



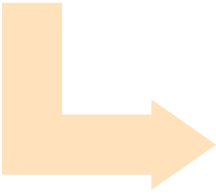
# Directive No 20 and Flood Management in Malaysia

Rohaizi Mohd Jusoh, Dato Ir  
National Disaster Management Agency  
Prime Minister's Department, Malaysia

International Workshop:  
MITIGATION OF DISASTERS DUE TO SEVERE CLIMATE EVENTS: FROM POLICY TO PRACTICE  
March 10-13, 2016  
Colombo, Sri Lanka

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INTRODUCTION – RECENT DISASTERS IN MALAYSIA



2

MAIN POLICY IN MANAGING DISASTERS



3

STANDARD OPERATING PROCEDURE FOR FLOOD DISASTER



4

ISSUES AND CHALLENGES



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# PACIFIC RING OF FIRE



NADMA Malaysia - Mitigate disasters, saving lives and reducing losses



Pos Dipang (39 deaths)  
August 29, 1996



Tropical Storm @  
Greg – Sabah  
(238 deaths)  
December 26, 1996







Tsunamis in northern states  
(70 deaths)  
December 26, 2004



Floods in eastern states  
(25 deaths)  
Dec 2014/Jan 2015





[VIDEO](#)

Hiroshima Sungai Buloh – explosion at  
Bright Sparklers (26 deaths)  
May 7, 1991



Highland Towers Apartments  
(48 deaths)  
December 11, 1993



# NSC DIRECTIVE NO. 20

**Collapse of the Highland Towers Condominium, Hulu Kelang,  
Selangor**

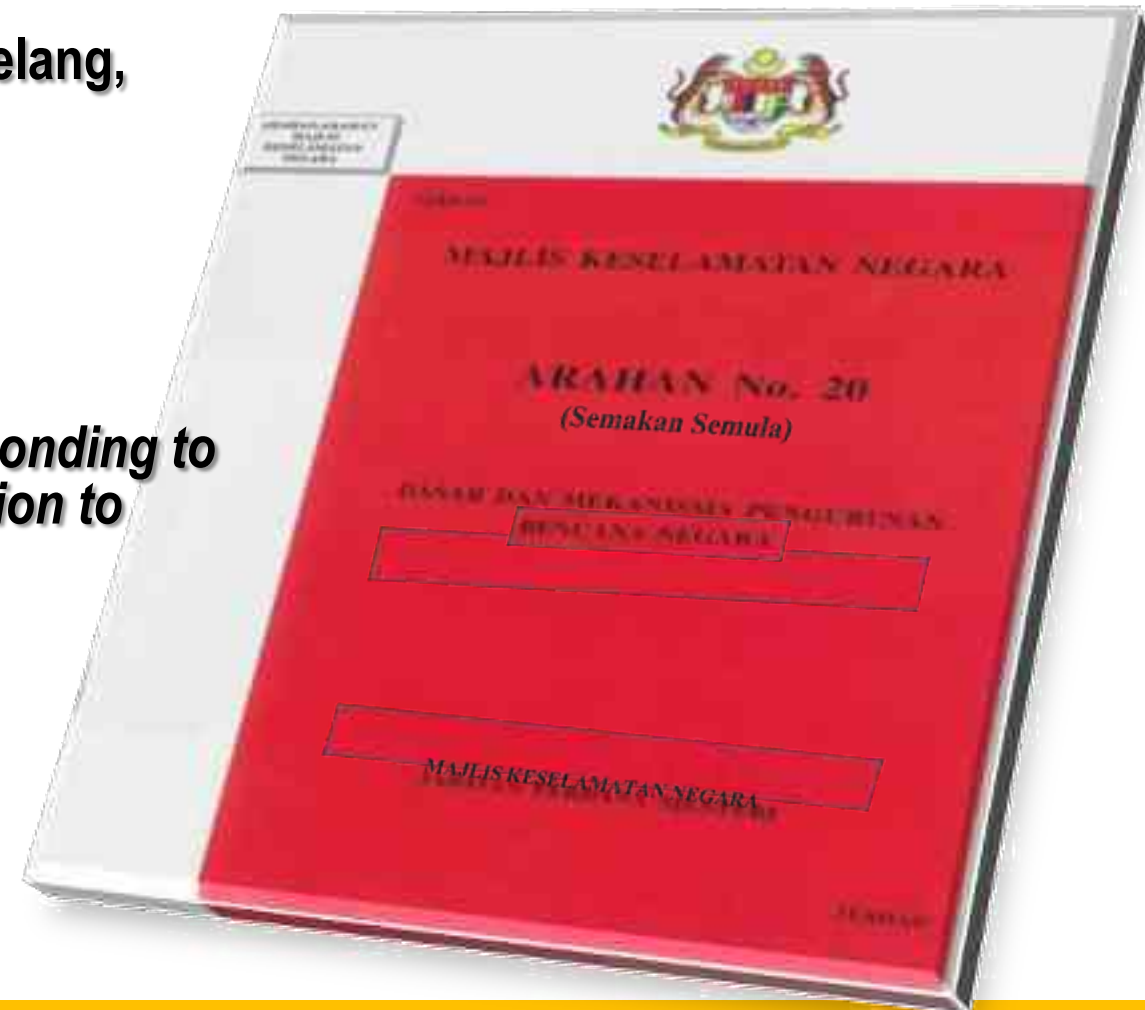
**December 11, 1993**

**Requires:**

***"clear line of direction and concerted effort in responding to disaster to alleviate sufferings and to return situation to normalcy."***

**NSC No. 20 came into force in 1997**

**Reviewed on 30 March 2012**



# OBJECTIVE

## Outlines:

**Policy and Mechanism on Disaster and  
Relief Management on Land**

## Based on:

**Levels of disasters**

## by:

**Establishing a management mechanism with the purpose of determining  
roles and responsibilities of various agencies involved in disaster  
management.**



# DISASTER DEFINITION

“... an incident that occurs in a **sudden manner, complex in nature**, resulting in the **loss of lives, damages to property** or the **environment** as well as **affecting the daily activities** of the local community.

