Country Report

Malaysia

Natural Disaster Risk Assessment and
Area Business Continuity Plan Formulation for
Industrial Agglomerated Areas in the ASEAN Region

March 2015

AHA CENTRE

Japan International Cooperation Agency

OYO International Corporation
Mitsubishi Research Institute, Inc.
CTI Engineering International Co., Ltd.

Overview of the Country

Basic Information of Malaysia [1), 2), 3)]

National Flag

Country Name	Long form :	Malaysia
	Short form :	-
Capital	Kuala Lumpur	
Area (km²)	Total:	330,800
	Land:	328,550
	Inland Water:	2,250

Population	29,716,965
Population density(people/ km² of land area)	90
Population growth (annual %)	1.6
Urban population (% of total)	73
Languages	Malay (official language); Chinese; Tamil; English
Ethnic Groups	Malay (approx. 67%); Chinese (approx. 25%); Indian (approx.7%)
Religions	Islam (61%); Buddhism (20%); Christianity (9.0%); Hinduism (6.0%); Confucianism/Daoism (1.0%)
GDP (current US$) (billion)	312
GNI per capita, PPP (current international $)	22,460
GDP growth (annual %)	4.7
Agriculture, value added (% of GDP)	9
Industry, value added (% of GDP)	41
Services, etc., value added (% of GDP)	50

Brief Description

The territory of Malaysia consists of two parts, which are the southern end of the Malay Peninsula and northern Borneo. The country shares borders with Thailand, Brunei, and Indonesia, and its territory on the southern edge of the Malay Peninsula is close to Singapore.

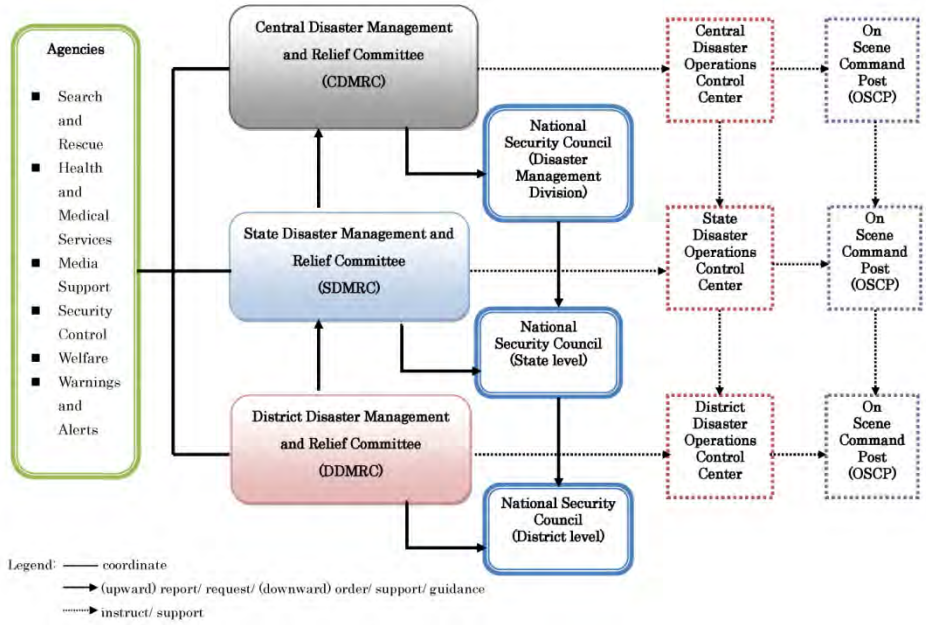
Malaysia is one of the founding members of ASEAN (founded on August 8, 1967). Strengthening collaboration with ASEAN countries is one of the basic foreign policies of the country.

Malaysia is a constitutional monarchy (adopts parliamentary democracy). Prime Minister Najib Razak is focusing on interethnic collaboration and administrative reform, and on economic reform with the aim of being on par with the developed countries. The country also adopts a policy to strengthen collaboration with Muslim countries as a basic direction for diplomacy.

Natural Hazards

71% of the total number of disasters was caused by floods followed by storm (14%) which affected 90% and 8% number of people, respectively. On the other hand, people were killed not only by floods (27%) and storm (38%) but also due to mass movement (wet and dry) (24%) and earthquake (11%) that attributed to 35% of the total death due to disasters. Flooding (65%) and earthquake (32%) are the two major causes of estimated damage cost. Though flooding, storm, and earthquake will be the major three disasters, mass movement (-wet, -dry) is also a noteworthy disaster that affects human life.

Disaster Management System [4)]



References:

1) Central Intelligence Agency (CIA) website (2014): https://www.cia.gov (Accessed: October 15, 2014)

2) Ministry of Foreign Affairs website (2014): http://www.mofa.go.jp (Accessed: October 15, 2014)

3) The World Bank Data Bank website (2013): http://data.worldbank.org (Accessed: October 15, 2014)

4) A. Fakhru's-Razi (date unknown): *Disaster Management in Malaysia* (Presentation Slide), p.36.

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1. Introduction

This report is the first version of the Country Report for Malaysia, which gives information on natural disaster risks of the country, industrial parks, major traffic infrastructure and lifeline utilities, and legislative systems relating to disaster management and business continuity.

The country report is prepared as a reference document for individuals and organizations who are wishing to integrate disaster risk information for their decisions: such as investment to Malaysia, preparation of a business continuity plan (BCP) or disaster management plan of their organization, preparation of an Area Business Continuity Plan (Area BCP) of their area, and simply knowing natural disaster risks of their area.

Information contained in this report is macroscopic covering the entire country at the same level. When detailed risk information is necessary, hazard and risk assessments for an area of interest are required.

Since the country report was prepared with limited data and information as one of the components of the project[1] of ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) and Japan International Cooperation Agency (JICA) with a limited data and information, a revision by national experts is required for further refinement.

The following are reference documents prepared by the project of AHA Centre and JICA.

1. AHA Centre and JICA (2015): Planning Guide for Area Business Continuity, Area BCM Took Kits, Version 2.
2. AHA Centre and JICA (2015): The Country Reports; Brunei, Cambodia, Laos, Malaysia, Myanmar, the Philippines, Thailand, Singapore and Vietnam.
3. AHA Centre and JICA (2015): The Risk Profile Reports; Karawang and Bekasi of Indonesia, Cavite, Laguna and the Southern Part of Metropolitan Manila of the Philippines, and Haiphong of Vietnam.

[1] Natural Disaster Risk Assessment and Area Business Continuity Plan Formulation for Industrial Agglomerated Areas in the ASEAN Region, AHA Centre and JICA, 2013 to 2015.

2. Natural Disaster Risks

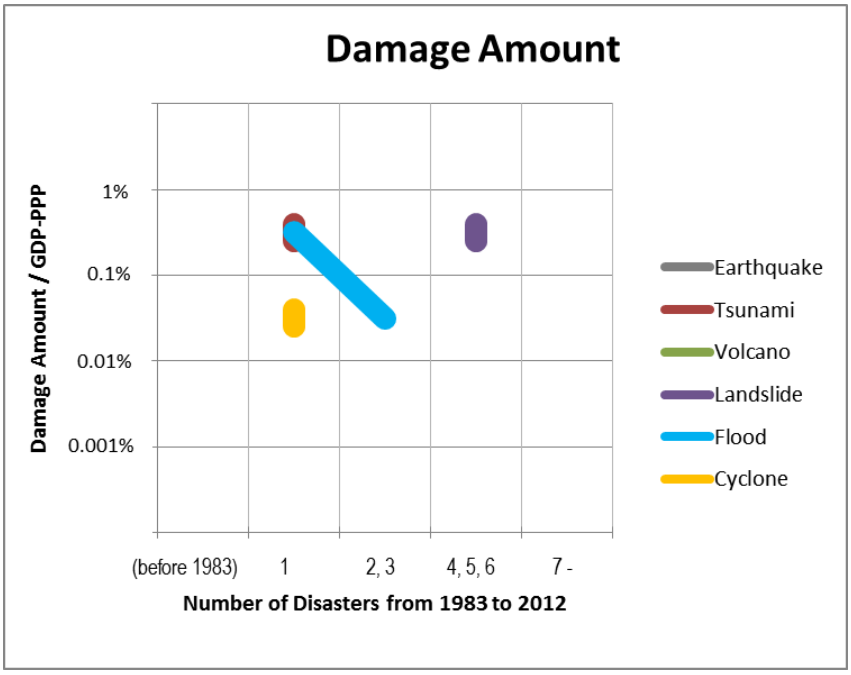
2.1 Predominant Hazards

The records of natural disasters that have affected Malaysia are classified based on the impact and frequency of occurrence in Figure 2.1. Both "damage amount" and "number of deaths" are used to express the impact, and "number of disasters occurred during 1983 to 2012" is used to represent the frequency of occurrence.

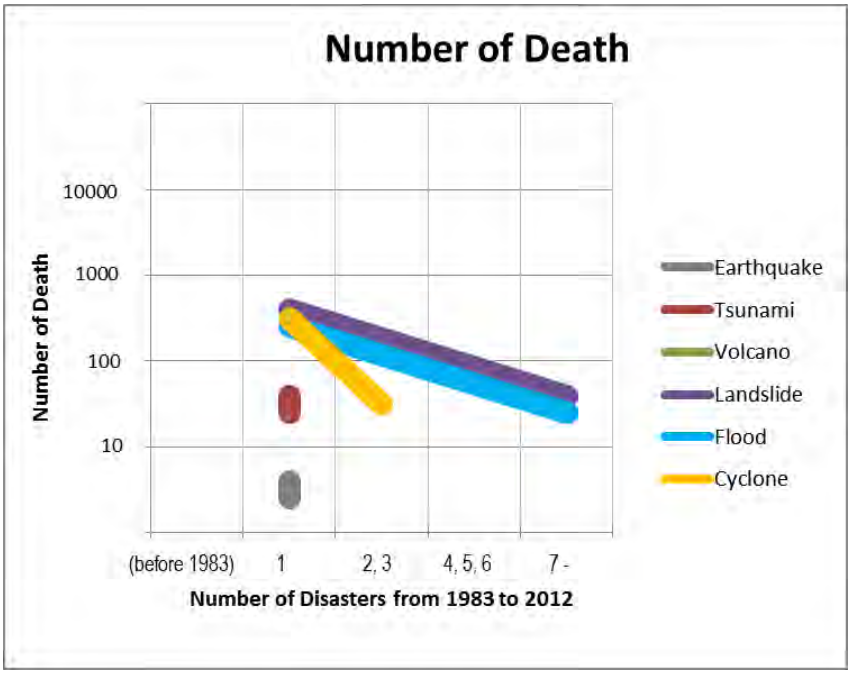
The impacts by landslide and flood are same with respect to fatalities. The maximum number of deaths caused by cyclone is same as that of landslides and floods, but frequency is low. Damage by tsunami was caused by the 2004 Indian Ocean Tsunami and no older events are recorded.

Figure 2.1 can be used to see the relative level of risk of natural hazards in Malaysia according to their impacts and frequency of occurrence. Descriptions of each hazard are given from Section 2.2 to Section 2.7.

Please note that the figure was prepared by the available existing information, and not all information relating to the impacts of disasters was included. Further collection of information and discussion among experts of Malaysia will be necessary to improve on the information represented in Figure 2.1.



Note: GDP-PPP, Gross domestic product based on purchasing-power-parity (PPP) valuation of country GDP, International Monetary Fund, World Economic Outlook Database, October 2012



Source of data and information:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.
National Geophysical Data Center (NGDC), National Oceanic and Atmospheric Administration (NOAA): http://ngdc.noaa.gov/hazard/hazards.shtml
Dartmouth Flood Observatory, University of Colorado: http://floodobservatory.colorado.edu/

Figure 2.1 Impact of Natural Hazards in Malaysia

2.2 Flood

Risks

Locations of flood disasters in Malaysia are shown in Figures 2.2 and 2.3. Size of circles represents the scale of the disasters in terms of human losses and economic losses.

Floods are the dominant risk in Malaysia and they are caused mainly by storm rainfalls brought by both the southwest and northeast monsoons. There is almost no impact from typhoons, because the country is located outside of the course of typhoons. In urban areas, flood disasters have decreased due to the improvement of rivers and drainage systems.

The western part of the Malay Peninsula is mostly affected by the southwest monsoons, which has comparatively less rainfall amounts and experiences less flood damage. The eastern part of the Malay Peninsula and Malaysian Borneo (East Malaysia) are affected by the northeast monsoons, which carry high humidity in the rainy season. Floods are caused by storm rainfalls in the rainy season from October to May. In Sabah and Sarawaku in Malaysian Borneo of East Malaysia, floods caused damage in low-lying coastal areas. In Sarawaku, the rainfall amount is larger and damage greater.

Recent notable floods were caused by the storm rainfalls of December 2006, January 11, 2007 and February 1, 2011.

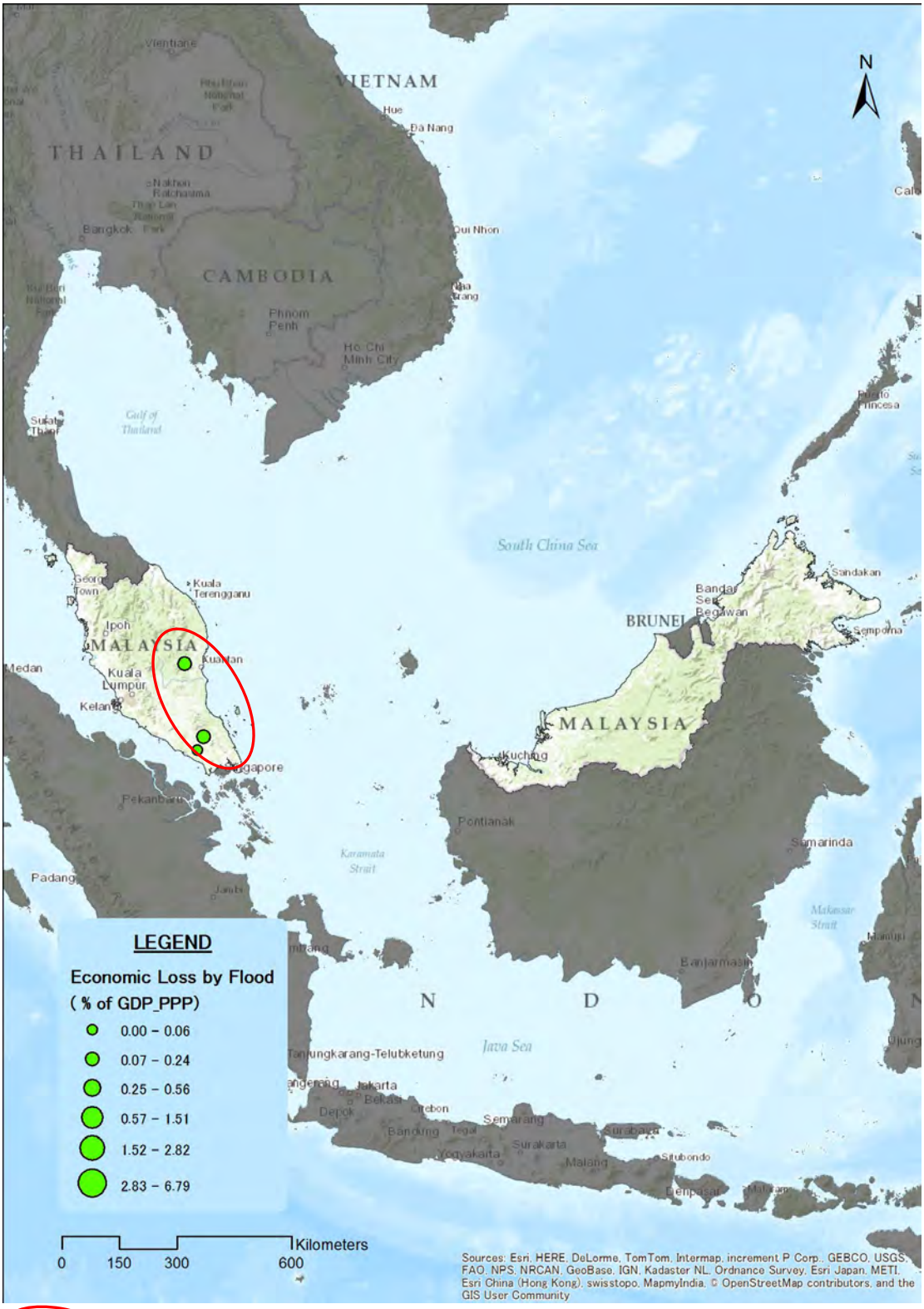
- The flood in December 2006 triggered by storm rainfall caused 6 fatalities affected about 100,000 persons, according to the EM-DAT (The International Disaster Database).
- There is a record of two floods in 2007. The flood on January 11 caused 17 fatalities and affected about 140,000 persons. The flood on December 7 caused 17 persons fatalities and affected about 30,000 persons.
- The flood on February 1 triggered by storm rainfall caused 2 fatalities affected about 20,000 persons at the southernmost tip of the peninsula.

: Hot Spots

Data Sources:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 2.2 Locations of Flood Disasters in Malaysia: Human Losses



: Hot Spots

Data Sources:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 2.3 Locations of Flood Disasters in Malaysia: Economic Losses

Sources of Hazard and Risk Information

Table 2.1 Sources of Hazard and Risk Information: Flood

National Security Council for Prime Minister's Department
http://www.mkn.gov.my/mkn/default/article_e.php?mod=4&fokus=17
National Security Division (NSD)
Disaster Management And Relief Committee (DMRC)
Malaysian Meteorology Department (MMD)
http://www.met.gov.my/index.php?option=com_frontpage&Itemid=1
Malaysian Agricultural Research and Development Institute (MARDI)
http://www.mardi.gov.my/
University of Science-Malaysia (USM)
http://www.usm.my/
University of Malaya (UM)
http://www.um.edu.my/

Table 2.2 List of Reference Reports for Risk Analysis

Organization	Post	Title/ Web Address	Form
Asia Development Bank	Asian Water Development Outlook	Asian Water Development Outlook 2013: Asia-Pacific Water Forum	Report
		http://www.adb.org/publications/asian-water-development-outlook-2013	
World Bank	ASEAN Disaster Risk Management Initiative	Synthesis Report on Ten Asian Countries Disaster Risks Assessment: December 2012	Report
		http://www.unisdr.org/files/18872_asean.pdf	
The Nature Conservancy	ASEAN Disaster Risk Management Initiative	World Risk Report 2012: October 2012	Report
		http://www.ehs.unu.edu/article/read/worldriskreport-2012	
World Bank	Framework and Options for Implementation	Advancing Disaster Risk Financing and Insurance in ASEAN Countries: April 2012	Report
		https://openknowledge.worldbank.org/bitstream/handle/10986/12628/714530v20ESW0W0AN0appendices0June12.pdf?sequence=1	
International Development Research Centre	Economy and Environment Program for Southeast Asia (EEPSA)	Climate Change Vulnerability Mapping for Southeast Asia: January 2009	Report
		http://web.idrc.ca/uploads/user-S/12324196651Mapping_Report.pdf	

Organization	Post	Title / Web Address	Form
UNEP, GRID, UNISDR		Global Risk Data Platform	Web Map
		http://preview.grid.unep.ch/index.php?preview=map&lang=eng	

Studies on Hazard and/or Risk Assessment

Some useful studies on flood hazard, risk, and vulnerability are publicly available presenting assessment results, case studies of countermeasures, as well as different methodological approaches. There are a few types of methodologies to assess risks and vulnerability including, for example, risks involving exposure to flooding events and population density. Vulnerability can be defined as a function of exposure, adaptive or coping capacity, and land-use etc. There are slightly different combinations of these factors with different studies for use. Therefore, these concepts must be defined in advance to plan a methodology for an assessment, in terms of which definitions are to be used in a certain analysis.

Locations of existing investigations and studies on flood are shown in Figure 2.4. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.3.

Table 2.3 Summary of Existing Investigations and Studies: Flood

Country/Region	Summary of Existing Studies and Reports
ASEAN	There are a few reports that study natural disasters for ASEAN and the Pacific regions at large in recent years. Disaster risks are assessed by scenario, exposure, vulnerability, damage, and loss. An assessment framework is also sought to give an overview of risks, hazard and vulnerability.
Malaysia	The Ministry of Natural Resources and Environment is taking initiative on flood management. The hazard significance of flood is high in terms of population affected, extent of area, duration, and socioeconomic damage. The assessments are conducted with data which include monetary damage, flood frequency, and magnitude. Flood management includes structural and non-structural measures.

Figure 2.4 Locations of Existing Investigations and Studies: Flood, Cyclone and Landslide

References for Data and Further Reading

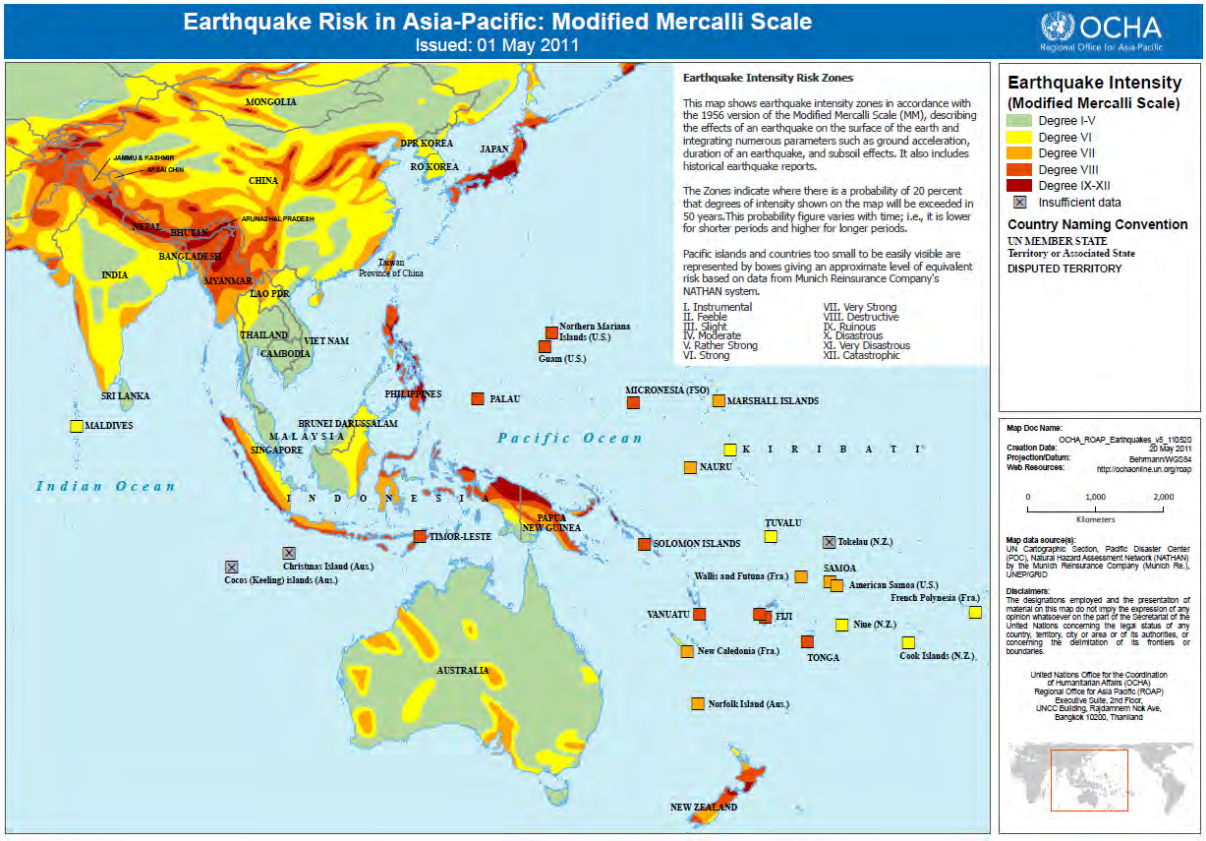
1) ADRC: "Countries; Malaysia", Information on Disaster Risk Reduction of the Member
2) ADRC: "Malaysia, Flood,2006/12/23"
3) ADRC: "Malaysia, Flood, 2007/01/14"
4) ADRC: "Malaysia, Flood, 2011/01/31"
5) AFP BB NEWS (2006): "Expand of the Flood Damage in the Country, Malaysia in Japanese", December 27, 2006
6) BBC NEWS (2007): "Floods force Malaysia evacuation", 14 January 2007
7) Arief Anshory Yusuf & Herminia Francisco (2009). Climate Change Vulnerability Mapping for Southeast Asia, Singapore: EEPSEA
8) Ministry of Natural Resources & Environment, (2007) Flood and Drought Management in Malaysia: Ministry of Natural Resources & Environment: Kuala Lumpur
9) Ministry of Natural Resources & Environment, (2010) Flood Management – Programme and Activities: Ministry of Natural Resources & Environment: Kuala Lumpur
10) Mohd. SafieMohd. et al, (2009) GIS Analysis for flood Mapping: Case Study; Segamt, Johor West Malaysia University, Indonesia, Jakarta . (Unpublished)
11) Relief Web; OCHA (2011):"Malaysia, Help at hand for Johor flood evacuees" ,Report from IFRC,10 Feb 2011
12) Velasquez, Jerry et al (ed.) (2012). Reducing vulnerability and exposure to disasters: Asia-Pacific disaster report 2012, ESCAP/UNISDR AP
13) World Bank (2011). Advancing Disaster Risk Financing and Insurance in ASEAN Countries: Framework and Options for Implementation, Washington: Global Facility for Disaster Reduction and Recovery
14) World Bank, UNISDR (2010). Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment.
15) Ministry of Foreign Affairs of Japan (2013): *"Information on Malaysia in Japanese", 04 2013.*

2.3 Earthquake

Risks

Earthquake disaster is not common in Malaysia. In recent decades, there have been two earthquakes recorded in the northeast area of the Borneo Island. They were earthquakes with a magnitude of 6.2 in 1976 and magnitude 4.5 in 1991. The earthquake in 1991 caused some casualties.

Figure 2.5 shows earthquake risk in the Asia-Pacific region. The zones indicate where there is a probability of 20% that degrees of intensity shown on the map will be exceeded in 50 years. This probability figure varies with time; i.e., it is lower for shorter periods and higher for longer periods. Most of Malaysia is categorized as I to V on the Modified Mercalli Scale and VI for northeast area of Borneo Island.



Source: OCHA

Figure 2.5 Earthquake Risk in Asia-Pacific

Responses by Malaysia

The Malaysian Meteorological Department (MMD) is responsible for monitoring the occurrence of earthquakes and tsunamis in the country.

Sources of Hazard and Risk Information

Table 2.4 Sources of Hazard and Risk Information: Earthquake

Malaysian Meteorological Department (MMD)
http://www.met.gov.my/index.php?lang=english

Reports on Hazard and/or Risk Assessment

Useful information and studies on earthquake hazard, risk, and vulnerability were collected from resources available in the public domain including websites. The information and studies include methodologies with analysis and assessment.

There is no standardized or authorized methodology for risk and vulnerability assessment. Therefore, the methodology should be selected or updated in accordance with the purpose when risk and vulnerability assessments are required.

