Water Related Challenges in Asia

- A Tale Of Three Cities -

St. Regis Hotel Washington DC
17 October, 2014

Keizrul bin Abdullah

Chairperson
Network of Asian River Basin Organizations (NARBO)

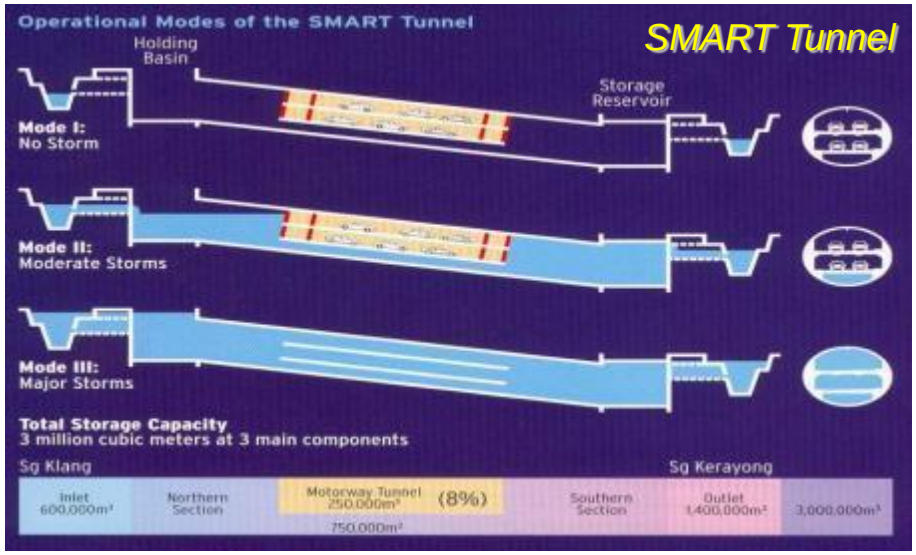
3 Case Studies / Cities

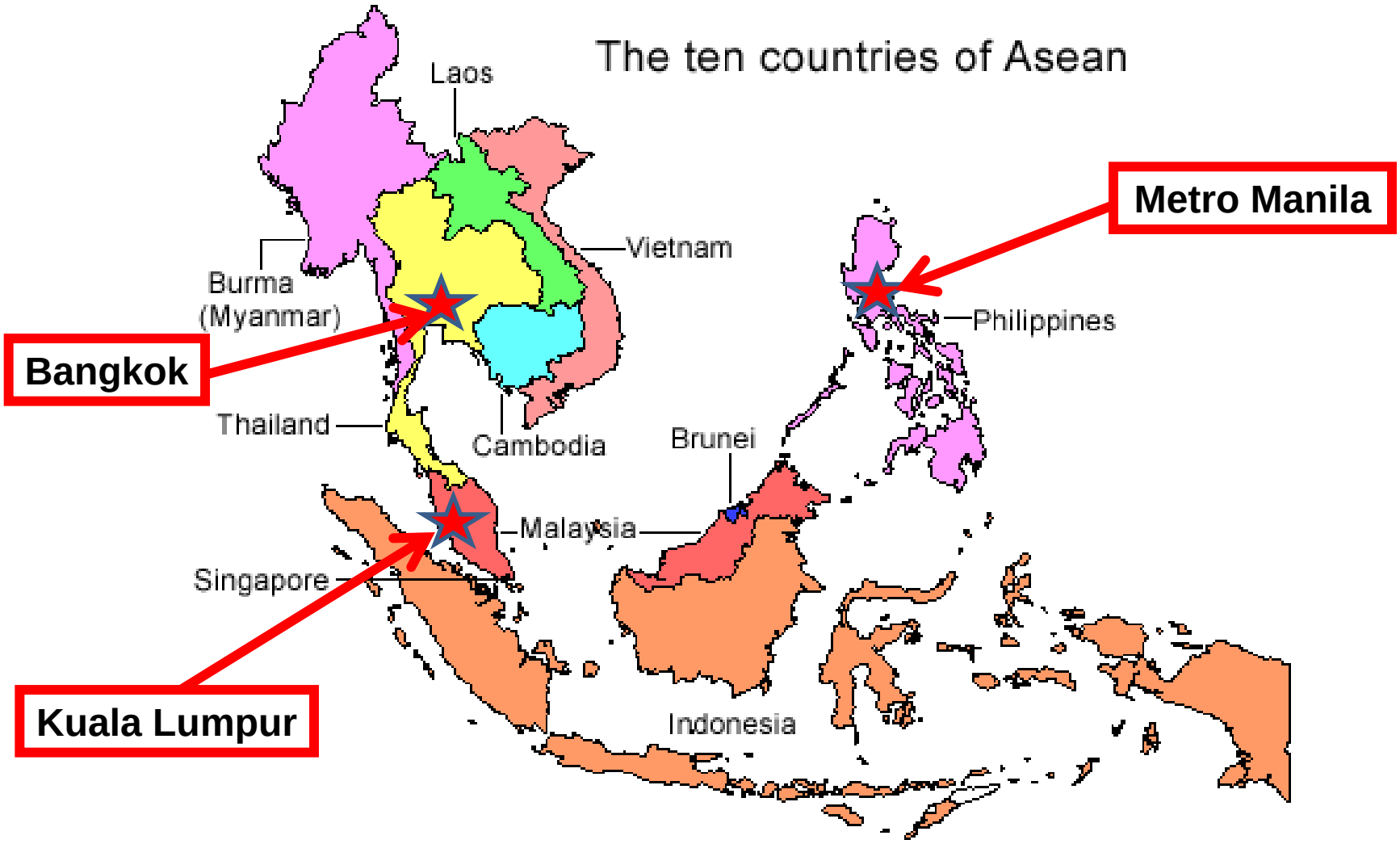
Disaster Situation and Policy Responses in