... requires the handling of **resources, equipment**, frequency and extensive **manpower** from **various agencies** as well as **effective coordination** ....

DISASTERS COVERED BY  
DIRCETIVE NO. 20



Natural disasters



Industrial disasters



Accidents of transportation  
of hazardous materials



Building collapse



Air accidents



Rail accidents



Major fires



Dam breaks



CBRN accidents



Haze



Pandemic



Other disasters as proclaimed  
by the Government

# DISASTER MANAGEMENT MECHANISM

## DISASTER MANAGEMENT LEVEL

### DISASTER MANAGEMENT LEVEL I (*DISTRICT*)

- Localized event-controlled, and no potential to spread
- Handled according to the ability of the District Authority



### DISASTER MANAGEMENT LEVEL II (*STATE*)

- Disasters become more serious & spread to two districts
- Asset & financial assistance at the State Level



### DISASTER MANAGEMENT LEVEL III (*CENTRAL*)

- Disasters are more complex with a prolonged period- 2 States
- Harness of the assets, financial & greater resources deployment



# DISASTER MANAGEMENT PLATFORM

## LEVEL III

### **Central Disaster Management Committee (JPBP)**

- Chaired by the Minister in the Prime Minister Department
- Determine the national disaster management policies, assets, financial and human resources

## LEVEL II

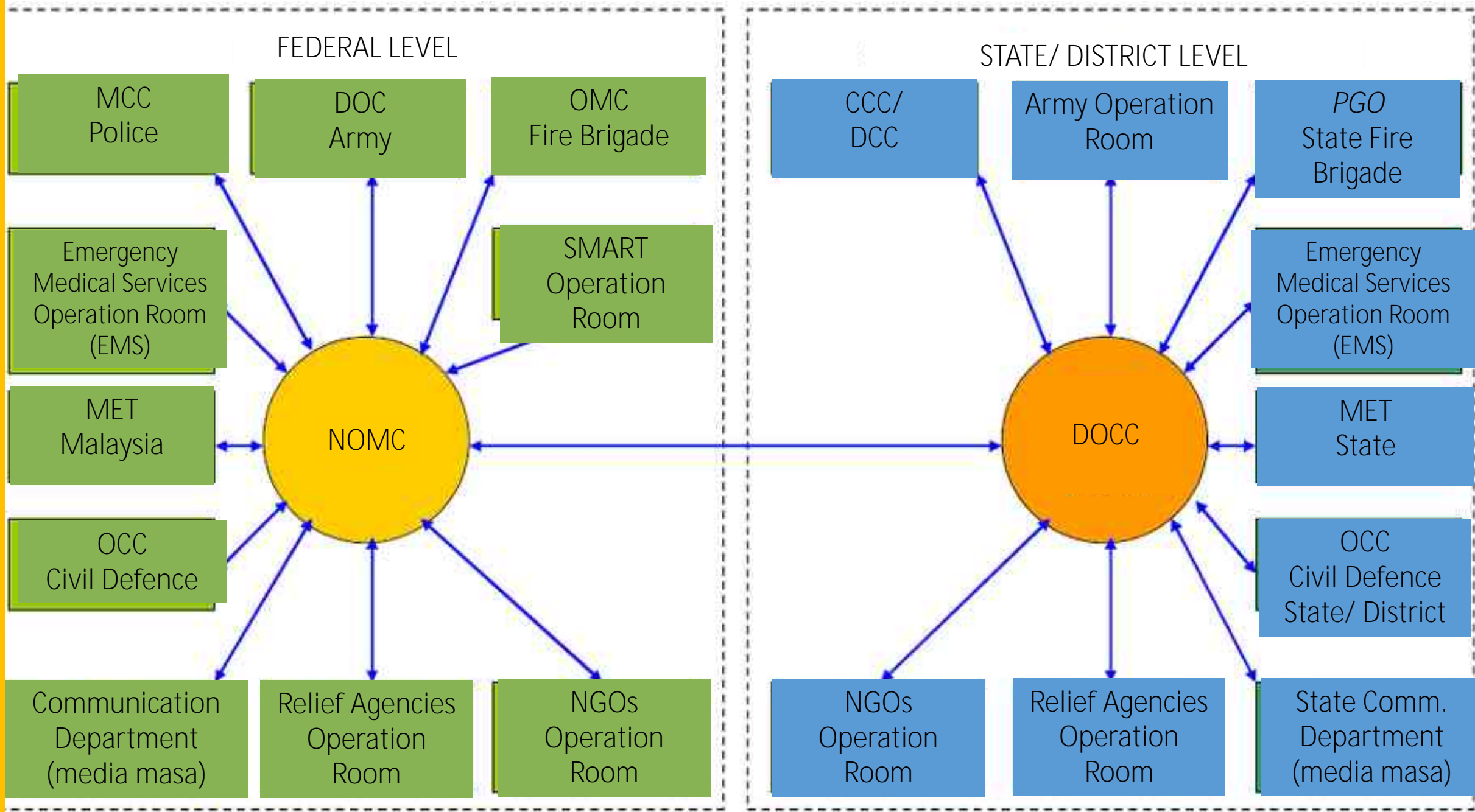
### **State Disaster Management Committee (JPBN)**

- Chaired by State Secretary
- Provide assistance to the affected area such as financial aid, assets & human resources

## LEVEL I

### **District Disaster Management Committee (JPBD)**

- Chaired by District Officer
- Ensure coordinated actions, assets and human resources sufficient in managing a disaster



