Utilizing Space Information to Support Disaster Management in Malaysia

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NATIONAL FRAMEWORK & MECHANISM
NSC DIRECTIVE NO. 20

• Experience the collapse of Highland Towers in 1993
• NSC Directive No. 20 came into force in 11 May 1997
• Reviewed on 30 Mac 2012
• covers:
  – Total Disaster Risk Management (TDRM);
  – increase in complexity;
  – engage private, NGO and community;
  – take into account AADMER & other international treaties.
Content of NSC Directive No. 20

Outlines:
Policy and Mechanism on Disaster and Relief Management on Land

Based on:
Levels of Government Administration
(Federal, State, District)

By:
Establishing a holistic management mechanism at the stage of pre, during & post disaster; and supported by other SOP which outline the mechanism as well as roles and responsibility of various agencies for specific disasters.
NSC D-20: Total Disaster Risk Management
Definition of Disaster D-20

• For the purpose of NSC Directive No. 20, disaster is defined as an incident that occurs unexpectedly, complex in nature, resulting in the loss of lives and damage to properties and the environment as well as interfering in the daily activities of the local community.

• The incident requires the management which involves resources, equipment, frequency and extensive manpower from various agencies as well as effective coordination and the possibility of taking complex actions over a long period of time.
Types of Disaster Defined Under D-20

- Natural disaster such as floods and landslide.
- Industrial & technological disasters.
- Accidents of dangerous or hazardous materials.
- Collapse of high rise buildings & special structures.
- Aviation accidents in public areas.
- Railway accidents.
- Major Fire Incidents.
- Collapse of hydroelectric dams or reservoirs.
- Nuclear & radiological accidents.
- Release of poisonous & toxic gases in public places.
- Air & environmental disasters such as haze.
- Pandemic and epidemic disease spreads.
- Maritime related hazards.
Disaster Management Platform

Central Disaster Management Committee (JPBP)
- Chaired by the Minister in the Prime Minister’s Department
- Setting up policy and strategy in disaster management, mobilise assets, monetary assistance and human resources

State Disaster Management Committee (JPBN)
- Chaired by the State Secretary
- Assist the District level in terms of assets, monetary assistance and human resources

District Disaster Management Committee (JPBD)
- Chaired by the District Officer
- Ensure coordinated actions, sufficient assets and human resources, and manage the media
NSC can coordinate **REQUEST OF ASSISTANCE** or accept **OFFER OF ASSISTANCE** from foreign countries or international organizations.
Disaster Response at Scene

THE CHART FOR DISASTER MANAGEMENT AT THE SCENE OF INCIDENT ACCORDING TO ZONES

KEY
- RED ZONE: Work area for Specialised Rescue Teams with Special Expertise
- YELLOW ZONE: Placement area for On Site Command Post, and Main and Supporting Rescue Post
- GREEN ZONE: Placement area for Media Management, Victims Family Centre, Counselling Centre, Food Supplies Centre, Mortuary, Rest Area, Supporting and Rehabilitation Agencies and Voluntary Bodies
- SENTRY POST

NOTE: Movement from one Zone to another is not allowed except with the permission of the Commander of Disaster Operations
NATIONAL SECURITY COUNCIL
National Security Council (NSC) is the principal policy making and coordinating body for disaster management in Malaysia.

- Coordinates and plans all activities related to preparedness, prevention, response/relief operations and recovery/rehabilitation of disaster management.
Roles of National Security Council (NSC) as NDMO

- Disaster Management Focal Point
- Disaster Management Committee Secretariat At All Level
- Manage Disaster Relief Fund
- Coordinate Disaster Awareness Program
- Implement Disaster Management Policy and Strategy
- Coordinate Disaster Management Exercise
- Monitor Disaster Risk Reduction Initiative
- Formulate and Review Disaster Management Policy and Strategy
- Carry Out Post Mortem After Disaster
- Head of Humanitarian Assistance
- Mobilise SMART Team
NSC Emergency Command Centre

- National level Disaster Management Operation Centre
  - 4 phases: Mitigation, Preparation, Response & Recovery
- Operational: 3rd quarter of 2013.
- National Disaster Risk Management Information System
  - Command, Control, Comm., Coordination, information
(Source: MKN, 2013)
MULTITUDE PARTIES INVOLVEMENT IN DISASTER MANAGEMENT
MINISTRY OF SCIENCE, TECHNOLOGY & INNOVATION (MOSTI)

