Monographic issue

# Disaster Public Health and Refugee in Malaysia

Gan Rick Kye

# Letter from the editors

The Emergency and Disaster Reports is a journal edited by the Unit for Research in Emergency and Disaster of the Department of Medicine of the University of Oviedo aimed to introduce research papers, monographic reviews and technical reports related to the fields of Medicine and Public Health in the contexts of emergency and disaster. Both situations are events that can deeply affect the health, the economy, the environment and the development of the affected populations.

The topics covered by the journal include a wide range of issues related to the different dimensions of the phenomena of emergency and disaster, ranging from the study of the risk factors, patterns of frequency and distribution, characteristics, impacts, prevention, preparedness, mitigation, response, humanitarian aid, standards of intervention, operative research, recovery, rehabilitation, resilience and policies, strategies and actions to address these phenomena from a risk reduction approach. In the last thirty years has been substantial progress in the above-mentioned areas in part thanks to a better scientific knowledge of the subject. The aim of the journal is to contribute to this progress facilitating the dissemination of the results of research in this field.

This monographic issue is about disaster risk profile of refugee in Malaysia. By the end of January 2021, UNHCR registered 178,710 refugees in West Malaysia. Considered safe havens for many, Malaysia has long hosted considerable numbers of refugees from various nationality. However, the lack of national frameworks leaves refugee and asylum seekers vulnerable to disasters. This monographic issue gives an overview of various hazards, vulnerabilities and capacities from the perspective of disaster public health and refugee in Malaysia.

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**ORIGINAL RESEARCH**

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# Disaster Public Health and Refugee in Malaysia

*Gan Rick Kye*

# Acknowledgement

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# Abbreviation

| | |
|---|---|
| AADMER | ASEAN Agreement on Disaster Management and Emergency Response |
| APSED | Asia Pacific Strategy for Emerging Diseases |
| ASEAN | The Association of Southeast Asian Nations |
| ASEAN-ERAT | ASEAN - Emergency Response and Assessment Team |
| CAAM | Civil Aviation Authority Malaysia |
| CBDRR | Community-Based Disaster Risk Reduction |
| CDMRC | Central Disaster Management and Relief Committee |
| COVID-19 | Coronavirus disease 2019 |
| CRED | Centre for Research on the Epidemiology of Disasters |
| DDMRC | District Disaster Management and Relief Committee |
| DELSA | Disaster Emergency Logistics System for ASEAN |
| DID | Malaysian Department of Irrigation and Drainage |
| DDMRC | District Disaster Management and Relief Committee |
| DDOCC | District Disaster Operation Control Center |
| DMRC | The Disaster Management and Relief Committee |
| DOE | Department of Environment |
| EM-DAT | Emergency Database |
| FDMRC | Federal Disaster Management and Relief Committee |
| FETP | Field Epidemiology Training Programme |
| FNDRT | Fund of National Disaster Relief Trust |
| HIV | Human Immunodeficiency Virus |
| ICU | Intensive Care Unit |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| INFORM | Index for Risk Management |
| INSARAG | International Search and Rescue Advisory Group |
| LGBTI | Lesbian, Gay, Bisexual, Transgender and Intersex |
| MACRES | Malaysian Centre for Remote Sensing |
| MAF | Malaysian Armed Forces |
| MCDF/APM | Malaysia Civil Defence Forces/Angkatan Pertahanan Awam Malaysia |
| MERCY | Malaysian Medical Relief Society |
| MERS-CoV | Middle East Respiratory Syndrome Coronavirus |
| METMalaysia/MMD | The Malaysian Meteorological Department |
| MKN/NSC | Majlis Keselamatan Negara/Malaysia's National Security Council |
| MMEA | Malaysian Maritime Enforcement Agency |
| MRCS | Malaysian Red Crescent Society |
| MOH | Ministry of Health |
| myDRR | The National Platform and Action Plan for Disaster Risk Reduction of Malaysia |

| | |
|---|---|
| MYR | Malaysian Ringgit (formerly Malaysian Dollar) |
| MySED II | Malaysian Strategy for Emerging Disease and Public Health Emergencies II |
| NADMA | National Disaster Management Agency |
| NDMRC | Natural Disaster Management and Relief Committee |
| NGO | Non-Governmental Organization |
| OCHA | United Nations Office for the Coordination of Humanitarian Affairs |
| REMEDI | Refugee Medical Insurance |
| RSF | Royal Sulu Force |
| RTU | Remote Telemetry Unit |
| SARS | Severe Acute Respiratory Syndrome |
| SDG | Sustainable Development Goals |
| SDMRC | State Disaster Management and Relief Committee |
| SMART | Special Malaysia Disaster Assistance and Rescue Agency |
| SMS | Short Message Service |
| SDMRC | State Disaster Management and Relief Committee |
| SDOCC | State Disaster Operation Control Centre |
| UNCT | United Nations Country Team |
| UNDRR | United Nations Office for Disaster Risk Reduction |
| UNHCR | United Nations High Commissioner for Refugees |
| US CDC | United States Centers for Disease Control and Prevention |
| USAID | United States Agency for International Development |
| USD | US Dollar |
| WHO | World Health Organization |

# 1.Introduction

The world has witness 79.5million people forcefully displaced by the end of 2019, reaching a new height as violence, human right violation, conflict, persecution, and events that seriously disturbing the public order are on the rise. Among them, 40% or an estimated 34millions were children below 18 years of age. 85% of the world's refugees were hosted in developing countries(1). According to Asia-pacific migration report 2020, Asia-Pacific countries at the end of 2019, hosted the largest refugee population in the world. Malaysia is one of the many destinations in Asia-pacific, whereby in March 2021, UNHCR reported 188,127 people of concern, including refugee, stateless person, refugee-like situation, and asylum seeker(2).

Malaysia has been attraction to foreign migrants including refugee due to its' geographical location, labour shortage, higher wages, employer attitudes, stable and sound government (3). Nevertheless, Malaysia is non-signatory country to the 1954 Statelessness Convention or the 1961 Statelessness Convention, the Refugee Convention, the International Convention on the Elimination of All Forms of Racial Discrimination, the International Covenant on Civil and Political rights, the Convention against Torture among others (4). This situation made Malaysia unable to distinguish refugees, stateless person and illegal migrant workers and considers all of them illegal. They are therefore at risk of being arrest and detained. Moreover, they are also deprived of right to work, education and even healthcare. However, Malaysia permits UNHCR to register, determine status and provide aid to these populations. Currently, there are no official refugee camp in Malaysia. Most refugee reside in urban cities such as Kuala Lumpur, Klang Valley and Penang (5).

Public health is defined as "the art and science of preventing disease, prolonging life and promoting health through the organised efforts of society" (6). Public health emergencies can arise from wide range of causes, such as natural disasters including outbreak of life-threatening disease, technological disasters, and complex emergencies (7). In the similar context, disaster arises when there is "[a] serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources"(8). Therefore, "Disaster public health and refugee in Malaysia" is a narrative literature review that address disaster health and medical needs, risk that threatened physical, mental, and social health from the perspective of refugee in Malaysia, who have become a part and parcel of the community in Malaysia.

# 2.Methods

This report utilize the following main secondary sources of information: Historical review of disaster primarily utilizing the Emergency Database (EM-DAT) of the Centre for Research on the Epidemiology of Disasters (CRED); reports from Reliefweb and Preventionweb; a comprehensive desk review of the Non-governmental organisation reports, key national documents including policies, plans, previous assessments and reports; and Internet searches for disaster and refugee related research conducted on the country including PubMEd and using key words plus the Boolean "AND" Malaysia. The disaster terminology used is based on definitions from the United Nations Office for Disaster Risk Reduction (UNDRR).

# 3.Background
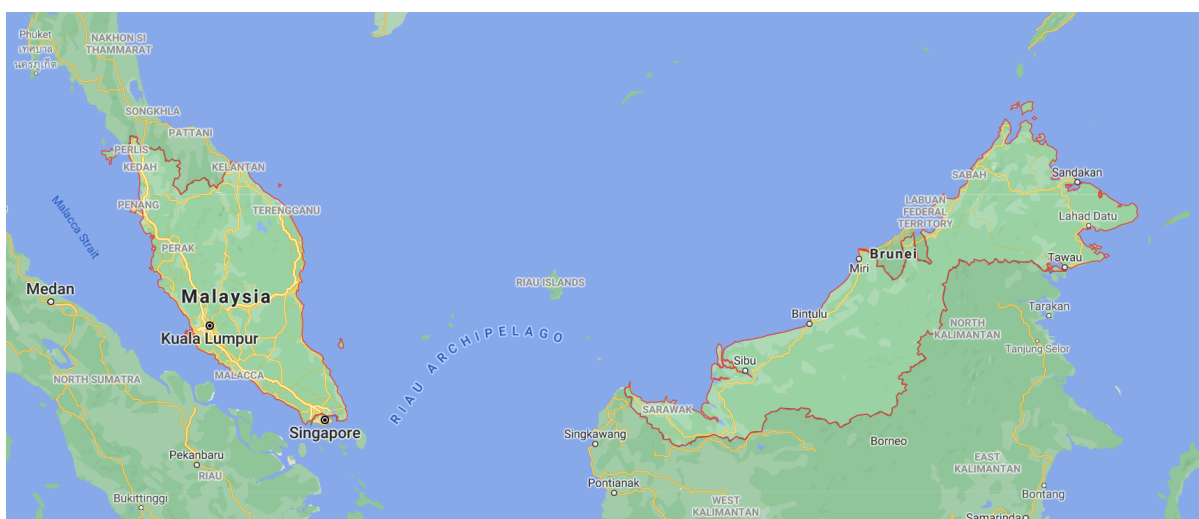


Figure 1: Map of Malaysia (Source : Google Map)

Malaysia, country of Southeast Asia, is composed of two non-contiguous regions: Peninsular Malaysia (Semenanjung Malaysia), also called West Malaysia (Malaysia Barat), and East Malaysia (Malaysia Timur), which is on the island of Borneo. Kuala Lumpur, capital of Malaysia lies in the western part of the peninsula, about 40km from the coast.

Peninsular Malaysia occupies most of the southern segment of the Malay Peninsula. To the north it is bordered by Thailand, with which it shares a land boundary of some 480 km. To the south, at the tip of the peninsula, is the island republic of Singapore. To the southwest, across the Strait of Malacca, is the island of Sumatra in Indonesia.

East Malaysia consists of the country's two largest states, Sarawak, and Sabah, and is separated from Peninsular Malaysia by 640 km of the South China Sea. These two states occupy roughly the northern fourth of the large island of Borneo and share a land boundary with the Indonesian portion (Kalimantan) of the island to the south. Surrounded by Sarawak is a small coastal enclave containing the sultanate of Brunei. Of the country's total area, which includes about 690 km$^2$ of inland water, Peninsular Malaysia constitutes about 40 percent and East Malaysia about 60 percent(9).

According to the department of Statistics Malaysia, the country's population in 2020 was estimated to be 32.73 million, increased by 0.4% as compared to 2019. Around 29.85million are citizen and 2.87 million of non-citizen. There are 121,251 live births and 44,390 death in 2020(10).

# 4.Defining refugee in context of Malaysia

Refugees are persons who are outside their country of origin for reasons of feared persecution, conflict, generalized violence, or other circumstances that have seriously disturbed public order and, as a result, require international protection. The refugee definition can be found in the 1951 Convention and regional refugee instruments, as well as UNHCR's Statute (11).

Malaysia is neither party to the Convention relating to the Status of Refugees of 1951 (the 1951 Refugee Convention) nor the Convention relating to the Status of Stateless Persons of 1954 (the 1954 Convention). Malaysia also has yet to accede to the Convention on the Reduction of Statelessness (the 1961 Convention). Refugee and stateless person in Malaysia are not categorised into separate groups of individuals in need of international law protection the way they are categorised by state parties to the conventions (12).

This lack of any recognition has an impact on many aspects of refugee's lives. Their access to work, education, and healthcare as well as the ability to travel, own property or get married can be obstructed, eventually leads to the political, social, and economic marginalisation of the individuals concerned. This can also be detrimental to a person's sense of identity and worth. These hardships is a source of vulnerability and will be transmitted from parent to child. (13)

# 5.UNHCR Registered Refugee in Malaysia

As of end January 2021, there are some 178,710 refugees and asylum-seekers registered with UNHCR in West Malaysia. Some 154,140 are from Myanmar, comprising some 102,350 Rohingyas, 22,430 Chins, and 29,360 other ethnic groups from conflict-affected areas or fleeing persecution in Myanmar. The remaining individuals are some 24,560 refugees and asylum-seekers from 50 countries fleeing war and persecution, including some 6,610 Pakistanis, 3,650 Yemenis, 3,250 Syrians 3,230 Somalis, 2,660 Afghans, 1,730 Sri Lankans, 1,210 Iraqis, 750 Palestinians, and others. Some 68% of refugees and asylum-seekers are men, while 32% are women. There are some 45,630 children below the age of 18. However, UNHCR only publish data regarding person of concern in West-Malaysia. Data regarding East-Malaysia (Sabah, Sarawak and Labuan) is not available (14).

Figure 2: Numbers of registered UNHCR Person of Concern in Malaysia according to states (Source: UNHCR Malaysia)

| States | UNHCR Persons of Concern |
|---|---|
| Selangor | 66,030 |
| Kuala Lumpur | 27,370 |
| Pulau Pinang | 18,660 |
| Johor | 14,332 |
| Kedah | 12,570 |
| Terengganu | 5,780 |
| Pahang | 5,630 |
| Kelantan | 4,520 |
| Perak | 3,780 |
| Negeri Sembilan | 2,670 |
| Melaka | 1,990 |
| Putrajaya | 450 |
| Perlis | 280 |

Currently there is no publicly available data on the extent of refugee in East Malaysia. **Without regular status and proper documentation, refugee are at risk of arrest and**

**detention and have limited access to employment, public education and government supported health care**(15).

# 6.Hazards and Disasters in Malaysia

Hazards and disasters in Malaysia can be classified into three categories based on causality:

i.   Natural hazards and disasters : Such as floods, landslides, haze, earthquake, epidemics, as well as some rare cases of droughts and tsunami.

ii.   Technological hazards and disasters : Such as transport accident, industrial accident and miscellaneous accident that includes fire, collapse or explosion.

iii.   Complex emergencies : Such as Lahad Datu incursion.