# ORDERS AND CONTROL

## OSCP (On-Scene Command Post)

Establishment of OSCP	Immediately after the occurrence of the disaster
Leader	Commander for disaster operations
Operations	• Manage SAR
	• Establish communication with DOCC
	• Report progress to DOCC

## DOCC (Disaster Operations Control Centre)

Establishment of DOCC	Secretariat for the Disaster Management Committee
Leader	Chairman of Disaster Management Committee
Operations	• Monitor the progress of field operation
	• Support SAR operation
	• Report to higher authority



# STANDARD OPERATING PROCEDURES

- SOPs are created to clarify and explain the responsibilities of relevant agencies in managing and responding to disaster events;
- Objectives & goals:
  - **Guideline** for agencies
  - Response is more **coordinated, integrated and effective**
  - **Avoid confusion and conflict**
  - Securing **people's welfare**

# STANDARD OPERATING PROCEDURE FOR FLOOD MANAGEMENT

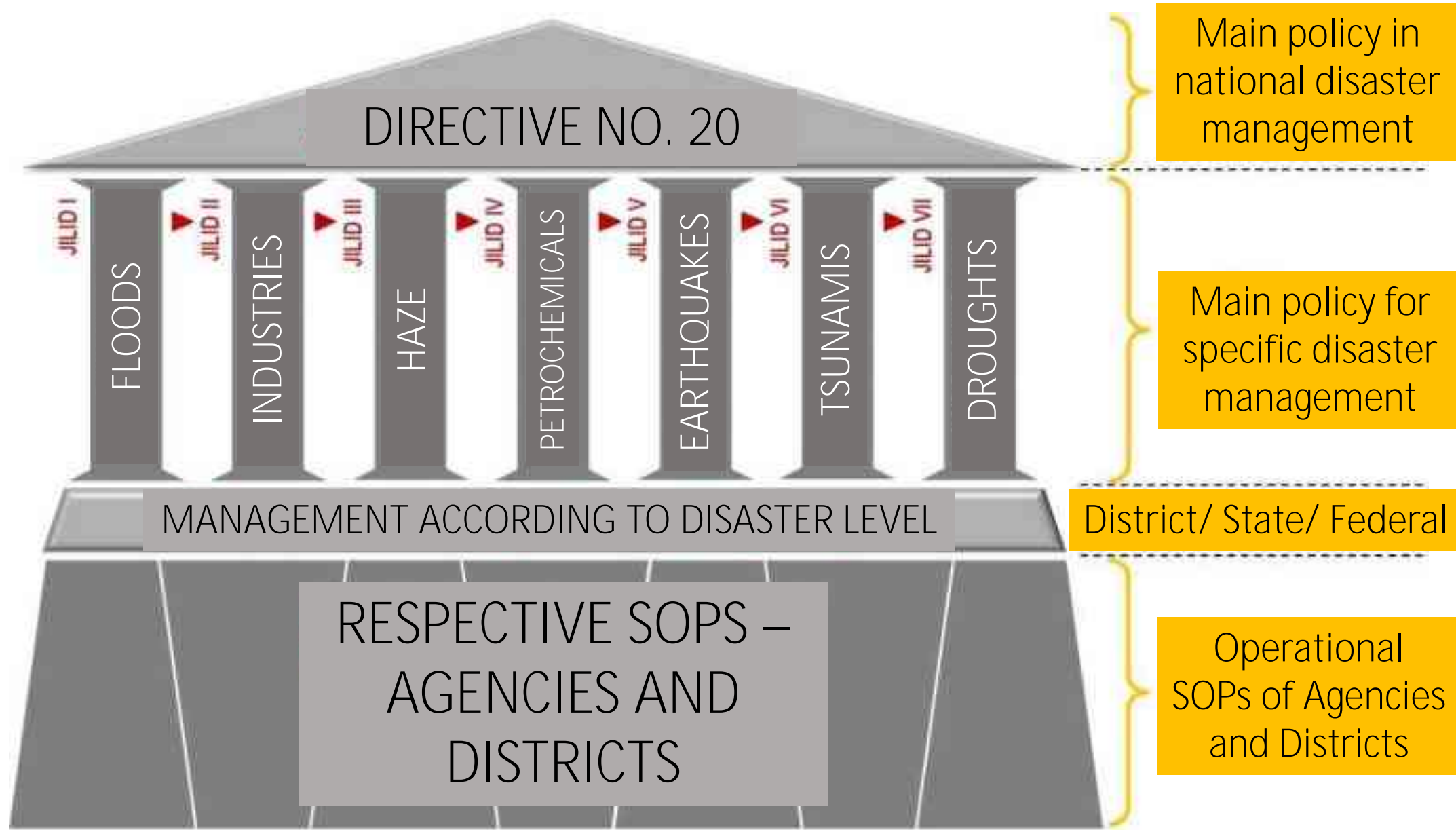
- Published on December 28, 2011
- Revised OCTOBER 2015
- Guideline for improving the effectiveness of various departments/ agencies in discharging their duties during FLOOD disasters
  - Responses by the various departments/ agencies are focus towards excellent services so that the concerted efforts will provide maximum public safety

# ROLES AND RESPONSIBILITIES

Search and Rescue	Welfare	Health & Medical Services	Media	Security Control	Technical Services & Logistics
<ul style="list-style-type: none"> <li>• Search &amp; rescue</li> <li>• Transfer</li> <li>• Emergency medical treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Provide relief centres</li> <li>• Provide food and other assistance</li> <li>• counselling</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency treatment</li> <li>• Medical services</li> <li>• Public health services</li> </ul>	<ul style="list-style-type: none"> <li>• Fast and accurate facts</li> <li>• Media releases</li> <li>• Media coverage (electronic and papers)</li> </ul>	<ul style="list-style-type: none"> <li>• House/building security</li> <li>• Safety of relief centres</li> </ul>	<ul style="list-style-type: none"> <li>• Recovery of public utilities</li> <li>• Logistics</li> <li>• Communication</li> <li>• Expert services</li> </ul>
Police, Fire Brigade, Army, Emergency Medical Services, SMART, Civil Defence	Welfare Services Department, Civil Defence, RELA, NGOs	Emergency Medical Services, Army, NGOs	Communication Department	Police, RELA	District Offices, Local Authorities, Providers of public utilities, DMG, DID, Met Malaysia, NGOs



