

**MALAYSIA \*****1. GENERAL INFORMATION**

Malaysia is a federal constitutional monarchy in Southeast Asia. It is located between 2° North and 7° North of Equator in Southeast Asia. The total land area is about 329,847 square kilometers separated by the South China Sea in two regions, Peninsular and Malaysian Borneo. Land borders are shared with Thailand, Indonesia and Brunei, and maritime borders exist with Singapore, Vietnam, and the Philippines. Four-fifths of Peninsular Malaysia is covered by tropical rainforest and swamp. Sabah is split in two (2) by the Crocker Mountains, rising to over 4,100 m (13,450 ft) at Mt. Kinabalu, the highest point in Malaysia. The rainforests cover the greater part of Sarawak and many of the rivers are navigable as one the famous longest river in Malaysia is Rajang River. By year 2010, the total population in Malaysia is about 28.25 million with multiethnic and multicultural population such, Malay – 61 %, Chinese – 30 %, Indians – 8 % whereas others – 1 % of peoples. The Capital City is *Kuala Lumpur*, while *Putrajaya* as Federal Government. Malaysia's climate is a tropical climate with uniform temperature (maximum = 33°C, minimum = 23°C) in high humidity where situated in equatorial doldrums area. It is divided into two (2) seasons which are Southwest Monsoon, Northeast Monsoon and two (2) shorter periods of Inter-monsoon seasons.

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## 2. NATURAL HAZARDS AFFECTING MALAYSIA

### 2.1 Background of Natural Hazards Affect the Country

Malaysia is geographically located just outside the “Pacific Rim of Fire” and is generally free from severe natural disasters such as earthquake, volcanic eruption and typhoon. Although Malaysia is spared from the threats of severe natural disasters and calamities, Malaysia is nonetheless not spared from other disasters such as flood, man-made disaster, landslide and severe haze. In the past few years, Malaysia has experienced several extreme weather and climatic events, ranging from freak thunderstorms to monsoonal floods which have caused havoc in the country.

### 2.2 Recent Major Disasters

A monsoonal flood is one of the major disasters in Malaysia, where they are an annual occurrence which varies in terms of severity, place and time of occurrences. Flood is the most significant natural hazard in Malaysia. Yearly, an estimated 29,800 square kilometers are flooded, affecting 4.82 million people, and causing physical damages amounting up to RM915 million. Rapid development, unplanned urbanization, climate change and environmental degradation have caused worse and more frequent occurrence of flash floods especially in urban areas.

The most recent flood was held in Johor on January 2011 when the country was prepared for a small election event - *Pilihanraya Kecil (PRK) DUN Tenang* at the district in Segamat area, Johor (Fig. 2.2). The rainfall amount above than normal was started on January 28, 2011 caused by La-Nina phenomenon that had been reported by Malaysian Meteorological Department (MMD). This effect of La-Nina was expected occur for the first four months of 2011.



Fig. 2.2: Map of Johor – Southern part of Peninsular Malaysia

Refer to Table 2.2 below, it is shown that the most affected district was in Segamat about 54,165 of victims were evacuated whereas the minimum affected area was in Mersing with 261 peoples. 376 of evacuation centres were opened during the period that was fully monitored by the *Flood Operations Johor State Office*.

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**Table 2.2: Total Numbers of Flood Victims and Evacuation Centers in Various Districts in Johor, Malaysia**

No.	District of Johor	Total			
		Victim	Per Family	Evacuation Centre	Number of Dead
1	KOTA TINGGI	2,838	542	21	0
2	JOHOR BAHRU	10,921	2,667	24	0
3	MUAR	10,151	2,979	34	0
4	BATU PAHAT	24,130	5,460	63	0
5	LEDANG	11,614	3,002	52	0
6	PONTIAN	848	203	13	0
7	KULAIJAYA	1,732	405	11	1
8	MERSING	261	70	2	0
9	SEGAMAT	54,165	10,590	104	5
10	KLUANG	*	4,358	52	0
<b>Total</b>		<b>116,660**</b>	<b>30,276</b>	<b>376</b>	<b>6</b>

(\* ) – Not reported by Kluang District, (\*\* ) – excluded data of Kluang

Source: National Security Council (NSC), Malaysia 2011



**Top View of Flood Situation at Segamat, Johor on January 2011**

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Besides in Year 2010, which happened back in November 2010 in Kedah and Perlis, where this two states were faced among the worst flood experienced by the country. The total economic loss and the financial burden on the government were enormous. Other than flooding, the country also from time to time, experienced some man-made disasters, which caused considerable damage to properties and loss of lives.



