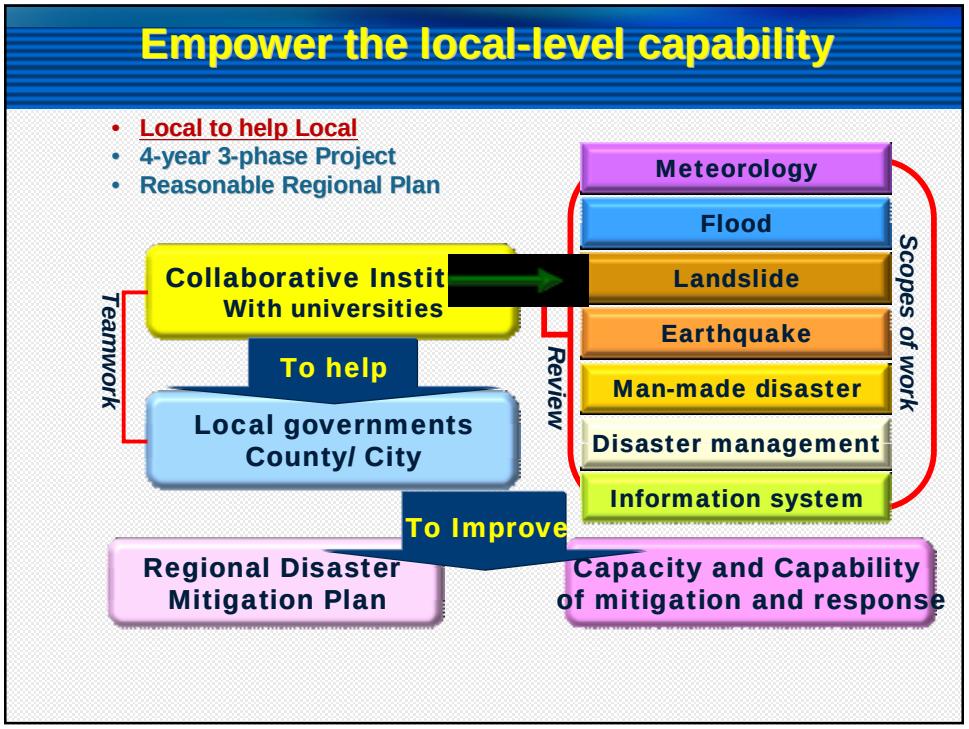
- Public sectors: power, administration and determination
  - **Plans, laws, regulations, incentives, intra- and inter- governmental coordination**
- Private sectors: resources, flexibility
  - **NGOs, NPOs**
  - **International enterprises: Corporate Social Responsibility, *CSR***
  - **Academic field: research results and participation**
  - **Community: Under sustainability and prosperity to build disaster-resilient community**

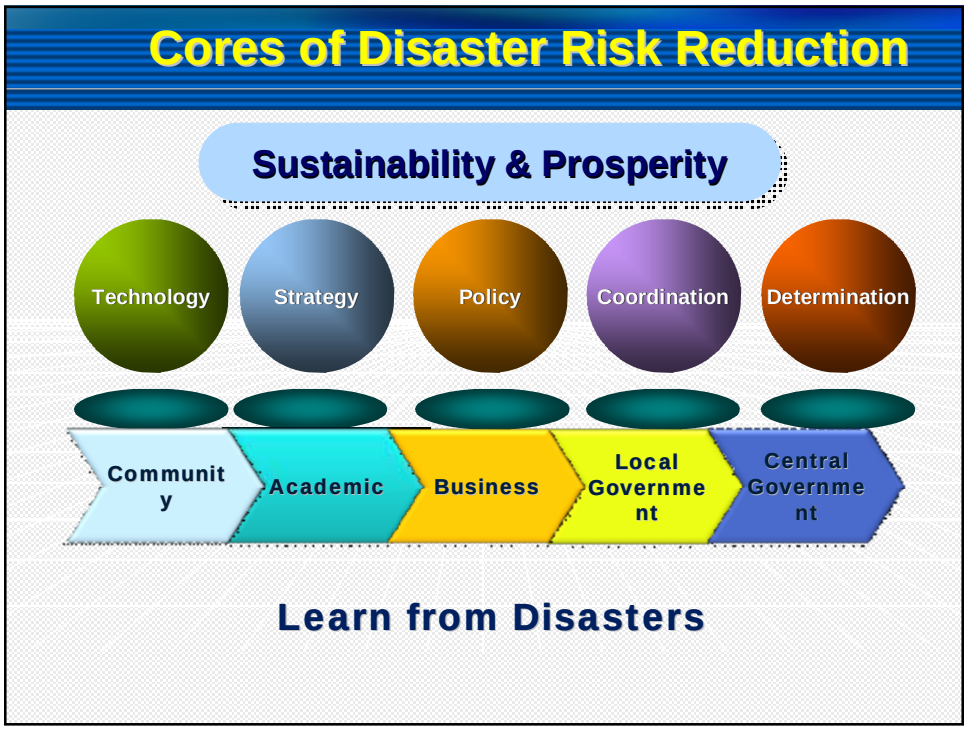
Community-Based Strategy

- Community residents are the executors.
- Through various activities to encourages participation
- Provide needed knowledge and resources.



Community-Based Strategy


Empower the local-level capability
Local to help Local
4-year 3-phase Project
Reasonable Regional Plan
Collaborative Instit
With universities
Teamwork
To help
Local governments
County/ City
Review
Meteorology
Flood
Landslide
Earthquake
Man-made disaster
Disaster management
Information system
Scopes of work
To Improve
Regional Disaster
Mitigation Plan
Capacity and Capability
of mitigation and response


Cores of Disaster Risk Reduction
Sustainability & Prosperity
Technology
Strategy
Policy
Coordination
Determination
Communit
y
Academic
Business
Local
Governme
nt
Central
Governme
nt
Learn from Disasters

Conclusions for the future

- Teamwork by APEC TFEP
  - **Developed economy members to support**
  - **Developing economy members to participate**
  - **International Organizations to collaborate**
- Directions for TFEP
  - **Adopt cores and indicators of HFA to inventory capacity in APEC members, Peru's Project**
  - **Identify required instruments, procedures and documents needed for emergency relief**
  - **Design and development appropriate strategies for individual economy**
  - **Best practices sharing for capacity building, Study Course in China , Dialogue in Vietnam**

The End

Thanks for your attention

Learning from disasters, not taught by disasters

Asia-Pacific
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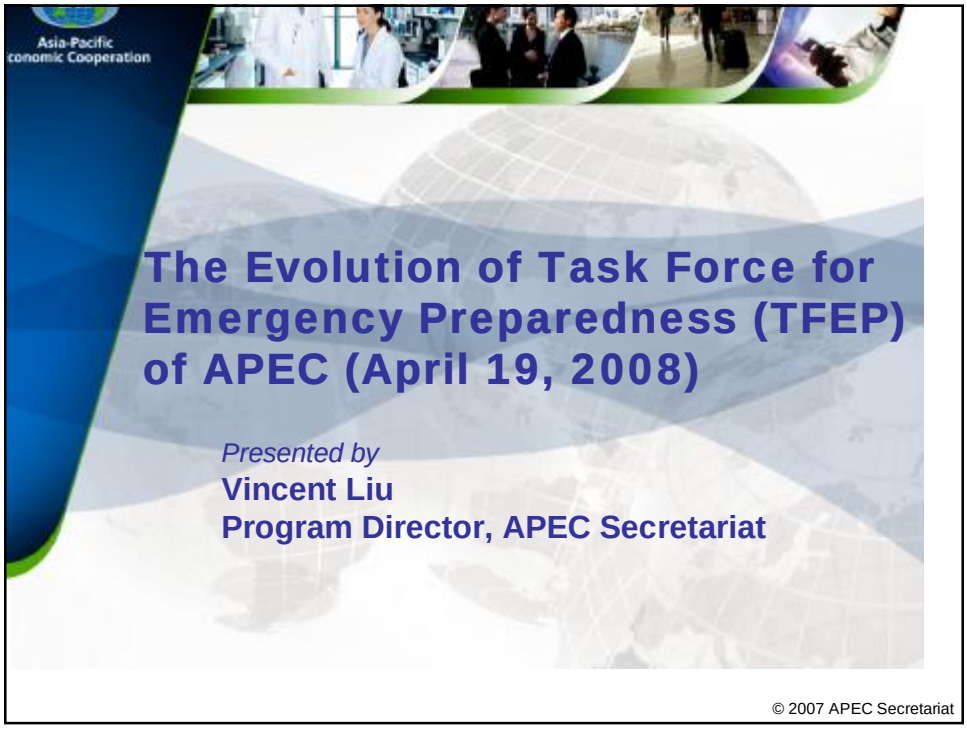
TFEP02/2008A/03