# DIRECTIVES AND ACTION



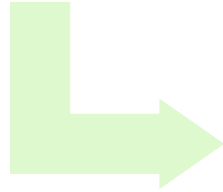
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# Flash Flood and Monsoon Flood

- Flash flood was one of the common and destructive weather-related phenomena that Malaysia experienced.
- Due to rapid development that the country undergoing, more incidences of flash floods were reported.
- Flash flood occurs when a barrier holding back water fails or when water falls too quickly on saturated soil or dry soil that has poor absorption ability.



# Clogging Drain



In Kuala Lumpur, the clogged drain and poor drainage system are the main factor causing flash flood. The rubbish inside the drain prevents the smooth flow of water.

# Man-made structure



**Cameron Highlands flash floods** took place on 23 October 2013. Heavy rain had occurred continuously since 7:00pm the day before, creating a need to alleviate the water in the dam the morning of the flood.

# Urbanization process



Rapid development in Kuala Lumpur without taking consideration of the good drainage system is a major cause of flash floods.

VIDEO

## Heavy rains

Heavy rains for more than 6 days



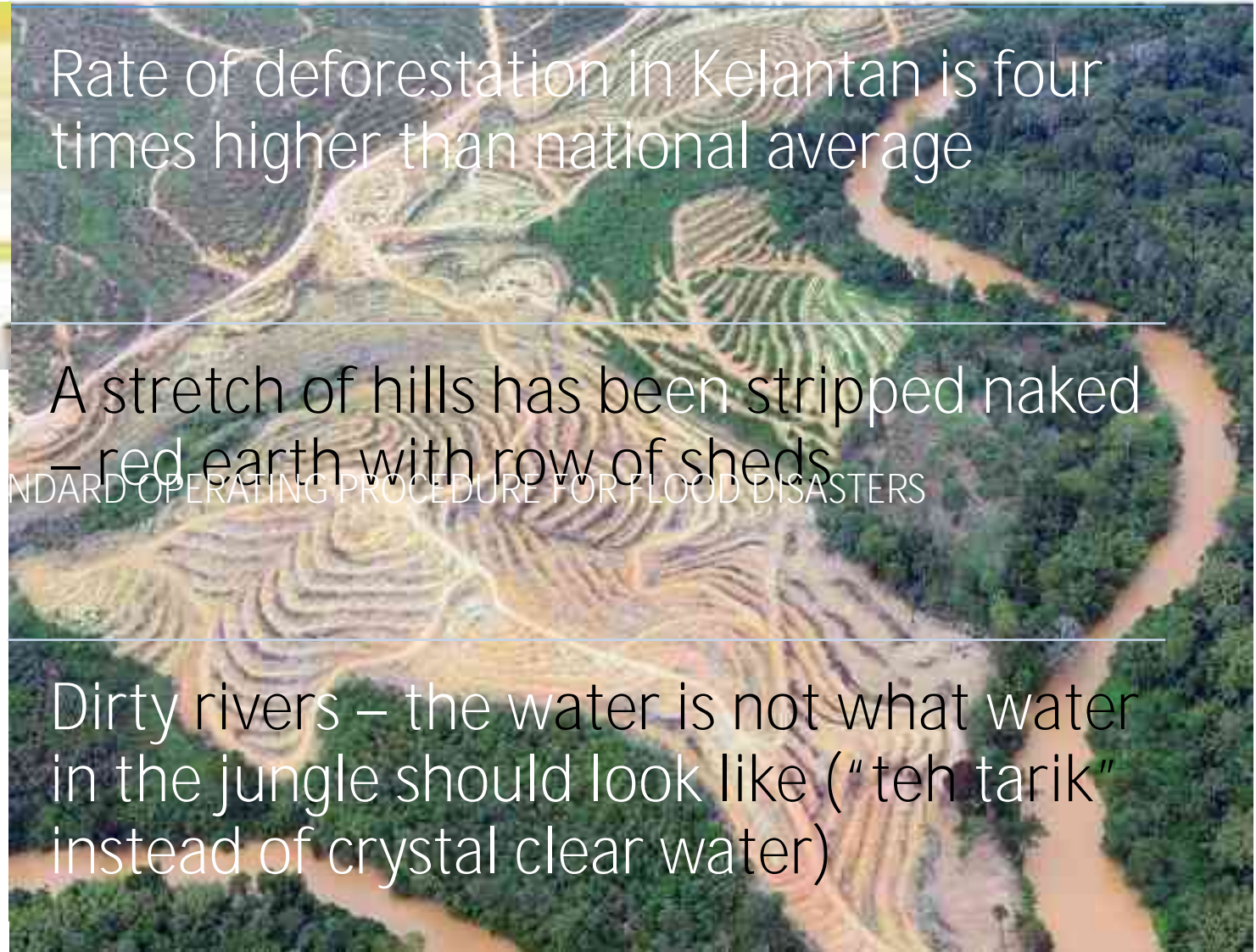
Maximum rainfall intensity was 90 mm/hr

Resulting in large volume of runoff





NST Reporter  
Sharanjit Singh  
NST @  
7 February 2013



This is a brutal  
rape of our  
natural  
resources

# Shallow rivers

Settled sediments from cleared lands (erosion) – vegetation is a natural control for soil erosion