**Severe floods in Kedah and Perlis on November 2010**

### **3. DISASTER MANAGEMENT SYSTEM IN MALAYSIA**

#### **3.1 Administrative System**

Malaysia practices Parliamentary Democracy with a constitutional monarch, His Majesty the *Yang Pertuan Agong*, as the Supreme Head of the country. The King performs his official duties upon the advice of the Prime Minister and his Cabinet as provided for by the Constitution. His Majesty also holds the position of Islamic Religious Head and as Supreme Commander of the Malaysian Armed Forces.

In keeping with the concept of Parliamentary Democracy which forms the basis of the government administration in Malaysia, the Federal Constitution underlines the separation of governing powers among the Executive, Judicial and Legislative Authorities. The separation of power occurs both at the Federal and State level. Each state has a unicameral legislature known as the 'State Legislative Assembly' and every state is further divided into districts, which are then divided into 'mukim'. In Sabah and Sarawak districts are grouped into 'division'. Malaysian Parliament divided into three (3) components; The *Yang di-Pertuan Agong*, Senate and House of Representatives. The Parliament, the legislative authority for Malaysia formulates laws to the country, makes amendments to existing federal laws, examines the government's policies, approve the government's expenditures and new taxes.

#### **3.2 Legal System and Framework**

In order to applying to all of the disaster phases of prevention, mitigation and preparedness, emergency response as well as recovery and rehabilitation, to form a comprehensive disaster

mitigation framework, the relevant laws and regulations were enacted.

The National Security Council Directive No. 20 (NSC No. 20): *The Policy and Mechanism for National Disaster and Relief Management* is the main guideline for disaster management in Malaysia. The directive prescribes the mechanism on the management of disasters including the responsibilities and functions of related agencies under an integrated emergency management system. This directive also supported by other S.O.P which outlines the mechanism as well as roles & responsibility of various agencies for specific disasters, i.e. flood; open burning, forest fire, haze, industrial disasters and etc.

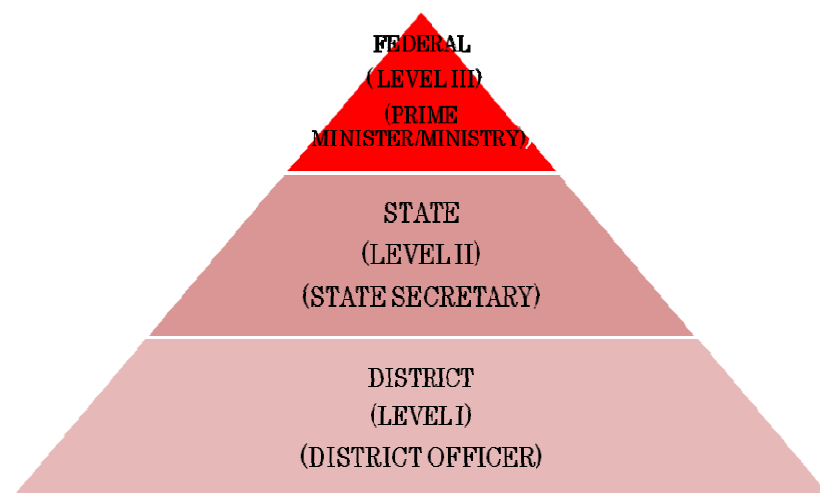
Relevant laws are as follows below, such as:

1. Government Standard Operating Procedure (SOP)
2. SOP in Handling Flood Disaster (Volume I)
3. SOP in Handling Industrial Disaster (Volume II)
4. SOP in Handling Forest Fire/Open Burning and Haze (Volume III)
5. SOP in Handling Oil, Gas and Petrochemical Disasters
6. SOP in Handling Earthquake Disaster
7. SOP in Handling Tsunami Disaster
8. SOP in Handling Drought Disaster
9. Police Act 1967
10. Fire Services Act 1988
11. Civil Defense Act 1951
12. SOP on Pandemic/ Endemic Preparedness Plans - MOH
13. Malaysian Maritime Enforcement Agency Act 2004
14. Land Conservation Act 1960
15. Environment Quality Act 1974
16. Local Government Act 1976

17. Street, Drainage and Building 1974
18. Occupational Safety and Health Act 1994
19. Uniform Building By-Laws 1984
20. Public Order Manual (POMAN)
21. National Contingency Plan for Oil Spill Combat

### 3.3 Structure of Disaster Management

The National Security Council Directive No. 20 stipulates three (3) levels of disaster management, i.e. district, state and federal levels (Fig. 3.3(a)). Activation of the specific executing committee will depend on the characteristics and scale of event as well as coverage of impacted areas. In any case, District Officer is the key implementing agency on ground to ensure responses are coordinated, asset and human resources are sufficient, and communication with the media. In higher levels, state and/or federal government will support in cross-boundary coordination and mobilizing necessary additional resources.



**1. The District Disaster Management and Relief Committee**

(Level I Disaster)

**2. The State Disaster Management and Relief Committee**

(Level II Disaster)

**3. The National Disaster Management and Relief Committee**

(Level III Disaster)

**Fig. 3.3(a): Disaster Level I Escalate to Disaster Level II and Disaster Level III**

In details, task coordination of these three (3) levels and their specifically responsible functions, as explained in Fig. 3.3(b) below:

**LEVEL I**

1. **OCPD as Commander of Disaster Operation**
  - **Make Assessment**
  - **Set up On Scene Command Post**
  - **Mobilise resources at local level in search and rescue and relief effort**
  - **Coordinate operations at local level**
  - **Report to District Disaster Management and Relief Committee (DDMRC) at the Disaster Operation Control Centre (DOCC)**
2. **Chairman of DDMRC**
  - **Activate DDMRC**
  - **Set up DOCC**
  - **Mobilise source at local level in search and rescue and relief effort**
  - **Report to the State NSC and SDMRC**

**LEVEL II**

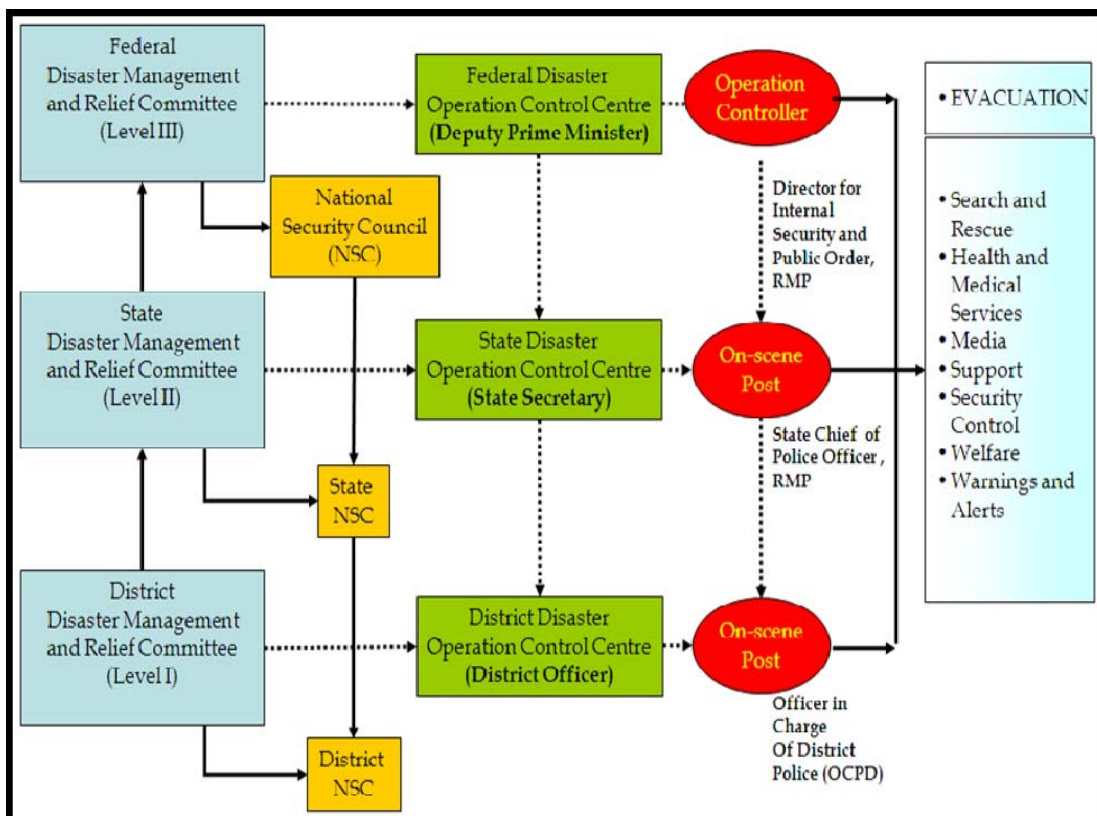
1. **CPO as Commander of Disaster Operation**
  - **Mobilise source at the state level**
  - **Coordinate operations at state level**
  - **Report to the Chairman of SDMRC**
2. **Chairman of SDMRC**
  - **Activate SDMRC**
  - **Set up DOCC**
  - **Mobilise source at the state level**
  - **Report to NSC HO or CDMRC**