The Evolution of Task Force for Emergency Preparedness (TFEP) of APEC

Submitted / Presented by: APEC Secretariat

Dialogue among APEC economies, business community, key international and regional partners on emergency preparedness

Ha Noi, Viet Nam
24-25 April 2008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The Evolution of Task Force for Emergency Preparedness (TFEP) of APEC (April 19, 2008)
Presented by
Vincent Liu
Program Director, APEC Secretariat
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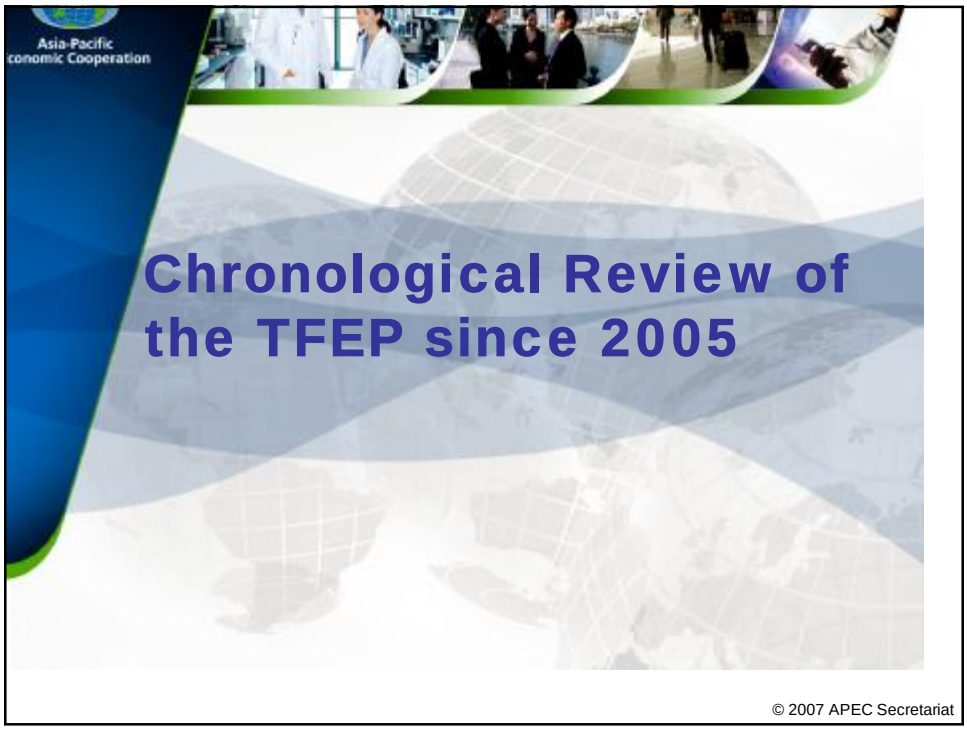
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Chronological Review of the TFEP since 2005
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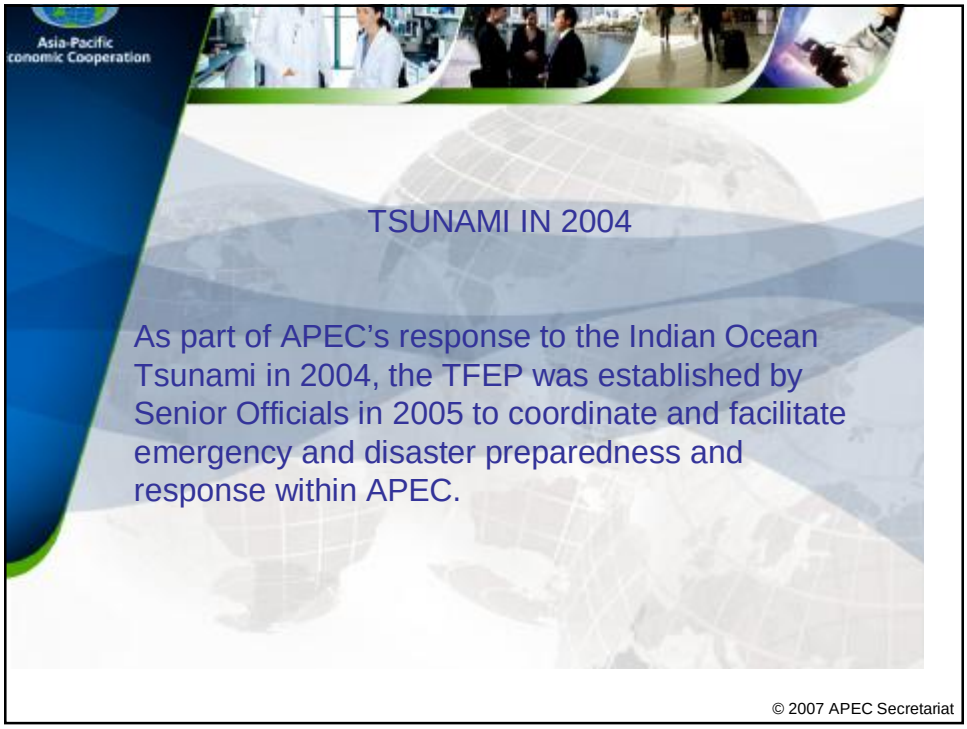
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TSUNAMI IN 2004
As part of APEC's response to the Indian Ocean Tsunami in 2004, the TFEP was established by Senior Officials in 2005 to coordinate and facitilate emergency and disaster preparedness and response within APEC.
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2005
In the Bali conference in May 2005 wich brought together senior officials and aid and emergency response officers to discuss ways and means of building emergency response capacity in the region;
First stocktake of APEC's work in this area to assess gaps and identify priorities;
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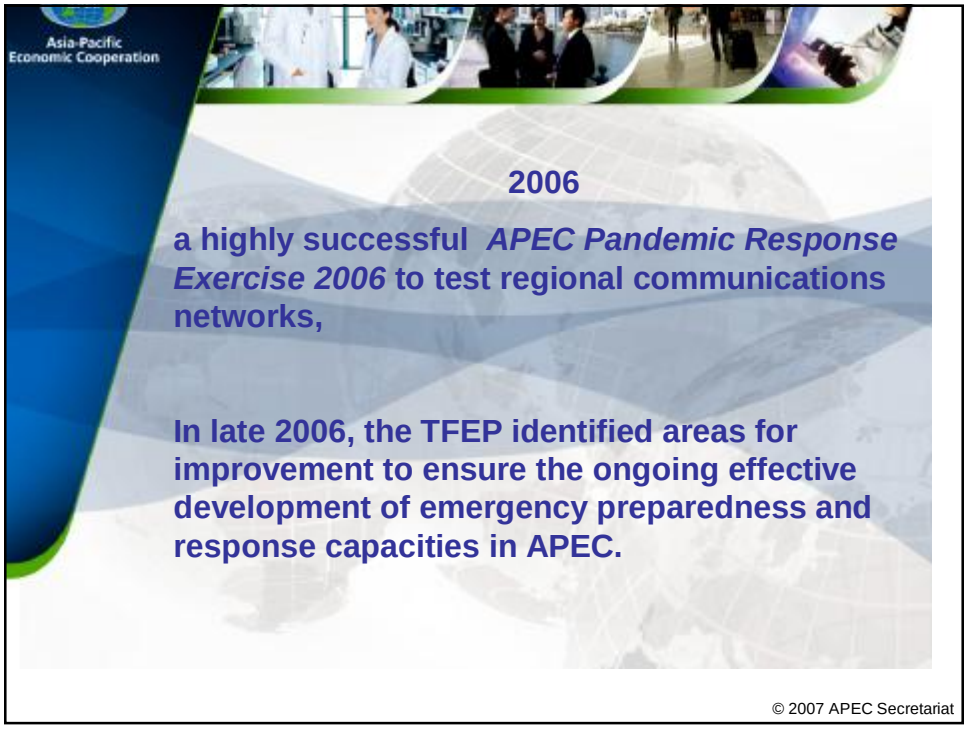
Asia-Pacific
Economic Cooperation
2006
a highly successful *APEC Pandemic Response Exercise 2006* to test regional communications networks,
In late 2006, the TFEP identified areas for improvement to ensure the ongoing effective development of emergency preparedness and response capacities in APEC.
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2006
These improvement were later on implemented in 2007, and have included:
Enhanced participation in the TFEP by emergency management and technical experts
Improved project coordination
Closer coordination with the business community
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2007
First CEO Meeting in Cairns, Australia
The TFEP recognized the need for greater involvement by emergency management experts to help steer the work of the task force and to ensure appropriate coordination of activities both within APEC and more broadly across the region.
To meet this need Australia hosted a Seminar for Emergency Management CEOs in Cairns in August 2007.
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2007
Cairns Meeting
The seminar brought together APEC disaster management and equivalent agencies. The holding of a TFEP meeting back-to-back with the seminar helped identify key areas for building capacity and expertise within and across APEC economies.
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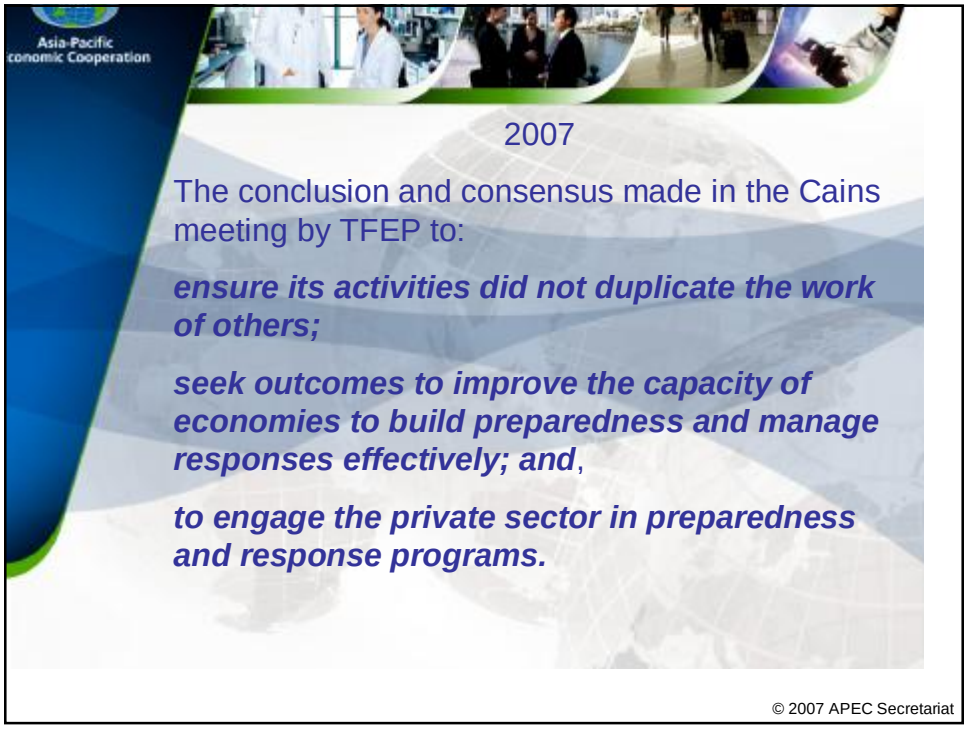
Asia-Pacific
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2007
The conclusion and consensus made in the Cains meeting by TFEP to:
ensure its activities did not duplicate the work of others;
seek outcomes to improve the capacity of economies to build preparedness and manage responses effectively; and,
to engage the private sector in preparedness and response programs.
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Political Imperative
APEC Leaders and Ministers reiterated in September 2007 their desire for APEC to continue its work agenda in emergency preparedness, and encouraged a stronger focus on cooperation between practitioners and engagement with the business sector.
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APEC Economic Leaders in Sydney in September 2007 stated:
"We recognised that we all face new risks and challenges to people and economies - including from the potential spread across borders of terrorism, pandemics, illicit drugs and contaminated products, and the consequences of natural disasters. … We agreed on the need to further strengthen APEC's efforts to build community resilience and preparedness for emergencies and natural disasters."
