

Fire & Rescue Dept.  
Malaysia



# PENANG FLOOD DISASTER MANAGEMENT

## FRDM Experience



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# INTRODUCTION

## The State of Penang



- ▶ Enjoys a warm equatorial climate just like any other parts of Malaysia.
- ▶ The island part , its temperature is often higher than the mainland,



# INTRODUCTION

## The State of Penang



- ▶ In general, temperatures range between  $29^{\circ}\text{C}$  -  $35$  during the day and  $26^{\circ}\text{C}$  -  $29^{\circ}\text{C}$  during the night,
- ▶ June to August being the hottest month.

# INTRODUCTION

## The State of Penang



- The wettest periods are from April to May and from October to November.

Rainfalls is frequent during periods of monsoon winds.

Except from expecting tremor from the neighbouring Sumatera Island,  
The usual natural phenomena is flood which is yearly manageable event

# AN OUTLOOK OF CAUSE

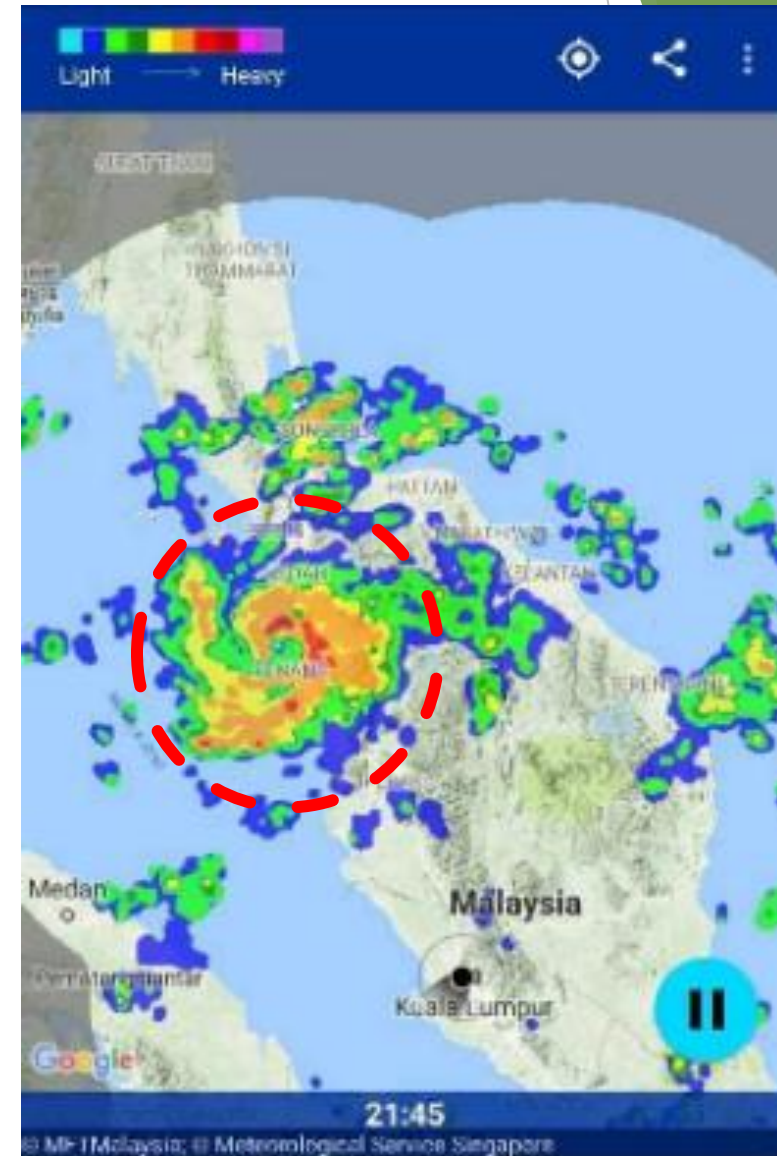
a) A vortex was created by the cold North East wind from the Gulf of Thailand meeting the warmer wind and rain clouds from the Indian Ocean and the Andaman Sea

*Infrared satellite imagery showing cloud cover over northern peninsular Malaysia for 4 November 2017*