**LEVEL III**

1. **The Director of Internal Affairs and Public Order as Commander of Disaster Operation**
  - Mobilise source at the national level
  - Coordinate operations at the national level
  - Report to the Chairman of CDMRC
  
2. **Chairman of CDMRC**
  - Activate CDMRC
  - Set up DOCC/ National Operation Management Centre
  - Mobilise source at the national level/ International Assistance
  - Appoint Technical Expert Advisor Group

**Fig. 3.3(b): Task Coordination of Three (3) level I, Level II and Level III**

In addition, Fig. 3.3(c) below shows the Mechanism of Organizational Structures in Disaster Management in Malaysia.



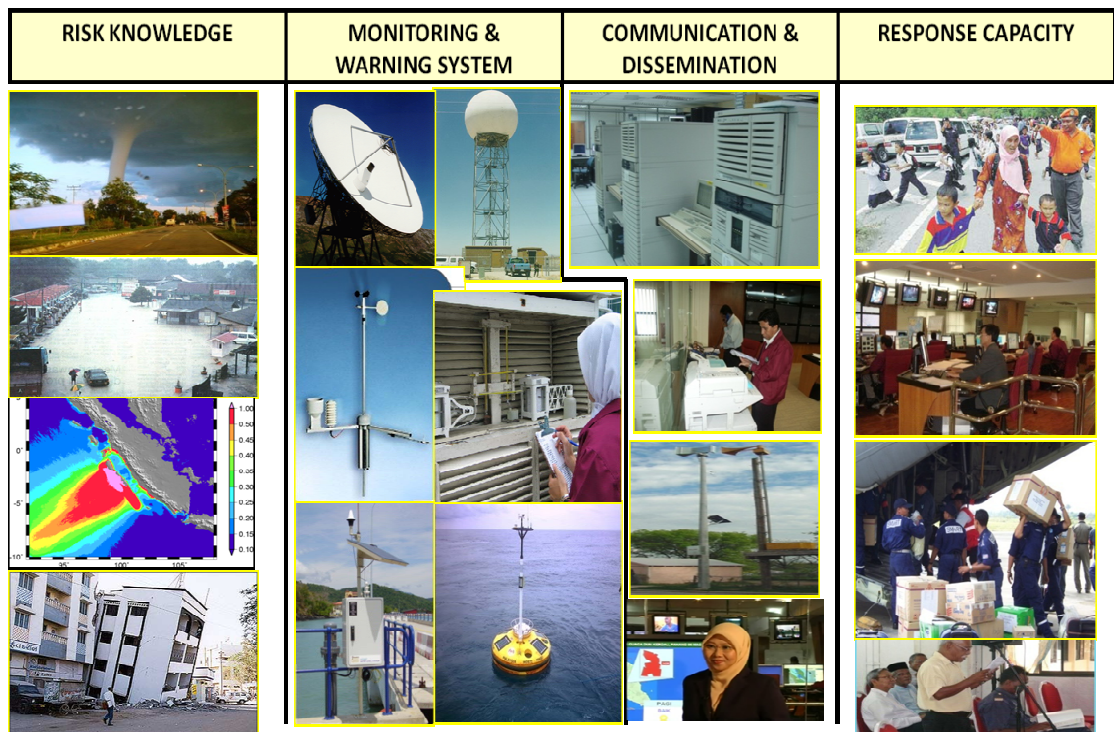
**Fig. 3.3(c): Disaster Management Mechanism and Organizational Structures**