No or little maintenance river dredging activities



Resulting in rapid rise in river levels and overtopping of river banks – flooding of surrounding areas

## ESTIMATED LOSS

**Public infrastructure loss due to 2014-2015 flood:**

**RM2.851 billion**

**(USD \$ 700 Million)**





## Previously

- National Security Council (NSC)

## Now

- National Disaster Management Agency (NADMA Malaysia – since October 1, 2015) – secretariat at Federal Level
- Department of Civil Defence – secretariat at State Level

# NEW ROLES OF NADMA MALAYSIA



### MITIGATION

- Flood Mitigation projects (DID)
- Development Policy, planning and implementation at state and district level
- Prevention Acts (Environmental Quality Act, Local Government Act, Uniform Buildings ByLaw, etc)
- Other Policies (National Climate Change Policy, Green Technology Policy)

### PREPAREDNESS

- Enhance NSC Directive No. 20 & SOPs
- Disaster forecasting & early warning systems (MetMalaysia, DOE, DID)
- Manuals to be produced and enhanced
- Communication systems (GIRN, MERS 999, Fixed Line Alert System)
- Public Awareness (, simulation exercises, National Disaster Awareness Day)

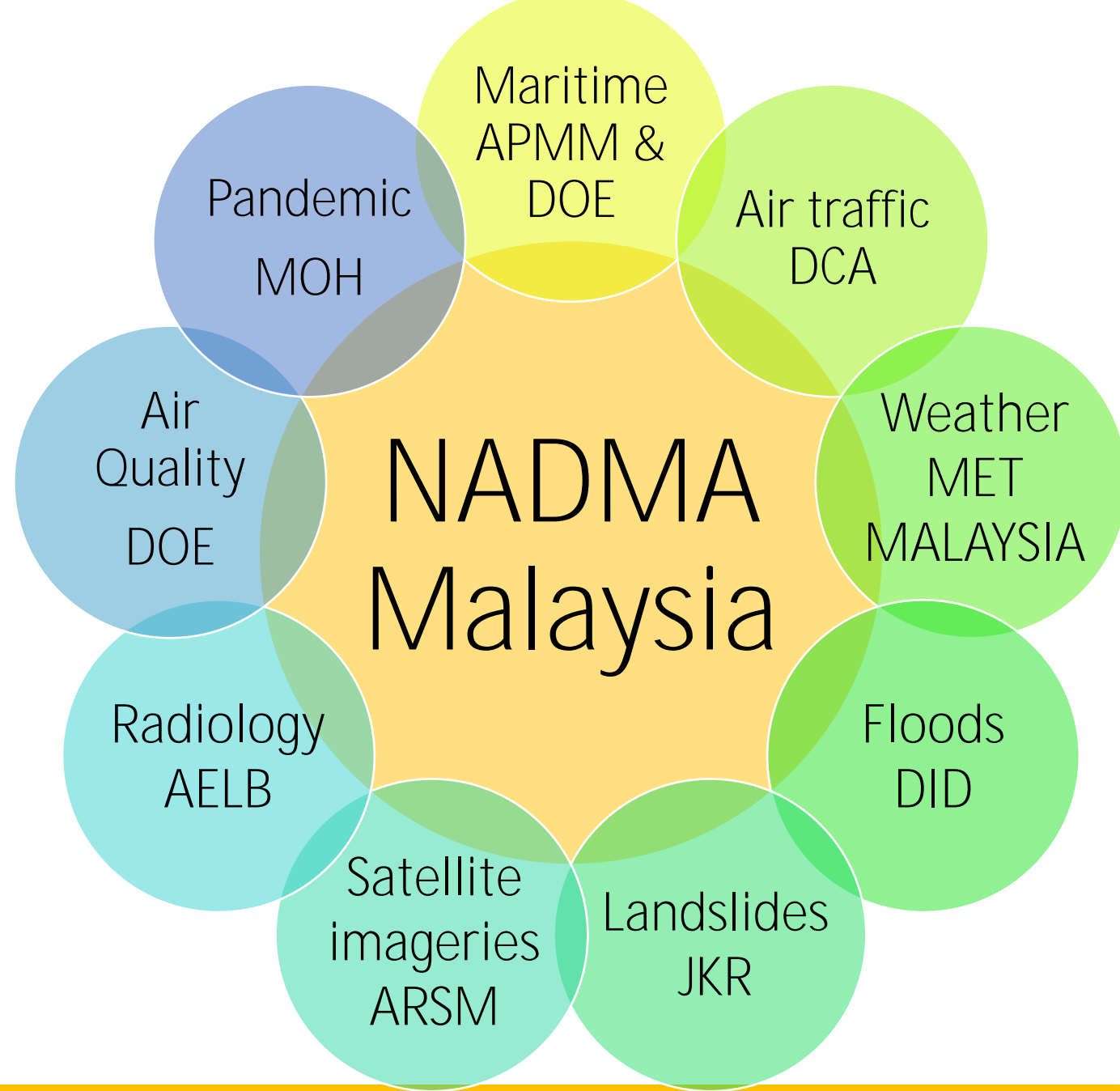
### RESPONSE

- Capacity -Asset & Personnel (PDRM, JBPM, JPAM, ATM, KKM, JKM, etc)
- Victim's welfare – Disaster supply depot and stores
- Establishment of CDERT

