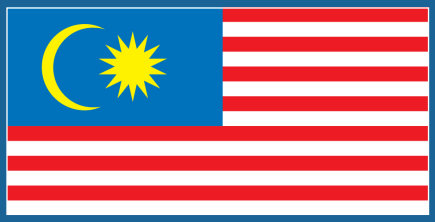
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MALAYSIA

Disaster Management Reference Handbook

October 2022

Disaster Management Reference Handbook Series

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Front Cover

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Letter from the Director

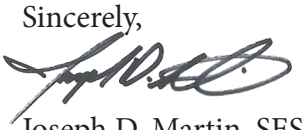
Malaysia's disaster management efforts have expanded since the 2015 reorganization of federal government structures and the creation of the National Disaster Management Agency (NADMA), a founding that marked a proactive approach to address disaster challenges. This and other investments in climate change adaptation and disaster risk mitigation display Malaysia's commitment not only to its own future but to the future of its region where the Association of Southeast Asian Nations (ASEAN) plays a role in disaster management.

The United States (U.S.) and Malaysia share a diverse partnership in trade, environmental cooperation, and culture. The countries cooperate closely on security matters, including counterterrorism, maritime domain awareness, humanitarian assistance, and regional stability, and they participate frequently in bilateral and multilateral military training, exercises, and visits. Among keystone events that underpin this partnership are Pacific Partnership and the ASEAN Defense Minister's Meeting-Plus Experts Working Group on Humanitarian Assistance and Disaster Response (ADMM-Plus EWG on HADR). High points in these fora occurred most recently in 2019 when we in the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) engaged with Malaysian civilian and military stakeholders to build our knowledge base and operationalize civil-military coordination in disaster management at the national, regional, and international levels.

Although the Coronavirus Disease 2019 (COVID-19) pandemic has disrupted our face-to-face engagement, we at the CFE-DM and in the broader U.S. defense community are encouraged that we will pick up right where we left off. Indeed, the successful completion of the U.S.-Malaysia bilateral military exercise, Bersama Warrior, in June 2022, attests to the soundness and durability of our relationship. Bersama Warrior is sponsored by U.S. Indo-Pacific Command, hosted by the Malaysian Armed Forces, and focuses on strengthening the State Partner Program relationship between the Malaysian Armed Forces and the Washington National Guard. CFE-DM's advisors were key members within the Exercise Control Group and added role player support to provide the training audience with realistic perspectives on the humanitarian impacts of conflict. They provided academic modules on protection of civilians and highlighted themes of civilian protection and minimizing and responding to civilian harm in crises. Additional bilateral and multilateral events that incorporate disaster management will allow us to continue building upon these sound foundations.

This Handbook allows us to maintain the health of this relationship by providing an overview of Malaysia's government, geography, demographics, and socio-cultural practices. It also details the country's history of natural disasters and current state of disaster risk and response management. This guide serves as an initial source of information for individuals preparing for disaster management activities or immediate deployment alongside Malaysian partner responders.

Sincerely,



Joseph D. Martin, SES
Director

About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of Defense (DoD) organization comprised of nearly 30 subject matter experts that provide academic research, civil-military coordination training, and operational insights to support decision making before, during, and after crises. The Center is designed to bridge understanding between humanitarians, civilian, and military responders. CFE-DM partners with a diverse group of governmental and nongovernmental actors, as well as academic institutions to increase collaborations and capabilities in humanitarian assistance and disaster response. While maintaining a global mandate, the Indo-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice. The Center is a direct reporting unit to U.S. Indo-Pacific Command (USINDOPACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

Vision

The Joint Force, allies, and partners are fully prepared to conduct and support foreign humanitarian assistance.

Mission

CFE-DM builds crisis response capacity in U.S. and partner militaries, enhances coordination and collaboration with civilian and foreign partners, and strengthens those relationships to save lives and alleviate human suffering before, during, and after humanitarian crises.

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EXECUTIVE SUMMARY

Located in Southeast Asia, Malaysia is divided in two geographic parts: Peninsular Malaysia in the west and East Malaysia on the northwestern part of Borneo Island. It is a member-state of the Association of Southeast Asian Nations (ASEAN).

Malaysia lies outside of the "Ring of Fire" and of historical tropical cyclone paths and, thus, is at relatively lower risk for earthquakes and direct hits by cyclones, though these events still sometimes occur. The country much more frequently grapples with floods, storms, landslides, heatwaves, and droughts. By far, floods are the most frequently occurring disaster, and the country is experiencing more extreme weather that brings heavy rainfall and leads to floods as climate change influences precipitation patterns.

Malaysia's 32.4 million people are diverse ethnically, linguistically, and culturally, and they combine to form a unique country. Ethnic Malays comprise the majority, and they benefit from minimum quotas in business, education, and civil service due to policies intended to prevent their disenfranchisement. Malaysians of Chinese or Indian descent, and Orang Asli and other indigenous peoples comprise much of the remaining citizenry.

Malaysia's economy has grown and developed dramatically in the last half century. It has diversified away from agriculture and commodities and now includes strong manufacturing and services sectors. Openness to trade and foreign investment have played a role in how Malaysia's economy has grown. A key investment that has powered the country's growth is infrastructure development with the country's ports providing critical transshipment and import-export hubs for the region writ large. Moreover, Malaysia's keystone role in the region is bolstered by its investment in energy trade and infrastructure, and the country is connected to neighbors by electricity networks.

Disaster management efforts have expanded since the 2015 reorganization of federal government structures and creation of the National Disaster Management Agency (NADMA), a founding that marked a proactive approach to disaster risk and response. Malaysia's urban search and rescue (USAR) team is trained according to United Nations (UN) International Search and Rescue Advisory Group (INSARAG) guidelines. The INSARAG-certified Special Malaysian Disaster Assistance and Rescue Team (SMART) has extensive operational experience and has deployed domestically and internationally.[1] Alongside the government, MERCY Malaysia, the country's most prominent non-government organization (NGO), continues to work around the world and with the International Federation of Red Cross and Red Crescent Societies (IFRC) and the UN. Malaysian disaster management has also made progress building its early warning systems for flooding, earthquake, and tsunami; in particular, it has expanded its capability to detect and disseminate warnings about flooding over more of the country.

These expanded capabilities will be needed as Malaysia gears up to mitigate against and adapt to climate change. Thus far, climate change effects have been varied although flooding, droughts, and heat waves have all worsened. Climate hazards and extreme weather will also affect water quality and provision, agriculture, and outbreaks of infectious and vector-borne diseases. Coastal areas face inundation risks as sea levels rise. Moreover, Malaysia is home to several vulnerable groups who may be at significantly greater threat as climate change-influenced hazards become more extreme. The challenges faced by people living in poverty, refugees and stateless persons, people with disabilities, and others will require greater policy consideration. Malaysia is well aware of the increasing risks that climate change brings, and the 12th Malaysia Plan (12MP, 2021-2025), the current five-year national development plan, devotes attention to the impacts of climate change.

COUNTRY OVERVIEW

Malaysia is a multiethnic country and an active member-state of ASEAN. Since gaining independence in 1957, the country has experienced tremendous economic growth and development, and around 2024 it is expected to transition from an upper middle-income economy to a high-income economy.[2] Malaysia contains influences from various cultures and ethnic groups, including the ethnic Malay majority along with ethnic Chinese, Indian, and Orang Asli and other indigenous peoples. The country is predominantly Muslim, which is the default religion for ethnic Malays, while also having Hinduism, Christianity, and other religions represented among other ethnicities.

In the past several years Malaysia has seen an increase in the number of refugees arriving from Myanmar and who are particularly vulnerable as they have often fled abuses and are without access to formal education or employment in Malaysia. Federal authorities will confront challenges in addressing the needs of these refugees alongside the needs of other vulnerable groups in the country.

History

The earliest sign of human life found in the territory of present-day Malaysia was a skull that was found in Sarawak and dated to 40,000 years ago. However, people are believed to have first widely migrated to the area about 10,000 years ago, when aboriginal proto-Malays arrived from southwest China and eventually traveled to Sumatra and Borneo, as well as to other Indonesian islands.[3] Deutero-Malays, descended partly from Cham people of the Mekong Delta and who are believed to be the ancestors of today's ethnic Malays, arrived approximately 2,300 years ago. Trade with China and India started around 100 BCE and led to the introduction of Buddhism and Hinduism as well as to the use of India's Sanskrit writing system over the next five centuries. From 600 to 1200 CE, the Malay Peninsula was mostly ruled by maharajas of Sumatra's Srivijaya empire. Then, after about 1200, Islam was introduced by Arab and Indian traders. Chinese influence grew after 1405 with offers to protect Malacca against invading Siamese, and, over the next 100 years, Malacca and other Malaysian sultanates dominated China-India sea trade. During that time, Malay became the official language, and Malacca became an important Islamic center.

The first European colonial claim over land that is part of modern Malaysia was made when Portugal captured Malacca in 1511. The Portuguese were pushed out from Malacca by the Dutch East India Company and local allies in 1641. From the late 1700s, Britain established colonies and trading ports on the Malay Peninsula, and Penang was leased to the British East India Company. In 1824, the Anglo-Dutch Treaty set the boundaries between British Malaya and the Netherlands East Indies (present-day Indonesia). Kuala Lumpur, founded in 1857 as a trading post for immigrant miners, became the capital of the Federated Malay States in 1896.

During World War II, Malaysia was occupied by Japan (1942-1945), during which time approximately 80,000 ethnic Chinese were systematically targeted and killed by Japanese occupying forces in Malaya and Singapore. During Japanese occupation, nationalism grew, but ethnic tensions among Malays, Chinese, and Indians worsened. At the end of World War II, control of Malaysia returned to Britain, but the United Malays National Organisation (UMNO) was founded in 1946 and began seeking independence as an ethnic Malay-dominated state. During the early phase of the Cold War (1948-1960), ethnic Chinese communist guerrillas maintained an insurgency in Malaysia's jungles, but the insurgency was eventually suppressed by British and Commonwealth forces.

The Federation of Malaya – the states of the Peninsula as well as Malacca and Penang – achieved independence from Britain in 1957.

It became the Federation of Malaysia in 1963 when the British colonies of Sabah, Sarawak, and Singapore joined.[4] However, the Federation was riven as ethnic tensions between Malays and Chinese increased and were compounded by fears of Chinese communism. Meanwhile, Singapore's dominant political party, which had earlier confined its activity to Singapore, competed for and gained seats in Malay-dominated constituencies. Furthermore, Singapore's government opposed the Federation government's desire to grant special privileges and rights for the Malay community. Ethnic tensions culminated in the 1964 race riots between Chinese and Malays in Singapore, an eruption that led to the expulsion of Singapore from Malaysia in 1965. Nonetheless, racial tensions within Malaysia itself did not end, and race riots erupted again in 1969, especially in Kuala Lumpur, and led to the deaths of hundreds of people.

Malaysia introduced affirmative action in 1971 with minimum quotas for Malays in business, education, and the civil service. Dr. Mahathir Mohamad became Prime Minister in 1981, the start of a period in which the economy diversified and grew at the rate of 8% per year. Occasional political and ethnic disruptions marked the next twenty years, and the prevailing post-colonial powerbrokers retained most political and economic power despite scandals. The most prominent scandal surfaced in 2015, when about US$700 million from the 1 Malaysia Development Berhad (1MDB) state development fund was deposited into Prime Minister Najib Razak's personal bank account. Investigations indicated more than US$4.5 billion was stolen between 2009 and 2012 by various individuals, making 1MDB one of the world's largest financial corruption cases, which continued to have effects on Malaysian politics for many years.[5] Mahathir even returned to power in 2018 after 15 years "in retirement."[6] However, Mahathir's coalition fell apart in 2020, and he resigned.[7] Political turmoil from 2020 through 2022 saw several members of parliament change parties, parliamentary majorities gained and lost, the collapse of two coalition governments, and the resignation of two prime ministers. As of August 2022, Prime Minister Ismail Sabri bin Yaakob had held office since August 2021.

Culture and Demographics

Malaysia is a multicultural and multiethnic country at the crossroads of Southeast Asia. The predominant ethnic group is Malay; other ethnicities include Chinese, Indians, and the Orang Asli and other indigenous groups. Malaysian society features distinctive Malay, Chinese, Indian, and Eurasian cultures, along with the cultures of the indigenous groups of the Peninsula and north Borneo.[8]

Malays in Malaysia are officially Sunni Muslims. The country is firmly Islamic, though local religious beliefs and practices also bring a distinctive character.

Ethnic Chinese Malaysians are predominantly Buddhist but may also often embrace Taoism. Chinese Malaysians make up a large proportion of the business and upper class, a dominance that contributes to underlying tension between Malays and ethnic Chinese.[9] Most Chinese in Malaysia are the descendants of different groups who arrived, seeking a better life, between the 15th and mid-20th centuries. Within Malaysia they are referred to simply as "Chinese" and represent the second largest ethnic group after the ethnic Malay majority. Min, Hakka, Cantonese, and Wu are the four main Chinese dialects spoken, though Mandarin is also taught in Chinese schools.

"Indians" in Malaysia are predominantly Tamils of Indian and Sri Lankan heritage and tend to practice Hinduism, with a minority among them practicing Christianity and Islam. Many ethnic Indians from Punjab practice Sikhism. Indian Christians in Malaysia adhere to various Christian denominations (e.g., Catholic, Anglican, Methodist, Lutheran, or Evangelical). Most of the Indian Muslim community has been absorbed into the larger Malay community due to their common religion, and there is a

high level of intermarriage. The Orang Asli and other non-Malay indigenous groups are loosely considered animists.[10]

Since Malaysia's independence in 1957, national identity has been a key question. The extent to which national culture should be essentially Malay or a hybrid of multiple ethnicities reflects ongoing social dynamics, including the Malay group's indigenous claims and immigrant groups' cultural and citizenship rights. The ethnic Malay, Chinese, and Indian founders who negotiated independence struck "the bargain" of Malay political dominance in exchange for immigrant citizenship and economic pursuits. Ethnic-based fractures resulted in Singapore's expulsion in 1965 and urban unrest in Kuala Lumpur in 1969, and they eventually led to a comprehensive program of affirmative action for the Malay population. A 1990s government plan to blend the population into a single group called "Bangsa Malaysia" generated both support and criticism from different constituencies, but issues of Malaysian national identity continue to inspire discussion and debate among a dynamic, multiethnic society.[11]

Ethnic Makeup

The government of Malaysia in 2021 estimated that 69.8% of the citizenry was bumiputra or bumiputera – a term used in Malaysia that covers both ethnic Malays and other indigenous persons; 22.4% of the population was Chinese, 6.8% Indian, and 1.0% other. The total population was estimated at 32.7 million, of which citizens comprised 91.8%.[12]

Non-Malay indigenous groups include various Orang Asli ("Original People" in Malay) aboriginal peoples, who can be classified into the Jakun, who speak a dialect of Malay, and the Semang and Senoi, who speak languages of the Mon-Khmer language family. Ethnic Malays, unlike other ethnic groups of Malaysia, are officially defined in part by their adherence to a religion, Islam.[13]

Many non-citizens residing in the country are believed to be Indonesians and southern Filipinos in Sabah state.[14] Other large groups of non-citizen residents are from India, Pakistan, and Bangladesh, and many of them are migrant workers.[15] As of June 2022, Malaysia also hosted an estimated 184,080 refugees and asylum-seekers, primarily hailing from Myanmar (including approximately 104,890 Rohingyas, 23,190 Chins, and 29,780 people from other ethnic groups).[16]

Key Population Centers

Government estimates of the population in 2020 stood at 32.45 - 32.66 million people.

The largest city is Kuala Lumpur, the federal capital. The larger metropolitan area has a population of more than 7 million people, while the city itself has a population of approximately 1.5 million people. Kuala Lumpur is also one of the three Federal Territories (Wilayah Persekutuan or WP) of Malaysia.[17] Other major urban areas include Johor Bahru with a population of 1.065 million, and Ipoh with a population of 842,000 people.[18]

Among Malaysian states, Selangor had the largest population while WP Labuan had the smallest. Table 1 shows the total population and rate of population growth for each Malaysian state in 2019 and 2020, with numbers estimated and rounded. Table 2 displays additional population-related statistics, including demographic breakdown according to gender, age, and urban/rural geography.[19]

Language

There are 137 languages spoken in Malaysia today. The national language is Malaysian, also known as Bahasa Malaysia (the language of Malaysia) and formerly called Bahasa Melayu (the language of the Malay).[20] English is widely spoken as a second language, due to the British colonial history. It is considered an official language (alongside Malay) only in Sarawak State on Borneo Island. English is not a national language of the country.

