MEMBER REPORT

ESCAP/WMO Typhoon Committee
10th Integrated Workshop

(MALAYSIA)

26 - 29 October 2015
Berjaya Hotel Times Square, Kuala Lumpur, Malaysia

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I. Overview of tropical cyclones which have affected/impacted Malaysia in 2015

1. Meteorological Assessment (highlighting forecasting issues/impacts)

In total twelve typhoons and eight tropical storms (tropical storm intensity or higher) developed over the western Pacific Ocean, the Philippines region, and the South China Sea from January to September 2015. Three typhoons and one tropical storm developed in July 2015 followed by two typhoons and one tropical storm in August 2015. It was active in July this year as compared to the averages of 3.9 and less active in August as compared to the averages of 5.5 recorded from 1951 to 2013. The observed typhoons and tropical storms are listed along with details regarding their lifetimes, regions of formation, starting and ending dates as well as their highest wind speeds in **Table 1**.

Seven typhoons and five tropical storms, respectively, warranted the issuance of strong wind/rough sea warnings over marine regions under the responsibility of the Malaysian Meteorological Department (MMD). **Table 2** recounts the number of warnings issued by MMD for each typhoon and tropical storm. The trajectories of the six typhoons or tropical storms closest to Malaysia are illustrated in **Figure 1**. However, none of these typhoons or tropical storms was close enough to directly or indirectly cause significant loss of neither life nor properties within Malaysia.

The impacts of typhoons and tropical storms over the Malaysian region were restricted to rainfall events and gusting due to the tail effect of the typhoons and tropical storms. The tail effect is generally responsible for enhancing afternoon convective weather over Malaysia, especially in northern Peninsular Malaysia, Sabah and coastal Sarawak. The satellite imageries of rain cloud clusters centered upon the Malaysian region during the transits of typhoon or tropical storms close to Malaysia are shown in **Figure 2.** The images were derived from the MTSAT-2 geostationary satellite infra-red channel. The other typhoons and tropical storms which are not shown in **Figure 1** and **Figure 2** are located too far away to have any significant impact on Malaysia.

Figure 3 illustrates the wind flow at 1000hPa atmospheric pressure level during the transits of typhoons or tropical storms closest to Malaysia. The charts were derived from the Global Forecast System (GFS) analysis. Daily rainfall graphs of chosen meteorological stations in the northern Peninsular and east Malaysia were used to depict rainfall events induced by the tail effect of typhoons and tropical storms. Monthly rainfall charts in January, June,July and August 2015 covering the typhoon or tropical storm events affecting the country are shown in **Figures 4a** to **4h**.

Qualitative analysis of **Figure 2** (satellite imageries) as well as **Figures 4a** to **4h** (daily rainfall charts) revealed rain cloud bands associated with typhoons and tropical storms over Malaysia. However, the rainfall charts of January 2015 (**Figures 4a**) clearly showed a long dry period over the north and the east coast of Peninsular Malaysia, but a significant amount of rainfall was observed in East Malaysia. The enhanced rainfall intensity in East Malaysia happened over the same time as tropical storm Mekkhala.

The satellite imageries in **Figure 2**, also displayed the tail effect of typhoon Chan Hom over Malaysia and subsequent examination of rainfall charts in **Figures 4e** to **4f** showed spikes in daily rainfall over all selected stations in the north of Peninsular Malaysia. The same is true over the East Malaysia during the event of typhoon Halola. Nevertheless, typhoons and tropical storms are not the only factors contributing to heavy rainfall in Malaysia. There are cases whereby severe rainfall occurred during typhoon events but may not be associated with it. Along with this, MMD has also upgraded it satellite applications systems.

Table 1: List of typhoons and tropical storms with JTWC classification, date of birth and death and maximum wind from January to September 2015

No.	Tropical Cyclone	JTWC Classification	Date		Max Wind (knots)
			Birth	Death	
1.	MEKKHALA*	Tropical Storm	13/01/2015	18/01/215	60
2.	HIGOS*	Typhoon	07/02/2015	11/02/2015	90
3.	BAVI*	Tropical Storm	11/03/2015	17/03/2015	45
4.	MAYSAK*	Typhoon	27/03/2015	05/04/2015	105
5.	HAISHEN*	Tropical Storm	04/04/2015	05/04/2015	35
6.	NOUL*	Typhoon	03/05/2015	12/05/2015	110
7.	DOLPHIN*	Typhoon	09/05/2015	21/05/2015	100
8.	KUJIRA@	Tropical Storm	21/06/2015	24/06/2015	45
9.	CHAN-HOM*	Typhoon	30/06/2015	13/07/2015	90
10.	LINFA#	Tropical Storm	02/07/2015	10/07/2015	50
11.	NANGKA*	Typhoon	03/07/2015	17/07/2015	100
12.	HALOLA!	Typhoon	13/07/2015	26/07/2015	80
13.	SOUDELOR*	Typhoon	30/07/2015	09/08/2015	115
14.	MOLAVE*	Tropical Storm	07/08/2015	14/08/2015	45
15.	GONI*	Typhoon	14/08/2015	25/08/2015	95
16.	ATSANI*	Typhoon	14/08/2015	25/08/2015	100
17.	KILO!	Typhoon	01/09/2015	11/09/2015	95
18.	ETAU*	Tropical Storm	06/09/2015	09/09/2015	50
19.	VAMCO@	Tropical Storm	13/09/2015	15/09/2015	35
20.	KROVANH*	Typhoon	15/09/2015	20/09/2015	85

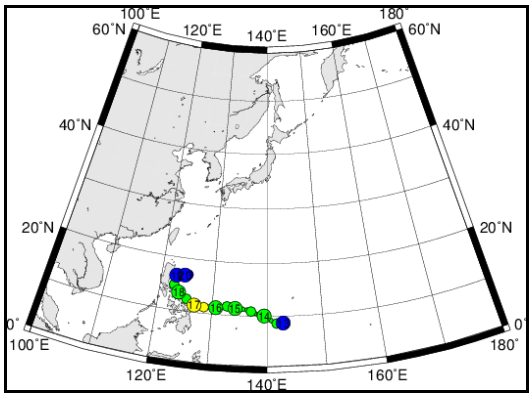
Remarks:

1. Number of tropical cyclones originated from:
   - * Western Pacific Ocean region: 15
   - ! Central Pacific region: 2
   - # Phillipines region: 1
   - @ South China Sea region: 2

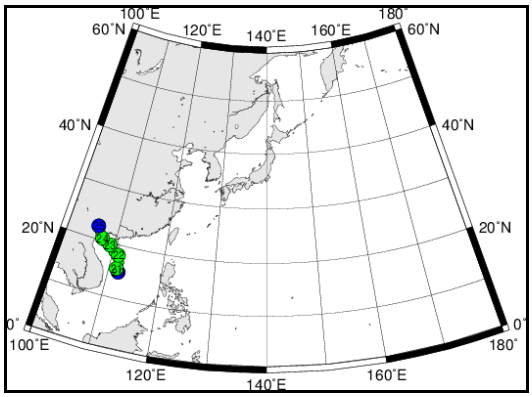
2. JTWC: Joint Typhoon Warning Centre

Table 2: Tropical Cyclone Advisories and Warnings Issued by MMD from January to September 2015

