

# Flood Hazard Map Practice

In Jakarta

## Historical

- 1621, 1654, & 1876, Big Flood event occur in Batavia/Jakarta
- 1918 Netherland Government built Bendungan Hilir, Jago and Udik
- 1922 Colonial Government built West Banjir Canal from Manggarai to Muara Angke
- 9 January 1932 Flood in Sabang and Thamrin wash away several houses
- 1 February 1976, 3 days continuing heavy rain causing more than 200.000 people refugee, central of Jakarta is heavily damage
- 19 January 1977, continuing heavy rain causing some part of jakarta flooded and approximately 100.000 people refugee
- 8 January 1984, 291 Rukun Tetangga (RT), East Jakarta, West Jakarta, and Central Jakarta along Grogol dan Sekretaris rivers inundated, 8.596 house hold or 39.729 people is affected



# Historical

- 13 February 1989, Ciliwung dan Pesanggrahan Rivers, is over topping, flood came from upper side, causing some East Jakarta flooded and more than 4.400 house hold refugee
- 13 January 1997, 2 days of heavy rain causing 4 sub district of 745 houses of 2.640 people
- 26 January 1999, Flood occurred in Jakarta, Tangerang, and Bekasi causing thousand of houses inundated, 6 people reported dead and 30.000 people refugee
- 29 January 2002, Flood occurred in Jakarta, Tangerang, and Bekasi 2 people reported dead and 40.000 people refugee
- 2-4 February 2007 Jakarta is in emergency condition, flood in 60% of Jakarta area, 150.000 people refugee, 1.379 electricity distribution system are inundated, more than 420.000 customer is affected



# Content

- Communication Strategies
- Flood Hazard Mapping
- Community Participation



Content

- Communication Strategies
  - Higher echelon
    - Together
    - To press
    - Top-down to communities



National strategy

- Formulation of a consistent flood management strategy in Indonesia started in 2002 with the establishment of the Flood Control Co-ordination Committee, (Bappenas Decree 286A/M/PPN/07/2002)
- Resource persons from the relevant ministries under chairmanship of Bappenas.
- Following the approval of the new Water Resources Law (No. 7/2004), the three working groups of the committee:
  - Spatial Planning;
  - Technical Solutions and Financing and;
  - Emergency Management
- Intensified their work and provided the basis for flood management for Indonesia by the National Flood Control Policy Plan

## National strategy

- Flood management Indonesia:
  - From prevention to risk management
  - From uncontrolled floods to controlled floods
- Very much in line with world best practice



## Content

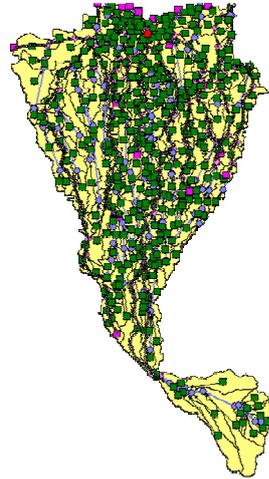
- Flood Hazard Mapping
  - Specialist network
    - Together
    - To own leaders
    - Consistency
  - Centre of excellence





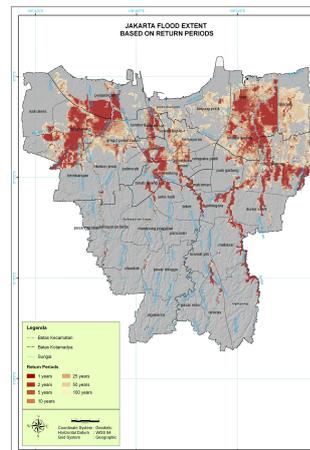
## Results

- Hydrologic and hydraulic modelling framework
  - Complete integrated modelling framework for major drainage upstream-downstream DKI
  - Ready to be used for flood hazard mapping by specialist network
  - Basis for centre of excellence
  - Basis for flood early warning (ready to be connected to telemetry network CilCis)
  - Basis for communication with Satkorlak



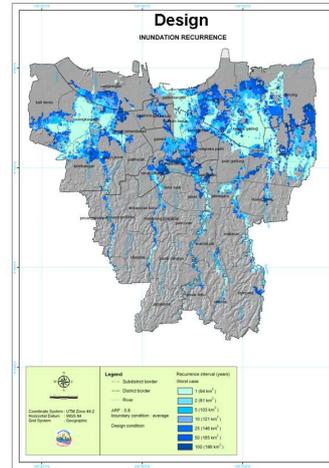
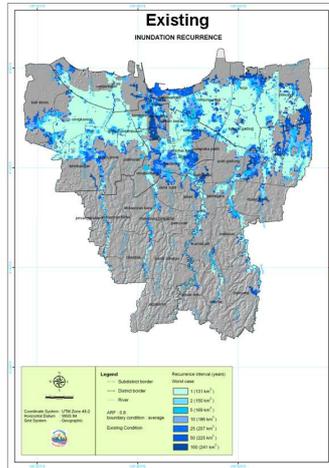
## Results

- Hydrologic and hydraulic modelling framework
  - To be used for Flood Hazard Mapping
- Ready to be used for:
  - Evaluation of 80% of proposed flood control measures
  - Evaluation of new measures:
    - Deep tunnel storage
    - EBC-Ciliwung connection
- 1, 2, 5, 10, 25, 50 and 100 year events