Several Chinese languages are used in Malaysia. Mandarin is used to educate children in the country's Chinese schools, but Chinese

No	State	Population ('000)		Annual Population Growth Rate 2019/2020 (%)
		2019	2020[e]	
1.	Johor	3,761.2	3,781.1	0.53
2.	Kedah	2,173.7	2,185.2	0.53
3.	Kelantan	1,883.8	1,906.7	1.22
4.	Melaka	928.4	932.7	0.46
5.	Negeri Sembilan	1,126.2	1,128.8	0.23
6.	Pahang	1,671.4	1,678.6	0.43
7.	Pulau Pinang	1,768.8	1,773.6	0.27
8.	Perak	2,508.8	2,510.3	0.06
9.	Perlis	254.0	254.9	0.35
10.	Selangor	6,506.1	6,538.1	0.49
11.	Terengganu	1,244.5	1,259.2	1.18
12.	Sabah	3,904.4	3,908.5	0.11
13.	Sarawak	2,806.0	2,816.5	0.37
14.	W.P. Kuala Lumpur	1,782.5	1,773.7	-0.49
15.	W.P. Labuan	99.3	99.6	0.30
16.	W.P. Putrajaya	103.7	110.0	6.08
	MALAYSIA	**32,523.0**	**32,657.3**	**0.41**

Table 1: Population and Growth Rate for All Malaysian States (2019-2020)

No	Category	2020[e]	
		Number ('000)	% of Total Population
1.	Male	16,805.6	51.5
2.	Female	15,851.7	48.5
3.	Urban	25,048.2	76.7
4.	Rural	7,609.1	23.3
5.	Working age group (15-64 years)	22,736.7	69.7
6.	Young age group (below 15 years)	7,600.3	23.3
7.	Old age group (65 years & above)	2,293.2	7.0

Table 2: Population Demographics of Gender, Age, and Urban versus Rural Areas

Malaysians speak a variety of additional Chinese dialects. Malaysia has an estimated 1.9 million Hokkien speakers, 1.7 million Hakka speakers, 1.4 million Cantonese speakers, 1 million Teochew speakers, and 1 million Mandarin speakers. Other Chinese languages, including Foochow, Hainanese, and Min Bei, have a few hundred thousand speakers each.

The predominant Indian language spoken in Malaysia is Tamil. There are more than 1.8 million Tamil speakers in the country, and the majority are in Peninsular Malaysia. Various dialects of Tamil are spoken, as influenced by historic immigration patterns and socioeconomic status. Additional South Asian languages spoken in Malaysia include Gujarati, Hindi, Bengali, Malayalam, Punjabi, Telugu, and Urdu.

There are several creole languages in Malaysia, including Kristang, based on Portuguese; Zamboangueño, a Spanish-based creole that is a dialect of Philippines Chavacano; and Manglish, an English-based creole with Malay, Tamil, and Chinese influences.

Most of the remaining languages are indigenous. Some of the more widely-spoken indigenous languages are on the island of Borneo, with Iban, Bajaw, Tausug, Dusun or Bunduliwan, and Melanau having 100,000 – 800,000 native speakers. There are dozens more indigenous languages with fewer than 100,000 native speakers. Many indigenous languages are in decline, with some having fewer than a few hundred speakers remaining. They include Lanoh with approximately 240 remaining speakers, Mintil with 180, Kintaq with 110, Orang Kanaq with 80, and Lengilu with just three remaining speakers.[21]

Religion

The official religion of Malaysia is Islam, which is adhered to by approximately 20,610,060 people, or 63.5% of the population, according to the 2020 census. The second largest religion is Buddhism (18.7%), followed by Christianity (9.1%), and Hinduism (6.1%). Approximately 0.9% of Malaysians followed other religions, such as Sikhism, Taoism, Confucianism, Bahai, tribal/ folk/ other traditional Chinese religions, Animism, and others. An estimated 0.8% of the population had no religion, while the religion of 0.9% were unknown.[22]

Islam is a significant factor officially distinguishing ethnic Malay from non-Malay, and Malays are officially considered Muslim by default. Chinese Malaysians tend to follow Buddhism or Daoism, with a small minority adhering to Christian denominations. Some Chinese also subscribe to Confucianism, though that is often described as more of a philosophy than a religion. Most Indians and Sri Lankans practice Hinduism, though some Indians are Christian. Pakistanis are predominantly Muslim, while Sikhs, originally from the Indian state of Punjab, largely adhere to their own religion, Sikhism.[23]

Vulnerable Groups

Vulnerable groups are addressed here as groups of people who, due to their characteristics and circumstances, are likely to suffer more adverse impacts from natural disasters, crises, and economic shocks than other groups in the community. The Malaysian government has its own recognized categories of vulnerable groups, a list that guides the work of the Cabinet Committee for the Prosperity of the Vulnerable Groups. In August 2022, the number of recognized groups was enlarged to 12, including people who are stateless, refugees, homeless, with infectious diseases, and living in poverty.[24]

The groups covered below are not comprehensive but highlight some groups with heightened social vulnerabilities. Factors enhancing vulnerabilities are often cross-cutting; thus, these categories should not be viewed as isolated silos.

People Living in Poverty

The portion of the population living below the poverty line has dramatically declined over the past several decades. However, Malaysia still has a relatively high level of income inequality compared to the region. One measure of

income inequality is the Gini Index, with the Gini coefficient summarizing the dispersion of income across the entire income distribution. World Bank data represents this as a number from 0 to 100, where 0 indicates perfect equality (where everyone receives an equal share) and 100 indicates perfect inequality (where only one recipient or group of recipients receives all the income).[25] Malaysia's Gini score was 41.1, per the last available World Bank data from 2015.[26] Inequality had slowly trended downward over the previous three decades, as the Gini score had improved from 48.62 in 1984.[27]

More recently, national statistics from the period 2016-2019 have shown a slight rise in income inequality for the first time in decades.[28] Moreover, the Coronavirus Disease 2019 (COVID-19) pandemic brought very negative economic impacts for many Malaysians. The proportion of Malaysian households living below the poverty line increased from 5.6% in 2019 to 8.4% in 2020. However, the pandemic recovery was aided by the vaccination rollout and easing of pandemic restrictions. At the end of 2021, more than 95% of adults had received two doses of COVID-19 vaccine. In addition, the easing of Movement Control Order (lockdown) restrictions facilitated the return of economic activities.[29] By February 2021, a survey found that the median household income had recovered to 95% of the pre-crisis level.[30] By the end of 2021, the unemployment rate fell to its lowest level since the onset of the pandemic, and among those who worked prior to the pandemic, the incidence of work stoppage declined. While the improvement is good news, recovery is happening more slowly among the poor, informal workers, people with low education, and those with low income. This increases their risk of being unable to absorb future economic shocks.

Information indicates that the Orang Asli and other non-Malay indigenous peoples face increased poverty challenges. This is not always evident, depending on the data used, as national statistics disaggregated by ethnicity often use the category of bumiputera, which combines the ethnic Malay majority with other indigenous groups. Poverty issues for non-Malay indigenous peoples are often bound up with land access and ownership issues. Very few Orang Asli have ownership of land. The 1954 Aboriginal Peoples Act only provides for "usufructuary rights," rights to use land and its resources, and the vast majority of Orang Asli are essentially tenants on their traditional lands.[31] Additionally, the Orang Asli have relatively less access to clean water, resulting in more health challenges.[32]

Displaced Persons / Refugees

Malaysia hosts an estimated 184,080 refugees and asylum-seekers registered with the United Nations High Commissioner for Refugees (UNHCR) as of the end of June 2022. More than 150,000 are from Myanmar, comprising more than 100,000 Rohingyas, 23,000 Chins, and 29,000 people of other ethnic groups from conflict-affected areas or who have fled persecution in Myanmar. The remaining refugees and asylum-seekers are approximately 26,210 people from 50 countries, including some 6,730 Pakistanis, 3,770 Yemenis, 3,330 Syrians, 3,190 Somalis, 3,050 Afghans, 1,570 Sri Lankans, 1,200 Iraqis, 780 Palestinians, and others.[33]

In recent years, tens of thousands of Rohingya have taken to the sea from Myanmar and Bangladesh as they try to reach Malaysia, and thousands have drowned. Those who reach Malaysia face a variety of challenges, including risk of indefinite detention or forced repatriation ever since the Myanmar junta takeover in February 2021.[34] Malaysian authorities incurred international criticism for deporting 1,086 detained migrants, including women and children, to Myanmar on 23 February 2021, despite the Kuala Lumpur High Court ruling to suspend deportation pending judicial review.[35]

Refugees in Malaysia lack definitive legal status as there are no national laws defining their rights; thus, they are at increased risk of arrest for immigration offenses. Refugees cannot legally work, leading many to support themselves and their families by working in the informal sector, where the work is often more

dangerous or difficult and they are more subject to exploitation. Refugee children are not able to attend formal Malaysian schools, and they often experience interrupted educations and rely on non-profit or non-governmental educational initiatives to fill gaps.[36]

In August 2022, Prime Minister Yaakob announced that the government will now consider refugees and stateless persons among vulnerable groups, in accordance with discussion during the first Cabinet Committee Meeting for the Prosperity of the Vulnerable Groups. Committee membership will reportedly be expanded to include representatives from NGOs that coordinate the protection of these groups.[37]

Persons with Disabilities

There are several national social policies aiming to define the rights of persons with disabilities in Malaysia. The 1990 National Welfare Policy promoted equalization of opportunities with provisions for people with disabilities. The 2003 National Social Policy specified that people with disabilities should "enjoy equal rights and full participation in society," focused on fifteen areas to prioritize inclusion, and specifically mentioned women and children with disabilities as target groups. In 2008, Malaysia signed the UN Convention on the Rights of Persons with Disabilities (CRPD) and enacted the Persons with Disabilities Act, and in 2010, it ratified the CRPD. Yet challenges remain. Data is unreliable regarding numbers of children with disabilities.[38] There is still a long way to go to effectively remove barriers to facilitate children with disabilities receiving an education, and mobility constraints across infrastructure are a serious impediment to disability-inclusive development that reduces personal, economic, and social isolation of persons with disabilities.[39]

Children

Children up to 14 years of age comprise 24% of Malaysia's 32.4 million people, as reported in the 2020 government census.[40] Malaysia has made incredible strides in reducing child poverty, eradicating diseases, protecting children from harm, and bringing more boys and girls to school. Malaysia acceded to the Convention on the Rights of the Child (CRC) in 1995 and introduced the Child Act in 2001.

The children left behind tend to be the hardest to reach and the most disadvantaged, often due to cross-cutting issues such as poverty, disability, refugee or stateless status, or belonging to the Orang Asli or other indigenous groups.[41] One example of cross-cutting issues exacerbating vulnerability is a high proportion of children becoming stateless when their parents are stateless, refugees, or undocumented migrants. Malaysian laws do not grant birthright citizenship, and when parents are unable or reluctant to register births, the undocumented children face greater social barriers, including the inability to access formal education.[42]

Economics

Over the past half-century, Malaysia has reduced extreme poverty and diversified its economy away from agriculture and commodities and toward robust manufacturing and services sectors, and it has become a leading exporter of electrical appliances, parts, and components. Malaysia has an open economy and has had a trade to Gross Domestic Product (GDP) ratio averaging over 130% since 2010. Trade and investment have contributed to employment creation and income growth, with about 40% of jobs in Malaysia linked to export activities. Primary production is still an important part of the economy as Malaysia produces rubber and palm oil, exports petroleum and natural gas, and is one of the world's largest sources of commercial hardwoods. However, Malaysia has increasingly emphasized export-oriented manufacturing to drive economic growth. The country has attracted considerable foreign investment by leveraging its relatively inexpensive but educated labor force, well-developed infrastructure, political stability, and an undervalued currency. Significant foreign investors include Japan and Taiwan.[43] Malaysia's economy has averaged 5.4% growth since 2010.

Since the 1970s, the government has supported a social and economic restructuring strategy that tries to balance the goals of economic growth and redistribution of wealth. It was first known as the New Economic Policy (NEP) and later as the New Development Policy (NDP). The Malaysian economy has long been dominated by the country's Chinese and South Asian minorities. The goal of the socioeconomic strategy has been to endow Malays and other indigenous groups with greater economic opportunities.[44]

The COVID-19 pandemic dealt a major negative economic impact to Malaysia, particularly to vulnerable households. Malaysia revised its national poverty line in July 2020, and currently 5.6% of households are living in absolute poverty. The poorest 40% of the population is particularly vulnerable to economic shocks. Income inequality in Malaysia had been slowly declining but increased in 2019 for the first time since 2004.[45] Following the removal of broad-based subsidies, the Government has gradually moved toward more targeted measures to support the poor and vulnerable, mainly in the form of cash transfers to low-income households.

According to the World Bank's Human Capital Index, Malaysia ranks 55th out of 157 countries.[46] It has the status of an upper middle-income economy, with a GDP of US$372.7 billion, GDP per capita of US$11,371.10, and 4.6% unemployment rate. Ongoing reform efforts to tackle key structural constraints are considered vital to support and sustain Malaysia's development path. Per the World Bank, six key areas of needed reform are:

1. REVITALIZE LONG-TERM GROWTH
    a. Invest in human capital, especially the quality of schooling, emphasizing math and science.
    b. Address the child nutrition gap.
    c. Raise female labor force participation.
    d. Improve productivity by boosting innovation, infrastructure, skills, and institutional quality.
2. BOOST COMPETITIVENESS
    a. Reform key service sectors to promote more competitive markets and improve the competitiveness of manufacturing.
    b. Ensure competitive neutrality between public and private operators.
    c. Modernize the investment environment for efficiency and to attract higher quality investments.
    d. Incentivize researchers to collaborate with the private sector and conduct industry-relevant research, strengthen intellectual property rights, strengthen workers' technological readiness, and improve programs for small and medium enterprise capabilities.
3. CREATE JOBS
    a. Provide universal access to high-quality early childhood education and strengthen learning of cognitive and socio-emotional skills.
    b. Make the education system more responsive to labor market demands, more adaptable, and more cohesive.
    c. Make the foreign worker management system more systematic and transparent.
    d. Retain domestic talent and attract foreign talent.
4. MODERNIZE INSTITUTIONS
    a. Strengthen competition within the state-business nexus to raise standards of governance, transparency, and accountability among government-linked corporations, and insulate their corporate structures from political influence.
    b. Improve government oversight and effectiveness by institutionalizing Parliamentary Select Committees, reintroducing the Parliamentary Services Act, and increasing the use of Private Member Bills.
    c. Enhance the capacity of the public service, including by a Public Service Act that establishes the clear separation of powers between civil servants and the

political leadership. Introduce a more meritocratic system of recruitment and promotion to insulate the public service from political interference.

5. PROMOTE INCLUSION
   a. Create high-skilled, high-paying jobs as a way to facilitate inclusive development.
   b. Update benchmarks for monetary and non-monetary deprivation to ensure the well-being of all Malaysians at higher standards.
   c. Deepen Malaysia's social safety net on the basis of needs-based criteria.

6. FINANCE SHARED PROSPERITY
   a. Make the personal income tax more progressive and develop exemptions to enable the increased collection of revenue and the effective, equitable redistribution of income. Expand the capital gains tax and explore other forms of tax on non-earned income.
   b. Develop new sources of revenue at the state and local level.
   c. Improve spending efficiency through better targeting and consolidation around fewer flagship programs that target households and businesses.[47]

The country is expected to achieve its transition from an upper middle-income economy to a high-income economy around 2024.[48] The 12th Malaysia Plan (12MP, 2021–2025) aims to restore and reinvigorate the economy, narrow disparities, and promote sustainable development.[49]

The government hosts the World Bank Group Inclusive Growth and Sustainable Finance Hub in Malaysia. The Hub was started in 2016 as the Global Knowledge and Research Hub to conduct original economic research, disseminate Malaysia's development experiences and policy innovations for the benefit of other countries, and share global expertise. The new name reflects Malaysia's development ambitions to achieve inclusive growth, greater shared prosperity, and developed nation status. It has also led in the area of sustainable finance, where the Hub's research will focus on sustainable finance for climate action, a resilient and inclusive financial sector, and Islamic finance for sustainable development.[50]

Government

Malaysia is a parliamentary democracy with a federal constitutional monarchy.[51] It has a parliamentary system of government headed by a prime minister selected through periodic, multiparty elections.[52] Malaysia also has a ceremonial head of state, a monarch with the title of Yang di-Pertuan Agong (paramount ruler),[53] who also serves as the leader of the Islamic faith in Malaysia. The Yang di-Pertuan Agong is selected for a five-year term by the nine hereditary state rulers of Peninsular Malaysia.[54] The Yang di-Pertuan Agong appoints the governors of the four Malaysian states that do not have hereditary rulers (Melaka, Pulau Pinang, Sabah, and Sarawak); each of them serves a four-year term.

Legislative power lies in a federal bicameral Parliament, consisting of the Senate (Dewan Negara) as the non-elected upper house and the House of Representatives (Dewan Rakyat) as the elected lower house. The House of Representatives has 222 elected members. A General Election is held every five years to elect Representatives, who must be Malaysian citizens, over 18 years old, of sound mind, not have an undischarged bankruptcy, and not simultaneously be a member of the Senate. Parties with the most elected members can form a federal government to administer the country.[55] The Senate consists of 70 Senators, of whom 26 members are elected by the State Legislative Assembly to represent 13 states (two members per state) and 44 members are appointed by the Yang di-Pertuan Agong on the advice of the Prime Minister. Senate terms are for three years, with a maximum of two terms. Eligibility criteria that apply to being a Senate member are the same as for Representatives with the exception that Senators must be at least 30 years old.[56]

Executive power resides in the cabinet, which is led by the prime minister. The cabinet is chosen from members of both houses of parliament. The prime minister must be a member of the House of Representatives, command a majority, and be appointed by the Yang di-Pertuan Agong. The cabinet is also appointed by the Yang di-Pertuan Agong, on the advice of the prime minister.