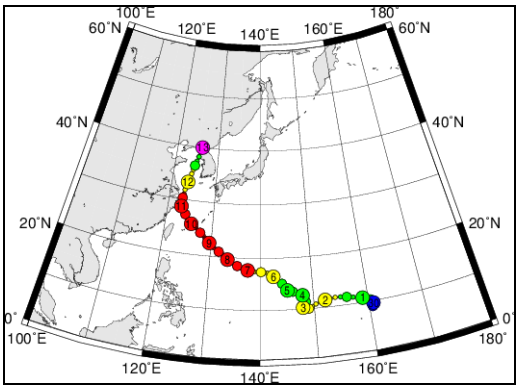
No.	Name	Category	Date		Total No. of Strong Wind / Rough Seas Warnings due to Tropical Cyclones (area affected)
			Start	End	
1.	MEKKHALA	Tropical Storm	13/01/2015	18/01/2015	10 (Kelantan, Terengganu, Pahang, East Johore, Sabah, FT Labuan, Sarawak, Phuket, Sulawesi, Reef South & Sulu)
2.	HIGOS	Typhoon	07/02/2015	11/02/2015	4 (Kelantan, Terengganu, Pahang, East Johore, Sarawak, FT Labuan, Sabah, Samui, Tioman, Bunguran, Reef South, Sulu & Sulawesi)
3.	KUJIRA	Tropical Storm	21/06/2015	24/06/2015	12 (Perlis, Kedah, Pulau Pinang, Sarawak, Sabah, FT Labuan, West Johore, Phuket, Condore, Layang-Layang, Reef North, Palawan, Samui, Labuan, Northern Straits of Malacca & Sulu)
4.	CHAN-HOM	Typhoon	30/06/2015	13/07/2015	31 (Perlis, Langkawi, Sarawak, Sabah, Phuket, Reef North, Reef South, Condore)
5.	LINFA	Tropical Storm	02/07/2015	10/07/2015	33 (Palawan, Reef North, Condore, Layang-Layang, Phuket, Sabah, Perlis & Kedah)
6.	HALOLA	Typhoon	13/07/2015	26/07/2015	14 (Phuket, Condore, Reef North, Layang-Layang, Palawan, FT Labuan, Reef South, Perlis, Kedah, Sabah & Sarawak)
7.	GONI	Typhoon	14/08/2015	25/08/2015	37 (Phuket, Condore, Reef North, Layang-Layang, Palawan, FT Labuan, Reef South, Reef North,Perlis, Kedah, Sabah & Sarawak)
8.	ATSANI	Typhoon	14/08/2015	25/08/2015	
9.	KILO	Typhoon	01/09/2015	11/09/2015	5 (Condore, Reef North, Layang-Layang, Palawan)
10.	ETAU	Tropical Storm	06/09/2015	09/09/2015	5 (Condore, Reef North, Layang-Layang, Palawan)
11.	VAMCO	Tropical Storm	13/09/2015	15/09/2015	12 (Condore, Reef North, Layang-Layang, Palawan)
12.	KROVANH	Typhoon	15/09/2015	20/09/2015	5 (Condore, Reef North, Layang-Layang, Palawan)



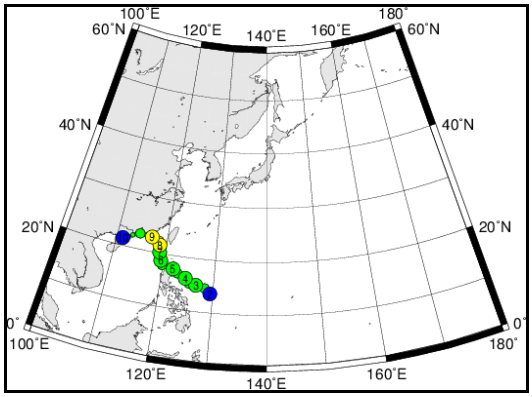
MEKKHALA



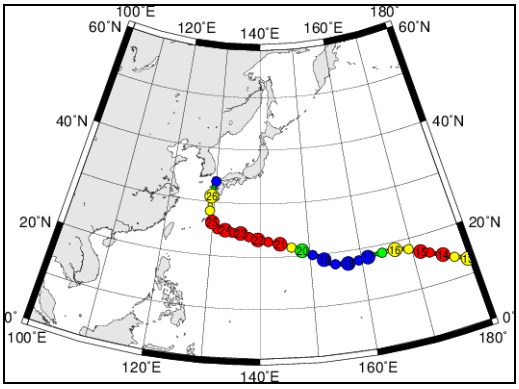
KUJIRA



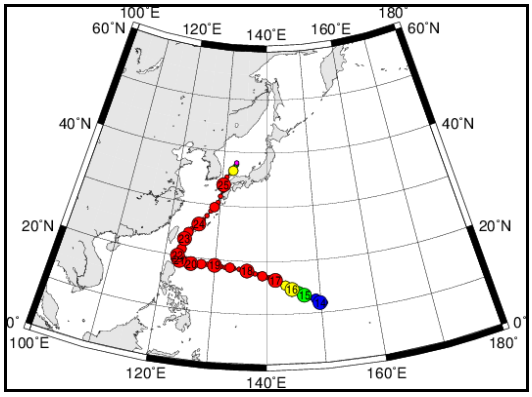
CHAN HOM



LINFA

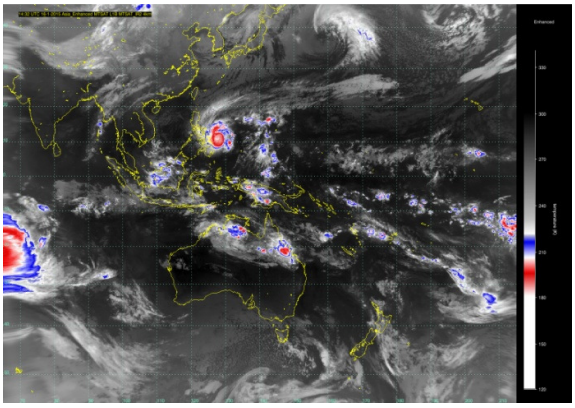


HALOLA

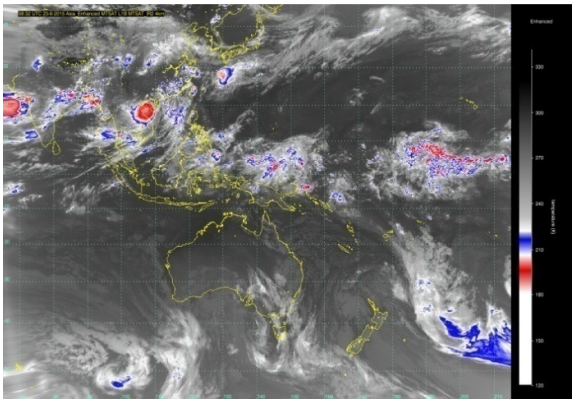


GONI

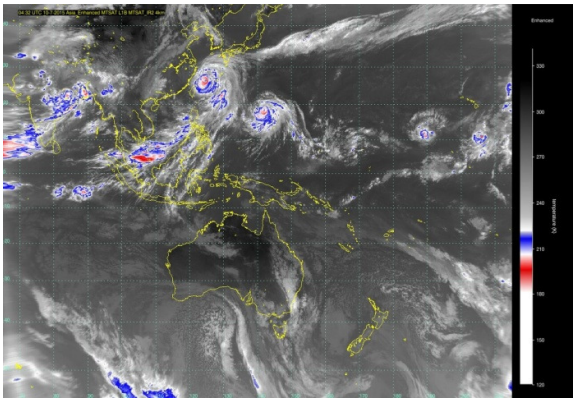
Figure 1: Tracks of six typhoons and tropical storms affecting Malaysia from January until September 2015. The circled numbers represents the date of occurrence of the typhoons and tropical storms (Source: National Institute of Informatics (NII), Research Organization of Information and Systems (ROIS), Japan http://agora.ex.nii.ac.jp/digital-typhoon/latest/track).



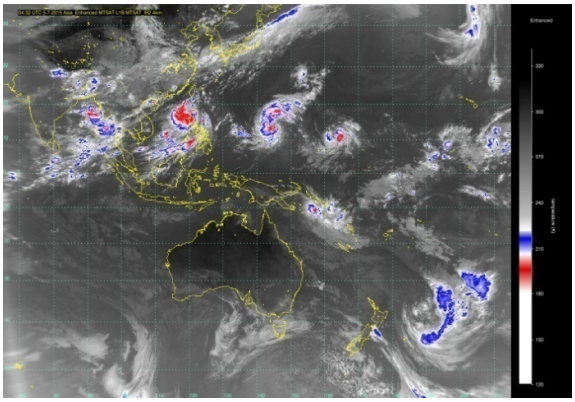
MEKKHALA
Image produced by Malaysian Meteorological Department on 14:32UTC 16/01/2015



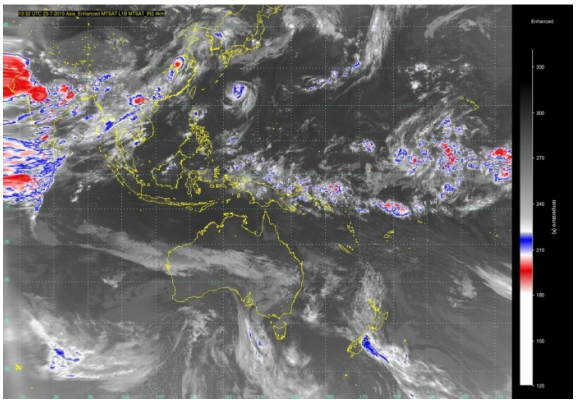
KUJIRA
Image produced by Malaysian Meteorological Department on 08:32UTC 23/06/2015