Locations of existing investigations and studies on earthquake are shown in Figure 2.6. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.5.

Table 2.5 Summary of Existing Investigations and Studies: Earthquake

Country/Region	Summary of Existing Studies and Reports
ASEAN	There are natural hazard assessment reports for ASEAN region created by international organizations like World Bank etc. They summarize frequency, vulnerability, loss, and others subject for each disaster. Some reports describe the methodology and assessment points/items.
Malaysia	There is no record of earthquake disaster in Malaysia and no investigations or study limited to this country and its regions was found.

Figure 2.6 Locations of Existing Investigations and Studies: Earthquake, Tsunami and Volcano

References for Data and Further Reading

1) EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium.
2) Japan International Cooperation Agency (JICA) (2012): "Data Collection Survey on ASEAN Regional Collaboration in Disaster Management"
3) Mark Petersen et al. (2007). , Documentation for the Southeast Asia Seismic Hazard Maps, USGS
4) UNISDR (2009). Global assessment report on disaster risk reduction, Risk and poverty in a changing climate
5) United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Regional Office for Asia Pacific (ROAP) (2011): "Earthquake Risk in Asia-Pacific: Modified Mercalli Scale", Downloaded from http://reliefweb.int/sites/reliefweb.int/files/resources/map_613.pdf

2.4 Tsunami

Risks

Earthquake disaster is not common in Malaysia; however, the potential of a tsunami hitting the west coast of the Peninsula Malaysia, Saba and Sarawak has been considered. Tsunami disaster is not frequent in Malaysia, but it is one of the major disasters.

The tsunami induced by the 2004 Sumatra Earthquake (M 9.1) caused around 80 missing or dead in Malaysia. It also caused USD 500 million in losses, corresponding to 0.18% of the GDP at that time.

Data Source:

Asia Development Bank (2005): From Disaster to Reconstruction: A report on ADB's Response to the Asian Tsunami.

Figure 2.7 Coastal Areas Affected By Tsunami by 2004 Sumatra Earthquake

Responses by Malaysia

Disaster Management Information

The Malaysian Meteorological Department (MMD) has developed a tsunami database. They have conducted seismic profiling and collected historical tsunami events around the Indian Ocean, South China Sea, and the western Pacific Ocean. MMD also simulated tsunami based on numerous source points (about 1,800 source points), and made a database of tsunami.

Early Warning and Transmitting Information

MMD is responsible for monitoring the occurrence of earthquakes and tsunamis in the country. For tsunami monitoring, modern equipment and a warning system have been installed in the Tsunami Monitoring Center at Kuala Lumpur. Recently, this center is focused on a possible tsunami disaster in Sarawak area should a strong earthquake occur along the Philippine Islands and the Celebes Sea. A Tsunami Monitoring Center has been constructed and manages warning siren towers in Sarawak.

MMD has established the Malaysian National Tsunami Early Warning Center (MNTEWC) to ensure the efficient dissemination of earthquake information and tsunami warnings over the Indian Ocean, South China Sea, and the Pacific Ocean.

A seismograph network, tsunami monitoring, and an early warning system have already been established (MNTEWS). Seventeen broadband seismographs, 191 GPS, 3 buoys, 23 sirens and other facilities have already been installed. MMD has already obtained simulation results of tsunami that may be generated in the Manila Trench.

Early warnings are disseminated through sirens, SMS, hotlines (between MNTEWC and national television), fixed lines (whenever necessary), telefax, websites, mass media broadcasting systems (mini studio at MNTEWC), and public announcements. ICT is also utilized to promote awareness and to disseminate early warnings to the public via Fixed-Line Disaster Alert System (FLAS). A separate system known as the Government Integrated Radio Network (GIRN) provides radio communication between responders during emergency or disaster. Disaster reporting is now more efficient with the centralized Malaysia Emergency Response System (MERS) emergency hotline.

Sources of Hazard and Risk Information

Table 2.6 Sources of Hazard and Risk Information: Tsunami

Malaysian Meteorological Department (MMD)
http://www.met.gov.my/index.php?lang=english
Malaysian National Tsunami Early Warning Center (MNTEWC)

Reports on Hazard and/or Risk Assessment

Useful information and studies on tsunami hazard, risk, and vulnerability were collected from resources available in the public domain including websites. The information and studies include methodologies with analysis and assessment.

There is no standardized or authorized methodology for risk and vulnerability assessment. Therefore, methodology should be selected or updated in accordance with the purpose when risk and vulnerability assessment are required.

Locations of existing investigations and studies on tsunami are shown in Figure 2.6. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.7.

Table 2.7 Summary of Existing Investigations and Studies: Tsunami

Country/Region	Summary of Existing Studies and Reports
ASEAN	Tsunami induced by the Sumatra earthquake on December 26, 2004 caused major damage to ASEAN countries. The disaster is summarized by organizations like ADB.
Malaysia	There is no record of tsunami disaster in Malaysia and no investigations or studies limited to this country and its regions were found.

References for Data and Further Reading

1) ADB (2005). From Disaster to Reconstruction: A Report on ADB's Response to the Asian Tsunami

2) EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium
3) Japan International Cooperation Agency (JICA) (2012): "Data Collection Survey on ASEAN Regional Collaboration in Disaster Management"

2.5 Volcanoes

Risks

There are no volcanoes in Malaysia and no record of significant disaster caused by volcanic eruption in its history.

Background

Major hazards caused by volcanic eruption are lava flow, pyroclastic flow, “Lahar” (volcanic mud flow), and volcanic ash fall. Lava flow is a flow of melted rock along the slope. Pyroclastic flow the flow of a mixture of hot dry masses of fragmented volcanic materials and volcanic gas along the slope. “Lahar” is originally an Indonesian term and is also called volcanic mud flow. It is the flow of a mixture of volcanic materials and water along the slope. These flows cause enormous damage to the side and foot of the volcano, but generally do not have an extended reach. However, volcanic ash fall often spreads widely via the trade winds or the westerlies, causing damage over an extensive area. Therefore, there is a possibility that a volcanic eruption in neighboring countries might wreak a volcanic ash fall in Malaysia.

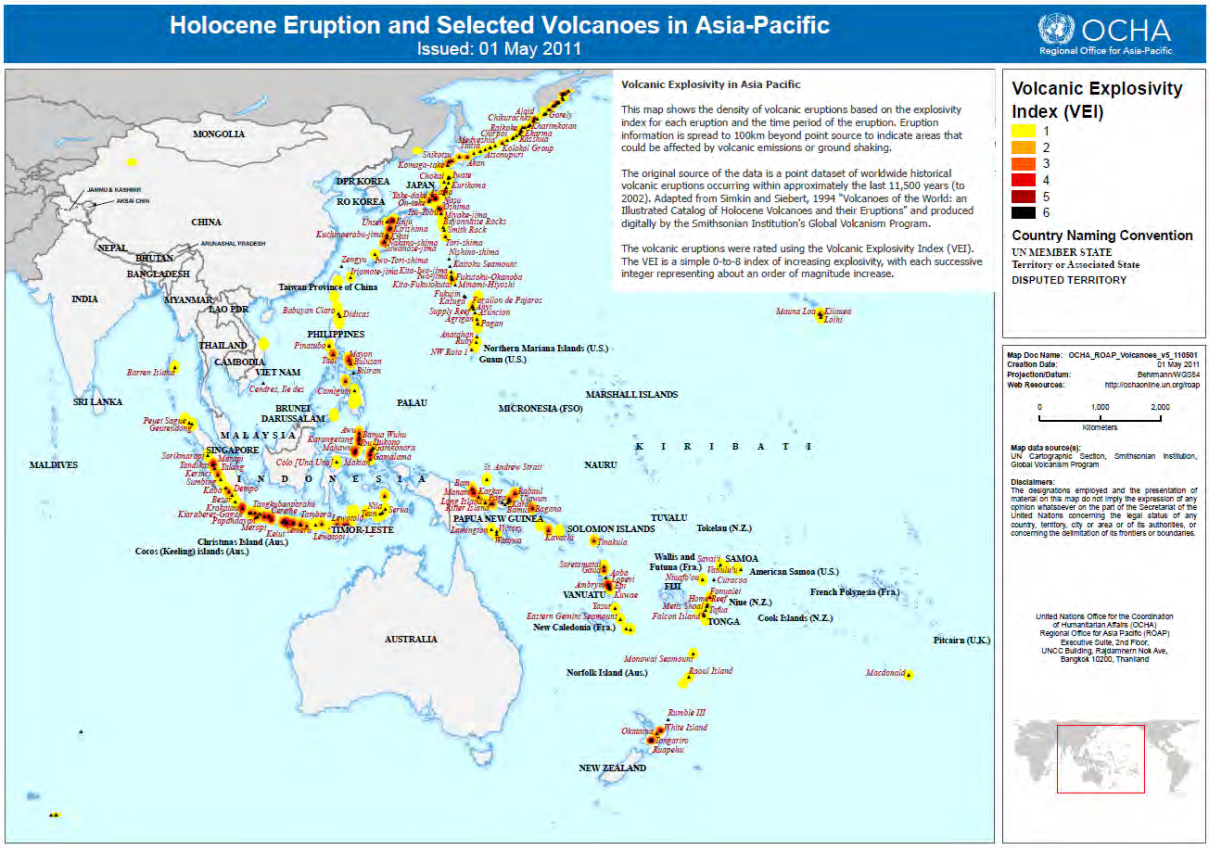
Figure 2.8 shows the volcanoes in the Asia-Pacific region which erupted during the Holocene. The Holocene is a geological epoch from 10,000 years ago to the present. The map indicates that many volcanic eruptions have occurred in Indonesia, Philippines and other neighboring countries.

Responses by Malaysia

There are no special measures focusing on volcanic disaster.

Reports on Hazard and/or Risk Assessment

Useful information and studies on volcanic hazard, risk, and vulnerability were collected from resources available in the public domain including websites. The information and studies include methodologies for analysis and assessment.



Source: OCHA

Figure 2.8 Holocene Eruption and Selected Volcanoes in Asia-Pacific

There is no standardized or authorized methodology for risk and vulnerability assessment. Therefore, methodology should be selected or updated in accordance with the purpose when risk and vulnerability assessment are required.

Locations of existing investigations and studies on volcano are shown in Figure 2.6. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.8.

Table 2.8 Summary of Existing Investigations and Studies: Volcano

Country/Region	Summary of Existing Studies and Reports
ASEAN	UNOCHA summarized the scale of the explosion of volcanoes around the Asia-Pacific region using the Volcanic Explosivity Index (VEI).
Malaysia	There is no record of volcanic disaster in Malaysia and no investigations or studies limited to this country and its regions were found.

References for Data and Further Reading

1) EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium
2) Japan International Cooperation Agency (JICA) (2012): "Data Collection Survey on ASEAN Regional Collaboration in Disaster Management"
3) Lee Siebert, Tom Simkin, and Paul Kimberly (2011): "Volcanoes of the World - Third Edition", Smithsonian Institute/University of California Press
4) OCHA -ROAP (2011). Holocene Eruption and Selected Volcanoes in Asia-Pacific
5) United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Regional Office for Asia Pacific (ROAP) (2011): "Holocene Eruption and Selected Volcanoes in Asia-Pacific", Downloaded from http://reliefweb.int/sites/reliefweb.int/files/resources/map_619.pdf

2.6 Cyclone and Meteorological Hazards

Risks

Malaysia is located between latitudes 2° and 7° to the north and belongs to a subtropical climate zone. Malaysia consists of west Malaysia in the southern part of the Malay Peninsula, Sabah in the northern part of Borneo Island, and east Malaysia including Sarawak. Malaysia is strongly influenced by the ITCZ (Inter-tropical Convergence Zone) and the monsoon with its climate divided into two seasons: the southwest monsoon season and the northeast monsoon season.

In addition to this, Malaysia is characterized by high levels of temperature and humidity. The amount of precipitation is also very high because the country faces the Indian Ocean and the South China Sea. The annual rainfall is from 2,000 to 3,000 mm in a large part of western Malaysia and nearly 4,000 mm in the northwest coastal area of Borneo Island.

As Malaysia is not frequently affected by tropical cyclones, only seven cases are found in its cyclone disaster records. Once in a few years, a tropical cyclone formed in the South China Sea passes over northern Malaysia and southern Thailand before going into the Bay of Bengal. Despite this, direct losses in the region have been very limited. On the other hand, near northern Borneo Island (Sabah province), torrential rain sometimes causes landslide disasters when a cyclone passes over or makes landfall in the area. This, however, is a very rare case.

Table 2.9 Tropical Cyclone (Storm) Disasters in Malaysia (1980~2012)

Year/Month	Cause	Killed	Total Affected
December 1996	Tropical Cyclone (Greg)	270	4,176
August 1997	Tropical Cyclone (Sita)	2	2,115
September 2000	Storm	-	500
March 2002	Local Storm	2	155
November 2004	Storm	-	1,000
November 2004	Storm	1	40,000

In Malaysia, the main meteorological disaster is flooding, while other disasters occur less frequently.

Table 2.10 Natural Disasters in Malaysia (EMDAT: 1984 ~ 2013)

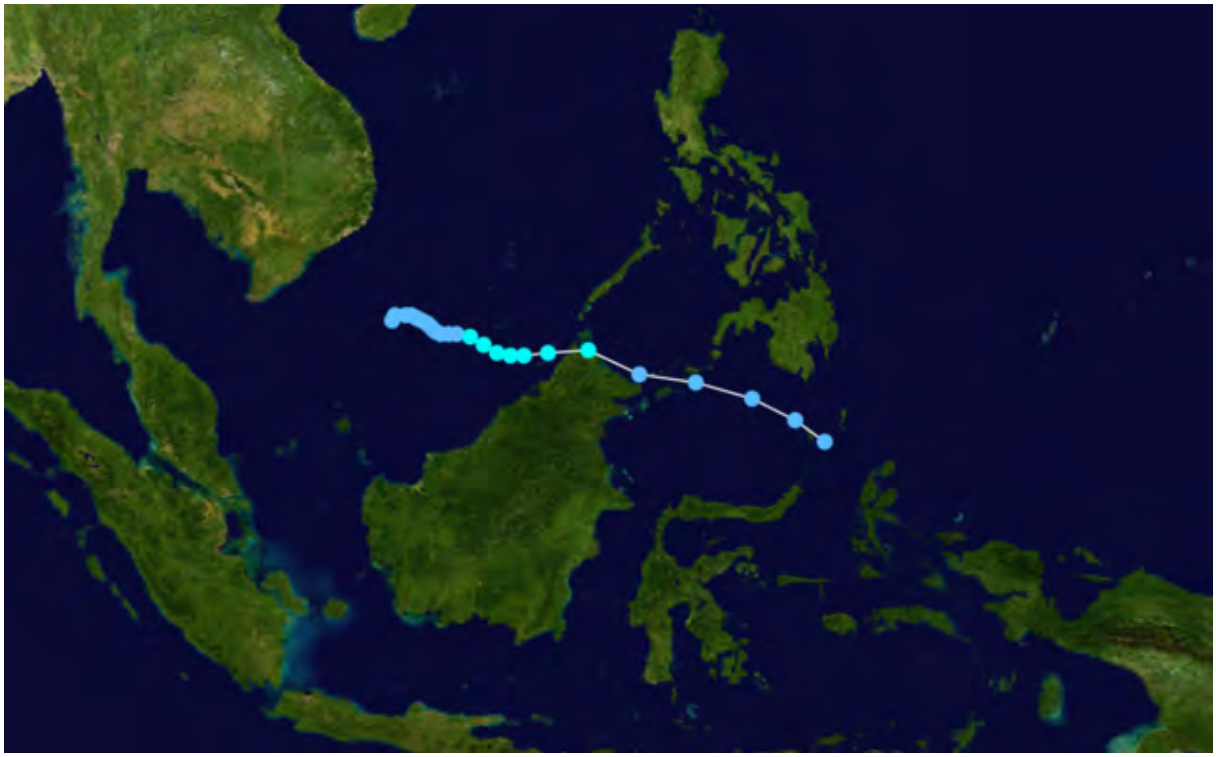
Disaster	No. of Event	Killed	Total Affected	Damage (millions of US$)
Drought	1	-	5,000	-
Flood (including flash flood)	31	186	551,058	1012.5
Landslide	5	168	291	0
Storm	6	275	47,946	53
Forest fires	4	-	3,000	302

Background

The southern part of the Malay Peninsula is the downwind region of Sumatra, where the southwest monsoon is prevailing. Therefore, the southwest monsoon is much weaker in the southern part of the Peninsula. The country is not often directly affected by typhoons due to its location. Although in very rare cases, tropical cyclones may pass over or make landfall in the country.

In 1996, the Sabah province was heavily damaged by floods and landslide disasters induced by tropical storm Greg. Northern Borneo Island, where the Sabah province is located, can be impacted by typhoons or tropical storms. The province has both rainforests and low-lying areas as it is divided by the Crocker mountain range. Figure 2.9 shows the track of tropical storm Greg in December 1996. Tropical storm Greg made landfall at Keningau in the Sabah province, leaving 270 people dead. As a slow-moving tropical storm, Greg brought long-lasting rainfall and created favorable conditions for the continuous development of rain clouds in the mountainous regions through an orographic effect. It was speculated that a landslide may have occurred there.

Meanwhile, the country is strongly impacted by the monsoon in the Malay Peninsula. The wind usually blows from the north or northeast between December and early March and from the south or southwest between June and September. Periods between them are called monsoon transition periods, which migrate slowly over the course of about two months.



Source: http://en.wikipedia.org/wiki/File:Greg_1996_track.png

Figure 2.9 Track of Tropical Storm Greg (December 1996)

- Northeast monsoon season (December to early March)
- Inter-monsoon period 1 (Late March to May)
- Southwest monsoon season (June to September)
- Inter-monsoon period 2 (October to November)

In December, when the ITCZ is located around the southern part of Malaysia, precipitation reaches its peak. In February and March, when the ITCZ moves southward around Java, there is relatively less precipitation. During the southwest monsoon season, heavy thunderstorms called "Sumatra Squalls" persist for about two hours.

The two major causes of floods in the Malay Peninsula are:

- Long-lasting rainfall with medium intensity in a relatively wide area; and
- Localized, short-lasting but very heavy rainfall.

Climate change vulnerability and impact on Malaysia are as follows.

- In the next 60 years, the average temperature in Malaysia is expected to rise by 0.6 to 3.4°C.

- In the next 60 years, the variation of precipitation is expected to range from -0.1 to +32%.
- In the next 100 years, sea level is anticipated to rise by 13 to 94 cm.

Responses by Malaysia

The National Security Division (NSD) in the Prime Minister's Department is responsible for the coordination of all activities related to disasters.

The Disaster Management and Relief Committee (DMRC) carries out the responsibilities of the NSD in coordinating all activities related to disaster management. The DMRC is established at three different levels, i.e., at the federal, state, and district levels, whereby the NSD serves as the Secretariat. At the federal level, the DMRC is responsible for the formulation of national polices and strategies regarding the alertness and the preparation of various agencies involved in disaster management.

Meteorological service in Malaysia is the responsibility of the Malaysian Meteorological Department (MMD) under the Ministry of Science, Technology and Innovation (MOSTI). The Central Forecast Office (CFO) was established in the Headquarters Office in 1997. The CFO issues a comprehensive range of forecasting services to the general public and the mass media.

The severe weather warnings issued by the CFO can be divided into the following types:

- Thunderstorm warnings; and,
- Heavy rainfall and strong wind warnings over land areas.

The CFO issues the following products.

Weather information	Content
Weather Warning	Strong Winds and Rough Seas Warning Severe Weather Warning Tropical Cyclone and Storm Warnings
Weather Forecast	General Weather Forecast State Weather Forecast District Weather Forecast Weather Forecast for Major Towns / Tourist Destinations

Weather information	Content
Marine Meteorological Forecast	Forecast for Fishermen Seven-day Weather, Wind, Wave Seven-day Tide Forecast Wave Model (WAM) Products
Seasonal and Long-Range Weather Outlook	Current El-Nino Condition Long-Range Weather Outlook
Aviation Meteorology	Weather Forecast Kiosk Aviation Briefing Terminal
Meteorological Observations	Satellite Picture Radar Image Surface Observation
Earthquake & Tsunami	Earthquake Information / Tsunami Warning Map of Latest Earthquake List of Recent Earthquakes
Weather Modification	Cloud Seeding Operations
Environmental Studies	Solar UV Index Particulate Matter (PM-10) Multigas Oxidant and Particle Photochemical Processes (OP3) Project
Climate	Malaysian Fire Danger Rating System Southeast Asia Fire Danger Rating System Monthly Rainfall Review
Agromet	10-day Agromet Bulletin Agroclimatic Analysis & Outlook Crop Zonation and Agroclimatic Classifications Plant Phenology Selected Crops

Sources of Hazard and Risk Information

Table 2.11 Sources of Hazard and Risk Information: Cyclone and Other Meteorological Hazards

Malaysian Meteorological Department (MMD)
http://www.met.gov.my/index.php?lang=english TEL: +603 7967-8000 +603 7955-0964 E-mail : mmd@met.gov.my

Table 2.12 Other Sources of Information: Cyclone and Other Meteorological Hazards

Institution	Literature name
Economy and Environment Program for Southeast Asia (2010)	Climate Change Vulnerability Mapping for Southeast Asia http://css.escwa.org.lb/sdpd/1338/d2-5a.pdf
UNISDR (2010)	Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment http://www.unisdr.org/files/18872_asean.pdf

Reports on Hazard and/or Risk Assessment

"Cyclone" is a term to describe many types of low pressure systems, of which tropical cyclones/typhoons are the main types creating disasters in the ASEAN region. Leading countries implement monitoring and detecting of tropical cyclones on a regional basis under the framework of WMO. Table 2.13 indicates the responsible territory allocated to ASEAN members and its leading country.

Table 2.13 Members of WMO Tropical Cyclone Committee

	Warning Zones	Members（ASEAN）	Leading Country
Western North Pacific Ocean and South China Sea	0° - 60°(N) 0° - 100°(E)	Cambodia, Lao PDR, Malaysia, Philippines, Singapore, Thailand, Vietnam	Japan
Bay of Bengal and the Arabian Sea	5°S - 45°(N) 30°E - 90°(E)	Myanmar, Thailand	India
South Pacific and South-East Indian Ocean	0°-50°(S) 90° - 170°(E)	Indonesia	Fiji

The dates and information utilized in this report have been acquired from various reports on the studies and research conducted on tropical cyclones and meteorological hazards published on the internet. Collected documents include evaluation results of hazards/risks, as well as their evaluation methods. With regard to tropical cyclones/typhoons, a meteorological organization of each country compiles a summary on the damage situation, including the number of casualties or loss of human lives, and the estimated amount of damage, etc.

Locations of existing investigations and studies on cyclone and other meteorological hazard are shown in Figure 2.4. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.14.

Table 2.14 Summary of Existing Investigations and Studies: Cyclone and Other Meteorological Hazards

Country/Region	Summary of Existing Studies and Reports
ASEAN	Study reports on natural disasters in the whole ASEAN region are available.
Malaysia	Malaysia is not directly affected by tropical cyclones. However, storms associated with typhoons generated in the Western Pacific and the South China Sea occur in the northern area of Malaysia. In the tropical region, convective activity is intensified at approximately ten-day intervals, which sometimes bring a large amount of precipitation.

References for Data and Further Reading

1) Abustan etc. “The Vulnerability of Malaysia in Facing Flood Experiences” http://project-wre.eng.chula.ac.th/watercu_eng/sites/default/files/conference_14-150255/IA% 20Bangkok% 20Seminar% 2014% 20Feb% 202012.pdf
2) Edwin ST Lai (2013): "Overview of Member's Summary of Reports 2012, TC-45 Appendix VI - AWG Working Reports Members, WMO, pp.12-13
3) ESCAP/WMO Typhoon Committee. (http://www.typhooncommittee.org/)
4) Malaysia Meteorological Department (Website): http://www.met.gov.my/index.php?option=com_frontpage&Itemid=1
5) WMO National Meteorological or Hydrometeorological Services of Members (http://www.wmo.int/pages/members/members_en.html)
6) WMO (2010). First Meeting of the Task Team on “Meteorological, Hydrological and Climate Services for Improved Humanitarian Planning and Response”, WMO Headquarters, Geneva, Switzerland (31 August - 2 September, 2010)

2.7 Landslides

Risks

Locations of landslides disasters in Malaysia are shown in Figure 2.10. Circle size represents the scale of the disaster in terms of human losses.

Landslide prone areas are located in the mountainous areas of the Peninsula and Borneo Island. Hilly areas surrounding Kuala Lumpur, the capital of the country, are also prone to slope disasters. According to the EM-DAT database (http://www.emdat.be/), dozens of landslides have occurred with 26 recorded fatalities, 4 of which were after 2000.

A landslide occurred in Keningau, Sabah province, Borneo Island with 302 recorded fatalities in December 1996. This landslide occurred during the heavy rain caused by a tropical storm, and the mud from a collapsed slope flowed along the river.

In December 1993, a landslide called the Highland Tower Disaster occurred in a concentrated urban area and damaged some buildings. There were 13 recorded landslides in that area from 1993 to 2008.

The areas affected by mud flow with large-scale slope collapse are distributed in the steep slopes of the mountains in Borneo Island. Land creep collapse occurs in populated hills near Kuala Lumpur. Rock slope movement is distributed along mountain roads.

Exposure related to climate change is distributed mainly the north part of Borneo Island.

Sources of Hazard and Risk Information

Jabatan Kerja Raya (JKR) operates the ISIS system, which is an integrated management system for landslides. This system has evaluated 3000 slopes in Sarawaku province, 300 slopes in Sabah province and 1000 slopes in the Malay Peninsula.

Data Sources:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.

Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.

Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 2.10 Location of Landslide Disasters in Malaysia : Human Losses

Reports on Hazard and/or Risk Assessment

Locations of existing investigations and studies on landslide are shown in Figure 2.4. Outline of those investigations and studies are attached in Appendix 2 and their summary is given in Table 2.15.

Table 2.15 Summary of Existing Studies and Reports by Country: Landslide

Country/Region	Summary of Existing Studies and Reports
ASEAN	There have been a few reports that study landslides for ASEAN and the Pacific region at large in recent years. Disaster risks are assessed by scenario, exposure, vulnerability, damage, and loss. An assessment framework is also sought to give an overview of risks, hazard, and vulnerability.
Malaysia	Hazard areas are distributed in the center of the peninsula, which includes the suburbs of the capital Kuala Lumpur. The number of landslide per year and total number of deaths are high, with deaths per year being third in ASEAN. Economic loss data is unconfirmed. The amount of damage caused by the Selangor disaster in November 2003 recorded losses of 836 million RM (almost 13.7 billion yen). Exposure is distributed in the northeastern part of the peninsula and eastern part of Borneo. As a large-scale hazard map has been prepared, awareness of landslides is relatively high. Preparation of an early warning system is ongoing, although its main target is flooding.