## 6.1 Natural Hazards and Disasters in Malaysia

Geographically, Malaysia is considered as a stable region because it is located outside the Ring of Fire and south of major typhoon paths. However, Malaysia is often affected by other natural hazards such as floods, landslides, haze, earthquake, as well as some rare cases of droughts and tsunami.According to International Disaster Database (EM-DAT) from Centre for Research on the Epidemiology of Disasters (CRED), Malaysia experienced 62 natural disasters from the period of 2000 – mid 2021. It is estimated that over 3million people were affected, 358 death and  nearly USD 2billion in damages (18).
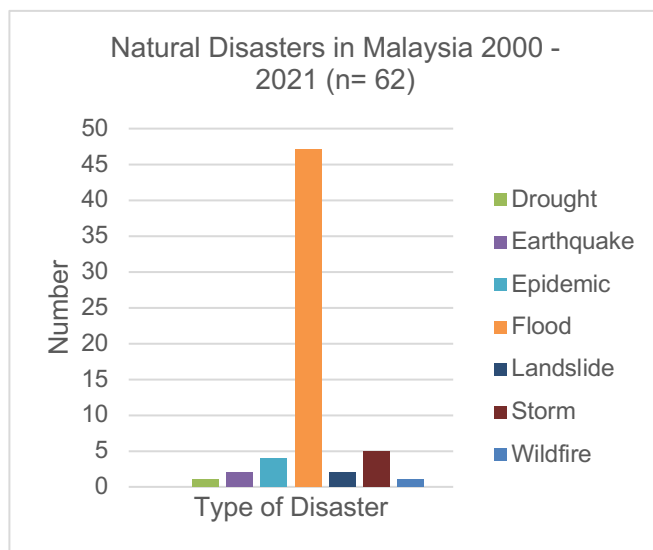


Figure 3: shows type and number of natural disasters in Malaysia from 2000-2021 (Source: EM-DAT).
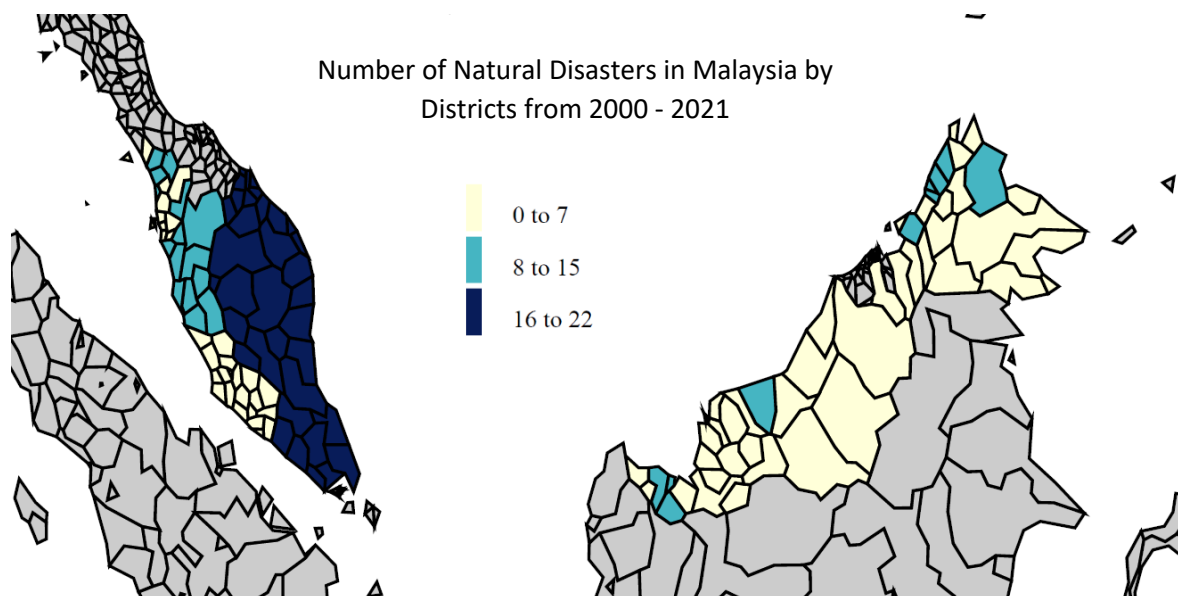
Figure 4: Number of Natural Disasters in Malaysia by Districts from 2000 - 2021( Source: EM-DAT)

## i.Floods

Floods are the most common natural hazard and disaster in Malaysia. According to ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management, (Figure 5) shows flood prone area of Malaysia(Source: Department of Irrigation and Drainage Malaysia). Malaysia had the highest percentage (67%) of the population exposed to floods among ASEAN member states in 2019 (19). From the period of 2000 to 2021, flood in Malaysia has caused 163 death and almost USD 1.5billion in damages(18). Areas prone to flooding for Malaysia are approximately 29,800km$^2$ or 9% of land area of the country.
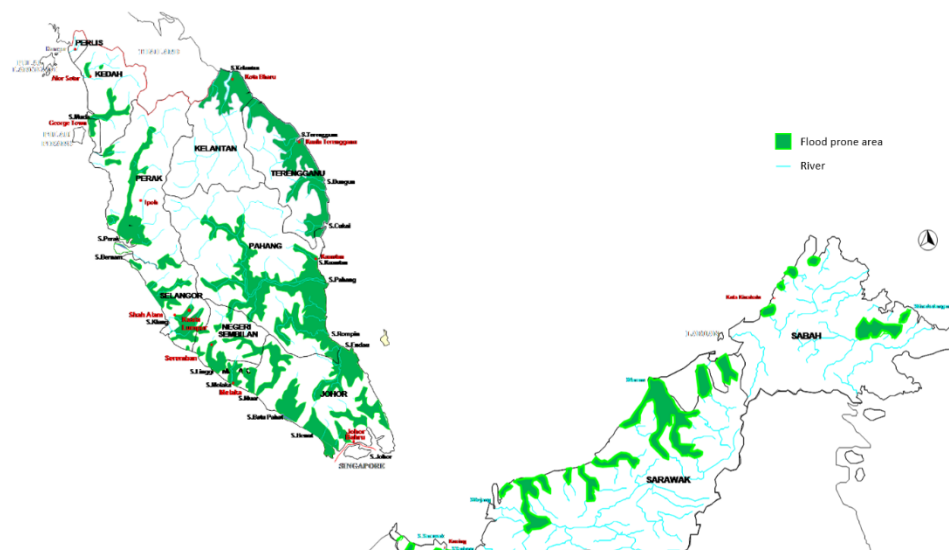


Figure 5: Flood prone area of Malaysia(Source: Department of Irrigation and Drainage Malaysia)

Large floods usually occur in the northern states of Malaysia due to prolonged rainfall especially in the monsoon season of November and December. The states of Johor, Pahang, Terengganu, Pahang, Sabah, and Sarawak are affected, and flooding occurs annually. Other states include Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan and Melaka as well as the Federal Territories Kuala Lumpur often experience flash floods(20).

## ii.Storms

Malaysia is located south to the major typhoon path. Nevertheless, storms are the second most common natural hazard and disaster in Malaysia. Coastal regions and islands of Malaysia are particularly exposed as they are affected not only by the direct impact of a storm, but also by the additional hazards of storm surges and pounding waves. This also causes huge amounts of rainfall – especially on the windward side of mountains, frequently resulting in extremely severe floods and landslides. From the period of 2000 to 2021, storms in Malaysia has affected more than 41,000 Malaysian (18).

Figure 6: Storm hazard risk adapted from OCHA regional office for Asia Pasific, showing Malaysia's risk of affected by tropical storm (Source: OCHA) (23).
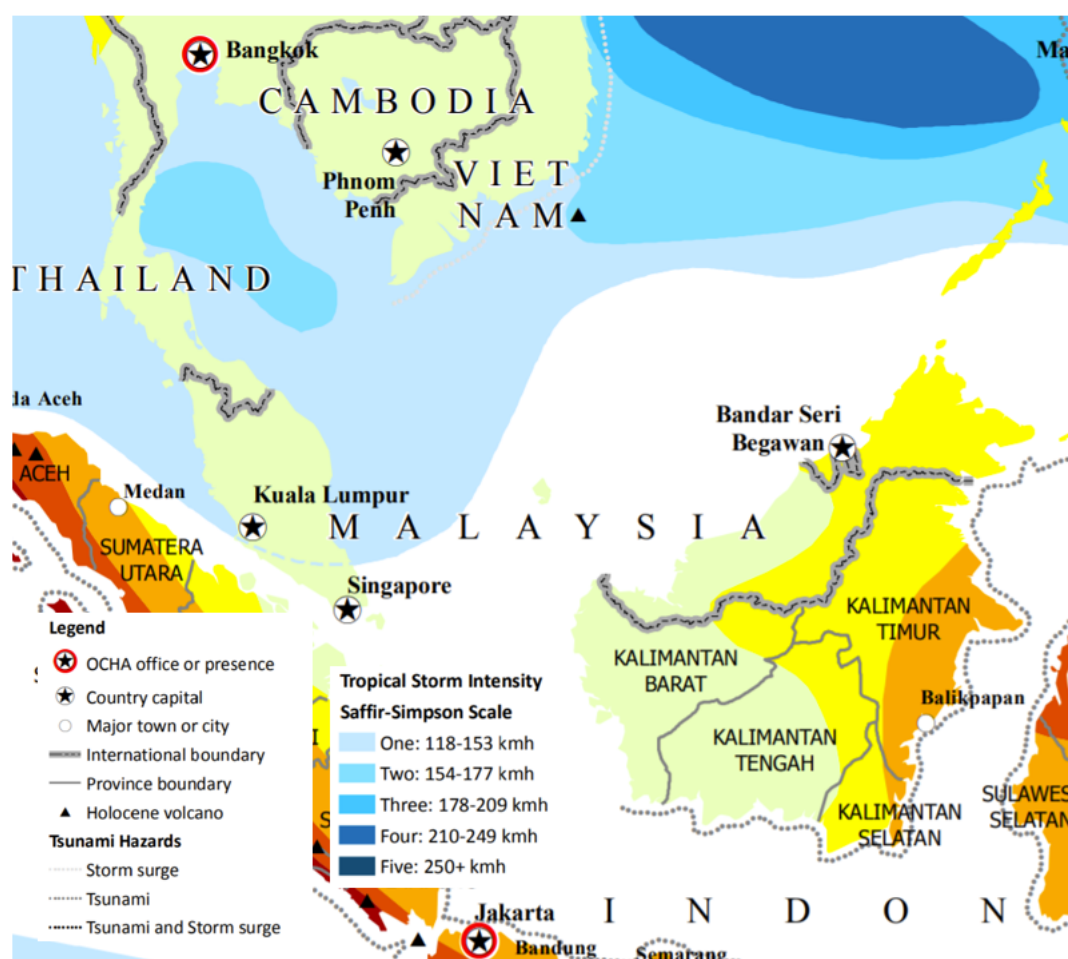
On August 10, 2019, the northern part of the Malaysian Peninsula suffered from strong winds and heavy rain when Typhoon Lekima hit China. The presence of the typhoon encouraged the formation of squall lines over the northern part of the Peninsula which severely damaged infrastructure and affected the lives of the people in state of Perlis, Kedah, Penang and Pulau Langkawi(24).

## iii.Epidemics

**Epidemic** is defined as an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area. Epidemics is the third most common natural hazard and disaster in Malaysia. From the period of 2000 to 2021, Malaysia has experienced epidemics due to mainly viral diseases such as Hand-Foot-Mouth disease, Dengue, Severe Acute Respiratory Syndrome (SARS), Influenza, Middle East Respiratory Syndrome Coronavirus (MERS-CoV), Polio outbreak and Covid-19 pandemic(18,25,26) .

Vector- and water-borne diseases are also associated with climate related hazards and disasters. For example, Dengue outbreak has been recently reported, often occurring in urban and peri-urban areas in the late monsoon season throughout October and February in east Peninsular Malaysia, and from July to August in the west Peninsular Malaysia. Major incidents of infectious water-borne diseases, often arising during flooding, also affect the country. Hepatitis, typhoid, and cholera are still endemic, even when they do not pose an on-going public health problem(27).

Amidst of Covid-19 epidemic-pandemic, the number of Covid-19 cases reported in Malaysia continues to increase, with 29 433 cases reported from 10-16 May 2021. This average to about 4205 cases per day. Overall, 63 969 tests were conducted per day, with a positivity rate of 4.48%. Of the newly reported cases, 32 (0.1%) were imported, and 29 401 (99.9%) were locally transmitted (28).
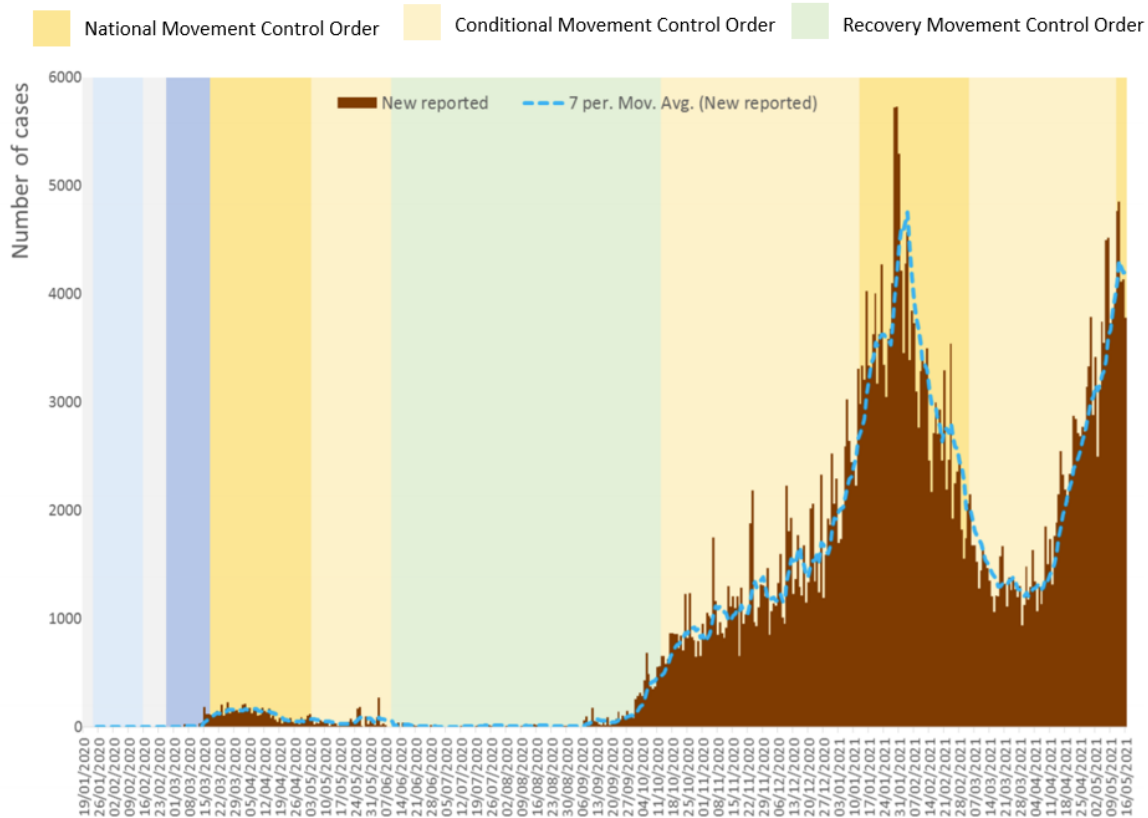
Figure 7: The number of daily confirmed Covid-19 new cases reported in Malaysia and the seven-day moving average (Source: WHO).