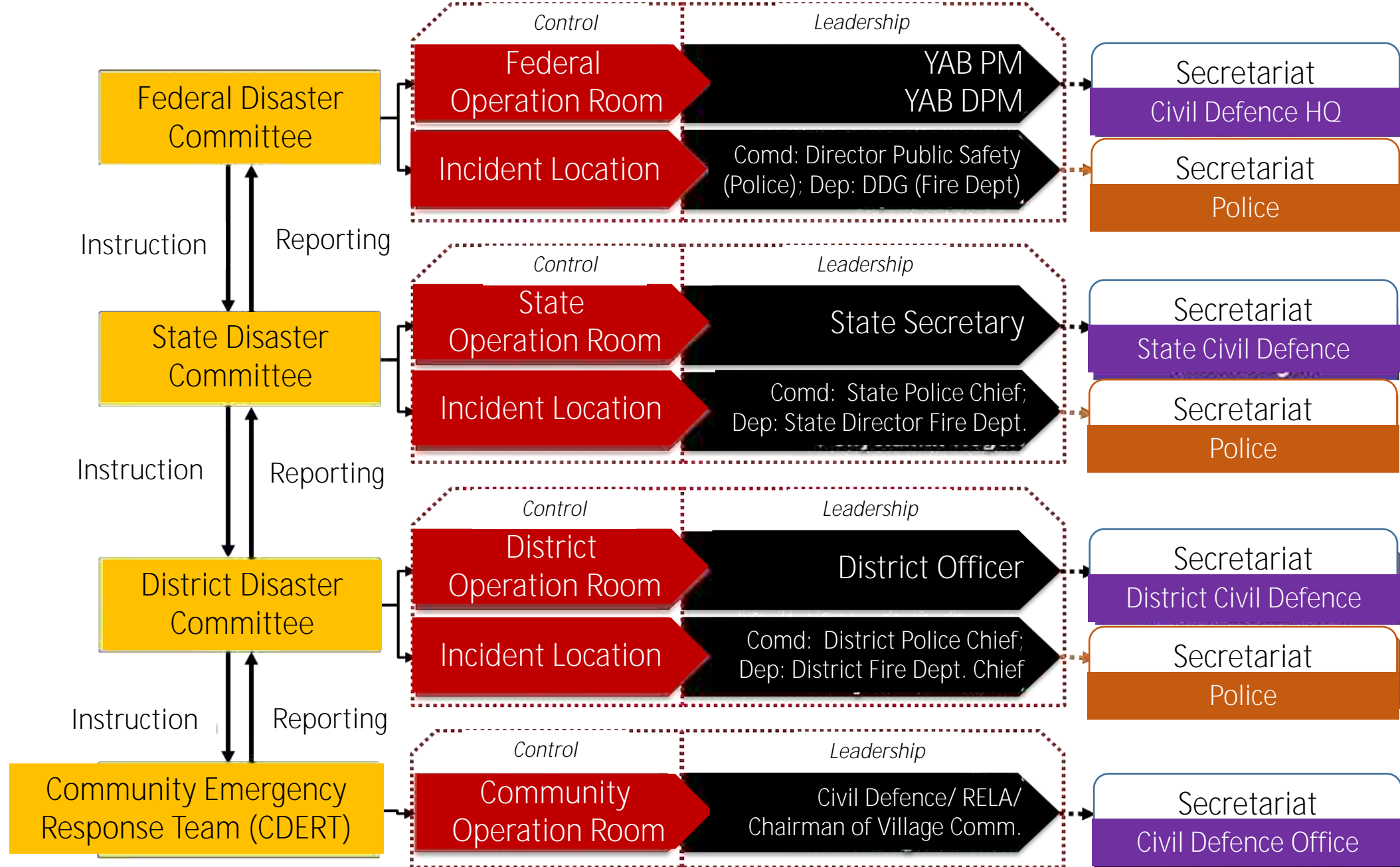
### RECOVERY

- National Disaster Trust Fund to increas
- Relocation of disaster victims / new technologies
- Reconstruction of public facilities and infrastructure
- Public services and business continuity plan

# KEY PLAYERS IN DISASTER MANAGEMENT



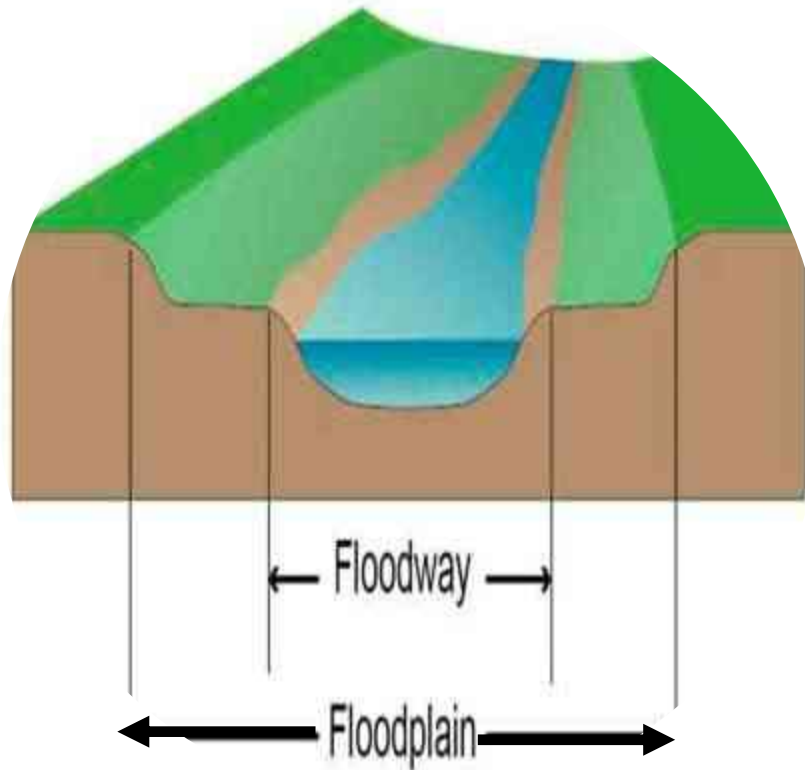
# NEW MECHANISM FOR DISASTER MANAGEMENT





## Non Structural Measures-Control on development

Controlled development within floodplain and adjacent areas



Provision of buffer areas along river banks and around lakes

Enforcement of stormwater management and treatment of wastewater

## Environmental awareness

State government to promote environmental awareness to the citizens of Kelantan

Local authorities and land offices to maintain drainage systems and undertake proper waste disposal