References for Data and Further Reading

1) Economy and Environment Program for Southeast Asia (EEPSEA) (2009): "Climate Change Vulnerability Mapping for Southeast Asia", p. 19
2) Low Tian Huat, Faisal Ali (2012): “Slope Hazard Assessment in Urbanized Area”, The Electronic Journal of Geotechnical Engineering, Vol. 17, pp. 341 –352
3) World Bank, UNISDR (2010). Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment

3. Industrial Parks

3.1 Distribution of Industrial Parks in Malaysia

371 industrial parks were identified by the study, and as shown in Figure 3.1, most of them are distributed along the east and west coast lines of Peninsular Malaysia, and along the coast lines of Sabah and Sarawak of Borneo Island.

A list of the industrial parks in Malaysia is given in Appendix 3, and a brief description of the selected industrial parks is given in reference[2].

Data collection and industrial park research in Malaysia proved to be among the most challenging for all countries covered in this report. There is very little public information available on older parks established during the 1950s to mid-1990s. Most of these have been full for decades and are run by SDCs that have no desire to provide information to potential investors, as they have no need to attract investment. Indeed, the SDCs actively discourage seeking information on such parks. These parks do not have websites or marketing material and are not generally labeled on Google Earth. Given that over 200 parks were founded in this timeframe, this means that there is little to no public information available on the majority of parks in Malaysia. Beyond limited information on location and, in some cases, a few established tenants, information on these parks is scarce, especially details about infrastructure and facilities. Industrial lots in these parks are largely privately owned rather than rented, hence park operators do not have financial information, facilities detail, availability data, contact details or other information about tenant firms. Further, most operators of these parks are unwilling to share information. A few Malaysian real-estate websites provide listings of available lots or vacancies within these parks, but most of this information is out of date and only in Malay.

More recently established industrial parks, generally those founded in the mid-1990s to the present, are more prepared to engage with foreign investors and provide information about these parks. These parks typically have fairly well-maintained websites and marketing material that provides details on park infrastructure and facilities. Some of these park operators or their marketing teams have agents appointed to address inquiries from foreign investors, many of whom speak English.

[2] AHA Centre and JICA (2014), Risk Assessment Reports for ASEAN and its Countries, Natural Disaster Risk Assessment and Area Business Continuity Plan Formulation for Industrial Areas in the ASEAN Region.

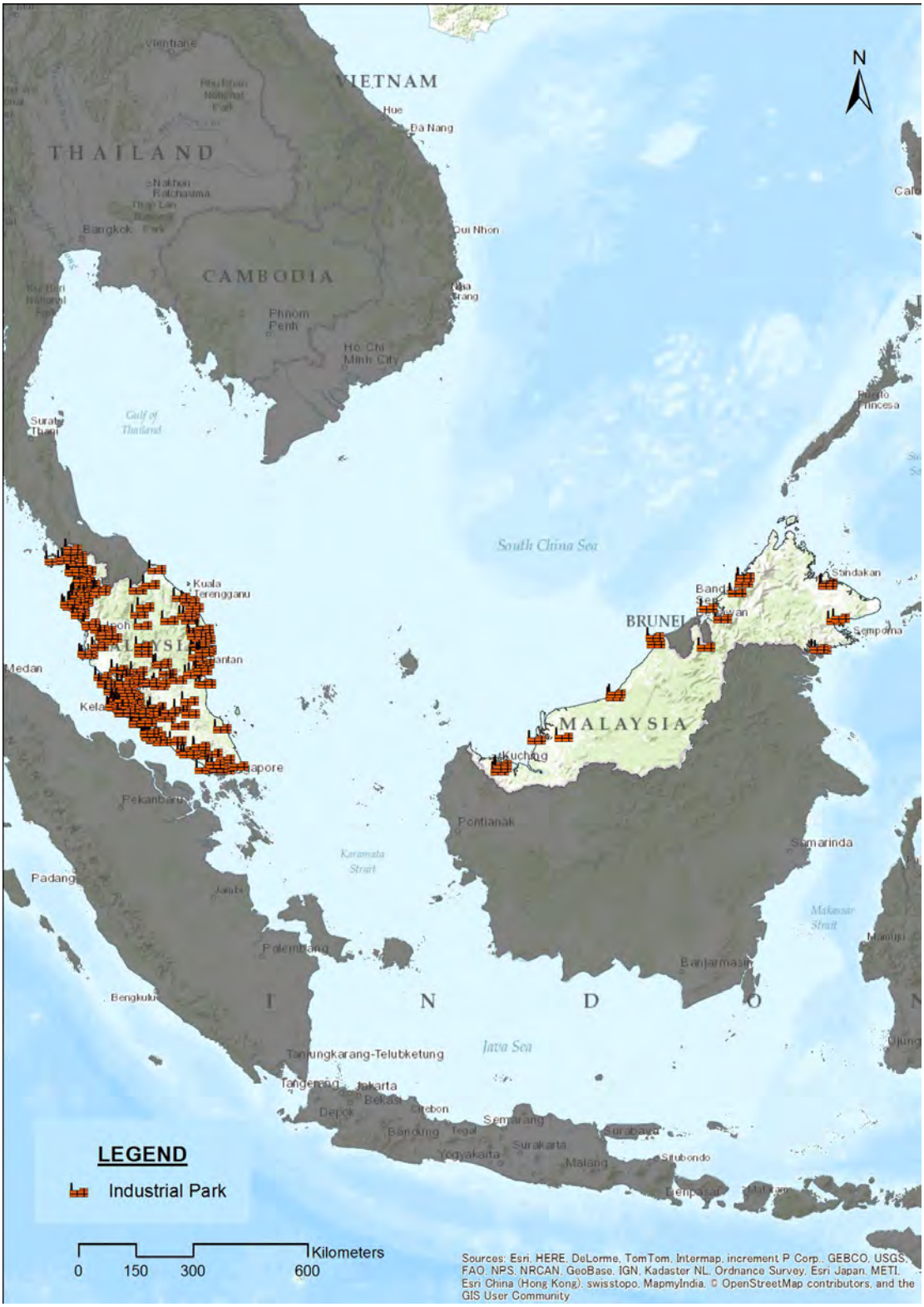


Figure 3.1 Distribution of Industrial Parks in Malaysia

The Malaysian Investment Development Authority (MIDA) provides effective and prompt attention to information requests regarding industrial parks, both through email and telephone. MIDA maintains regional offices that have information on state-specific incentives available to foreign investors. Nonetheless, MIDA is focused on promoting the latest industrial parks; both those that have been recently built, and those that are under construction. As such, they have little information to offer regarding older industrial parks.

3.2 Historical Evolution of Industrial Parks

Malaysia's economy recorded rapid growth from 1970 to 1997. With the exception of a brief recession in the mid-1980s, it achieved high rates of sustained growth until it succumbed to the Asian Crisis in 1997. This notable economic expansion was largely led by manufacturing and industry. The first industrial estate was developed in Petaling Jaya, Selangor near Kuala Lumpur in 1954 to initiate the process of industrialization. This process continued in the1960s, when Malaysia's policy makers realized the importance of developing industrial clusters and made plans to do so. By 1970, a further nine industrial estates had been created on the west coast of peninsular Malaysia. The number increased to 70 in 1980 and exceeded 100 by 1983.

In an effort to emulate the manufacturing success of Singapore, Hong Kong, and of the Export Processing Zone (EPZ) in Taiwan, Penang state leaders pushed hard to set up Free Trade Zones (FTZ) in the country. In 1971, Malaysia promulgated a law on FTZs, which called for the development of such zones to be managed by the state governments. The Penang Development Corporation was established in 1971 and subsequently founded the Bayan Lepas FTZ, still one of the most important FTZs in the country. Thereafter, two other state development corporations (SDCs) also established FTZs and industrial enclaves. These were: Selangor, which established Sungai Way, Ulu Kelang, and Telok Panglima FTZs in 1972, 1973, and 1975, respectively; and Malacca, which established the Batu Berendam and Tanjung Keling FTZs in 1973 and 1975. These FTZs were successful from the start due to strong infrastructure and a favorable business environment, which supported Malaysia's emergence as an exporter of semiconductors and electronic components.

Currently, Malaysia has over 300 industrial parks developed by both private developers and government agencies, mainly the SDCs, Regional Development

Authorities, and port authorities. Most of the industrial parks built over the past 10 years in the Klang Valley and its surroundings have been developed by the Selangor State Development Corporation (PKNS). Selangor has the largest concentration of industrial parks in the country, and attracts the largest number of approved investments. From January to September 2012, Selangor industrial parks attracted investments worth RM 7.7 billion.

Malaysia plans to become an industrialized, high-income nation by 2020. The manufacturing sector, particularly the production of high value-added products in hi-tech industries, has been identified as the catalyst for the industrial growth needed to realize this plan. As such, the development of high-end industrial parks forms an essential part of this effort and the development of parks is set to continue.

3.3 Recent Trends and Japanese Investment

Economic relations between Japan and Malaysia have steadily grown over time. Malaysia has relied heavily on Japan, not only for trade, but also for investment, technology transfer, services, aid, and even education. Japan replaced Europe's as Malaysia's principal trade partner in the 1970s and its trade surplus has substantially grown since the 1988 yen appreciation, as Japanese corporations shifted production plants to Southeast Asia to cut production costs. Malaysia's political stability, business-friendly regulations, and access to Southeast Asian markets were all attractive to Japanese firms, and remain so today. However, Japanese investments have shifted from focusing on raw materials to labor-intensive industries to take advantage of Malaysia's export orientation policy and skilled but relatively low-cost labor.

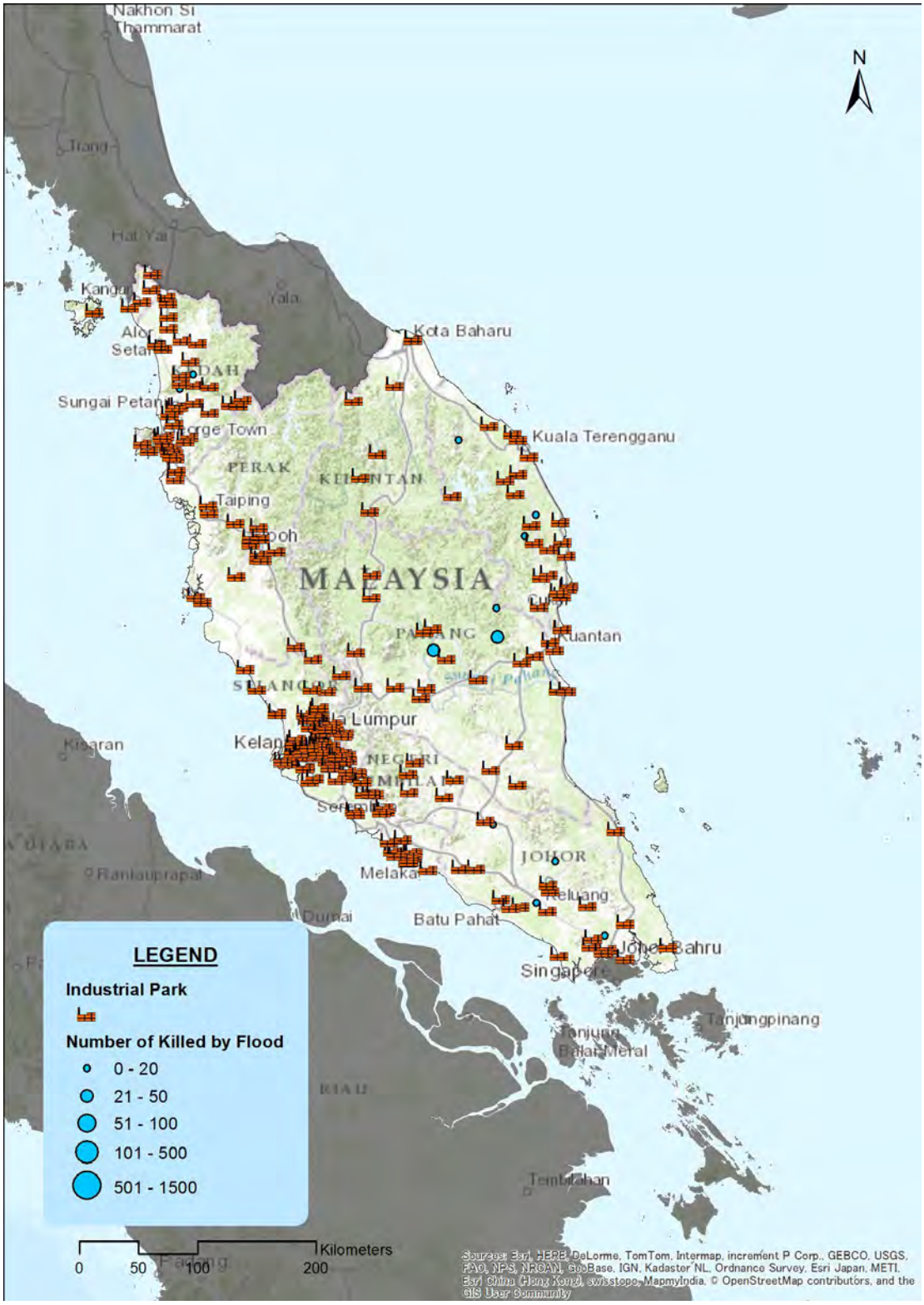
Since the 1970s, the government has offered incentives to encourage firms to invest in the country's poorest regions. Despite this, some 80% of Japanese manufacturing companies operating in Malaysia are located in the three most developed states. Roughly 25% of Japanese manufacturing firms operate in FTZs, while the rest are based in industrial estates. Most Japanese investment is located in the western states of peninsular Malaysia, with the greatest concentration in Selangor, where some 50% of Japanese manufacturing firms are located. Most firms have established their plants in the Petaling and Hulu Langat districts. Johor state is the second most important

destination for Japanese firms, where some 20%, of Japanese manufacturers are based. Penang is home to about 10% of Japanese manufacturing firms. Negri Sembilan hosts around 5% of Japanese manufacturers, and Malacca some 4%. Larger firms are concentrated in Selangor (with a per capita GDP 63% higher than the Malaysian average) and Penang, as infrastructure in these areas is most developed and skilled labor more available.

3.4 Risks of Natural Hazards

For the first glance of risks of natural hazards to industrial parks and individual enterprises, it is useful superimpose your location on the distribution maps of natural disasters given in Chapter 2. Figures 3.2 and 3.3 are enlarged maps of the Peninsula Malaysia showing relationships of locations of Industrial parks and flood disasters in terms of human losses and economic losses, respectively. For the detailed assessment of the risks of natural disasters to industrial parks and individual enterprises, hazard and risk assessment are required for an area of interest.

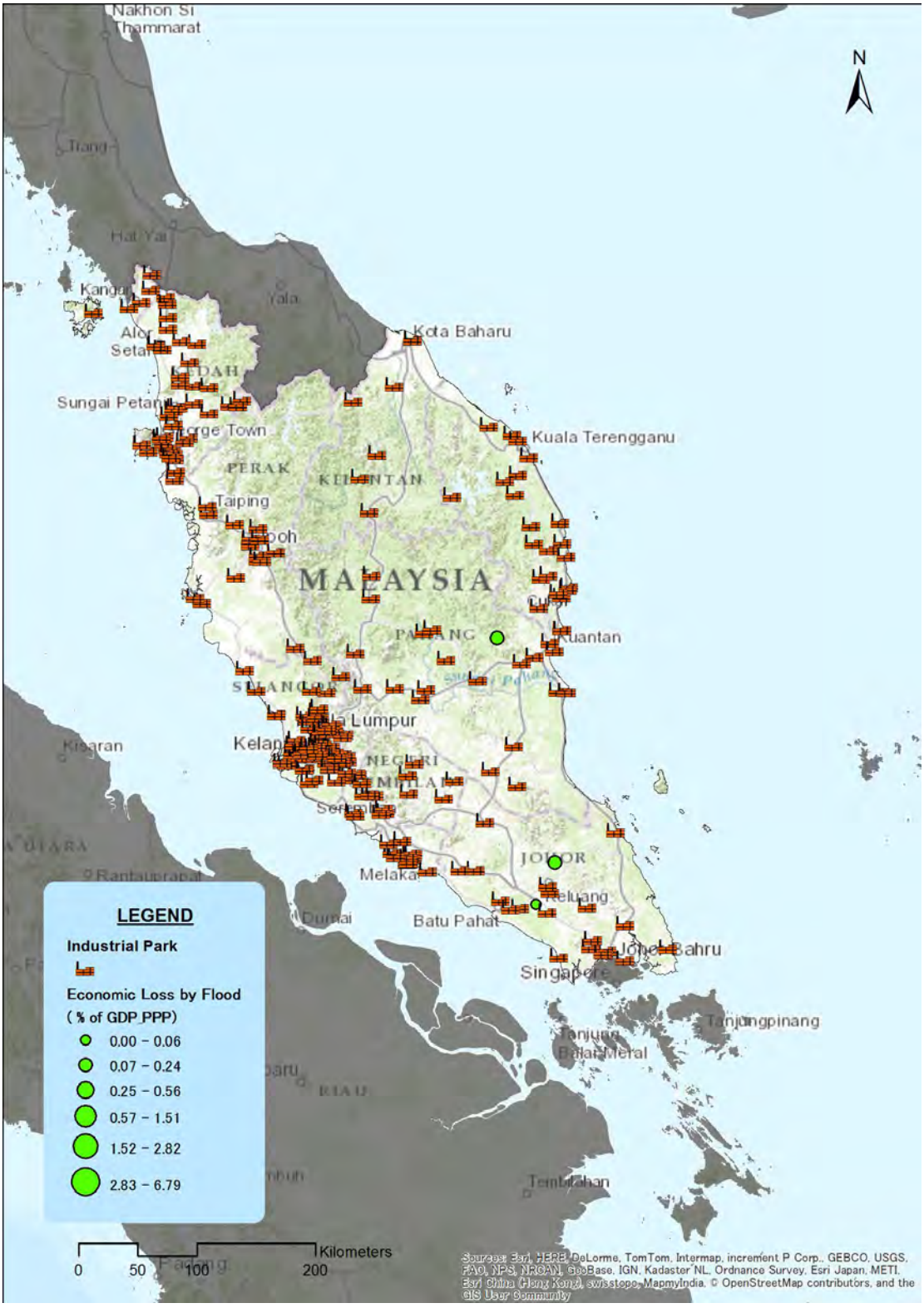
A description of general investment risks of Malaysia is attached in Appendix 4.



Data Source:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 3.2 Industrial Parks and Flood Disasters: Human Losses



Data Sources:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 3.3 Industrial Parks and Earthquake Disasters: Economic Losses

4. Transport Infrastructure and Lifeline Utilities

4.1 Overview of Transport Infrastructure

Road

Excluding small local roads, there are 3 types of road in Malaysia. They are expressways, federal roads, and state roads. Expressway is defined as a high speed route with at least a four-lane road (with two-lanes in each direction). There are 29 expressways numbering from E1 to E29. The operation and maintenance of the expressways is conducted by private sector companies.

National roads are called federal roads. They are under the administration of the Ministry of Works. The Department of Public Works (JKR) is responsible for their construction and maintenance.

Major road networks of Malaysia are shown in Figure 4.1.

Railway

The railway networks in the Peninsular Malay were constructed from the end of the 19th century to the beginning of the 20th century, and the present network is complete.

There are eight (8) companies which engage in rail operations, and the specifications of each railway are shown in Table 4.1. The number of passengers in 2006 was 4,084,000 people.

Major railway networks are shown in Figure 4.1.

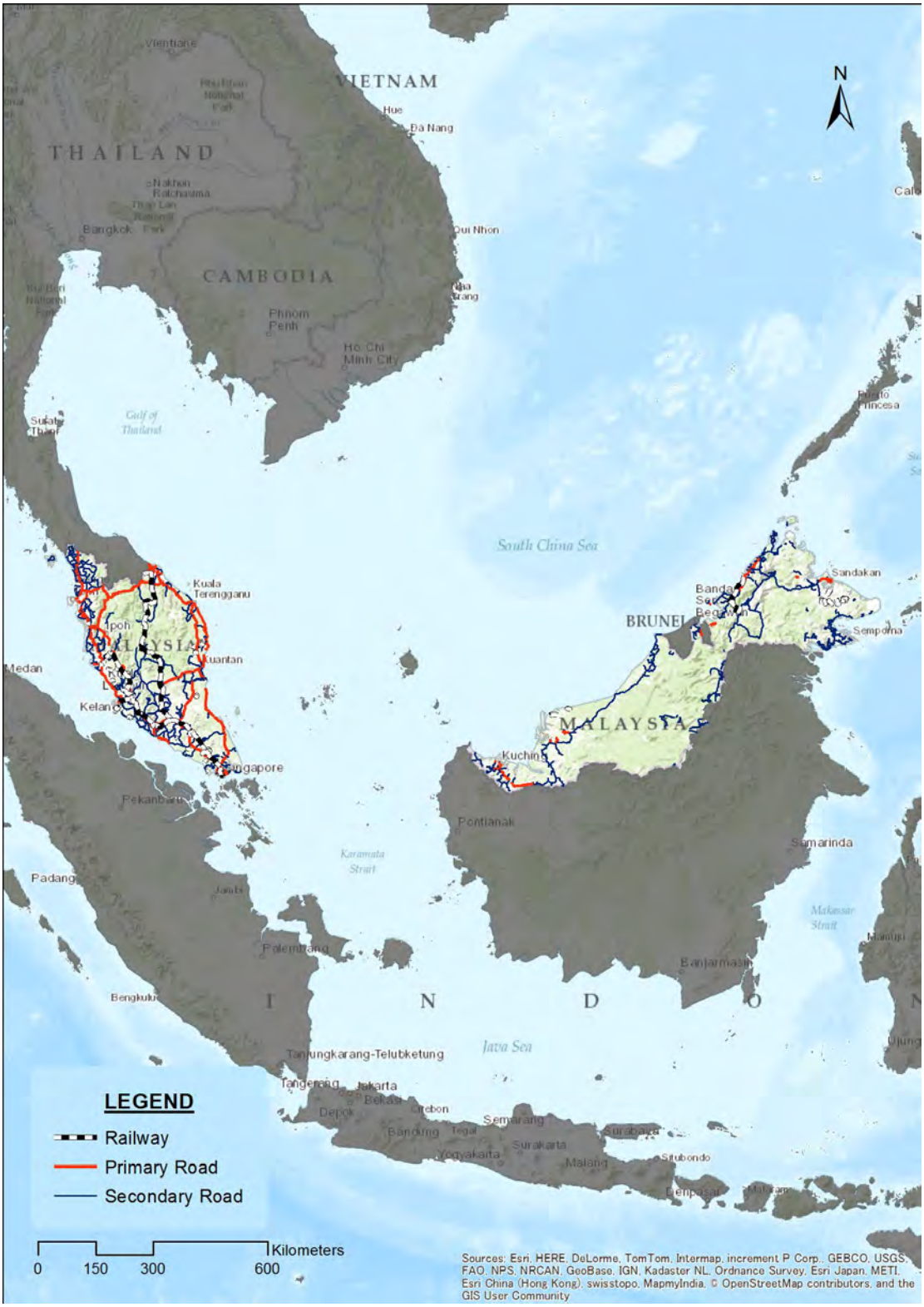


Figure 4.1 Major Road and Railway Networks of Malaysia

Table 4.1 Railway Enterprises and Companies

Name of Companies	Management	Operating Distance (km)	Number of Stations	Operating Speed (km/h)	Power
KTM Intercity	KTMB	1,699 (All 2,262)	92	120	Diesel
KTM Commuter	KTMB	153	42	120	25kV AC
ERL	ERL	57	5	160	25kV AC
LRT (KLJ Line)	Rapid KL	29	24	80	750V DC
LRT (AMP Line)	Rapid KL	27	25	80	750V DC
KL Monorail	Rapid KL	7.9	11	80	750V DC
Santrex2000		3.5	5	25	415V AC
TTS	MAB	1.3	2	10.6	600V AC

Source: Ministry of Land, Infrastructure, Transport and Tourism Japan, Transportation Situation 2007

Port

The ports in Malaysia are managed by the three levels of government, namely:

- Direct control under the Federal Governments: Klang Port, Johor Port, Penang Port, Kuantan Port, Bintulu Port
- Under management of the State Governments: Kota Kinabalu Port, Sandakan Port, Kuching Port, etc.
- Under management of the Marine Department, Ministry of Transport: Langlawi Port, Kota Bharu Port, etc. (Management of Marine Department Peninsular Malaysia, Saba Marine Department, and Sarawak Marine Department)

Among these ports, there are 10 ASEAN designated ports: these are Klang Port, Johor Port, Penang Port, Kuantan Port, Bintulu Port, Kota Kinabalu Port, Sandakan Port, Kuching Port, Tanjung Pelepas Port, and Kemaman Port.

The ten (10) international ports mentioned above handle 90% or more of the exports from Malaysia. Klang Port, which is the largest, handled about 150 million tons (40% share) of the throughput and there were about 8 million TEU (50%) container throughputs in 2008.

In world port rankings for container handling volume in 2005, Klang Port was placed 14th. Together with Tunjung Pelepas, which is the 2nd highest, they are positioned higher that all the ports in the world.

Locations of major ports are shown in Figure 4.2.

Figure 4.2 Major Ports and Airports of Malaysia

Airport

There are five (5) international airports (Kuala Lumpur, Penang, Langkawi, Kota Kinabalu, and Kuching) and 19 main domestic airports.

Locations of major airports of Malaysia are shown in Figure 4.2.

4.2 Overview of Lifeline Utilities

Electricity

Tenaga Nasional Berhad (TNB) supplies electric power in the Malaysia peninsula, Sabah Electricity Sdn. Berhad (SESB) conducts operations in Sabah, and Sarawak Energy Berhad (SEB) conducts operations in the State of Sarawak.

TNB covers all of Malaysia for electrical power services.

The supply capacity for the electric power supply of Malaysia increased 20% in 2009 from 2000. Therefore, even if an increase in demand occurs, it is possible to continue supplying electric power without increasing the supply capacity for the time being.

However, improvements in supply capacity are planned through the introduction of renewable energy sources, etc. as the government furthers action.

Table 4.2 Amount of Supply and Supply Capacity of National Power Corporation

Power Corporation		Tenaga National Berhad (2010)	Sabah Electricity Sdn. Berhad (2010)	Sarawak Energy Berhad (2009)
Maximum Demand (MW)		15,072	760	1,036
Supply Capacity (MW)		21,817	866	1,230
Power Supply Composition Rate	Natural gas	54.0%	-	53.0%
	Coal	40.0%	31.0%	34.0%
	Oil	-	57.0%	-
	Hydro	5.2%	9.0%	8.0%
	Diesel	-	-	5.0%
	Renewable Energy	0.8%	3.0%	

Source: Ministry of Economy, Trade and industry, Malaysia Photovoltaic Project Survey Report 2012.2

Locations of major power stations and dams are shown in Figure 4.3.

Figure 4.3 Major Power Stations and Dams of Malaysia

Water Supply

The Malaysia constitution was revised at the beginning of 2005, and the waterworks in Malaysia and its service operations are performed jointly by the federal government and the state government. It is possible to receive water at all hours of the day, and water quality is also good in Malaysia.

The diffusion rate of water service has gradually improved by the spread of water services in rural areas. The whole country shows a high rate at 95.5%. However, the State of Sabah and Sarawak are not included in this number. The actual diffusion rate for the whole country will be slightly lower.