The background colour bands indicate the implementation timeline of COVID19 Movement Control Order measures throughout the epidemic(28).

Along with the increase in newly reported cases, there has been an increase (25%) in the number of critically ill cases requiring Intensive Care Unit (ICU) support. Nationwide, 520 cases required intensive care on 16 May, and of these, 272 required ventilators. The ICU utilization rate has reached above 70%, with certain states more severely affected. The number of deaths has increased by 46%, with 219 deaths this week. Making the total cumulative death 1902 with case fatality rate of 0.4%. New clusters are mostly linked to workplaces, followed by community-based clusters(28).

# iv.Landslide

Landslides are also a common natural hazard and disaster in Malaysia. The main factors that cause landslides or slope failure in Malaysia are rainfall, storm water activities, poor slope management, and improper site management during earth moving phases of construction. Additionally, highways affected by major landslides, even if non-fatal, can result in serious disruptions to the transportation network and adversely affect the public. As the population density of cities increases, the development of highland or hilly terrain also increased. This exposes urban communities to an elevated risk of landslide occurrence.

Since 1973, landslides have caused estimated damages exceeding USD 1 billion, and rapid development expanding to hilly terrain has increased the risks in many regions in Malaysia(29) . Universiti Teknologi Malaysia has identified a total of 21,000 landslide hotspots in Malaysia, most of which are in Peninsular Malaysia(30). In May 2011, landslide in Hulu Langat, Selangor has claimed life of 16 people, many who are children from orphanage(31).
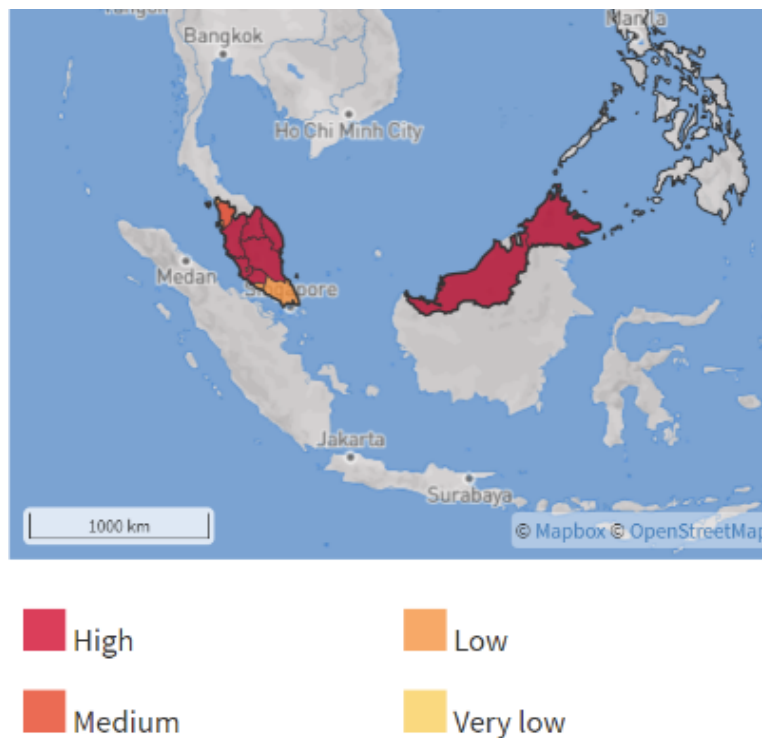


Figure 8: Landslide hazard map of Malaysia (Source: thinkhazard.org)

# v.Drought

In Malaysia there are rainy seasons, as well as the dry and hazy seasons. Droughts are not uncommon in Malaysia. The three most damaging and recent are that of 1992, 1998, and 2014 which has affected the entire country. There are other smaller scale drought episodes and dry spell that occur in smaller regions of the country(32). It is estimated that 2.2 million people in Malaysia were affected by the drought in 2014. Malaysia experienced a drought event which lasted approximately 2 months from mid-January 2014 to mid-March 2014 with the worst affected states in Kedah, Perak, Perlis, Penang, Selangor(18).

Department of Irrigation and Drainage under Ministry of Natural Resources and Environment Malaysia are responsible in surveillance, predicting and issue early drought warning in Malaysia.
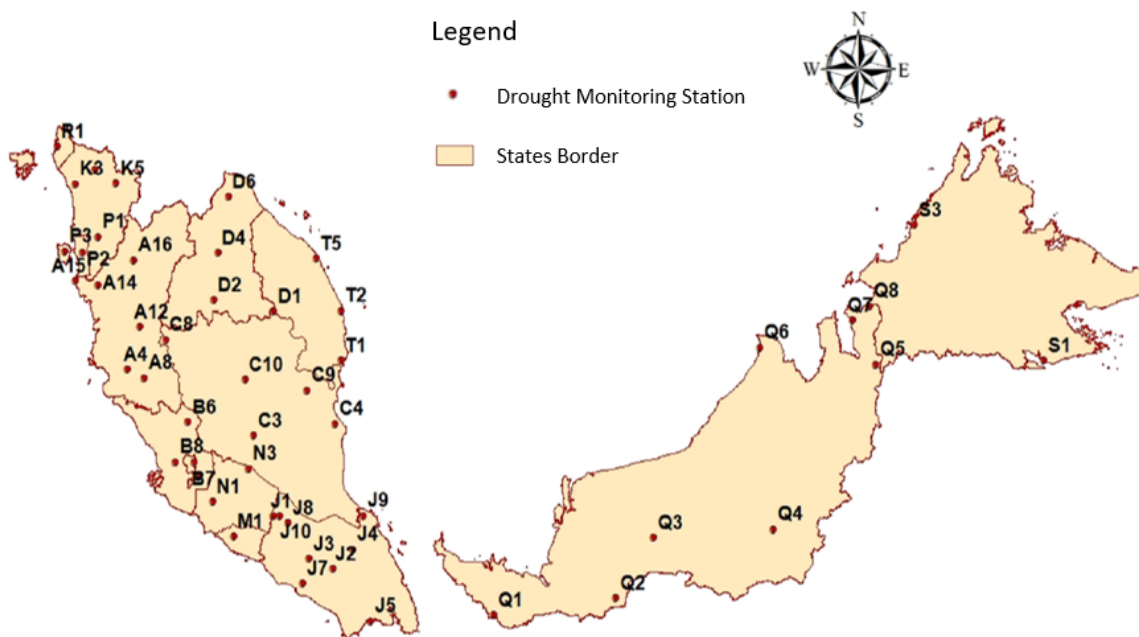


Figure 9: shows 51 droughts monitor station distribution across Malaysia
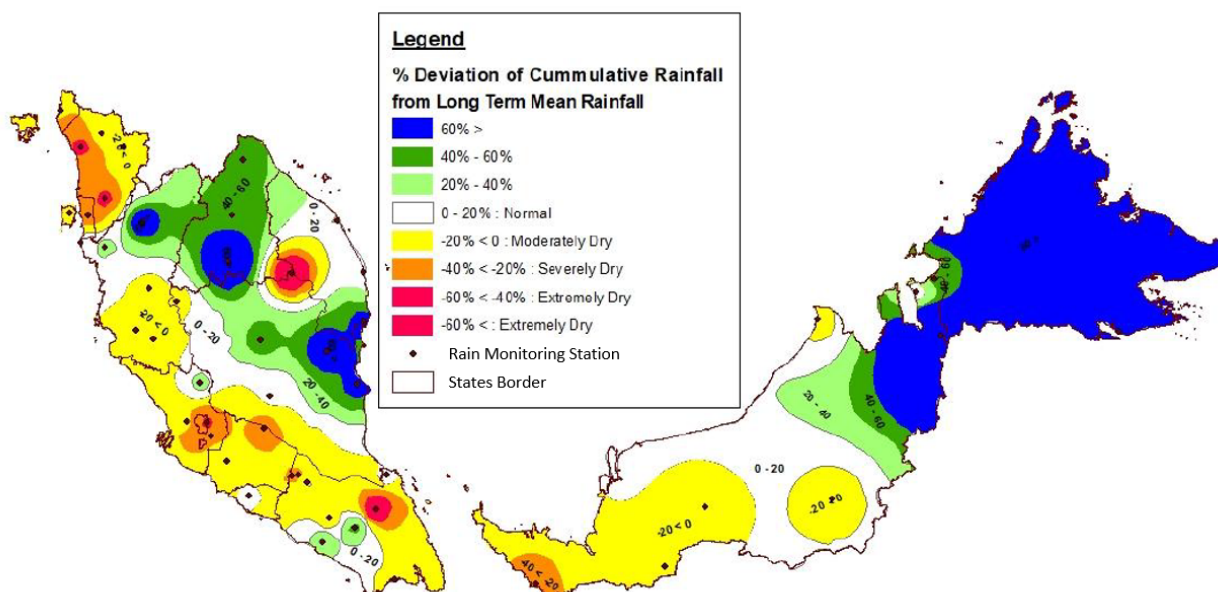
Figure 10: deviation of cumulative rainfall from long term mean rainfall for January – March 2021, as issued in Malaysia's drought report*(33).*

# vi.Wildfire and Haze

In Malaysia, there has been many bush and forest fire incidents due to the hot and dry spells, and especially during drought periods. According to Global Wildfire Information System (GWIS), in 2019, Malaysia has recorded 33,912 hectares of area burned by wildfire with 319 reported number of fires. (Figure 11) shows yearly burned area and number of wildfires in Malaysia from 2002 – 2019(34).

Haze in Malaysia occurs due to fires caused by open burning(35), slash-and burn method of clearing vegetation for palm oil, pulp and paper plantations by corporations and small-scale farmers. Dry weather and drought conditions fuel the fire. Indonesia also has haze issues that commonly spread across Malaysia, Singapore, Thailand, and the Philippines causing transboundary haze(32).

In 2005, Malaysia declared state of emergency in Port Klang and Kuala Selangor after the air pollution index reached 500 (first time being recorded in Malaysia), as a result of transboundary haze from forest fires from Indonesia's Sumatra Island(36). (Figure 12) shows the extend of transboundary haze affecting neighbouring countries in year 2015(37). Haze has caused increasing trend of prematurity of mortality, respiratory problems, and increased number of hospitalizations in Malaysia. The cost impact on hospital admission is estimated to ranges from MYR1.8 million in 2005 to MYR118.9 million in 2013(38).
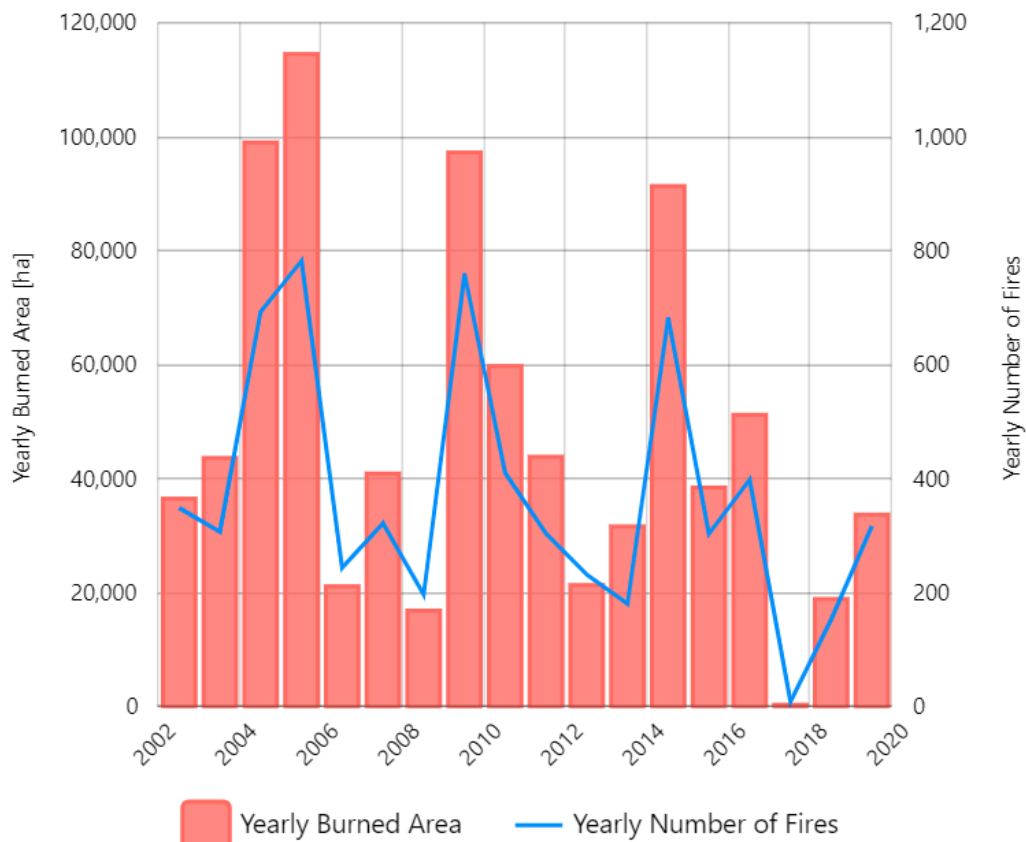
Figure 11: shows yearly burned area and number of wildfires in Malaysia from 2002 – 2019
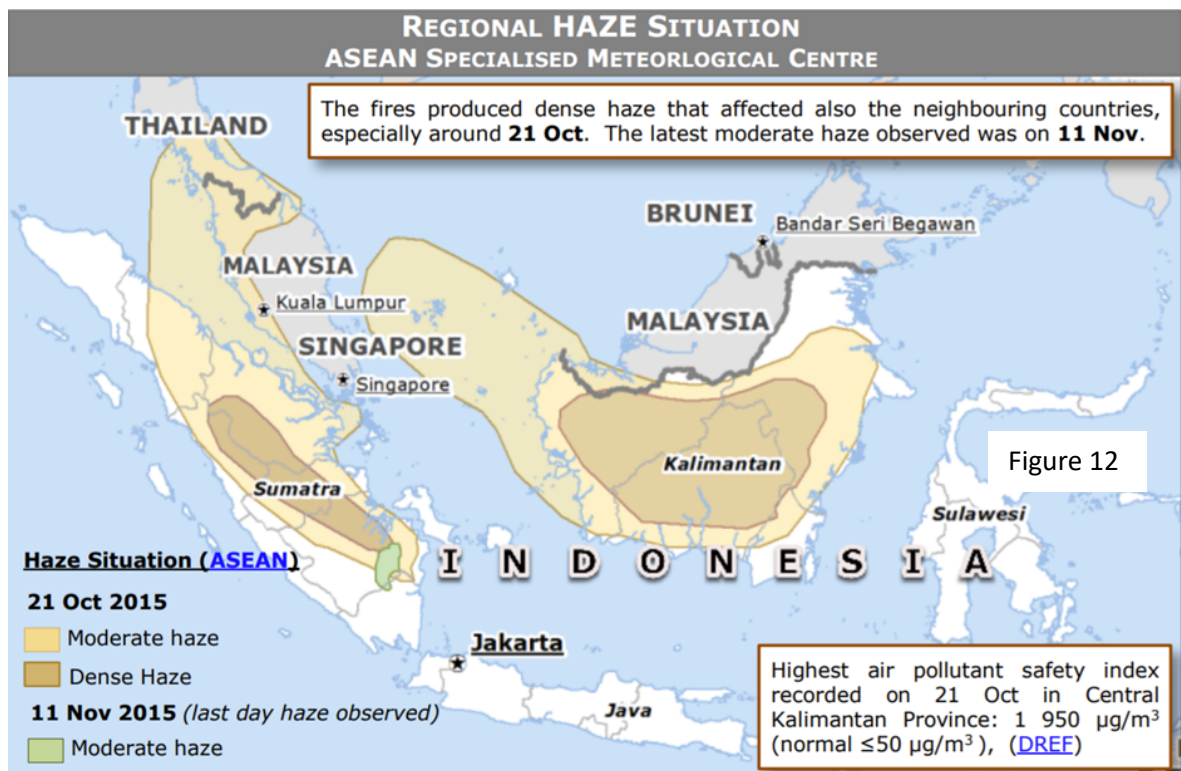