Judicial power lies in the Federal Court (formerly called the Supreme Court), two High Courts, and subordinate courts. The High Court in Malaya covers Peninsular Malaysia, and the High Court in Sarawak and Sabah covers East Malaysia. Each High Court consists of a chief judge and several other justices, and each High Court holds criminal and civil jurisdiction. Appeals from the High Courts are first heard by the Court of Appeal, after which they may be appealed to the Federal Court, which is headed by a chief justice. Below each High Court are three subordinate courts: the Sessions Court, the Magistrates' Court, and the Court for Children. Additionally, there are religious courts in the states that are established under Islamic law. The Islamic courts are governed by state, not federal, legislation.[57]

Each state also has its own written constitution, legislative assembly, and executive council, which is responsible to the legislative assembly and headed by a chief minister. Governance of the states is undertaken by both the federal government and the state government, as delineated in the Ninth Schedule of the Constitution of Malaysia.[58] Sabah and Sarawak, which have significant indigenous populations, have greater autonomy than other states, including the power to control immigration from Peninsular Malaysia. However, some of that autonomy has eroded over the last six decades, including the ability to protect land rights and interests of indigenous peoples.[59]

Environment

Malaysia is a tropical country located at the crossroads of Southeast Asia. It is situated alongside the Straits of Malacca, one of the busiest and most important maritime shipping lanes in the world. Malaysia, like many other countries, is already experiencing the effects of climate change and anticipates increasing climate hazards in the future. The most frequent and damaging natural disaster that occurs in Malaysia is flooding. Climate change is predicted to further increase rainfall amounts and intensity in Malaysia, which will experience greater flooding.

Geography

Located in Southeast Asia, Malaysia has two main geographical parts – Peninsular Malaysia in the west and East Malaysia on Borneo Island. Peninsular Malaysia, also known as West Malaysia, is located on the Asian continent's Malay Peninsula and is bordered to the north by Thailand. Peninsular Malaysia extends for 800 kilometers (km; 497 miles) from Thailand's Isthmus of Kra to Singapore and the Indonesian Archipelago. Peninsular Malaysia constitutes about 40% of the country's territory[60] but is home to about 80% of the population.[61] A central mountain range with peaks rising to 2,100 meters (m; 6,890 feet) divides Peninsular Malaysia, with scenic coastal plains on either side of the mountains. Most of the population lives in the plains and foothills of the western coast, along the Straits of Malacca. Between the two coasts, the mountain terrain is covered in jungle. Primary forest covers 60% of Malaysia and contains a variety of flowering plants and considerable timber reserves that are now diminishing.

East Malaysia occupies the northwestern one-third of the island of Borneo; it is bordered to the south by Indonesia and to the north by Brunei, which Malaysia mostly surrounds. East Malaysia comprises two states, Sabah and Sarawak, which lie approximately 640 km (400 miles) across the South China Sea from West Malaysia.[62] East Malaysia stretches for 1,000 km (621 miles) along the northwestern side of Borneo Island.[63] East Malaysia constitutes about 60% of the country's total area but is home to less than 20%

of the population.

Malaysia has a total area of 329,847 square kilometers (km²; 126,895 square miles), including 328,657 km² (126,895 square miles) of land and 1,190 km² (460 square miles) of water. Malaysia is the 73rd largest country in the world and is slightly larger than the U.S. state of New Mexico.[64] Malaysia's location and geography are shown in Figure 1.[65]



Figure 1: Malaysia's Location and Geography

Borders

Malaysia shares land borders with Indonesia, Thailand, and Brunei. Its longest land border is with Indonesia, running 1,881 km (1,169 miles) on the island of Borneo. Also on Borneo is Malaysia's border with Brunei, which is 266 km (165 miles) in length. On the Peninsula, the country's northern neighbor is Thailand, with which it shares a 595-km (370-mile) border. East Malaysia, on the island of Borneo, is separated from Peninsular Malaysia by the South China Sea.

Malaysia has 4,675 km (2,905 miles) of coastline, comprising 2,068 km (1,285 miles) in Peninsular Malaysia and 2,607 km (1,620 miles) in East Malaysia.

The island Republic of Singapore is located off the southern tip of the Malay Peninsula; they are connected to each other by a causeway and a separate bridge. To the southwest, across the Strait of Malacca from Peninsular Malaysia, is the Indonesian island of Sumatra.

Climate

Malaysia's climate is equatorial, with humid weather throughout the year. The average daily temperature across the country is between 21 degrees Celsius (°C) and 32°C (70 degrees Fahrenheit [°F] and 90°F). The climate is typically influenced by the winds blowing from the Indian Ocean, as seen in the southwest monsoon from May to September, and from the South China Sea, as seen in the northeast monsoon from November to March. The northeast monsoon brings heavy rain and rough seas to coastal areas of southwestern Sarawak and northern and northeastern Sabah, and sometimes causes flooding in the eastern part of the Peninsula. The southwest monsoon primarily affects the southwestern coast of Sabah, where flooding is common. While Malaysia does not lie in the tropical cyclone (typhoon) belt, coastal areas occasionally experience heavy rainstorms.[66] The country's annual rainfall averages between 200 centimeters (cm; 79 inches) and 250 cm (98 inches).[67] Rainfall is abundant and frequent throughout the year but can also be erratic from year to year. The tropical rains often occur as afternoon downpours, with the rest of the day otherwise clear. Malaysia has an estimated 1,800 hours of sunshine per year in the wettest areas and 2,500 hours of sunshine in the least rainy parts.[68]

DISASTER OVERVIEW

Malaysia faces various climate-related hazards, which are being exacerbated by climate change. Flooding is by far the largest natural hazard, causing the most natural disasters and the majority of disaster damages. Rainfall intensity has increased over the past four decades, and this intensity has worsened flooding. Rapid urbanization is also contributing to flooding woes. Malaysia is aware of the risks posed by climate change and discussed it in 12MP, the latest five-year development plan.

Climate Change

Climate-related natural disasters have cost Malaysia 8 billion ringgit (RM; US$1.9 billion) in the last 20 years,[69] and climate change is exacerbating various climate-related hazards.[70] Between 1970 and 2013, Malaysia experienced surface mean temperatures that increased 0.14 - 0.25°C (0.25 – 0.45°F) per decade, maximum surface temperatures that increased 0.17 - 0.22°C (0.31°F – 0.40°F) per decade, and minimum surface temperatures that increased 0.20 - 0.32°C (0.36°F – 0.58°F) per decade.[71] Additionally, rainfall has shown an increasing trend in recent decades. A 2015 study analyzing data from 54 stations along the east coast of Peninsular Malaysia from 1971 through 2010 found that annual rainfall in the area increased at a rate of 12.8 millimeters (mm; 0.5 inches) per year in those 40 years. While an increase in rainfall intensity was not as widespread, the study did observe increased rainfall intensity across 22% of the area studied. It also found that the number of days per year with heavy rainfall (more than 20 mm [0.79 inches]) increased by 1.5 days per decade.[72]

A 2016 study determined that not enacting any climate control policies would cost Malaysia RM40.1 trillion (US$10 trillion) over a century from 2010 to 2110.[73] Climate change scenarios forecast that Malaysia will experience sea level rise, reduced crop yields, greater incidence of diseases among forest species, loss of biodiversity, erosion of shorelines, increased flood intensities, coral reef bleaching, tidal inundation of coastal areas, decreased water availability, more droughts, and increased incidence of human disease.[74]

Flood risk in urban areas is rising, with growing urban populations exposed to flash floods caused by heavy rainfall. Sea level rise has been increasing the vulnerability of Malaysia's coastal areas, with storm surge, coastal erosion, and saltwater intrusion becoming more significant threats. High levels of uncertainty around future changes in precipitation and extreme events pose a challenge to the development of an effective country disaster risk management strategy. Nonetheless, the integration of climate change adaptation (CCA) and disaster risk reduction (DRR) considerations in urban planning and management is a priority to ensure healthy populations and to prevent economic disruption.[75] In addition to direct hydrometeorological threats, the country has already faced health consequences of climate change as dengue fever has become a persistent threat in urban areas in the last decade, and the range of the dengue vector mosquito is expected to grow due to climate change. At the national level, climate change mitigation and adaptation actions have been mainstreamed in the national development plan. In the 12MP, Malaysia had emphasized a focus on low carbon and climate resilient development to support national aspirations for sustainable development. Malaysia is in the preparatory stages of developing its National Adaptation Plan.[76] In the long term, Malaysia has pledged its commitment to reduce greenhouse gas (GHG) emissions through nationally determined contributions (NDC) to the Paris Agreement under the UN Framework Convention on Climate Change (UNFCCC).[77]

Hazards

The natural hazard that most frequently afflicts Malaysia is flooding, which is responsible for the most people affected by disaster as well as the majority of disaster losses. Other natural hazards include epidemic, storm, landslide, wildfire, drought, and earthquakes. Figure 2 depicts natural hazards by average annual occurrence from 1980 through 2020 in Malaysia. Figure 3 shows the number of people affected in Malaysia by the most frequent natural hazards during the period 1980-2020.[78]

Drought

The INFORM Risk Index ranks Malaysia's risk from drought at 3.2 out of 10, on a scale of 1-10 with 10 being the highest risk.[79] While this ranking is relatively low among natural hazard risks, Malaysia does face heat waves as well as droughts. In 2014, two million people (7% of the population) were affected by a drought that lasted two months, from January to March. Although there were no reports of human lives lost, Selangor and Negeri Sembilan States experienced a water crisis. The impact of water shortages on the agricultural sector resulted in rising food prices and inflation.[80]

Overlapping with drought risk, interrelated water issues in Malaysia include river pollution, the safety of drinking water, and water disruption.[81] Urbanization has increased water demand and exacerbated water pollution. As 98% of water comes from rivers, diminishing rivers and river pollution are concerning problems. According to the Department of Environment, there were 579 rivers in Malaysia in 2008 but only 477 rivers in 2019.[82]

Earthquake

The INFORM Risk Index ranks Malaysia's risk from earthquake at 2.3 out of 10.[83] While it is the lowest risk ranking among natural hazards that the Index analyzes, the risk is not zero, particularly for Eastern Malaysia. Malaysia is located outside of the "Ring of Fire" and, thus, faces a smaller earthquake risk than other parts of the Pacific Rim. However, there is a history of significant earthquakes occurring. The public and government are more aware of the risk for Sabah, especially after a 5.9-magnitude earthquake in 2015 killed 18 people. Sabah had previously experienced a 6.2-magnitude quake in Lahad Datu in 1976. Sarawak also has historically experienced some earthquakes of an

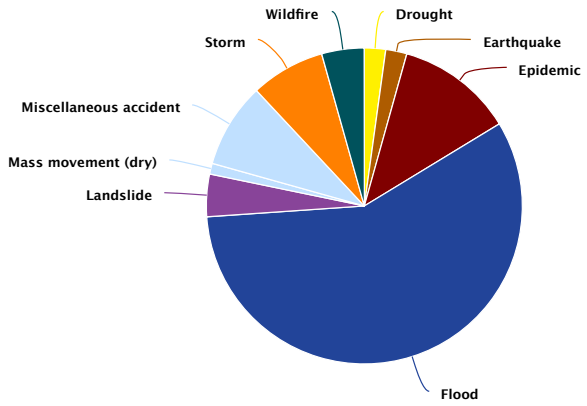


Figure 2: Average Annual Natural Hazard Occurrence (1980-2020)

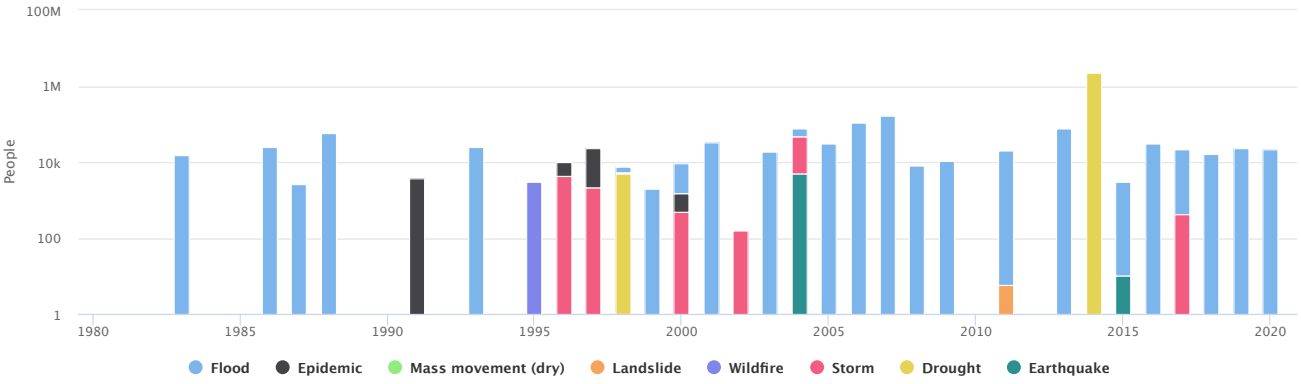


Figure 3: Number of People Affected by Key Natural Hazards (1980-2020)

approximate 5.0-magnitude scale near Tubau and Miri.[84]

Flooding

Flooding is Malaysia's most frequent and most expensive natural disaster. From 1998 through 2018, floods comprised 38 of the 51 (75%) natural disasters Malaysia experienced — considerably more than the global average of 43%. During that time, floods affected more than 770,000 people, killed 148 people, and caused RM5.82 billion (US$1.4 billion) in damages. Floods contributed to around 70% of Malaysia's disaster damage and caused over half of the total deaths from natural disasters during that period.[85]

According to Malaysia's Department of Irrigation and Drainage (DID), the many rivers running through the country put about 9% of the total land area under flood risk, potentially affecting 2.7 million people.[86] The risk of flooding is being exacerbated by both climate change and urbanization. Not only has Malaysia experienced widespread increasing rainfall intensity over four decades, but it is also one of the most urbanized countries in Southeast Asia.[87] Rapid urbanization worsens flood risks through increased population density, at-risk infrastructure, land consumption, and disruption to water flow and drainage. Flooding occurs particularly frequently during the monsoon seasons.

In March 2022, Environment and Water Minister Tuan Ibrahim Tuan Man announced that Malaysia is implementing a flood disaster risk assessment based on climate change forecasts; the assessment is expected to be ready by 2024. It will be carried out through flood hazard and flood risks maps under the DID and will cover 36 major river basins. Under the country's five-year 11th and 12th Malaysia Plans, in addition to the current 11 radar stations, the meteorological department was installing eight new radar stations in Perak, Kelantan, Terengganu, Pahang, Sabah, and Sarawak States, to be ready in 2022. The DID was also implementing a Flood Warning and Prediction Program aimed at delivering early warnings to both disaster management agencies and the public. The alert system would issue flood predictions seven days ahead, warnings two days ahead, and a siren warning when water levels hit a certain threshold.[88]

Storm

Malaysia is at low risk of a direct hit from a typhoon or tropical cyclone, but it is at high risk of storms, including thunderstorms, which it experiences frequently.

The INFORM Risk Index ranks Malaysia's risk from tropical cyclones at 2.9 out of 10.[89] Malaysia is outside of the area where most tropical cyclones have historically tracked in the region and, thus, is at relatively lower risk of receiving a direct typhoon hit. Nonetheless, the country is still very much exposed to storms bringing heavy rainfall. The greater risk is that the heavy rains from these storms contribute significantly to flooding, which is already Malaysia's highest-risk natural hazard.[90] Storm conditions with heavy rainfall also contribute significantly to the occurrence of landslides.

Climate change experts say Malaysia is expected to experience stronger cyclones or storms in the near future due to rising temperatures.[91]

History of Natural Disasters

The following is a list of natural disasters in Malaysia in the last ten years.