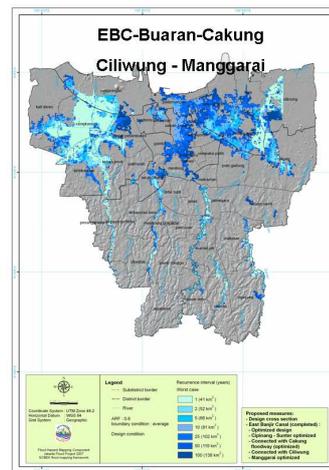
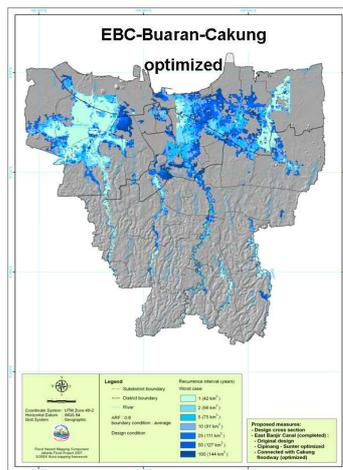
# Jakarta Flood Hazard Map

Existing vs. Design  
1, 2, 5, 10, 25, 50 and 100



# Jakarta Flood Hazard Map

Technical Consideration



## Jakarta Flood Hazard Map Technical Consideration

- Maintain flood modelling framework
- Upgrade online monitoring system (e.g. rainfall, levels)
  - Replace outdated monitoring stations
  - Implement first step of Early Warning System
- Evaluation of proposed measures
  - Dredging
  - EBC, Deep Tunnel storage
  - Waduk and situ situ's
  - Catchment management
- Dredging site monitoring
- Combine Space & Water

No	Condition	DKG	
		Flood area (km <sup>2</sup> )	number of victims
1	Measured 2007	209	2,881,848
2	Design 2007	144	1,891,280
3	EBC Cip-Surba-Buar-CAK 'a'	136	1,422,273
4	EBC completed Buaran gate closed	102	1,281,197
5	EBC - Cakung optimized	82	1,111,156
6	EBC - CAK - Margasari Optimized	66	1,035,119
7	EBC - CAK - CIL - Margasari Optimized	67	894,589
8	EBC - CAK - Margasari - Deep Tunnel	not yet finished	

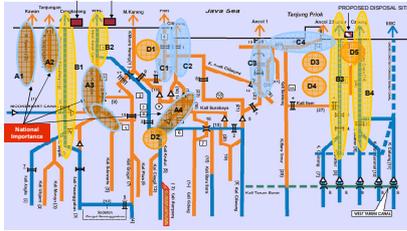
*Note: number of victim base on kecamatan population average (sumber/kr2)*



## Evaluation of proposed measures Before and after



## Evaluation of proposed measures



## Evaluation of proposed measures East Banjir Canal



Content

- Community Participation
  - Together (what can we do ourselves)
  - Down-Top (please do something, where to go?)



## Community Participation & Public Campaign



- The objective of the community participation component was to formulate a number of activities targeted at reducing the damage caused by flooding.
- This was done in co-operation with the local communities of Kelurahan Tomang and Petogogan.
- These flood prone areas were selected because of their typical profile: very densely populated poor neighborhoods mixed with middle class residential lay-outs.
- In the poor areas, land ownership and tenure is full of contradictions and irregularities.
- These poor sections were affected the most by the 2002 and 2007 floods with up to 2 and 3 meters of inundation in Tomang and Petogogan respectively.

## Community Participation & Public Campaign

- URDI, a NGO specialized in community participation, supported the project team in the field.
- Contacts were made with Lurah, Camat in both Kelurahan, and with the Dinas PU-DKI.
- Community leaders and informal leaders (mostly older religious leaders and concerned citizens) were invited to join the so-called Community Working Committee (CWC).
- It was very encouraging that the population of the areas welcomed the idea of community participation to reduce the risk of flooding.



# Community Participation & Public Campaign

- 1 **Introduction**
  - 1.1 The Problem
  - 1.2 Communication development in the JFM Project
  - 1.3 Campaign development steps
  - 1.4 Above-the-line and below-the-line media
  - 1.5 Creative campaign design
  - 1.6 Monitoring and response planning
- 2 **Community information needs**
- 3 **Campaign objective**
- 4 **Target audience**
- 5 **Communication barriers and opportunities**
  - 5.1 Scope and size
  - 5.2 The media
  - 5.3 Variety in messages
  - 5.4 Campaign partners and intermediates
- 6 **Key messages and materials**
  - 6.1 Information materials
  - 6.2 Emotional appeals
  - 6.3 Referencing
  - 6.4 Identification
  - 6.5 Commercial branding
  - 6.6 Re-use of available materials
  - 6.7 Creative design
  - 6.8 List of basic materials
- 7 **Media and communication channels**
  - 7.1 ATL and BTL media mix
  - 7.2 Public information and press center
- 8 **Campaign ownership and role sharing**
  - 8.1 Key tasks for sharing
  - 8.2 Need for one credible agency
  - 8.3 Candidate agencies
  - 8.4 Campaign management by SATKORLAK
- 9 **Response management and monitoring**
- 10 **Road map: campaign consolidation and implementation**
- 11 **Budget estimates**



# Community Participation & Public Campaign



# Educational



The End

Thank You