CHAN HOM
Image produced by Malaysian Meteorological Department on 04:32UTC 10/07/2015



LINFA
Image produced by Malaysian Meteorological Department on 04:32UTC 08/07/2015



HALOLA
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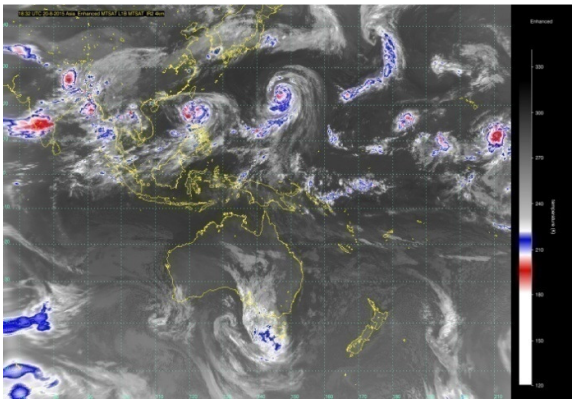

GONI
Image produced by Malaysian Meteorological Department on 18:32UTC 20/08/2015

Figure 2: MTSAT-2 satellite imageries showing the rain cloud clusters associated with some of the selected tropical storms and cyclones over the Malaysian region

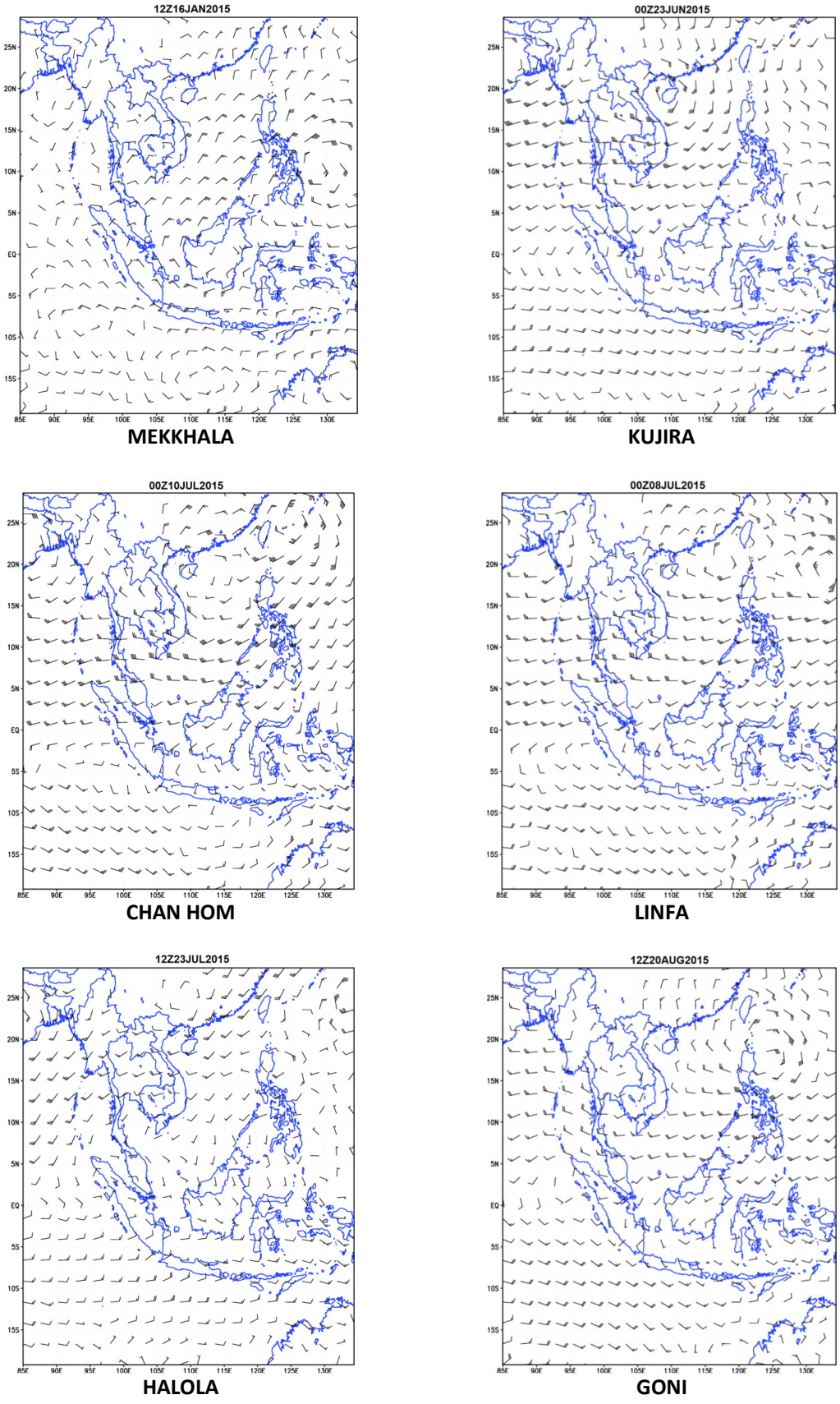

Figure 3: 1000hPa wind charts from the Global Forecast System showing wind patterns during the passage of tropical storms Mekkhala, Kujira and Linfa followed by typhoons Chan Hom, Halola and

Goni

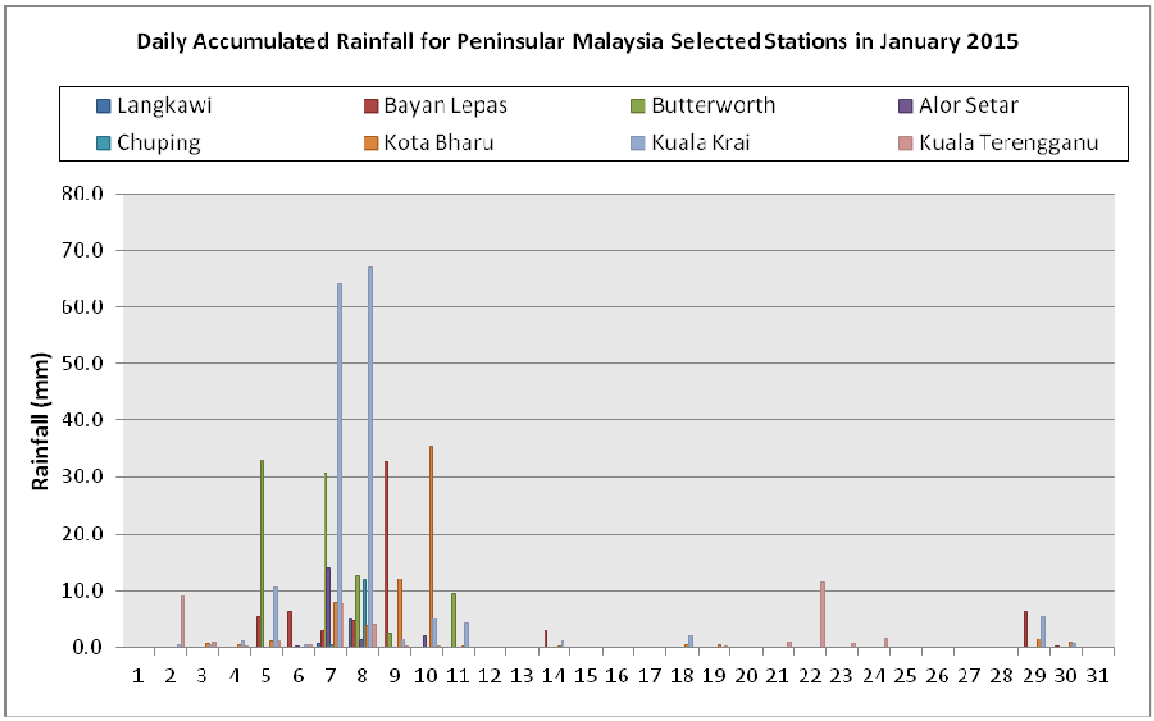

Figure 4a Daily rainfall chart of selected meteorological stations in Peninsular Malaysia for January 2015: Tropical storms MEKKHALA (13/01/2015 – 18/01/2015)