# AN OUTLOOK OF THE CAUSE

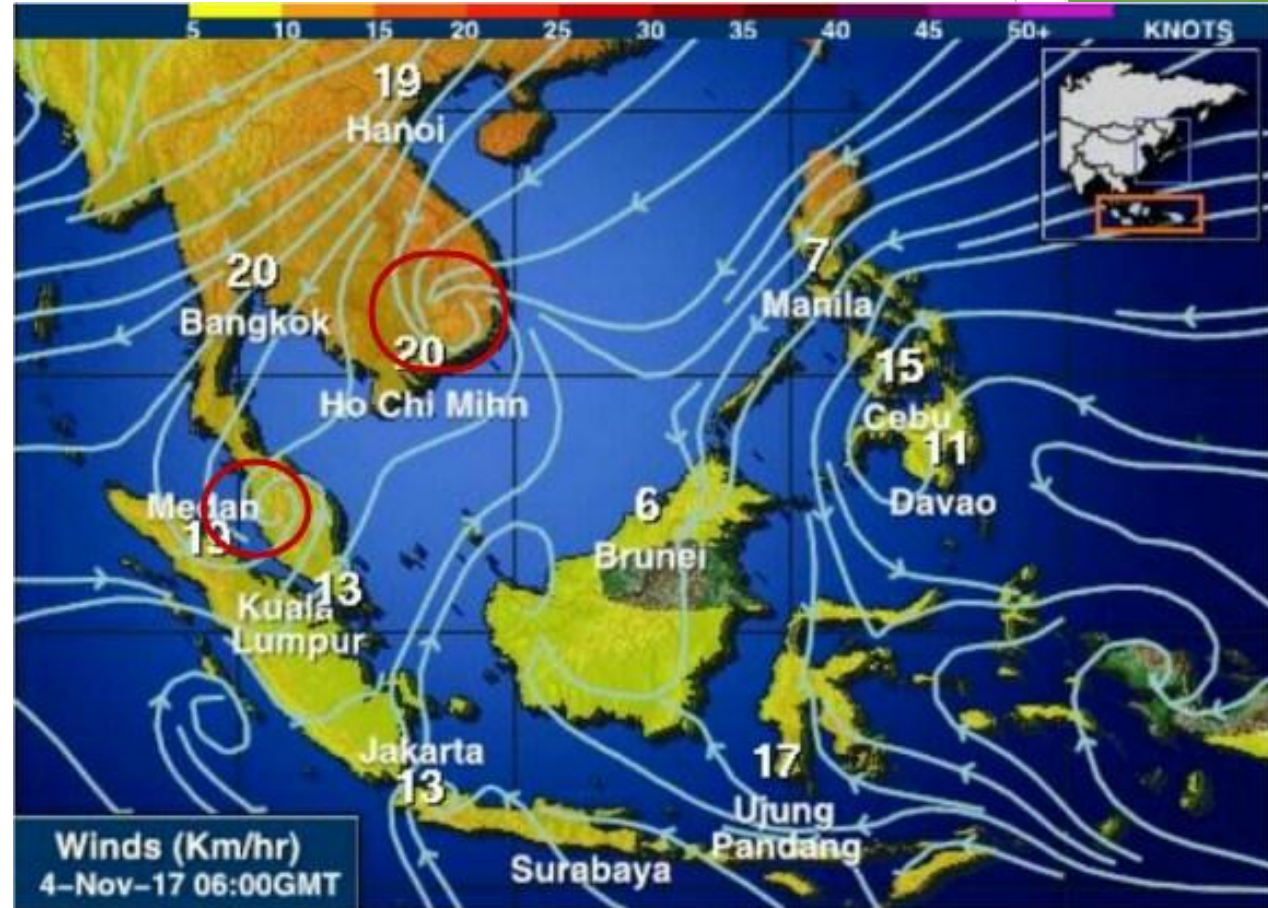
b) This vortex was a violent swirling storm system causing continuous heavy downpour and heavy wind and storm





# AN OUTLOOK OF THE FLOOD

c) A wind pattern map on the afternoon of 4 November recorded two separate storm systems are clearly visible in over Vietnam (Typhoon Damrey) and another one in the northern Malacca Straits over Penang - a possible spill over effect of storm in Penang

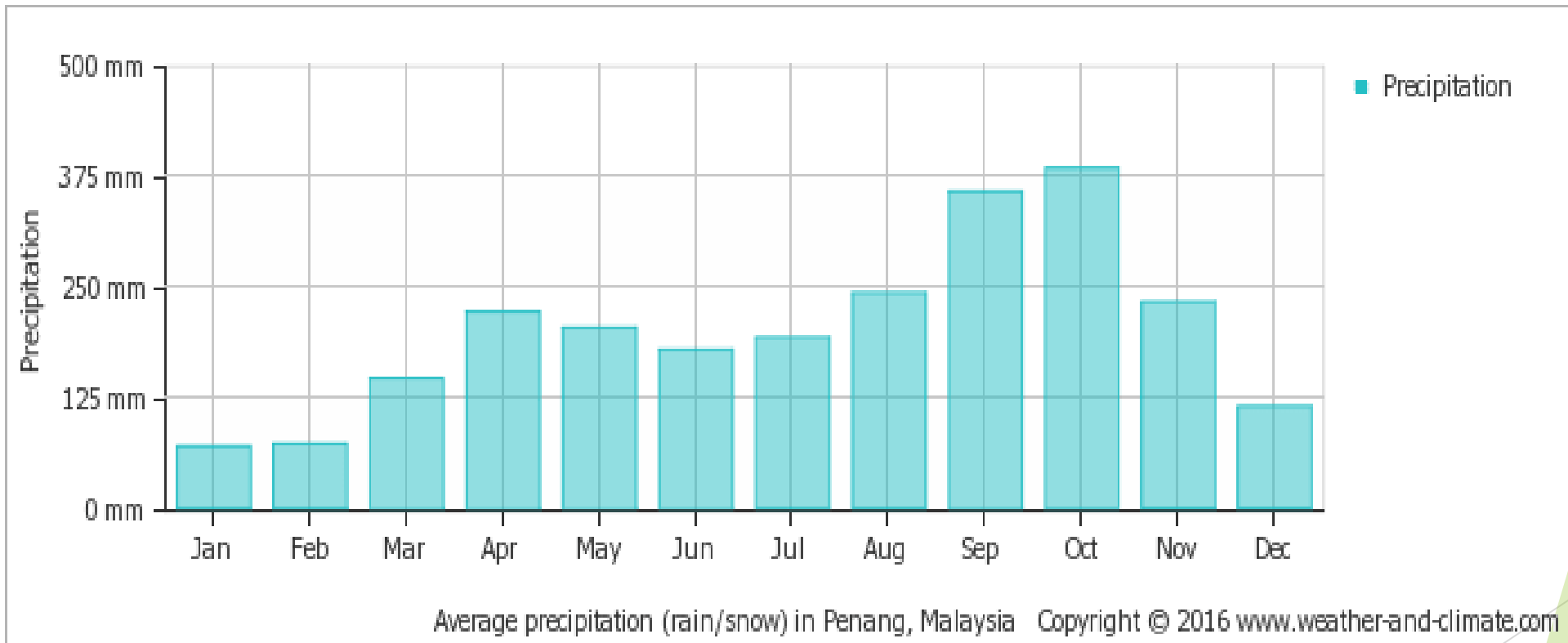


*Intellicast wind flow pattern over Southeast Asia for 4 November 2017 - (<http://www.intellicast.com/>)*

