

International Commission on Irrigation and Drainage (ICID)

Flood Management in Malaysia

Presentation to Working Group on Comprehensive Approaches
to Flood Management (WG-CAFM);
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By:

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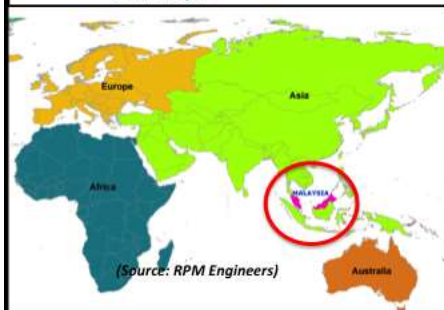
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Flood Management in Malaysia



- A Federation of 13 States and 3 Federal Territories
- 2 regions, Peninsular Malaysia (132,631 sq km) and Sabah (73,722 sq km) and Sarawak (124,450 sq km) on the Borneo Island; separated by the South China Sea
- Population 32 million 2015; 42 million 2015
- Located in South-East Asia

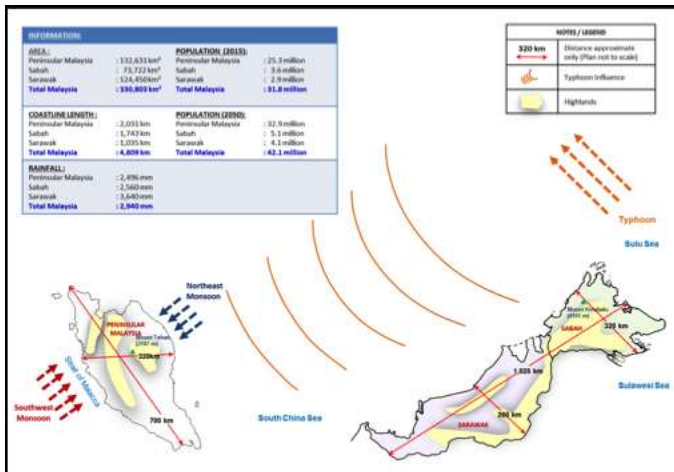


Neighbours:
Thailand
Singapore
Indonesia
Brunei
The Philippines



Flood Management in Malaysia



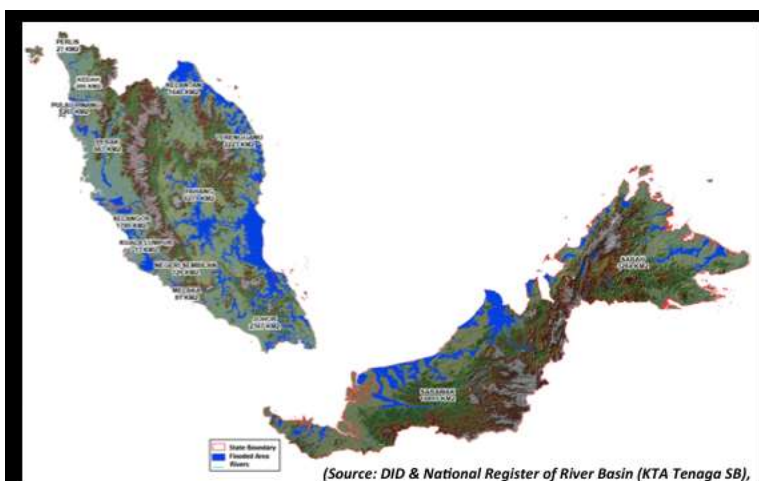


- Tropical Climate
- Temperatures 25 – 32°C; No distinct season
- Rainfall pattern forms the seasonal variations
- Influenced by the monsoon winds
- Southwest Monsoon April - Sept (Dry Season)
- Northeast Monsoon October - March (Rainy/Wet Season)
- Average annual rainfall nearly 3,000mm

The Northeast Monsoon brings heavy rains and cause seasonal floods in Eastern Peninsular Malaysia, Sabah and Sarawak

Flood is an annual recurring event in the low-lying areas

Flood Management in Malaysia



- 9% of total land area are flood prone
- 3% of flood prone areas are urban
- 41% of flood prone areas are agriculture areas

Flood Prone Areas	km ²				29,799
4.1 Urban	464	93	249		806
4.2 Agriculture	7,576	944	3,772		12,293
4.3 Forest	3,728	899	473		5,100
4.4 Others	3,852	1,348	6,401		11,601