Sewerage

The sewerage of Malaysia is managed by the Indah Water Konsortium (IWK). 8.3 million people have sewer connections and 4.1 million people use septic tanks. 30% of the population has drain pipes for sewage to be processed at the centralized processing facility. The diffusion rate of septic tanks is 50%.

There is no sewerage in Malacca, a tourist resort, and preparations in Johor, Pinang, etc. are also insufficient. The roles of the sewer enterprises in Malaysia are shown below.

(1) Department of Water Sector Policy: manufacturing business.
(2) Department of Sewerage Services: planning and implementation.
(3) National Water Service Commission (SPAN): established business.
(4) Sewer company: operation and maintenance.

Much wastewater is discharged to rivers, etc. However, the resurgent water-use rate of treated water is not high, with only about 15% of treated water used in some disposal plants in Kuala Lumpur as the water for washing and landscaping.

Sludge treatment in Malaysia is divided roughly into two methods: a mechanical dehydration-of-oil method and a solar drying floor.

Dewatering cakes are used for the dehydration of oil and disposed in landfills at a rate of 100%.

Sludge quantity has reached 4.3 million m^3 per year, and the construction of a new disposal facility is called for.

Communications

Internet and Broadband

A maximum transmission speed of 256 bps or more is classified as broadband. For broadband internet, ADSL service was started from 2001, and Telekom Malaysia started offering FTTH service in the metropolitan area. There were 2.14 million broadband subscribers 2011, and its diffusion rate was 74%.

Mobile Phone

As of June, 2011, three companies: Maxis Mobile, Tizi Telekom, and Celcom Axiata, form 90% of the market. There were 36.661 million subscribers to mobile phone services in 2011, and the diffusion rate is 127.0%. This far exceeds one mobile phone per one person.

Fixed-line Phone

Local communication was liberalized in May 1994. There are four (4) main companies: Telekom Malaysia, Maxis, TIME 46 otcom Bhd. And Tizi Telekom. The old state company, Telekom Malaysia, is dominant. The number of landline subscribers is decreasing due to the spread of mobile phones. There were 4.243 million subscribers to landlines phones in 2011, and the diffusion rate has stayed low at 14.7%.

Terrestrial Broadcasting

For terrestrial broadcasting, after RTM started its service in 1963, various commercial broadcasting companies have entered the market.

Waste

Estimates from a survey to reduce solid waste conducted in cooperation with JICA show that 22,941 tons of waste is generated per day with 8.7 million tons every year.

The waste generated from homes is 6.5 million tons and the waste from companies is 2.65 million tons. The quantity of waste which is recycled is presumed to be 1,025 tons per day. The Solid Waste and Public Cleansing Corporation (PPSPPA) was established

in 2007 to promote waste management, optimal processing, and transport using a uniform national standard, not including some states.

Malaysia is divided into three areas and the waste disposal for each area is entrusted to private enterprises, while the central government manages the system. Moreover, 3R activities are promoted to reduce waste. It is system for recyclable trash called the Buy Back system, which other countries do not have.

4.3 Natural Disasters and Infrastructure

Since transport infrastructure and lifeline utilities have crucial for business continuity of enterprises, it is important to know their risks to natural disasters. For the first glance of the risks, it is useful superimpose locations of transport infrastructure and lifeline utilities on the distribution maps of natural disasters given in Chapter 2. Figures 4.4 and 4.5 are examples focusing on the Peninsula Malaysia. They are demonstrating a relationship between flood disasters, and road and railway networks, and a relationship between flood disasters, and power stations and dams, respectively. For the detailed assessment of the risks of natural disasters to transport infrastructure and lifeline utilities, hazard and risk assessment are required for an area of interest.

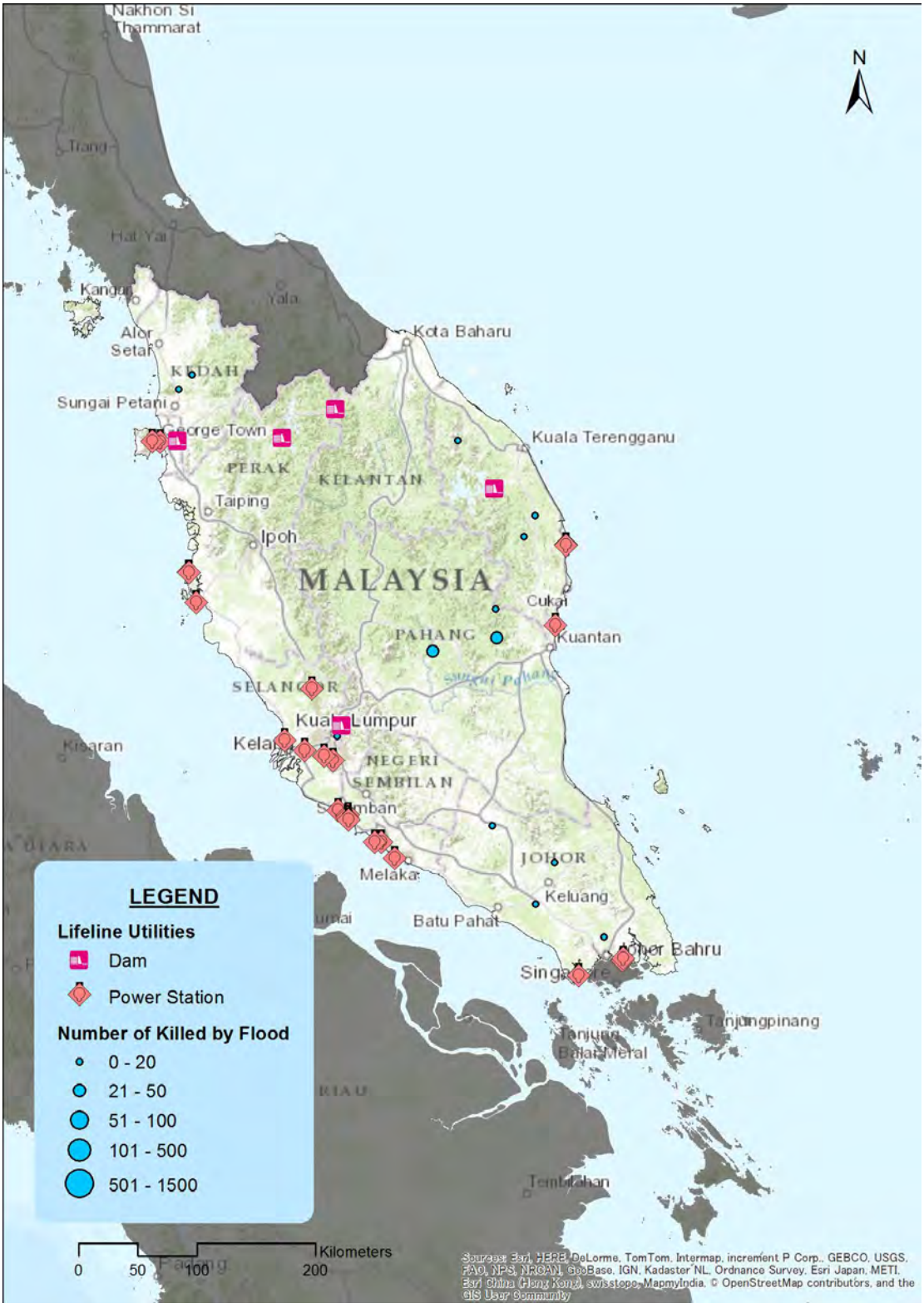
Data Source:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.

Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.

Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 4.4 Flood Disasters and Major Road and Railway Networks: Peninsula Malaysia



Data Sources:

EM-DAT, The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels, Belgium: http://www.emdat.be.
Pacific Rim Coordination Center Disaster Data: http://data.pacificrimnetwork.org/.
Global Unique Disaster Identification Number: http://www.glidenumber.net/glide/public/search/search.jsp.

Figure 4.5 Flood Disasters, and Power Stations and Dams: Peninsula Malaysia

5. Legislative Systems

5.1 Legislative Systems for Disaster Management

Disaster Management Laws

Table 5.1 Laws and Regulations of Disaster Management in Malaysia

	Laws / Regulations	Supervisory Authority	Matter
Government Orders	National Security Council Directive No.20	National Security Council	Disaster Management

Malaysia has no specific disaster management laws. However, it has a disaster management policy and mechanism known as the "National Security Council (NSC) Directive No.20," approved by the Prime Minister in 1997.

NSC Directive No.20 is in the process of being revised to shift its paradigm from emergency response to disaster prevention and mitigation, as agreed upon by ASEAN countries. This revised NSC No.20 is to be approved by the Prime Minister in March or April 2012. In our research for this report, however, this revision of directive could not be confirmed.

Disaster Management Strategies and Plans

Table 5.2 Strategies and Plan for Disaster Management in Malaysia

	Laws / Regulations	Supervisory Authority	Matter
Plans	Climate Change Adaptation Policy	under survey	Climate Change
Plans	National Slope Master Plan 2009-2023	Public Works Department	Landslide
Plans	Integrated River Basin Management Plan	Selangor Waters Management Authority	Flood
Plans	Federal Haze Action Plan	under survey	Haze

There is no specific disaster management plan, but the preparation of one is planned once the new NSC Directive No. 20 is approved.

The Several Disaster Management Plan has been developed for each hazard: climate change, landslides, floods, and haze. The strategy and action plan for

reducing risk from landslides on slopes nationwide is defined by the "National Slope Master Plan 2009-2023." Other plans, however, are not found in published information. Thus, the content defined in these plans is not clear and requires additional research.

5.2 Regulations and Standards for Business Continuity Management

Table 5.3 Regulations, Standards or Guidelines for BCM/BCP in Malaysia

	Laws / Regulations	Supervisory Authority	Matter
Standard	MS (Malaysia Standards) 1970, Business Continuity Management Framework, 2007	Technical Committee on Business Continuity Management	BCM
Guideline	Guidelines on Management of IT Environment, 2004, Bank Negara Malaysia	Central Bank of Malaysia	Business Contingency
Guideline	Guidelines on Business Continuity Management, 2008, Bank Negara Malaysia	Central Bank of Malaysia	BCM

The "MS 1970, Business Continuity Management Framework" has been developed to provide policies for organizations to develop, implement, and maintain a BCP.

In the Guidelines on Management of IT Environment, which was developed to mitigate risks pertaining to the IT environment in banks, procedures for business resumption and contingency plans are also described.

The Guidelines on Business Continuity Management were developed for financial institutes in order to provide the principles and requirements of BCM for banks, and also to describe the methods of creating a BCP.

5.3 Legislative Systems for the Environment and Pollution Control

Environmental Laws and Regulations

Table 5.4 Laws and Regulations regarding the Environment in Malaysia

	Law / Regulations	Supervisory Authority	Matter
Law	Environmental Quality Act, 1974 (revised in 2006)	Ministry of Natural Resources and Environment, Department of Environment	Environment Management

The integrated law on environmental management in Malaysia is called the Environmental Quality Act, which was established in 1974. The act, revised in 2006, issues regulations for effluent, air pollutant emissions, disposal and management of hazardous waste, and provisions for environmental assessments, and so on.

Pollution Control Laws and Regulations

Table 5.5 Laws and Regulations for Environmental Pollution Control in Malaysia

	Laws / Regulations	Supervisory Authority	Matter
Regulation	Environmental Quality (Clean Air) Regulations, 1978	Department of Environment	Air Pollution
Regulation	Environmental Quality (Industrial Effluent) Regulations, 1979	Department of Environment	Industrial Effluent
Regulation	Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979	Department of Environment	Industrial Effluent
Regulation	Environmental Quality (Scheduled Wastes) Regulation, 1989	Department of Environment	Industrial Waste

The regulations for environmental pollution control related to industrial activities are listed. These Environmental Quality Regulations are based on the Environmental Quality Act, revised in 1985.

5.4 Legislative Systems for Development including Land Use, Rivers, and Building Code in Malaysia

Table 5.6 Laws and Regulations for Land, Rivers, and Building Code in Malaysia

	Laws / Regulations	Supervisory Authority	Matter
Law	Town and Country Planning Act, 1976 (revised in 2005)	Ministry of Land and Cooperative Development	Development

Law	Land Conservation Act	under survey	Land Use
Law	National Forest Act, 1984	under survey	Forestry
Law	Federal Forest Act	under survey	Forestry
Regulation	Highland Slope Development Guidance	under survey	Development
Law	Road, Drainage and Building Act, 1974 (revised in 2000)	under survey	Building Standards

In Malaysia, laws pertaining to urban development, land use, and forest conservation have been developed. In these laws and regulations, however, no particular provisions related to emergency management or disaster rehabilitation management have been stipulated.

Regulations for construction of streets, drains, and buildings are enacted based on the Road, Drainage, and Building Act. In our research, no documents about specific Building Standards in Malaysia have been acquired.

6. Implementation of BCP

Guidelines for the development of BCP among the banking companies are indicated by the central bank of Malaysia. Moreover, in the Malaysia Standards, the framework for development of BCP among general companies is published by the Malaysian BCM committee.

Information about the actual condition of development of BCP and effort to disperse the BCP among companies in Malaysia is not sufficiently disclosed in the internet. The on-site surveys and interviews of institutions concerned are required.

Appendix 1:
Method for Evaluating Predominant Hazards

The "Damage Amount / GDP" and "Number of Deaths" are used as the indices to show the impacts of the disasters considered and 6 natural hazards will be studied and compared. At the beginning of the study, only the "Damage Amount / GDP" was used as an index because the results can be used for Area BCP planning. However, the scarcity of information related to damage amounts became clear as the study progressed. As the information on the "Number of Deaths" is substantial compared to the damage amount, the "Number of Deaths" has been added as an index of impact.

The process of the study is as follows;

1) Based on the Damage Amount / GDP or Number of Death, each disaster is classified according to the ranking system outlined in Table A1.
2) The number of disaster events for each country is added by type of hazard and disaster rank, and then classified into Table A2 below,
3) The above information is then plotted on the impacts - frequency matrix by country,
4) As for earthquakes, tsunamis and volcanic hazards, if an event occurred before 1983 that was of the same (or higher) disaster rank as the maximum disaster rank recorded between 1983 to 2012, a point is plotted on the matrix which corresponds to the relevant disaster and frequency rank (=1).

Table A1 Disaster Rank and Damage

Disaster Rank	Damage Amount / GDP[3]	Number of Death
5	1.0% -	10,001 -
4	0.1% - 1.0%	1,001 - 10,000
3	0.01% - 0.1%	101 - 1,000
2	0.001% - 0.01%	11 - 100
1	- 0.001%	- 10

Table A2 Frequency Rank and Number of Events

[3] Gross domestic product based on purchasing-power-parity (PPP) valuation of country GDP, International Monetary Fund, World Economic Outlook Database, October 2012

Frequency Rank	Number of Events from 1983 to 2012	Average Frequency (Events / Year)
5	7 or more	1/5 -
4	4 to 6	1/10 - 1/5
3	2 to 3	1/15 - 1/10
2	1	1/30
1	Large Events occurred before 1983	-

Appendix 2:
Data Sheets
Outline of Existing Investigations and Studies

No.:	FL-001	Published Year:	2010
Study/ Report Name:	Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment		
Access to Information:	www.unisdr.org/files/18872_asean.pdf		
Research Organization:	UNISDR/World Bank		
Study Area (Country):	ASEAN (10 countries)		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Flood		
Main Data Sources:	CRED EM-DAT, ADRC, NGDC, GSHAP, MRC, WAMIS, DWR, Munich Re, World Bank, UNISDR, GAR, In Terragate, IFNet, CCFSC, DESINVENTAR		

Summary of the Study:

1) Overview

Disaster risks are assessed for years (1970-2009) by 1) Scenario, Exposure, Vulnerability, Damage and Loss analysis using existing database. The dominant disaster risks are cyclonic storms (typhoons), earthquakes, tsunamis, floods, epidemics, landslides, droughts volcanic eruptions and forest-fires. In total 1,211 reported disasters caused over 414,900 deaths.

2) Vulnerability

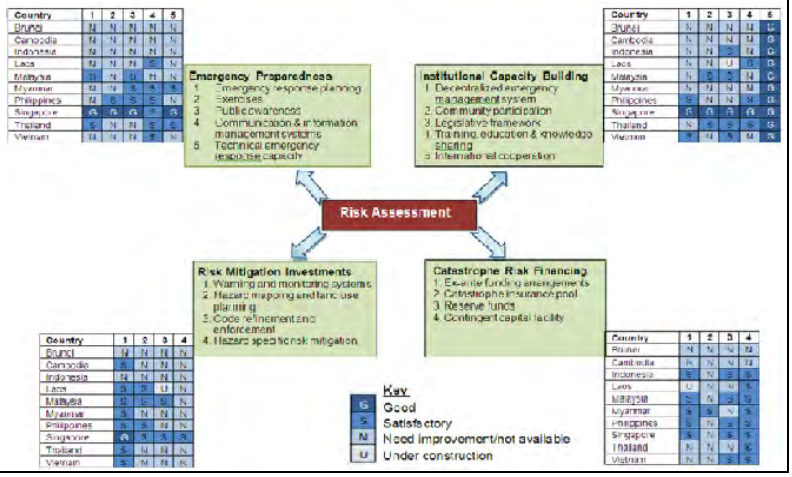
Method: the number of disaster events, deaths, affected population and economic losses are plotted against hazard types for 5 year intervals.

To estimate social vulnerability=> the average number of people killed.

ASEAN 17.7 death/year/million, Cambodia 3.56, Indonesia 20.38, Lao PDR 4.22, Malaysia 1.26, Myanmar 72.35, Philippines 11.93, Thailand4.63, Vietnam 4.60. Brunei and Singapore have no data.

3) Risk assessment framework

A status of risk assessment framework is assessed by country to view the current capacity of risk assessment. The evaluation table is show below.



No.:	FL-002	Published Year:	2012
Study/ Report Name:	Key Indicators for Asia and the Pacific 2012 43rd edition		
Access to Information:	www.adb.org/publications/key-indicators-asia-and-pacific-2012		
Research Organization:	ADB		
Study Area (Country):	ASEAN (10 countries)		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Vulnerability by % population and area		
Main Data Sources:			

Summary of the Study:

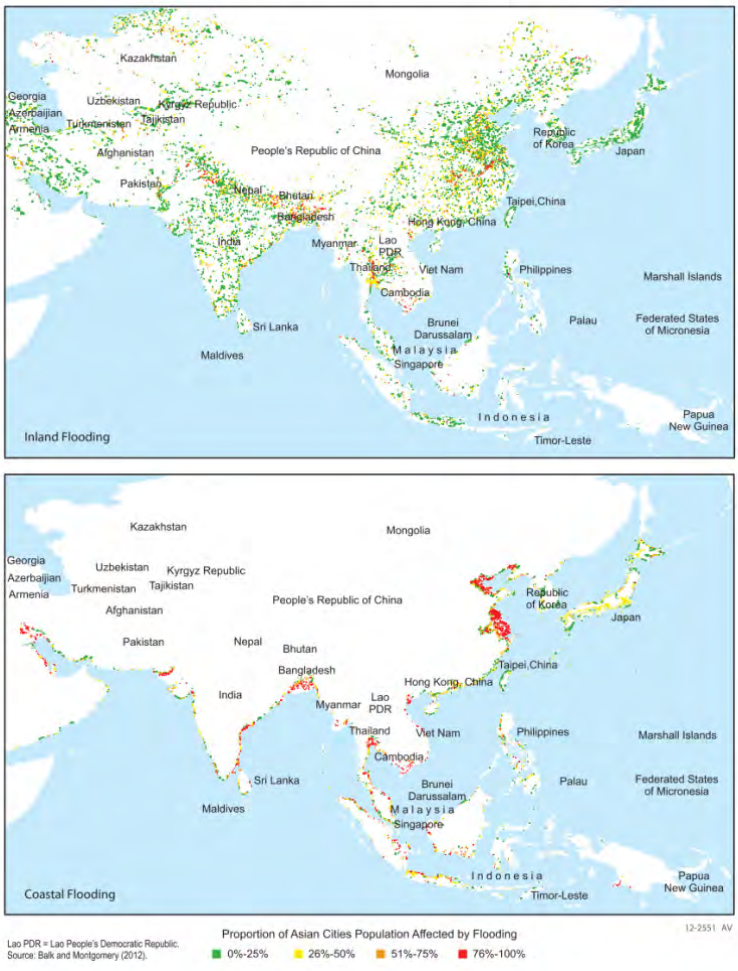
This report summarizes vulnerability of urban cities to flood in Asian and Pacific counties including the ASEAN region. The floods are classified as coastal flood and inland flood that may affect urban cities. Vulnerabilities are estimated by population and areas % at risk of flooding. Top 40 cities in Asian countries with 1 million population or more that are vulnerable to flooding are listed.

Key findings:

The Southeast Asia (ASEAN) region's vulnerability to coastal flooding: 36.1% with Vietnam (73.9%), Thailand (60%).

In terms of inland flooding, the vulnerability for Southeast Asia is 14.7%. The estimated vulnerability: Vietnam (38.6%), the Lao PDR (34%), Thailand (29%).

Figure 19 **Vulnerability to Inland (top) and Coastal (bottom) Flooding**



No.:	FL-003	Published Year:	2010
Study/ Report Name:	Progress Report on Flood Hazard Mapping in Asian Countries ICHARM Publication No.16, ISSN 0386-5878/ Technical Note of PWRI No. 4164		
Access to Information:	http://www.icharm.pwri.go.jp/publication/pdf/2010/4164_progress_report_on_fhm.pdf		
Research Organization:	UNESCO (ICHARM)/PERI		
Study Area (Country):	ASEAN (10 countries)		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Hazard Map		
Main Data Sources:			

Summary of the Study:

1) Overview

This is a seminar report on Flood Hazard Mapping production process for Asian Countries. Target countries were (China, Cambodia, Indonesia, Laos, Vietnam, Thailand, the Philippines and Malaysia).

2) Accuracy of Hazard Map

Two types of mapping methods are: i) interview based mapping (community-based), ii) quantitative hydrological data simulation models.

For the local usage, a simpler version is also effective. Examples of practical hazard maps are demonstrated as follows.

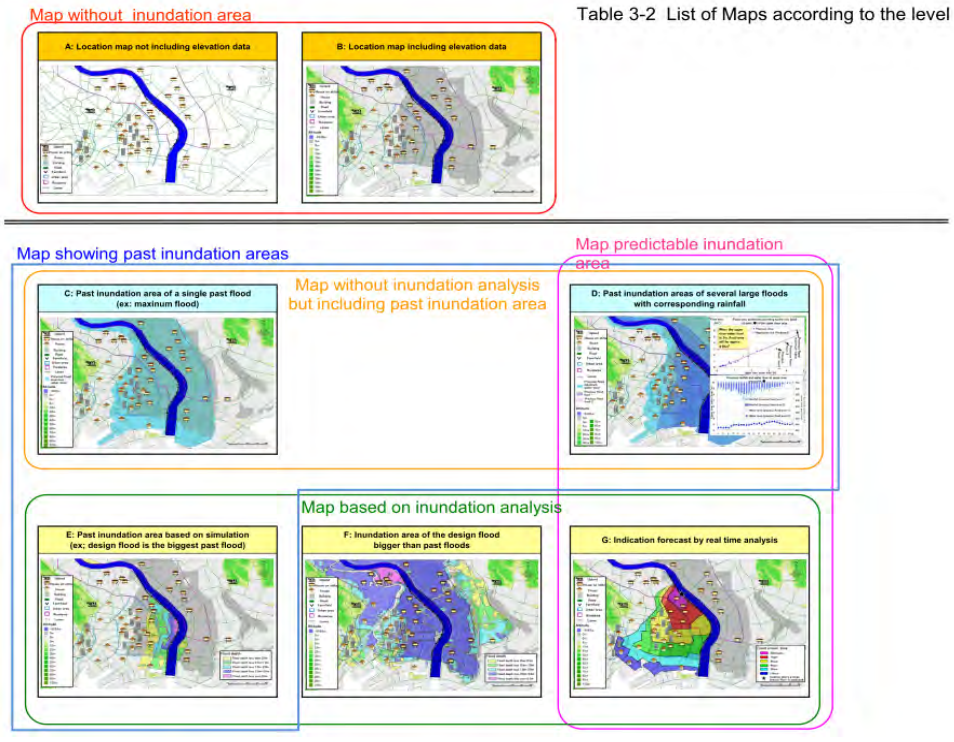


Table 3-2 List of Maps according to the level

No.:	FL-004	Published Year:	2005
Study/ Report Name:	A Primer: Integrated Flood Risk Management in Asia 2		
Access to Information:	www.adpc.net/maininforesource/udrm/floodprimer.pdf		
Research Organization:	Asian Disaster Preparedness Center (ADPC)/UNICEF		
Study Area (Country):	Asia including ASEAN countries		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Assessment method		
Main Data Sources:			

Summary of the Study:

This is a comprehensive and practical how-to-handbook for policy makers and implementation stakeholders of flood risk management in Asia, with updated resources to (1) authorize programs; (2) formulate decisions; (3) plan, develop and implement decisions; (4) support implementation of decisions. There are extensive glossaries of words and concepts in relation to flood risk management.

Topics include:

Chapter 2: Types and levels of flood: riverine flood, slow-onset, rapid-onset, normal flood (1 year flood), catastrophic flood (100 year flood). Causes of flood: meteological, hydrological and anthropogenic.

Chapter 3: Policies, legal and institutional arrangement plans:

Chapter 4: Flood risk assessment, data required for an assessment of potential damages and losses, Flood frequency calculations

Chapter 5: Importance of watershed and floodplain management for flood risk management

Chapter 6: Structural interventions: flood storage reservoir, dykes, levee and embankment, EIA, cost benefit analysis

Chapter 7: Flood-proofing measures, relocation, elevation, dry-flood proofing, wet-flood proofing, flood-proofing measures categories: permanent, contingent and emergency measures

Chapter 8: Flood preparedness planning: preparedness framework, activities, flood forecasting, public awareness

Chapter 9: Effective emergency response in environment healthe management, evacuation camps, delivery of goods

Case studies of ASEAN countries include:

Disaster Management and Relief in Malaysia,

Hazard Assessment in the Philippines,

Flood mitigation mix measures/community level management in Thailand,

Mekong River Commission Mediation of Transboundary Flood Issues

No.:	FL-005	Published Year:	2009
Study/ Report Name:	Climate Change Vulnerability Mapping for Southeast Asia		
Access to Information:	http://web.idrc.ca/uploads/user-S/12324196651Mapping_Report.pdf		
Research Organization:	Economy and Environment Program for Southeast Asia (EEPSEA)		
Study Area (Country):	ASEAN (Thailand, Vietnam, Laos, Cambodia, Indonesia, Malaysia, and Philippines)		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Vulnerability to climate change, flood frequency		
Main Data Sources:	Urban Extent Database (GRUMP version 1) of the (CIESIN) GEODATA portal (the Environmental Database; http://geodata.grid.unep.ch/extras/datasetlist.php) BAKOSURTANAL		

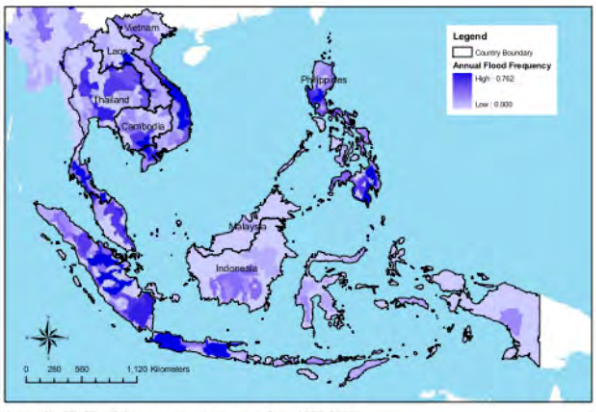
Summary of the Study:

1) Overview

This study assesses vulnerability of Southeast Asian countries (Thailand, Vietnam, Laos, Cambodia, Indonesia, Malaysia, and Philippines) of climate change including flooding. Vulnerability is defined as a function of exposure (potential loss due to a hazard), sensitivity (the potential gravity of losses and damage), and adaptive capacity (how much to adapt a hazard situation).