## Average monthly rainfall in Penang (millimeter)

The average amount of annual precipitation is: 999.9 mm (39.37 in)

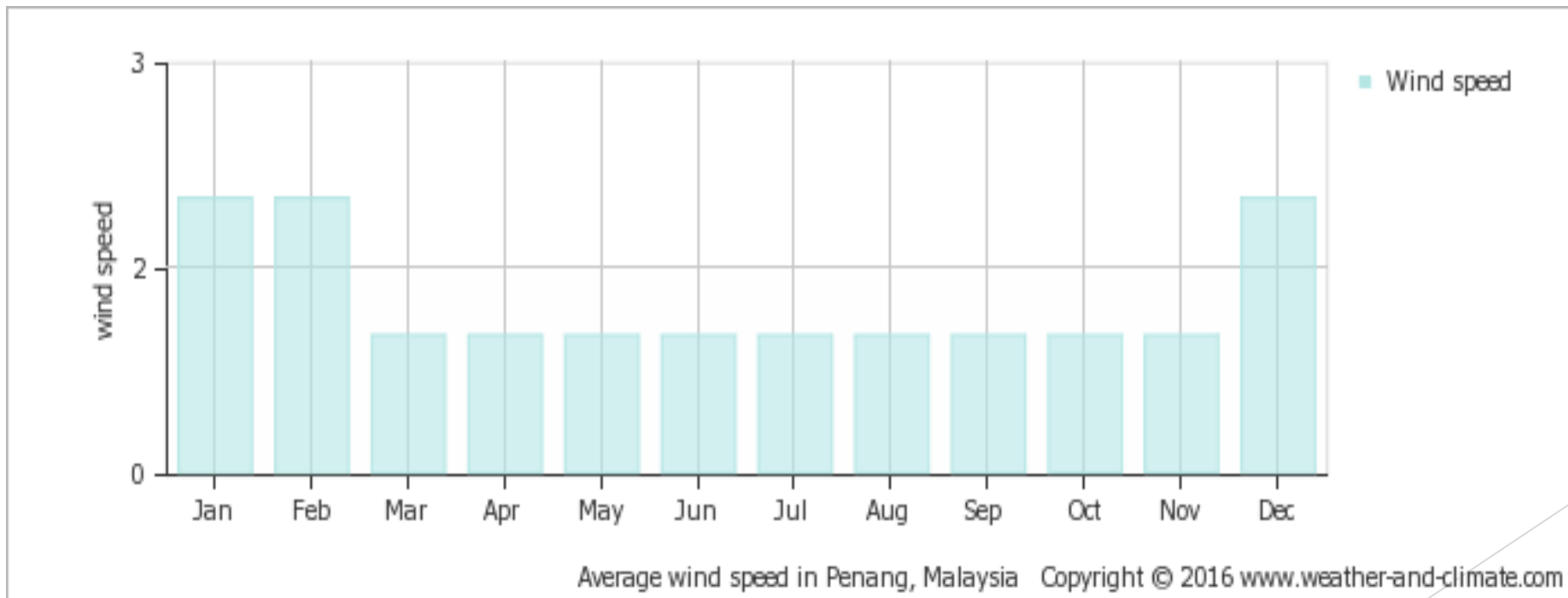
The average monthly amount of precipitation has been recorded at around 225 mm, that's 9 inches.





# Average wind speed in Penang

The average daily wind speed in November has been around 7 km/h, that's the equivalent to about 4 mph, or 4 knots



# Outcome

## a) Unprecedented High Tide

- 5/11/2017, jam 0016 : 2.8 metres
- 6/11/2017, jam 0052 : 2.8 metres

## b) Continuous Heavy Downpour(12 hours):

- Started at 3.00 p.m. on (4/11/2017) till early morning of ( 5/11/2017)
- Amount of rain fall : 315 mm/h
- Maximum wind speed : 67.0 km/h

# FLOOD AFFECTED AREA

1. Involving all district in the State of Penang

- a) North East
- b) South West
- c) North Seberang Perai
- d) Central Seberang Perai
- e) South Seberang Perai

\*70% of the State was identified as area prone to floods and rapid soil erosion (causing landslides, uprooting of trees and structural damages)





# STATISTICAL DATA OF VICTIMS (DECEASED) FROM FLOOD AND UPROOTED TREES

NO	NAME	AGE	LOCATION	TIME DISCOVERED	TYPE OF INCIDENT	REMARKS
1	Nay Lin Zaw - Myanmar	29	Kg Perlis, Butterworth	2213, 4/11/2017	Uprooted Tree	Extricated by FRS Butterworth
2	Amanullah Shabib Kalandir	73	Jalan P Ramlee	0630, 5/11/2017	Flood	Extricated by FRS Jalan Perak
3	Chew Eng Lean	78	Jalan Perak	0830, 5/11/2017	Flood	Extricated by FRS Jalan Perak
4	Lau Guek Jee	64	Lilitan Hargreaves, Jelutong	1100, 5/11/2017	Flood	Extricated by Police
5	Chong Sin Thon	97	Jalan Shaik Madar, Air Itam	1300, 5/11/2017	Flood	Extricated by Police
6	Tan Ah Peow	45	Stadium Bandaraya	1900, 5/11/2017	Flood	Extricated by Police
7	No Information	N/A	Stadium Bandaraya	1900, 5/11/2017	Flood	Extricated by Police