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APEC Ministers also stated:
" We agreed on the importance of strengthening our capacity to build community resilience and preparedness for emergencies and natural disasters. In this regard, we welcomed new initiatives to further cooperation between our senior emergency and disaster management officials, business and international partners to ensure we are able to respond in a timely and effective manner. We agreed on the importance of further building public-private partnerships in this area.
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Future challenges for APEC
a) TFEP of APEC will need to implement Leaders' and Ministers' instructions to further strengthen community resilience and preparedness for emergencies and natural disasters, as most recently outlined in the 2007 AELM and AMM statements.
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b) TFEP is binding to play a useful role in coordinating and facilitating APEC projects across all APEC fora on emergency preparedness.
c) APEC Ministers also have called for further cooperation between senior emergency management officials, business and international partners.
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However, identifying gaps and ensuring complementarity with other regional and international efforts rests primarily with emergency preparedness practitioners and experts..
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The 2007 Emergency Management CEOs' Seminar proved to be an effective early model for such cooperation. Future meetings between such practitioners could provide guidance on areas where gaps and capacity may be addressed, and develop new project proposals for TFEP consideration and endorsement.
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Active participation and engagement including project proposal submission and the advocacy of innovation by CEO, Experts, Professionals of Emergency Preparedness Agency form 21 APEC Member Economies will become crucial for future development of TFEP.
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TFEP 2008 Workplan
Further focusing and refining the work of the TFEP
Implementing APEC-endorsed capacity-building activities
Facilitating further cooperation in APEC on emergency preparedness
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Study Course on Disaster Emergency Response and Recovery in China.
Dialogue among APEC Economies, International Organizations and the Private Sector on Emergency Preparedness in Vietnam
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"Formulation of the Strategy for Disaster Risk Reduction and Emergency Preparedness and Response of the Asia - Pacific from 2009 to 2015" and 2nd TFEP CEO Seminar in Peru.
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We have high hope on Peru's proposal which can help TFEP to more precisely position itself in the global framework of Emergency Preparedness Efforts.
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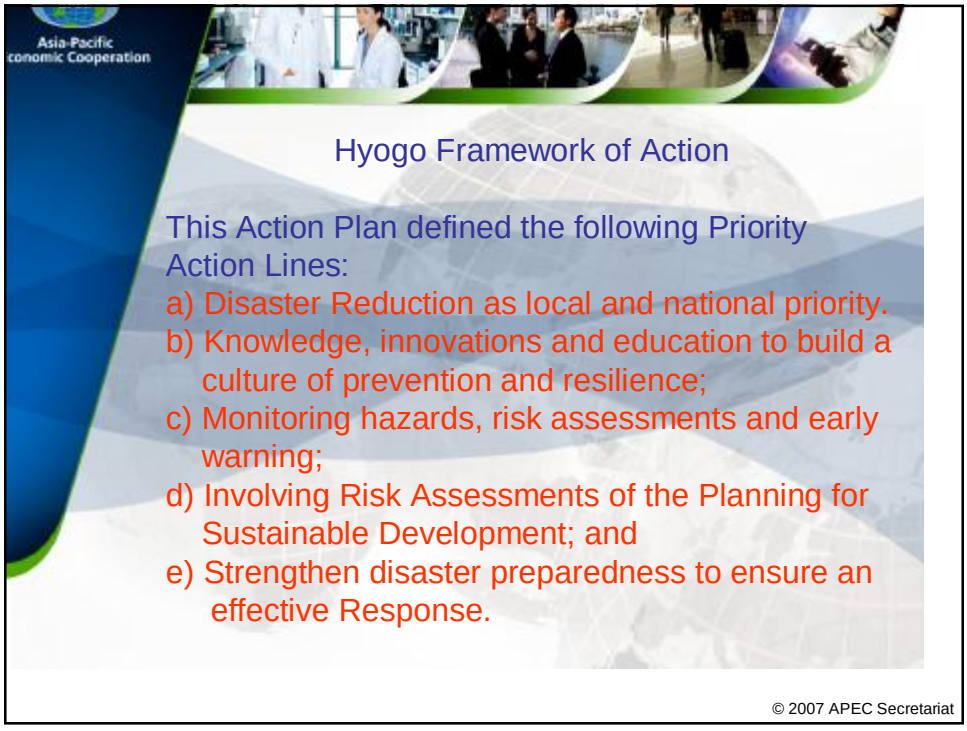
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Hyogo Framework of Action
This Action Plan defined the following Priority Action Lines:
a) Disaster Reduction as local and national priority.
b) Knowledge, innovations and education to build a culture of prevention and resilience;
c) Monitoring hazards, risk assessments and early warning;
d) Involving Risk Assessments of the Planning for Sustainable Development; and
e) Strengthen disaster preparedness to ensure an effective Response.
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2nd Stocktake TEMPLATE needs your input
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To mainstream TFEP efforts into a global framework and in this regard, most notably Hyogo Framework of Action;
To collaborate with other International or Regional Organizations to avoid duplication and play a value-added role.
To formulate TFEP Strategic Plan.
To shorten our knowledge gap;
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Submission of projects for funding approval at BMC3 (22-23 October)