2) Vulnerability assessment

Vulnerability is assessed by adaptive capacity (HDI, PPP, Gini-coefficient, Education, road, electricity…), population density (human sensitivity) and hazard map (hazard occurrence frequency data from 1980-2000). Adaptive capacity influences vulnerability. When adaptive capacity is low, vulnerability is high.



Appendix 2B. Flood frequency (event per year from 1980-2001)

3) Area analysis

Cambodia is among the most vulnerable in ASEAN despite its relatively low exposure to climate hazards. The eastern coast of Vietnam is susceptible to cyclones, but adaptive capacity is high to manage to moderate its vulnerability. Bangkok and Jakarta have high adaptive capacities but not enough to moderate their extreme vulnerability with high population densities and significant exposure to climate hazards. A map shows annual flood frequency of the region.

No.:	FL-006	Published Year:	2012
Study/ Report Name:	Reducing Vulnerability and Exposure to Disasters The Asia-Pacific Disaster Report 2012		
Access to Information:	http://www.unisdr.org/we/inform/publications/29288		
Research Organization:	ESCAP/UNISDR		
Study Area (Country):	ASEAN (10 countries)		
Studied Hazard:	Hydro-meteorological Hazard		
Studied Damage/ Risk:	Economic losses, fatalities, houses, risk-sensitive plans of investment		
Main Data Sources:			

Summary of the Study:

1) Overview

The Asia-Pacific region represents 75% of all global disaster fatalities. The economic and population growth contribute to a greater exposure to natural disasters. The population was doubled from 2.2 to 4.2 billion between 1970 and 2010. But the number of people who are exposed to flooding has increased from 29.5 to 63.8 million. The urban settlements are more vulnerable as the urban population increased from 17 to 44% of the total population between 1950 and 2010.

2) Vulnerability

Generally, smaller and less diversified economies are more vulnerable to disaster risks. Flood mortality risks are higher in rural areas with a densely concentrated and rapidly growing population with weak governance.

3) Risk

Risks are associated with economic and mortality risks. The exposure to flooding events constantly increases as of 1980 but mortality risks are decreasing as countries strengthened their risk governance capacities. However economic risks are increasing, due to slow adaptation of the existing fixed assets, such as old buildings and infrastructure, and institutional instruments such as land use planning and building regulation to cope with flooding particularly in rapidly urbanizing areas.

4) Spatial and land use plan

The national spatial and land use plans and policies are a key to reduce flood risks. Brunei, Indonesia, Lao PDR, Malaysia, Philippines, Singapore and Vietnam have land-use policies, plans or measures for DRR.

No.:	FL-008	Published Year:	2011
Study/ Report Name:	Advancing Disaster Risk Financing and Insurance in ASEAN Countries: Framework and Options for Implementation, Volume2: Appendix 1		
Access to Information:	https://www.gfdrr.org/sites/gfdrr.org/files/documents/DRFI_ASEAN_ Appendices_June12.pdf		
Research Organization:	GFDRR/World Bank		
Study Area (Country):	ASEAN (10 countries)		
Studied Hazard:	Flood (multiple disasters)		
Studied Damage/ Risk:	Damage, affected population, vulnerability index		
Main Data Sources:	World Bank, EM-DAT, Relief Web, GFDRR, CIA fact book		

Summary of the Study:

1) Overview

Disaster risks were compiled for ASEAN countries with data between 1982 and 2011. The following items are analyzed: disaster profile (% of different disasters), damage ($), affected population, vulnerability index (estimated number of people killed/year).

2) Disaster profile: Typhoon is the dominant incidence causing flood and landslide in most countries except Singapore and Brunei

Cambodia: 45% flood (Mekong river), 9% storm, 16% drought, 29% epidemic

Indonesia: west and dry zones most severely hit (Jakarta, Medan, Bandung)

Lao PDR: 50% flood, 22% epidemics, 13% storm, 13% drought

Malaysia: dominantly flood

Myanmar: multiple hazards, earthquake serious risk

Philippines: dominantly typhoons causing other hazards in conjunction

Thailand: multiple hazard (flood, drought, storms and landslide)

Vietnam: 49% storm, 37% floods, 5% epidemic, 3% landslide, 2% drought

3) Vulnerable areas

Mekong River Delta in Vietnam, all regions of the Philippines, most regions in Cambodia, North ad East Lao PDR, Bangkok in Thailand, the west and south of Sumatra and western and eastern Java in Indonesia.

4) Vulnerability

Urban (especially coastal) areas are more vulnerable against disasters due to a rapid population growth, urbanization, deforestation, and unplanned land use.

No.:	FL-019	Published Year:	2010
Study/ Report Name:	Flood Management – Programme and Activities		
Access to Information:	URL		
Research Organization:	Ministry of Natural Resources and Environment, Department of Irrigation and Drainage Malaysia		
Study Area (Country):	Malaysia		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Population		
Main Data Sources:	http://www.water.gov.my/our-services-mainmenu-252/flood-mitigation-mainmenu-323/programme-aamp-activities-mainmenu-199?lang=en&showall=1		

Summary of the Study:

1) Overview

Flood management initially focused on the immediate flood relief works and to implement major flood mitigation structures. Non-structural measures were introduced under Manual Saliran Mesra Alam since 2001. The DID has adopted the Integrated River Basin Development and the Integrated Flood Management approaches to provide a balanced approach among structural and non-structural measures and higher levels of public participation.

2) Damages: total damage estimate of 2002 was RM915 million /year.

Estimate of flood damage by State

State	Damage	Persons evacuated
Perlis	2.76	13,000
Kedah	30.20	124,000
Pulau Pinang	44.52	510,000
Perak	22.64	244,000
Selangor	75.76	726,000
W.P. Kulala Lumpur	99.33	13,000
Negeri Sembilan	3.96	42,000
Melaka	2.29	31,000
Johor	64.00	297,000
Pahang	76.15	615,000
Terengganu	101.58	457,000
Kelantan	93.32	714,000
Sabah	140.96	635,000
Sarawak	157.66	494,000
Semenanjung Malaysia	616.62	3,786,000
Sabah & Sarawak	298.62	1,129,000
Jumlah	915.12	4,915,000

Source: Updating of Flooding Conditions Study 2002

No.:	FL-020	Published Year:	2007
Study/ Report Name:	Flood and Drought Management in Malaysia		
Access to Information:	http://www.met.gov.my/		
Research Organization:	Ministry of Natural Resources & Environment		
Study Area (Country):	Malaysia		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Area		
Main Data Sources:			

Summary of the Study:

1) Overview

This report overviews the risks of flooding in Malaysia and introduction of structural, non-structural measures for risk and flood management. Hazard significance of flooding in Malaysia: high in terms of population affected, frequency, area extent, flood duration and social economic damage.

2) Major floods

1926, 1963, 1965, 1967, 1969, 1971, 1973, 1979, 1983, 1988, 1993, 1998, 2005, 2006

3) The main cause of river flooding: heavy rainfall (monsoon or convective) and larger concentration of runoff than river capacity

4) Recent trend

Higher runoff and deteriorated river capacity resulting in an increase in the flood frequency and magnitude, flash flooding in urban areas (surpassing the monsoon flood) since the mid 1990's for urban areas (60% of the entire population)

The risk management moved from quick discharge of storm-water into concrete channels, which actually increased flood damages, to an emphasis of peak discharge control at source.

5) Institutions

The legal basis of this shift of risk management is stipulated in Urban Stormwater Management Manual (MSMA) by DID (2000) which has superseded the Urban Drainage Planning and Design Procedure No.1 (1975).

No.:	FL-025	Published Year:	2009
Study/ Report Name:	GIS Analysis for flood Mapping: Case Study; Segamat, Johor, West Malaysia		
Access to Information:	http://eprints.utm.my/1157/		
Research Organization:	University of Technology Malaysia		
Study Area (Country):	Malaysia		
Studied Hazard:	Flood		
Studied Damage/ Risk:	Flood		
Main Data Sources:	Hydrological data (DoMH), Land use (National Geographic Dept.), Elevation (Aster resolution 30 Meters), River network and catchments (Google Earth ad National Geographic Dept.) Software: ArcGIS9.3, HEC-GeoHMS, -GeoRAS, -RAS		

Summary of the Study:

1) Overview

The objective of this study is to highlight the usage of GIS tool and analysis for floodplain and flood hazard mapping. The study area is Segamat District, Johor. Floods are the most frequent natural hazard that Malaysia experiences. About 29,000km2 of 9% of total land area and more than 4.82 million people (22%) is affected by flooding annually based on a report from Department of Irrigation and Drainage.

2) Process

Flood exposure of building and agriculture is assessed using GIS tools. The housing, education and health sectors exposure is assessed to determine the depths of flood water.

3) Result: 100-year return period

Health sector: 26 health facilities are estimated to be exposed to flooding. 12 of which are estimated to fall into the D3 (high: 36-60%) damage level. Savannakhet and Louang Phrabang are at higher damage level

Housing: in Vientiane and Savannakhet, bamboos and other types of housing are D4 (very high: >=61 %) damage level, many brick houses in Savannakhet are at D3 level damage risk.

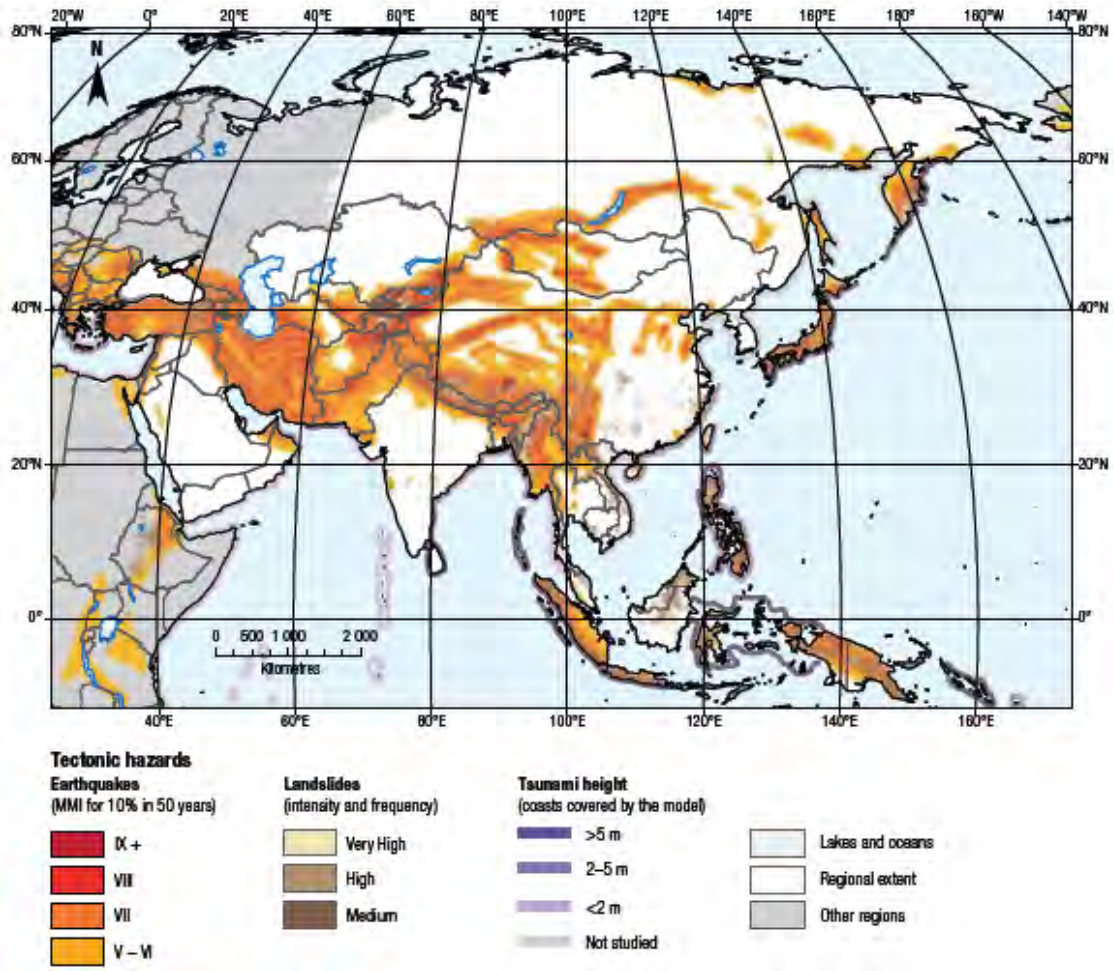
School: 250 schools are exposed to flooding. Savannakhet being the highest at risk (44 schools at D3)

Agriculture: paddy crops do not survive when they are 12-16 days submerged under water.

No.:	EQ-001	Published Year:	2009
Study/ Report Name:	Global assessment report on disaster risk reduction (2009) Risk and poverty in a changing climate		
Access to Information:	http://www.unisdr.org/we/inform/publications/9413		
Research Organization:	United Nations International Strategy for Disaster Reduction Secretariat (UNISDR)		
Study Area (Country):	Worldwide		
Studied Hazard:	Tropical cyclones, Floods, Landslides, **Earthquakes** (10% in 50 years MMI), Drought, Tsunamis, Forest and other biomass fires		
Studied Damage/ Risk:	Multi-hazard risk		
Main Data Sources:			

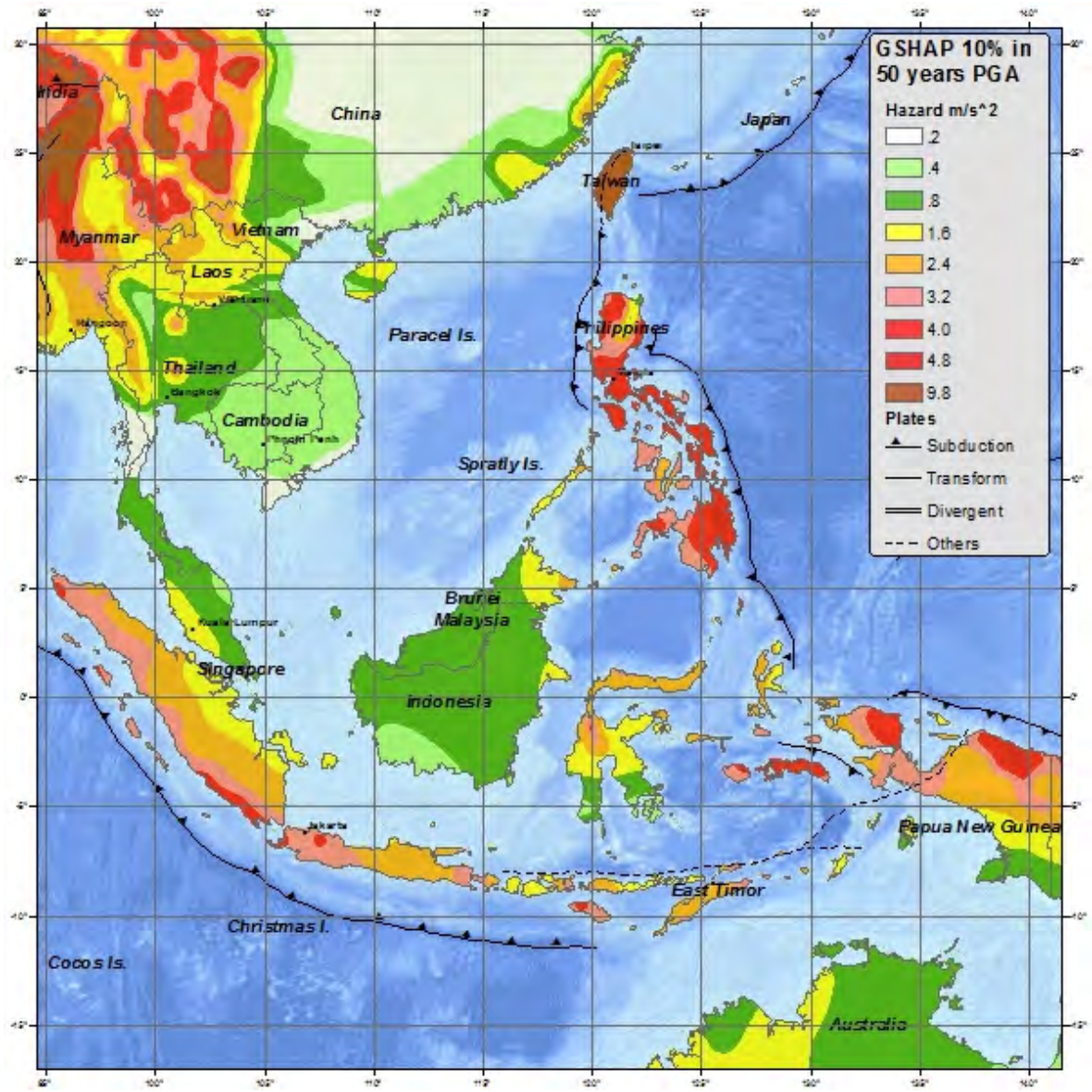
Summary of the Study:

An observation of disaster risk patterns and trends at the global level allows a visualization of the major concentrations of risk described in the report and an identification of the geographic distribution of disaster risk across countries, trends over time and the major drivers of these patterns and trends.



No.:	EQ-002	Published Year:	unknown
Study/ Report Name:	Seismic Hazard Map		
Access to Information:	http://earthquake.usgs.gov/earthquakes/world/indonesia/gshap.php		
Research Organization:	GSHAP, USGS		
Study Area (Country):	ASEAN		
Studied Hazard:	Earthquake / 10% in 50 years		
Studied Damage/ Risk:			
Main Data Sources:			

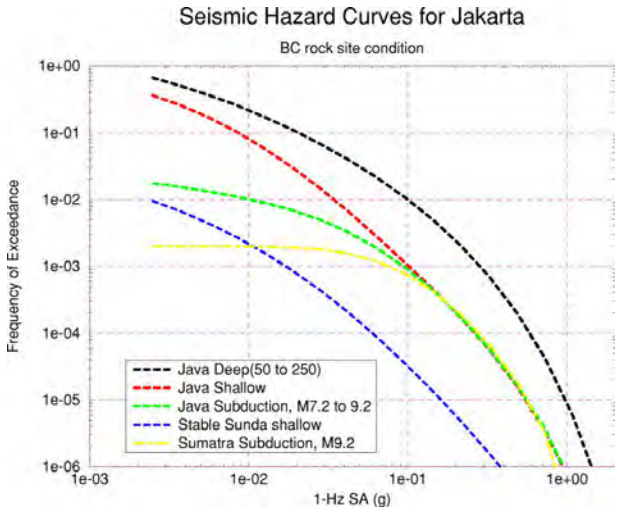
Summary of the Study:



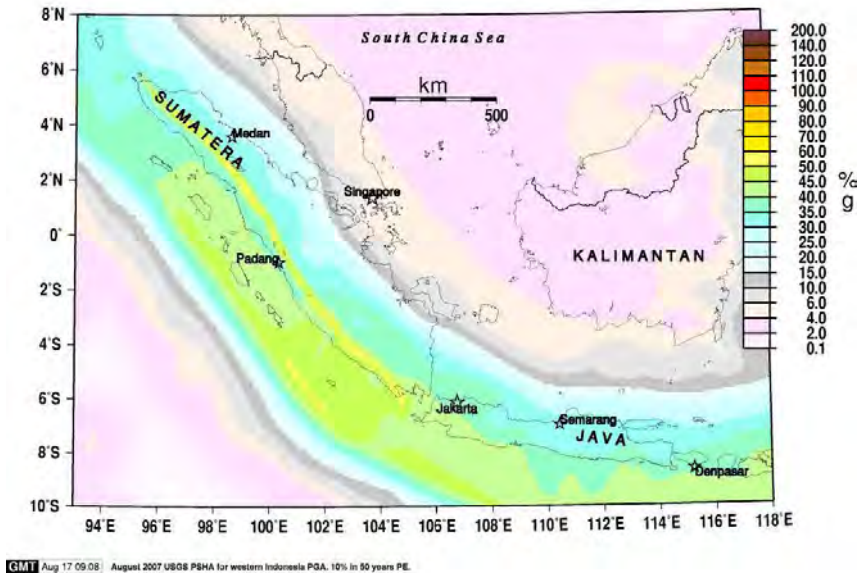
No.:	EQ-006	Published Year:	2007
Study/ Report Name:	Documentation for the Southeast Asia Seismic Hazard Maps		
Access to Information:	http://earthquake.usgs.gov/hazards/products/foreign/		
Research Organization:	USGS		
Study Area (Country):	**Indonesia**, Thailand, Malaysia / Jakarta, Bangkok		
Studied Hazard:	Earthquake / Probabilistic Seismic Hazard Analysis		
Studied Damage/ Risk:			
Main Data Sources:			

Summary of the Study:

The ground motion hazard for Sumatra and the Malaysian peninsula is calculated in a probabilistic framework, using procedures developed for the US National Seismic Hazard Maps.



PSHA PGA for western Indonesia PE= 10% 50 yr



No.:	EQ-012	Published Year:	unknown
Study/ Report Name:	Malaysia Earthquake Information		
Access to Information:	http://earthquake.usgs.gov/earthquakes/world/?region=Malaysia		
Research Organization:	GSHAP, USGS		
Study Area (Country):	Malaysia		
Studied Hazard:	Earthquake / 10% in 50 years PGA		
Studied Damage/ Risk:			
Main Data Sources:			

Summary of the Study:

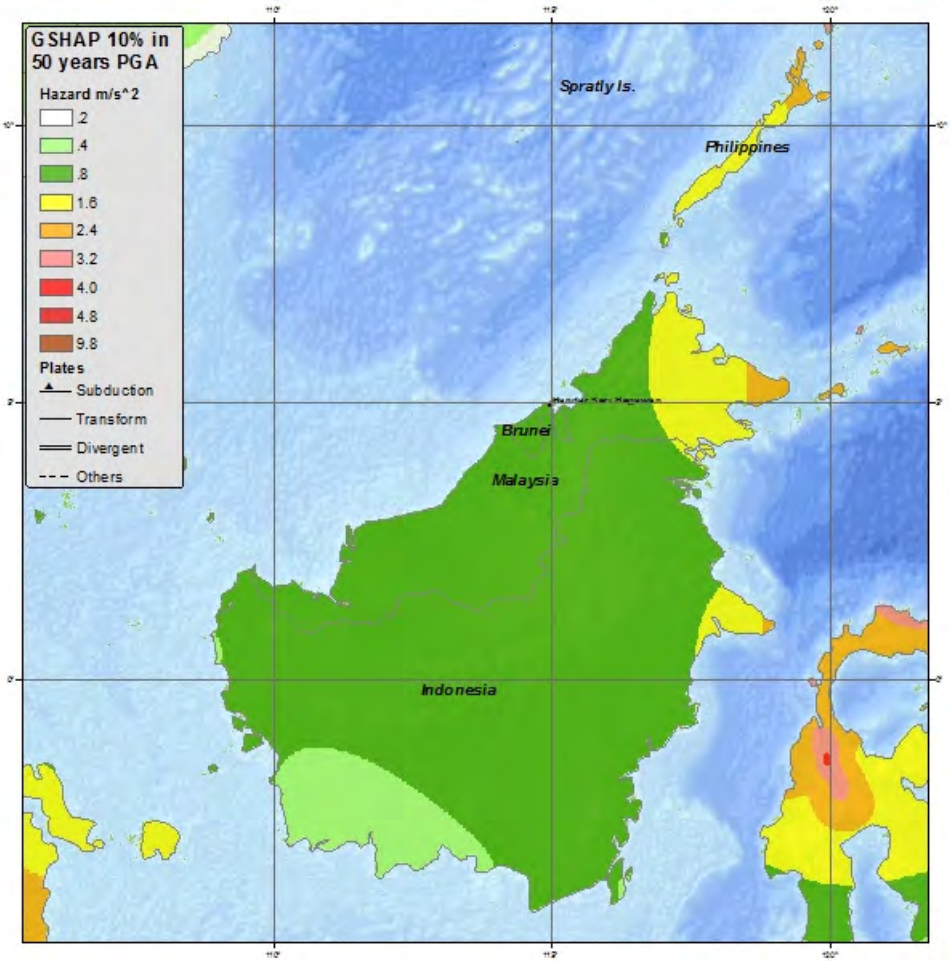
<u>Institutions</u>

•Malaysian Meteorological Service

<u>Maps</u>

•Seismic Hazard Map of Malaysia

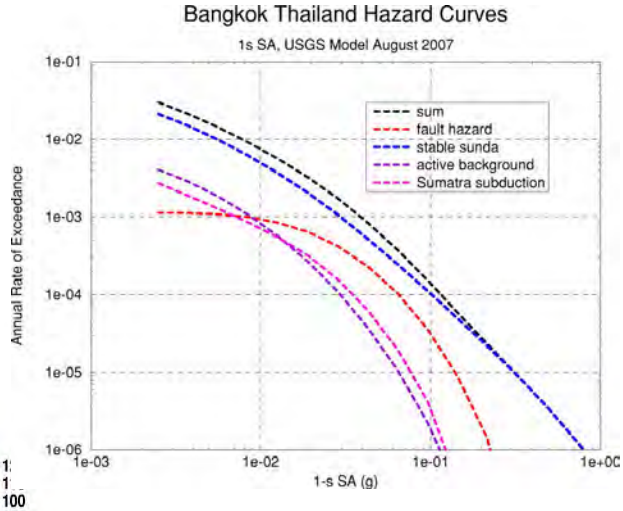
•Seismicity Map of Malaysia



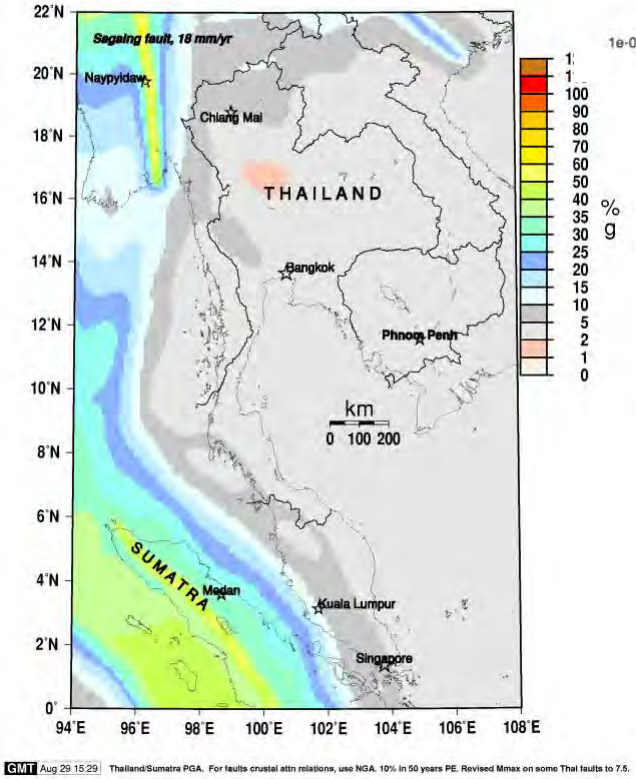
No.:	EQ-024	Published Year:	2007
Study/ Report Name:	Documentation for the Southeast Asia Seismic Hazard Maps		
Access to Information:	http://earthquake.usgs.gov/hazards/products/foreign/		
Research Organization:	USGS		
Study Area (Country):	Jakarta of Indonesia, Bangkok of Thailand, Malaysia		
Studied Hazard:	Earthquake / Probabilistic Seismic Hazard Analysis		
Studied Damage/ Risk:			
Main Data Sources:			

Summary of the Study:

The ground motion hazard for Sumatra and the Malaysian peninsula is calculated in a probabilistic framework, using procedures developed for the US National Seismic Hazard Maps.