# VICTIMS AFFECTED



# AERIAL VIEW OF FLOOD





# AERIAL VIEW OF FLOOD





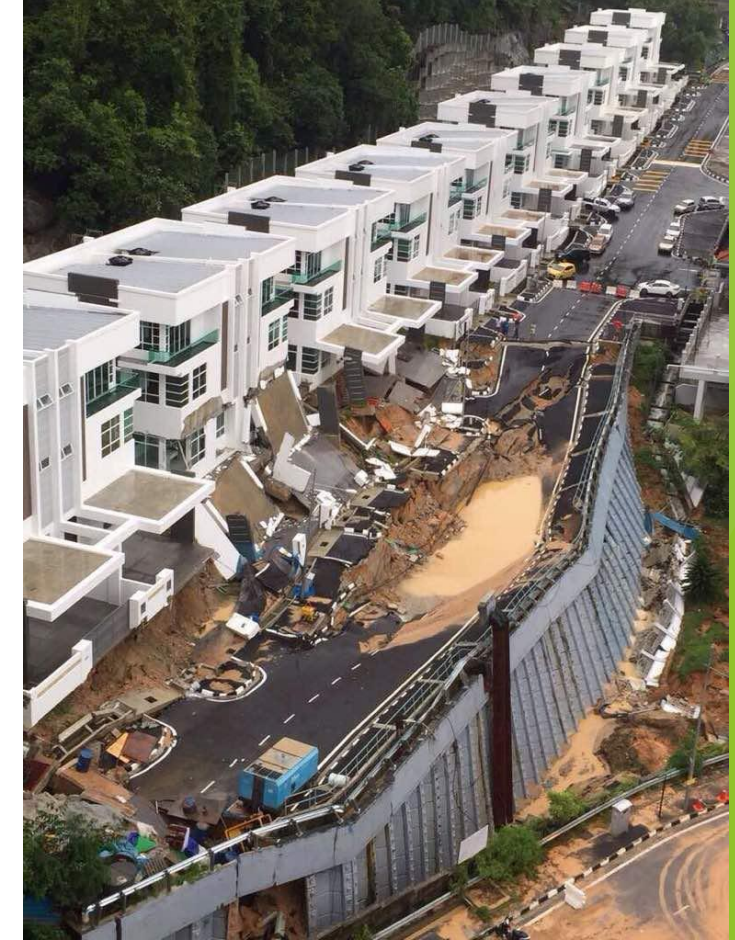
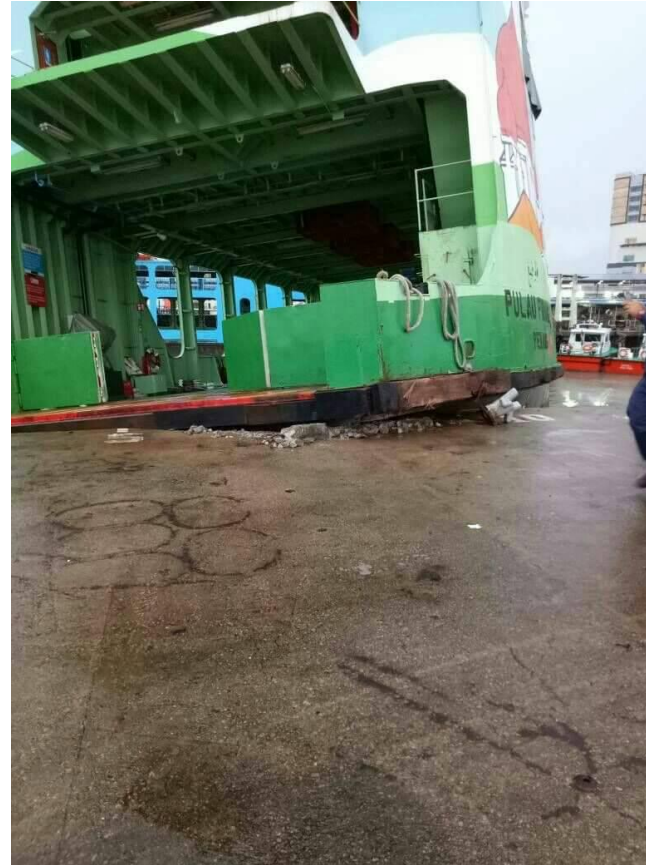
# AFTERMATH OF DISASTER



Landslides, uprooted trees, collapse structures at areas in Tanjung Tokong and Tanjung Bungah, Penang