September 4

- Deadline for submission of project proposals to the Secretariat

September 23

- Secretariat Project Assessment Panel completes assessment. Comments to be sent to proponents for improvement, if necessary

October 1

- Deadline for final submission of revised projects. Project proposals be uploaded for BMC consideration

October 8

- Secretariat's recommendation be circulated

October 22-23

- BMC meets and considers funding applications


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Thank You !!
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TFEP02/2008A/04

Difficulties and challenges for risk reduction and emergency preparedness based on Danang city's experience

Submitted / Presented by: Viet Nam

Dialogue among APEC economies, business community, key international and regional partners on emergency preparedness

Ha Noi, Viet Nam
24-25 April 2008

Asia-Pacific Economic Cooperation

DIALOGUE AMONG APEC ECONOMIES, INTERNATIONAL ORGANIZATIONS, AND THE PRIVATE SECTOR ON EMERGENCY PREPAREDNESS

HANOI, 24-25 APRIL 2008

Difficulties in addressing Social and Economic Impacts of Natural Disasters in Developing Economies & Vietnam

Dr. Hoang Minh Hien
Deputy Director, Disaster Management Center (DMC)
Department of Dyke Management, Flood and Storm Control (DDMFSC)
Ministry of Agriculture and Rural Development (MARD)
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Tel: (84-4)-7335686 Fax: (84-4)-7336647 Email: hmh@netnam.vn www.ccfsc.org.vn

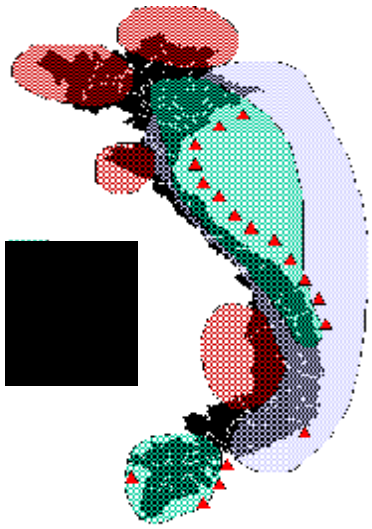
The Major Natural Disasters in Vietnam

1. Storm & Storm Surge
2. Flood
3. Inundation
4. Drought
5. Salt Invasion
6. Whirlwind
7. Shoreline erosion
8. River bank erosion
9. Flash Flood
10. Landslide
11. Earthquake
12. Tsunami
13. Forest fire

Other &
Climate Change!

** The main natural disasters in Vietnam are Flood and Tropical Storm which take more than 80% of total damages cause by all of natural disasters*
** Recently Vietnam pays very much attention on **Climate Change** and its Impact; Adaptation etc…*
** For Vietnam at present, the forest fire is not defined as a natural disaster.*

Map view of some Major Disasters in Vietnam



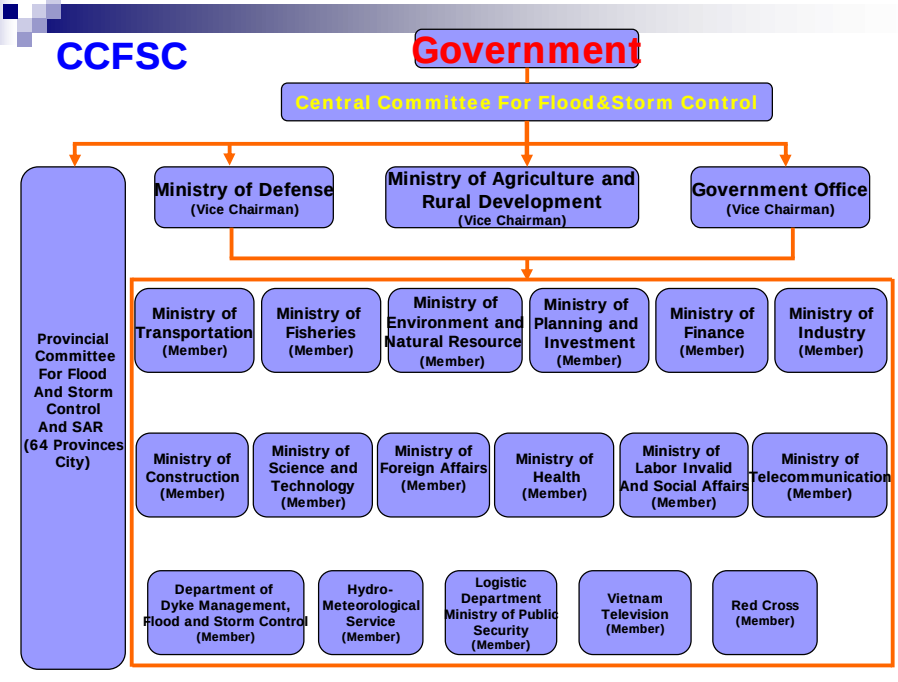
Flash Flood

Flash Flood

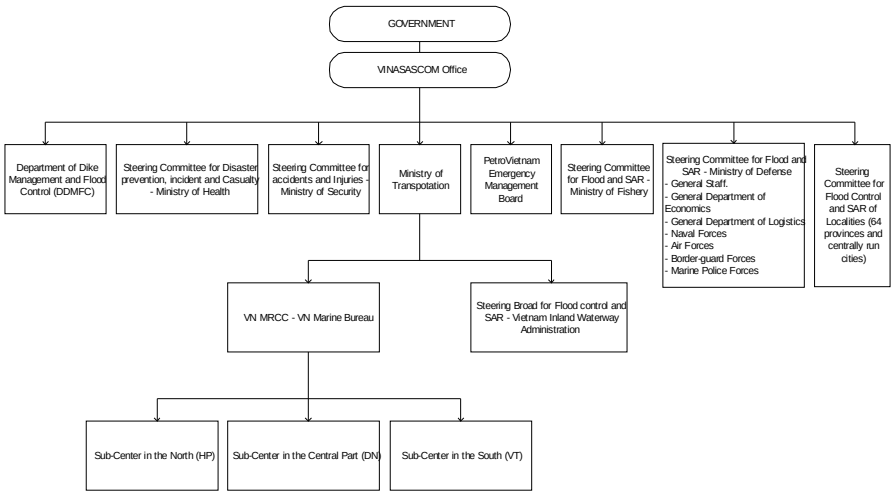
Storm and Typhoon

Storm Surges

CCFSC



NATIONAL COMMITTEE FOR SEARCH & RESCUE



First Coverage of Strategy Document

Socialist Republic of Vietnam

NATIONAL STRATEGY FOR NATURAL DISASTER PREVENTION RESPONSE AND MITIGATION

(Singed by the Prime Minister of Vietnam in 2007)

(www.ccfsc.org.vn)

USTILIZATION OF SPACE TECHNOLOGY
&
REMOTE SENSING INFORMATION

- NEW APPROACH ON USTILIZATION OF SPACE TECHONOLOGY AND RS DATA.
- IN SERVICE FOR HYDRO-MET FORECASTING, ESPECIALY FOR TROPICAL AND FLOOD
- NATURAL DISASTER MANAGEMENT AND REDUCTION
- DETECTION OF LAND SLIDE TRACE
- ESTIMATION OF SOCIO-ECONOMICAL IMPACTS OF NATURAL DISASTER
- ESTIMATION AND PREDICITION OF AGRICULTURAL PRODUCTS
- OCEAN RELATED ISSUES
- OTHER…

Vietnam's Space Technology: Starting with 1kg Satellite

The Institute for Space Technology (STI) of Vietnam Academia of Science and Technology (VAST) was established on November 20, 2006

Dr. Pham Anh Tuan (middle; Deputy Director of STI) at Tsukuba Space Center in Japan

Satellite Ground Receiving Station

Remote Sensing Center
Ministry of Natural Resources and Environment (MONRE)

* Satellite Ground Receiving Station (VNGS) is one component of the Environment and Natural Resources Monitoring System in Vietnam located in Minh Khai commune, Tu Liem district, Hanoi, which is under management and operation of RSC.

* VNGS supplies all kind of imagery data for civil organization all over the country for investigation, planning of natural resources and environment, environment monitoring, calamities warning and supporting rescue activities in a case disaster.

* VNGS can supply: SPOT 2,4,5 (HRV, HRVIR and HRG) and ENVISAT (ASAR & MERIS).