Flood Management in Malaysia

Brief history of flood management in Malaysia

- The Department of Irrigation and Drainage (DID) under the Ministry of Agriculture was formed in 1932. It was responsible for paddy irrigation development and management, agriculture drainage, agriculture flood protection works and river management.
- When the country was mainly an agriculture-based economy, urban floods was not an issue. Investments in urban flood mitigation was not significant. The communities in flood prone areas have adapted to "living with floods" annually.
- Rapid urbanisation began in the 1960s. There were little consideration for flood management requirements; "No space for rivers".
- The "Big Floods of 1971" was the turning point in Flood Management in the country.
- It affected a few States and regions including Kuala Lumpur, the capital and centre of administration then.
- The Government decided to implement a specific program for flood mitigation and because of the experience, this function was added to DID's list of responsibilities. The Hydrology Division was formed



Flood Management in Malaysia



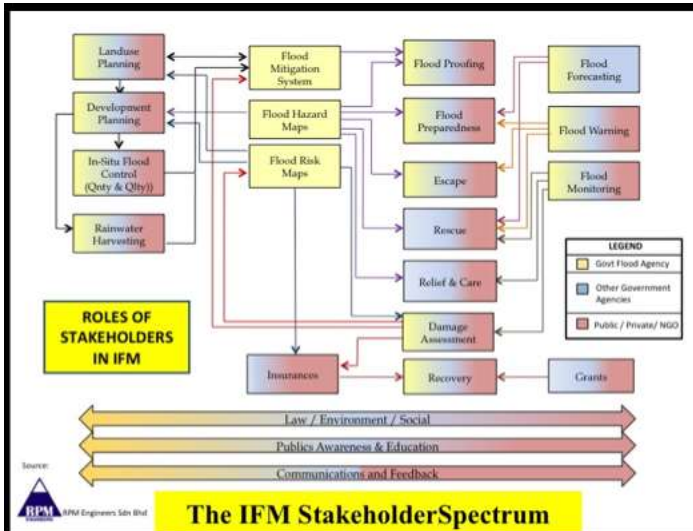
Brief history of flood management in Malaysia

- Following that many flood mitigation projects were implemented particularly for urban areas.
- The approach was more for "Rapid Disposal" of flood flows; using rigid (concrete) structures.
- In 2004, the Government formed the Ministry of Natural Resources and Environment (NRE). The DID was moved from MOA to this new Ministry.
- Subsequently the DID formed a Flood Management Division to focus on Flood Management.
- The flood management approach now comprise of both Structural and Non-Structural Measures – The Integrated Approach.



Flood Management in Malaysia





The Government Is at various stages of implementing the full spectrum of the Integrated Flood Management Approach

- Structural Measures still continue
- Flood Hazard and Flood Risk Maps produced
- Guidelines for flood proofing
- Upgrading flood forecasting and flood warning
- “Zero Discharge” for new development

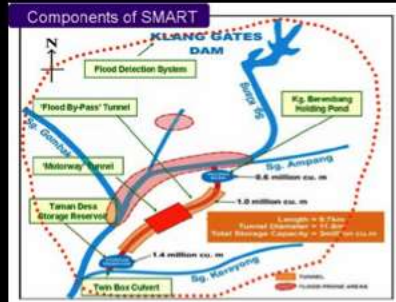
Recently formed a National Committee to Coordinate NGO participation in disaster (flood) relief works



Major Urban Structural Projects

The North Kuala Lumpur Flood By-pass

The Kuala Lumpur SMART Tunnel









Non-Structural Measures

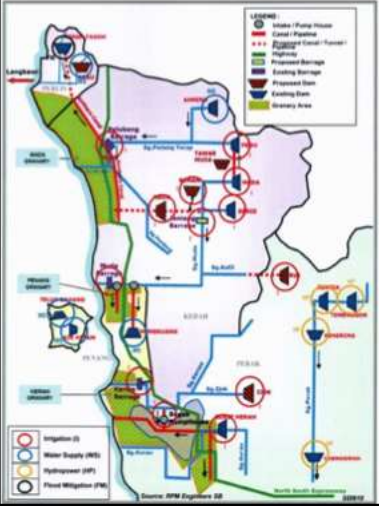
- “Zero Discharge” for land development
- Guidelines for Flood Proofing
- Guidelines for Car parks
- Flood Risk and Hazard Maps
- Public Information and Warning Systems




Flood Management in Malaysia




Challenges to Irrigation and Agricultural Drainage



- Urbanisation within irrigation and agricultural drainage areas are expanding and intensifying
- Irrigation facilities (dams and control structures under pressure to be adapted to suit increasing urban flows
- Irrigation schemes and other agriculture areas also under pressure to serve as flood detention and retention zones
- E.g. Irrigation dams have to lower storage levels to accommodate for flood flows; increasing risk of timely replenishment for next season
- Farmers, system managers and policy makers still not advocating non-structural measures and risk-based flood management



Flood Management in Malaysia



In Malaysia,

Many of the action plans, research and development are for urban flood management;

Not much for irrigation and agriculture drainage

i.e. not really “comprehensive and adaptive” from agriculture perspective

ICID?



MARCID

Flood Management in Malaysia



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