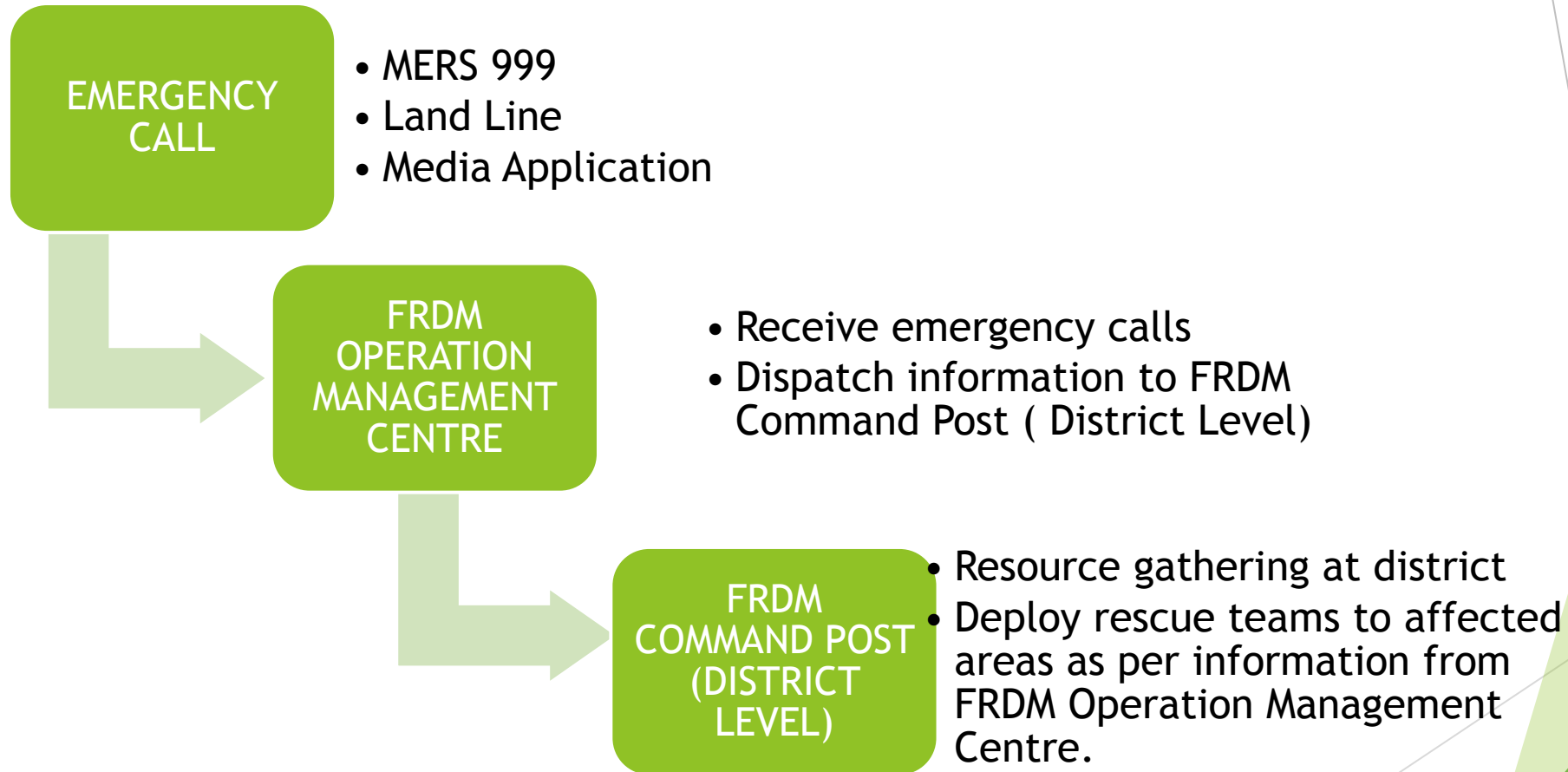
# AFTERMATH OF DISASTER



Heavy wind and Soil Erosion causing roads and foundation cave-in, as well as damages to structures and facilities



# FLOOD MANAGEMENT PROCEDURES



# OPERATION SCHEDULE (DIRECT CALL TO FRDM)

DISTRICT	START	END
NORTH EAST	04/11/2017 TIME 1509	07/11/2017 TIME 1800
SOUTH WEST	04/11/2017 TIME 1603	06/11/2017 TIME 1230
NORTH SEBERANG PERAI	04/11/2017 TIME 1723	11/11/2017 TIME 1800
CENTRAL SEBERANG PERAI	04/11/2017 TIME 1816	11/11/2017 TIME 1200
SOUTH SEBERANG PERAI	05/11/2017 TIME 0453	07/11/2017 TIME 1800

\* End of Operations determined after the declaration to shut down reliefs centres by the District Officers

# EMERGENCY CALLS RECEIVED BY FRDM OPERATIONS MANAGEMENT CENTRE

DATE	TIME	MERS 999	DIRECT LINE
04/11/2017	0000 - 2359	59	11
05/11/2017	0000 - 2359	418	96
06/11/2017	0000 - 2359	164	37
07/11/2017	0000 - 2359	46	12
TOTAL CALLS		687	156
OVERALL TOTAL CALL		843	



# FRDM DISTRICT COMMAND POST MANAGEMENT PROCEDURE - PKB

## RESOURCES

- To identify and effectively mobilise the total number of personnel available.
- To identify and effectively mobilise the available logistics
- To obtain current information through other agencies centred within the command vicinity.