Follow the teachings and rules on environmental conservations



# Rehabilitation

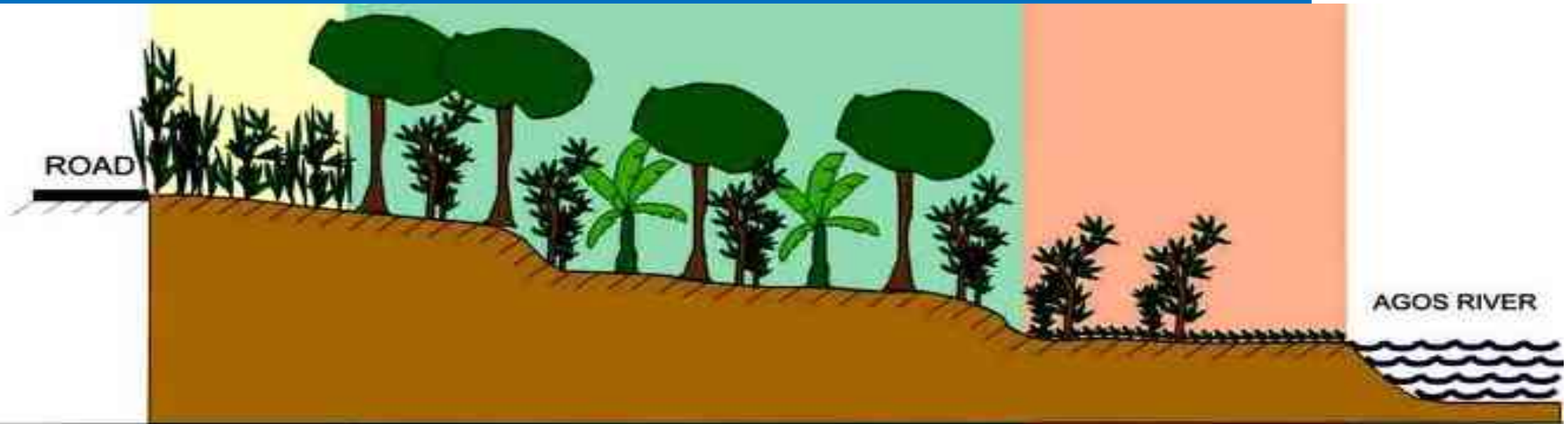
Greening of exposed soils and afforestation



Best appropriate practices adopted by farmers, miners and property developers

No direct discharge of runoff from cleared lands, waste water and mining effluents into water courses

# Reg. Ex: Buffer zone – construction of



Zone	3	2	1
Width of zone	5m	30m	10m
Function	Act as breaker for surface runoff	Main zone of stream bank stabilization	Act as immediate protection from active bank erosion
Vegetation	Shrubs: amaranth, diris, talong-talongan	Mixed slow and fast growing trees: alternate crop of dapdap, citrus, bamboo, banana, rambutan, etc.	Mixed ground cover and bamboo
Allowable activity	None	Regulated livelihood area	None



# Structural Measures: Construction of flood mitigation dams



Flood mitigation dams are effective in reducing downstream flooding – multi-purpose dams usually fail

Dam catchment to be protected to avoid build up of sediments in the reservoir

Should be the last option for structural measure in flood mitigation



# Deepening & Maintenance of channels

State government undertakes scheduled maintenance of water courses



Previously JPS provided the plants and human resources but this arrangement has been stopped