Figure 12: the extend of transboundary haze affecting neighbouring countries in year 2015

## vii.Earthquake and Tsunami

Malaysia is located outside the Ring of Fire. Nevertheless, Malaysia do experience earthquake and tsunami, albeit rare(39). East Malaysia is exposed to impacts of tectonic activity, whereby in 2019, METMalaysia has reported 183 local earthquakes in Sabah, all with magnitude less than 5.0 Richter scale. In Sabah, Ranau has experienced the highest number of earthquakes with 119 recorded incidents in 2019. West Malaysia experiences mild tremors from earthquakes in neighbouring countries across the Straits of Malacca. In 2019, only 1 local earthquake in West Malaysia with Richter scale less than 5 in Gerik, Perak(32,40).
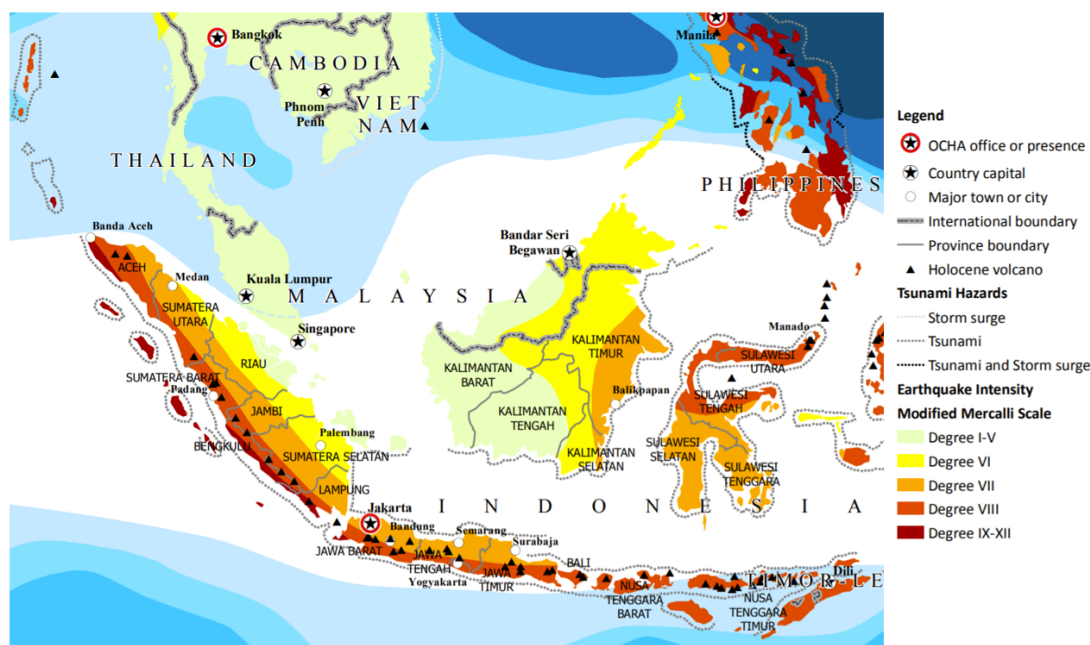


Figure 13: earthquake hazard risk adapted from OCHA regional office for Asia Pacific

The most recent earthquake disaster struck Ranau, Sabah on 5th June 2015 with a moment magnitude of 6.0 Richter which lasted for 30seconds, the strongest to affect Malaysia since the 1976 Sabah earthquake, causing the death of 18 individuals and caused damage to roads, buildings, school and a hospital(41). (Figure 13) shows earthquake hazard risk adapted from OCHA regional office for Asia Pacific, showing Malaysia's risk of affected by earthquake(23).

On 26th December 2004, tsunami resulted from Indian Ocean Earthquake, affecting states in the northern half of Straits of Malacca – Perlis, Kedah, Penang, and Perak. This was first tsunami ever recorded in Malaysia, resulting 68 deaths, damages to infrastructure and village houses, estimated cost up to MYR 15million in damages(39). Although rare, tsunami hazard in Malaysia is classified as high. This means that there is more than a 40% chance of a potentially damaging tsunami occurring in the next 50 years(42).
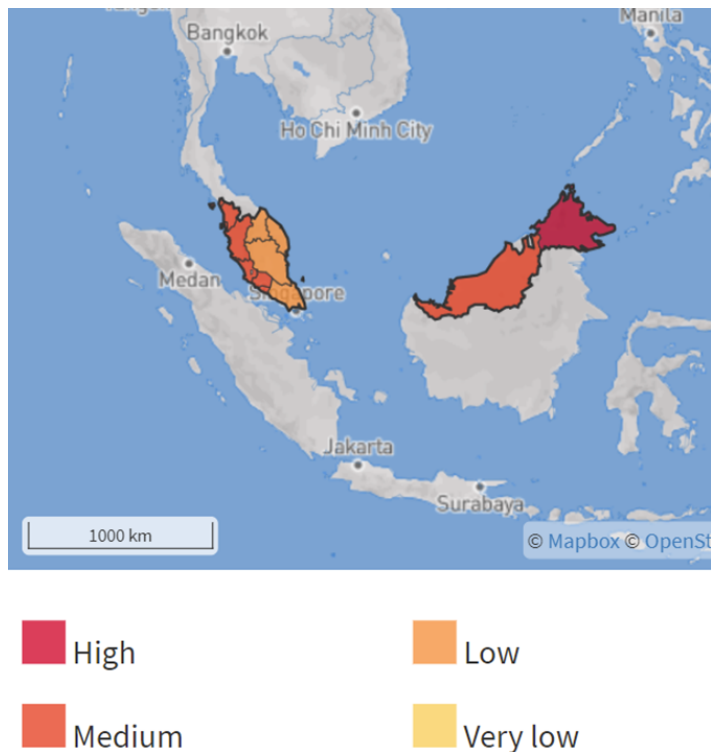


Figure 14: tsunami hazard risk of Malaysia adapted from thinkhazard.org.

# 6.2 Technological disaster in Malaysia

Technological disasters are defined as emergency events or incidents that are caused by human error or breakdown of technological system. According to International Disaster Database (EM-DAT) from Centre for Research on the Epidemiology of Disasters (CRED), technological disaster can be classify into three main subgroup, which are(18):

    a. Transport accident

    b. Industrial accident

    c. Miscellaneous accident

From 2000 – May 2021, there are 20 technological disaster in Malaysia was recorded in EM-DAT, affecting an estimated of 2809 people with 687 death(18).
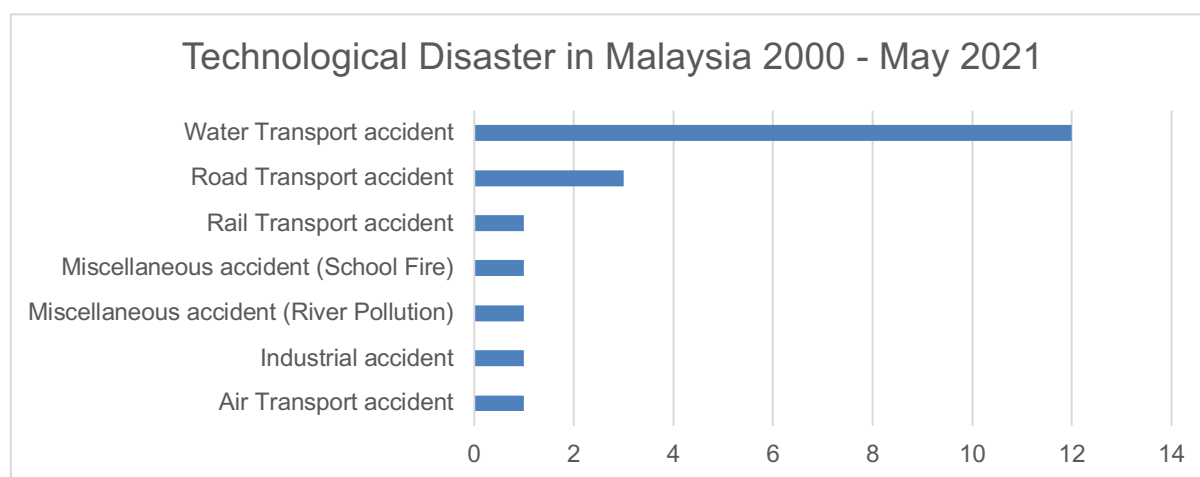


Figure 15: shows number of technological disasters according to subgroup from year 2000 – May 2021

## i.Transport accident

Transportation is the lifeblood of society and economy in Malaysia. Nevertheless, transport accident is the highest number of technological disasters recorded in Malaysia. Transport accident in Malaysia can be subtyped into water, road, rail, and air transport accident. Water transport accident is the most common technological disaster that occur in Malaysia. On July 2016, a boat which was carrying 62 migrants capsized in Pantai Batu Layar in Johor, causing 8 dead and more that 20 missing(43).

Road transport accident is the second most common technological disaster in Malaysia. On August 2013, bus crash accident occurred at KM 3.6, 6, Genting Highlands-Kuala Lumpur Road, which involved 37 fatalities including the driver and was recorded as the worst in the country's fatal crash(44). It is then followed by rail and air transport accident which registered 1 case each since 2000. On 24th May 2021, a train crash that injured more than 200 people in Kuala Lumpur, with 6 people requires ICU care, 64 requires hospital admission. This train crash was the first major accident in the metro system since 23 years of operation(45). On 8th March 2014, a Malaysian Airline MH370 flight bound for Beijing carrying 227 passengers went missing, and later was declared as an accident with presumed crash(46).

## ii.Industrial accident

Industrial accident due to construction site collapse in Tanjung Bungah Penang, landslide, and slope failure, leading to work-site incident that causes 11 death on 21st October 2017. Subsequent investigation found that the project consultant engineer was the primary person responsible for the slope-failure due to negligent acts and omission(47).

## iii.Miscellaneous accident

There are two miscellaneous accident technological disaster in Malaysia recorded in EM-DAT from year 2000 – May 2021. These miscellaneous accidents are namely, school fire and another illegal river chemical dumping. On 14th September 2017, at least 23 students and teachers have died in a fire at a religious school in Kuala Lumpur, it is deemed at one of the country's worst fire disaster in the past 20 years(48). On 6th March 2019, hazardous waste (benzene, acrolein, acrylonitrile, hydrogen chloride, methane, toluene, xylene, ethylbenzene, and d-limonene) was illegally disposed into Kim Kim River, Pasir Gudang, Malaysia. As a result, 975 students in the vicinity school

developed signs and symptoms of respiratory disease due to the chemical poisoning(49). (Figure 16) shows the location of the illegal chemical disposal in the Kim Kim river, Pasir Gudang, the affected school in vicinity and number of victims.



Figure 16: location of the illegal chemical disposal

# 6.3 Complex emergencies

World Health Organization defines complex emergencies as "situations of disrupted livelihoods and threats to life produced by warfare, civil disturbance and large-scale movements of people, in which any emergency response has to be conducted in a difficult political and security environment"(50).

On 11th February 2013, 200 armed personnel self-identified as Royal Sulu Force (RSF) from southern Philippines has invaded a small Malaysian village in Lahad Datu, Sabah, with the purpose of reclaiming Sabah. The conflict resolved after Malaysian security forces declared secured after 6 weeks of military operations, costing life of 10 Malaysian security forces, 68 RSF members were killed, 30 of RSF members and sympathiser prosecuted  and 443 others individuals were arrested for various offences during the incident(51).

On April 30, 2015, Thai authorities announced the discovery of a mass grave in a makeshift camp in a forested area near the Malaysian border. The grave contained more than 30 bodies of suspected victims of human trafficking believed to be Rohingya Muslims and Bangladeshi nationals. Less than one month later, on May 25, the Royal Malaysian Police announced the discovery of 139 graves and 28 suspected human-trafficking camps in Wang Kelian, Perlis State, Malaysia. Revealing a transnational criminal syndicate preyed on Rohingya refugee, deceiving them into boarding ships supposedly bound for Malaysia(52).



Figure 17: Human trafficking route from Myanmar and Bangladesh to Thailand and Malaysia(52).

# 7.Malaysia INFORM Risk Profile

The purpose of Index for Risk Management (INFORM) is to provide an open, transparent, consensus-based methodology for analysing crisis risk at the global, regional, or national level. INFORM is a global, open-source assessment focusing on risk for humanitarian crisis and disasters and assisting with prevention, disaster preparedness and response.

The INFORM model is based on risk concepts published in scientific literature and has three dimensions of risk: hazards & exposure, vulnerability, and lack of coping capacity. INFORM gives each country a risk score of 1-10 (1 being the lowest and 10 the highest) for each of the dimensions, categories, and components of risk, as well as an overall risk score. The higher the score the more vulnerable a country is.

Malaysia is a country with low risk for disasters. INFORM ranks Malaysia as the 108th in country in the world in 2021 for INFORM risk, with value of 3.1. Natural Hazard and Exposure risk of 3.4/10; a Vulnerability score of 3.1/10; and a Lack of Coping Capacity score of 2.9/10. Physical exposures to tsunamis (7.1), floods (6.6) and epidemics (5.3) are the highest.