## RESPONSE

- Conduct Monitoring in the affected area
- To carry out rescue works
- To relocate victims to the Relief Centre

## RE-ASSESSMENT

- Counter Monitor again the affected area
- Proceed search and rescue to other sites if there is no victims at current area
- Conduct Flood risk assessment

# DISTRIBUTION OF FRDM PERSONNEL (THROUGHOUT THE FLOOD DISASTERS )

NO	DISTRICT (FRDM COMMAND POST)	PERSONNEL	LOGISTICS				
			WATER TENDER	EMRS	LORRY	BOT	4X4
1	NORTH EAST (FRS JALAN PERAK)	147	4	1	1	5	3
2	SOUTH WEST (FRS BAYAN BARU)	56	3		1	3	1
3	NORTH SEBERANG PERAI (FRS KEPALA BATAS)	100	5		3	5	3
4	CENTRAL SEBERANG PERAI (FRS BANDAR PERDA)	111	3	1	2	2	2
5	SOUTH SEBERANG PERAI (FRS SUNGAI BAKAP)	41	2			4	1
OVERALL TOTAL		455	17	2	7	19	10

# OPERATION WORKS



Rescue operation of flood victims in Jalan P. Ramlee, Georgetown



# OPERATION WORKS

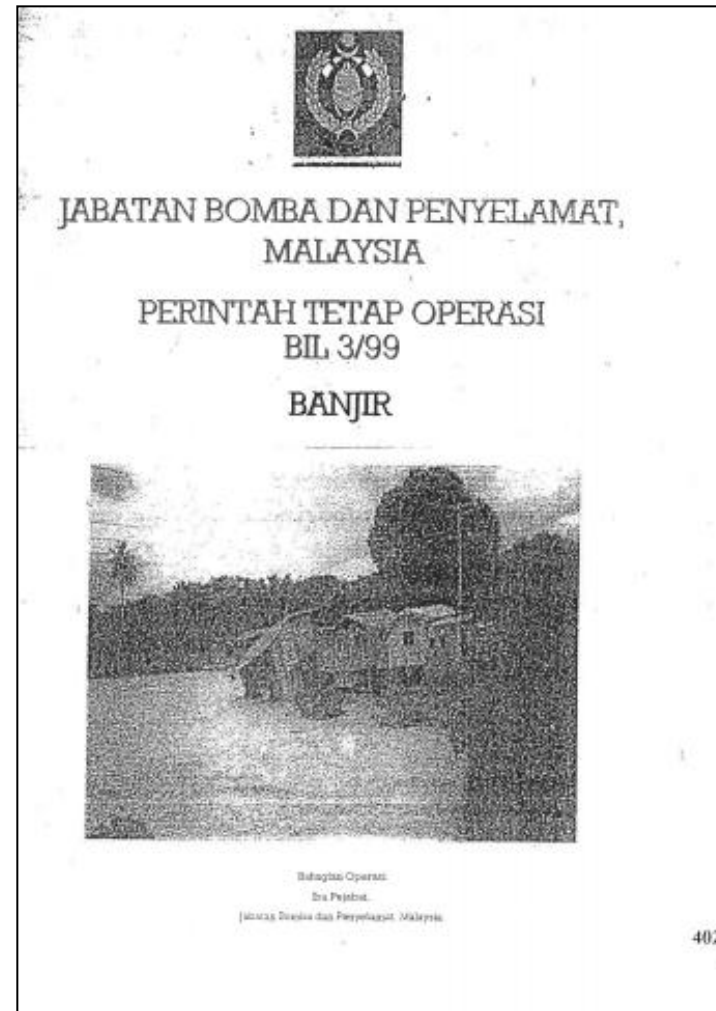
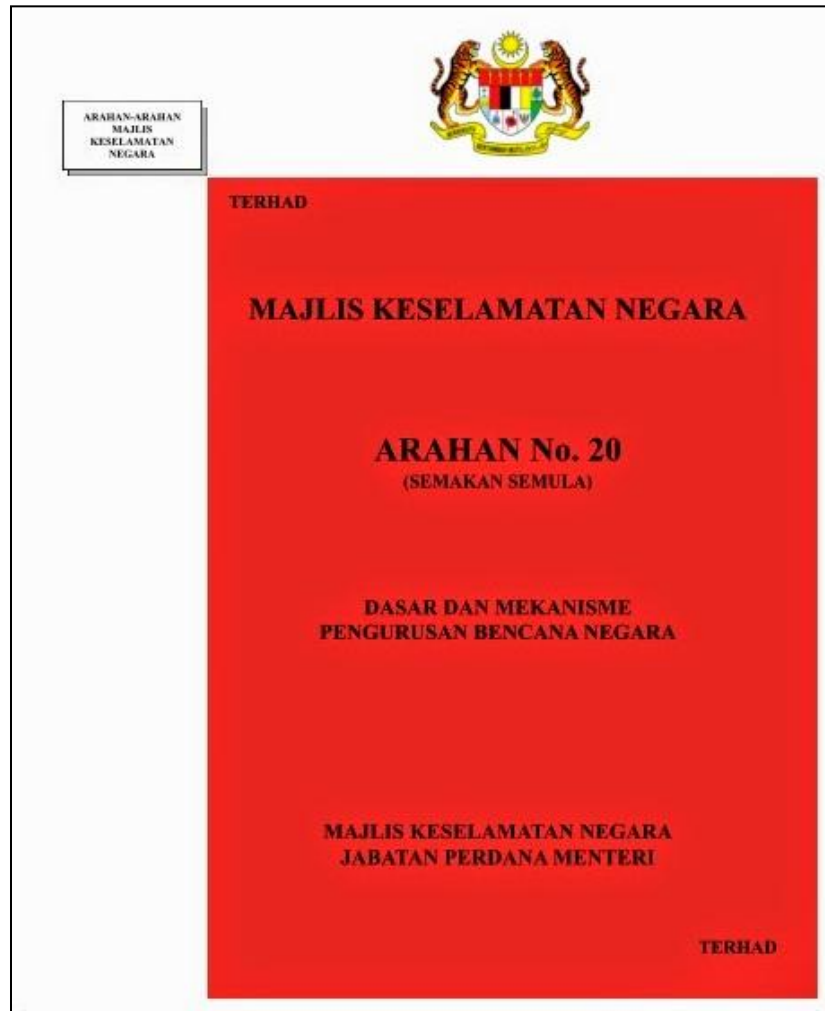