PSHA PGA Thailand and Vicinity. PE= 10% 50 yr



No.:	TN-002	Published Year:	2005
Study/ Report Name:	From Disaster to Reconstruction: A Report on ADB's Response to the Asian Tsunami		
Access to Information:	http://www.adb.org/publications/disaster-reconstruction-report-adbs-response-asian-tsunami		
Research Organization:	Asian Development Bank		
Study Area (Country):	ASEAN		
Studied Hazard:	Tsunami		
Studied Damage/ Risk:			
Main Data Sources:			

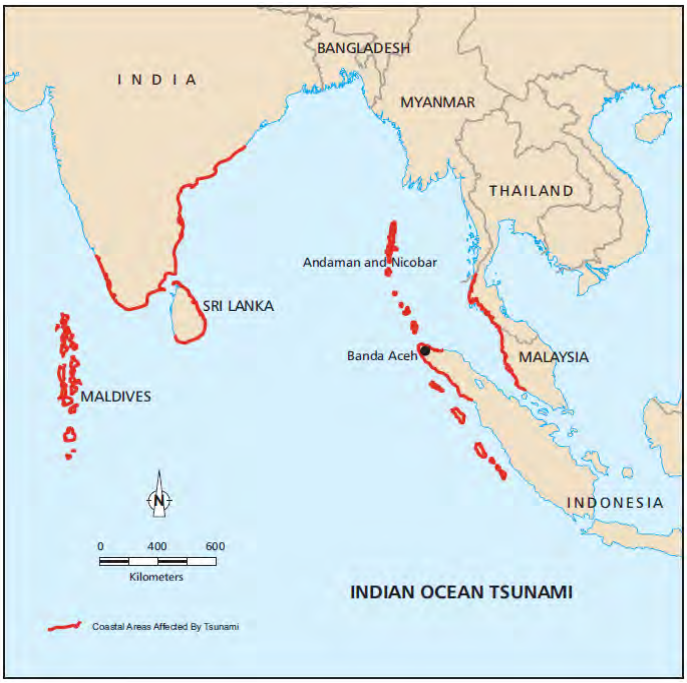
Summary of the Study:

This report summarizes ADB's response to the earthquake and tsunami during the first year. It highlights major activities, details project components and identifies challenges ahead and lessons learned in responding to this unprecedented regional natural disaster.

Table 1: Tsunami Losses

Country	Number of			Estimated Overall Damage ($ billion)
	Dead	Missing	Displaced/ Injured	
India	12,405	5,640	6,913	2.560
Indonesia	131,029	37,000	556,638	4.500
Maldives	82	26	29,577	0.472
Sri Lanka	35,322		516,150	1.000
Thailand	5,395	2,817	54,500	0.711

Sources: Government of India; United Nations Development Programme; Government of the Maldives; Government of Sri Lanka; UN Resident Coordinator, Thailand.

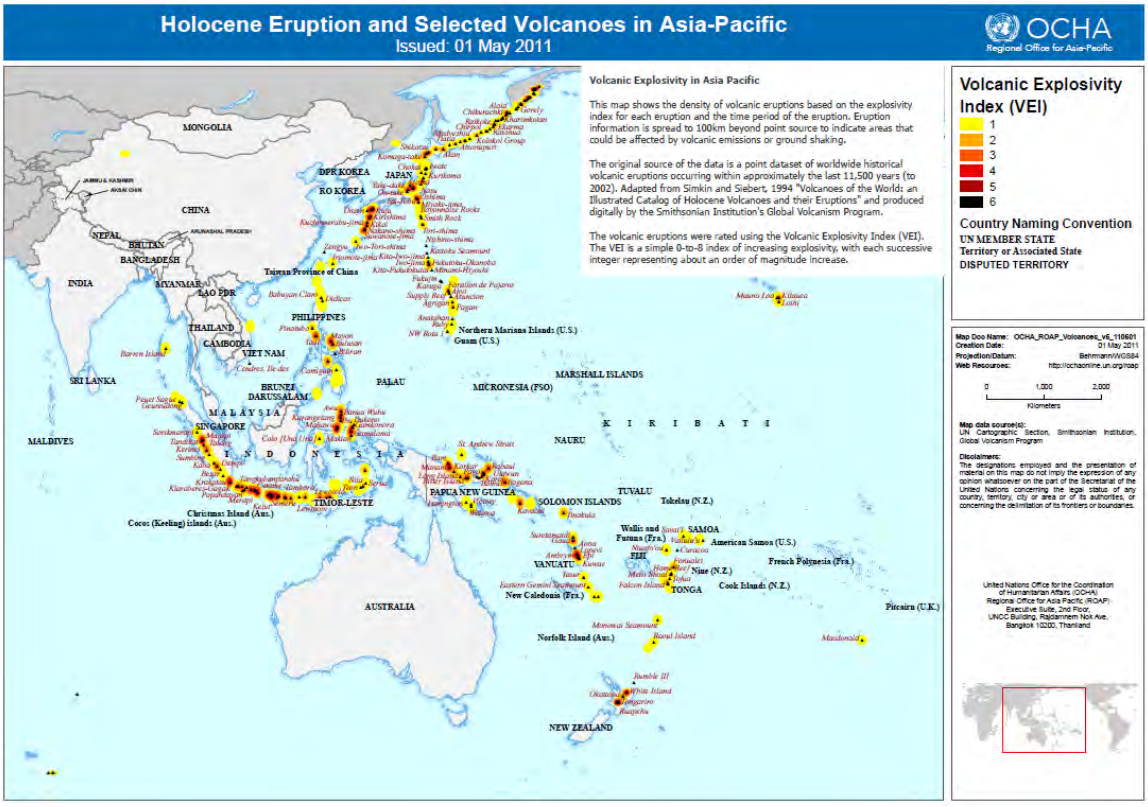


No.:	VE-001	Published Year:	2011
Study/ Report Name:	Holocene Eruption and Selected Volcanoes in Asia-Pacific		
Access to Information:	http://reliefweb.int/sites/reliefweb.int/files/resources/map_619.pdf		
Research Organization:	United Nations Office for the Coordination of Humanitarian Affairs, Regional Office for Asia Pacific (OCHA -ROAP)		
Study Area (Country):	Asia-Pacific		
Studied Hazard:	Volcanic Explosivity Index (VEI)		
Studied Damage/ Risk:			
Main Data Sources:	UN Cartographic Section, Smithsonian Institution, Global Volcanism Program		

Summary of the Study:

This map shows the density of volcanic eruptions based on the explosivity index for each eruption and the time period of the eruption. Eruption information is spread to 100km beyond point source to indicate areas that could be affected by volcanic emissions or ground shaking.

The volcanic eruptions were rated using the Volcanic Explosivity Index (VEI). The VEI is a simple 0 to 8 index of increasing explosivity, with each successive integer representing about an order of magnitude increase.



No.:	LS-006	Published Year:	2010
Study/ Report Name:	Synthesis Report on Ten ASEAN Countries Disaster Risks Assessment		
Access to Information:	http://www.unisdr.org/files/18872_asean.pdf		
Research Organization:	UNISDR/World Bank		
Study Area (Country):	An assessment of disaster risks in ten ASEAN countries		
Studied Hazard:	earthquakes, tropical cyclonic storms (typhoons), floods, landslides, tsunamis, droughts, and forest fires.		
Studied Damage/ Risk:	Hazard profile and Risk profile		
Main Data Sources:	CRED EM-DAT, ADRC, NGDC, GSHAP, MRC, WAMIS, DWR, Munich Re, World Bank, UNISDR, GAR, InTerragate, IFNet, and CCFSC, DESINVEN-TAR 1970-2009		

Summary of the Study:

1)overview

This synthesis report on the Ten ASEAN Countries is based on a desk review of existing studies by academia, governments and international governmental and non-governmental organizations. Risk assessments are carried out directly based on recorded historical losses. The economic loss probability estimates presented in this report are not intended for designing catastrophe insurance schemes, which require a much more detailed approach that models hazard, exposure and vulnerability of buildings and infrastructure.

2)landslide and mudslide analysis

Landslide and mudslide analysis data sources are shown in above table (Main Data Sources). The landslide hazard risks maps were derived from the GAR Preview platform (GAR, 2009; http://previewgrid.unep.ch), has 10km grid resolution. This report explains overview, Regional setting, Hazard profile and Risk profile of each 10 countries separately.

Assessment sample of Natural disaster (Indonesia)

Disaster Risk Statistics (1970-2009)

Disaster type	*No. of disasters / year*	*Total no. of deaths*	*Deaths / year*	*Relative vulnerability (deaths/year/ million)*
Flood	3.20	5,420	135.50	0.56
Drought	0.20	1,329	33.23	0.14
Storm	0.23	1,692	42.30	0.18
Epidemic	0.83	3,886	97.15	0.40
Tsunami	0.08	83,525	2088.13	8.69
Earthquake	2.10	97,166	2429.15	10.11
Landslide	1.03	1,845	46.13	0.19
Volcano	0.93	661	16.53	0.07
Wildfire	0.23	300	7.50	0.03

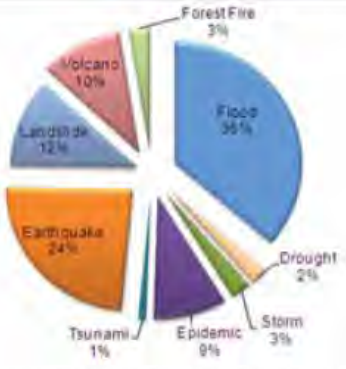


Figure 8: Percentage distribution of reported disasters in Indonesia

No.:	LS-007	Published Year:	2005
Study/ Report Name:	Natural Disaster Hotspots:A Global Risk Analysis		
Access to Information:	http://sedac.ciesin.columbia.edu/data/set/ndh-landslide-hazard-distribution/maps		
Research Organization:	World Bank、		
Study Area (Country):	Whole World		
Studied Hazard:	Flood, Landslide, Drought, drought, earthquakes, storms, volcanoes		
Studied Damage/ Risk:			
Main Data Sources:			

Summary of the Study:

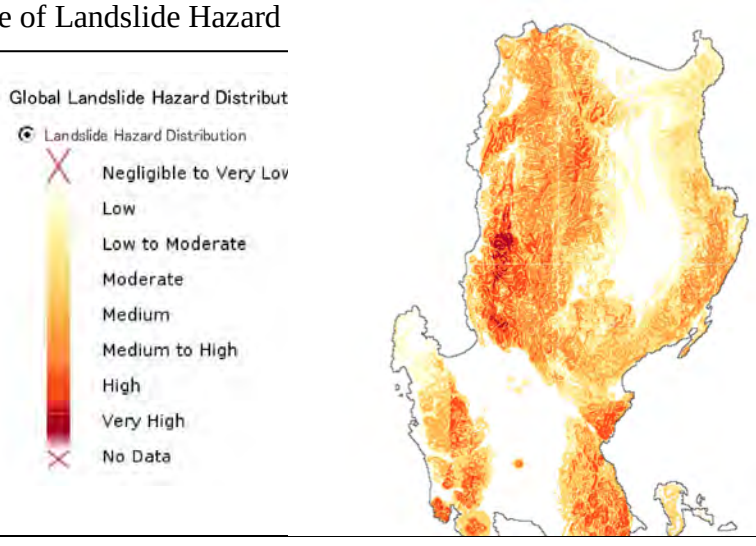
1)overview

This study presents a global view of major natural disaster risk hotspots—areas at relatively high risk of loss from one or more natural hazards. It summarizes the results of an interdisciplinary analysis of the location and characteristics of hotspots for six natural hazards. Data on these hazards are combined with state-of-the-art data on the sub-national distribution of population and economic output and past disaster losses to identify areas at relatively high risk from one or more hazards. This study belongs to the project of Global Risk Identification Program (GRIP) by the world bank, which objects a framework which is improved evidence base for disaster risk management to enable the application and prioritization of effective disaster risk reduction strategies at the national, regional and global scales.

2)

And a web site of CIESIN publishes detailed risk map of 6 hazards distribution studied in this project as shown in below. The maps are able to estimate risk levels at sub-national scales.

Sample of Landslide Hazard ippines



No.:	LS-013	Published Year:	2009
Study/ Report Name:	Climate Change Vulnerability Mapping for Southeast Asia		
Access to Information:	http://web.idrc.ca/uploads/user-S/12324196651Mapping_Report.pdf		
Research Organization:	Economy and Environment Program for Southeast Asia (EEPSEA)		
Study Area (Country):	ASEAN (Thailand, Vietnam, Laos, Cambodia, Indonesia, Malaysia, and Philippines)		
Studied Hazard:	Flood, Landslide, Drought, Tropical, cyclone Sea level rise		
Studied Damage/ Risk:	Vulnerability to climate change, flood frequency		
Main Data Sources:	Urban Extent Database (GRUMP version 1) of the (CIESIN) GEODATA portal (the Environmental Database; http://geodata.grid.unep.ch/extras/datasetlist.php) BAKOSURTANAL		

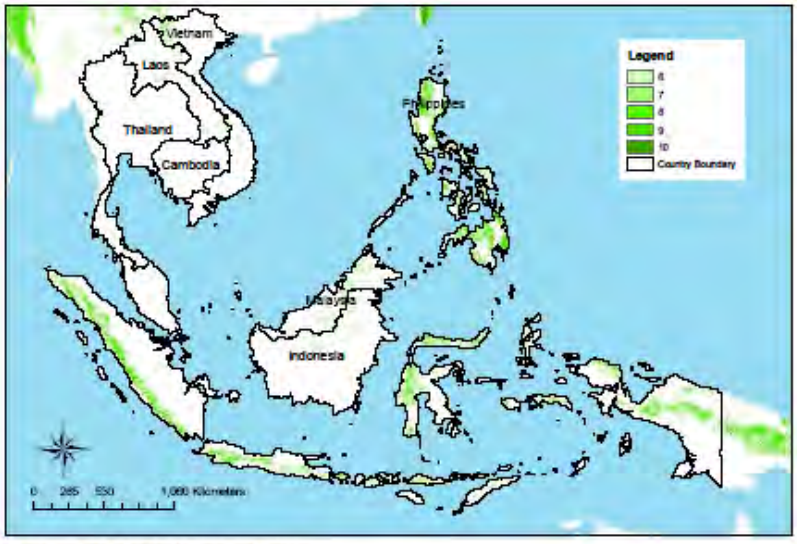
Summary of the Study:

This study assesses vulnerability of Southeast Asian countries (Thailand, Vietnam, Laos, Cambodia, Indonesia, Malaysia, and Philippines) of climate change including landslide. Vulnerability is defined as a function of exposure (potential loss due to a hazard), sensitivity (the potential gravity of losses and damage), and adaptive capacity (how much to adapt a hazard situation).

Adaptive capacity influences vulnerability. When adaptive capacity is low, vulnerability is high. Cambodia is among the most vulnerable in ASEAN despite its relatively low exposure to climate hazards. The eastern coast of Vietnam is susceptible to cyclones, but adaptive capacity is high to manage to moderate its vulnerability. Bangkok and Jakarta have high adaptive capacities but not enough to moderate their extreme vulnerability with high population densities and significant exposure to climate hazards.

A map shows annual landslide exposure of the region.

The map shows Landslide exposure changing rate caused by Climate change



Appendix 2D. Landslide exposure (2005)

No.:	LS-018	Published Year:	2011
Study/ Report Name:	Preliminary report of Research and Development for Reducing Geo-Hazard Damage in Malaysia caused by Landslide and Flood		
Access to Information:	http://libopac.jica.go.jp/search/detail.do?rowIndex=4&method=detail&bibId=0000256058		
Research Organization:	JICA		
Study Area (Country):	Malaysia		
Studied Hazard:	Landslide, Flood		
Studied Damage/ Risk:	Disaster record		
Main Data Sources:	National Slope Management Plan(NSMP)		

Summary of the Study:

1)overview

The project targets as shown in below

- Data collection of landslides and floods in Malaysia,
- Landslide and flood forecasting model development for disaster management,
- Hazard mapping of landslides and floods utilizing remote sensing and GIS
- Establishment of Control command center in the disaster dangerous district where landslide and flood risk is high geographically
- Web system according to the enlightenment of landslide and flood disaster

2)landslide of Malaysia

Landslide occurrence record is as shown in the figure.

「マ」国の主な地すべり災害（1973年～2006年）

年月	発生場所	死亡者	被害額:百万 RM
Oct-73	Kampung Kacang Putih, Ipoh, Perak	42	64.8
Dec-93	Highand Tower Collapse, Ampang, Selangor	48	184.9
Jun-95	Km 39 Lebuhraya KL-Karak, Genting Highland, Pahang	20	48.3
Jan-96	Km 303.8 North-South Expressway, Gunung Tempurung, Perak	1	16.7
Aug-96	Pos Dipang, Perak	44	69.0
Dec-96	Keningau, Sabah	302	458.9
Feb-99	Kg. Gelam, Sandakan, Sabah	17	29.5
Jan-02	Simunjan, Sarawak	16	28.0
Nov-02	Taman HilKriew, Hulu Kelang, Kuala Lumpur	8	17.4
Nov-03	Km 21.8 NKVE Bukit Lanjan, Selangor	-	836.0
Apr-05	Kg Melayu Bt 11, Puchong, Selangor	-	47.0
Apr-06	Km 44 Jin Simpang Pulai Cameron Highland, Pahang (Gunung Pass)	-	354.6
May-06	Kampung Pasir (Taman Bukit Zooview), Hulu Kelang, Selangor	4	20.7

出典：NSMP、2009

Appendix 3:
List of Industrial Parks in Malaysia

ID	Short List	Long List	COUNTRY	PROVINCE	PARK NAME	ADDRESS
MY0001	XXMY20	XXMY20	Malaysia	Johor	Pasir Gudang Industrial Estate	Kawasan Perindustrian Pasir Gudang, 81700 Pasir Gudang, Johor
MY0002		XXMY31	Malaysia	Johor	Tebrau Industrial Estate	Taman Mount Austin, 81100 Johor Bahru, Johor
MY0003			Malaysia	Johor	Pontian	82000 Pontian, Johor
MY0004			Malaysia	Johor	Petaling Larkin	Jalan Petaling Kawasan Perindustrian Dato Onn, 80350 Johor Bahru, Johor
MY0005			Malaysia	Johor	Pagoh Industrial Area	Jalan Muar Pagoh, 84600 Pagoh, Johor
MY0006			Malaysia	Johor	Mengkibol	J25 86000 Kluang, Johor
MY0007			Malaysia	Johor	Bukit Pasir	J141 84300 Bukit Pasir, Johor
MY0008			Malaysia	Johor	Bandar Penawar Industrial Estate	Jalan Dato Abdullah Bandar Penawar, 82200 Kota Tinggi, Johor
MY0009			Malaysia	Johor	Bandar Tenggara Industrial Estate	Jalan Tun Abdul Majid Bandar Tenggara, 81000 Kulai, Johor
MY0010			Malaysia	Johor	Tanjung Langsat Industrial Complex	N107 71300 Rembau, Negeri Sembilan
MY0011			Malaysia	Johor	Johor Technology Park	Pusat Pentadbiran Universiti Teknologi Malaysia Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor
MY0012			Malaysia	Johor	Tanjung Agas	C100 Tanjung Agas, 26600 Pekan, Pahang
MY0013			Malaysia	Johor	Simpang Renggam	Jalan Besar Simpang Renggam, 86200 Simpang Renggam, Johor
MY0014			Malaysia	Johor	Mersing	Jalan Endau Mersing Kampung Mersing Kanan, 86800 Mersing, Johor
MY0015			Malaysia	Johor	Johor Port FZ	Padan Tengku Phang
MY0016			Malaysia	Johor	Jl. Hasil	Jalan Hasil Kawasan Perindustrian Tampoi Jaya, 81200 Johor Bahru, Johor
MY0017			Malaysia	Johor	Tongkang Pecah	Jalan Tongkang Pechah 83000 Batu Pahat, Johor
MY0018			Malaysia	Johor	Senai Industrial Estate	Exit Persimpangan Senai & Jalan Lapangan Terbang & E3 81400 Senai, Johor
MY0019			Malaysia	Johor	Segamat	85000 Segamat, Johor
MY0020			Malaysia	Johor	Parit Raja	Taman Bintang, 86400 Parit Raja, Johor
MY0021			Malaysia	Johor	Sri Gading	Jalan Kluang Sri Gading, 83300 Seri Gading, Johor
MY0022			Malaysia	Johor	Kota Tinggi	Jalan Kolam Air Kota Tinggi, 81900 Kota Tinggi, Johor
MY0023			Malaysia	Johor	Kluang	Jalan Idaman 2 Taman Idaman, 86000 Kluang, Johor
MY0024			Malaysia	Johor	Sedenak Industrial Estate	J25 Kampung Baru Sungai Sayong, 81000 Kulai, Johor
MY0025		XXMY25	Malaysia	Johor	Senai Hi-Tech Park	Exit Persimpangan Senai & Jalan Lapangan Terbang & E3 81400 Senai, Johor
MY0026			Malaysia	Johor	Bio-XCell	J25 Kampung Baru Sungai Sayong, 81000 Kulai, Johor
MY0027			Malaysia	Kedah	Bukit Kayu Hitam Industrial Estate	Utara - Selatan Hwy & E1 06050 Bukit Kayu Hitam, Kedah
MY0028			Malaysia	Kedah	Sg. Tiang	K127 06700 Pendang, Kedah
MY0029			Malaysia	Kedah	Jeniang	K10 Jeniang, 08210 Sik, Kedah
MY0030			Malaysia	Kedah	Baling	67 Kampung Teduh, 09100 Baling, Kedah
MY0031			Malaysia	Kedah	Naka	K8 Pendang, Kedah

ID	Short List	Long List	COUNTRY	PROVINCE	PARK NAME	ADDRESS
MY0032			Malaysia	Kedah	Kisap	Jalan Ayer Hangat 07000 Langkawi, Kedah
MY0033			Malaysia	Kedah	Rendong	K149 06700 Pendang, Kedah
MY0034			Malaysia	Kedah	Pokok Sena	K8 06400 Pendang, Kedah
MY0035			Malaysia	Kedah	Sik	K10 Pekan Sik, 08210 Sik, Kedah
MY0036			Malaysia	Kedah	Darulaman	Utara - Selatan Hwy 06000 Jitra, Kedah
MY0037			Malaysia	Kedah	Sri Tandop	Jalan Sri Mengkudu 2 Kampung Pengkalan Putat, 05400 Alor Setar, Kedah
MY0038			Malaysia	Kedah	Mergong	Jalan Putih 1/1 Taman Rakyat Mergong, 05150 Alor Setar, Kedah
MY0039			Malaysia	Kedah	Ria Jaya Park	Lorong Gamelan 3/2 Taman Ria Jaya, 08000 Sungai Petani, Kedah
MY0040			Malaysia	Kedah	Bakar Arang Light(Cergas Layar)	Jalan Baiduri 1/4 Taman Baiduri, 08000 Sungai Petani, Kedah
MY0041			Malaysia	Kedah	Bakar Arang Light(Keladi Maju)	Jalan Baiduri 1/4 Taman Baiduri, 08000 Sungai Petani, Kedah
MY0042			Malaysia	Kedah	Taman Makmur	K149 08300 Gurun, Kedah
MY0043			Malaysia	Kedah	Kempas Park	Utara - Selatan Hwy 06010 Bukit Kayu Hitam, Kedah
MY0044			Malaysia	Kedah	Bukit Selambau	K17 Bukit Selambau, 08010 Sungai Petani, Kedah
MY0045		**XXMY14**	Malaysia	Kedah	Kulim Hi Tech Park	K115 Taman Kulim Hi-tech, 09000 Kulim, Kedah
MY0046			Malaysia	Kedah	Darulaman Industrial Estate	K149 06700 Pendang, Kedah
MY0047			Malaysia	Kedah	Mergong Barrage	69 Jalan Timur 3 Kawasan Perusahaan Mergong 2b, 05150 Alor Setar, Kedah
MY0048			Malaysia	Kedah	Sg. Petani	Jalan Air Mendidih 08000 Sungai Petani, Kedah
MY0049			Malaysia	Kedah	Bakar Arang	Jalan Baiduri 1/4 Taman Baiduri, 08000 Sungai Petani, Kedah
MY0050			Malaysia	Kedah	Kuala Ketil	K723 09100 Baling, Kedah
MY0051		**XXMY33**	Malaysia	Kedah	Tikam Batu Industrial Estate	1 Tikam Batu, 08600 Sungai Petani, Kedah
MY0052			Malaysia	Kedah	Kulim	151-157 Jalan Kelang Lama Taman Kejora, 09000 Kulim, Kedah
MY0053			Malaysia	Kedah	Binjal	K109 06000 Jitra, Kedah
MY0054			Malaysia	Kelantan	Gua Musang	8 18300 Gua Musang, Kelantan
MY0055			Malaysia	Kelantan	Jeli	Jalan Sungai Sam - Dabong - Jeli Bandar Jeli, 17600 Jeli, Kelantan
MY0056			Malaysia	Kelantan	Tanah Merah	Jalan Tasek Tanah Merah, 17500 Tanah Merah, Kelantan
MY0057			Malaysia	Kelantan	MIEL Lundang	D29 18300 Gua Musang, Kelantan
MY0058			Malaysia	Kelantan	Pengkalan Chepa(Jalan Maktab)	Jalan Maktab Pengkalan Chepa, 16100 Kota Bharu, Kelantan
MY0059			Malaysia	Kelantan	Pengkalan Chepa(Jalan Padang Tembak)	Jalan Padang Tembak Pengkalan Chepa, 16100 Kota Bharu, Kelantan
MY0060			Malaysia	Kelantan	Kemubu	D233 18200 Dabong, Kelantan
MY0061			Malaysia	Kelantan	Pengkalan Kubor Free Zone	D29 18300 Gua Musang, Kelantan
MY0062			Malaysia	Kelantan	Gua Musang Industrial Estate	8 18300 Gua Musang, Kelantan
MY0063			Malaysia	Kelantan	Kelantan Halal Park	D29 18300 Gua Musang, Kelantan
MY0064			Malaysia	Malacca	Merlimau	Jalan Tanjung Terap Barat 1 Taman Panglima Pak, 77300 Merlimau, Melaka
MY0065			Malaysia	Malacca	Cheng Industrial Estate	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0066			Malaysia	Malacca	Krubong Industrial Estate	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0067		**XXMY03**	Malaysia	Malacca	Batu Berendam Free Zone	Jalan Batu Berendam 75350 Melaka