State and federal governments to resolve the cost of maintaining water courses

# Construction of flood bypass

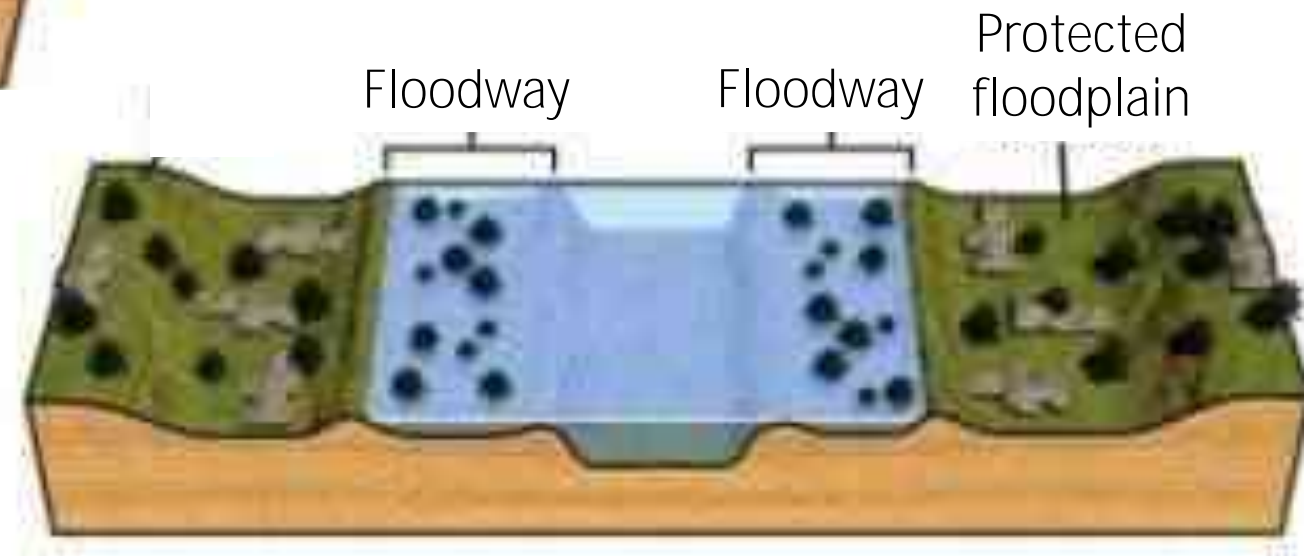
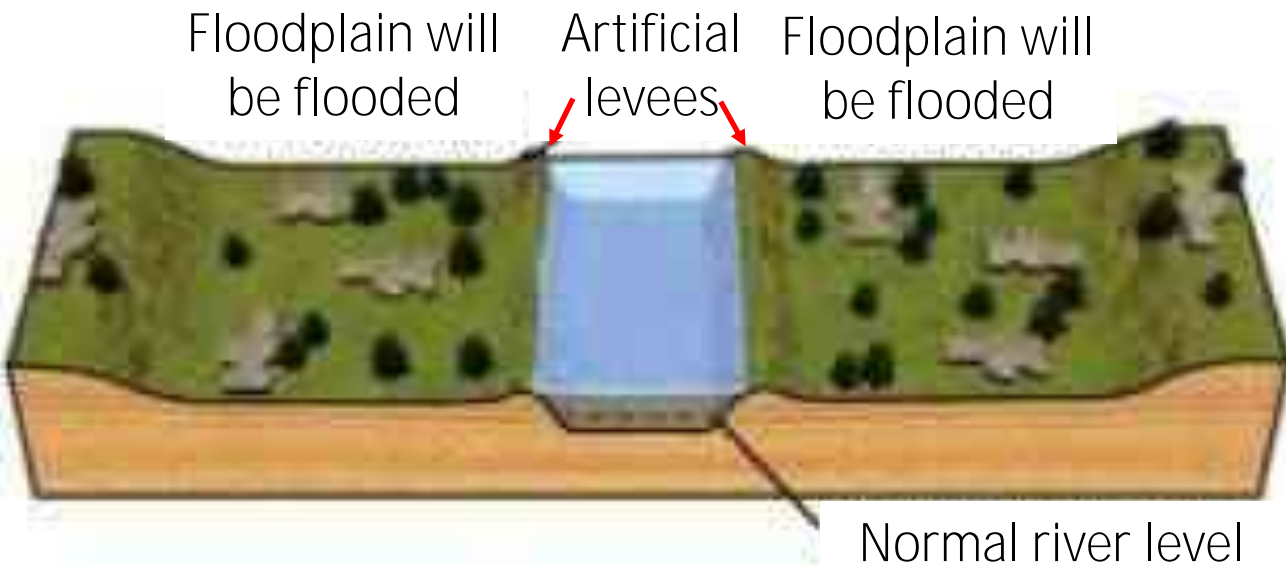
To be located south of Kota Bharu



A necessity, consequent to reclamation of Kelantan River at Lembah Sireh (unless reverse development)

State government to provide funds for operation and maintenance of either flood storages or bypass and related structures

# Give more room to rivers



# Technologies-Flood friendly properties







## Flood proofing

Strategic buildings to be flood proofed

Hospitals, clinics, communication centres, power stations, water treatment plants .....

Provision of mobile services – power generations, water treatment plants, health care .....



## Improved operation of dams

Reservoir water to be released in advance of raining season – make storage available for flood water

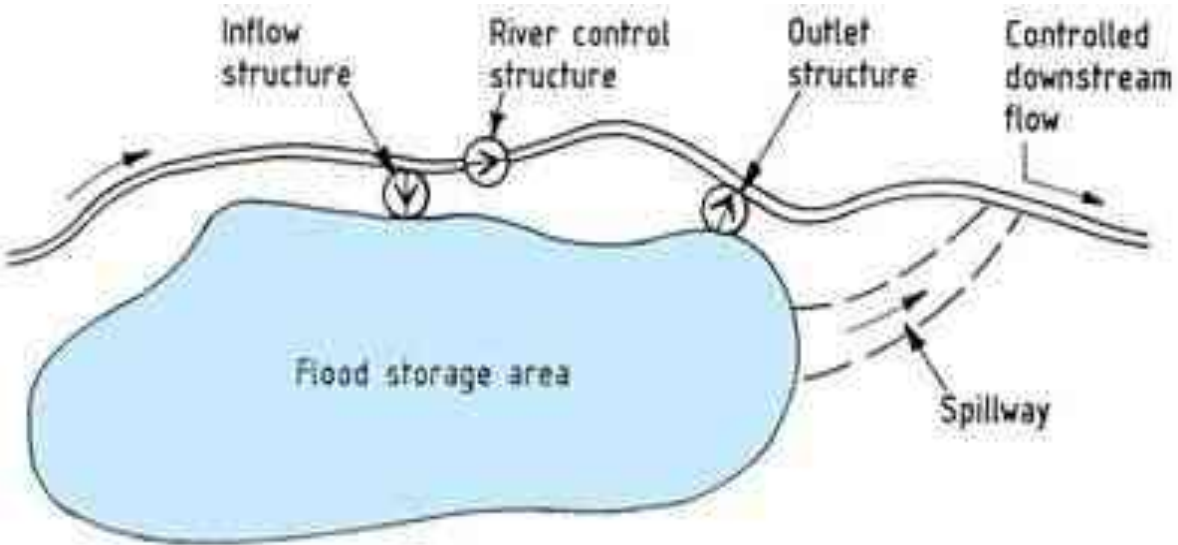


On-line monitoring of tide levels – to ensure dam released water reaches the sea during low tide

Regular dam safety inspection is carried out

# Construction of flood storages

To reduce floods in downstream areas



Flood water to be released after river water level subside or it could be used for irrigation

State government to provide funds for operation and maintenance of flood storages and related structures

[VIDEO](#)

Sekian, terima kasih