**3.4 Strengthen Disaster Preparedness for Effective Response at all Levels**

**a) Identify, Assess and Monitor Disaster Risks and Enhance Early Warning**

As Malaysia's most frequent disasters are affected by weather, Malaysia Meteorological Department (MMD) is the sole agency tasked with the responsibility of monitoring weather and seismological and tsunami activities that can affect the country. MMD has the latest technologies and infrastructures available to effectively monitor weather changes and developments in the region. These include an integrated forecasting system observation networks consisting of 38 strategically distributed automatic weather stations, 11 meteorological radars, a meteorological satellite imageries receiving systems, a lightning detecting network for Peninsular Malaysia, 8 forecast offices, as well as weather data and information of the world, received from the Global Telecommunication System (GTS), the internet and other means. As the Fig. 3.4(a)(i) shows, the Role of Malaysian Meteorological Department (MMD) in order to monitor disaster risk and strengthen the disaster preparedness in the country.



**Fig. 3.4(a)(i): Role of Malaysian Meteorological Department (MMD)**

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With regards to seismological and tsunami warning, MMD under Ministry of Science, Technology and Innovation (MOSTI) had set up a *Malaysian National Tsunami Early Warning System (MNTEWS)* to provide issuance of information, advisory, notice, early warning and warning on the occurrence of earthquake and tsunami that threaten the security and safety of Malaysia. The system is an integral part of the Indian Ocean Tsunami Warning System and Northwest Pacific Tsunami System coordinated by the Intergovernmental Oceanographic Commission (IOC), UNESCO. As part of IOC Tsunami network, Malaysia has established the linkage with Pacific Tsunami Warning Centre (PTWC), Honolulu and Japan Meteorological Agency (JMA), Tokyo.

As shown in Fig. 3.4(a)(ii), the dissemination of tsunami warning to alert the general public is done via short messaging system (SMS), telefax, web pages, media broadcast and public announcement such as sirens at specially chosen sites in Peninsular Malaysia and Sabah. A fixed line disaster alert system (FLDAS) is being developed by the Government and Telekom Malaysia (TM) before the tsunami warning will disseminate to various emergency agencies including National Security Council (NSC). Pre-recorded emergency later voice messages on the early warning of potential catastrophic disasters such as tsunami can be broadcasted to TM's fixed line subscribers.