ID	Short List	Long List	COUNTRY	PROVINCE	PARK NAME	ADDRESS
MY0068		**XXMY09**	Malaysia	Malacca	Bukit Rambai Industrial Estate	Jalan Gedung Lalang Kampung Gedung Lalang, 75250 Tanjung Kling, Melaka
MY0069			Malaysia	Malacca	Batu Berendam	Jalan Batu Berendam 75350 Melaka
MY0070			Malaysia	Malacca	Sungai Udang	5 Taman Peruna, 76300 Sungai Udang, Melaka
MY0071			Malaysia	Malacca	Mawar Industrial Park	Jalan Merdeka Bandar Hilir, 75000 Melaka
MY0072			Malaysia	Malacca	Ossons Industrial Park	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0073			Malaysia	Malacca	Jasin Industrial Park	Jalan Bukit Katil 75450 Melaka
MY0074			Malaysia	Malacca	Krubong Techno Park	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0075		**XXMY01**	Malaysia	Malacca	Ayer Keroh	Leboh Ayer Keroh 75450 Melaka
MY0076			Malaysia	Malacca	Malaysia China Light Industrial Park	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0077			Malaysia	Malacca	Bandar Putra Melaka	Jalan Ayer Leleh Bukit Serindit, 75000 Melaka
MY0078			Malaysia	Malacca	Taman Tasik Utama	Jalan Tu 2 Taman Tasik Utama, 75350 Melaka
MY0079			Malaysia	Malacca	Merlimau Industrial Estate	Jalan Tanjung Terap Barat 1 Taman Panglima Pak, 77300 Merlimau, Melaka
MY0080			Malaysia	Malacca	Batu Berendam (Free Trade Zone)	Jalan Batu Berendam 75350 Melaka, Malaysia
MY0081			Malaysia	Malacca	Kawasan Periindustrian Tasik Utama Air Keroh	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0082			Malaysia	Malacca	Tangga Batu	Jalan Tangga Batu Tangga Batu, 76400 Tanjung Kling, Melaka
MY0083			Malaysia	Malacca	Alor Gajah	Jalan Pengkalan 78000 Alor Gajah, Melaka
MY0084			Malaysia	Malacca	Masjid Tanah	Jalan Masid Tanah / Sungai Udang 78300 Masjid Tanah, Melaka
MY0085			Malaysia	Malacca	Tanjung Kling Free Zone	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0086			Malaysia	Malacca	Telok Mas Industrial Estate	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0087			Malaysia	Malacca	HICOM Pegoh Industrial Park	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0088			Malaysia	Malacca	Zarina Industrial Park	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0089			Malaysia	Malacca	Melaka World Solar Valley	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0090			Malaysia	Malacca	Melaka Halal Hub	Jalan Durian Daun Kampung Durian Daun Lama, 75400 Melaka
MY0091			Malaysia	Negeri Sembilan	Chembong	Jalan Perusahaan 2/2 Kawasan Perindustrian Chembong, 71300 Rembau, Negeri Sembilan
MY0092		**XXMY19**	Malaysia	Negeri Sembilan	Nilai Industrial Estate	58 Persiaran Nilai Impian 2 Nilai Impian, 71800 Nilai, Negeri Sembilan
MY0093			Malaysia	Negeri Sembilan	Arab-Malaysian Industrial Park	Jalan Permata 1/2 Kawasan Perindustrian Nilai, 71800 Nilai, Negeri Sembilan
MY0094			Malaysia	Negeri Sembilan	New Senawang Industrial Park	N19 72200 Batu Kikir, Negeri Sembilan
MY0095			Malaysia	Negeri Sembilan	Lukut Light Industrial Area	Jalan Seremban Lukut, 71010 Port Dickson, Negeri Sembilan
MY0096			Malaysia	Negeri Sembilan	Seremban Light Industrial Area	Muzium Negeri Sembilan 70200 Seremban, Negeri Sembilan
MY0097			Malaysia	Negeri Sembilan	Sri Senawang Light Industrial Area	Seremban - Port Dickson Hwy Port Dickson, Negeri Sembilan
MY0098			Malaysia	Negeri Sembilan	Sungai Gadut Industrial Estate	N19 72200 Batu Kikir, Negeri Sembilan
MY0099			Malaysia	Negeri Sembilan	GKM Industrial Park	N19 72200 Batu Kikir, Negeri Sembilan
MY0100		**XXMY18**	Malaysia	Negeri Sembilan	Senawang	Jalan Senawang 70450 Seremban, Negeri Sembilan
MY0101			Malaysia	Negeri Sembilan	Nilai	58 Persiaran Nilai Impian 2 Nilai Impian, 71800 Nilai, Negeri Sembilan
MY0102			Malaysia	Negeri Sembilan	Nilai Mini	Jalan Semenyih 43000 Kajang, Selangor

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MY0103			Malaysia	Negeri Sembilan	Kampung Dioh(Kuala Pilah)	N117 Dioh, 72000 Kuala Pilah, Negeri Sembilan
MY0104			Malaysia	Negeri Sembilan	Simpang Pertang(Jelebu)	9 72300 Simpang Pertang, Negeri Sembilan
MY0105			Malaysia	Negeri Sembilan	Oakland Industrial Park	N19 72200 Batu Kikir, Negeri Sembilan
MY0106			Malaysia	Negeri Sembilan	Tuanku Jaafar Industrial Estate	N19 72200 Batu Kikir, Negeri Sembilan
MY0107			Malaysia	Negeri Sembilan	Tuanku Jaafar Industrial Park	Menengah Teknik Tuanku Jaafar 70450 Seremban, Negeri Sembilan
MY0108			Malaysia	Negeri Sembilan	Techpark@enstek	N19 72200 Batu Kikir, Negeri Sembilan
MY0109			Malaysia	Negeri Sembilan	Pedas Halal Park	N9 Kampung Pedas Hilir, 71400 Pedas, Negeri Sembilan
MY0110			Malaysia	Pahang	Bentong Industrial Estate I & II	Jalan Anuar Taman Ban Hua, 28700 Bentong, Pahang
MY0111			Malaysia	Pahang	Kuantan Port Industrial Land	Jalan Pelabuhan 3/4 Bukit Pengorak, 26080 Kuantan, Pahang
MY0112			Malaysia	Pahang	Bandar Pusat Jengka Industrial Estate	62 Bandar Jengka, 26400 Bandar Pusat Jengka, Pahang
MY0113			Malaysia	Pahang	Tun Abdul Razak	11 26900 Bandar Tun Abdul Razak, Pahang
MY0114			Malaysia	Pahang	Rompin	NO ADRESS
MY0115			Malaysia	Pahang	Temerloh Industrial Park	Jalan Industri 3/1 Kawasan Perindustrian Temerloh, 28400 Mentakab, Pahang
MY0116			Malaysia	Pahang	Raub Industrial Estate	Jalan Tun Razak 27600 Raub, Pahang
MY0117			Malaysia	Pahang	Lipis Industrial Estate	8 27100 Padang Tengku, Pahang
MY0118			Malaysia	Pahang	KG. Sempadan Furniture Village	C145 Kampung Pedah, 27150 Jerantut, Pahang
MY0119			Malaysia	Pahang	Gebeng I, II & III Industrial Estate	Jalan Pelabuhan 3/4 Bukit Pengorak, 26080 Kuantan, Pahang
MY0120			Malaysia	Pahang	Jerantut	Lorong 11 Taman Muhibbah, 27000 Jerantut, Pahang
MY0121			Malaysia	Pahang	Maran	2 26500 Maran, Pahang
MY0122			Malaysia	Pahang	Pekan-Peramu Automotive Industrial Park	3 26600 Pekan, Pahang
MY0123			Malaysia	Pahang	Semanbu	Jalan Pintasan Kuantan 26100 Balok, Pahang
MY0124			Malaysia	Pahang	Songsang	98 Kampung Songsang, 28020 Temerloh, Pahang
MY0125			Malaysia	Pahang	Jaya Gading	Jalan Gambang Gading Jaya, 25150 Kuantan, Pahang
MY0126			Malaysia	Pahang	Muadzam Shah	63 26700 Muadzam Shah, Pahan
MY0127			Malaysia	Pahang	Kuantan Industrial Park	Kelab Golf Diraja Pahang 25050 Kuantan, Pahang
MY0128			Malaysia	Pahang	Gambang Industrial Estate	Mec Hwy Kampung Melayu Gambang, 26300 Gambang, Pahang
MY0129			Malaysia	Pahang	Lanchang Industrial Estate	Pantai Timur Hwy Lanchang, Pahang
MY0130			Malaysia	Pahang	Tanjung Gelang Free Industrial Zone	C145 Kampung Pedah, 27150 Jerantut, Pahang
MY0131			Malaysia	Pahang	Tun Abdul Razak Industrial Estate	C145 Kampung Pedah, 27150 Jerantut, Pahang
MY0132			Malaysia	Pahang	Indera Makhota Industrial Estate	C145 Kampung Pedah, 27150 Jerantut, Pahang
MY0133			Malaysia	Pahang	Rompin Industrial Estate	5 k m from Rompin town
MY0134			Malaysia	Pahang	Tanjung Agas Oil & Gas and Logistics Industrial Park	C100 Tanjung Agas, 26600 Pekan, Pahang
MY0135			Malaysia	Pahang	Kuantan Industrial Park	Kelab Golf Diraja Pahang 25050 Kuantan, Pahang
MY0136		**XXMY21**	Malaysia	Penang	Prai Wharf Free Industrial Zone	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0137			Malaysia	Penang	Asas Industrial Park	Jalan Asas Murni Taman Amra, 14100 Bukit Mertajam, Pulau Pinang

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MY0138			Malaysia	Penang	Permatang Tinggi Industrial Park	Jalan Pahlawan Permatang Tinggi, 14100 Bukit Mertajam, Pulau Pinang
MY0139			Malaysia	Penang	Handersons Industrial Park	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0140			Malaysia	Penang	Diamond Valley Light Industrial Park	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0141			Malaysia	Penang	Adorna Light Industrial Complex	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0142			Malaysia	Penang	Penang Technoplex	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0143		**XXMY10**	Malaysia	Penang	Bukit Tengah	Jalan Perusahaan Bukit Tengah, 13600 Perai, Pulau Pinang
MY0144			Malaysia	Penang	Mak Mandin	Jalan Mak Mandin Kawasan Perindustrian Mak Mandin, 13400 Butterworth, Pulau Pinang
MY0145			Malaysia	Penang	Seberang Jaya	24 Lorong Siakap 10 Seberang Jaya, 13700 Perai, Pulau Pinang
MY0146	**XXMY05**	**XXMY05**	Malaysia	Penang	Bayan Lepas Industrial Estate	84-126 Jalan Sultan Azlan Shah Bandar Bayan Baru, 11900 Bayan Lepas, Pulau Pinang
MY0147		**XXMY06**	Malaysia	Penang	Bukit Minyak Industrial Park	Utara - Selatan Hwy 14100 Bukit Mertajam, Penang
MY0148		**XXMY07**	Malaysia	Penang	Bukit Panchor Industrial Park	P146 14300 Nibong Tebal, Pulau Pinang
MY0149			Malaysia	Penang	Raja Uda Light Industrial Park	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0150			Malaysia	Penang	Sungai Lokan Industrial Estate	Lorong Perusahaan Sungai Lokan 5 Kawasan Perusahaan Acku, 13400 Butterworth, Pulau Pinang
MY0151		**XXMY04**	Malaysia	Penang	Batu Kawan Industrial Estate	Jalan Batu Kawan 3 14100 Simpang Ampat, Pulau Pinang
MY0152			Malaysia	Penang	Penang Science Park	Jalan Kubang Menderung 13100 Penaga, Pulau Pinang
MY0153		**XXMY23**	Malaysia	Penang	Seberang Jaya Industrial Park	Jalan Sungai Air Putih 2/2 Botanica City Air Putih, 11000 Balik Pulau, Pulau Pinang
MY0154			Malaysia	Penang	Penang Technoplex	51 Lorong Belibis 37 Taman Tangling Jaya, 14100 Simpang Ampat, Pulau Pinang
MY0155		**XXMY17**	Malaysia	Penang	Mak Mandin Industrial Park	Lorong Cantek 18 Taman Cantek, 13400 Butterworth, Pulau Pinang
MY0156			Malaysia	Penang	Perai Industrial Park	Jalan Sungai Air Putih 2/2 Botanica City Air Putih, 11000 Balik Pulau, Pulau Pinang
MY0157			Malaysia	Perak	Silibin	Jalan Silibin 30100 Ipoh, Perak
MY0158			Malaysia	Perak	Tupai	Jalan Tupai Taman Jambu, 34000 Taiping, Perak
MY0159			Malaysia	Perak	Parit Buntar	Jalan Perusahaan 1 Kawasan Perusahaan Parit Buntar, 34200 Parit Buntar, Perak
MY0160			Malaysia	Perak	Slim River	Jalan Nilam Taman Sri Krishnan, 35800 Slim River, Perak
MY0161			Malaysia	Perak	Seri Manjong	Jalan Pasir Panjang Kampung Pasir Panjang Laut, 32000 Sitiawan, Perak
MY0162			Malaysia	Perak	Pengkalan Industries Park	Jalan Gopeng 31610 Gopeng, Perak
MY0163			Malaysia	Perak	Pharmaceutical Park(Seri Iskandar)	1 34850 Changkat Jering, Perak
MY0164			Malaysia	Perak	Bemban Industrial Estate	1 34850 Changkat Jering, Perak
MY0165			Malaysia	Perak	Pulai Jaya Industrial Park	Pulai Jaya 1 Taman Bersatu, 31300 Ipoh, Perak
MY0166			Malaysia	Perak	Paku Rimba Industrial Park	1 34850 Changkat Jering, Perak
MY0167			Malaysia	Perak	Gopeng Industrial Park	Jalan Industri 4/2 Kawasan Perindustrian Gopeng, 31350 Ipoh, Perak
MY0168			Malaysia	Perak	Jelapang	Pusat Perdagangan Jelapang 2 Jelapang, 30020 Ipoh, Perak
MY0169			Malaysia	Perak	IGB International Industrial Park	1 34850 Changkat Jering, Perak
MY0170		**XXMY15**	Malaysia	Perak	Lumut Port Industrial Park	100 32200 Lumut, Perak
MY0171			Malaysia	Perak	Zagrib Industrial Park	1 34850 Changkat Jering, Perak

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MY0172			Malaysia	Perak	Thai Aik Industrial Park	1 34850 Changkat Jering, Perak
MY0173			Malaysia	Perak	Taman Teknologi Seri Iskandar	Regat Teknologi 1 Seri Iskandar, 32600 Bota, Perak
MY0174			Malaysia	Perak	Foundary Park	1 34850 Changkat Jering, Perak
MY0175			Malaysia	Perak	Ceramic Industrial Park	1 34850 Changkat Jering, Perak
MY0176			Malaysia	Perak	Furniture Village	1 34850 Changkat Jering, Perak
MY0177			Malaysia	Perak	Jelapang FZ	Pusat Perdagangan Jelapang 2 Jelapang, 30020 Ipoh, Perak
MY0178			Malaysia	Perak	Kinta FZ	A181 31300 Ipoh, Perak
MY0179			Malaysia	Perak	Taman Meru	Jalan Bukit Meru 4 Taman Meru, 30020 Ipoh, Perak
MY0180			Malaysia	Perak	Perindustrian Bebas	Jalan Perak Taman Desa Wira, 42500 Telok Panglima Garang, Selangor
MY0181			Malaysia	Perak	Pengkalan	Jalan Tasek 33100 Pengkalan Hulu, Perak
MY0182			Malaysia	Perak	Kanthan	Persiaran Perindustrian Dti Dua Taman Perindustrian Khantan Dti, 31200 Chemor, Perak
MY0183			Malaysia	Perak	Tasek	Jalan Tasek 33100 Pengkalan Hulu, Perak
MY0184		**XXMY13**	Malaysia	Perak	Kuala Kangsar	Jalan Taiping 33000 Kuala Kangsar, Perak
MY0185		**XXMY12**	Malaysia	Perak	Kamunting	Kamunting Perak
MY0186			Malaysia	Perak	Kamunting Tambahan	Jalan Kamunting Lama Kampung Jana Baharu, 34600 Kamunting, Perak
MY0187			Malaysia	Perak	Kawasan Perindustrian Kg Acheh, Sitiawan	1 34850 Changkat Jering, Perak
MY0188			Malaysia	Perak	Proton City	Jalan Bunga Tanjung Proton City, 35900 Tanjong Malim, Perak
MY0189			Malaysia	Perak	Kawasan Perindustrian Jalan Sungkai Bidor	1 34850 Changkat Jering, Perak
MY0190			Malaysia	Perak	Kawasan Perindustrian Seramik	1 34850 Changkat Jering, Perak
MY0191			Malaysia	Perak	Kawasan Perindustrian Sungai Siput	1 34850 Changkat Jering, Perak
MY0192			Malaysia	Perak	Kawasan Perindustrian Jalan Lahat - Simpang Pulai Perak	1 34850 Changkat Jering, Perak
MY0193			Malaysia	Perak	Kawasan Perindustrian Bercham	Persiaran Industri Bercham 8 Taman Mujur, 31400 Ipoh, Perak
MY0194			Malaysia	Perak	Kawasan Perindustrian Bukit Merah	1 34850 Changkat Jering, Perak
MY0195			Malaysia	Perlis	Jejawi	Persiaran Jubli Emas Kampung Jejawi, 01000 Kangar, Perlis
MY0196			Malaysia	Perlis	Chuping	Jalan Chuping Chuping, 02500 Kangar, Perlis
MY0197			Malaysia	Perlis	Kuala Perlis Industrial Estate	Jalan Bukit Kubu 02000 Kuala Perlis, Perlis
MY0198			Malaysia	Perlis	Padang Besar Industrial Estate	7 02100 Padang Besar, Perlis
MY0199			Malaysia	Sabah	Likas	Sekolah Jenis Kebangsaan (Cina) Lok Yuk Likas 88400 Kota Kinabalu, Sabah
MY0200			Malaysia	Sabah	Kimanis	A2 Kimanis, 89600 Papar, Sabah
MY0201			Malaysia	Sabah	Sipitang	A2 89850 Sipitang, Sabah
MY0202			Malaysia	Sabah	Sandakan	Jalan Cecily 90000 Sandakan, Sabah
MY0203			Malaysia	Sabah	Lok Kawi	Jalan Pintas Penampang 89500 Penampang, Sabah
MY0204			Malaysia	Sabah	Tawau	Jalan Timur 91000 Tawau, Sabah

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MY0205			Malaysia	Sabah	Silam	A5 91100 Lahad Datu, Sabah
MY0206			Malaysia	Sabah	Kastam Baru	Jalan Kastam Baru 91100 Lahad Datu, Sabah
MY0207			Malaysia	Sabah	Seguntor	Jalan Batu Sapi Batu Sapi, 90000 Sandakan, Sabah
MY0208			Malaysia	Sabah	Batu Sapi	Jalan Batu Sapi Batu Sapi, 90000 Sandakan, Sabah
MY0209			Malaysia	Sabah	Sungei Imam	Jalan Kuhara 91000 Tawau, Sabah
MY0210			Malaysia	Sabah	Kota Kinabalu Industrial Park (KKIP) incl. Sabah Halal Park	Jalan Kilang Sedco Industrial Estate Kelombong, 88450 Kota Kinabalu, Sabah
MY0211			Malaysia	Sabah	Sipitang Oil and Gas Indsutrial Park (SOGIP)	A2 89850 Sipitang, Sabah
MY0212			Malaysia	Sabah	Palm Oil Industrial Cluster, Sandakan Sabah	NO ADRESS
MY0213			Malaysia	Sabah	Palm Oil Industrial Cluster, Lahad Datu	NO ADRESS
MY0214			Malaysia	Sarawak	Demak Laut Industrial Park	852 Jalan Demak Laut 7 Sejingkat Industrial Park, 93050 Kuching, Sarawak
MY0215			Malaysia	Sarawak	Kemena	Jalan Tun Razak 97000 Bintulu, Sarawak
MY0216			Malaysia	Sarawak	Tanjung Manis Halal Hub	Tanjung Manis Airport Belawai, Sarawak
MY0217			Malaysia	Sarawak	Kota Samarahan Industrial Estate	Jalan Datuk Mohammad Musa 93250 Kuching, Sarawak
MY0218			Malaysia	Sarawak	Pending	8276 Jalan Pending 93450 Kuching, Sarawak
MY0219			Malaysia	Sarawak	Upper Lanang	Jalan Upper Lanang 96000 Sibu, Sarawak
MY0220			Malaysia	Sarawak	Piasau	Jalan Taman Piasau Edar Piasau, 98000 Miri, Sarawak
MY0221			Malaysia	Sarawak	Limbang	NO ADRESS
MY0222			Malaysia	Sarawak	Kidurong	1 97000 Bintulu, Sarawak
MY0223			Malaysia	Sarawak	Kuala Baram	22 98000 Miri, Sarawak
MY0224			Malaysia	Sarawak	Sama Jaya Free Industrial Zone	1370 Persiaran Elektronik 1 Sama Jaya Free Industrial Zone, 93350 Kuching, Sarawak
MY0225			Malaysia	Sarawak	Palm Oil Industrial Cluster, Tanjung Manis	NO ADRESS
MY0226			Malaysia	Sarawak	Taman Perindustrian Samalajau	NO ADRESS
MY0227			Malaysia	Sarawak	Estet Perindustrian Rantau Panjang	NO ADRESS
MY0228			Malaysia	Sarawak	Kawasan Perindustrian Sibu	NO ADRESS
MY0229			Malaysia	Selangor	Sungai Besar	Jalan Sungai Panjang Kampung Parit Empat, 45300 Sungai Besar, Selangor
MY0230			Malaysia	Selangor	Ampang Hulu Kelang	Jalan L.O 2 Laman Oakleaf, 68000 Ampang, Selangor
MY0231			Malaysia	Selangor	Rawang Batu 17	Jalan 1a Taman Jati, 48000 Rawang, Selangor
MY0232			Malaysia	Selangor	Telok Panglima Garang	2 Jalan Indah 4 Taman Indah Jaya, 42500 Telok Panglima Garang, Selangor
MY0233			Malaysia	Selangor	Banting	Jalan Gangsa Kawasan Perindustrian Banting, 42700 Banting, Selangor
MY0234			Malaysia	Selangor	Bangi (Section10,13(1&2), &16)	2 Jalan Seksyen 1/16 Taman Kajang Utama, 43000 Kajang, Selangor
MY0235			Malaysia	Selangor	Baranang	Lorong Dato Dagang Haji Tahir Kampung Sesapan Kelubi, 43700 Beranang, Selangor
MY0236			Malaysia	Selangor	Setapak	Jalan Tembaga Setapak, 53200 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur

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MY0237			Malaysia	Selangor	Cheras Jaya	Jalan CJ 8 Taman Cheras Jaya, 43200 Seri Kembangan, Selangor
MY0238			Malaysia	Selangor	Salak Tinggi	Jalan Warisan Megah Kota Warisan, 43900 Sepang, Selangor
MY0239			Malaysia	Selangor	Olak Lempit	Jalan Olak Lempit 28/41 Taman Alam Megah, 40400 Shah Alam, Selangor
MY0240			Malaysia	Selangor	Selat Kelang Utara	Selat Klang Hwy 42000 Port Klang, Selangor
MY0241			Malaysia	Selangor	Sekinchan	Jalan Gereja Sekinchan, 45400 Sekinchan, Selangor
MY0242			Malaysia	Selangor	Kuala Selangor	12 Jalan Pahlawan 4 Taman Pahlawan, 45000 Kuala Selangor, Selangor
MY0243			Malaysia	Selangor	Batu Arang	Jalan Albert Fenelum Taman Muhibbah, 48100 Batu Arang, Selangor
MY0244			Malaysia	Selangor	Bandar Baru Kuala Selangor	Jalan 2/3 Bandar Baru Kuala Selangor, 45000 Kuala Selangor, Selangor
MY0245			Malaysia	Selangor	Sugai Buloh	Jalan Kusta Sungai Buloh Kampung Melayu Batu 13 Sungai Buloh, 47000 Sungai Buloh, Selangor
MY0246			Malaysia	Selangor	Rawang Batu 20	Jalan 3/17 Bandar Tasik Puteri, 48000 Rawang, Selangor
MY0247			Malaysia	Selangor	Rasa	Jalan Damar 2 Kampung Chuang, 44200 Rasa, Selangor
MY0248			Malaysia	Selangor	Pulau Meranti	Jalan Pulau Meranti 47100 Puchong, Selangor
MY0249		**XXMY22**	Malaysia	Selangor	Pulau Indah	Persiaran Sultan Abdul Aziz Kampung Sungai Pinang, 42920 Pulau Lumut, Selango
MY0250			Malaysia	Selangor	Sugai Gumut Hulu Selangor	55 44000 Kuala Kubu Bahru, Selangor
MY0251			Malaysia	Selangor	Taiwan Industrial Park	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0252			Malaysia	Selangor	Ladang Emmot, Kajang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0253		**XXMY27**	Malaysia	Selangor	Subang Hi-Tech Industrial Park, Subang Jaya	Jalan Delima 1/2 Subang Hi-tech Industrial Park, 40000 Subang Jaya, Selangor
MY0254			Malaysia	Selangor	Sungai Choh Rawang Industrial Park	Jalan Sungai Buaya Kawasan Industri Sungai Choh, 48200 Serendah, Selangor
MY0255			Malaysia	Selangor	Saujana Impian Township, Kajang	1-13 Jalan Impian Indah 3 Taman Impian Indah, 43000 Kajang, Selangor
MY0256			Malaysia	Selangor	Balakong Section 16 & 26	Jalan Balakong Jaya 17 Taman Balakong Jaya, 43300 Seri Kembangan, Selangor
MY0257			Malaysia	Selangor	Hicom Industrial Valley, Shah Alam	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0258			Malaysia	Selangor	Bandar Bay Batang Kali, Mukim Hulu Yam	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0259			Malaysia	Selangor	Hulu Yam Industrial Area	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0260			Malaysia	Selangor	Tai Chong Industrial Park, Kelang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0261			Malaysia	Selangor	Puchong Industrial Park	9-21 Jalan TPP 1/13 Taman Perindustrian Puchong, 47100 Puchong, Selangor
MY0262			Malaysia	Selangor	Pandamaran	Jalan Sijangkang & Jalan Young Kawasan 10, 42000 Pelabuhan Klang, Selangor
MY0263			Malaysia	Selangor	Subang-Glenmarie, Subang	Jalan Lapangan Terbang Subang 40150 Shah Alam, Selangor
MY0264		**XXMY08**	Malaysia	Selangor	Bukit Raja Industrial Park, Shah Alam	Jalan Keluli 1 Taman Perindustrian Bukit Raja Selatan, 40000 Shah Alam, Selangor
MY0265			Malaysia	Selangor	Port Kelang Industrial Park	2-50 Lorong Seri Gambut 3 Taman Camellia, 41200 Klang, Selangor
MY0266			Malaysia	Selangor	Lion Industrial Park, Shah Alam	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0267			Malaysia	Selangor	Labohan Dagang Industrial Area	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0268		**XXMY29**	Malaysia	Selangor	Sugai Buloh Industrial Area	Puta Industrial Park Sungai,Buloh
MY0269			Malaysia	Selangor	Kimfals Holdings, Batu Caves	Jalan Sungai Buloh 40150 Shah Alam, Selangor