- Inter-Agency Committee for Comprehensive Study on Extreme Weather Prediction & Forecasting
- MOSTI Disaster Management Committee
  - Task Force : 1st Responder
  - Task Force : Logistic & Humanitarian Effort
  - Task Force : Science, Technology & Innovation
Earth Observation Programs

- Space-and Air-borne Remote Sensing Technology Development & Applications
- Water and Ocean Monitoring and Forecasting
- Marine Exploration
- Seismic Activity & Tsunami Monitoring
- Meteorology-Oceanographic Interaction
- Sun-Earth Relationship
ANGKASA ROLES IN DISASTER MANAGEMENT

National Space Agency (ANGKASA)

- Space-Based Technical Organization (National Focal Point)
- Promote the applicability and usage of space technology by having disaster management support programs and activities
- Develop and strengthen regional and international cooperation and networking by participating in regional cooperation mechanisms relevant to space technology for DM – APRSAF, Sentinel Asia
- Bridging technology gap by promoting dialog and platform to govt. agencies, research institute and industry
- Spearhead the National Space Policy and National Space Act
Programs and Activities

• 2013
  – Radar & SAR Training for Disaster Management (March)
  – 2nd Training on ALOS-2 Data Applications using ALOS Archived Data (November)

• 2014
  – Disaster Mitigation System by Using Space and Geospatial Information Technology Workshop (September)
  – Sentinel Asia: Kelantan Flood EOR

• 2015
  – 2nd ASEAN WS on Development of Mechanisms for Acquisition and Utilization of Space-based Information during Emergency Response (UNESCAP)
  – 3rd ASEAN WS: Harmonizing SOPs (UNESCAP)

• 2016
  – UN/India WS (March)
  – Satellite-based Information for Natural Disaster Management Workshop (April)
MRSA ROLES IN DISASTER MANAGEMENT

Malaysia Remote Sensing Agency (MRSA)

• Mapping and satellite imagery distribution
• Establishment of Integrated Geospatial Database and Planning System (IGDP)
• Central system for collecting, storing, processing, analysing and disseminating value added data and information to support the relevant agencies in the mitigation and relief activities of disaster management.
• Integrate databases with standardised data (in terms of format, scale and level of mapping accuracies)
• Consists of 3 components: Early Warning (producing risk maps), Detection and Monitoring (identify hotspots forest fire using NOAA), Mitigation and Relief (inter-agency)
MET MALAYSIA ROLES IN DISASTER MANAGEMENT

Malaysia Meteorological Department (MET MALAYSIA)

• Studies on Weather and earth crustal motion, Early Warning System
• Installed several disaster risks monitoring system for local used such as weather monitoring and hotspot/haze monitoring.
• Development of Integrated Water Vapour (IWV) using GPS to support Numerical Weather Prediction (NWP)
• To ssimilate in-house data with relevant agency for effective disaster modeling
DISASTER MANAGEMENT TECHNICAL ORGANIZATION

- **Department of Irrigation and Drainage (DID)**
  - Flood EWS, forecasting and modeling

- **Atomic Energy Licensing Board (AELB)**
  - Nuclear & radioactive material, Nuclear Emergency Team

- **Department of Environment (DoE)**
  - Haze, air quality index

- **Department of Public Work (DPW)**
  - Landslide information, road management
NADMA ESTABLISHMENT

- September 2015, announcement of the new National Disaster Management Agency (NADMA)
- Taking over NSC roles and mandate in national disaster management
- Still in the process of adapting roles and structuring
- Has been in operation since its announcement
The Way Forward

• Optimization of the Emergency Command Centre (ECC) with the new establishment of NADMA
• Development of National EOS Program
• Compilation of national database on expertise and technology is still in progress under MOSTI’s initiatives
• Proper set up of data announcement and dissemination – data & value-add product pool
• Development of Guideline for Participation in International Space-Related Initiatives in Disaster Management
  - to provide the clear direction to relevant agencies;
  - useful data and/or services that country could provide and be provided to support the local/global initiative DM.
  - strengthen national capacity and maximizes the potential usage of space technology.
THANK YOU