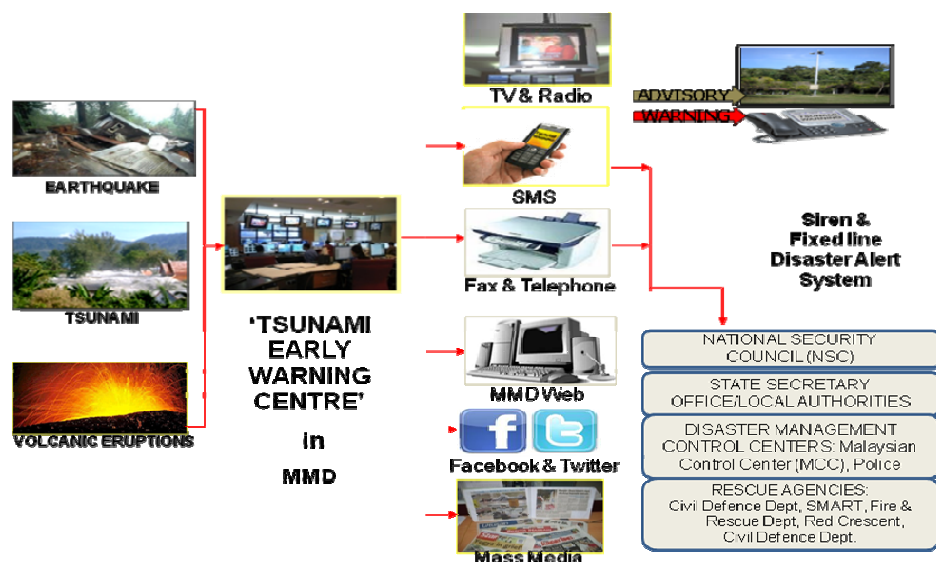


Fig. 3.4(a)(ii): The Dissemination Component of Tsunami Warning

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**b) The National Disaster Data and Information Management System (NADDI)**

1. The National Disaster Data and Information Management System (NADDI) is coordinated by NSC and Malaysia Remote Sensing Centre (MACRES) (Fig. 3.4(b)). The objective of NADDI is to establish a central system for collecting, storing, processing, analyzing, and disseminating value-added data and information to support the relevant agencies in the mitigation and relief activities of disaster management in the country. The system enables all government agencies to be well prepared in handling disasters as it provides all important data and information about natural and manmade disasters.
2. NADDI emphasizes on the utilization of remote sensing technologies, Geographical Information System (GIS) and Global Positioning System (GPS) technologies to provide up-to-date and reliable data to support the three components of disaster management, that are, (i) early warning, (ii) detection and monitoring, and (iii) mitigation and relief for pre, during and post disaster management activities coordinated by NSC and implemented by relevant authorities.