i : Bangkok

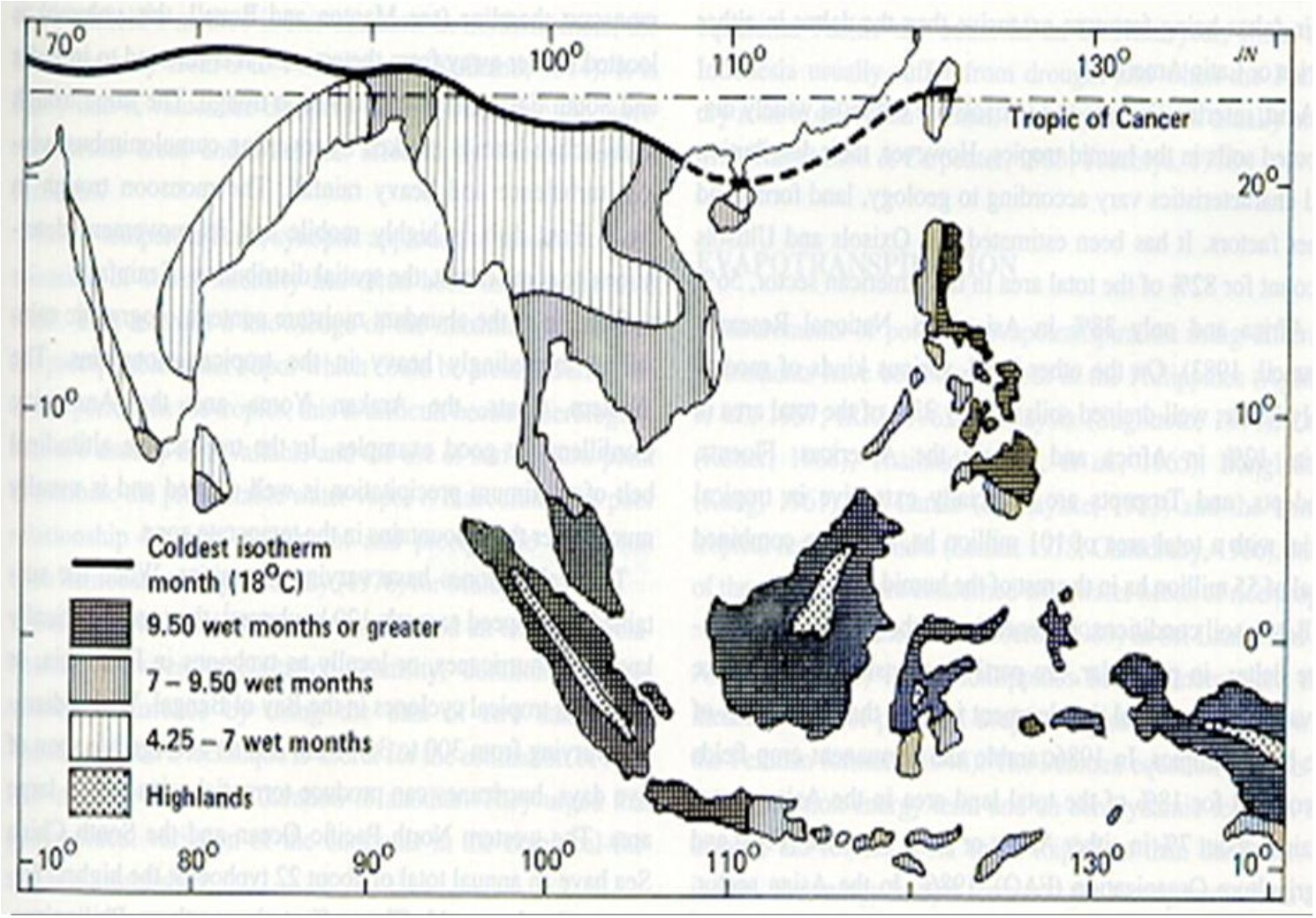
ii : Kuala Lumpur

iii : Metro Manila



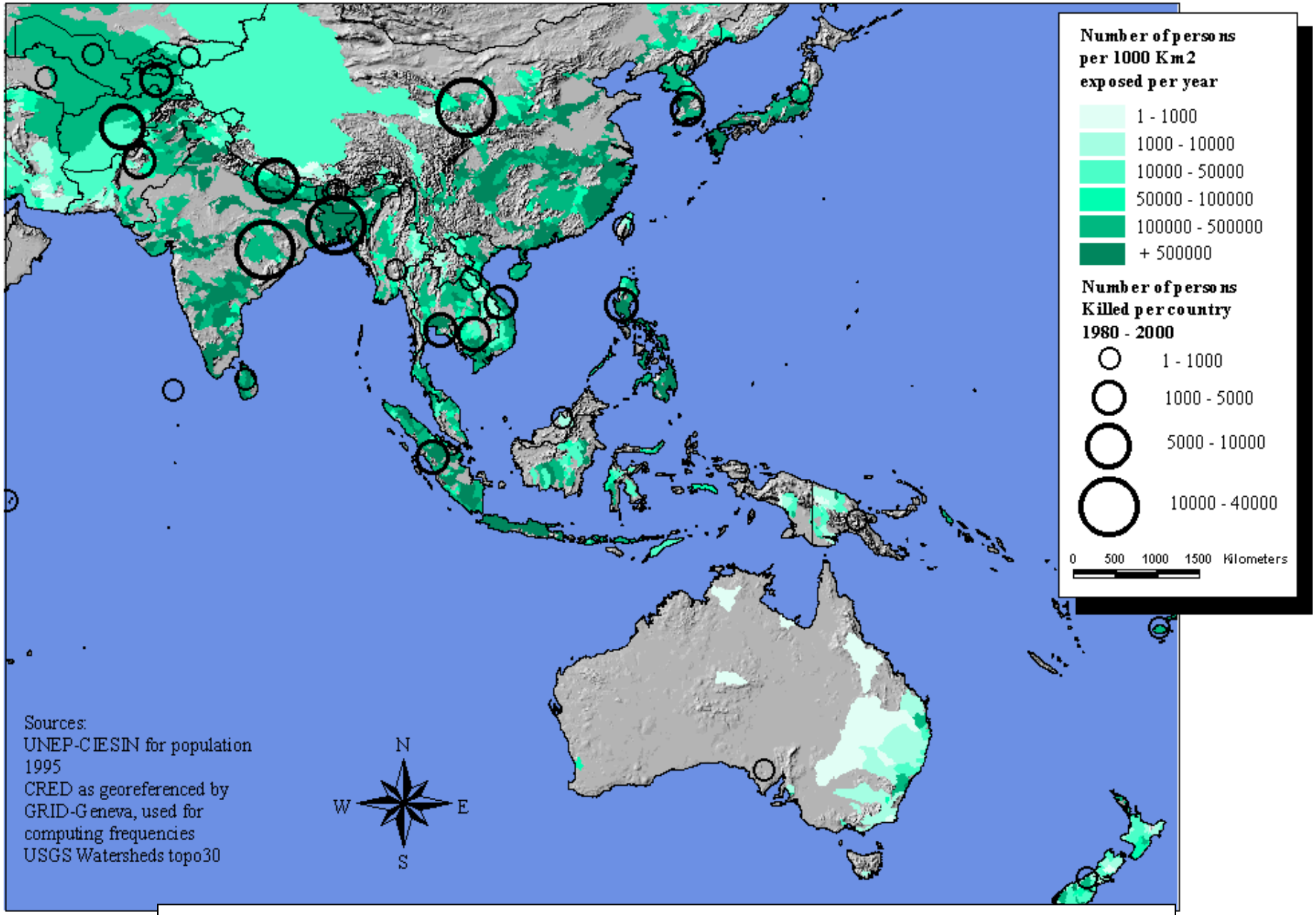


3 Capital Cities