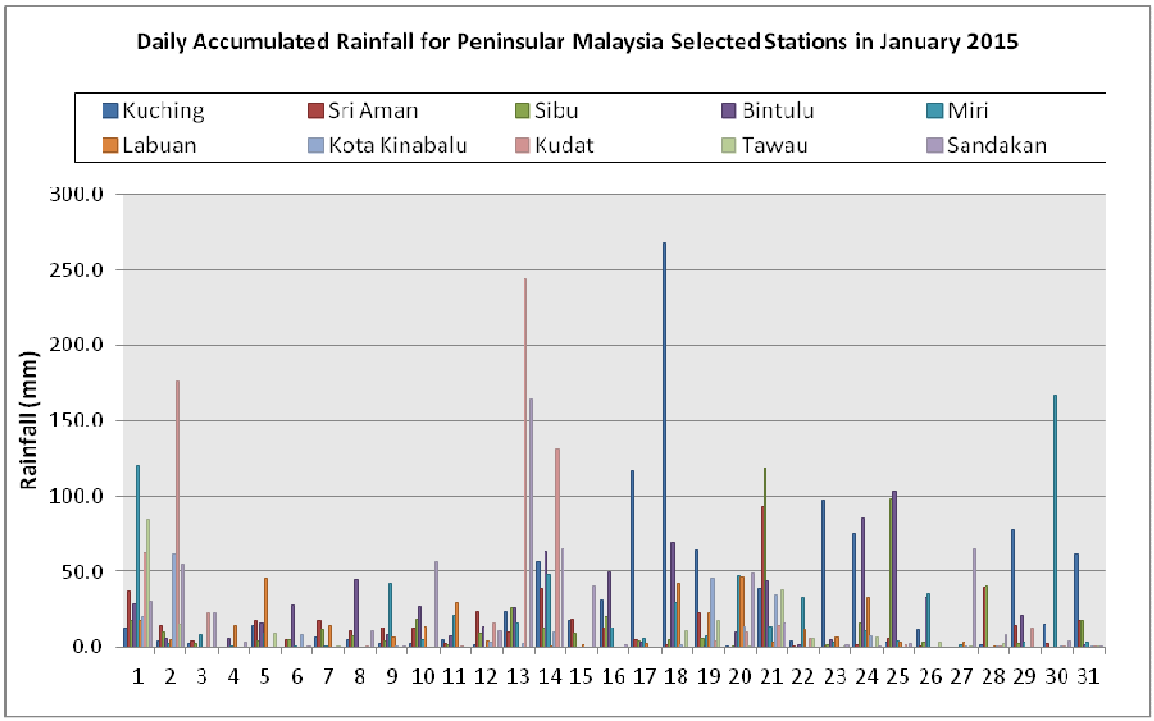

Figure 4b Daily rainfall chart of selected meteorological stations in East Malaysia for January 2015: Tropical storms MEKKHALA (13/01/2015 – 18/01/2015)

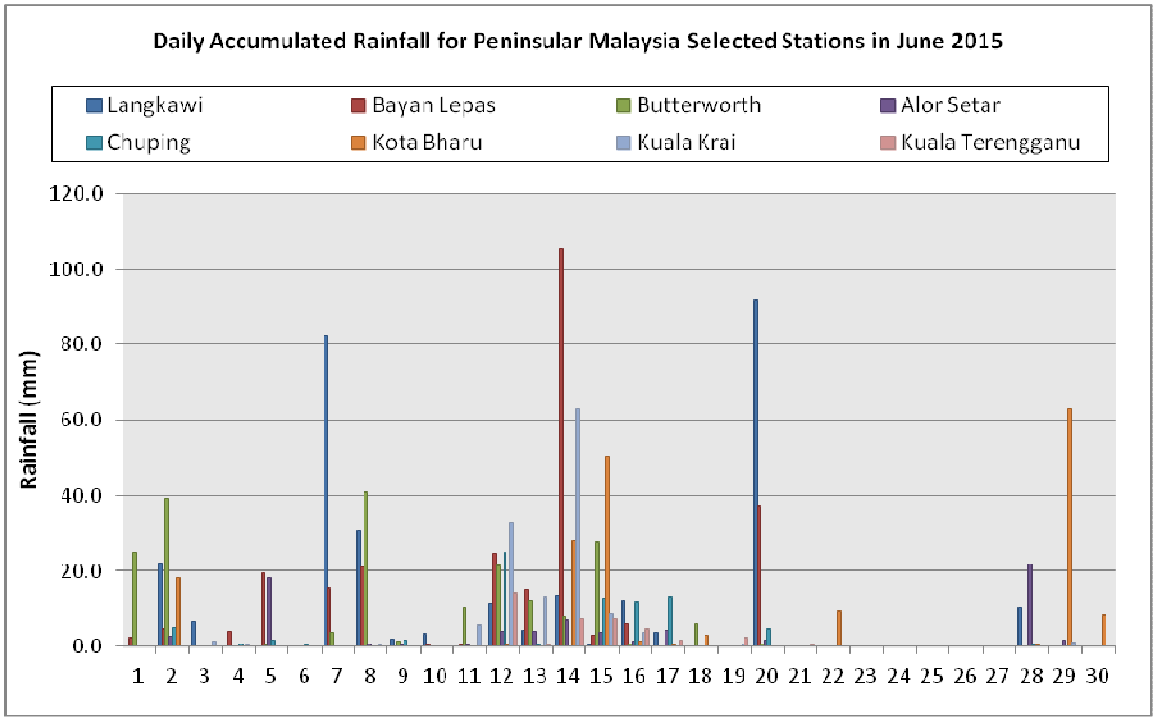

Figure 4c Daily rainfall chart of selected meteorological stations in Peninsular Malaysia for June 2015: Tropical Storm KUJIRA (21/06/2015-24/06/2015)

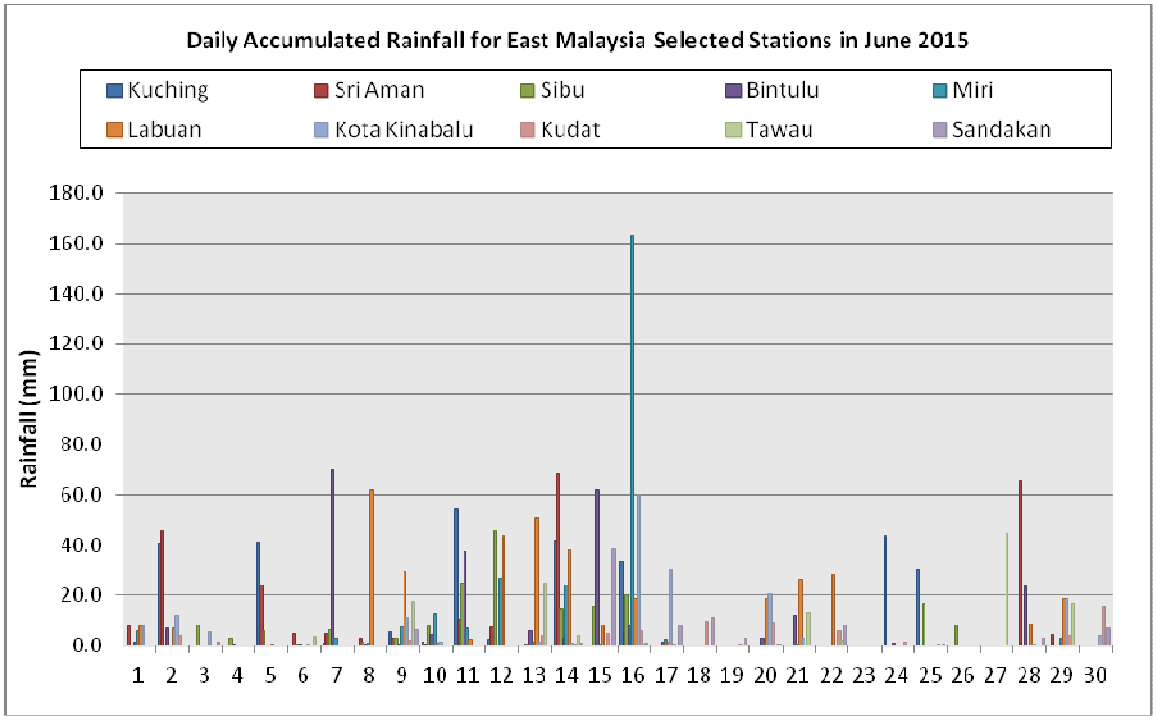

Figure 4d Daily rainfall chart of selected meteorological stations in East Malaysia for June 2015: Tropical Storm KUJIRA (21/06/2015-24/06/2015)