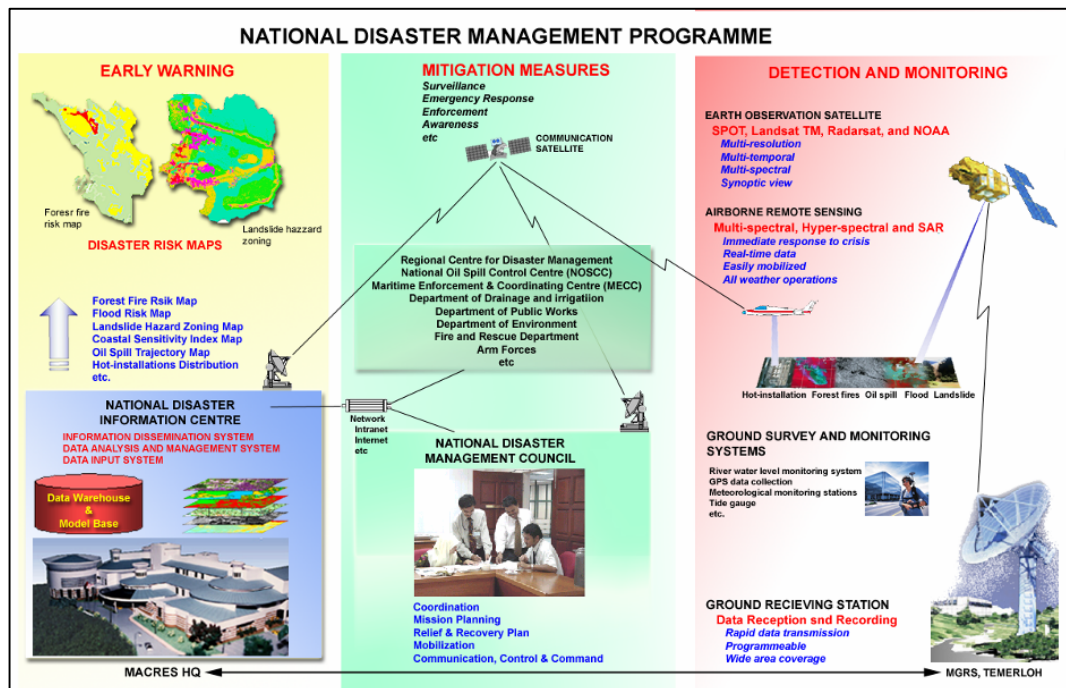


Fig. 3.4(b): National Disaster Management Program

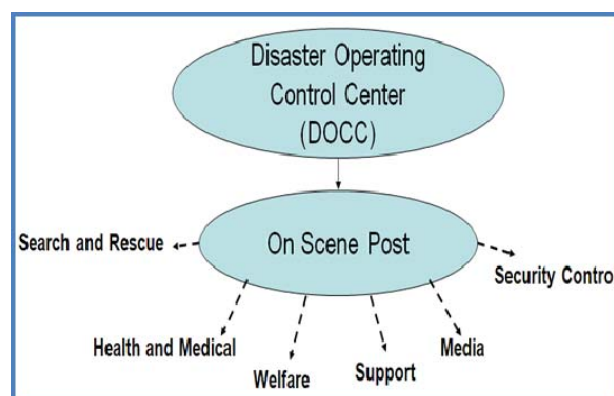
### c) Identification of the Leading Agencies

In order to effectively address various kinds of disasters, several agencies were identified as the leading agencies in order to take all necessary action to prevent and mitigate the impacts of disaster, such;

- Haze – the Department of Environment
- Flood – Department of Irrigation and Drainage
- Pandemic/Endemic for human being – Ministry of Health
- Pandemic/Endemic for animals – Ministry of Agriculture
- Sea disaster – Marine Department
- Air disaster – Department of Civil Aviation
- Chemical disaster – Chemical Department
- Nuclear and radiology – Atomic Energy Licensing Board

### d) Command and Control during Disaster

In the event of disaster, two (2) levels of command and control shall be established, namely the On Scene Command Post (OSCP) and Disaster Operations Control Centre (DOCC) (Fig. 3.4(d)). OSCP is managed by the Officer In-Charge of Police District and all relevant agencies are required to report to him. Whereas the DOCC performs the duty as the operation room in order to facilitate and coordinate all action.



**Fig. 3.4(d): Diagram of Disaster Operating Control Center (DOCC) and On Scene Command Post (OSCP)**

#### **d) Capacity Building**

It is made compulsory for staffs from all relevant agencies to undergo training and seminars relating to disaster management to equip themselves with necessary knowledge and expertise. The sessions are either conducted by local or international disaster managers/experts.

NSC, in collaboration with local universities and other government agencies, has held numerous workshops, seminars, training sessions and drills to raise the awareness of the public in regard to various kinds of disaster.

#### **e) Volunteers**

Civil Defense Department, Malaysia Red Crescent Society (MRCS) and NGOs are mostly dominated by volunteers. Their involvement in these societies/organizations is very helpful and beneficial in the sense that they are closer to the public.

### **4. DISASTER MANAGEMENT STRATEGY, POLICY AND PLAN**

In order to enhance Malaysia's capability in the future course and direction of our disaster management, the country has adopted the following strategies:

1. To integrate mitigation planning into the overall national development plans and projects for sustainable development.
2. To develop risk assessment capabilities, in order to reduce disaster vulnerability which can be translated into mitigation policies and measures.
3. To form Working Committees involving Lead Agencies in risk analysis and assessment for specific sectors of disaster prevention.
4. To develop an integrated database management system for disaster planning and prevention.
5. To strengthen the existing laws and regulations on the aspect of safety, licensing and enforcement for the protection of public safety, properties and the environment in disaster preparedness and prevention.
6. To conduct regular educational and community awareness programs in disaster prevention measures, particularly for risk mitigation strategies.
7. To involve the District and State Disaster Management Committees and authorities in the development, testing and implementation of the overall emergency response plans, especially on the Industrial Disaster Management System of the respective industries.