Comparing to the neighbouring country, Singapore and Brunei Darussalam has lower INFORM risk of 0.5 and 1.7, respectively. Thailand, Indonesia and Philippines has higher INFORM risk of 4, 4.8 and 5.3 respectively(53).
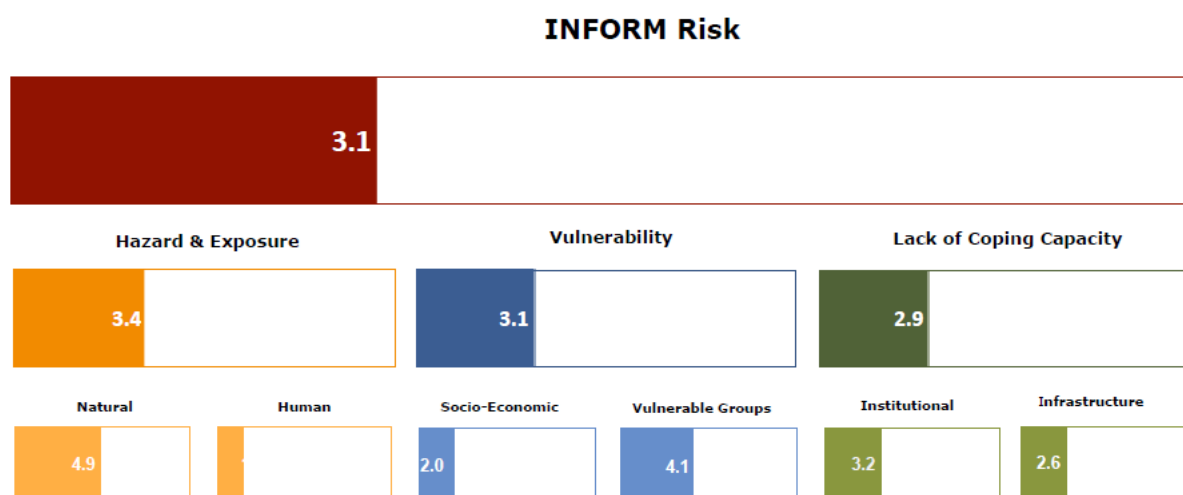


Figure 18: 2021 INFORM country risk profile for Malaysia

Figure 18: Continuation of 2021 INFORM country risk profile for Malaysia

# 8.Climate Change and Environmental Degradation Risk

Climate change is one of the main global environmental changes that threaten humanity in 21st century. Malaysia is expected to experience increased impacts from temperature rise, rainfall, rising sea levels, floods, and droughts. This will bring about negative implication on human habitats such as agriculture, forest, water resource, coastal resources, health, and energy sector(54).

Climate change will exacerbate the impacts of hydrometeorological hazards. The increased rainfall in all regions in Malaysia will lead to high numbers of exposed people and infrastructure to annual flooding and storm impacts. Furthermore, sea-level rise is likely to threaten coastal infrastructure and the ongoing degradation of ecological terrestrial and marine systems is diminishing not only biodiversity, but also the livelihoods of those dependent on the stability of the environment, such as fishermen and farmers(55).

Increased average surface temperature are associated with drought and will likely have significant impacts on the agricultural sector and food security, affecting children's nutrition, increase risk mortality due to heat-related illnesses and exacerbate water stress in areas dependent on groundwater aquifers(56). The staple food in Malaysia is rice and nearly 70% is grown locally. Thus, a natural disaster can greatly affect the production of food(57).

Climate-sensitive diseases such as heat-related vector and water-borne may become more prevalent in warmer and more humid temperatures allow important vectors species such as the Aedes mosquito breed and strive. The prevalence of malaria, meningococcal meningitis, dengue, Japanese encephalitis, and water-borne diseases like cholera are projected to increase associated with climate change, and the decreasing availability of safe water during periods of drought may lead to a spike in diarrheal diseases, especially in the more rural regions(55).

Malaysia's also suffers from environment degradation because of human activity such as logging, largely due to timber or palm oil production. Malaysia's rainforests are under great threat of deforestation, which also contributes to the haze problem. A large percentage of greenhouse gas emissions are from deforestation. Furthermore, loss of forest area has also being associated with increased vector-borne disease risk such as Malaria(58).

Rapid urbanisation and unsustainable waste disposal practices can pose a risk to Malaysian's health(59). in 2018, 754,000 tonnes of plastic waste were directed to Malaysia after China introduced a plastic waste import ban. Although Malaysia has banned plastic waste imports, illegal dumping, and incineration of wastes, especially those containing harmful chemicals like plastics and e-waste, negatively affects the health of nearby communities(60). In addition, chemicals that leach into drinking water sources, from both landfills and agricultural activities, can lead to negative health impacts on community who depend on such water sources.

# 9.Vulnerability from the perspective of Refugee in Malaysia

## 9.1 Refugee livelihood in Malaysia

Despite not having the legal right to work, many refugees in Malaysia are engaged in informal employment as undocumented worker. This is due to insufficient financial support from foreign aid and NGO, and they receive no welfare from the government to cover basics needs. The sectors that refugees are employed in is largely dictated by what is available to those working illegally, often including dirty, dangerous, and difficult jobs, these are low-skill, low-wage jobs of less than MYR 2,000 (USD 465) per-month, unfavourable to citizens.

Figure 19 shows the number of UNHCR registered refugee in Malaysia by sector of employment 2019 (Source: UNHCR Malaysia).
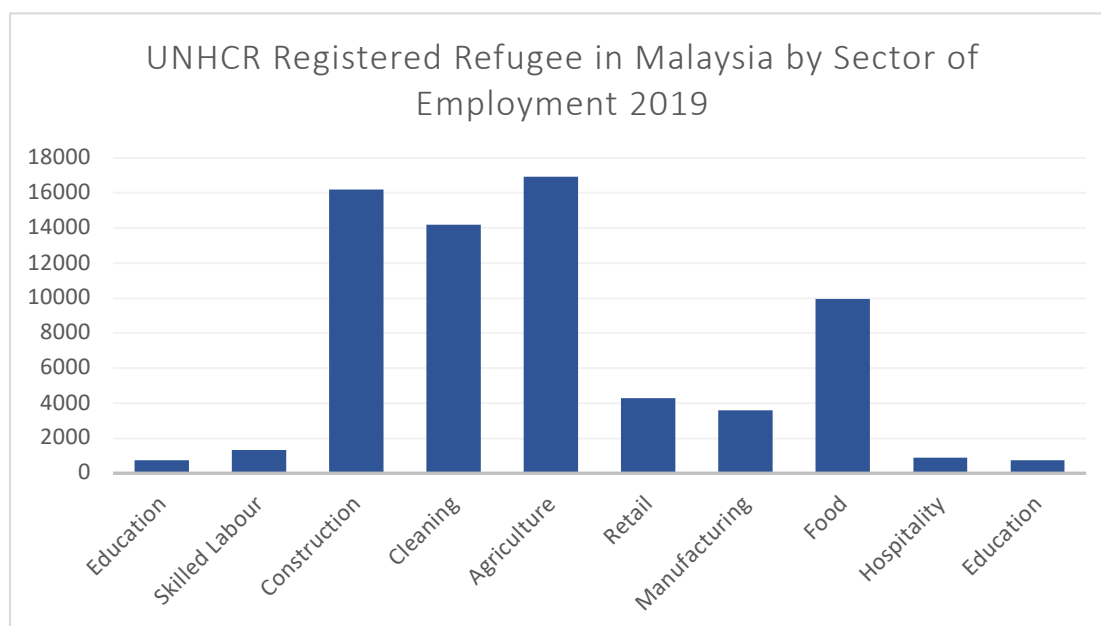


The labour participation rates among refuges are lower than the Malaysian citizen. This could reflect a range of issues, such as the risks associated with working illegally, lack of access to employment opportunities or lack of access to education for refugee children requiring parents to stay at home(16).

The undocumented worker population in Malaysia is difficult to ascertain. By definition, these persons are not registered with authorities and thus their entry and exit in the labour market are not recorded and invisible to policymakers. In 2016, it is reported that undocumented worker accounts for 40% of foreign worker in Malaysia(16). It is estimated by International Organization

for Migration Malaysia that by the end of 2018, there are 2 to 4 million undocumented migrant workers in Malaysia(17).

# 9.2 Health risk and vulnerability of disaster on refugee and stateless person in Malaysia

Disaster affects people of all status. Yet, refugee is often disproportionately affected in times of crisis. The realities and impact of disaster on refugee are not always visible in Malaysia as they are not recognised by the government and thus are invisible to policy maker. The severity of the impact of disasters and emergencies on refugee and stateless person depends on specific characteristics of affected individuals, environment, hazards, the disaster preparedness and management in the affected community.

Survival in disasters depends on hazard, exposure, and underlying vulnerabilities. Challenges associated with refugee and stateless person in Malaysia such as inaccessible to healthcare, poorer health conditions, inaccessible information and education, socio-economic marginalisation, limited access to basic needs and limited legal awareness often increase vulnerability of an individual. These factors also affect the ability to recover after a major crisis.

# 9.3 Accessibility to healthcare

Refugee in Malaysia can access public and private healthcare facilities. However, this is often set back by a variety of factors including the cost of treatment, fear of moving in public in order to access those services, language barrier, fear of arrested, detained and deported, language barriers, discrimination, transportation and employer-related barriers(61). The barriers to healthcare also becoming significant with the recent substantial increase (100% increment) in medical fees for foreigners at public facilities, even with 50% discount off the foreigner's rate of medical fees incurred by UNHCR recognised refugees, and mandatory health insurance only covers public hospital admission and excludes undocumented refugee (61,62).

|  | Malaysian citizen | Non-citizen[2] | Price difference[3] |
|---|---|---|---|
| **Ward deposits** |  |  |  |
| 3rd Class (Medical) | MYR 20 (USD 4.6) | MYR 1,400 (USD 325.6) | 70 X |
| 3rd Class (Surgical) | MYR 30 (USD 7.0) | MYR 2,800 (USD 651.2) | 93 X |
| **Daily ward charges[1]** |  |  |  |
| 3rd Class | MYR 3 (USD 0.7) | MYR 160 (USD 37.2) | 53 X |
| **In-patient treatment charges[1]** |  |  |  |
| 3rd Class | Free | MYR 100 (USD 23.3) | + 100 |
| **Out-patient treatment charges[1]** |  |  |  |
| Out-Patient Department | MYR 1 (USD 0.2) | MYR 40 (USD 9.3) | 40 X |
| Specialist Clinic | MYR 5 (USD 1.2) | MYR 120 (USD 27.9) | 24 X |

NOTE. All medical charges are reported in Malaysian Ringgit (MYR) and United States Dollars (USD).

[1] Treatment charges for non-citizens do not include investigation, procedure or medication

[2] Exception is given to non-citizens with Permanent Residence status

[3] Price differences for charges to non-citizens compared with Malaysian citizens

Figure 20: Comparison of charges for Malaysian citizen and non-citizen at public clinics and hospitals(62,63)

In July 2014, UNHCR Malaysia launched a health insurance scheme to provide access for refugees to Malaysia's national insurance system. The programme is called Refugee Medical Insurance (REMEDI) and aims to help refugees improve their access to health services. The insurance covers individuals and families for a premium of 38-43 US dollars per year and covers treatments of up to 3,750 US dollars. All UNHCR card holders are eligible for the insurance scheme. Refugees can present their UNHCR cards to receive treatment at hospitals in the country without the need for payment once they enrol for the scheme(64). However, challenges remain in the amount of insurance coverage versus the significant increment in the public health care foreigner's rate,  low enrolment rate for REMEDI medical insurance - only 12.2% of UNHCR cardholders currently enrolled(61) .

Financial constraints are a major barrier for healthcare access. Refugees pay out-of-pocket for outpatient clinic visit. It is reported that some has absconded hospital before discharge due to unable to afford the cost(65). Some avoid healthcare service due to high medical fees, delay in healthcare seeking and risk of catastrophic health expenditure in pre-disaster context.

# 9.4 Poorer health condition

Refugee have poorer health condition as compared to the locals, due to their inaccessibility to public health services, they can be at risk of falling sick in transition or due to the current poor living condition such as poor shelter, inaccessibility to water and sanitation, change of

lifestyle such as food and increased stress(5)(66).  Poorer health condition will increase the personal vulnerability of the refugee and stateless person to be affected by and recover from disaster. This will be further elaborated in following headings:

    i.   Communicable diseases

    ii.   Non-communicable diseases

    iii.   Maternal and Child health

    iv.   Mental health

# i. Communicable disease

Immunisation remains one of the most cost-effective communicable disease prevention strategies by achieving herd immunity. However, the immunisation status of urban refugee in Malaysia is largely unknown(67). A case report recently described a measle outbreak in 31 resettling USA-bound refugee from Malaysia and prompting US CDC to impose stricter policy for importation of refugee population travel from Malaysia(68).

In December 2019, the Ministry of Health of Malaysia has announced the country's first case of Polio in Sabah since 1992. Genetic testing confirmed that the virus strain is genetically linked to the virus that has been detected in Philippines. The outbreak of this Poliovirus has been associated with under-immunised population such as refugee and stateless families(69,70).

Refugee community in Malaysia has higher risk of latent tuberculosis infection as compared to local(71). It is believed that multifactorial causes such as stressful condition of long journey, poor living condition, experience of violence, on top of poor nutrition and chronic disorders, eventually leading to state of predisposition to immune deficiency and susceptible to illness such as tuberculosis(72).

A study also found that Filipino refugee children in Sabah has higher rate of intestinal parasite infection (*Trichuris trichiura* and *ascaris lumbricoides*) as compared to local Malaysian children(73). A survey from Malaysian NGO mobile clinic also found that majority of the refugee children treated there are suffering from infectious disease, which includes respiratory infections(77.3%), skin(13.6%), gastrointestinal(4.5%), eye and ear infection(both 1%)(74).

Treatment for HIV and access to reproductive health service is a human right. UNHCR Malaysia reported that in 2017, there are 311 (61.3% male, 38.7% female) refugee individuals in Malaysia living with HIV. However, only 197 of these HIV patients on treatment (58.9% male, 41.1% female)(61).

## ii. Non-communicable disease

Non-communicable disease such as hypertension, diabetes and chronic pain are commonly seen in refugee, especially amongst the elderly population. Unfortunately, many chronic health problems are perceived by refugees as not emergencies and are ignored due to preoccupation with other needs such as food, shelter, employment, and legal status(75).

7% of urban refugee in Malaysia had hypertension and other cardiovascular disease. The prevalence of chronic pain and musculoskeletal disease amongst the urban refugee in Malaysia is 10%. Prevalence of diabetes, cancer and kidney disease amongst urban refugee in Malaysia is 6%, 2% and 3% respectively(75).

## iii. Maternal and Child health

It is found that stillbirth, neonatal and infant mortality is two time higher in unspecified migrant group including undocumented migrant, refugee and stateless person in Sabah as compared to local Malaysian. This can be attribute to antenatal care accessibility, which pregnant unspecified migrant tend to initiate as late as 7 month and higher rate of traditional birth attendants use as compared to Malaysian citizen. Contraception practice amongst unspecified migrant is also significantly low as compared to Malaysian citizen(76). There were also cases of child abuse, neglect, and filicide reported amongst unspecified migrant who experienced sexual abuse (77,78) .