FOREST PROTECTION DEPARTMENT (FPD)
MODIS RECEIVING STATION IN MARD
HOT SPOT DETECTION FOR FOREST FIRE MANAGEMENT

MARD's

New SeaSpace

Antenna

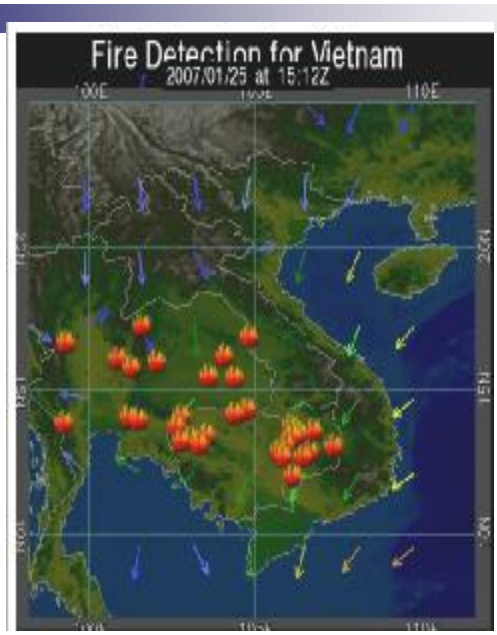
Installed

25 Jan. 2007

Producing a new view of Indo-China

Every day

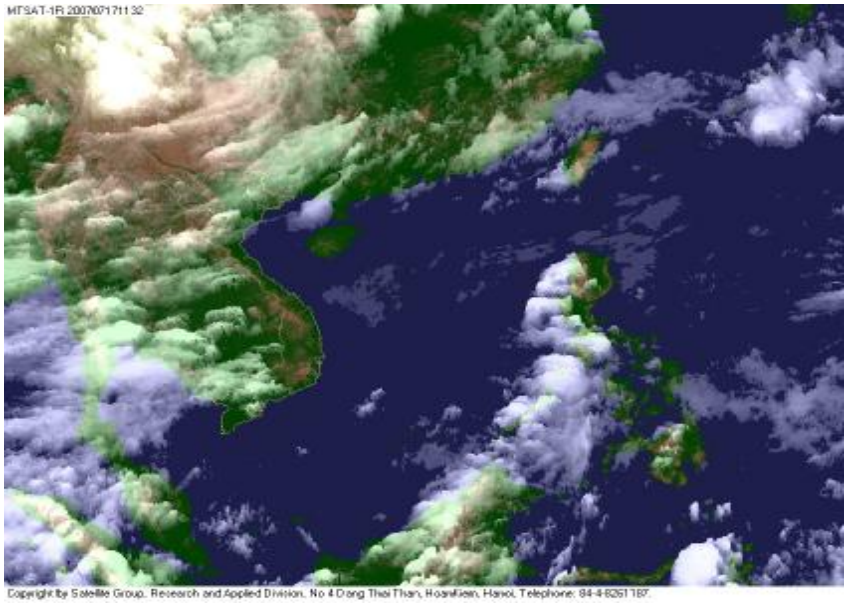
Data is free



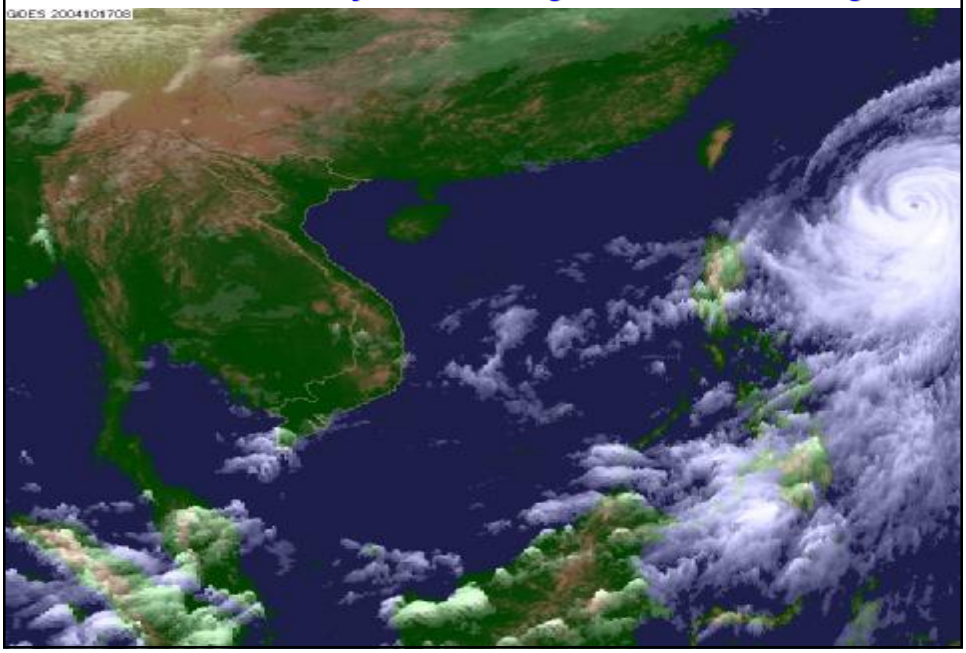
Fire Product with wind vectors produced from MODIS image collected at MARD, Hanoi, Vietnam at 22.12 local time on 25 January 2007.

Some other Products from Meteorological Satellite Information

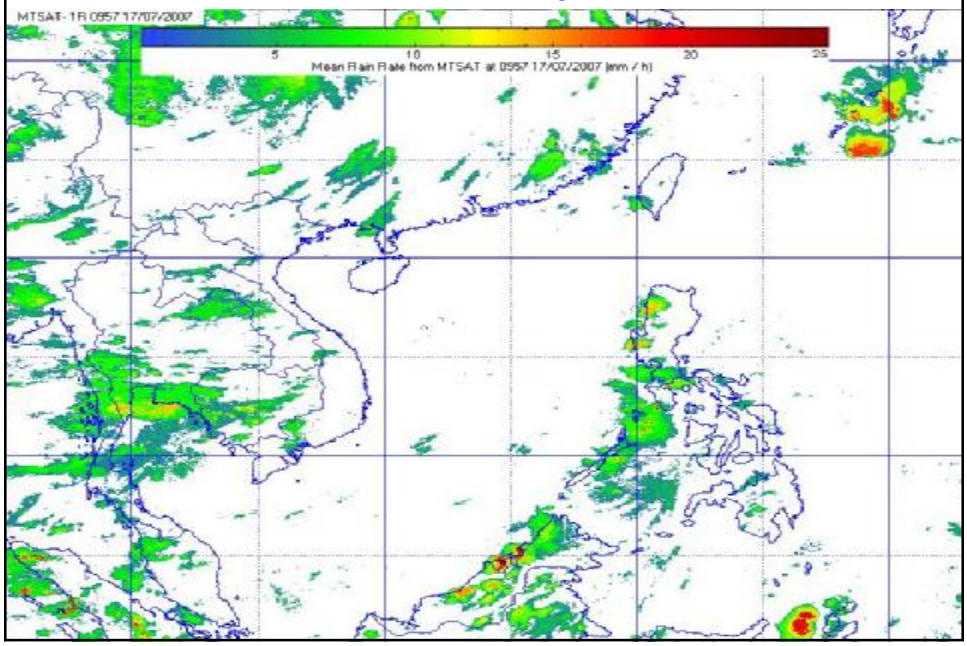
3D Geostationary Meteorological Satellite Image



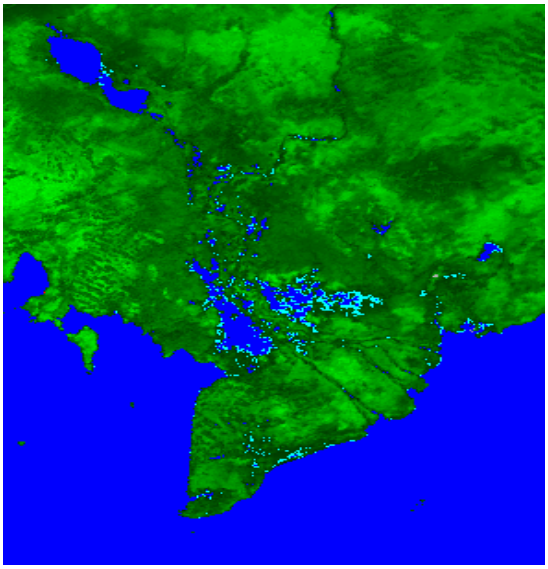
3D Geostationary Meteorological Satellite Image



Rainfall Estimation by MTSAT data



Use of NOAA / AVHRR Data for Flood Monitoring in Mekong River Delta



The Flooded Area in Mekong River Delta on 15 Nov. 1997

Estimated by NOAA / AVHRR Data *(blue color)*

Request of high-resolution images for emergency situation with natural disaster to International Charter

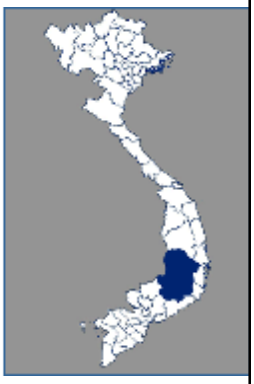
“Space and Major Disasters”

The activation of International Charter “Space and Major Disasters” by PDC in 2007

(ID No. 170)

PACIFIC DISASTER CENTER

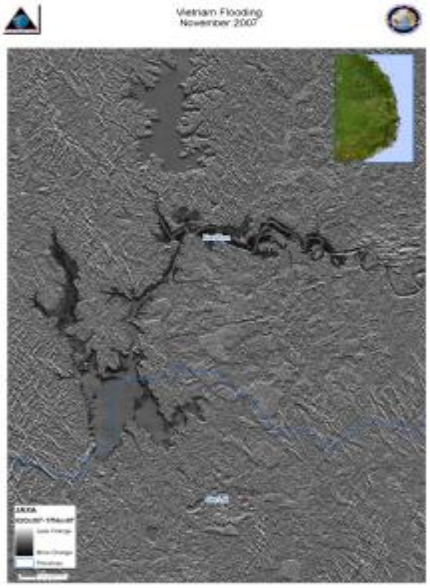
Pacific Disaster Center (PDC) asked the United States Geological Survey (USGS) to activate the International Charter “Space and Major Disasters” for the ongoing flooding event in Vietnam which began on August 4. On August 8, the Charter was activated, and PDC was nominated to manage the collecting and dissemination of data products for relief purposes.