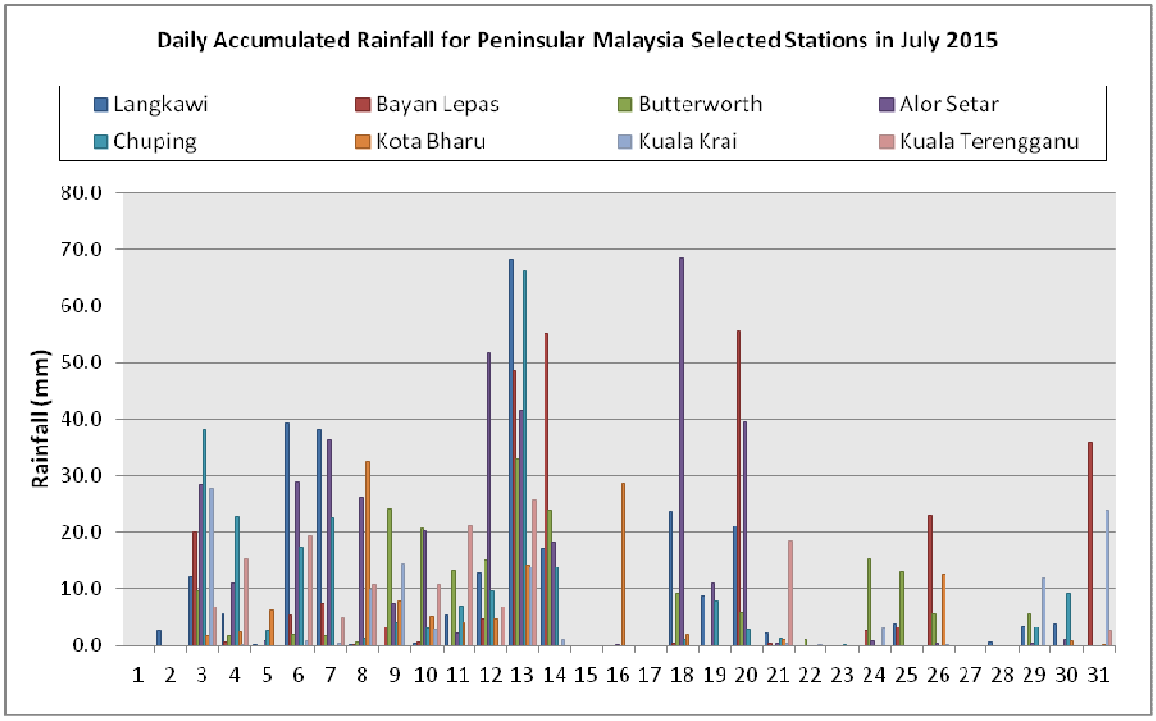

Figure 4e Daily rainfall chart of selected meteorological stations in Peninsular Malaysia for July 2015: Typhoon CHAN HOM (30/06/15-13/07/15); Tropical Storm LINFA (02/07/2015-10/07/2015); Typhoon NANGKA (03/07/2015- 17/07/2015) and Typhoon HALOLA (13/07/2015-26/07/2015)

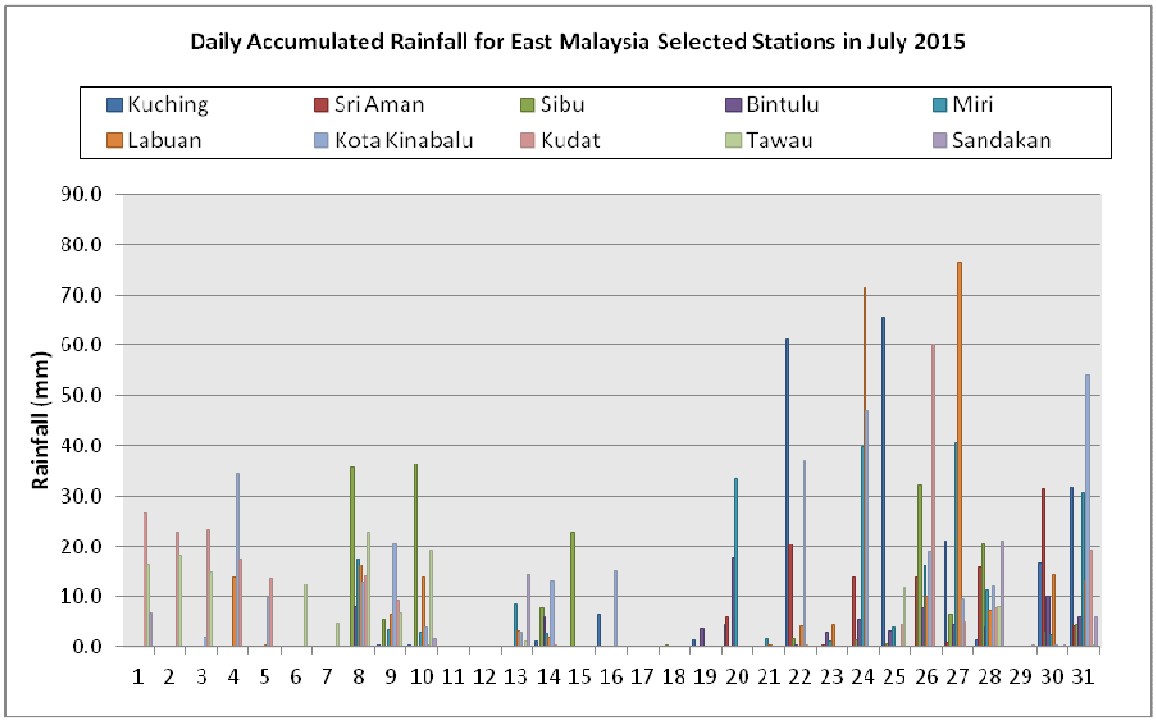

Figure 4f Daily rainfall chart of selected meteorological stations in East Malaysia for July 2015: Typhoon CHAN HOM (30/06/15-13/07/15); Tropical Storm LINFA (02/07/2015-10/07/2015); Typhoon NANGKA (03/07/2015-17/07/2015) and Typhoon HALOLA (13/07/2015-26/07/2015)

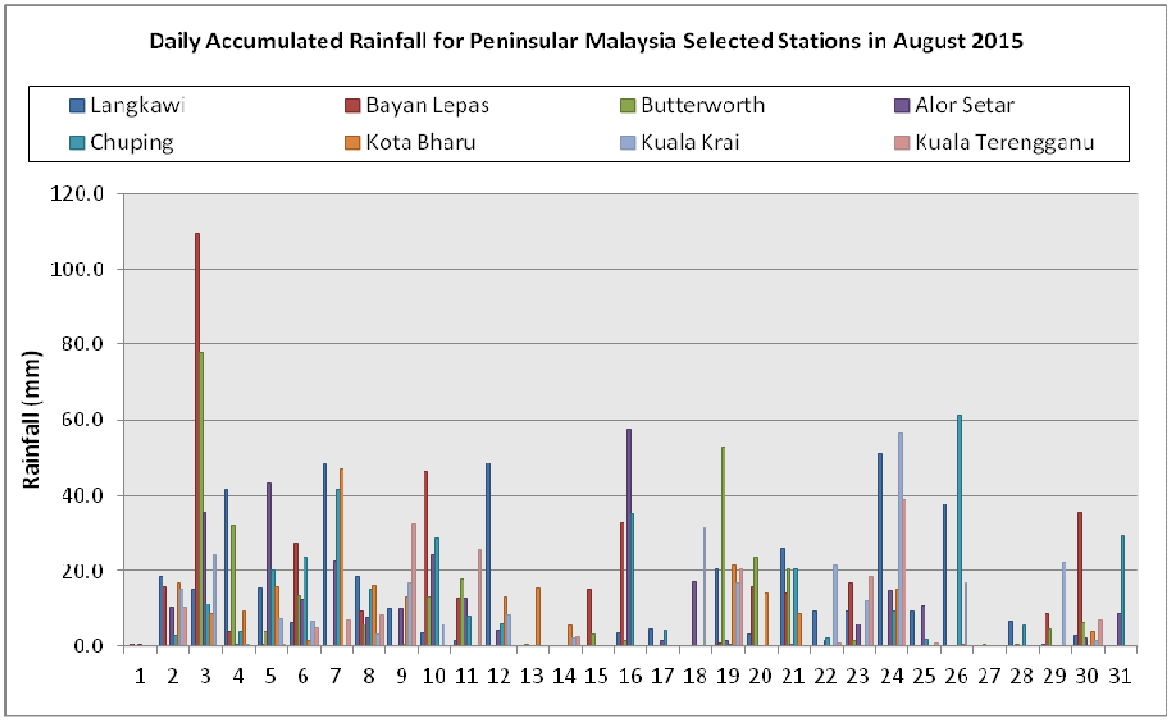

Figure 4g Daily rainfall chart of selected meteorological stations in Peninsular Malaysia for August 2015: Tropical storm MOLAVE (07/08/2015-14/08/2015) and Typhoon GONI and ATSANI (14/08/2015-25/08/2015)