Monsoonal Humid Tropics : Annual Rainfall : 1,500 to 5,000 mm

Density of persons exposed to Flood in Asia and Pacific



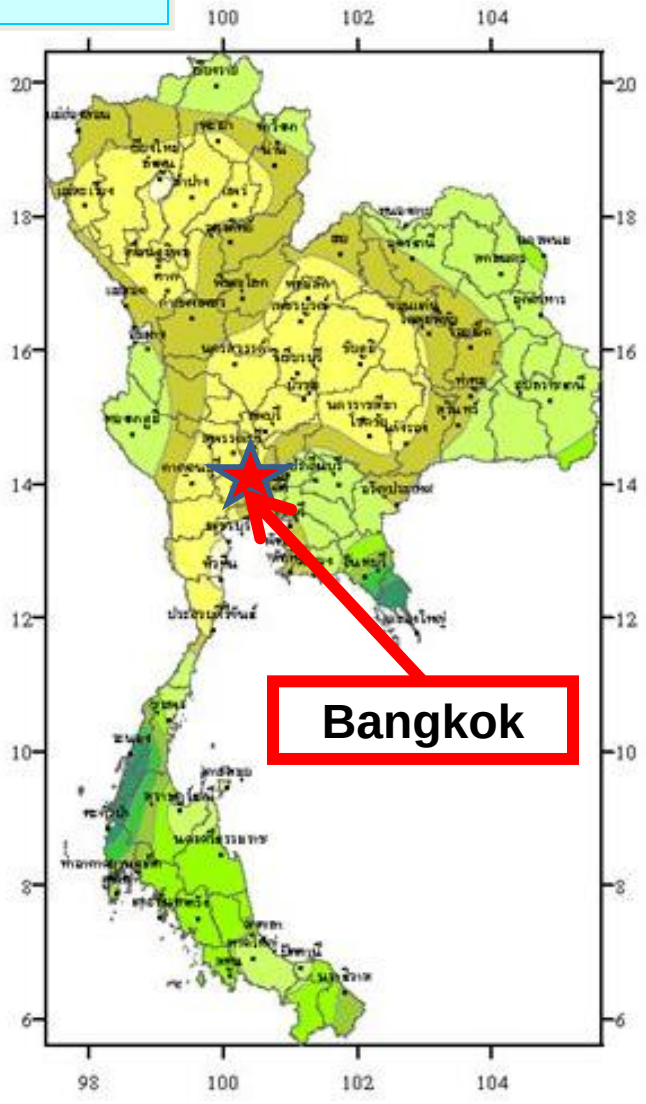
Floods are an integral part of South East Asia