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8. To introduce standard safety control at the installations in order to have zero-threat during the occurrence of any industrial incident, this could affect the nearby population.
9. To promote and develop regional cooperation and networking for exchanging, sharing and training on disaster management, as well as cooperation in rendering and receiving of disaster assistance, be it in the form of humanitarian assistance or the dispatch of search and rescue teams.

Thus, Malaysia also supports the international community in extending humanitarian assistance to countries affected by disasters especially within the ASEAN region. Besides, Malaysia was participated in the Fourth Asian Ministerial Conference on Disaster Risk Reduction (4th AMCDRR) which took place at Incheon, Republic of Korea from 25th to 28th October 2010 with the main theme “*Climate Change Adaptation through Disaster Risk Reduction*”.

## 5. BUDGET SIZE ON NATIONAL LEVEL

In order to implement disaster risk reduction plans and activities at all administrative levels, basically Malaysia has no specific allocation of budget for DRR in National Budget. Nevertheless, disaster risk reduction efforts are done by respective agencies within the Government's machinery where they are experts at.

In the 9<sup>th</sup> Malaysia Plan from 2006 to 2010, the Government had spent about USD 2 billion or RM 6 billion to deal with multiple hazards with different approaches, including flood mitigation, multi-hazards monitoring & early warning systems, etc. The Government will continue with relevant efforts during the 10<sup>th</sup> Malaysia Plan (2011 – 2015). Approximately, USD 1.7 billion (RM 5 billion) has been allocated for programs on flood mitigation, forecasting & warning facilities, flood hazard map & development of disaster preparedness & community awareness program.

## 6. PROGRESS OF THE IMPLEMENTATION OF HYOGO FRAMEWORK FOR ACTION (HFA)

Malaysia had submitted its national progress report on the implementation of the HFA on May 05, 2011. The National Security Council of Malaysia is the National Focal Point for the HFA and it coordinates implementation within the country.

The need for a ‘National Platform’ for disaster management was adopted during the recent *Disaster Awareness Day 2011* and it has been recognized in the *Melaka Declaration on Disaster Risk Reduction* held in Malaysia in February 2011. The benefits of establishing a national platform are manifold and includes; advocating disaster risk reduction at different levels; increasing levels of knowledge and skills related to disaster risk reduction, acting as a catalyst for national consultants and consensus building; and coordinating analyzing, and advising on areas that requires concerted action, among others. Furthermore, the establishment of a national platform would facilitate the effort of mainstreaming disaster risk reduction into policies, planning, and development programs at various levels.

The Government of Malaysia is indeed committed to disaster risk reduction and will continue its efforts towards implementing the priority areas of the HFA both at national and international levels

and acknowledge the ongoing effort by UNISDR to promote and accelerate the implementation of the HFA.

## 7. RECENT MAJOR PROJECTS ON DISASTER RISK REDUCTION

The establishment of the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) is stated under Article 20 of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). Thus, Malaysia had signed the AADMER that entered into force in 2009.

In order to ensure effective early warning networks and timely response, the ASEAN leaders had to encourage closer cooperation among the military, civilians, and civil society organizations. Pursuant to the 16th ACDM Meeting (18-19 May 2010), on September 01, 2010, the Malaysian Cabinet has agreed to appoint Y.B. Dato' Seri Mohamed Nazri Abdul Aziz, the Chairman of the National Disaster Management and Relief Committee as a member of the Conference of Parties (COP) for the AADMER. In supporting the implementation of AADMER, the National Security Council (NSC) through its Disaster Management Division was also appointed as the National Focal Point (NFP) for disaster management in the ASEAN, Asian and International levels (beyond Asia).

The 17th ACDM Meeting that was held from 3-25 February 2011 concluded the final draft of the ASEAN Agreement on the *Establishment of the AHA Centre* to be endorsed by respective Government of the ASEAN Member States. It was also agreed that Member States could provide additional voluntary financial contribution, such as through the ASEAN DM & Emergency Relief (ADMER) Fund or by providing other forms of contribution such as through secondment of experts to the AHA Centre. This is to compensate for the deficit in operational budget with the accumulated annual contribution of USD300, 000.

## 8. ADRC COUNTERPART

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