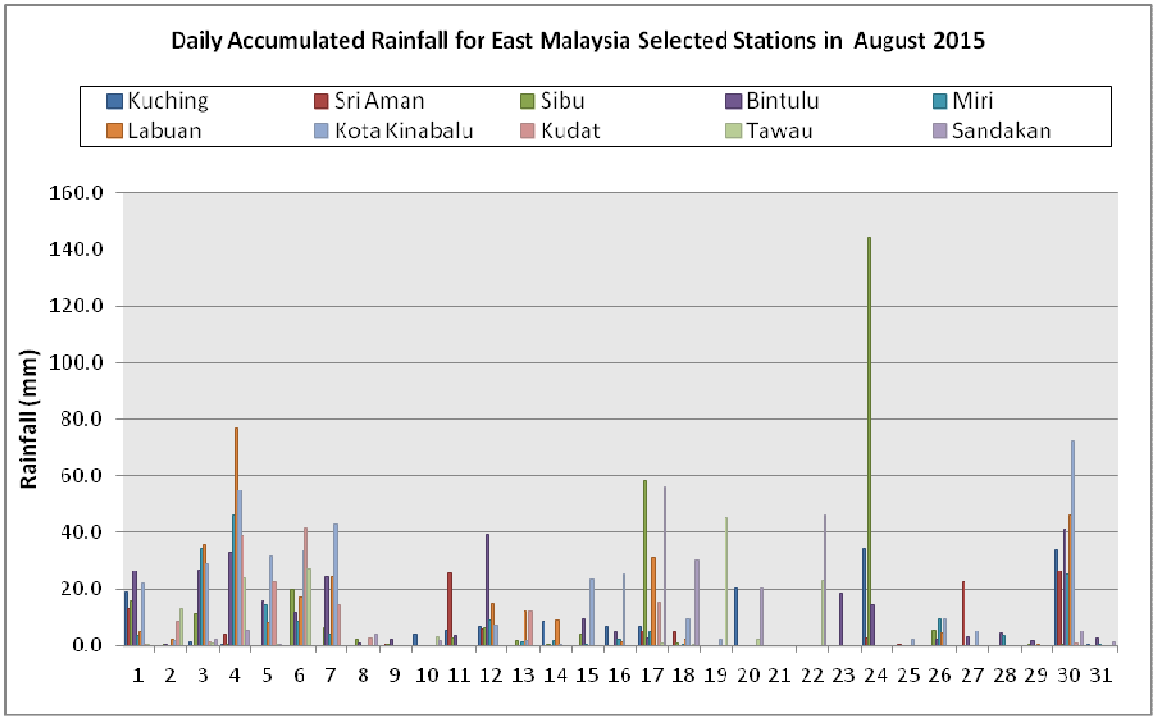

Figure 4h Daily rainfall chart of selected meteorological stations in East Malaysia for August 2015: Tropical storm MOLAVE (07/08/2015-14/08/2015) and Typhoon GONI and ATSANI (14/08/2015-25/08/2015)

2. **Hydrological Assessment (highlighting water-related issues/impact)**

Lengthy spells of heavy rainfalls during the Northeast monsoon have caused severe inundation over low-lying areas in the northeast of Peninsular Malaysia and also in East Malaysia in the months of December 2014. However, these heavy rainfall episodes are unrelated to tropical cyclones. They are caused by monsoonal cold surges. On the other hand, Malaysia also faces flash floods due to heavy thunderstorms of a convective nature.

3. **Socio-Economic Assessment (highlighting socio-economic and DRR issues/impacts)**

Although there were twelve typhoons and tropical storms close to Malaysia from January to September 2015, there was no socio-economic damage suffered by the country. There were no typhoons or tropical storms which directly affected Malaysia. Major flood disasters only occurred during the Northeast Monsoon (December 2014 until February 2015) in few states in Malaysia. More than 300,000 people were affected and received services at the evacuation centers provided by various government agencies and NGO's.

4. **Regional Cooperation Assessment (highlighting regional cooperation successes and challenges)**

Typhoon information issued by the Regional Specialized Meteorological Centre (RSMC) – Tokyo Typhoon Centre and JTWC as well as numerical weather prediction products of European Centre for Medium-Range Weather Forecasts (ECMWF) and Japan Meteorological Agency (JMA) are used in analysis and forecasting of weather during a typhoon passage close to Malaysia.

II. Summary of progress in Key Result Areas

1. Improvement of Weather and Typhoon Warning System

MMD continuously monitors weather and sea conditions within the Malaysian Exclusive Economic Zone (EEZ) covering the Straits of Malacca, South China Sea, Sulu Sea and the Celebes Sea. Additionally, sea and weather conditions outside the EEZ are also kept track of to identify meteorological and oceanographic events which may affect waters in the EEZ.

Tropical depressions / tropical storms / typhoon warnings are issued based on the analysis of satellite imageries, wind charts, Numerical Weather Prediction (NWP) products used in conjunction with information from tropical cyclone monitoring centres such as RSMC Tokyo-Typhoon Center, JTWC and RSMC Tropical Cyclones New Delhi. Each advisory or warning is issued for tropical depression/tropical storm/typhoon in the Malaysian EEZ which covers the Straits of Malacca, Andaman Sea, South China Sea, and the Sulu Sea. As of 20 September 2015, the MMD issued a total of 137 warnings on strong winds and rough seas due to the effect of these tropical depressions/tropical storms/typhoons.

The Hong Kong Observatory (HKO) developed the now casting system SWIRLS (Short-range Warning of Intense Rainstorms in Localized Systems). SWIRLS has been in operation since 1999, and has since been used during the 2008 Beijing Olympic Games, and the 2010 Commonwealth Games in New Delhi. The HKO has kindly granted permission as well as technical assistance to the MMD in implementing SWIRLS for Malaysia. Right now SWIRLS is undergoing intensive testing for the operational purpose.

Identified opportunities/challenges, if any, for further development or collaboration:

The MMD has taken proactive steps in human capital development with regards to rainfall now casting. Two officers shall represent the MMD in the WMO/VCP International

Workshop on Rainfall Nowcasting in December 7-11, 2015. Two other officers will undergo training attachment on blending SWIRLS with NWP using RAPIDS (Rainstorm Analysis and Prediction Integrated Data-processing System) in Hong Kong Observatory in December 14-18, 2015.

Summary Table of relevant KRAs and components (please tick boxes, can be more than one, as appropriate):

KRA =	1	2	3	4	5	6	7
Meteorology	√			√		√	
Hydrology							
DRR							
Training and research							
Resource mobilization or regional collaboration							

Member: Malaysia

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MALAYSIA 2014 EXTREME HYDROLOGICAL EVENT

Malaysia was hit with an extreme hydrological event in December 2014. The country received abundant rainfall due to Northeast Monsoon which recorded almost 50 percent of the total yearly rainfall within a 10 days period. The average rainfall is estimated to be around 2,500 mm for Peninsular Malaysia, 2,600 mm for Sabah and 3,800 mm for Sarawak. Kelantan, Terengganu and Pahang which are located in East Coast of Peninsular Malaysia were badly hit by the Northeast Monsoon from 21st – 25th December 2014 affecting more than 200,000 residents and resulting 25 deaths. The daily highest rainfall recorded during the event was 507mm on 23rd December 2015. However, the monsoon heavy rainfall is unrelated to tropical cyclone.