va, November 2001

Bangkok

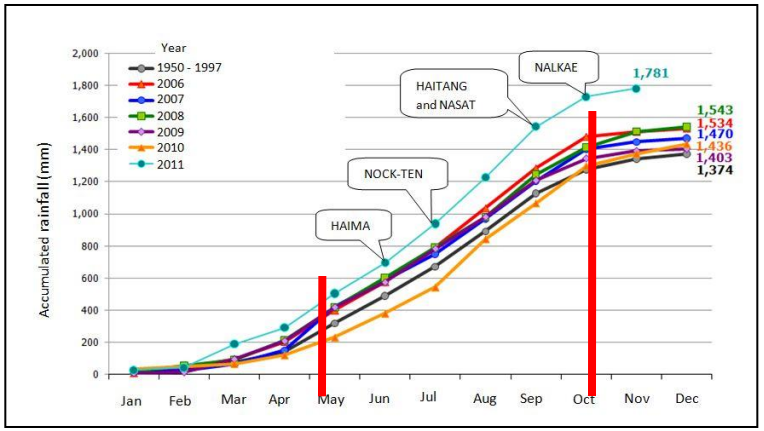
Bangkok

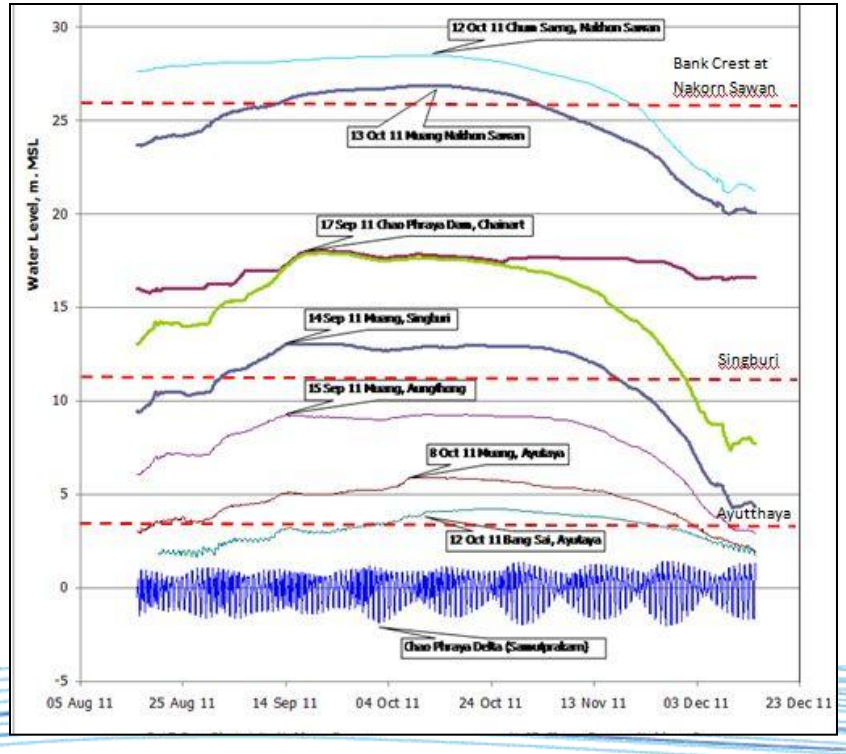
- Situated on banks of Chao Phraya River
- Large drainage basin
  → 160,400 km² (~ ½ total land area of Malaysia or the Philippines)