Child Malnutrition is a widespread problem in vulnerable group such as refugee children. A research among Rohingya refugee children in Kuala Lumpur found that about 27.5% of the Rohingya children were underweight, 11.5% stunted, 16.1% thin and 12.6% at risk of overweight and obese(79).

## iv. Mental Health

Mental health is a core public health issue in disaster setting. The burden of mental illness is much greater among traumatized and displaced population such as refugee, who may experience traumatizing events, drastic changes in their environment, the loss of loved ones, housing, and properties. Globally, major depressive disorder, generalized anxiety disorder and post-traumatic stress disorder are the most prevalent mental health disorders affecting refugee community(80,81).

A recent study on prevalence of mental health disorder among Rohingya refugees in Malaysia reported the prevalence of generalized anxiety disorder was 41.8%, post-

traumatic stress disorder 38.2% and major depressive disorder 32.3%. It was also discovered that factor such as food insecurity and perceived low to moderate social support are associated with major depressive disorder amongst the Rohingya refugee. Whereas, exposure to violence and food security also significantly associated with post-traumatic stress disorder(82) .

# 9.5 Inaccessible to Education

Education is imperative in empowering the refugee community, and a long-lasting solution to help refugee in resiliency in disaster context, rebuild their lives and to be able to live with dignity. Quality education saves lives by providing physical protection from the dangers and exploitation of a crisis environment. When a learner is in a safe learning environment, he or she is less likely to be sexually or economically exploited or exposed to other risks, such as forced or early marriage, recruitment into armed forces and armed groups or organised crime(83,84).

Refugee children in Malaysia are denied access to Malaysian formal public education system, and thus obtain education via an informal parallel system of 128 community-based learning centres. According to UNHCR Malaysia, of the 23,823-school going age refugee, only 30% are enrolled in community learning centres. 14% of refugee children aged 3 – 5 years enrolled in pre-school education, 44% refugee children aged 6 – 13 years enrolled in primary education, and only 16% refugee children aged 14 – 17 enrolled in secondary education. Some of the challenges faced in term of education is there is lack of data on out of school children, high turnover teachers and minimal compensation, security and safety issues faced by students and teachers in and out of school(85).

# 9.6 Inaccessible to information

Language barriers is one of the major factors contributing to information inaccessibility. Early warning and public health information are important for empowering refugee community to protect themselves from the impact of disasters. Inaccessibility of information will hamper refugee's benefits from rescue efforts and potential for self-help. In light of Covid-19 pandemic, UNHCR Malaysia set up information portal that includes information on Covid-19 prevention, treatment, and testing, advisory on Malaysia's Movement Control Orders as well as Covid-19 Hotlines in different languages(86).

## 9.7 Socio-economic marginalisation

Since Malaysia have not ratified the 1951 United Nation Refugee Convention, refugee in Malaysia has no legal right to work and are not protected by law. This automatically put them in poverty and many resorts to working illegally and participation in dirty, dangerous and demeaning jobs to earn for living(87). The lack of economic and social alternatives, and lack of documentation would further marginalise refugee post disaster.

Refugee do not live in camps in Malaysia. They can move around the country relatively freely. There are two broad categories of refugee living spaces in Malaysia. Namely, the 'jungle site' and 'urban site'. The 'jungle site' are usually plantations, pockets of jungle scattered around urban area or coastal shores around Sabah. The 'jungle site' refugee usually construct their huts made of wooden planks or plastic sheeting, trees, and leftover construction materials. In areas prone to sudden immigration raids, they would avoid construction and sleep in the jungle. The second category of refugee living space in Malaysia are known as 'urban sites', typically in low cost, high-rise apartments located in urban cities with several families and individuals share the cost of the rent, with adults and children sleeping close together(5). Refugee in Malaysia who lives in poverty, with poor living condition, shelter and access to water and sanitation are vulnerable to disaster.

## 9.8 Limited legal awareness

Refugee in Malaysia lived in constant fear and are always on the move to avoid detection by the immigration officers and risk for being arrest and detention. They found themselves in environment where they are being exploited by the locals and employer. For example, they were charged higher rental, tenancy dispute, not paid by the employer, immigration issue and criminal related legal matter(87,88).

In the absence of a formal legal framework and lack of right and protection, refugee find themselves forced to work under extreme heat when working outdoors, lack of safety standards at workplace, physical and verbal abuse by employers, employers not being held accountable for workplace injuries, harassment by law enforcement, and dirty and unhygienic living quarters provided onsite by employers(87).

Refugee in Malaysia also avoid access healthcare services as they fear of being arrested because of their legal status. In the beginning of Covid-19 pandemic, Malaysian police went on hunt to locate Rohingya refugees who attended a religious event in Kuala Lumpur which caused hundreds of new infections in the region. On 22nd March, Malaysia's defence

minister announced that refugee who attended the religious event should not worry about being detained, but the fear they felt shows the hardship being faced by refugees in Malaysia(89).


# 9.9 Health risk of other refugee groups

## i.Elderly refugee

During times of displacement, older persons often disproportionately affected and has urgent needs. They can be particularly at risk of abuse and neglect during conflict or natural disasters. Their poor health condition such as lack of mobility, diminished vision and chronic illnesses can make access to support difficult. Today, older refugees make up some 4 per cent of the overall population of concern to UNHCR, and by 2050 more of the world will be over 60 than under 12 years old(90).


## ii.Refugee with Disability

Refugees with are also often forgotten and overlooked. They are often having different capacities and need. During crisis, they are at risk of discrimination, exploitation, violence, and lack of access to humanitarian assistance. UNHCR Malaysia estimated that there are around 0.2% of registered refugee with disability in Malaysia(91,92).


## iii.Gender Perspective

Gender disparity existing between sexes remain throughout life. In some societies, women and girls experience gender discrimination and violence every day. In 2017, there are 493 total sexual and gender-based violence assessment conducted for Malaysia UNHCR person of concern and 653 psychosocial, health, legal, safety, security and livelihood intervention were provided to survival of sexual and gender-based violence. Very limited data is available about LGBTI in Malaysia refugee (93).

# 10.Capacity

## 10.1 Disaster Risk Reduction in Malaysia (94)

Dutch philosopher Desiderius Erasmus once quote "Prevention is better than cure", which has become one of the fundamental principles in contemporary public health. This principle is also applicable to disaster. Although some disaster could not be prevented, their impact on health. Economies and individual could be reduced with proper preparation and understanding of the underlying risk factors.

According to United Nations Office for Disaster Risk Reduction (UNDRR), Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development. Disaster risk reduction is the policy objective of disaster risk management, and its goals and objectives are defined in disaster risk reduction strategies and plans(95).

In Malaysia, disaster risk reduction strategies, plans, management, and mechanism are governed by the National Security Council (MKN) of the Prime Minister's Department as mandated by MKN Directive 20. Disaster management cycle in Malaysia has been modified to suit the existing legislative directives, promote consistent practices, and accommodate practitioners from multidisciplinary backgrounds. The cycle comprises the following five phases: prevention, mitigation, preparedness, response and recovery(94).

Figure 21: Disaster Management Cycle in Malaysia. Source MyDRR (94)



## i.Disaster Prevention

Prevention is the most cost-effective method to reduce the impact of hazard. Disaster prevention focuses on long-term measure for reducing or eliminating risk. Disaster prevention measures include mainstreaming disaster risk reduction, legislation, land-use regulations, standards, guidelines, and insurance as well as measures to reduce underlying risk factors. Aspects of prevention include identification of disaster-prone areas, vulnerable populations, development of early warning tools, communication of risks to policy and decision-makers as well as the public, engaging stakeholders and providing regulations on evacuation(94).

## ii.Disaster Mitigation

To prevent hazards from developing into disasters or to reduce the effects of disasters through physical constructions. Mitigation measures encompass structural measures such as the use of technological solutions like flood levees, coastal barriers, and other engineering structures(94).

## iii.Disaster Preparedness

To inform the public about disaster risks and what to do in the event of a disaster. Disaster preparedness information can be incorporated into the education system, starting from the kindergarten stage. In the preparedness phase, emergency managers develop plans of action to manage disasters and take action to build the necessary capabilities needed to implement such plans. Common preparedness measures include communication plans, proper maintenance, and training of emergency response teams, testing of early warning methods, maintenance of disaster supplies and equipment, development of trained volunteers among civilian populations and casualty prediction for disaster (94).

## iv.Disaster Response

Includes the mobilization of the necessary emergency services and first responders such as fire fighters, police, and ambulance crews in the disaster area. These will be supported by secondary emergency services, such as specialist rescue teams. A well-rehearsed emergency plan developed as part of the preparedness phase enables efficient coordination of rescue(94).

## v.Disaster Recovery

Focuses on the restoration of an area affected by disaster to its previous state. Recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed. Actions include rebuilding destroyed property, re-employment, and the repair of other essential infrastructure. Efforts should be made to "build back safer", aiming to reduce the pre-disaster risks inherent in the community and infrastructure. Effective recovery efforts take advantage of a 'window of opportunity' for the implementation of prevention and mitigation measures that might otherwise be unpopular, while the impact of the disaster is fresh in the memory of its victims(94).

# 10.2 Institutional Setup for Disaster Management in Malaysia

## i.Organizational Structure for Disaster Management in Malaysia

Malaysian Government established the Natural Disaster Management and Relief Committee (NDMRC) in 1972 as a response to severe flooding and the need for a national integrated disaster management system. The NDMRC was responsible for coordinating flood relief operations for national, state, and district levels, aiming to reduce damage caused by flood and prevent loss of human life(96).

Disaster management in Malaysia is currently run by the National Disaster Management Agency (NADMA). NADMA was officially formed on 1st October 2015 under the Prime Minister's Department replacing the National Security Council (NSC) as the focal point for disaster management and consolidating the Disaster Management Division of the National Security Council (NSC), the Post Flood Recovery Unity of the Prime Minister's Department, and the Special Malaysia Disaster Assistance and Rescue Agency (SMART) (97).

Malaysia Civil Defence Forces (MCDF) has been appointed as the Secretary for Disaster Management Committee at the state and district level and is responsible to enhance community resilience and preparedness towards disaster through the Cabinet Meeting chaired by Malaysia Prime Minister on 8th September 2015. MCDF set up a Disaster Management Secretariat Branch to regulate and coordinate the secretariat Disaster Management Committee activity at the state and district level. The roles and responsibilities of the NADMA include(98–100):

- Malaysia's national focal point for disaster management

- Formulation national disaster management policy

- Regulation of implementation policies

- Coordination of disaster risk reduction initiatives

- Cohere disaster relief exercise

- Implementation of Public Awareness programme

- After action review

- Managing disaster relief trust funds

- Secretariat of National Disaster Management committee

- Head of humanitarian assistance disaster relief delegation

- Deployment of SMART Team

NADMA strategic partners under Disaster Management and Relief Committee include(99,101):

- Malaysia Civil Defence Force (MCDF)

- Royal Malaysian Police

- Fire and Rescue Department

- Social Welfare Department

- Malaysian Meteorological Department (MMD)

- Malaysian Department of Irrigation and Drainage (DID)

- Ministry of Health (MOH)

- Civil Aviation Authority Malaysia (CAAM)

- Malaysian Meteorological Department – Ministry of Energy Science, Technology, Environment & Climate Change (MET)

- Atomic Energy Licensing Board (AELB)

- Malaysian Remote Sensing Agency

- Department of Mineral and Geosciences Malaysia

- Malaysian Maritime Enforcement Agency (MMEA)

- Malaysian Armed Forces

The Malaysian disaster management organization structure continues under three levels: federal, state, and district. Management of disaster risk is regulated by Directive No. 20, established in May 1997 by the Prime Minister's office. Directive No. 20 issues guidance on policy and mechanisms related to national disaster management and relief activities. It guides the integration of the various agencies on disaster management responsibilities and functions, and it regulates management of disaster risks(99,101).

**Level I Disaster**: Controllable local incident and no probability to spread.

Distric Disaster Management and Relief Committee (DDMRC)

**Level II Disaster**: Incident covering wider area(2 districts) with no potential to spread.

State Disaster Management and Relief Committee (SDMRC)

**Level III Disaster**: Complex in nature affecting wide area or more than 2 states.

Central Disaster Management and Relief Committee (CDMRC)

Figure 22: Disaster Management Levels in Malaysia

Directive No. 20 also breaks down the disaster management cycle into four stages consisting of: **prevention** and **mitigation**, **preparedness, response**, and **recovery**. In March 2012, a second edition of Directive No. 20 was published to include comprehensive response and incorporation of international best practices. The Disaster Management and Relief Committee (DMRC) was formed to carry out the responsibilities of Directive No. 20 in the formation of various aspects of all stages of the disaster management cycle as official national policies and strategies. The main function of the DMRC are as follows(99,102):

- Formulate national policies and strategies regarding the alertness and preparation of various agencies regarding handling disasters. The DMRC's State and District levels implement these polices.

- Ensure sound coordination of agencies involved in handling disasters and identifying tools of principle.

- To activate Disaster Operational Control Centre when required at district, state, or federal level.

- Coordination and mobilization of logistic and resources from government agencies and private sector.

- Organize post-mortem and report upon completion of disaster operations for recording purpose and performance evaluation for future reference and planning.

NDMRC recently reviewed Malaysia's disaster preparedness and response system and passed an amendment to the Malaysia Civil Defence Force Act 1951 (Revised 2016) complementing the existing law to adapt a multi-hazard approach to disaster risk management, adding public involvement as part of the Community-Based Disaster Risk Reduction (CBDRR) as a key responsibility to the disaster risk reduction effort(99).

## ii.Lead Government Agencies in Disaster Response (99)

National Disaster Management Agency (NADMA) Disaster management in Malaysia operates as a top-down government mechanism with the National Disaster Management Agency (NADMA) as the lead government agency responsible for all types of disaster management. NADMA also functions as the Secretariat at the federal level for disaster management, coordinating the mobilization of responding agencies via the Committee System. (99,100).