2022 July – Floods

Heavy rainfall affected northern Peninsular Malaysia (particularly Kedah State) starting 4 July. The rainfall caused floods, flash floods, and river overflow (particularly the Ketil River). Per the ASEAN Disaster Information Network (ADINet), at least three fatalities were reported and more than 1,400 people evacuated to emergency accommodations in eastern Kedah State, with at least six houses destroyed and 70 damaged.[92]

2022 May – Floods

On 25 May, flooding occurred in Batang Padang and Mualim (Perak State), and Kuala Selangor (Selangor State). In Perak, 231 persons (71 families) were displaced to six evacuation centers. In Selangor, 22 persons (10 families) were displaced to an evacuation center.[93]

2022 March – Floods and Landslide

Heavy rain started on 5 March and caused flooding in Greater Kuala Lumpur, Melaka, Negeri Sembilan, and Selangor as it extended over several days with particularly high waters on 7 March. Flooding in the Klang Valley caused severe traffic problems in Kuala Lumpur. A total of 1,291 people were moved to evacuation centers across affected areas, mostly in Selangor where the districts of Gombak, Hulu Langat, Kuala Langat, Petailing, and Sepang were all affected. Areas in Gombak district recorded 132.5 mm (5.2 inches) of rain in 24 hours on 07 March.[94] Then, on 10 March, a landslide occurred in Hulu Langat District of Selangor State, on the outskirts of Kuala Lumpur Federal Territory. The landslide was triggered by the heavy rains that had prevailed since 5 March, and it killed four people and injured one person. At least 75 people were affected, including 14 people displaced, with 15 houses damaged or destroyed. Parts of Hulu Langat District recorded more than 120 mm (4.72 inches) of rain in the 24 hours before the landslide.[95]

2022 February - Floods

Flooding affected Kelantan, Pahang, and Terengganu States after heavy rains during 25-27 February. An estimated 1,916 families (5,653 persons) were displaced to 63 evacuation centers in Jeli, Kota Bharu, Kuala Krai, Machang, Pasir Mas, Pasir Puteh, and Tanah Merah (Kelantan State). An additional 2,122 families (6,680 persons) were displaced to 120 evacuation centers in Besut, Dungun, Hulu Terengganu, Kemaman, Kuala Nerus, Kuala Terengganu, Marang, and Setiu (Terengganu State).[96]

2021 December - Floods

Heavy rainfall and severe flooding was triggered across Peninsular Malaysia when Tropical Depression Twentynine made landfall in Kemaman District (Terengganu State) on 17 December, with maximum sustained winds of 46 km/hour (28.6 miles/hour). In Terengganu and Kelantan States alone, more than 380 people were displaced to evacuation centers.[97] The storm brought three days of torrential rain, causing severe flooding in eight states and partially submerging a number of towns and villages. As of 20 December, an estimated 51,000 people had been evacuated from their homes. Most of them were from Pahang State on the eastern coast of the Peninsula. The government has been criticized for not issuing warnings early enough and being slow to respond.[98]

The overall death toll from the floods was 54, with Selangor State hardest hit with 25 deaths. The storm and resulting floods caused RM6.1 billion (US$1.5 billion) in losses, equivalent to 0.4% of the country's nominal GDP. Environment and Water Ministry Secretary-General Dr. Zaini Ujang said that the downpour, which began on 18 December and lasted more than 24 hours, was equivalent to the average rainfall for a month in Kuala Lumpur and was a "once in a hundred years" weather event.[99] The disaster prompted environmental groups to call upon the government to introduce laws to cut climate change emissions and boost emergency response and adaptation efforts. "Floods occur every year somewhere, at some time in the country," said Salleh Mohd Nor, a former president and senior adviser at the Malaysian Nature Society. "To say that this (flood) is one-in-100-years is something I doubt. With climate change the rains will be more frequent and torrential," he added.[100]

Malaysia-based NGOs MERCY Malaysia and AMDA coordinated relief activities, with AMDA working in support of MERCY Malaysia's relief work.[101] On 30 December 2021, the U.S. Agency for International Development (USAID) provided US$100,000 in humanitarian assistance

for impacted communities.[102] On 6 January 2022, the Emirates Red Crescent distributed 250 tons of relief supplies to affected people, as part of Phase I of a relief aid distribution campaign.[103]

2021 October – Floods

On 28 October, floods struck after a few days of heavy rain over Baling and Pendang Districts in Kedah State in northern Peninsular Malaysia. According to ADINet, 219 people were evacuated to four evacuation centers.[104]

2021 August – Floods

On 18 August, a flash flood from the foothills of Mount Jerai (Gunung Jerai) affected Kedah State. Heavy downpours caused water surges and landslides on Gunung Jerai that later hit Yan and Kuala Muda districts with muddy flash floods. The flash floods affected approximately 1,149 people in Yan district and 320 households in Kuala Muda district. A reported 1,469 people lodged police reports about their situations during the flash flood. The Government opened two evacuation centers and temporarily hosted 43 people. Out of 4,825 people affected by the flash flood, only 43% went to the evacuation center. Some affected people were hesitant to evacuate to the centers due to fear of COVID-19 transmission, as Yan district was considered as having a high COVID-19 transmission rate at the time. During the flash flood, Kedah State experienced the third wave of COVID-19, which reached 1,538 new cases per day. In the two districts, flash floods destroyed farmland and plantations. Livestock loss, including of chickens, goats, and cows, was also reported, destroying critical livelihoods and safety net assets. Some farmers reportedly lost harvests due to the flood, which hit just as the rice harvest was due later in the month.[105]

2021 May – Floods

On 20 May, heavy rainfall occurred in Sabah State and caused flooding in Beaufort and Tenom districts. Flooding, exacerbated by strong currents and poor drainage, occurred when the Pagalan and Pada Rivers overflowed. A total of 1,552 families (5,782 people) were affected. No casualties were reported per the Social Welfare Department. The government opened 39 temporary shelters and provided food, water, and blankets to the affected people. Local NGOs and the private sector also offered water and food for people in temporary shelters, with the coordination of the Malaysian Red Crescent Society (MRCS) Sabah Team. A total of 47 villages in Tenom and 75 villages in Beaufort were affected.[106]

2021 January-May – Floods

Significant heavy rains, which began on 2 January, caused flooding in five states in Peninsular Malaysia on the morning of 4 January. NADMA estimated that 11,973 families were affected by the floods, and eight deaths were reported. A total of 42,947 people were evacuated to 397 evacuation centers in 27 districts within the five states. On 8 January, the Malaysian Meteorological Department (Met Malaysia) issued a weather warning alert for expected heavy rain over the states of Terengganu, Pahang, Johor, and Sarawak. The continuous heavy rains resulted in floods in Terengganu, Kelantan, and Sabah States. There were reported damages to roads alongside landslides, and minor damage to houses was reported in the affected states. The MRCS branches of Johor, Pahang, Kelantan, and Terengganu had activated their annual flood preparedness plan in anticipation of the monsoon season. MRCS volunteers in branches throughout the affected areas had been called up in November 2020 and remained active throughout the operation. The MRCS operation reached a total of 2,996 households (10,267 people, with an average of 3.5 family members per household). Among those reached, 1,654 households received multi-purpose cash grants and hygiene kits, 996 households received multi-purpose cash grants only, and 346 households received hygiene kits only. The MRCS operation started in January 2021 and was completed by 31 May 2021.[107]

2020 October-November – Floods

From October to November 2020, heavy rainfall and flooding occurred in various parts of the country and resulted in some fatalities, frequent evacuations, and damage. On 8 October, heavy rain was reported across eastern Malaysia where it triggered floods and resulted in the evacuation of 400 people to six relief centers. Damage was reported to hundreds of buildings across Kota Kinabalu, Kota Belud, Tuaran, and Telipok Districts (Sabah State).[108] On 10 November, a landslide occurred in Tambun Town in Perak State on the west coast of the Peninsula where it killed two people. Floods were reported in Keningau District in Sabah State, where two people died following the overflow of the Liawan River and several houses were damaged.[109] On 23 November, the National Disaster Command Centre (NDCC) reported flooding in Terengganu State. The floods resulted in 361 persons (90 families) displaced to 12 evacuation centers.[110] It was reported on 26 November that more than 1,200 people were evacuated across the States of Perak, Terengganu, Johor, and Kedah on the Peninsula.[111] On 27 November, flooding was reported in Perak State where it displaced 221 persons (55 families) to three evacuation centers.[112]

2020 May-July – Floods

Heavy rainfall led to flooding across different parts of the country from May to July 2020. Starting 8 May, widespread floods due to heavy rain affected Betong District (Sarawak State) and resulted in casualties and damage. At least 650 families were affected, and several houses and roads were flooded.[113]

From 17 May, floods triggered by the rains affected northwestern areas of the Peninsula. At least 80 houses and several roads were flooded in Penang State. In Perak State, the overflow of the Bernam and Kuala Slim Rivers caused the inundation of several houses; members of the local population were evacuated.[114]

On 20 June, floods hit Johor State following heavy rains that forced 1,210 people from 288 families to be evacuated to 18 centers in Muar, Batu Pahat, Tangkak, Kluang, and Pontian Districts.[115]

From 27 June, heavy rainfall affected eastern Malaysia, particularly Sabah State where it triggered floods and caused damage. After 29 June, floods were reported in Sarawak State, where heavy rain hit remote areas in the districts of Baram, Marudi, Long Lama, Lawas, and Limbang. Per the Barama Peoples action committee, 1,000 people in the rural Long Panai settlement were cut off. As of 1 July, around 1,100 people were evacuated, of which 634 were in Tenom District, 323 in Kota Belud District, 62 in Papar District, 49 in Beaufort District, and 19 in Penampang District. The Civil Defence Department, Fire Department, and local authorities set up 15 temporary shelters in those five districts. Throughout Sabah, 152 villages across 11 Districts were reported affected.[116]

2019 November - 2020 May - Floods

Heavy rains had been affecting Malaysia, particularly the northern states of the Peninsula, from November 2019. At the end of that month, water levels rose in rivers in Kelantan and Terengganu States. On 29 November, Sungai Golok at Jenob Tanah Merah and Sungai Lebir in Tualang Kuala Krai breached warning levels. Levels of three rivers in Setiu and one in Besut, in Terengganu State, also breached their danger points; they included Sungai Nerus in Kampung Langkap, Sungai Setiu in Kampung Besut, Sungai Chalok in Chalok Bridge, and Sungai Besut in Kampung La.

Flooding caused mass disturbances along Peninsular Malaysia's east coast. On 3 December, more than 15,000 people were evacuated into designated relief centers in Kelantan and Terengganu States. The Pasir Mas district in Kelantan was the worst affected district, only accessible to watercraft and having almost 2,000 families evacuated to evacuation centers. The National Security Council, NADMA, and the district offices in affected areas coordinated the evacuation activities with the support of the Malaysian Fire and Rescue Department and Malaysia Civil Defence Force. The water receded,

and most of the evacuation centers closed on 5 December, with most families returning to their homes or living in relative's houses.

MRCS volunteers in branches throughout the affected areas became active in December 2019 and remained mobilized throughout the operation. The Kelantan branch activated its preparedness plan, which it had developed following a disaster management training facilitated by the IFRC in May 2016 with funding support from USAID's Office of Foreign Disaster Assistance (OFDA, now Bureau for Humanitarian Assistance [BHA]). The branch had also been equipped with a rescue boat, which it deployed to support efforts alongside the government's search and rescue team, SMART.

MRCS had mobilized 50 volunteers from its branches for the needs assessment, supported by three rescue teams from the national headquarters. The MRCS Kelantan branch set up mass cooking units in evacuation centers in Pasir Mas, Bachok, and Kuala Krai, complementing the Social Welfare Department of Kelantan's programs. On 10 December, a joint assessment team of 19 MRCS members were deployed to Kelantan and Terengganu.

NGOs and other organizations that provided assistance in Terengganu and Kelantan included:

- Institut Modal Insan Terengganu Sejahtera – supported clean-up of houses
- Unit Amal Malaysia – cleaning houses and relief operations
- MERCY Malaysia – donated 83 hygiene kits, supported the cleaning of schools
- Coca Cola – distributed mineral water to the Office of Civil Defence (formerly JPAM, now the Malaysian Civil Defence Force [APM])
- Rescue Bencana Malaysia – rescue and relief operations, in-kind distribution
- 3rd Force – in-kind distribution and repair works
- University students from Universiti Malaysia Terengganu and Universiti Sultan Zainal Abidin – helped in registration at evacuation centers and relief distribution[117]

2020 March – Landslide and Floods

From 20 March, 10 days of heavy rain caused a landslide and widespread floods in several parts of the country.[118] There were two fatalities following a landslide on 23 March on Mount Jerai in Kuala Muda District, Kedah State. Search and rescue operations were hampered by further landslide risks. An additional 18 people were evacuated due to floods in Alor Gajah Town (Malacca State).[119]

2020 March – Dengue

From 15 to 21 March, a total of 1,874 dengue cases including two deaths were reported in Malaysia, a 15.5% decrease compared to the previous week.[120] From 1 to 7 March, a total of 2,523 dengue cases including two deaths were reported, a 0.7% decrease compared to the previous week.[121] The cumulative number of reported cases from 29 December 2019 to 21 March 2020 was 32,951 cases, including 48 deaths. a decrease of 1,271 cases (3.7%), compared to 34,222 cases for the same period a year before.

While 2020 dengue case numbers were lower than 2019 case numbers, that drop was attributed to COVID-19 disruption.[122] In the preceding four years in the region overall, dengue cases in Southeast Asia increased by 46% (from 451,442 to 658,301) from 2015 to 2019.[123] In a bright spot for Malaysia, dengue cases reported in 2021 decreased 70% from 2020. However, "the main reason for this drop in dengue cases still cannot be determined," per Health director-general Dr. Noor Hisham, who added that dengue remains a public health threat in Malaysia during the COVID-19 pandemic.[124] The Ministry of Health focuses on early detection, vector management, online notification methods, and recently introduced the Wolbachia bacteria to mosquitoes to inhibit dengue transmission.[125]

2018 January – Floods

Flooding was caused by heavy rain that began on 1 January. The floods forced more than 3,000 people to leave their homes in several

states in Peninsular Malaysia. Kuantan and Rompin Districts in Pahang State were the worst hit areas. NADMA reported that nine relief centers were set up in the two districts where they accommodated 2,725 displaced people as of 3 January. In Johor, 385 people evacuated their homes and stayed in relief centers in Mersing and Kota Tinggi Districts. Heavy rain also affected parts of Terengganu State, where 388 people were displaced to a relief center in Dungun District.[126] Also on 3 January, nearly 5,000 people in Pahang State were evacuated after heavy rain caused worsening floods. The number of people who sought shelter in Pahang more than doubled to 4,851 from the previous day.[127]

From 3 to 6 February, heavy rain caused flooding in Sarawak State. Up to 4,859 people were evacuated from their homes, and 25 evacuation centers were opened. The Sarawak Disaster Management Committee reported 501 displaced families in Samarahan, 372 in Serian, 172 in Sibu, 39 in Mukah, four in Sarikei, 258 in Bintulu, and 117 in Limbang. The air unit of the state Fire and Rescue Department (BOMBA) delivered 14 tons of food items to 3,861 flood victims in Nanga Tau, Tatau, and Bintulu.[128]

2017 November – Floods

On 4-5 November, Penang State was affected by storm winds, attributed to Typhoon Damrey, which had struck Vietnam. Nearly 80% of Penang saw strong storm winds and heavy rains, which caused flooding and killed at least seven people. Water levels rose to 3-4 m (10-12 feet) above roofs on Penang Island. Malaysian military forces deployed to assist in the rescue of thousands of displaced persons. More than 3,500 were evacuated from Penang. In neighboring Kedah State, more than 2,000 people were also forced to leave their homes.[129]

2017 January – Floods

On 23 January 2017, seasonal heavy rains caused flooding in Johor, Kelantan, Pahang, Perak, Selangor, and Sabah States and led to the evacuation of 4,207 families to evacuation centers. Water levels rose 1.5 m (4.5 feet) in some areas of Johor and Pahang. Johor State was the worst hit, as three days of rain continuously fell in its Segamat and Kota Tinggi Districts. NADMA, along with the army, police, and other local government agencies, conducted evacuations, established emergency shelters, and operationalized evacuation centers. The SMART was deployed to conduct search and rescue operations. The MRCS activated emergency response capacity for water search and rescue, welfare services, and health and disaster relief at the national and state levels and deployed nine boats in support of state-led evacuation efforts.[130]

2016 December – Floods

Starting 26 December, heavy continuous seasonal rains fell in Peninsular Malaysia's east coast states where they caused flooding in Kelantan and Terengganu. About 25,000 people were displaced. In Kelantan, three main rivers (sungai) – Sungai Golok, Sungai Galas, and Sungai Kelantan – overflowed and flooded several districts including Bachok, Gua Musang, Jeli, Kota Bahru, Machang, Pasir Mas, Pasir Puteh, Tanah Merah, Tumpat, and Kuala Krai. In Terengganu State, Sungai Besut, Sungai Terengganu, and Sungai Setiu reached critical levels, prompting the authorities to evacuate communities from riverside districts. Schools not flooded were used as evacuation centers.[131]

2016 April – Drought and Heat Wave

On 26 April, Malaysia recorded its second fatality from heatstroke. The country had recorded 200 cases of heatstroke, including the first fatality, the previous month as Malaysia suffered from a heat wave, which caused rivers and reservoirs to dry up. Parts of the country were also experiencing drought. Seven dams recorded water levels below 50% in Timah Tasoh (Perlis State), Beris, Padang Saga, Muda (Kedah State), Bukit Merah (Perak State), Bukit Kwong (Kelantan State), and Labong (Johor State). The water level in Linggiu Reservoir in Johor rapidly fell to historic lows, registering at 35% as of 22 April. As much as 200 million gallons of water a

day was pumped from the Jus Dam to the Durian Tunggal Dam to stabilize the water supply.[132]

2016 February – Floods

In early February, heavy rainfall commenced and caused major flooding in several states including Sarawak, especially in Serian and Simunjan divisions. In Serian, 315 families from Kampong (Kg.) Tebakang Dayak, Kg. Tebakang Melayu, Kg. Tebakang Cina, and Kg. Sorak Melayu were affected and moved to two evacuation centers. In Simunjan, 85 families from Kg. Sebemban and Kg. Slabi Entungkuh were moved to evacuation centers in Balai Raya Kampung Slabi Entungkuh and Dewan Masyarakat Gedong. MERCY Malaysia deployed an emergency response team to identify critical needs, coordinate meetings and discussions with village heads, and procure and distribute hygiene kits, food supply, and drinking water.[133]

2015 June - Sabah Earthquake

On 5 June at 07:15 local time, a 5.9-magnitude earthquake with a depth of 10 km (6.2 miles) occurred in Ranau town, Sabah State. There were 18 fatalities, including six Singaporean children on a school trip. Most of the fatalities were hikers on the slopes of Mount Kinabalu where the earthquake triggered rockslides. Local Sabah mountain guides on site were the first rescuers, navigating new paths where the old trails disappeared with the quake, and they were joined by government agencies responding and assisting after they were able to access the area. MERCY Malaysia reported 130 people were rescued off the mountain.[134] Malay Mail reported 137 climbers were stranded after the quake.[135] CNN reported that 167 climbers were helped to safety by mountain guides, according to BOMBA.[136] MERCY Malaysia deployed its Sabah Chapter volunteers to Ranau on 6 June and, based on initial assessments, provided psychosocial support for those severely affected by the earthquake, especially local mountain guides and their families.[137] The incident highlighted the importance and role of mountain guides, and they were recognized as members of the Mountain Search and Rescue Team (MOSAR). The quake damaged roads and buildings, including schools and a hospital on Sabah's west coast, and it broke one of the twin rock formations on the mountain known as the "Donkey's Ears." In total there was more than RM100 million (US$23 million) in damage to buildings and infrastructure.