Bangkok

- **Long Monsoon season → May to October**

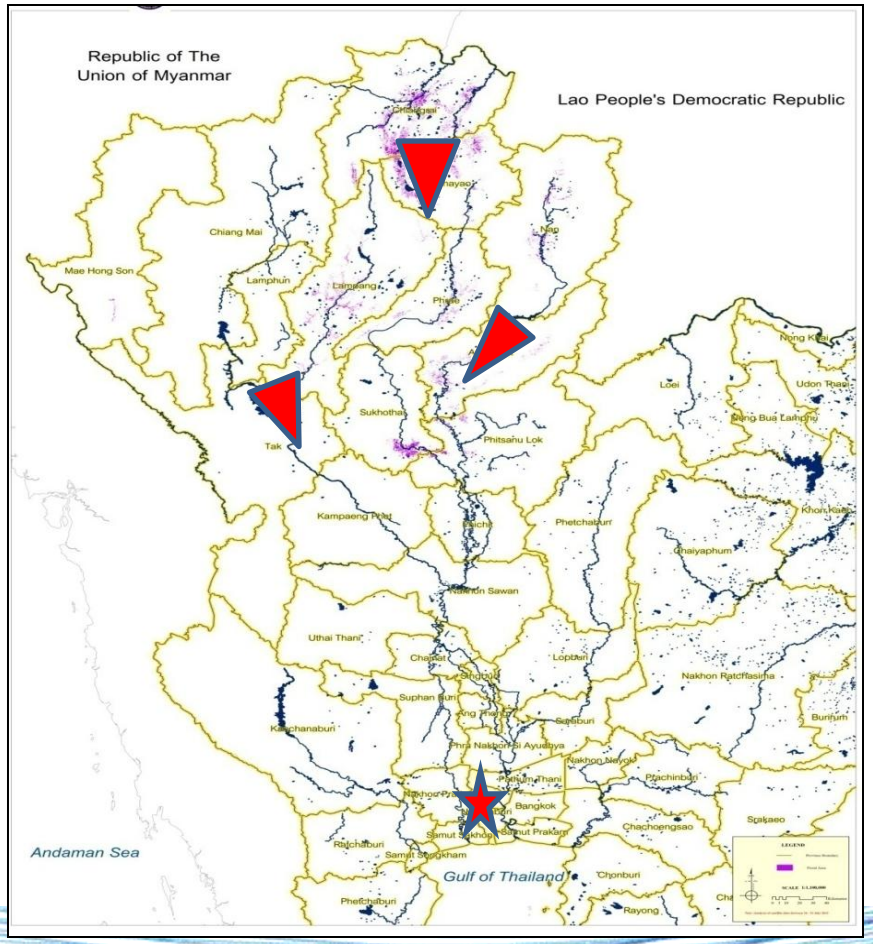




- **Flood hydrograph : Determining criteria → Volume of runoff**

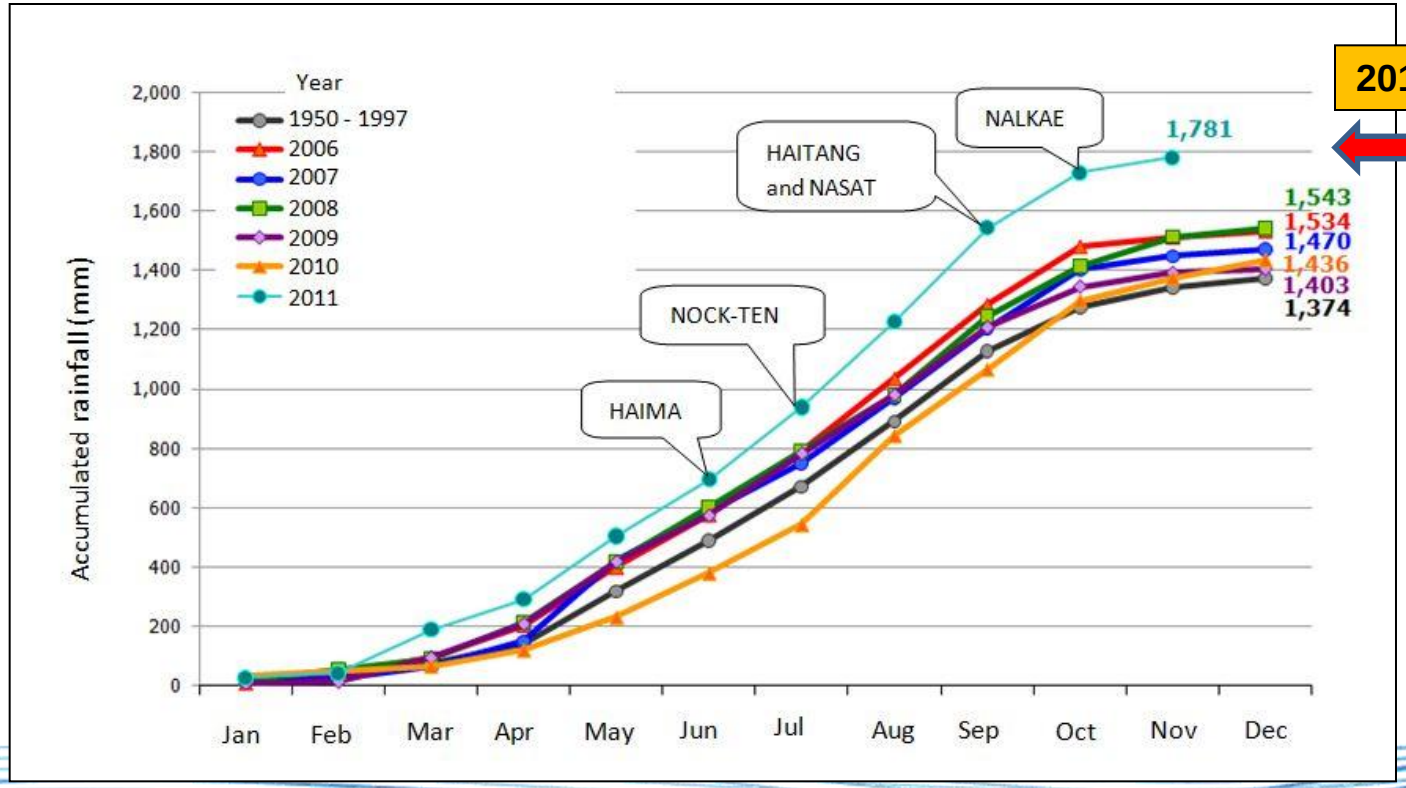
Bangkok

- **Policy Response : Traditional approach → Storage reservoirs upstream**



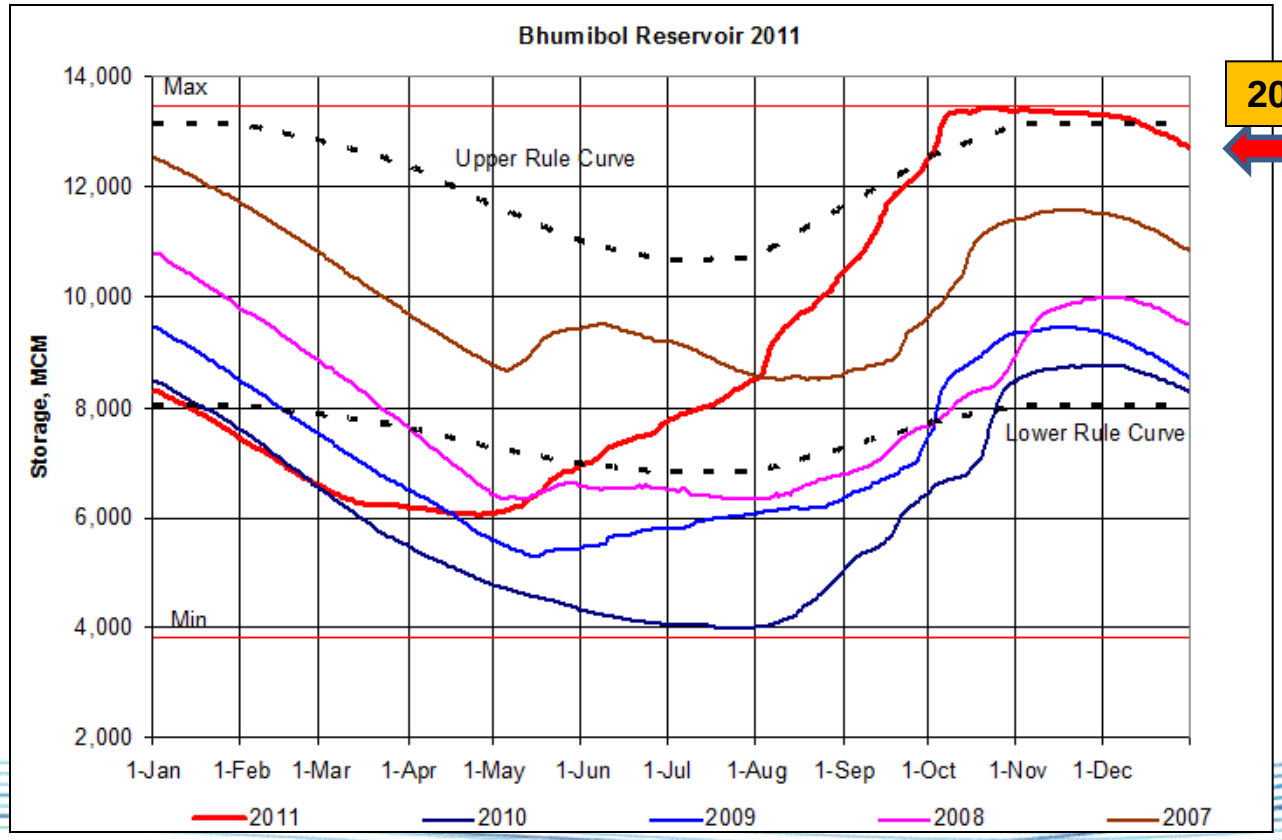
Bangkok

❖ **2011 Floods → Unusually heavy rainfall**



Bangkok

- 2011 Floods → Flood storages full



2011 Floods

Policy Response -Bangkok-

Thailand is learning to live under extreme hydrological events and to adjust by building resilence capabilities in the communities and flood infrastructure

Policy Response - Bangkok -

Thailand is looking to develop technologies in predicting / forecasting weather more precisely so that there will be sufficient time to take preventive and protective measures and provide early warning to the population