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MY0270			Malaysia	Selangor	Lee Lan & Sons, Kepong	Jalan Sungai Buloh 40150 Shah Alam, Selangor
MY0271			Malaysia	Selangor	Hicom Heavy Industries, Shah Alam	Jalan Sungai Buloh 40150 Shah Alam, Selangor
MY0272		**XXMY28**	Malaysia	Selangor	Subang Jaya Industrial Estate	Jalan SS 13/3 Subang Jaya Industrial Estate, 47500 Subang Jaya, Selangor
MY0273			Malaysia	Selangor	Bukit Raja	Persiaran Bukit Raja Bandar Baru Klang, 41150 Klang, Selangor
MY0274			Malaysia	Selangor	Sri Damansara Industrial Park	Persiaran Mahogani Kota Damansara, 47810 Petaling Jaya, Selangor,
MY0275			Malaysia	Selangor	Hicom Hong Leong, Shah Alam	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0276			Malaysia	Selangor	Saleha Development, Kelang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0277			Malaysia	Selangor	Taman Cempakasari, Kelang	1-47 Lorong Sungei Puloh 7 Taman Cempaka Sari, 41200 Klang, Selangor
MY0278			Malaysia	Selangor	Bukit Beruntung Industrial Park	Jalan Iskandar Kampung Bukit Kapar, 42200 Kapar, Selangor
MY0279			Malaysia	Selangor	Hicom Industrial Estate Sector B, Shah Alam	Persiaran Hulu Selangor Taman Perindustrian Hicom, 40400 Shah Alam, Selangor
MY0280			Malaysia	Selangor	Sugain Lang Industrial Area	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0281			Malaysia	Selangor	Bukit Sentosa Industrial Area	Jalan Iskandar Kampung Bukit Kapar, 42200 Kapar, Selangor
MY0282			Malaysia	Selangor	Meru Industrial Area	Persiaran Hamzah Alang Taman Perindustrian Meru, 42200 Kapar, Selangor
MY0283			Malaysia	Selangor	Mah Sing Integrated Industrial Area	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0284	**XXMY26**	**XXMY26**	Malaysia	Selangor	Shah Alam Section 15,15,21,22,23	Jalan Utas A 15/A Seksyen 15, 40200 Shah Alam, Selangor
MY0285			Malaysia	Selangor	Kundang Industrial Area	Jalan Kuala Selangor 40160 Shah Alam, Selangor
MY0286			Malaysia	Selangor	Palm Green Industrial Area	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0287			Malaysia	Selangor	Cosmoplex Salak Tinggi, Shah Alam Propoerties	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0288			Malaysia	Selangor	Bolton Industrial Park, Batu Caves	Jalan Batu Caves Kawasan Industri Batu Caves, 68100 Batu Caves, Selangor
MY0289			Malaysia	Selangor	Kelang Central Industrial Park	Jalan Awan Mendung Taman United, 58200 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur
MY0290			Malaysia	Selangor	Subang Integrated Light Industrial Park	Sekolah Kebangsaan Seafield Usj 2, 47500 Subang Jaya, Selangor
MY0291			Malaysia	Selangor	Taman Perindustrian Selat Kelang	Sungai Perigi Nanas 42000 Selangor
MY0292	**XXMY02**	**XXMY02**	Malaysia	Selangor	Bangi IV - Bandar Baru Bangi	Jalan Mahkota 1 Taman Mahkota, 43000 Kajang, Selangor
MY0293			Malaysia	Selangor	Taman Baru Tanjung Sepat	Jalan Mat Raji Kampung Padang Jawa, 40200 Shah Alam, Selangor
MY0294			Malaysia	Selangor	Bukit Serdang Industrial Park - Section 4	2-48 Jalan PBS 14/10 Taman Perindustrian Bukit Serdang, 43300 Seri Kembangan, Selangor
MY0295			Malaysia	Selangor	Petaling Jaya Selatan	Exit Lebuhraya Baru Lembah Klang & E1 47810 Petaling Jaya, Selangor
MY0296			Malaysia	Selangor	Selaman Industrial Park, Ampang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0297			Malaysia	Selangor	Furniture Village, Banting	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0298			Malaysia	Selangor	Foundry & Engineering Park, Sepang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0299			Malaysia	Selangor	Marine Industrial Park, Port Klang	1-97 Jalan Rengas Taman Selatan, 41200 Klang, Selangor
MY0300			Malaysia	Selangor	Taman Teknovasi Sg. Buloh	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0301			Malaysia	Selangor	Taman Bumiputra Batu Caves	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor

ID	Short List	Long List	COUNTRY	PROVINCE	PARK NAME	ADDRESS
MY0302			Malaysia	Selangor	Kawasan Perindustrian Electronik Telukp Naglima Garang	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0303			Malaysia	Selangor	Bukit Kemuning Electroplating Park, Shah Alam	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0304		**XXMY30**	Malaysia	Selangor	Sungai Way FZ	Petaling Jaya, 47300 Selanger
MY0305			Malaysia	Selangor	Ampang/ Hulu Klang FZ	Jalan Mamanda 11 Taman Dato Ahmad Razali, 68000 Ampang, Selangor
MY0306			Malaysia	Selangor	Petaling Jaya Section 51A & 52 & Kawasan Am Sungai Way	1-33 Jalan SS 5d/2 Kelana Jaya, 47301 Petaling Jaya, Selangor
MY0307			Malaysia	Selangor	Telok Panglima Garang FZ	2 Jalan Indah 4 Taman Indah Jaya, 42500 Telok Panglima Garang, Selangor
MY0308		**XXMY32**	Malaysia	Selangor	Temasya Industrial Park	Kelab Shah Alam Selangor Seksyen 13, 47000 Shah Alam, Selangor
MY0309			Malaysia	Selangor	Edaran Light Industrial Park	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0310			Malaysia	Selangor	Shah Alam International Estate	Persiaran Kewajipan 47600 Subang Jaya, Selangor
MY0311			Malaysia	Selangor	Selesa Jaya Industrial Park	Persiaran Dewan Besar Universiti Putra Malaysia, 43400 Serdang, Sela
MY0312			Malaysia	Selangor	Kinarara Industrial Park	24-58 Jalan Tpk 1/8 Taman Perindustrian Kinrara, 47100 Puchong, Selangor
MY0313			Malaysia	Selangor	Rawang Integrated Industrial Park	Persiaran Rawang 1 Kawasan Industri Rawang Intergrated, 48000 Rawang, Selangor
MY0314			Malaysia	Selangor	Kawasan Perindustrian Miel	Jalan P10/10 Kawasan Perindustrian Miel, 43650 Bandar Baru Bangi, Selangor
MY0315			Malaysia	Selangor	Pandan Indah Industrial Park	Jalan Kampung Pandan Kawasan 1, 41000 Klang, Selangor
MY0316			Malaysia	Selangor	Seri Kembagan Industrial Area	Jalan Sri Serdang Selatan Taman Sri Serdang, 43300 Seri Kembangan, Selangor
MY0317			Malaysia	Selangor	Batu Caves	2-20 Jalan Sejati 1 Taman Selayang Sejati, 68100 Batu Caves, Selangor
MY0318			Malaysia	Selangor	Senawang Industrial Park	Kajang - Seremban Hwy 70200 Seremban, Negeri Sembilan
MY0319		**XXMY11**	Malaysia	Selangor	Hicom Glenmarie Industrial Park	5-9 Jalan Peguam U1/25 Hicom-glenmarie Industrial Park, 40150 Shah Alam, Selangor
MY0320			Malaysia	Selangor	Beranang Industrial Estate	1 Jalan Beranang 5 27/14e Taman Bunga Negara, 40400 Shah Alam, Selangor
MY0321			Malaysia	Selangor	Selangor Science Park	Persiaran Masjid Seksyen 7, 40100 Shah Alam, Selangor
MY0322		**XXMY24**	Malaysia	Selangor	Selangor Science Park 2, Cyberjaya	Persiaran Apec 63000 Cyberjaya, Selangor
MY0323			Malaysia	Selangor	Sementa Industrial Zone	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0324			Malaysia	Selangor	Cyberjaya	Persiaran Apec Cyberjaya, 63000 Cyberjaya, Selangor
MY0325			Malaysia	Selangor	Bandar Baru Bangi Industrial Estate	Jalan Medan Pb 2b Seksyen 9, 43650 Bandar Baru Bangi, Selangor
MY0326			Malaysia	Selangor	Guthrie Aerospace & Technology Park	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0327			Malaysia	Selangor	Bandar Sultan Sulaiman	28-50 Jalan Sultan Abdul Samad 23 Bandar Sultan Sulaiman, 42000 Pelabuhan Klang, Selangor
MY0328			Malaysia	Selangor	Port Klang Free Zone	2-16 Jalan Cengal Kawasan 12, 42000 Pelabuhan Klang, Selangor
MY0329			Malaysia	Selangor	Taman Perindustrian Subang/Sungai Penaga	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0330			Malaysia	Selangor	Taman Perindustrian Marine, Kapar	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0331			Malaysia	Selangor	Sungai Kapar Indah Industrial Park	9 Jalan Wawasan 2 Sungai Kapar Indah Industrial Park, 42200 Kapar, Selangor
MY0332			Malaysia	Selangor	Taman Perindustrian UEP, Subang Jaya	Jalan TP 5 Taman Perindustrian Sime Uep, 47600 Subang Jaya, Selangor

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MY0333			Malaysia	Selangor	Ampang Ulu Klang Industrial Estate	Duta - Ulu Kelang Hwy 56000 Kuala Lumpur, Federal Territory of Kuala Lumpur
MY0334			Malaysia	Selangor	Kota Puteri Industrial Estate	Jalan Kuala Selangor 40160 Shah Alam, Selangor
MY0335			Malaysia	Selangor	Sepang Industrial Area	Jalan Gunggur 28/30 Taman Alam Megah, 40400 Shah Alam, Selangor
MY0336			Malaysia	Selangor	Selangor Halal Hub	Utara - Selatan Hwy Kuala Kubu Bharu, Selangor
MY0337			Malaysia	Terengganu	Sungai Besar	T156 Tasik Kenyir, 21700 Kuala Berang, Terengganu
MY0338			Malaysia	Terengganu	Bukit Besi	Jalan Mutiara Taman Harmoni, 23200 Bukit Besi, Terengganu
MY0339			Malaysia	Terengganu	Batu Rakit	3685 Kampung Batu Rakit, 21020 Kuala Terengganu, Terengganu
MY0340			Malaysia	Terengganu	Paka	Jalan Jerangau - Jabor Penghantar 5 23100 Paka, Terengganu
MY0341			Malaysia	Terengganu	Wakaf Tapai	Jalan Jabor - Al Muktafi Billah Shah Kampung Wakaf Tapai, 21040 Kuala Terengganu
MY0342			Malaysia	Terengganu	Ajil	T117 Kampung Pengkalan Ajal, 21800 Ajil, Terengganu
MY0343			Malaysia	Terengganu	Teluk Kalong	3 24100 Kijal, Terengganu
MY0344			Malaysia	Terengganu	Kemaman Supply Base	T13 24000 Cukai, Terengganu
MY0345			Malaysia	Terengganu	Kertih	3 24300 Kerteh, Terengganu
MY0346			Malaysia	Terengganu	Pulau Serai	Jalan Rajawali Kampung Pulau Serai, 23000 Dungun, Terengganu
MY0347			Malaysia	Terengganu	Cenering	Jalan Batu Buruk 20400 Kuala Terengganu, Terengganu
MY0348			Malaysia	Terengganu	Gong Badak	Jalan Tengku Ampuan Intan Zaharah Kampung Gong Badak, 21300 Kuala Terengganu, Terengganu
MY0349			Malaysia	Terengganu	Seri Medang	Jalan Medang Kampung Baharu Mak Cili, 24000 Cukai, Terengganu
MY0350			Malaysia	Terengganu	Ceneh Baharu	Jalan Jabor - Al Muktafi Billah Shah Bandar Ceneh Baharu, 24000 Cukai, Terengganu
MY0351			Malaysia	Terengganu	Seri Bandi	Jalan Bunga Raya Bandar Seri Bandi, 24000 Cukai, Terengganu
MY0352			Malaysia	Terengganu	Ketengah Jaya	Jalan Jerangau - Jabor Penghantar 5 22300 Ketengah Jaya, Terengganu
MY0353			Malaysia	Terengganu	Al Muktafi Billah Shah (I & II)	Jalan Sultan Abdul Rahman Bandar Al Muktafi Billah Shah, 23400 Al Muktafi Billah Shah, Terengganu
MY0354			Malaysia	Terengganu	Kertih Polymer Park	T11 Kampung Tajin, 21700 Kuala Berang, Terengganu
MY0355			Malaysia	Terengganu	Kawasan Perindustrian Telok Kalong, Kemaman	T131 Desa Salehah, 24000 Cukai, Terengganu
MY0356			Malaysia	Terengganu	Al Muktafi Billah Shah (I & II)	Jalan Sultan Abdul Rahman Bandar Al Muktafi Billah Shah, 23400 Al Muktafi Billah Shah, Terengganu
MY0357			Malaysia	Terengganu	Kawasan Perindustrian Jakar, Kemaman	3 24000 Cukai, Terengganu
MY0358			Malaysia	Terengganu	Ceneh Baharu	Jalan Jabor - Al Muktafi Billah Shah Bandar Ceneh Baharu, 24000 Cukai, Terengganu
MY0359			Malaysia	Terengganu	Sungai Bari	T168 Kampung Bukit Putera, 21450 Chalok, Terengganu
MY0360			Malaysia	Terengganu	Seri Medang	Jalan Medang Kampung Baharu Mak Cili, 24000 Cukai, Terengganu
MY0361			Malaysia	Terengganu	Kemaman Boat Building & Repair Park	T13 24000 Cukai, Terengganu
MY0362			Malaysia	Terengganu	Kemaman Heavy Industrial Park	T13 24000 Cukai, Terengganu
MY0363			Malaysia	Terengganu	Kemaman Port Free Zone	T13 24000 Cukai, Terengganu

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MY0364			Malaysia	Wilayah Persekutuan	Ranca-Ranca Industrial Estate	A7 89760 Menumbok, Sabah
MY0365			Malaysia	Wilayah Persekutuan	Bukit Jalil Teknology Park	8 27100 Padang Tengku, Pahang
MY0366			Malaysia	Wilayah Persekutuan	6 1/2 Mile Kepong Road	1-19 Jalan Kepong 52000 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur
MY0367			Malaysia	Wilayah Persekutuan	BH Realty, Kapong Industrial Area	8 27100 Padang Tengku, Pahang
MY0368			Malaysia	Wilayah Persekutuan	Setapak & PKNS Industrial Area	8 27100 Padang Tengku, Pahang
MY0369		**XXMY16**	Malaysia	Selangor	Mahkota Industrial Park	Beranang, Selangor, Malaysia
MY0370		**XXMY34**	Malaysia	Selangor	UMW Land	Petaling Jaya, Selangor, Malaysia
MY0371		**XXMY35**	Malaysia	Selangor	Zurah Industrial Park	Utara Selatan Hwy, Kuala Kubu, Bahru, Selango

Appendix 4:
General Investment Risk of Malaysia

(1) Political Risk

Malaysia has historically enjoyed a high degree of political stability under the Barisan Nasional (BN) coalition, which has ruled the country since independence. However, since the end of 2007, the BN has faced the challenge of addressing growing ethnic tension in the political sphere amid popular discontent over the country's pro-Malay policies. The government of former Prime Minister Abdullah Ahmad Badawi saw his stance weakened amid concerns over government corruption, marginalization of ethnic minorities, and inflation in 2007 and 2008. This culminated in the BN losing its two-thirds majority in parliament in the 2008 general election for the first time.

Following a subsequent leadership change, the BN has been led by current Prime Minister Najib Razak. Although the BN was able to hold onto power in the general election held on 5 May 2013, it failed to win the popular vote for the first time in 44 years, exposing sharpening divisions within the country. The main challenge now for the three-party opposition alliance - the People's Alliance (Pakatan Rakyat, PR), led by Anwar Ibrahim and consisting of Anwar's Parti Keadilan Rakyat, the ethnic Malaysian-Chinese Democratic Action Party (DAP), and the conservative Parti Islam SeMalaysia (PAS) - is to maintain its gained momentum. The opposition parties cater to widely differing constituencies are united mainly by their shared desire to remove the BN.

The poll outcome is likely to lead to intensifying disagreement within the BN's leading party, the United Malays National Organization (UMNO), over how to respond to its reduced mandate based on voters' approval rather than seats held, and particularly the growing disillusionment among ethnic Chinese Malaysians. Widespread anger over perceived marginalization of ethnic minorities, existing economic disparities, and government corruption are some of the issues that took votes away from the BN. During its next five-year term, the BN is likely to continue on the same economic and development path and push for creation of 3.3 million jobs by 2018, lower private and corporate income tax, and improve public transportation. Given this, the political outlook is stable over the next five years, but beyond that timeframe foreign investors need to be prepared for potential changes in government and investment policies.

(2) Economic Risk

Malaysia is one of Southeast Asia's most successful economies, with per-capita income now above USD 10,000. The Asia crisis, to which authorities responded in a non-conformist fashion (capital controls and expansionary fiscal policies), briefly interrupted a decade of 9%-plus annual growth. Since then, the financial sector has been greatly strengthened, the investment environment gradually liberalized, the fixed exchange rate abandoned, and most capital controls eliminated. Growth has remained steady, although it downshifted to 5.6% annually during 1999–2008. Good infrastructure, rule of law, political stability and a well-educated labor force are notable assets. To preserve the country's competitiveness, the government has announced a 10-year investment plan that aims to mobilize USD 444 billion in investment. From a more fundamental perspective, deeper deregulation and a more open and flexible labor market are required to strengthen the investment climate, promote innovation, and foster entrepreneurship for long-lasting growth.

Robust investment growth, driven by a combination of private-sector capacity expansion and government-financed infrastructure investment, and strong private consumption anchored in stable incomes and low inflation are two main pillars of the Malaysian economy. Net exports, whose contribution to growth has been traditionally large, have lost luster in recent quarters amid sluggish external demand and do not look poised for a meaningful recovery in the near term. Nonetheless, real GDP growth of almost 5.0% in 2013 is widely anticipated.

In the private sector, risks of expropriation are very low and government interference in foreign contracts is generally unlikely. Malaysia is particularly keen to attract foreign investment in high-value export-oriented industries such as electronics, machine manufacturing and medical devices. Moreover, it is intent on developing information technology and other research-intensive sectors for the development of the Multimedia Super Corridor, as well as the country's business processing and back office operations. Investment in these priority sectors is incentivized by faster provision, approval and renewal of the necessary licenses. Corruption remains a risk, but is most prevalent in government contracts for infrastructure projects and defense.

(3) Legal Risk

Malaysia's legal system is based on English Common Law, and is pro-business in its outlook. Although there have been accusations of political influence being brought to bear in some sensitive criminal and civil legal cases, the local judiciary and legal profession are generally considered to be independent. Foreign investors can be confident that commercial cases will by and large be handled independently, and that redress to a higher court is effective.

The principal entities available in Malaysia to foreign investors are sole proprietorships, partnerships, locally incorporated company, and a foreign company registered under the Companies Act 1965. Any two or more persons may incorporate a company and three types of company may be formed. The most popular is a company limited by shares, where the personal liability of members is limited to the amount, if any, unpaid on their shares. A company may be private or public. A foreign company may operate a branch in Malaysia instead of forming a local company. Prior approval of the Ministry of International Trade and Industry must be obtained, after which the branch must register itself with the Register of Companies before commencing business in Malaysia. The Ministry encourages foreign companies doing business in Malaysia to incorporate local subsidiaries. As such, the Ministry does not permit companies to register branches in Malaysia unless these companies have been awarded government or quasi-governmental contracts. It is a fairly easy process to establish a business in Malaysia, taking an average of three procedures and six days.

(4) Tax Risk

Malaysia's tax system is relatively well developed and represents a transparent framework that contributes to a positive environment for businesses. The system is based on the UK and Australian models. The corporate tax rate is 25% and was last changed in 2009 when it was decreased by 1%. Given that tax revenue increased by 12% in 2012, the government has scope to reduce corporate taxes, a move Prime Minister Najib is considering. The government is unlikely to impose windfall taxes. Any tax changes are likely to be motivated by regional competitiveness, such as the proposal in July 2012 to increase shipping quotas for tax free palm oil by two million tonnes, announced after Indonesian palm oil had out-sold Malaysian oil. Incentives are an integral part of the tax system and the existence of a wide range of tax

holiday schemes and reductions, particularly at export-oriented high-tech industries, serve to make the country more competitive. Malaysia also has a wide tax treaty network of over 70 treaties, meaning possible further reductions to tax rates.

(5) War Risk

War risks in Malaysia are low, and generally unlikely to impact business continuity. Malaysia has a number of disputed maritime borders with Indonesia. The most significant is Ambalat, which began in 1979 when Malaysia published a map showing a large portion of the area within its territory. The dispute escalated in 2005 after oil reserves were found in Ambalat. Both countries subsequently deployed naval forces to guard the area. In 2008, Indonesia's Parliament lodged a protest against alleged territorial violations by Malaysian troops in the area. Both countries have awarded exploration rights to companies there. Despite this, military conflict over Ambalat is unlikely, and commercial vessels in the disputed area are unlikely to be harassed by naval vessels. In 2002, a previous maritime dispute between the two countries concerning the Sipadan and Ligitan Islands was resolved by the International Court of Justice in Malaysia's favor. It is likely that the Ambalat dispute will also be diplomatically resolved.

Another maritime dispute primarily between Malaysia, the Philippines, Vietnam and China concerns the Spratly Islands. Malaysia is likely to work towards a diplomatic reconciliation of this dispute. During past flare ups of the dispute, Malaysia avoided escalating rhetoric or military posturing, although it has the highest number of oil and gas wells in the disputed area of all the competing claimant nations.

Another issue is occasional disputes with Singapore, including over water provision. These are usually resolved at the prime ministerial level, and over the past three years there has been continued improvement in bilateral relations, making any military confrontation unlikely.

(6) Terrorism Risk

There is currently no evidence of active militant groups operating in Malaysia, primarily as authorities have been proactive in countering the threat posed from Islamic fundamentalism. This includes close monitoring of regional terrorists, arrests and increased scrutiny for those travelling from the Middle East, North Africa and the Asian subcontinent. The Islamist militant group Jemaah Islamiyah (JI), which is based

in Indonesia, remains Malaysia's principal militant threat. We assess that a JI attack on Malaysian soil is unlikely given the group's reduced capability and its focus on targeting Indonesia. However, urban and tourist areas of Kuala Lumpur are probable aspirational targets.

Some Thai separatists, fighting an insurgency in southern Thailand, are based in areas bordering Malaysia. However, these groups are very unlikely to target Malaysia itself as they share cultural, religious and linguistic similarities with the country. The ties are such that the Thai government uses the Malaysian government to mediate discussions with the insurgents.

Individuals in the eastern Malaysian states of Sabah and Sarawak are targeted for kidnap by the Philippines-based Abu Sayyaf militant group. Following the ongoing peace negotiations between the Philippine government and the Moro Islamic Liberation Front in Mindanao, Abu Sayyaf is likely to increase domestic attacks to get a peace deal for themselves. Abu Sayyaf militants are likely to increasingly target locals and foreigners in Basilan and the waters bordering northern Borneo Island and South Mindanao in the next year to finance their intensified attacks.

There is a moderate risk of piracy in Malaysian waters. Pirates operate in groups of up to six people, sometimes buying information about cargo and routes from corrupt port officials. To counter this, the Malaysian Maritime Enforcement Agency places undercover agents at ports and on ships to gather intelligence on pirates. Traditionally, the Malacca Strait has been a hotspot for piracy, but attacks have decreased over the past few years because of improved maritime security cooperation between Indonesia, Malaysia and Singapore. While hijackings are unlikely, there is an elevated risk of robbery of stores, equipment and crew possessions anchored vessels. Robberies are normally opportunistic and carried out by assailants armed with knives, but it is uncommon for crew members to be killed or injured.

(7) Civil Unrest Risk

Malaysia's population predominantly consists of ethnic Malays and large ethnic Indian and Chinese minorities. Since independence, the government has implemented policies favoring Malays. The government is likely to gradually scale back these policies, which means there is an elevated risk of protests from the Malays. There is also an elevated risk that ethnic Indians groups, primarily the Hindu Rights

Action Force (HINDRAF), will protest against perceived discrimination. Such protests are likely in Kuala Lumpur near Independence Square (Dataran Merdeka), Merdeka Stadium, the National Mosque and the Petronas Twin Towers. They are also likely in Putrajaya, the administrative capital, outside the prime minister's residence (Seri Perdana), the Prime Minister's Office (Perdana Putra) and the Home Ministry. Protests over race policies will probably involve hundreds of people but are unlikely to cause damage to commercial property. Such protests are likely to be contained forcibly by the police.

Political rallies are also likely. In January 2013, 2,000 people gathered for an opposition rally in the Merkeda Stadium in Kuala Lumpur. Such protests are unlikely to become violent until the police intervene and use water cannons, tear-gas and beatings to disperse the crowds. The election reform rally in April 2012 was peaceful until a barrier was breached and police used tear gas and water cannons to disperse the group. Any violence is likely to consist of fighting between protesters and police, including the use of tear gas and water cannons. Collateral damage to commercial assets is likely to be superficial.

Strikes are generally rare and are unlikely to significantly undermine business continuity. Unions in Malaysia are strong and have significant lobbying power. This allows them to address worker grievances, such as wage disputes and working hours, before the need for industrial action arises. Moreover, the government does not tolerate any industrial unrest that could negatively affect Malaysia's reputation as a business friendly destination. The government is therefore likely to try and resolve the situation to avert strikes, particularly in the IT, manufacturing and transport sectors. If strikes do occur, we expect the government to use force in ending the strikes as soon as possible, including the use of teargas and rubber bullets. Violent strikes will pose a moderate risk of collateral damage to commercial property. When strikes occur in the transport sector, delays are likely last for only a few days. In May 2012 haulage workers at Port Klang went on strike for three days.