The Department of Irrigation and Drainage (DID) have just finished a project name Integrated Flood Forecasting and Warning System for Sungai Muar River Basin. The system is a collaboration between DID and Malaysia Meteorological Department (MetMalaysia) where MetMalaysia have shared Numerical Weather data (NWP) and radar files (Cappi) as an input to the model. Muar River Basin is located in the southern of Peninsular Malaysia. Its river started from the state of Negeri Sembilan and Pahang and flow through a few districts in the state of Johor before discharging out to the Straits of Malacca near Muar town.

The Department of Irrigation and Drainage (DID) to-date has installed 501 telemetry stations for rainfall and water level. As part of the local early flood warning system, 1223 manual flood gauges, 152 flood warning boards and 472 automatic flood warning sirens were installed in flood prone areas. This number of station will increased especially for the state of Kelantan, Pahang and Terengganu as the Government of Malaysia has approved an allocation subsequent to the 2014 flood. Apart from setting up new telemetric stations and also sirens at strategic locations, DID will also develop flood forecasting models for the three states namely:

a) National Flood Forecasting and Warning System for Sungai Kelantan (NaFFWS Sungai Kelantan);
b) National Flood Forecasting and Warning System for Sungai Pahang (NaFFWS Sungai Pahang);
c) National Flood Forecasting and Warning System for Sungai Terengganu (NaFFWS Sungai Terengganu).

The development of this project is expected to be completed by the year 2017 with three objectives that have been set by the Department.

Malaysia is committed in WGH Annual Operating Plan (AOP) 4 Development and Application of Operational System for Urban Flood Forecasting and Inundation Mapping

(OSUFFIM) and AOP 5 Extension of Xin'anjiang Model Application. A training course for WGH AOP4 and AOP5 in TC Members was carried out on 1-7 December 2014 in Sun Yat-Sen University, Guangzhou, China. AOP 4 is expected to kick off in November 2015.

Summary Table of relevant KRAs and components (please tick boxes, can be more than one, as appropriate):

KRA =	1	2	3	4	5	6	7
Meteorology							
Hydrology	√	√		√		√	
DRR							
Training and research							
Resource mobilization or regional collaboration							

Member: Malaysia

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Disaster Risk Reduction (DRR) Efforts:

1. Malaysia has been adopting several strategies to advance progress in mainstreaming disaster risk reduction (DRR) in its national development policies. Disaster planning and prevention is integrated into the overall national development plans and projects for sustainable development, accompanied by the involvement of the District and State Disaster Management Committees and authorities in the development, testing, and implementation of the overall emergency response plans.

2. Poverty reduction/eradication is also implemented as part of DRR strategy in Malaysia. With explicit policies and its leader's commitments, the country is way ahead in meeting the targets of the Millennium Development Goals (MDG) to halve the poverty incidence through various programmes being undertaken such as the People's Housing Programme, Housing Loan Scheme for lower income groups, housing assistance to the rural poor, as well as empowerment of the poor.

3. As the lead agency in disaster management, the NSC has also been organizing Community Based Disaster Management Programme that is aligned with the slogan "Community Resilience through Disaster Awareness". The CBDM is a two-pronged programme whereby not only does it serve as a platform to convey information on disasters to risk prone communities but also to build a community that is resilient and able to take action to save themselves, family, neighbours, and community members when disaster strikes. The NSC together with the Malaysian Meteorological Department has also been proactive in conducting drill exercises in tsunami prone areas involving local communities to instil awareness and equip them with knowledge on how to properly react during disaster.

4. Malaysia is also aware that when disaster strikes, critical infrastructures like schools and hospitals that are unfit structurally and made from low quality materials pose a threat to the lives and safety of the people especially the vulnerable groups, i.e. children and the sick. Damaged schools means disruption if not total loss of learning opportunities and a decrease in the quality of education delivery. When hospitals and healthcare facilities are destroyed, the treatment of the sick and the saving of victims during disasters become a challenge. Thus, with this in mind, Malaysia pledged its commitment at the global launching of the 'One Million Safe Schools and Hospitals' campaign in Manila in 2010 and to incorporate this campaign into the country's own national disaster awareness programme. The Malaysian Cabinet on 12 January 2011 had agreed for the campaign to be an ongoing campaign led by the Ministries involved targeting all levels including the

local authorities, hospitals and health institutions, as well as schools.

5. The Government of Malaysia had also established the National Disaster Relief Trust Fund to provide assistance to disaster victims to enhance the overall resilience of communities to disasters. This includes reconstruction of settlements that were destroyed by natural disasters. Through the 'building back better' concept, the NSC's goal is to construct better housing than those that were destroyed. This has led to an opportunity to tackle some of the weaknesses of low-income housing thus turning it into a more sustainable, safe, and resilient habitat.

6. Malaysia's effort in DRR reflects the country's commitment towards the safety of its people in line with its mission to attain the goals set up in the National Key Result Areas and the National Key Economic Areas. It will significantly improve the nation's preparedness in facing disasters especially in the context of increasing public awareness and involvement in DRR. The Government realizes that without commitment towards DRR, a fast developing country like Malaysia risks losing its development gains to the onslaught of natural and man-made disasters.

The Improvement of The National Disaster Management System:

7. In Malaysia, the Information and Communication Technology (ICT) is used extensively in the prevention, preparedness, response, and recovery cycle of disaster management. Some of the projects that have been implemented and planned in Malaysia to improve the coordination, communication, and response in disaster management are:

i. <u>Malaysian Tsunami Early Warning System</u>

Learning from the tragic 2004 tsunami, Malaysia has set up a National Tsunami Early Warning System to overcome the limitations and lack of technical expertise to provide early warning on the possible onslaught of tsunami. With this system, the Government will be able to provide early warning to the public in the event of a possible tsunami occurrence over the Indian Ocean, South China Sea, or the Pacific Ocean.

The dissemination of tsunami warning to alert the general public is done via short messaging system (SMS), facsimile, web pages, mass media broadcasting system as well as public announcement through sirens at specially chosen sites in Peninsular Malaysia and Sabah.

ii. Fixed Line Alert System

The Government is well aware that dissemination of information in a timely manner is crucial to ensure that vulnerable communities and responders are promptly informed to enable them to take necessary actions.

In this regard, the Fixed Line Alert System (FLAS) or Disaster Alert System (DAS) will enable the Government to disseminate early warning message to selected communities who subscribe to fixed line telephone when a disaster is about to occur. Pre-recorded emergency voice messages on the early warning of potential catastrophic disasters such as tsunami will be broadcasted to Telekom Malaysia's fixed line subscribers. The advantages of using the FLAS are short and precise message dissemination, quick, 24 hour operation, pre-recorded message or real time message and specific area for dissemination.

iii. Malaysian Emergency Response System (MERS 999)

The establishment of a single emergency number "999" for the entire nation will make it easier for the public to contact emergency service providers (police, ambulance, fire and rescue, and civil defence units). The "999" emergency number is free. Any emergency call will be answered and vetted within 10 seconds and all "999" call centres are connected to the agencies through a virtual private network (VPN).

iv. Government Integrated Radio Network (GIRN)

The Government Integrated Radio Network (GIRN) project was introduced to provide secure digital trunk radio system between the various government agencies in Malaysia as a study had shown that there were more than 12 radio networks used by these agencies. The introduction of the GIRN project preserves the autonomy and freedom of the various agencies while providing a unified network of shared infrastructures. GIRN is targeted to cover 95% of Malaysia's populated land and areas extending 10 nautical miles from the shoreline.

v. National Disaster Command Centre (NDCC)

The setting up of the National Disaster Command Centre (NDCC) was approved during the Mid-term Review of the 9th Malaysia Five Year Plan. The Government through the National Security Council started the development of the centre in early 2011. The NDCC is the main centre at the national level in coordinating disaster management activities.

vi. Internet and Social Media

Related Government agencies in Malaysia also utilizes the internet as one of the media to disseminate early warning and disaster situation information such

as Air Pollution Index, near real time river level, air visibility, weather situation and forecast, alternative roads, and hotspots.

Government agencies have also begun to use social media network like Facebook and Twitter in order to disseminate information to the public apart from establishing web portals.