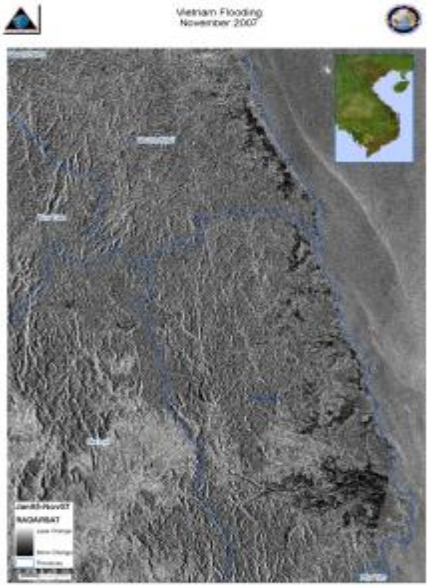
Left: ***The map shows the districts, in green, in central Vietnam’s Dak Lak and Lam Dong provinces where the deadly flooding has been most severe for several days.***

Right: ***The highlighted area shows the position of Dak Lak & Lam Dong provinces in Vietnam. (Images: PDC).***

Flood Detection 2 Oct.-17 Nov. 2008 (by JAXA Images)

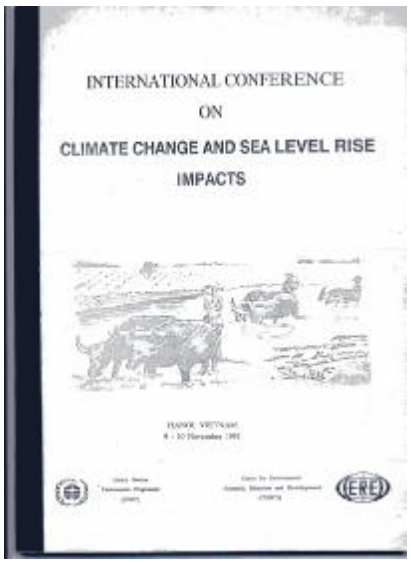


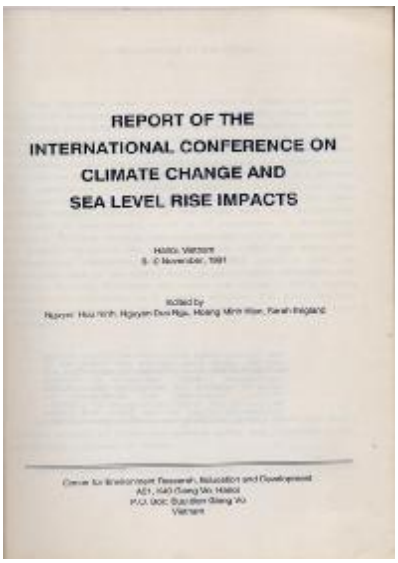
Flood Detection 5 Jan. 2007 by RadarSat Image



CLIMATE CHANGE IMPACTS TO VIETNAM

The IPCC's briefings in Viet Nam in 1991





CLIMATE VARIABILITY AND ENSO IMPACTS

El Nino & La Nina
Typhoon, Flood, drought, Forest fire, Agricultural Impacts
Etc.

NOWMELTH IMPACTS

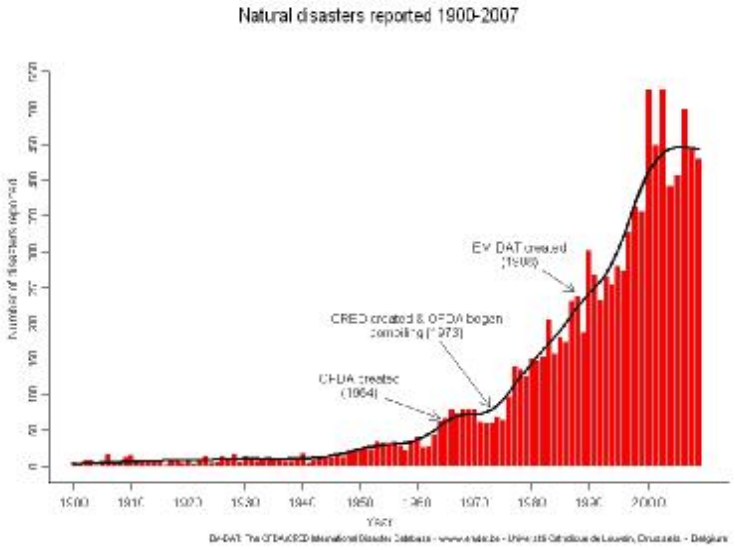
Mekong River Delta, Red River Delta and what about Middle Vietnam?
Hydrological Modeling
Snowmelt Risk Map
Etc…

CLIMATE PREDICTION CHALENGE
PROBLEMS ON ESTIMATION OF SOCIO-ECONOMICAL IMPACTS OF CLIMATE CHANGE AND NATURAL DISASTER

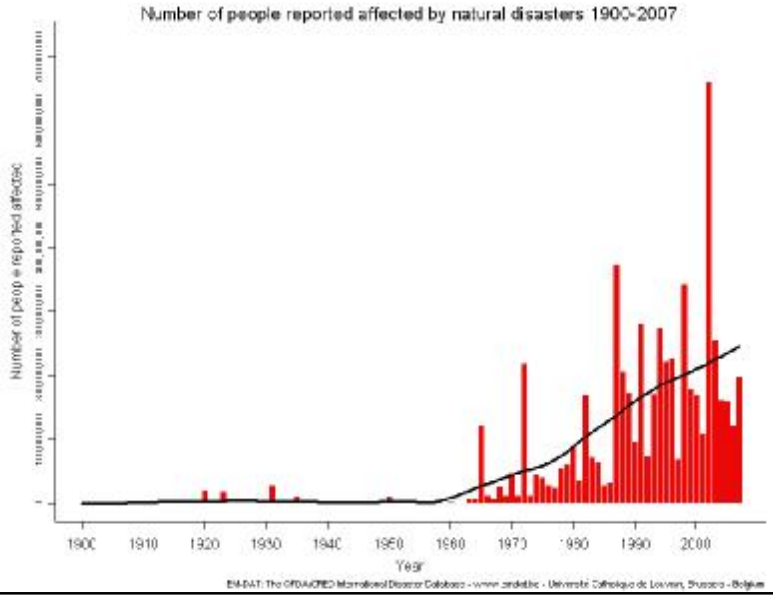
The ten most flooded provinces of Vietnam following the WB's study with scenario of sea level rise by 1m

Province name	Total Area (km^2)	Total Flooded Area (km^2)	Flooded area (%)
Bến tre	2,257	1,131	50.1
Long An	4,389	2,169	49.4
Trà Vinh	2,243	1,021	45.7
Sóc Trăng	3,259	1,425	43.7
Hồ Chí Minh	2,003	862	43.0
Vĩnh Long	1,528	606	39.7
Bạc Liêu	2,475	962	38.9
Tiền Giang	2,397	783	32.7
Kiên Giang	6,224	1,757	28.2
Cần Thơ	3,062	758	24.7
Total	**29,827**	**11,474**	**38.5**

The number (of reported) disaster events are increasing …



So are the number of people impacted…



Still, only have Limited Disaster Impact Data…

Box 12: Shortcomings in disaster data

There is a great lack of data globally on disaster occurrence, the preconditions that lead up toindividual disasters and the losses that are spread through social systems following an initial trigger. Reinsurance companies collect detailed data on disasters for their own purposes, but these are deemed to be too commercially sensitive to be made public. They are also skewed towards their particular purpose of assessing insurance risk, and so focus less on developing countries where insured values are low.

Global assessments have been forced to use national level statistics, and produce a distorted picture of disaster impacts in several ways:

- **They support the widespread impression that hazards and disasters are rare in any given place. The multitude of small and medium scale disasters are invisible to this scale of analysis, as is the diversity of smaller events associated with large disasters.**
- **Reporting systems for disasters are not adequately developed in many countries, or do not have sufficient information about past disasters to be able to assess risks and learn lessons.**
- **There is no standardised methodology for collecting data on disasters or definitions for what constitutes a 'disaster' or a 'disaster-affected' person. Data on numbers affected is especially open to political manipulation or uncertainties due to extrapolation from historical data.**
- **Often there is no follow-up on disaster impacts that emerge only some time after the event.**

These factors limit the reliability of the one publicly accessible global database on disasters – CRED's widely-used EM-DAT database. With more donor support much could be done to remedy these deficiencies.