2014 December – Floods

Starting in mid-December 2014, heavy rains brought by the Northeast Monsoon fell over vast stretches of Peninsular Malaysia and continued into the first weeks of January 2015.[138] The rain caused severe flooding in Terengganu, Pahang, and Kelantan States. Accumulated rainfall exceeded 175 cm (69 inches) in some areas – up to six times the amount usually observed in December. In what was described as the worst flooding in decades, 21 people were killed and more than 230,000 people were evacuated from their homes across five states. Between 500,000 and 1 million people were affected, according to the IFRC. The heavy and prolonged rain coincided with higher-than-normal tides, which effectively inhibited flood waters from draining to the sea. Economic losses exceeded US$280 million, and insured losses were estimated to be around US$63 million. The most affected states were Pahang, Terengganu, and Kelantan, where floods ravaged about 184,000 hectares of palm plantations and undermined palm oil production, a vital sector of the Malaysian economy.[139]

2014 January-March – Drought

Malaysia experienced a drought from January to March 2014; it affected more than 2 million people, or 7% of the country's population. The two-month dry spell depleted reservoirs, leading the government to cut water to over 300,000 households in Kuala Lumpur and Selangor to ration the water supply. Kuala Lumpur shares its water supply with Selangor, where the reserve level of dams dipped below 50%. Additionally, Negeri Sembilan, adjacent to Selangor, declared a water crisis and mobilized to supply treated

water to thousands of households. The drought was anticipated to lead to rising food prices and inflation.[140]

2014 – Dengue

In April 2014, areas in Malaysia experienced a four-fold increase in dengue infections compared with the same period the previous year. The quadrupling of dengue rates was attributed to the circulation of a new serotype, DEN 1, and favorable epidemiological conditions enabled by rapid population growth, rural-urban migration, inadequate basic urban infrastructure (e.g., unreliable water supply leading to water stored in containers close to homes), and increased volumes of solid waste such as discarded plastic containers and other abandoned items which provide mosquito larvae habitats in urban areas.[141] By October 2014, the number of dengue cases in Malaysia was still higher than the previous year. However, week 41 of 2014 saw a decrease of 14.9% in the number of reported new cases compared with the previous week. As of 11 October, the cumulative number of reported dengue cases was 80,578. The cumulative number of dengue deaths reported was 153.[142]

2013 December – Floods

Heavy rain in separate parts of Malaysia led to flooding, with over 50 families evacuated and staying in relief centers. In Sabah, 30 families were evacuated to relief centers after flood waters reached as high as 2 m (6 feet) in some parts of Beaufort District. Terengganu State suffered severe flooding in early December. On 23 December, heavy rain led to flash floods in Kemaman, requiring the evacuation of 23 families to relief centers.[143]

2012 December – Floods

Flooding in December 2012 followed rains in Terengganu State and led to more than 15,000 people being displaced to evacuation centers. The Besut District was the hardest hit with more than 3,000 affected persons relocated to 30 evacuation centers.[144]

Country Risk Profile

Risk calculation takes into account exposure to hazards, vulnerability, and institutional coping capacity, all of which are important factors in disaster risk management. The Index for Risk Management (INFORM) Risk Index measures the risk of humanitarian crises and disasters in 191 countries. The Risk Index supports a proactive crisis management framework. It is helpful for establishing an objective allocation of resources for disaster management as well as for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies. The INFORM model is based on risk concepts published in scientific literature with three dimensions of risk: Hazards and Exposure, Vulnerability, and Lack of Coping Capacity. The first dimension measures the natural and human hazards that pose the risk. The second and third dimensions cover population factors that can mitigate against or exacerbate the risk. The vulnerability dimension considers the strength of individuals and households relative to a crisis while the lack of coping capacity dimension considers factors of institutional strength.[145]

The INFORM model is split into different levels to provide a quick overview of the underlying factors leading to humanitarian risk. INFORM gives each country a risk score of 1-10 (1 being the lowest risk and 10 the highest risk) for each of the dimensions, categories, and components of risk, as well as an overall risk score.[146] The higher the score the more at risk a country is to disasters. In the 2022 INFORM Risk Index, Malaysia had an overall risk of 3.1/10, which INFORM categorizes as the "Low" risk class. This risk rating has remained stable over the past three years.

The Hazards and Exposure dimension score considers a combination of both natural and human hazards, and Malaysia rated 3.1/10. This score was comprised of sub-ratings of 4.9/10 for natural hazards and 0.7/10 for human hazards. The natural hazards posing the highest risk for Malaysia were tsunamis (7.1/10), followed by floods (6.6/10), then epidemics (5.6/10).

The Vulnerability dimension score was 3.1/10 for Malaysia. This score was comprised of sub-ratings of 1.9/10 for socio-economic vulnerability and 4.1/10 for vulnerable groups. The largest factor contributing to socio-economic vulnerability was ranked to be inequality (3.7/10). The biggest factor for vulnerable groups was uprooted people (6.2/10).

The Lack of Coping Capacity dimension score was 3/10, comprised of sub-ratings of 3.3/10 for institutional lack of coping capacity and 2.6/10 for infrastructure. The largest factor contributing to institutional lack of coping capacity was deemed governance (4/10) followed by disaster risk reduction (2.6/10). The highest risk factor under infrastructure lack of coping capacity was access to health care (3.4/10) followed by physical infrastructure (2.9/10). These risk rankings for Malaysia are graphically represented in Figure 4.[147]

An additional, separate index is the INFORM Severity Index, which is a way to measure and compare the severity of humanitarian crises and disasters globally. It is a composite indicator that summarizes a wide range of already existing, quantitative information about crisis severity. Its objective is to measure the severity of humanitarian crises globally (between rather than within crises) on an ongoing, up-to-date, and regular basis, in order to lead to a shared, objective understanding of crisis severity and to monitor trends in crisis severity over time.[148] This Index includes countries that have experienced a recent crisis and arranges countries according to the severity of the crisis or risk of crisis in the country.

The 2022 INFORM Severity Index includes Malaysia because of the presence of refugees in the country. As of June 2022, Malaysia's overall "severity" ranking was 2.3/5, with 5 indicating the highest risk; thus, Malaysia falls into the "medium" INFORM security risk category.[149] The severity risk trend for the impact of international displacement on Malaysia has worsened since the initial assessment in February 2022 when the country was found to have a "low" security risk with a score of 1.7/5.[150] The main drivers of the rising risk severity are the components "human impact" at 3.4/5 and "complexity of operating environment" at 2.5/5 although other indicators have also shown a worsening severity trend. As of the end of June 2022, there were approximately 184,080 refugees and asylum-seekers in Malaysia registered with UNHCR. An estimated 157,860 of these people were from Myanmar, comprising 104,890 Rohingyas, 23,190 Chins, and 29,780 people from other ethnic groups from conflict-affected areas or who are fleeing persecution in Myanmar. The remaining individuals were some 26,210 refugees and asylum-seekers from 50 countries fleeing war and persecution.[151]

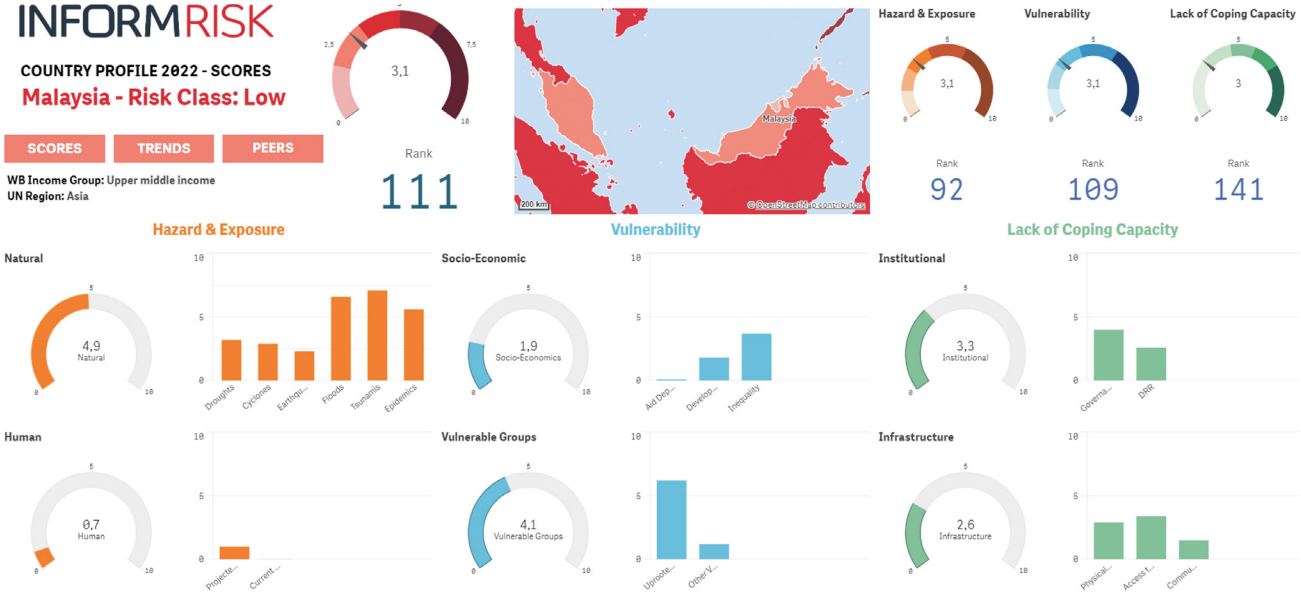


Figure 4: INFORM Risk Index Malaysia Country Profile (2022)

ORGANIZATIONAL STRUCTURE FOR DISASTER MANAGEMENT

As a response to severe flooding in 1972, the Government of Malaysia established the Natural Disaster Management and Relief Committee to erect an integrated national disaster management (DM) system. Then, in December 1993, the collapse of the Highland Towers condominium block in Selangor triggered a shift from a reactive stance to one that would build a proactive DM mechanism. In 1994, the Cabinet decided to establish such a mechanism under the National Security Council (NSC).[152]

The 2004 Indian Ocean Tsunami, caused by a 9.3-magnitude earthquake off Sumatra, was a stern test of the DM system and forced Malaysia to reflect on the damage and loss of lives that affected the country. As a result, the Malaysian Government reviewed its DM agencies, and measures were taken to identify tsunami hazard zones and to develop tsunami emergency response plans. Several task forces were established in the immediate aftermath of the disaster to mitigate associated risks; they included the National Committee for Tsunami Early Warning System and the Inter-Agency Committee for Earthquake and Tsunami Risk Management. Important developments resulting from these task forces included the founding of the Malaysian National Tsunami Early Warning System (MNTEWS) in December 2005. The backbone of the MNTEWS was the installation of three Finnish-made tsunami detection deep-ocean buoys that collect, process, and analyze data to support dissemination of early warning for a tsunami. The system is also connected with the Indian Ocean Tsunami Warning and Mitigation System (IOTWMS) tsunami service providers (TSP), the World Meteorological Organization's Global Telecommunication System, the Pacific Tsunami Warning Center (PTWC), and part of the Japanese Meteorological Agency's Northwest Pacific Advisory System.

In 2012, the DM policy implemented by the Malaysian government since 1997, Directive No. 20, underwent revisions[153] that would bring it in line with principles set by the Hyogo Framework for Action (HFA) and the Asia Pacific Economic Cooperation – Emergency Preparedness Working Group (APEC-EPWG).[154] However, reforms to the DM system were not yet complete. After floods struck Kelantan, Terengganu, Pahang, and Johor States, claimed 25 lives, and caused over 541,000 persons to be evacuated in December 2014, the government formed the National Disaster Management Agency (NADMA). In October 2015, NADMA replaced the NSC's management component, and it is joined in DM activities by local authorities, state governments, and the federal government.[155]

Lead Government Agencies in Disaster Response

National Disaster Management Agency (NADMA)

NADMA oversees all facets of management of disaster risks in Malaysia. On 1 October 2015, NADMA was established under the Prime Minister's Department, and it replaced the NSC as the focal point for DM by consolidating the Disaster Management Division of the NSC, the Post Flood Recovery Unity of the Prime Minister's Department, and the Special Malaysia Disaster Assistance and Rescue Team (SMART). NADMA is also the secretariat of the Central Disaster Management Committee (JPBP) and plans preparedness activities.[156] The roles of NADMA are depicted in Figure 5.[157]

While the 2012 version of NSC Directive No. 20 does not mention NADMA as the agency was formed three years after those reforms, NADMA is in charge of DM at the national level.