Figure 23: shows Organisation mechanism of NADMA (Source: NADMA Malaysia)
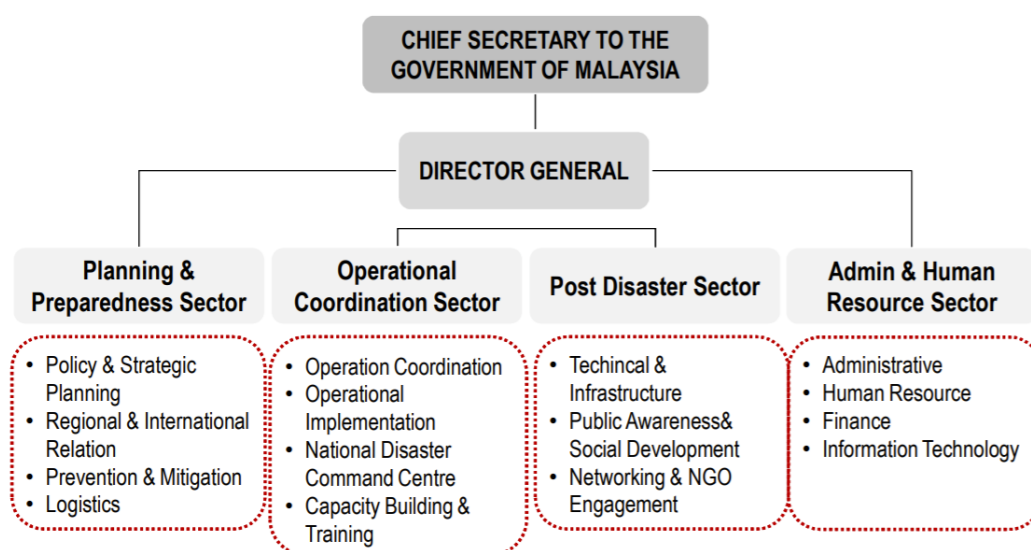


## iii.Committee System of Disaster Management (99,100,102)

The **Federal Disaster Management and Relief Committee** (FDMRC) is chaired by the minister in the Prime Minister's Department managing national level disasters. When disaster occurs, the FDMRC convenes in the National Disaster Operations Control Centre (NDOCC) to manage the development of the event and make decisions on disaster mitigation and response strategies such as search and rescue operation, and emergency

relief operations. FDMRC handles Level 3 disasters which include complex events covering a wide area of two or more states. The Central Disaster Management Committee sets up Disaster Management policy and strategy, mobilizes assets, financial assistance, and human resources.

The **State Disaster Management and Relief Committee** (SDMRC) manages state level disasters at the State Disaster Operation Control Centre (SDOCC). The State Disaster Management Committee is chaired by the State Secretary and handles Level 2 incidents with no potential to spread beyond two or more districts but with potential to cause significant damage to life and property. The state level Disaster Management team coordinates assistance at the state levels to the affected districts especially regarding assets, financial assistance, and human resources for disaster management.

The **District Disaster Management and Relief Committee** (DDMRC) functions out of the District Disaster Operation Control Center (DDOCC), chaired by district officer and handles district and village level disasters to ensure coordinated actions, sufficient assets, human resources, and manage the media. The District office is the key implementing agency in Level 1 disasters, controlled and containable incidents on the ground to ensure responses are coordinated, assets and human resources are sufficient, and communication is established with the media. Level 1 disasters are controllable incident with no possibility to spread and would only cause minimal damage to life and property. The District Level Authority has the capacity to control Level 1 incidents without or with limited outside assistance.

## iv.SMART Malaysia (99,102,103)

The **Special Malaysia Disaster Assistance and Rescue Team (SMART)** was established in 1995 by the National Security Council Directive no.19 , as a result of the Highland Towers condominium collapse due to mudslide in Selangor, Malaysia killing 48 people in December 1993. Following the disaster, Malaysia approved the establishment of the SMART disaster rescue team, comprising members from the Royal Malaysian Police (RMP), the Malaysian Armed Forces (MAF), and the Fire and Rescue Department of Malaysia. The SMART team's headquarters is in Pulau Meranti, Puchong, Selangor state. They are equipped with specialized skills and equipment to respond to any search and rescue operation in any major disaster on land. In addition, SMART Malaysia are International Search and Rescue Advisory Group (INSARAG) certified signifying their compliance with UN standards and the operational capability for technical search and rescue operation that are difficult and complex. The SMART team is an operational arm of the Malaysian Government responding to regional as well as international level disasters.

# v.Malaysia Civil Defence Force (MCDF) **(99,104)**

Malaysia Civil Defence Force was established on 24 March 1952 or popularly known as APM or MCDF (formerly JPAM and JPA3) for carrying out the civil defence activities in Malaysia. MCDF has two major roles during disasters which is to become Secretariat for Disaster Management and Relief Committee (DMRC) at state and district levels and to carrying out their work as responders.

On 5th November 2015, MCDF appointed as Disaster Management Committee secretary for the state and district follows accordingly to the guidelines set out in the National Security Council Directive No. 20. At the same time, MCDF also coordinate the distribution of aid from the Fund of National Disaster Relief Trust (FNDRT) to the victims of the disaster based on guidelines set by FNDRT committee.

# vi.Malaysian Armed Forces (MAF) **(99,105)**

Malaysia Civil Defence Force was established on 24 March 1952 or popularly known as APM or MCDF (formerly JPAM and JPA3) for carrying out the civil defence activities in Malaysia. MCDF has two major roles during disasters which is to become Secretariat for Disaster Management and Relief Committee (DMRC) at state and district levels and to carrying out their work as responders.

On 5th November 2015, MCDF appointed as Disaster Management Committee secretary for the state and district follows accordingly to the guidelines set out in the National Security Council Directive No. 20. At the same time, MCDF also coordinate the distribution of aid from the Fund of National Disaster Relief Trust (FNDRT) to the victims of the disaster based on guidelines set by FNDRT committee.

## 10.3 Disaster Management communications **(99,100)**

In Malaysia, the National Disaster Management Agency (NADMA) is responsible for the coordination of the national disaster management system which provides effective relief machinery for recovery post flood disaster events. Additional resources for Disaster Management Communications include the following capabilities:

**Early Warning Systems** (95,99,100)

When disaster strikes, Malaysia can initiate telecommunication such as short message service (SMS) notifications to alert relevant officers in charge of government agencies such as the Police, Army, the Malaysia Meteorological Department, and the National Security Division in the Prime Minister's Department.

Real time information of rainfall and river water levels are also available via the Infobanjir website. The website is maintained by the Hydrology and Water Resources Division of the Department of Irrigation and Drainage (DID). The Infobanjir system enables effective dissemination of early warning for floods to the public. The hydrologic data is updated at regular intervals, information from over 300 remote telemetry units (RTUs) across Malaysia. These RTUs provide flood forecasting and warning system infrastructure, including 233 telemetric rainfall stations, 190 telemetric water level stations, 256 manual stick gauges, 84 flood warning boards, 217 flood sirens, and real time flood forecasting and warning systems in nine river basins. These RTUs transmit data from each state DID office to the Hydrology and Water Division to the Centralized Flood Monitoring System.

Additional Early Warning System activities are managed by:

- Malaysian Meteorological Department (MMD)
    – Earthquake and Tsunami Early Warning System i
    – Weather Forecasting
    – Fixed-Line Alert System (FLAS)
- Malaysian Department of Irrigation and Drainage (DID)
    – Telemetry System – Flood Forecasting Models and Infobanjir
- Malaysian Centre for Remote Sensing (MACRES)
    – Disaster Management Applications System
- Department of Environment (DOE)
    – Air Pollutant Index (API) – Haze Alerts

## 10.4 Law, Policies, and Plans on Disaster Management (99,106)

Malaysia's legal framework on disaster management is classified as a Type C DRM system by the IFRC Disaster Law Programme. Type C systems have a specific law regulating disasters, which focused on emergency preparedness and response to natural hazards

(rather than disaster risk reduction), some technological hazards, and have elements of early warning and recovery.

Type C systems tend to be found in countries with relatively low hazard exposure such as Malaysia. Malaysia's disaster risk management funds are budgeted annually through the Economic Planning Unit (EPU) and at the state and district level. The amount allocated differs based on size of the affected state and the number of the affected victims. There is also a disaster risk management fund specifically for NADMA. NADMA is collaborating with stakeholders toward drafting a new disaster risk management law.

Malaysia's national guidelines on disaster management is based on Directive No. 20: National Policy and Mechanism on Disaster Management Relief, which acts as a framework for disaster relief management for the country. This directive is made up of 29 titles and 13 appendixes was issue in 1997 by the National Security Council (NSC) of the Prime Minister's Department. The objective of Directive No. 20 is to provide a policy guideline on disaster management and rescue in accordance with the level of the disaster. It also provides a mechanism for managing roles and responsibilities of agencies that are involved in combating disaster. Events of disaster that fall under this directive include:

- Natural disaster, such as flood, storm, drought, coastal erosion, landslide or disaster arising from storm and heavy rain.

- Industrial disaster, such explosion, fire, pollution and leaking of hazardous materials from factories, plants, and industrial centre that process produce and store such materials.

- Accident involving transportation, drainage, or transfer of dangerous materials.

- Collapse of high rise buildings and special structures.

- Air disaster involving places with building and people.

- Train collision or derailment.

- Fire involving a big area or fire in a high rise building or special structure where there are many people.

- Collapse of hydro dam or water reservoir.

- Nuclear accident and radiology.

- Emanation of toxic gasses at public places.

- Haze that causes environmental emergency and threatens public health and order.

Malaysia's disaster management guidelines are ASEAN Agreement on Disaster Management and Emergency Response (AADMER), ASEAN Standard Operating Procedures for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (ASEAN-SASOP Chapter VI); Oslo Guidelines for the Use of Foreign Military and Civil Defence Assets (MCDA) in Disaster Relief; Use of Armed Escort for Humanitarian Convoys.

Malaysia has instituted several preventive measures and mitigation laws, policies and plans to minimize the impact of disasters on life, properties, and the environment. The following laws are enforced for preventive measures:

- The Land Conservation Act 1960

- Environmental Quality Act 1974

- Local Government Act 1976

- Road, Drainage and Building Act 1974

- Occupational Safety and Health Act 1994

Uniform Building Bylaws 1984 The following are Malaysia's Disaster Risk Management Laws, Decrees, and Regulations at the National Level:

- 1951 Civil Defence Act (Revised 1979)

- 1964 Emergency (Essential Powers) Act

- 1979 Emergency (Essential Powers) Act

- 1997 Policy Mechanism of National Disaster Management and Relief NSC Directive

- 1998 Prevention and Control of Infectious Diseases Act

- 1998 Fire Services Act 341

- 2016 Civil Defence (Amendment)

- 2016 National Security Council Act

Additional Government guidance and directives that expand the disaster management plans of Malaysia include:

## i.Civil Defence (Amendment) Act 2016 (99,107)

The Civil Defence (Amendment) Act 2016 Amendment was passed by the Malaysian Senate on 21st of June 2016, stating that members of the Civil Defence Force may be required to serve outside Malaysia and may also be attached to an oversea civil defence force or

organization (Article 4E and 4F). This Act empowers the civil defence agencies to provide humanitarian aid under a more systematic management of assignments. The bill also provides protection for the rights of the Malaysia Civil Defence Force (MCDF) staff and volunteers.

## ii.National Security Council Act of 2016 (99,108)

The National Security Council Act of 2016 was instituted 1 August 2016, providing authority to the Prime Minister to declare a national security area based on advice of the National Security Council. The Council has the power to do all things necessary or expedient for or in connection with its functions, notwithstanding any other written law, including controlling and coordinating government entities with respect to national security operations and issuing directives to such entities on matters concerning national security.

The membership of the National Security Council consisted of the Chairman (who is the Prime Minister), the Deputy Chairman (who is the Deputy Prime Minister), the Minister of Defence, the Minister of Home Affairs, the Minister of Communication and Multimedia, the Chief Secretary to the Government, the Chief of Defence Forces, and the Inspector General of Police.

Additionally, the Director of Operations can exclude or evacuate any person from the declared area, impose a curfew, and direct the security forces to control movement of any person, vehicle, vessel, aircraft in and out of the secured area.

## iii.Eleventh Malaysia Plan 2016-2020 (99,109)

Eleventh Malaysia Plan for the years 2016-2020 was released 21 May 2015 by the Malaysian government with targets and objectives to implement the framework to make Malaysia a high-income economy by 2020. The Plan identifies six 'Strategic Thrusts' to change the trajectory of the country's economic growth and advance the national income per capita above USD $15,000.133

The Plan details its disaster management strategy in Chapter 6, Focus Area D:

Strengthening Resilience Against Climate Change and Natural Disasters. As Malaysia develops socioeconomically, the country is focused on resilient growth to ensure its development gains are not reversed by natural disasters. Therefore, planning and preparing for natural disasters, identifying which areas and communities are at risk, and providing the right tools in case such situations occur are important strategies highlighted in the Plan

regarding preparing a comprehensive disaster risk management (DM) framework and protecting the resiliency of the country and its future. The following strategies are outlined in the Plan to reach these objectives:

- Strategy D1: Strengthening disaster risk management by establishing DRM policy and institutional framework, improving disaster detection and response capacity, incorporating DRM into development plans and creating community awareness.

- Strategy D2: Improving flood mitigation by generating new investments from flood mitigation projects, enhancing long term planning, and strengthening flood forecasting and warning systems.

- Strategy D3: Enhancing climate change adaptation by developing a national adaptation plan, and strengthening resilience of infrastructure, natural buffers including water and agriculture sector as well as creating awareness on health impact.

# 10.4 Strategy for Public Health Emergencies and Disaster
(110,111)

The **Asia Pacific Strategy for Emerging Diseases (APSED)** was developed in 2005 to implement the International Health Regulations (2005), which serves as the agreed legal framework "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks". APSED has helped guide Member States in the Asia Pacific region to implement and strengthen the core capacities of the IHR (2005), focusing on building the minimum components of the health system, such as rapid response teams (RRTs), EBS systems and the Field Epidemiology Training Programme (FETP).

APSED III builds on the original APSED approach to preparedness and response by providing a high-level framework that gives a common direction to addressing all hazards. The updated title of the strategy, which now contains "Public Health Emergencies", reflects a more comprehensive all-hazards scope.