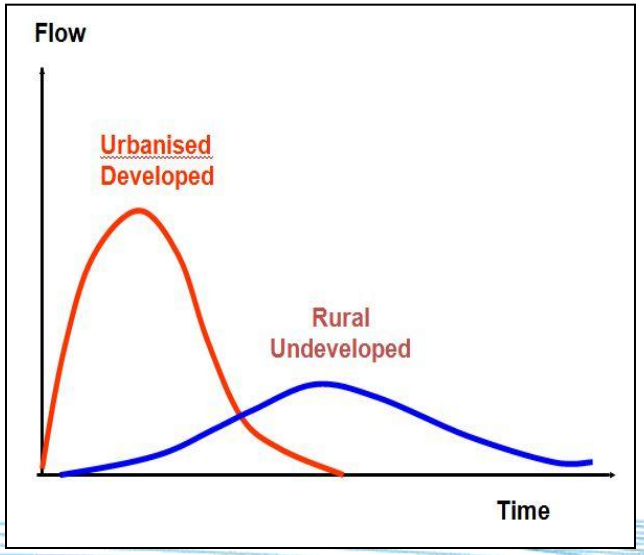
Kuala Lumpur

Kuala Lumpur

- Situated on banks of Klang River
- Small and steep river → 120 km long, 1,288 km² (cf 160,400 km² for Chao Phraya River)
- Founded on flood plain (for tin mining) → Historically flood prone

Kuala Lumpur

- Flash floods a recurrent problem due to urbanization
- Flood hydrograph → rapid rise



Kuala Lumpur

- Floods are a constant threat → and a serious political issue
- Traditional approach → to 'control' floods
- Continuous program of improvement and upgrading of flood infrastructure
- Changing goal posts (more development more Q)
- From 'control' to 'mitigate' floods
- Rising cost → need for innovative/value-add solutions

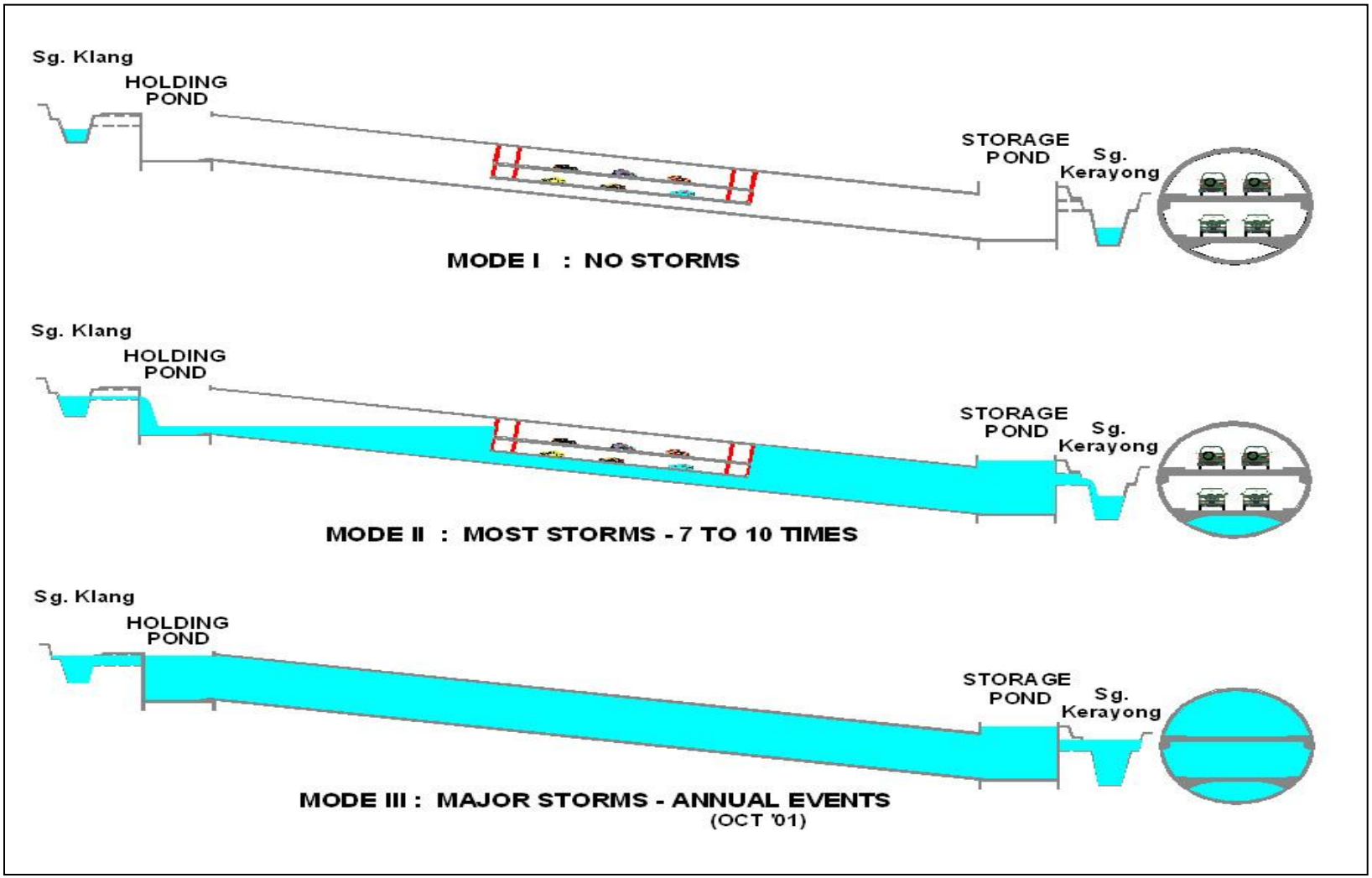
Stormwater Management and Road Tunnel (SMART)