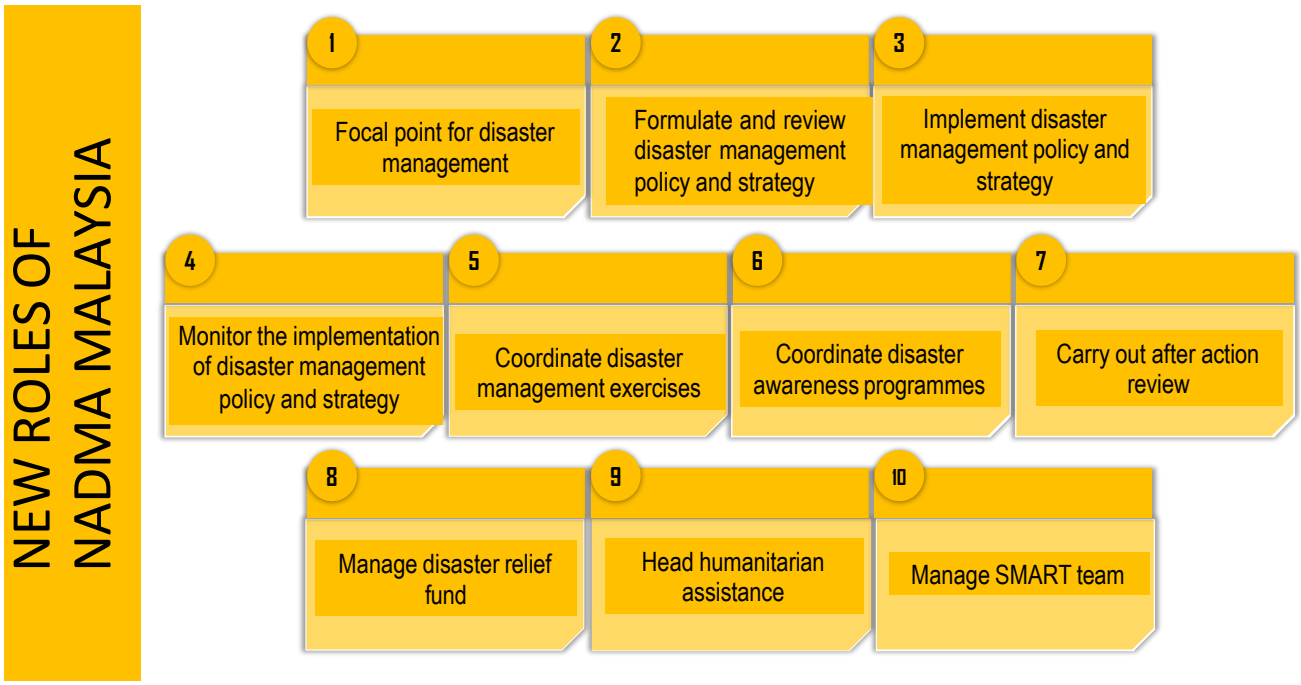


Figure 5: NADMA Roles and Directives

Disaster Relief and Emergency Response

Malaysia classifies disasters by what levels of administration and resources are required; they are Levels I, II, and III. Level I signifies that agencies within one district are able to respond to a disaster in their area with little or no outside help. Level II describes a disaster response that involves more than one district in the same state and requires pooled state resources with limited federal assistance. A Level III disaster response involves more than one state or is of a complex nature that requires federal-level resources, coordination, or foreign aid. Under Directive No. 20, disasters are to be managed by DM committees at three levels including the federal-level JPBP, as well as the state and district level committees.[158] Figure 6 depicts disaster response by federal, state, and local authorities.[159]

During a disaster, the district offices in the affected areas coordinate evacuation activities with the support of the Malaysian Fire and Rescue Department and Malaysian Civil Defence Force (Angkatan Pertahanan Awam Malaysia or APM, formerly Jabatan Pertahanan Awam Malaysia or JPAM). The MRCS, NGOs, non-profit organizations, and various other agencies may be involved. The Malaysian Armed Forces, Royal Malaysia Police, and other local government agencies conduct evacuations, establish emergency shelters, operationalize evacuation centers, and provide relief assistance. During a response operation, authorities may deploy the SMART into affected areas to carry out search and rescue operations.[160]

The main agencies involved in DM include:

- Malaysian Armed Forces
- Royal Malaysian Police
- Malaysia Civil Defence Force (APM)
- Fire and Rescue Department
- Social Welfare Department
- Malaysian Meteorological Department (Met Malaysia)
- Department of Irrigation and Drainage (DID)
- Ministry of Health (MOH)
- Civil Aviation Authority Malaysia
- Ministry of Science, Technology, and Innovation
- Atomic Energy Licensing Board
- Malaysian Remote Sensing Agency
- Department of Mineral and Geosciences Malaysia
- Malaysian Maritime Enforcement Agency

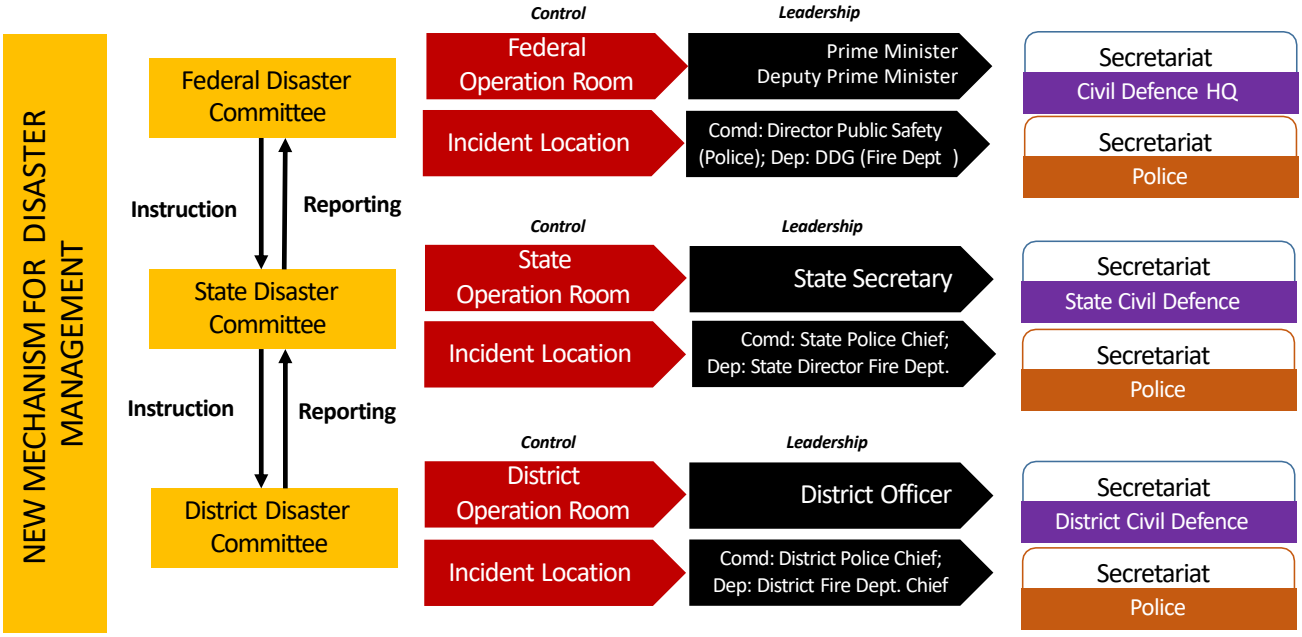


Figure 6: Disaster Response by Federal, State, and Local Level

Armed Forces Role in Disaster Relief

The Malaysian Armed Forces (MAF or Angkatan Tentera Malaysia [ATM]) represent three branches of service, the Army, Air Force, and Navy. While the MAF has the task of defending the country from external threats including safeguarding and controlling the country's borders, their responsibilities have evolved to also include assisting in a disaster response and providing medical and security support if needed. The MAF has the capacity to organize, mobilize, and shift from defense of the nation to civil authority and disaster assistance. For example, the MAF responded in December 2021 when the Klang Valley suffered heavy flooding due to monsoon season rains. The waters reached the second stories of many homes, affected more than 60,000 people, and caused extensive damage. The MAF deployed troops to the states of Selangor and Pahang and provided assistance, including transporting those stranded by the flooding.[161]

The MAF has also collaborated with the MOH during the COVID-19 pandemic response. It provided logistic support by transporting medical aid and health equipment using MAF assets, especially Royal Malaysian Air Force aircraft. In addition, the MAF set up a field hospital in Kapit to make up for a shortage of hospital beds.[162]

Disaster Management Partners

A number of partners and stakeholders play an important role in supporting the government in disaster prevention, management, and response after large-scale disasters. There have also been several disaster risk reduction (DRR) projects and activities steered jointly with partners and stakeholders.

Malaysia is a member of ASEAN. The aim of ASEAN in terms of DM is to ensure the safety of citizens and mitigate the impacts of disasters through joint and coordinated approaches to disaster risk management. In addition to regional stakeholders, Malaysia also hosts a United Nations Country Team (UNCT), comprised of 21 agencies.[163] The UNCT collaborates closely with the Government of Malaysia; it is chaired by the UN Resident Coordinator and has representatives of many of the UN organizations that run regional projects under the guidance of the Government.[164] Figure 7 depicts the UN presence in Malaysia with resident agencies, non-resident agencies, and global and regional centers.[165]

UNITED NATIONS MALAYSIA

Resident Agencies

UNDP, unicef, UNHCR The UN Refugee Agency, UNFPA, World Health Organization, WFP World Food Programme, IOM UN MIGRATION, UNDSS, UNITED NATIONS UNIVERSITY

Non-Resident Agencies

UNITED NATIONS HUMAN RIGHTS OFFICE OF THE HIGH COMMISSIONER, UNAIDS, unesco, UNIDO, ILO, UN WOMEN United Nations Entity for Gender Equality and the Empowerment of Women, UNDRR UN Office for Disaster Risk Reduction, UN environment programme, UNCDF, UN-HABITAT FOR A BETTER URBAN FUTURE, International Trade Centre, UNODC United Nations Office on Drugs and Crime

Global and Regional Centres

UNDP, WFP World Food Programme, World Health Organization, UNITED NATIONS UNIVERSITY, UNITED NATIONS UNCTAD

Figure 7: United Nations Malaysia Footprint

The UN in Malaysia compiled an overarching United Nations Sustainable Development Cooperation Framework to guide all programmatic activities in Malaysia over the five years between 2021 and 2025. UN agencies also respond to crises. For example, in 2020, during the COVID-19 pandemic, the United Nations Development Programme (UNDP) worked with NADMA to equipped selected COVID-19 quarantine and treatment centers to expand capacity and to reduce barriers to access for vulnerable communities. In addition, through the United Nations Children's Fund (UNICEF) partnership with MERCY Malaysia, 73,500 vulnerable children were reached with critical supplies – i.e., 277,000 face masks, 43,334 soap bars, and 2,200 hand sanitizers. UNICEF also supported face-to-face health education and delivery of support for those suffering from mental health issues. Low-income families living in public housing projects, refugee children, children with disabilities,

children in immigration detention centers, and undocumented children attending community learning centers were among the recipients in the Klang Valley and Sabah. Within days of the pandemic being declared, UNHCR launched the Refugee-Malaysia.org information portal to help refugees and asylum-seekers access information on protection and assistance during the Movement Control Order (lockdown).

UNDP and the World Health Organization (WHO) operate two global service centers, which supply countries around the world with essential goods via warehouses in Malaysia and via established supply chains. This network also provides an air bridge for key personnel supporting humanitarian responses in Asia and the Pacific. During the COVID-19 pandemic, this capacity supported 200 locations and processed over 600,000 transactions.[166]

The International Red Cross and Red Crescent Movement

International Committee of the Red Cross

The International Committee of the Red Cross (ICRC) is an independent humanitarian organization, headquartered in Geneva, Switzerland. The ICRC bases its activities on the provisions of International Humanitarian Law, and it is neutral in politics, religion, and ideology. The ICRC assists with the protection of civilian victims of armed conflict and internal strife and their direct results. Within these roles, it may take any humanitarian initiative as a neutral and independent intermediary.[167]

International Federation of Red Cross and Red Crescent Societies

The IFRC, founded in 1919, is an international organization that strengthens, coordinates, and represents the humanitarian action of 192 National Red Cross and Red Crescent Societies worldwide. The National Societies are generally statutory auxiliaries to their governments in humanitarian action, and their volunteers are integral parts of their communities, including in many fragile and crisis-stricken settings. The IFRC Secretariat is headquartered in Geneva, Switzerland, and there are five regional offices and several sub-regional and country delegations worldwide. The Malaysia Red Crescent Society (MRCS) is supported and serviced by the Kuala Lumpur-based IFRC Asia Pacific Regional Office (APRO). The IFRC plays a key role in global coordination, capacity building, resource mobilization, and representation, and, together with the National Societies, it forms the world's largest, most diverse, and inclusive humanitarian network, which delivers life-saving services before, during, and after disasters and health emergencies and supports long-term programming to build sustainable and resilient communities. The IFRC network is impartial, neutral, and independent.[168]

Malaysian Red Crescent Society

MRCS is a voluntary body established initially as a branch of the British Red Cross in April 1948. It was then recognized by the ICRC in July 1963 and accepted as an affiliate member of the IFRC in August the same year. MRCS is incorporated under an Act of Parliament, the Malaysian Red Cross Society (Incorporation) Act, 1965, and, since September 1975, it has been known as the Malaysian Red Crescent Society, more widely MALAYSIAN RED CRESCENT. MRCS functions as a support organization, auxiliary to the Malaysian government in the humanitarian field. Its mission is to prevent and reduce suffering, wherever it may be. MRCS has been involved in disaster management for more than six decades. Its role in disaster response is based on the guidelines under NSC Directives. Services offered include assistance before, during, and after a disaster. MRCS is involved in mass meal cooking for disaster victims. It also helps affected communities in the recovery phase and supports basic livelihood reconstruction at national, state, and district levels.

The MRCS comprises the National Council as the supreme administrative body, which delegates management of its affairs to the National Executive Board or the governing board. Corresponding branches and chapters

in Malaysia's States, districts, and select tertiary educational institutions have been established. Generally, MRCS activities are carried out by volunteers under its subsidiary units, especially Red Crescent Links in primary schools, Junior Red Crescent in secondary schools, and Voluntary Aid Detachments (VAD) or Health and Social Services groups (HSS) for members above 18 years old. There are 16 State branches, 150 district chapters, and more than 300,000 members throughout the nation.

Although MRCS is auxiliary to the government, it is not funded by the government. Instead, it depends on public donations to finance services ranging from care for disaster victims to 24-hour emergency ambulance service, primary health care in rural areas, and First Aid training. First Aid courses that MRCS conducts for the government and corporate sectors generate income for its humanitarian and community activities. The MRCS Training Institute, established in April 2005, is responsible for all training courses conducted by MRCS. Youth Development programs strive to strengthen and diversify the interests of members in primary, secondary, and tertiary institutions as well as via outreach to school-leavers, in line with the 1Malaysia concept. The 1Malaysia core aspects focus on unity and adoption of values such as the culture of high performance, accuracy, knowledge, integrity, perseverance, loyalty, wisdom, and the culture of innovation. It also aims to develop role models for volunteers nationwide in order to grow aspiring and committed volunteers.[169]

U.S. Government Agencies in Malaysia

The United States Agency for International Development (USAID) supports partners to become self-reliant and capable of leading their own development, including through humanitarian assistance during a disaster or crisis, reducing conflict, preventing the spread of pandemic disease, and counteracting the drivers of violence, instability, transnational crime, and other security threats.[170]

USAID provides assistance to Malaysia after disasters. For example, after heavy rainfall and subsequent flooding across eight Malaysian states in December 2021, the U.S. Chargé d'Affaires declared a disaster and, in response, USAID's Bureau for Humanitarian Assistance (USAID/BHA) provided US$100,000 to the MRCS through the IFRC for the provision of health care services for flood-affected households.[171]

USAID's Bangkok-based Regional Development Mission for Asia works to address key transnational challenges.[172]

USAID Regional Development Mission Contact
Steve Olive, Mission Director
Athenee Tower, 25th Floor
63 Wireless Road, Lumpini, Patumwan
Bangkok 10330
Thailand
Tel: 66-2-257-3000 or 66-2-257-3099
Email: *info-rdma@usaid.gov*

USAID Contact
Melissa Kennison, Desk Officer,
Regional Development Mission for
Asia, Asia Bureau, Office of East Asian Affairs
U.S. Agency for International Development
1300 Pennsylvania Ave, NW
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Tel: 202-712-4521
Email: *mkennison@usaid.gov*

U.S. Embassy Kuala Lumpur
376 Jalan Tun Razak
50400 Kuala Lumpur
Malaysia
Tel: 60-3-2168-5000
Fax: 60-3-2142-2207
Email: *embassyklpa@state.gov*

Laws, Policies, and Plans on Disaster Management

In Malaysia, DRR issues and climate change-oriented coastal adaptation have risen up the national agenda. As a result, vulnerability

assessments have been completed to identify risks to agricultural production from sea level rise in high-risk areas.[173] At the national level, the current Third National Physical Plan incorporates policy directions that promote disaster resilience. The country has also adopted the National Policy on Climate Change to reduce energy consumption and sea level rise vulnerability.[174]

More specifically, Malaysia's laws, policies, and plans to improve DRR include the following:

Directive No. 20: National Policy and Mechanism on Management Relief (Framework)

In 1997, the NSC issued a directive on disaster management and relief. The 2012 revised edition of Directive No. 20 contains a more comprehensive DM mechanism covering the periods before, during, and after a disaster. The Directive seeks to prevent confusion, conflict, or overlap in roles in handling disasters as well as guide all agencies in how to manage disasters more efficiently and effectively. Under the Directive, disasters are to be managed by DM committees at three levels including the federal-level Central Disaster Management Committee (JPBP) and state and district committees.[175]

NADMA 5-Year Strategic Plan (2019-2023)

A 5-year Malaysia Plan has been issued every five years since 1957 to guide national development priorities. In addition, sectoral policies have been issued as plans for various economic and social sectors.[176] The current, NADMA 5-year plan[177] sets a target for NSC Directive No. 20 to be revised; steps include setting up a task force to draft a new law, engagement with stakeholders, submissions to the Attorney-General's Chambers, presentation at the NSC and to Cabinet and Parliament, publishing and circulation, and policy compliance. Goals of drafting a national DRR policy and a national DM law are set in the 5-year plan.[178]

National Security Council Act (2016)

The National Security Council Act of 2016 provides authority to the Prime Minister to declare a national security area based on advice of the NSC, which, then, gains the authority to carry out 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 Director of Operations may exclude or evacuate any person from the declared area, impose a curfew, and direct security forces to control movement of any person, vehicle, vessel, or aircraft in and out of the secured area.[179]

Disaster Management Communications

NAMDA and various government and auxiliary partners collect and exchange information via an integrated platform at the National Disaster Command Centre (NDCC). NADMA and the DID are among the key government agencies with particular oversight over technical data that can inform early warning bulletins. Malaysia's government and its ASEAN partners share information networks that allow them to exchange details regarding disaster responses, humanitarian needs, and capabilities.