Rescue operation of flood victims in Taman Sri Rambai, Bukit Mertajam

# POWER, ROLES AND RESPONSIBILITIES OF FRDM

1. NATIONAL SECURITY COUNCIL DIRECTIVE NO:20
2. FRDM OPERATION STANDING ORDER No: 3/99 (Flood)
3. FRDM OPERATION STANDING ORDER VOLUME 1,  
- Handling Disaster - Flood

# SOURCE OF POWER AND REFERENCE





# NATIONAL SECURITY COUNCIL DIRECTIVE 20

## ► ROLES AND RESPONSIBILITIES OF RESCUE AGENCIES IN HANDLING DISASTERS IN PLACE OF INCIDENCE.

- RESCUE AGENCIES

## ► C. FIRE AND RESCUE DEPARTMENT OF MALAYSIA(FRDM)

1. Carry out Search and rescue of victims trapped in disasters.
2. Gather information and assess level of danger posed by the disaster for purpose of advice and notification to be channeled to the Royal Malaysian Police for due consideration for evacuation of the affected areas.
3. To ensure safety of all personnel involve in the rescue operations.
4. TO assess the possible impact of the incident on the environment and take necessary action to minimise the effect that can be caused by the disaster.

# NATIONAL SECURITY COUNCIL DIRECTIVE 20

## ► C. FIRE AND RESCUE DEPARTMENT(FRDM)

5. To cooperated with medical officers and ambulance services at the affected areas to ensure victims receive proper treatment and patients are effectively transported away to the hospital.
6. To assist the Royal Malaysian Police to search for victims affected from disasters.
7. To be always alert in the affected area to ensure situations are safe and under control.
8. To provide helicopter services for purpose of air ambulance operation, air surveillance and air evacuation where the usual route of transportation to this areas has been rendered not useable.



# RELIEF SUPPORT FROM OTHER AGENCIES

1. Royal Malaysian Police/Polis Di Raja Malaysia (PDRM)
2. Malaysian Armed Force/Angkatan Tentera Malaysia (ATM)
3. Civil Defence Force/Angkatan Pertahanan Awam (APM)
4. Health Department, Malaysia (State of Penang/Jabatan Kesihatan Malaysia, Negeri Pulau Pinang)
5. Social Welfare Department/Jabatan Kebajikan Masyarakat
6. Office of Penang State Secretary/ Pejabat Setiausaha Kerajaan Negeri Pulau Pinang
7. District and Land Office of Penang/Pejabat Daerah dan Tanah (5 daerah)
8. Public Works Department/Jabatan Kerja Raya
9. Drainage and Irrigation Department/Jabatan Pengairan dan Saliran
10. Department under the State of Penang/Jabatan bawah Kerajaan Negeri Pulau Pinang
11. Fire and Rescue Volunteer Brigade/Pasukan Bomba Sukarela (PBS)

# RELIEF SUPPORT AGENCIES



# INFORMATION ON FLOOD VICTIMS RELOCATION -STATE OF PENANG

( 04-11 NOVEMBER 2017)

NO	DISTRICT	NUMBER OF VICTIMS IN RELIEF AND CARE CENTRE			VICTIMS SAVED BY FRDM
		CENTRE	FAMILY	VICTIMS	
1	NORTH EAST	2	51	192	122
2	SOUTH WEST	3	82	303	244
3	NORTH SEBERANG PERAI	33	622	2724	327
4	CENTRAL SEBERANG PERAI	39	433	1855	464
5	SOUTH SEBERANG PERAI	4	137	430	366
OVERALL TOTAL		81	1325	5504	1523



# OPERATION CHALLENGES

1. Too many emergency call within 1 hour. In the first 12 hours: 273 emergency call received via MERS 999
  - a) Public incoming call exceeded 200 calls
2. Route through roads badly affected by rising flood water ,uprooted trees and landslides rendering difficulty and delay in reaching affected locations to conduct rescue works
3. Throughout the journey to reported sites, there were lots of members of public requesting for help and assistance along the roadsides

# OPERATION CHALLENGES

4. Outcome from Coordination with other relief agencies not familiar in handling the emergencies:
  - Delay in transporting and relocating victims to relief centres
  - Food supply were not delivered to Rescue Agencies at the scene
  - Many areas were affected due to late arrival of relief and support.
5. Victims refusing to relocated to relief centres when instructed by rescue teams

# OPERATION CHALLENGES

- 6. Delayed deployment of personnel and logistics support from other states
- 7. Fire and Rescue Stations were also affected by the flood
- 8. FRDM Emergency Management Centre have to also address other emergencies call such as:
  - 6. Fire calls
  - 7. HAZMAT incident call
  - 8. Wild animal threat calls



# HOLIDAYS OF ALL FRDM PERSONNEL WITHHELD



**ASTRO AWANI**

8 hrs • 🌐



**#AWANInews #Harilni8** Jabatan Bomba dan Penyelamat Malaysia juga telah bersedia sepenuhnya dalam menghadapi cabaran risiko banjir.