SMART Project : A Unique and Innovative Flood Solution

OBJECTIVES OF SMART

1. To provide a stormwater management system to mitigate part of the flooding problem in Kuala Lumpur city from Sg Klang/Sg Ampang
2. To ease traffic congestion at the southern main gateway to city centre near Sg. Besi

A dual purpose Tunnel beneath the Capital City



SMART Tunnel : Operational Modes

Policy Response - Kuala Lumpur -

Policy response : evolved from 'control' → 'mitigate' → 'innovative/value-add' solutions. SMART Project combines two contradicting uses → to pass flood waters and traffic through the same tunnel, albeit at different points in time. New financing mechanism with government and private sector sharing costs (capital and O&M).

Metro Manila

Metro Manila

- Philippines situated on typhoon belt, with around 20 typhoons entering Filipino waters a year and 8 or 9 making landfall
- Typhoons bring torrential rains and storms → culminating in severe flooding
- Wind speeds : Typhoon >120 km/hr; Severe Typhoon > 150 km/hr; Super Typhoon > 190 km/hr
- Typhoons can cause storm surges eg Haiyan → 6 meters high and extending 1 km inland

Metro Manila

- The Abnormal will be the new Normal → extreme climatic/hydrological events will occur more frequently (less extreme)
- Structural measures to mitigate against Super Typhoons not a viable/economic option
- Policy Response : Focus on Disaster Management
- Republic Act No. 101211 enacted on May 7 2010 → Disaster Risk Reduction and Management Act

Metro Manila

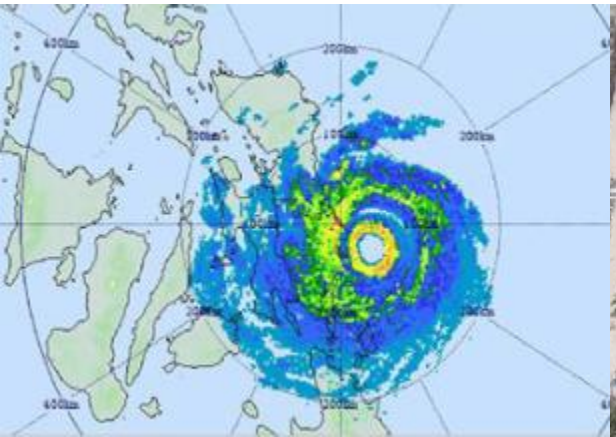
- **DRRM Act of 2010 focused on :**
  - **Good governance**
  - **Risk assessment and early warning**
  - **Knowledge building and awareness raising**
  - **Reducing underlying risk factors**
  - **Preparedness for effective response and early recovery**
- **Strategic National Action Plan (SNAP 2009-2019) → Strengthening Disaster Risk Reduction in the Philippines**

Metro Manila

- **Presidential Administrative Order No. 1 :**
  - **Identifies disaster mitigation as a priority thrust**
  - **Directs provinces to adopt in their planning process, the guidelines on mainstreaming disaster risk reduction**
- **After Super Typhoon Haiyan → Funding for disaster preparedness and management increased by 100 billion Pesos (5 % of total national budget)**

Policy Response - Metro Manila -

As it would be prohibitively costly to invest in the necessary infrastructure to mitigate against typhoons, the policy response has been to focus on disaster risk reduction and management by improving risk assessment and early warning and preparing for effective response and early recovery.



Conclusion - Asian Voice -

- *Policy response has been modified to learning to live under extreme hydrological events and to adjust by building resilience capabilities in the communities and flood infrastructure.*
- *However, continuing urbanization of the catchments in and around the city had resulted in flood runoffs increasing many-fold, bringing with it challenges for the flood planners to come up with more innovative solutions, from both the engineering as well as the financial perspectives.*
- *It would be prohibitively costly to invest in the necessary defensive infrastructure to protect city from disasters.*

Policy responses has been to focus on improving disaster preparedness and management.

Conclusion - Asian Voice -

- Three Cities
- One climatic zone
- Three geographical locations
- Three different water disaster scenarios
- Three differing policy response

Thank you for your attention!

For further information, please visit our website.
http://www.narbo.jp/

tadashige_Kawasaki@water.go.jp

NARBO
Network of Asian River Basin Organizations