Early Warning Systems

NADMA, through the NDCC, monitors technical information in collaboration with various technical agencies.[180] The Government monitors national- and district-level information along with MRCS and IFRC's APRO. For example, when early warning advisories or reports of initial flooding are received from Met Malaysia, Red Crescent volunteers may be placed on standby for response. The MRCS branch in the affected state or district often will deploy its boats to support search and rescue efforts alongside the government's SMART.[181] The

information that is, then, reported by these early response teams aids in Government decision-making for staff and equipment mobilization to affected areas.

Early warning systems in Malaysia include the Malaysian National Tsunami Early Warning System (MNTEWS), weather forecasting, and a Fixed-Line Alert System. Met Malaysia is responsible for collecting this information and disseminating it. Flood forecasting is run by DID.[182]

Tsunami Warning System

Met Malaysia proactively monitors earthquake activities and issues tsunami warnings across the country. After the 2004 Indian Ocean Tsunami, it developed the MNTEWS (sometimes seen as "Sistem Amaran Awal Tsunami Nasional Malaysia" or SAATNM) in 2005. MNTEWS has deep-ocean buoys that collect, process, and analyze data, and can disseminate early warning for a tsunami. MNTEWS is equipped with a processing system referred to as the Advanced Decision and Dissemination Malaysia Seismic and Tsunami Information System, which is able to deliver earthquake information to DM agencies and the public within eight minutes after an earthquake is detected.

Areas that are the focus of monitoring include the Indian Ocean, Andaman Sea, South China Sea, Sulu Sea, Sulawesi Sea, and the Pacific Ocean as an earthquake in any of these bodies of water could potentially affect Malaysia. Data is collected from a network of 77 local and international seismological stations, accessed through the Global Seismic Network, 17 local tidal gauge stations, and an international sea level monitoring network. MNTEWS monitors 18 coastal camera stations, tsunami earthquake bulletins from the PTWC, Japan Meteorological Agency, and TSPs in Australia, India, and Indonesia.[183]

Flood Forecasting and Warning System

The Flood Forecasting and Warning System is used to disseminate alerts through warning sirens, text (SMS or short message service), telephone, and on-line portals to notify communities of imminent flood danger. DM agencies use the information from the flood forecasting systems to plan mobilization efforts, organize staff and equipment, and mitigate potential problems in advance of flooding. Flood forecasting models have been applied in the Pahang and Kelantan Rivers.[184]

Malaysia's DID developed the National Flood Forecasting and Warning System (NaFFWS) after many decades of installing a network of over 700 observation gauges across various terrain. The system allows for automatic simulations carried out several times a day to forecast water levels and flows in river channels and to map the flood inundation process within the flood plains. The system has been successful in three catchments and was recently broadened to 11 more river basins in northwestern areas and 11 catchments on the east coast of Peninsular Malaysia. NaFFWS involves a three-stage process. First, engineers gather historical rainfall and flow data and create models of the runoff, river channels, and flood plains. Second, the data is combined with weather forecasts and on-the-ground measurements to predict water levels. In the last stage of the process, the system is set to run operationally and continuously, with forecasts and warnings automatically generated. Warnings are then sent to a national control center at the DID.[185]

In addition to Met Malaysia and DID, there are other centers and departments that play an important role in disaster communications. The Malaysian Centre for Remote Sensing is responsible for the DM applications system. In addition, the Department of the Environment is responsible for the Air Pollutant Index, used for haze monitoring.[186] The Mineral and Geoscience Department is responsible for and will report on landslides and earthquakes as they did after the December 2021 flooding in Sabah and Sarawak areas; during that period, the Department reported over 250 landslides.[187]

Information Sharing

Understanding how to overcome the information challenges that civilian and military agencies experience during a typical disaster response mission is important. Knowing what resources for humanitarian assistance and disaster relief (HADR) are available will assist leaders and staff in planning and execution.[188] Sharing information is critical since no single responding entity, NGO, International Governmental Organization, assisting country government, or the host government can be the source of all required information.[189] Collaboration, information sharing, and networking have been the backbone of successful disaster responses. Disseminating information not only to those in-country and threatened by disaster, but also to those responding to assist in the emergency has been crucial to timely, efficient, and effective disaster response. Recent technology has advanced to aid predicting and alerting of disasters and have led to the development of early warning and evacuation measures. The following are some ways in which information regarding disaster risk management and response are shared. This section will discuss country-specific, humanitarian, regional, government, and DoD information sources.

Malaysia Information Sources

National Disaster Management Agency

NADMA is the central agency that delivers disaster warnings and information to all stakeholders. In addition to disseminating information through other agencies and Malaysia's mass media, it posts information on its website via the "Bencana/Disaster" tab and posts updates via its social media channels.

Jabatan Perdana Menteri,
Aras 6 & 7, Blok D5, Kompleks D,
Kompleks Pentadbiran Kerajaan Persekutuan,
62502 Wilayah Persekutuan
Putrajaya
Tel: 603 8870 4800
Fax: 603 8870 4848
Email: *admin@nadma.gov.my*
Web: *https://www.nadma.gov.my/en/*
Twitter: @mynadma
Facebook: *https://www.facebook.com/nadma.pmd*

Malaysian Red Crescent Society (MRCS)

MRCS is a partner in disseminating NADMA's information regarding disasters. It also delivers its own reports and updates via its website and social media channels.

Lot PT54, Lengkok Belfield,
Off Jalan Wisma Putra,
50460 Kuala Lumpur
Tel: 603-2143 8122
Email: *secgen@redcrescent.org.my*
Web: *https://www.redcrescent.org.my/*
Twitter and Facebook: @MalaysianRC
Instagram: malaysianredcrescent

Humanitarian Information Sources

UN Office for the Coordination of Humanitarian Affairs Regional Office for Asia and the Pacific

The UN's Office for the Coordination of Humanitarian Affairs (OCHA) Regional Office for Asia and the Pacific (ROAP) seeks to optimize the speed, volume, and quality of humanitarian assistance, and it coordinates emergency preparedness and response in the world's most disaster-prone region in support of national governments. ROAP covers 41 countries and partners with them for coordinated and effective international responses to emergency situations.
Website: *https://www.unocha.org/roap*

For OCHA situation reports, click on "Subscribe" button on bottom of page.

ReliefWeb

ReliefWeb is a service of UN OCHA that consolidates information and analysis from organizations, countries, and disasters for the humanitarian community.
Website: *https://reliefweb.int/*

PreventionWeb

PreventionWeb is provided by the UN Office for Disaster Risk Reduction (UNDRR) to consolidate DRR information into an online, easy to understand platform.
Website: *https://www.preventionweb.net*

International Federation of Red Cross and Red Crescent Societies (IFRC)

IFRC is the world's largest humanitarian organization, comprised of its 192 member National Societies, a secretariat in Geneva, Switzerland, and over 60 delegations around the world. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of the National Societies. IFRC's work focuses on four core areas: promoting humanitarian values, disaster response, disaster preparedness, and health and community care. IFRC GO is a Red Cross Red Crescent platform to connect information on emergency needs with the right response. IFRC GO aims to make all disaster information universally accessible and useful to IFRC responders for better decision making.
Website: *https://media.ifrc.org/ifrc and https://go.ifrc.org/*

IFRC Asia Pacific Regional Office

IFRC's Asia-Pacific Regional Office, located in Kuala Lumpur, Malaysia, works in support of 38 National Societies, including the MRCS. Through Country Cluster Delegations and Country Delegation Offices, it provides coordination, financial and technical support for disaster operations, and longer-term development programs. Via the IFRC "Go Platform," the organization publishes a dashboard regarding regional operations.

Regional Director: Alexander Matheous
Level 10, Menara Tokio Marine Life
189 Jalan Ampang
50400 Kuala Lumpur
Tel: +60 3 2161 0670
"Go Platform": *https://go.ifrc.org/regions/2#operations*
Twitter: @IFRCAsiaPacific

International Committee of the Red Cross (ICRC)

ICRC is an impartial, neutral, and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. It also works to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. ICRC, together with IFRC and the 192 Red Cross Red Crescent Societies, make up the Red Cross Red Crescent Movement.[190]
Website: *https://www.icrc.org/en*

Humanitarian Response

Humanitarian Response is a platform providing the humanitarian community a means to aid in coordination of operational information and related activities.
Website: *https://www.humanitarianresponse.info*

Global Disaster Alert and Coordination System (GDACS)

GDACS is a cooperation framework between the United Nations, the European Commission, and disaster managers worldwide to improve alerts, information exchange, and coordination in the first phase after major sudden-onset disasters.
Website: *https://www.gdacs.org/alerts/*

Virtual OSOCC

The Virtual OSOCC is a real-time online coordination tool for disaster response professionals from urban search and rescue teams, national authorities, as well as regional and international organizations at a global level.
Website: *https://vosocc.unocha.org/*
The latest alerts can be found here: *http://www.gdacs.org/Alerts/default.aspx*
To subscribe: *http://www.gdacs.org/About/contactus.aspx*

ThinkHazard!

ThinkHazard! is a website that provides detailed information on a country. Information

is provided on Malaysia regarding hazards, country assessments, projects, early warning systems, and other resources.
Website: *http://thinkhazard.org*

Humanitarian Country Teams (HCT)

HCT is a strategic and operational decision-making and oversight forum established and led by the Humanitarian Coordinator in each country. It is generally comprised of representatives from UN agencies including the International Organization for Migration, international NGOs, and the IFRC as well as the respective National Society in the country. During a disaster response, HCTs often produce a Situation Report (SitRep), usually in conjunction with OCHA.
Most HCT SitReps can be found through ReliefWeb: *https://reliefweb.int/*

Humanitarian Data Exchange (HDX)

HDX is an open platform for sharing data across crises and organizations launched in 2014 with the goal of centralizing humanitarian data for easy access and analysis. HDX is managed by OCHA's Center for Humanitarian Data in The Hague.
Website: *https://data.humdata.org/*

Regional Information Sources

ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre)

The AHA Centre was established by the ten ASEAN member-states on 17 November 2011. The aim of the AHA Centre is to facilitate DM cooperation and coordination among ASEAN member-states. The AHA Centre partners with international organizations such as the UN, IFRC, and international NGOs. The AHA Centre is a good information resource for regional disaster updates.

Situation updates, flash updates, and weekly disaster updates on disasters in the ASEAN member-states (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) are available on the AHA Centre website and by subscription. To subscribe, email info@ahacentre.org or go to: *https://ahacentre.org/subscribe-to-flash-update/*
Website: *https://ahacentre.org*
Twitter: @AHACentre
Facebook: ahacentre

ASEAN Disaster Information Network (ADINet)

ADINet (*www.adinet.ahacentre.org*) is a repository of information on disasters and hazards in the region. The platform is open to the public, and the public can submit information about any hazard or disaster to the AHA Centre. It became operational in 2012, and users can look at detailed reports on various crises, including flooding in Malaysia as shown as an example in Figure 8.[191]

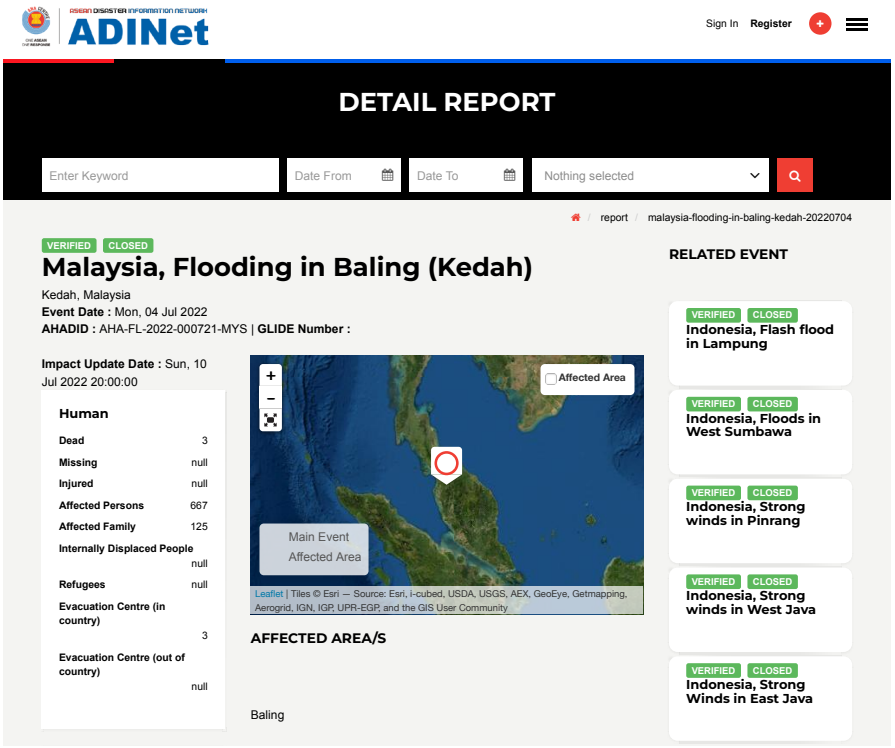


Figure 8: ADINet Informational Resource

Changi Regional HADR Coordination Centre (RHCC)

Changi RHCC was launched by the Singapore armed forces in September 2014 to support the military of a disaster affected state in coordinating assistance with assisting foreign militaries. It aims to provide open, inclusive, and flexible platforms that allow both regional and extra-regional militaries to work together effectively in a multinational disaster response. Changi RHCC manages the OPERA CIS web portal to broadcast the updated situation status of multinational military responses to disasters to minimize duplication and gaps in the provision of foreign military assistance.
Website: *https://www.changirhcc.org/*
To subscribe to RHCC Weekly and Spot Reports, email: *Changi_RHCC@defence.gov.sg*

U.S. Government Sources

U.S. Agency for International Development (USAID)

USAID is committed to responding to crises around the world to help people and places most in need. They aim to:

- Promote Global Health
- Support Global Stability
- Provide Humanitarian Assistance
- Catalyze Innovation and Partnership
- Empower Women and Girls

USAID produces a monthly newsletter called USAID Newsletter which is available digitally at *https://www.usaid.gov/news-information/newsletter*.

More information and updates from USAID are available via their blog, IMPACT, at *https://blog.usaid.gov/* and on Facebook (@USAID), Twitter (@usaid), and YouTube (usaidvideo).
Website: *https://www.usaid.gov/*

USAID Bureau for Humanitarian Assistance (BHA)

The Bureau for Humanitarian Assistance (BHA) is responsible for leading and coordinating the U.S. Government response to disasters overseas. BHA responds to an average of 75 disasters in 70 countries every year. BHA fulfils its mandate of saving lives, alleviating human suffering, and the reduction of the social and economic impact of disasters worldwide in partnership with USAID functional and regional bureaus and other U.S. government agencies. BHA works with the international population to assist countries prepare for, respond to, and recover from humanitarian crises.[192]

USAID/BHA products include situation reports and maps, which are available via email mailing lists as well as ReliefWeb.int. Information products (Updates/Fact Sheets, etc.) are also available on USAID.gov (*https://www.usaid.gov/humanitarian-assistance*)

For BHA updates on a disaster response, ask the BHA representative for the respective DoD Geographic Combatant Command to add you to the email list, if you have a U.S. government email address:

- *BHA.INDOPACOM@usaid.gov*
- *BHA.SOUTHCOM@usaid.gov*
- *BHA.NORTHCOM@usaid.gov*
- *BHA.AFRICOM@usaid.gov*
- *BHA.SOCOM@usaid.gov*
- *BHA.CENTCOM@usaid.gov*
- *BHA.EUCOM@usaid.gov*

Pacific Disaster Center

Pacific Disaster Center (PDC) has trademarked an early warning and decision support system called DisasterAWARE®. DisasterAWARE® is primarily for disaster management practitioners and senior decision makers. It supports DRR and best practices throughout all phases of disaster management from early warning to multi-hazard monitoring. It has a collection of scientifically verified, geospatial, data and modeling tools to assess hazard risks and impacts. A restricted version of DisasterAWARE is the EMOPS (Emergency Operations) system, which is specifically for the disaster management community, including government agencies and humanitarian assistance organizations serving at local, state, federal, and regional levels.[193]

PDC also provides a public version, Disaster Alert, which offers open access to a world map documenting 18 hazard types.[194] Disaster Alert also has a free, early-warning app to receive customizable maps based visual alerts of active hazards. The app offers a global notification system covering natural and man-made hazards. It is available on both iPhone and Android.[195]
Website: *https://www.pdc.org/ and https://www.pdc.org/apps/disasteraware/*
Emergency Operations (EMOPS) system (request account): *https://emops.pdc.org/emops/*

All Partners Access Network (APAN)

APAN is the Unclassified Information Sharing Service for the U.S. DoD. APAN provides the DoD and mission partners community space and collaboration tools to leverage information to effectively plan, train, and respond to meet their business requirements and mission objectives. Importantly, APAN's technology team has been supporting HADR operations for over 15 years.[196] APAN has played an integral role in the success of disaster responses, such as the 2015 California Wildfire Response and the 2013 Typhoon Haiyan Response in which they provided organizations and militaries a centralized location to share information, increase situational awareness and decrease response time and duplicated efforts for best practices in HADR services.[197]
Website: *https://www.apan.org/*

Joint Typhoon Warning Center

JTWC provides advanced warning for U.S. Government agencies and organizations in relevant areas.
Website: *https://www.metoc.navy.mil/jtwc/jtwc.html*

Daniel K. Inouye Asia-Pacific Center for Security Studies (DKI-APCSS)

DKI-APCSS is a U.S. Department of Defense institute that addresses regional and global security issues, inviting military and civilian representatives of the U.S. and Asia-Pacific nations to its program of executive education and workshops.
Website: *https://apcss.org/*

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM)

The CFE-DM is a U.S. DoD organization that was established by the U.S. Congress in 1994 and is a direct reporting unit to U.S. Indo-Pacific Command. CFE-DM provides training and education to help U.S. and foreign military personnel navigate complex issues in disaster management and humanitarian assistance. They produce country focused disaster management reference handbooks, after action reports, best practices, and lessons learned for advancement in response coordination. CFE-DM also works to improve cross-coordination and reduce duplication of efforts and promote U.S. involvement in civilian-military consultations and dialogues with relevant HADR parties such as the AHA Centre, UN OCHA, and the Changi RHCC. CFE-DM provides resources and updates at its website, as well as via Facebook and Twitter accounts (@cfedmha).
Website: *https://www.cfe-dmha.org/*

Disaster Management Reference Handbooks are available for download at: *https://www.cfe-dmha.org/Publications/Disaster-Management-Reference-Handbooks*

CFE-DM Disaster Information Reports are available for download at: *https://www.cfe-dmha.org/Publications/Reports-Studies*

Civil-Military Coordination in Foreign Disaster Relief Missions: Best Practices for Information Sharing is available here: *https://www.cfe-dmha.org/Publications/Best-Practices-Pamphlets*

INFRASTRUCTURE

In the past half century, the west coast states of Peninsular Malaysia have led the country in terms of development, including in density of transport and communications infrastructure and the reach of utilities. These networks not only support national trade and politics but also allow these states to dominate Malaysia's international land, sea, and air links. These western Peninsular states contain most of the free trade zones and have attracted and benefited most from foreign direct investment, new technology, and rapid urbanization in the past three decades. While Peninsular Malaysia's eastern coastal states show much lower concentrations of infrastructure networks – particularly in terms of communications systems – East Malaysia (Sabah and Sarawak) stands in stark developmental contrast to the rest of the country. In part, East Malaysia's lack of infrastructure is linked to lower populations and larger forested tracts. Most settlements, agriculture, roads, and river transport networks in East Malaysia are in river valley flood and coastal plains.