**Cuti bomba dibeku, bilik gerakan banjir diaktifkan**



Astro AWANI

# FLOOD CONDITION IN FRS BUTTERWORTH



Butterworth FRS was also not spared by the flood



# FRDM RESCUE MISSION AT PENANG HILL



Rescuing victim stranded  
at Penang Hill due to  
landslides at hill railway  
track



# FRDM RESCUE MISSION AT PENANG HILL





# LANDSLIDES



Landslides and uprooted trees in areas of Air Itam, Penang



# HAZMAT OPERATIONS

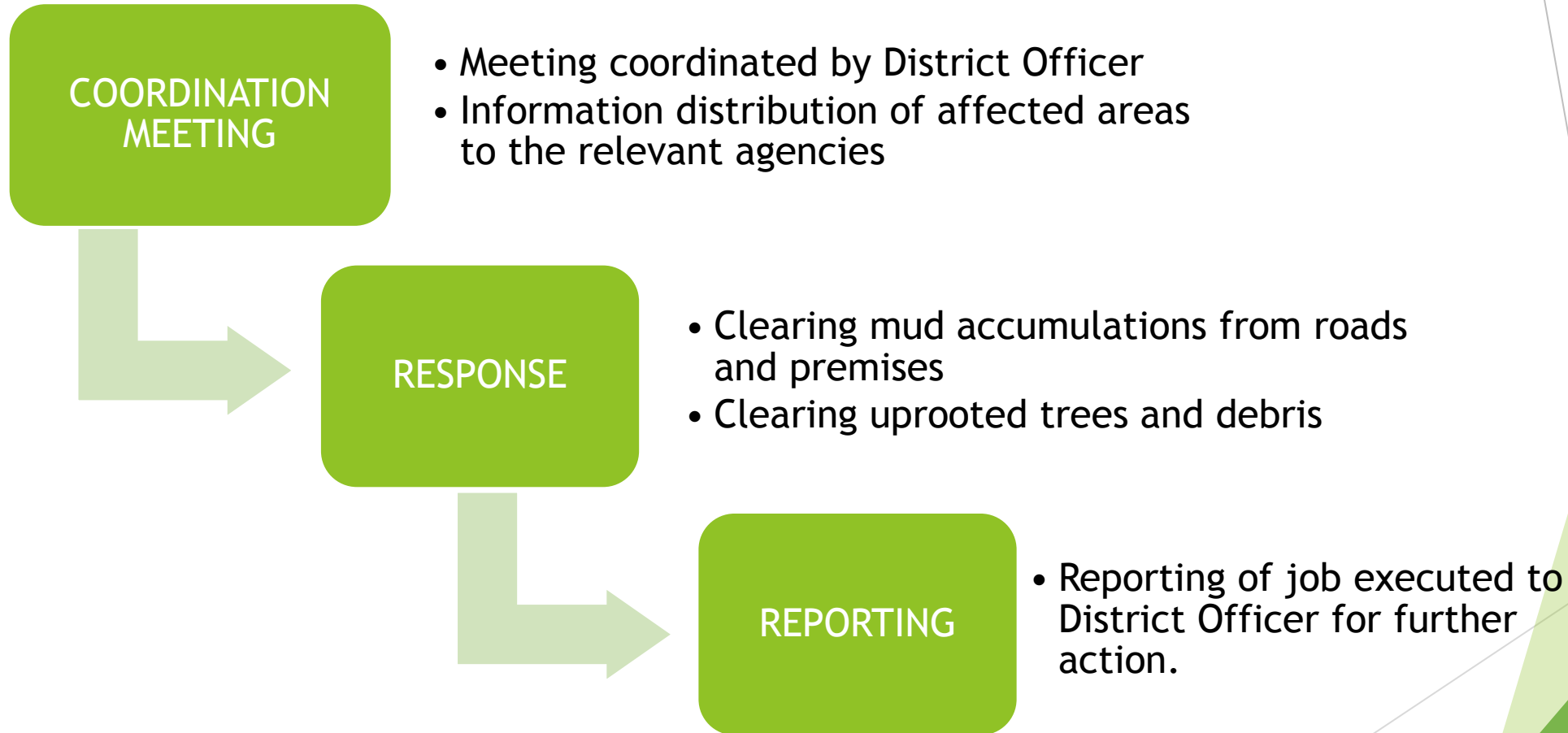


HAZMAT operation works in Md Said National Secondary School, Sungai Dua, Kepala Batas

❖ *relocating chemical from school laboratory at ground level to second floor of the building.*



# AFTERMATH OF FLOOD



# AFTERMATH OF FLOOD



Pumping works by FRDM personnel  
to clear water clogged areas



# AFTERMATH OF FLOOD



Cleaning and Restoration  
work by FRDM personnel

# SUMMARY

- ▶ An estimated seventy percent of the state of Penang was submerged in water from the severe floods that occurred on 4 November 2017 till 11 November 2017
- ▶ A total 552 personnel (including 32 officers from FRDM from the State of Perak) worked round the clock in the rescue mission from 4 till 11 November 2017 utilising FRDM assets ranging from 17 units of fire and rescue trucks, 17 units of rescue boats, 12 units of 4 wheel drive vehicles, 9 units FRDM transport lorries and 3 other special vehicles (amphibious) specially for use in flood operations.
- ▶ The Operations was declared close on 11 November 2017 at 06.00 p.m., after all relief centres were closed and all affected victims returned back to their homes after the flood subside.



Sekian Terima Kasih

THANK YOU