From "Disaster risk reduction: A development concern poverty and development," UK Department for International Development (DFID), 2005.

For example, for Viet Nam:

Top 10 Natural Disasters in Viet Nam for the period 1979 to 2008 sorted by numbers of total affected people:

Disaster	Date	Total Affected
Wind Storm	15-Sep-1980	9,027,174
Wind Storm	23-Jul-1980	6,624,710
Flood	Jul-20(	
Wind Storm	Oct-19	
Flood	25-Oct-1	
Drought	Dec-19	
Flood	7-Sep-1	
Wind Storm	6-Sep-1	
Wind Storm	13-Nov-1	
Flood	2-Dec-1	

Top 10 Natural Disasters in Viet Nam for the period 1979 to 2008 sorted by economic damage costs:

Disaster	Date	Damage US$ ('000's)
Wind Storm	27-Sep-2006	624,000
Wind Storm	2-Nov-1997	470,000
Wind Storm	30-Nov-2006	456,000
Drought	Dec-1997	407,000
Wind Storm	24-Jul-1996	362,000
Flood	10-Nov-2007	350,000
Flood	28-Oct-2007	300,000
Flood	Jul-2000	250,000
Flood	25-Oct-1999	237,000
Wind Storm	14-Aug-1996	227,000

Please note that the CRED/EM-DAT team is currently working on enhancing the economic damage figures. Therefore, we suggest that these figures are treated with caution. Visit our website regularly for updated information.

Source:"EM-DAT: The OFDA/CRED International Disaster Database, www.emdat.be - Université catholique de Louvain - Brussels - Belgium"

How to compare with another country?

Top 10 Natural Disasters in United States for the period 1979 to 2008 sorted by numbers of total affected people:

Disaster	Date	Total Affected
Wind Storm	5-Sep-2004	5,000,000
Wind Storm	13-Sep-1999	3,000,010
Wind Storm	30-Aug-1985	1,000,000
Wild Fires	21-Oct-2007	640,064
Wind Storm	29-Aug-2005	500,000
Epidemic	Jan-19	
Wind Storm	23-Sep-	
Wind Storm	24-Aug-	
Wind Storm	18-Sep-	
Flood	15-Jan-	

Less people "impacted" (as compared to Viet Nam during same period) …

Top 10 Natural Disasters in United States for the period 1979 to 2008 sorted by economic damage costs:

Disaster	Date	Damage US$ (000's)
Wind Storm	29-Aug-2005	125,000,000
Earthquake	17-Jan-1994	30,000,000
Wind Storm	24-Aug-1992	26,500,000
Wind Storm	15-Sep-2004	18,000,000
Wind Storm	23-Sep-2005	16,000,000
Wind Storm	13-Aug-2004	16,000,000
Wind Storm	24-Oct-2005	14,300,000
Flood	24-Jun-1993	12,000,000
Wind Storm	5-Sep-2004	11,000,000
Wind Storm	25-Sep-2004	8,000,000

but more direct economic damaged.

Issues

- Highest Priority to Human Life?
- As good as EM-DAT is, only includes # of deaths, # of impacted people, direct economic costs
- What about indirect and secondary effects?
  - What is link between disaster event and economy, institutions, people?
  - How to measure impacts against societal and developmental goals?
    - What is effect of missed school?
    - What is effect of loss of health clinic?
- How to effectively assess potential benefits of mitigation if you can't truly measure the cost of disaster impacts?
- How can progress of recovery be measured/assessed?
- Completed procedure from monitoring, hydro-met prediction and impact asessment.

What to do?

- Work towards a more comprehensive reporting of disasters by national governments
  - Standardized and expanded reporting elements
  - More details on area-impacted (via GIS/maps) including people, communities, institutions, infrastructure, etc.
- Develop disaster recovery indicators for key sectors
  - Education
  - Health
  - Housing/Shelter
  - Employment
  - Agriculture
- Perform post-event recovery surveys to measure and report progress
  - On-the-ground survey (health, education, etc.)
  - Use of remote sensing (agriculture, housing, etc.)

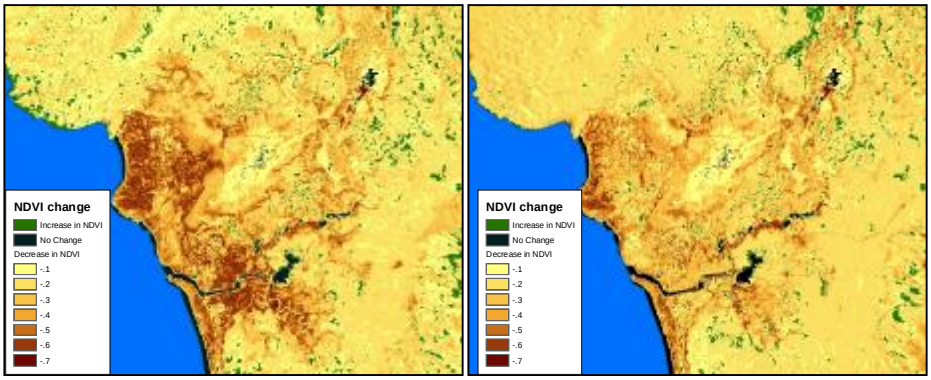
NEW APPROACH

TOTAL DISASTER MANAGEMENT
AREA INFORMATICS
CATCHMENT BASED MANAGEMENT
CBDRM
GEO-GRID
ETC…

Recovery Monitoring Example: Change Detection

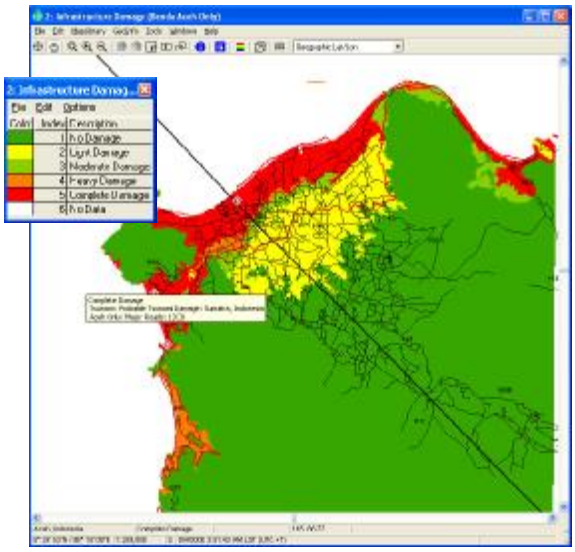
Pre Tsunami - Immediately After

Pre Tsunami – 6 Months After



RECOVER AND UPGARADING

Recovery Monitoring Example: IDSI



Infrastructure Damage Severity Index (IDSI)

- **Developed by PDC**
- **Documents relative damage in affected areas**
- **Prepared through manual interpretation of high-resolution (~1m) satellite imagery**

SOURCES OF INFORMATON USED FOR THIS REPORT

MARD & CCFSC: MARD, DDMFSC, DMC, FPD, NDMP, WRU...

MONRE: HMSV, NCHMF, RSC, IMH...

VAST: STI, IOP, IG...

HAWAII UNIVERSITY: PDC

AND OTHER

THANK YOU FOR
YOUR KIND ATTENTION

Asia-Pacific
Economic Cooperation

TFEP02/2008A/04

Difficulties and challenges for risk reduction and emergency preparedness based on Danang city's experience

Submitted / Presented by: Viet Nam

Dialogue among APEC economies, business community, key international and regional partners on emergency preparedness

Ha Noi, Viet Nam
24-25 April 2008

The People's Committee of Danang
Board on Storm Prevention and Rescue

SPEECH on

PREVENTION AND CONTROL OF NATURAL DISASTERS IN DANANG

Presented by: Mr. Huỳnh Vạn Thắng
Deputy Head of the Steering Board on Storm Prevention and Rescue of Danang city
Hà nội , 24 -25/4/2008

Contents

I. OVERVIEW

- A tropical country with monsoon climate, near the Pacific storm area and a place where oceanic and continental climate meets, Vietnam has frequently been faced with natural disasters Danang is located in the middle of the Central Coastal Region and is one of the country's threee main gates to the ocean

- Geographical area: 1,279,6 km2, population 850,000 people
- Suffer the most from natural disasters in comparison to other regions of the country

II. RECENT NATURAL DISASTERS AND CONSEQUENCES

- Over the past 10 years, there have been 5 series of natural disasters, which caused severe damages to human and assets of the city
- The Great Flood in 1998:

Ü The flood peak in Ai Nghia was 10.37 metres- only 0.19 metres lower than the historical level in 1964; in Cam Le was 3.31 metres, which was 1.61 metres higher than the Warning level III

Ü The 1998 flood claimed the lives of 32 people, destroyed and swept away 158 houses. 19,029 houses were deeply inundated. The total loss reached 182.3 billion dong.