Integration Of Warning System At Regional Levels

8. At the regional level, Malaysia is a member of the ASEAN and is an active member of the ASEAN Committee on Disaster Management (ACDM). In ensuring cooperation among Member States, the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) was signed on 26 July 2006 and subsequently entered into force on 24 December 2009.

9. In line with the agreement, States are called upon to designate their National Focal Points and Competent Authorities to coordinate regional humanitarian assistance and disaster relief operations (HADR); to support the establishment of the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) as well as the ASEAN Standby Arrangements for Disaster Relief and Emergency Response (SASOP). The standby arrangement requires Member States including Malaysia to earmark assets on voluntary basis to be shared with other Member States in need of assistance.

10. Malaysia's Emergency Command Centre (NDCC) is in the pipeline to be linked to the AHA Centre to enable sharing and exchanging of information with other ASEAN Member States to the mutual benefit from all sides. As for early warning system, Malaysia's National Tsunami Early Warning System is an integral part of the Indian Ocean Tsunami Early Warning System and the Northwest Pacific Tsunami System coordinated by the Intergovernmental Oceanographic Commission (IOC), UNESCO. As part of the IOC Tsunami Network, Malaysia has also established linkages with the Pacific Tsunami Warning Centre in Honolulu, and the Japan Meteorological Agency in Tokyo.

THIRD UN WORLD CONFERENCE ON DISASTER RISK REDUCTION

Malaysia was participated in the Third UN World Conference on Disaster Risk Reduction (WCDRR) which took place in Sendai, Japan from 14 – 18 March 2015. The United Nations General Assembly Resolution for 2013 on International Strategy for Disaster Reduction states that the Third United Nations World Conference on Disaster Risk Reduction (WCDRR) will result in a concise, focused, forward looking and action oriented outcome document and will have the following objectives:

i. To complete the assessment and review of the implementation of the Hyogo Framework for Action;

ii. To consider the experience gained through the regional and national strategies/institutions and plans for disaster risk reduction and their recommendations as well as relevant regional agreements within the implementation of the Hyogo Framework for Action;

iii. To adopt a post-2015 framework for disaster risk reduction;

iv. To identify modalities of cooperation based on commitments to implement a post-2015 framework for disaster risk reduction; and

v. To determine modalities to periodically review the implementation of a post-2015 framework for disaster risk reduction.

Malaysia's participation in the said conference was deemed important to the country as it is a continuation of Malaysia's initiatives in implementation of Hyogo Framework for Action (2005-2015): Building the Resilience of Nations and Communities to Disasters.

This conference was participated by 21 representatives from various department as follows:

i. National Security Council;
ii. Ministry of Women, Family and Community Development;
iii. Ministry of Works;
iv. Malaysian Meteorological Department;
v. Economic Planning Unit;
vi. Southeast Asia Disaster Prevention Research Institute (SEADPRI-UKM); and
vii. ICAPP Programme Disaster Assistance

ASEAN Regional Forum Disaster Relief Exercise (ARF DiREx) 2015

11. The ASEAN Regional Forum Disaster Relief Exercise (ARF DiREx) 2015 was successfully held from 24 to 28 May 2015 in the States of Kedah and Perlis. The ARF DiREx is a biennial disaster simulation exercise which was first held in 2009 and takes place every two (2) years and co-hosted by ASEAN member states and one non-ASEAN ARF member. The main activities conducted during ARF DiREx are Table Top Exercise (TTX), Field Training Exercise (FTX) and After Action Review (AAR).

12. This year's exercise aims to test the civil-military coordination efforts, create

synergy, and synchronize efforts towards supporting the effective implementation of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) as the common platform for disaster management of the region. ARF DiREx is a collaboration of efforts among civilian authorities and the military in organizing a large scale disaster relief exercise and promotes exchange of expertise and practices in disaster management among ARF members through strategic and tactical oriented Field Training Exercise (FTX). In total, the ARF DiREx 2015 involved participation of 2,402 international and national responders.

Summary Table of relevant KRAs and components (please tick boxes, can be more than one, as appropriate):

KRA =	1	2	3	4	5	6	7
Meteorology							
Hydrology							
DRR				√			
Training and research							
Resource mobilization or regional collaboration							

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DISASTER RISK MANAGEMENT

Role and Functions of the Social Welfare Department in Disaster Management

INTRODUCTION

1. Malaysia lies in a geographically stable region, relatively free from natural disasters, but is affected by flooding, landslides, haze and other man-made disasters. Annually, flood disasters account for significant losses, both tangible and intangible. Flood disaster management in Malaysia is based on the National Security Council (NSC) Directive No.20. This directive also describes the purpose of responsibilities and determining how the various agencies should be involved in disaster management.

2. During the last winter monsoon season, few states in Malaysia such as Kelantan, Terengganu, Pahang, Perak, Johor, Sarawak, Sabah, Kedah, Perlis, Negeri Sembilan and Selangor were affected by floods disasters in December 2014 until February 2015. About 541,896 people were affected and received services provided by various government agencies and NGO's at the evacuation centres and their relative houses.

Role and Responsibilities of the Social Welfare Department

3. The Social Welfare Department is an agency under the Ministry of Women, Family and Community Development. Victims of natural disaster is one of the main target group under the Social Welfare Department as well as other target groups such as persons with disabilities, older persons, family and children.

4. Roles and responsibilities of the Social Welfare Department are subject to the direction from the National Security Council Directive No. 20: The Policy and Mechanism for National Disaster Management. The roles and responsibilities of the Social Welfare Department are to:

   i. provide and manage relief / evacuation centers and forward-supply bases;

   ii. prepare and distribute food, clothing and other essential items to the affected victims;

   iii. register the disaster victims for the purpose of rehabilitation; and

   iv. Provide guidance, advice / counseling services to the affected victims.

Disaster Preparedness (Pre-Disaster)

5. Currently, the Department of Social Welfare has identified a total of 5161 evacuation centres with a capacity that can cater for up to 1,605,020 million people. These centres are structurally sound and located at a safe distance from potential disaster areas. It is equipped with basic amenities such as water and electricity.

Concurrently, the Department has identified suppliers for goods, ration and other related needs. Presently, the numbers of suppliers are 1102.

6. The Department has five depots for food and other necessities stored and divided into zone such as North, South, Middle, East 1, and East 2. A total of 547 stockpiles are specifically allocated for the remote areas. The stockpiles are store / place of storage of food supplies and needs for disaster victims in high-risk areas particularly those identified to be inaccessible during disaster. These stockpiles are well prepared and stocked by the Department all year round.

Response Stage (During Disaster)

7. The Department of Social Welfare is responsible for organizing disaster evacuation centres to perform the following functions:

   i. registration of disaster victims;

   ii. distribution of food, clothing, blankets, mats and other necessities;

   iii. coordinate and mobilize a task force of volunteers to assist in registration, cooking, food distribution work etc;

   iv. organize suitable activities for the evacuees in the evacuation centres such as indoor games, religious activity, motivational talk, storytelling for children etc; and

   v. provide advice, guidance and "post-trauma" counseling services to victims suffering from trauma, depressions etc.

Recovery / Restoration Stage (Post-Disaster)

8. The Department of Social Welfare is also responsible to evaluate the damages involved, including the damage to houses, crops and livestock, to propose and draw up appropriate rehabilitation programmers / plans and to provide "short-term" or "long-term" relief / aid from the existing financial aid schemes.

Short Term Assistance Plan

9. Food supplies for 3 days will be provided to family members returning to their homes.

Long Term Assistance Plan

10. Long term assistance for victims consists 6 types of financial aid schemes:

Type of Assistance	Financial Aid
Schooling	Stationery - RM50 per person Uniforms - RM70 per person
Clothing	RM70 per person

Family	RM40 (USD 12.32) per person
Essential needs for home / kitchen	RM100 (USD 30.81) per family
Repair houses (maximum)	RM2,500
Recovering Small Scale Business (maximum)	RM3,000 per person

(Note: Every Family: Maximum RM5,000(USD 1,583.23)

CONCLUSION

11. A disaster prevention and preparedness sustainable disaster management involves an outreach approach and inter-agency collaboration as well as support from the private sector, non-governmental organizations (NGOs) and the community. Various efforts are being carried out by the government through relevant agencies including NGOs to *ensure* efficiency in *disaster management*.

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