## VISION
An Asia Pacific region able to prepare for, detect and respond to public health emergencies through collective responsibility for managing health security

## GOAL
To strengthen public health emergency preparedness and response capacity by improving core public health systems, increasing regional connectivity and coordination, and investing in ongoing performance improvement

**Objective 1**
Strengthen effective preparedness for emerging diseases and public health emergencies

**Objective 2**
Reduce the risk of emerging diseases and public health emergencies

**Objective 3**
Strengthen early detection and assessment of outbreaks, and public health emergencies

**Objective 4**
Strengthen rapid and appropriate response to and recovery from emerging diseases and public health emergencies

**Objective 5**
Build strategic partnerships and sustainable financing for public health preparedness and response

**Objective 6**
Strengthen prevention through health care

## Focus areas

**Focus area 1:** Public health emergency preparedness
**Focus area 2:** Surveillance, risk assessment and response
**Focus area 3:** Laboratories
**Focus area 4:** Zoonoses
**Focus area 5:** Prevention through health care
**Focus area 6:** Risk communication
**Focus area 7:** Regional preparedness, alert and response
**Focus area 8:** Monitoring and evaluation

Figure 24: APSED III vision, goal, objective and focus area. Source WHO

Based on Malaysia's country monitoring and evaluation which was aligned with the IHR core capacity monitoring framework and APSED III framework, **Malaysian Strategy for Emerging Disease and Public Health Emergencies (MySED II)** Workplan (2017-2021) is developed. The scope of MySED II is to strengthen and further improve public health security systems and its functions required for public health emergency preparedness and response for all hazards in line with the Directive No. 20 (National Security Council) Policy and Mechanism of National Disaster Management and Relief. MySED II aims to provide a high-level

framework that can give a common direction and approach to detail hazard-specific strategies, for example how to prepare for biological and natural hazards. In addition, MySED II strengthens the core public health functions as well as many key health systems such as the health workforce, service delivery, information & technology system, and leadership & governance to support a more resilient health system in Malaysia.
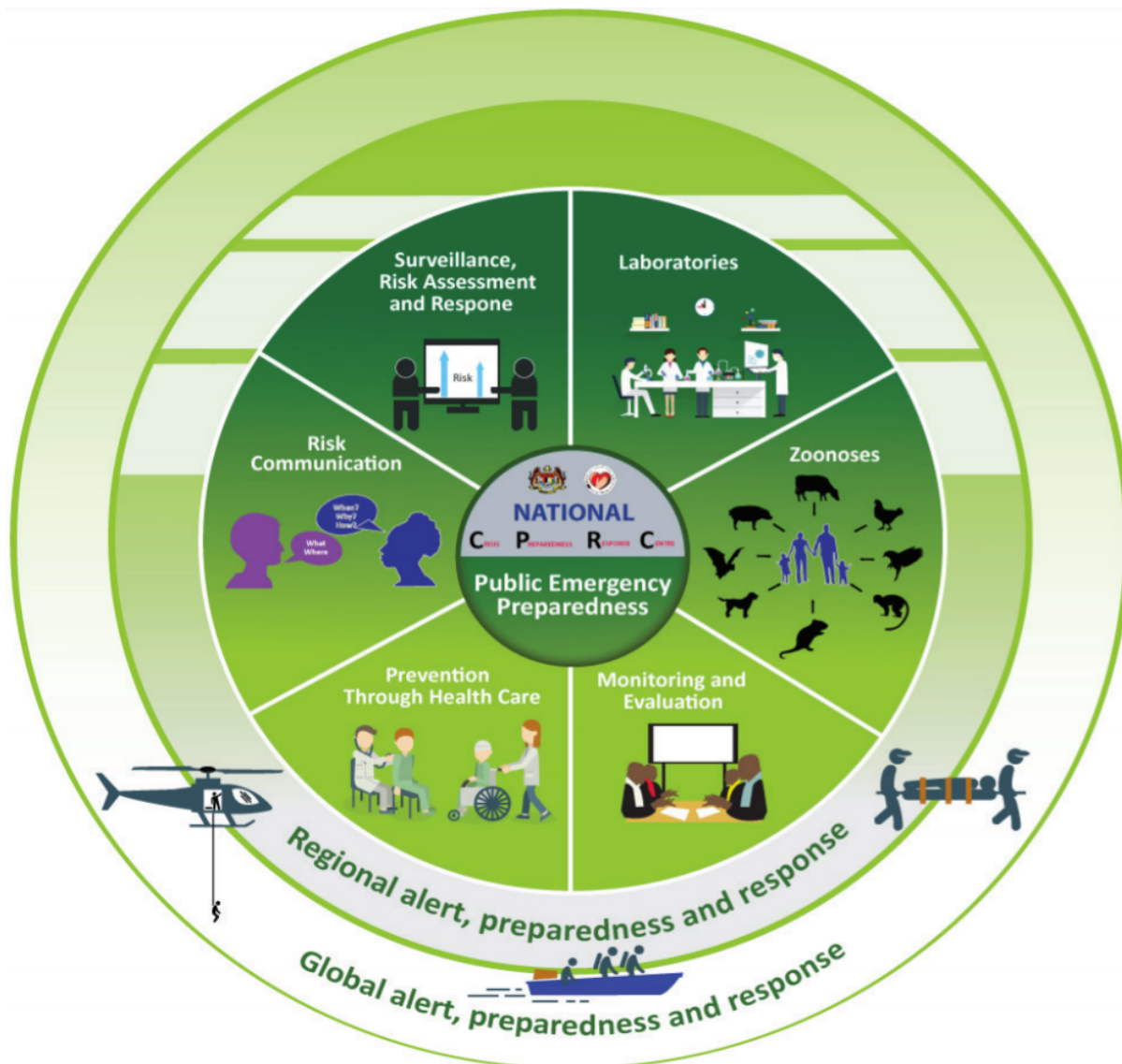


Figure 25: MySED II´s focuses on the fundamental core components for public health emergency preparedness and response at all levels. Source: MYSED II National Strategic Work Plan.

# 10.5 Malaysia's Key Disaster Management Partners (99)

Malaysia has multilateral partnerships in disaster management, and all are coordinated through NADMA. Each organisation has resources, expertise, and role in responding to disaster and depending on the size and location of the disaster and whether Malaysia is an Assisting State, there may be several levels of coordination. Malaysia's associations with key disaster management partners and its membership and participation in the Association of Southeast Asian Nations (ASEAN), United Nations (UN) agencies, United States Agency for International Development (USAID) and with the International Federation of Red Cross (IFRC) and Malaysian Red Crescent Societies (MRCS) are discussed as follows:

## i.ASEAN (99,106,112)

The Association of Southeast Asian Nations (ASEAN) was initially established in 1967 to reduce regional hostilities and prevent communism across Southeast Asia by Thailand, Singapore, Malaysia, the Philippines, and Indonesia. Brunei Darussalam, Vietnam, Lao PDR, Myanmar, and Cambodia later joined ASEAN. The aim of ASEAN is now to ensure the safety and prosperity of its citizens including a significant focus on preparing for and mitigating the effects of natural disasters since the region is vulnerable to several natural disasters, including typhoon, flood, drought, earthquakes, and volcanic eruption. Malaysia and Singapore are the only ASEAN countries with Urban Search and Rescue teams that have been officially certified by INSARAG through training and operational experience.

Malaysia's National Disaster Management Agency (NADMA) is the lead with ASEAN's Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). The ASEAN-Malaysia National Secretariat (AMNS), Ministry of Foreign Affairs exists to coordinate and streamline national efforts to enhance regional cooperation within the ASEAN framework at the national level and to protect, promote and advance Malaysia's and ASEAN Member States' interests in the region and beyond.

## ii.United Nations(99,113)

The United Nations Multi-Country Office for Malaysia, Singapore and Brunei Darussalam is located in Putrajaya, Malaysia. In Malaysia, the United Nations Country Team (UNCT) comprises 21 agencies, led by the UN Resident Coordinator (RC), to deliver greater impact together on the 2030 Agenda and SDGs in line with national priorities, plans and needs. , UNCT Malaysia is guided by the principles and values of the UN Charter, Sustainable Development Goals(SDGs) and other fundamental UN treaties such as the Convention on

the Rights of the Child and the Convention on the Elimination of All Forms of Discrimination against Women.

During Covid-19 pandemic, The UN development system in Malaysia provided coordinated responses, including regarding public health response, humanitarian needs of vulnerable groups and socio-economic response in regarding to Covid-19 preparedness, response, and recovery.

## iii.International Federation of Red Cross and Red Crescent Societies (114)

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest independent humanitarian and development organization, with millions of volunteers in 190 member National Societies worldwide.

IFRC's Strategy 2020 aims to tackle the major humanitarian and development challenges of the present decade, encompassing 3 key areas:

i.   Disaster response and recovery

ii.  Development

iii. Promoting social inclusion and peace.

## iv.The Malaysian Red Crescent Society (115,116)

The Malaysian Red Crescent Society (MRCS) is a non-profit organisation dedicated to humanitarian acts and service. The MRCS has played a part in disaster management for over 60 years and was accepted as an affiliate member of the International Federation of Red Cross and Red Crescent Societies. MRCS has aided communities to prepare, respond, and recover from disasters. The MRCS depends on public donations to finance various services including care for disaster victims, 24-hour emergency ambulance service, primary health care in rural areas and first aid training.

MRCS provides free ambulance service for public emergencies, accidents, and injuries. The MRCS National Headquarters has a fleet of 12 ambulances and, since 2010, has assisted more than 35,000 people requiring medical aid during accidents, childbirth, natural disasters, and other emergencies. The MRCS also provides the following Health and Community Services:

• Blood Donation & Recruitment

• First Aid training

• Organ Donation Campaign

- HIV/AIDS Programme

- The 'PRIHATIN' Project (We Care, We Share & We Give)

- Village Adoption

- Psycho-Social Support

## v.USAID (117,118)

The United States Agency for International Development (USAID) was established by executive order in 1961 to lead international development and humanitarian efforts to save lives, reduce poverty, strengthen democratic governance, and assist people's progress beyond assistance. UNSAID works in over 100 countries including Malaysia to:

- Promote Global Health,

- Support Global Stability,

- Provide Humanitarian Assistance,

- Catalyse Innovation and Partnership

- Empower Women and Girls

The Office of U.S. Foreign Disaster Assistance (OFDA) is USAID's lead for coordinating disaster assistance overseas and assisting non-governmental organizations, international organizations, and the United Nations to meet humanitarian needs and complement government relief efforts. Since 2005, USAID/OFDA has responded to three disasters in Malaysia. In December 2014, USAID/OFDA supported partners to procure and distribute emergency relief supplies and implement water, sanitation, and hygiene interventions following floods in northern and eastern Peninsular Malaysia.

## vi.MERCY Malaysia (119)

Malaysian Medical Relief Society (MERCY Malaysia) was established in 1999 and led the initial mission to Kosovo. The NGO initially focused on medical relief and currently adopts the Total Disaster Risk Management (TDRM) approach in their work which applies disaster risk management to all the phases of the disaster management cycle in key domestic and international programs.

MERCY Malaysia currently runs mobile clinics offering free basic medical check-ups and dental treatment to vulnerable and underprivileged communities such as refugee and stateless person, free reconstructive surgery to treat cleft lip and palate defects via its Cleft

Lip and Palate Project (CLIPP), health care to pregnant women and their children, cataract treatment, psychosocial intervention, and emergency response medical care such as providing aid in Malaysian National Covid-19 vaccination program.

MERCY Malaysia has implemented current and past programs in 33 countries or territories, ranging from ASEAN countries to Afghanistan, Bosnia, Chile, China, India, Iran, Iraq, Lebanon, Libya, North Korea, Palestine, Somalia, Sierra Leone, Sudan, Yemen, and others.

## vii.ASEAN ERAT (116,120)

ASEAN - Emergency Response and Assessment Team (ERAT) is a regional rapid response team supporting ASEAN member states during major, sudden, or slow onset disaster. ASEAN ERAT team members are trained and operationally ready to deploy within 24 hours to respond to emergency situations and deploy to support relief efforts in the initial phases of a disaster emergency upon request. Their core functions include:

- Conducting rapid assessments of disasters and report to National Disaster Management Office (NDMO) of the ASEAN Member State(s)

- Facilitating incoming relief assistance from ASEAN Member States

- Coordinating with the AHA Centre for relief item, personnel and deployment of regional disaster management assets

Malaysia has 24 trained ERAT members. Over 85 ERAT members have deployed on 21 missions in the Asia Pacific since 2008 covering events in the Philippines, Indonesia, Vietnam, Laos, Myanmar.

## viii.Disaster Emergency Logistics System for ASEAN (DELSA) (121)

Disaster Emergency Logistics System (DELSA) was launched on 7 December 2012 to develop a regional relief stockpile of items needed for emergency and disaster support as well as to support logistics capacity and operations for the AHA Centre and ASEAN Member States which is located in Malaysia. DELSA focuses on three main elements including:

- Regional emergency stockpiles

- Institutional capacity building

- Communication and awareness

DELSA's establishment and operations have been supported by the Government of Japan, while the AHA Centre works closely with WFP – UNHRD on logistics technical aspects. The AHA Centre also coordinates with National Disaster Management Organisations (NDMOs)

of the ASEAN Member States to distribute those relief goods to disaster-affected countries as needed to support emergency response efforts.



Figure 26: Network of ASEAN DELSA stockpile. (Source: AHA Centre)*.*

# 11.The United Nation Refugee Agency (UNHCR) and Refugee Policy in Malaysia

UNHCR Malaysia seeks long term solutions for refugees including finding them new homes in third countries or helping them return home voluntarily when it is safe to do so. While they are seeking temporary protection in Malaysia, UNHCR strives to create a safe and secure environment for them where their basic needs are met. UNHCR cooperates with its Government and civil society partners in humanitarian support for refugees including in education, healthcare, and community support(122).

Malaysia is not a signatory to the 1951 Convention Relating to the Status of Refugee not its 1967 Protocol. As a result, there is no legal framework for distinguishing a refugee or an asylum seeker from any other undocumented migrant. Malaysian law thus views refugee,

asylum seekers and stateless persons no differently from an 'illegal migrant', who is subject to fines, arrests, detention, imprisonment, corporal punishment, and deportation. However, Malaysia allows and to some extent, cooperate with UNHCR in providing assistance of refugee in Malaysia on the ground of 'humanitarianism' (123)

# 12.Discussion and Conclusion

The status of refugee in Malaysia are in the state of limbo and uncertainty. Without legal protection and access to basic need such as education, healthcare, protection, food security, water, sanitation, and hygiene will drive them into the vicious cycle of poverty and becoming the vulnerable group in the community.

During emergency and disaster, refugee in Malaysia is more likely to experience adverse impact in physical, mental, and social wellbeing. After a disaster, they are more likely to face socio-economic marginalisation, isolation, inaccessible information and lack of relevant post-emergency support services and access to resources. The main argument of this narrative review is not about welcoming refugee to Malaysia, but to apply basics humanitarian principle to the person who have fled war, violence, conflict, or persecution to find safety and live with dignity in Malaysia.

The analysis of causes and determinants of refugee's health in relation to disaster in Malaysia relied heavily on published reports. As such, findings are limited to the availability of existing data and materials.  In some areas, the lack of recent, quality, published data was a limitation. The gap of inclusiveness of refugee in Malaysia's disaster risk reduction policies and programmes should be highlighted and disaster-related health need of refugee should be emphasized.

More fundamentally, if efforts are put into the welfare and well-being of the refugee in Malaysia, the whole Malaysian community will also reap the benefit of such move. It is hight time for Malaysia to have a database and information improvement on the refugee in Malaysia, their demographic and health status in Malaysia. The availability of complete data will allow policy maker to formulate policy to include refugee in disaster preparedness, prevention, mitigation, response, and recovery.

Secondly, to pass a refugee health act to provide certain health right to refugee especially those with public health concerns such as vaccination, maternal and child health, communicable disease such as tuberculosis, non-communicable disease, and mental health. This must be affordable or free of charge with sustainable health financing. Finally, to include refugee in the disaster risk reduction policy.

As a conclusion, this narrative review analyse the vulnerability of refugee in Malaysia in term of health in the perspective of hazard, disaster and capacity of Malaysia as a whole.

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