II. RECENT NATURAL DISASTERS AND CONSEQUENCES

- The Great Flood in 1999:

Ü The flood peak in Cam Le was 4.28 metres, which was 2.58 metres higher than the Warning level III, equivalent to that of 1964.

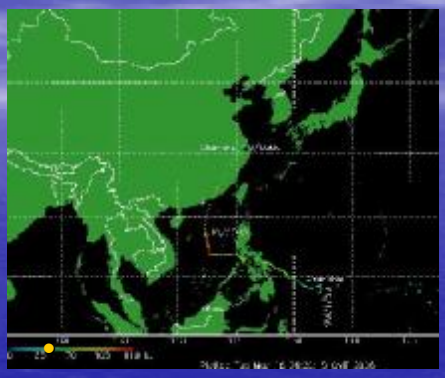
Ü The flood in 1999 claimed the lives of 37 people, injuring 61 others, sweeping away 4,579 houses and sinking 46,333 others. Transport, irrigation, power and telecommunications infrastructures were badly damaged. The total loss was 611 billion dong.

II. RECENT NATURAL DISASTERS AND CONSEQUENCES:

- The Storm No.1 in 2006 (Chanchu):

Ü Chanchu was a very strong storm with the wind power at level 12 and gust stronger than level 12

Ü Though not directly landed in the territory of Vietnam, the storm inundated 10 fishing boats sheltering in Dong Sa Island and claimed the lives of 227 fishermen



II. RECENT NATURAL DISASTERS AND CONSEQUENCES

- The Xangsane storm killed 33 people and injured 289 others; 41.884 houses collapsed, among which 8,990 were totally destructed; stores, offices, schools, medical stations, transport and irrigation infrastructures were seriously damaged; and trees, farm produce and more than 25,000 ha of wood fell off. Workshops of many enterprises collapsed. Production was stagnant. The total loss reached 5,290 billion dong.

II. RECENT NATURAL DISASTERS AND CONSEQUENCES

- The Great Flood in 2007:

  The flood made 28.269 households, with 108,000 people stuck in flood water. It killed 3 people, injured 3 others and inundated 28,269 houses. 9500 tons of rice were swept away, 760 ha of vegetables and crops fell off. Transport and irrigation infrastructures were severely damaged. The total loss was 1,534 billion dong.

III. THE CHARACTER OF NATURAL DISASTERS IN THE CITY

- Natural disasters happen with the higher frequency, unpredictability and severity

- The more socio-economic development is pushed, and the more infrastructures, means of production and rural areas are built up, the more severe consequences of natural disasters become. They hinder economic growth and lead to several environmental and social problems. The most cruel consequences often go to the poor.

IV. THE IMPORTANCE OF THE TASK ON STORM AND FLOOD PREVENTION

Natural disaster prevention and relief:

- One of the most important tasks
- Must be annually checked
- Be put into all programmes and projects for socio-economic development
- Steering Board on Storm Prevention at all levels are strengthened and assigned clear tasks and responsibilities, with high synchrony
- Forecast, warning, especially the building of an early warning system is the most effective measure to relieve natural disasters.

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS

1. In addition to storms, Danang has frequently been faced with flood and sweeping flood

- Located in the lower section of the Vu Gia-Thu Bon River, one of the largest rivers of Vietnam, which has medium length, steep slope and quick flood.
- The area's rainfall is among the highest in the country, which in several years reached over 5000 nm/year.

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS:

2. Speedy urbanization

- Accelarated since 1998
- The speedy urbanization also led to the building of new residential areas without appropriate planning. Many routes and other infrastructures and residential areas are located in the corridors for flood release, which led to larger areas and longer time affected and deeper level of inundation. Due to high population density and large infrastructures, losses caused by natural disasters have always been tremendous.

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS

3. Forest burning-off for cultivation:

- Still rampant
- while the pace of forestation is low and the result has not been tested yet, a large area of forest only serves economic purposes and does not help regulate floodwater.
- The destruction of watershed is not managed well in the valleys in other provinces' territory (Quang Nam and Kon Tum).

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS

4. The inadequacy of fishing boats

- The city has nearly 2,000 boats, among which nearly 900 are offshore fishing ones. The majority of those do not comply with safety standards for the body, engine
- Inadequately-trained captains, lack of communications equipment and life-buoys and poor fire safety.

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS

5. Poor infrastructures:

When storm or flood happens:

- many routes are inundated, interrupting circulation and causing difficulties to rescuing and repairing works
- communications is broken off, posing difficulties to the steering work
- Means for storm prevention and rescuing are in restraint; there has not been any standing professional agency on storm and flood prevention and rescue
- there has not been any standing professional agency on storm and flood prevention and rescue. The current pool of Flood Prevention and Rescue personnel is still in plurality.

III. DIFFICULTIES AND CHALLENGES POSED BY NATURAL DISASTERS

6. Early forecast and warning

- Over the past years, due to the much-improved forecast of storms and tropical low pressure and the reference of information of other countries' meteorological agencies, the steering work on storm prevention has gained better efficiency.
- However, the work still faces difficulties due to the quick flood, similar to sweeping flood, of the Central coastal region. The time for forecast is only 6-12 hours ahead. This has put the prevention work in a passive position.
- It is highly recommended that more investment be poured into the flood forecast of the Center coastal provinces so that the time for forecast can be extended to 24 hours in advance.

IV. SOME EXPERIENCES IN REACTION TASKS

1. Enhance public awareness

- In practice, despite the good prevention, accurate forecast or even detailed prevention plan, the calamity prevention tasks will be little effective if there is lack of active participation of the public.
- The People's Committee has focused on propaganda: cooperate with local mass media to broadcast programs improving knowledge of calamity to people; equip fisherman with basic understanding about storm and storm control measures for boats and rafts at sea; co-ordinate with humanitarian organizations and NGOs to improve public awareness in villages and help people make plan to prevent calamity; and require people to be highly cautious.

IV. SOME EXPERIENCES IN REACTION TASKS

2. "the four at-spot" (local command, local force, local materials and facilities and local logistics) carried out by the Central Committee for Calamity Prevention is the most effective measure in calamity prevention, rescue and damage recovery.

The more detailed and practical the local calamity prevention plans are, the more effective they will be.

- An experience from the 1998 Great Flood in Da nang is "evacuation". People moved from their houses to the safer at local. The plans were built by local people and families so that they knew in advance where to move in case of hurricane.

IV. SOME EXPERIENCES IN REACTION TASKS

2. The four at-spot guideline

- The plans were built by local people and families so that they knew in advance where to move in case of hurricane. Therefore, though the water level of flood in 1999 was 1 meter higher than that in 1998, there was no human loss (human losses in 1999 were caused by storm from the mountain). The Storm Number 6 (Xangsane) in 2006 recorded the success of local people in holding the biggest and fastest evacuation. During 7 hours, 10,257 households and 40,000 people were evacuated (not including thousands of households moved to their neighbors or relatives' houses) and supplied with food, water, healthcare and sanitary...

IV. SOME EXPERIENCES IN REACTION TASKS

3. Layered and active direction

The People's Committee assigns tasks to offices, departments, and branches; allocated responsibilities among presidents of districts, who is responsible to the President of the People's Committee and considered as the leader of local forces, central and local supporting forces implementing the program of storm and flood prevention at localities.

IV. SOME EXPERIENCES IN REACTION TASKS

4. Setting contact regulations between offshore fishing boats and mainland and establishing supporting group

In order to overcome the above shortcomings, the City's People's Committee has paid much attention to enhancing and improving the safety for fishing boats: equipping offshore fishing boats with communication facilities; setting communication regulations between fishing boats and mainland; holding training courses to improve professional skills and award certificates to captains, chief engineer; improving knowledge of marine law and basic skills to cope with storm for captain and people on boats when they are offshore. Besides, the People's Committee has built nearly 100 groups to support offshore fishing. Each group includes 4 to 5 boats and limits the scale of catching in order to help each other in case of calamity or accidents on the sea. In offshore catching, the support from mainland may be late and not effective. The past 3 years has witnessed the significant success in supporting fisherman. This is also named "the four at-sea" guidelines.

IV. SOME EXPERIENCES IN REACTION TASKS

5. Over the past few years, the course of storm prevention, rescue and damage recovery has gained important achievements. There are some reasons as follows:

- The in-time and determined guidance of the Government, National Committee of Rescue and Central Steering Committee for Storm Prevention. In recent years, the Government has established the Fore-front Steering Committee to guide directly at calamity areas.
- The military, police, coastguard are always the core forces.

- The fight against natural disasters has always been receiving assistance from the Centre, the Vietnamese Fatherland Front, communes and the whole people, social-political groups, religions, armed forces, the media, and the business circle.


Thank you very much for your attention
Wish the workshop fine success!