Transport

Malaysia has constructed over 200,000 km (124,275 miles) of roads, over 2,900 km (1,800 miles) of rail, 18 major ports, and 22 airports. Together, these assets underpin Malaysia's growth into a key player in the Southeast Asian and global markets.[198] In 2019, the transport and storage sector accounted for 3.8% of GDP and employed 667,600 people, representing around 4.4% of the labor force.[199] In constructing the National Transport Policy 2019-2030, researchers estimated that Malaysians will make 131 million daily trips (of any length) in 2030, a significant increase from the 40 million trips they took in 2010. Moreover, the demography of the country is forecast to change as people over the age of 65 years are expected to make up 9% of the population in 2030 versus the 7% they accounted for in 2020, and the accessibility of transport for elders will be a challenge.[200]

The federal Ministry of Transport (MOT) oversees policy formulation and regulation of all facets of the transport system and works to institute collaboration and cooperation among state transport authorities, including in Sabah and Sarawak. Figure 9 shows the MOT organizational structure.[201]

The MOT is in charge of air, land, and maritime transport and has 14 divisions. The Logistics and Land Transport Division oversees road and rail, public transport, and road safety, among other tasks. MOT's Maritime Division oversees federal ports, marine activities, and pollution as well as policies related to safety in these areas. Port operators are regulated by their relevant Port Authority, supervised by the Ministry.[202] The MOT Aviation Division is responsible for oversight and regulation of air transport, airport services, the aerospace industry, and safety.[203]

As part of China's Belt and Road Initiative, Chinese state-owned and private companies have been implementing large-scale infrastructure and investment projects in Malaysia to promote greater connectivity between the country and mainland China. Chinese investments and construction contracts in Peninsular Malaysia include airports, ports, and expressways, among other developments. In April 2019, then-Prime Minister Mahathir sealed a new deal with China to build a freight and passenger railway to link Kuala Lumpur to towns on the east and west coasts of the Peninsula and eventually connect to a deep-sea port China is building on Malaysia's east coast.[204]

Airports

While there are over 100 airfields in the country,[205] the six international and 16 major domestic airports provide the greatest logistic and passenger capacity. The airlines, airports, and aeronautics sector employs some 106,000

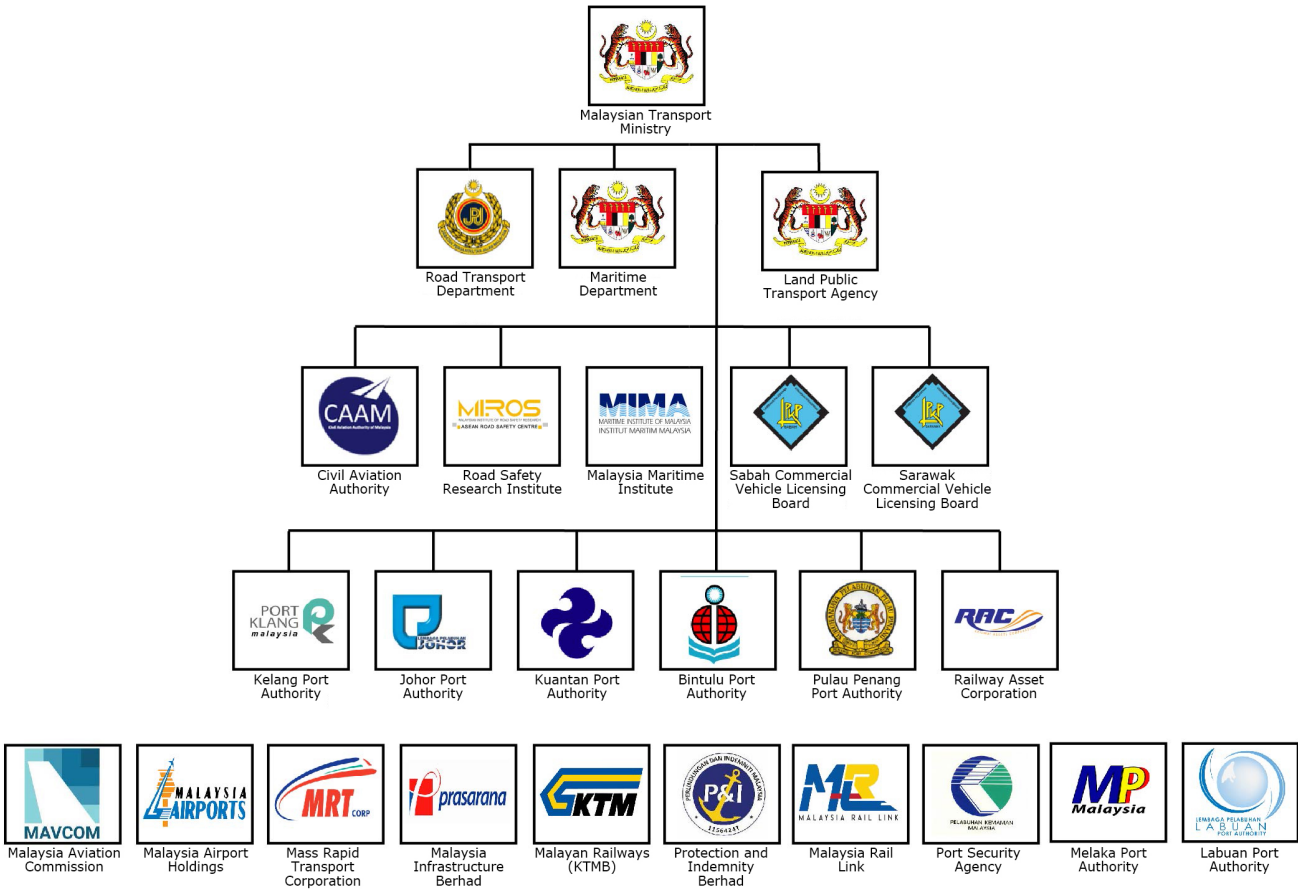


Figure 9: Ministry of Transport Organizational Structure

people directly with another 111,000 employed in peripheral services and supplies industries. Moreover, the industries of the sector are estimated to deliver US$5.2 billion of GDP, not counting spending by tourists who arrive via air. The top five air passenger routes serving Malaysia connect the country to Indonesia, Singapore, China, Thailand, and India while the top five cargo routes link Malaysia to Hong Kong, South Korea, China, Singapore, and Australia. The overall air transport market is forecast to grow by 127% over 2017 numbers by 2037, an expansion that would result in 119 million passenger journeys and US$23.4 billion in revenue.[206] The 2014 National Transport Strategy Study by the World Bank forecast an annual growth of passengers of 4.1% between 2013 and 2033 at Kuala Lumpur International Airport, 6.1% at Penang Airport, and 5.5% at Kota Kinabalu International Airport.[207]

Table 3 shows the codes, locations, and runway lengths of Malaysia's major airports.[208]

Kuala Lumpur International Airport (KLIA)

KLIA opened in 1998 in Sepang, Selangor State, about 50 km (31 miles) from Kuala Lumpur. The terminal capacity is 25 million passengers per annum (mppa), and it has 46 contact bays and 38 remote stands for aircraft. The new KLIA2 terminal serves low-cost airlines. It is less than 2 km (1.25 miles) from the main KLIA Terminal.[209] In total, there are three runways and 80 aircraft parking positions. The Main Terminal Building covers 390,000 square meters (m^2; 4.2 million square feet), and the Satellite Building covers 176,000 m^2 (1.9 million square feet).[210]

Langkawi International Airport (LGK)

LGK is situated on the duty-free island of Langkawi in Kedah. It is about 25-minutes' drive from Kuah Town and caters to tourists

Airport	IATA/ICAO Code	Location	Runway Length
International			
Kota Kinabalu International Airport	BKI / KKIA	05°56'13.95"N 116°03'04.25"E	2,987 m (9,800 feet)
Kuala Lumpur International Airport	KUL / WMKK	02°44'44.08" N 101°42'35.70" E	1: 4,124 m (13,530 feet) 2: 4,050 m (13,288 feet) 3: 3,960 m (12,993 feet)
Kuching International Airport	KCH / WBGG	01°29'04.91" N 110°20'48.96" E	2,454 m (8,051 feet)
Langkawi International Airport	LGK / WMKL	06°19'47.02" N 099°43'43.20" E	3,810 m (12,500 feet)
Penang International Airport	PEN / WMKP	05°17'49.70" N 100°16'36.71" E	3,353 m (11,000 feet)
Senai International Airport	JHB / WMKJ	01' 38'' 26° N 103' 40" 13° E	3,800 m (12,467 feet)
Domestic			
Bintulu Airport	BTU / WBGB	03°07'25.86"N 113°01'13.70"E	2,745 m (9,006 feet)
Labuan Airport	LBU / WBKL	05°17'28.7592"N 115°14'45.2718"E	2,300 m (7,546 feet)
Lahan Datu Airport	LDU / WBKD	05°01'43.6728"N 118°19'44.6946"E	1,371 m (4,498 feet)
Limbang Airport	LMN / WBGJ	04°48'29.89" N 115°00'37.58" E	1,500 m (4,921 feet)
Melaka Airport	MKZ / WMKM	202°15'18" N 102°15'05" E	1,372 m (4,501 feet)
Miri Airport	MYY / WBGR	04°19'19.25" N 113°59'12.50" E	2,745 m (9,006 feet)
Mulu Airport	MZV / WBMU	4°3'03" N 114°48'56" E	1,500 m (4,921 feet)
Sandakan Airport	SDK / WBKS	05°53'51.0426"N 118°03'42.0906"E	2,134 m (7,000 feet)
Sibu Airport	SBW / WBGS	02°15'41.77" N 111°59'07.16" E	2,745 m (9,006 feet)
Sultan Abdul Aziz Shah Airport	SZB / WMSA	03°07'54" N 101°32'54" E	3,780 m (12,401 feet)
Sultan Abdul Halim Airport (Alor Setar)	AOR / WMKA	06°11'33.72" N 100°24'8.64" E	2,745 m (9,006 feet)
Sultan Ahmad Shah Airport (Kuantan)	KUA / WMKD	03°46'50.3898" N 103°12'52.653" E	2,804 m (9,200 feet)
Sultan Azlan Shah Airport (Ipoh)	IPH / WMKI	03°34'13.731" N 101°05'52.9614" E	1,798 m (5,900 feet)
Sultan Ismail Petra Airport (Kota Bharu)	KBR / WMK	06°10'05.1738" N 102°17'36.6432" E	2,400 m (7,874 feet)
Sultan Mahmud Airport (Kuala Terengganu)	TGG / WMKN	05°22'49.2738" N 103°06'25.056" E	3,480 m (11,417 feet)
Tawau Airport	TWU / WBKW	04°15'45.8994" N 117°53'5.514"E	3,000 m (9,843 feet)

Table 3: Codes and Runway Lengths for Malaysia's Main Airports

and business travelers. The terminal has been upgraded to accommodate a maximum of 2.5 mppa and 1,000 passengers at any given time. The airport's runway is capable of handling Boing 747-sized aircraft, and there are 15 aircraft bays.

Kuching International Airport (KIA)

KIA is a gateway to Sarawak as well as the Sultanate of Brunei. It is located 11 km (6.8 miles) south of Kuching city. The airport's terminal is capable of handling 5.3 mppa. It has 12 aircraft bays and can accommodate aircraft the size of the Airbus A380 and Boeing 747. KIA also serves as a base for the Royal Malaysian Air Force.

Penang International Airport (PEN)

PEN is 16 km (10 miles) south of Georgetown, Penang State.[211] It can handle up to 6.5 mppa and 360,000 tons of cargo annually.[212] There are a single passenger terminal and two cargo terminals, and there are 17 aircraft stands.[213]

Kota Kinabalu International Airport (KKIA)

Located 8 km (5 miles) from the city of Kota Kinabalu, KKIA acts as the main gateway into Sabah. It is the second busiest airport in Malaysia. It has a single runway, offering five aerobridges plus three other parking stands and is equipped to handle aircraft the size of the Boeing 747. The airport has a capacity to handle 9 mppa.

Senai International Airport (JHB)

JHB is 23 km (14.3 miles) from Johor Bahru, Johor State, in a strategic development zone with key road and rail connections, including to Singapore. JHB also has direct access to the Port of Tanjung Pelepas and Johor Port. It has a terminal capacity of 3.5 mppa and 11 aircraft bays, of which four are at the terminal, three are remote, and four are for cargo.[214]

Seaports

Malaysia has seven federally managed major ports - Bintulu, Johor, Kemaman, Klang, Kuantan, Penang, and Tanjung Pelepas. The ports in Sabah and Sarawak are under the jurisdiction of their respective state governments. Each major port has its own port authority, governed by the relevant Port Authority Act and by specific local by-laws. In 2018, based upon the throughput of twenty-foot-equivalent unit (TEU) containers, Port Klang was the 12th busiest port in the world and the Port of Tanjung Pelepas (PTP) the 18th busiest; within the ASEAN region, only Singapore's port outpaces Klang and PTP in terms of throughput.

Across the country, there are many private jetties and minor ports, which include fishing ports, private terminals, and other facilities under the jurisdiction of the Marine Department or Fishing Development Authority in Peninsular Malaysia.[215]

Sabah Ports

With eight ports on the west and east coasts of Sabah, the Sabah Ports company provides berthing, handling, and cargo facilities. Sapangar Bay Container Port is a key trans-shipment hub for the Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA). Kota Kinabalu Port handles general cargo, cruise vessels, and roll-on, roll-off (RO-RO). The east coast ports of Sandakan, Tawau, and Lahad Datu handle general cargo and containers as well as fertilizer and palm oil products. Table 4 shows the specifications and handling capabilities of Sabah's ports.[216]

Sarawak Ports

Sarawak's main ports are in Kuching, Sibu, Bintulu, and Miri. Except for Bintulu, all of the state's ports are managed as State Port Authorities.[217] Table 5 shows the specifications and details available for Sarawak's ports.[218]

Bintulu Port

3.219872° N / 113.0622° E

Bintulu is a natural deep-sea port midway between Kuching (Sarawak) and Kota Kinabalu (Sabah) and situated as the import and export

Port Name and Coordinates / Berths	Length (m / feet)	Depth (m / feet)	Maximum Vessel Size (Deadweight Tonnage; DWT)	Equipment and Facilities
SAPANGAR BAY CONTAINER PORT 6.0671° N / 116.1236° E				
Berths 1, 2, and 3	500 / 1,640	12.0 / 39.4	45,000	Cranes; Container Freight Station; Container Yard (2,600 ground slots); 292 Reefer Points
Berth 4	145 / 476	12.0 / 39.4	45,000	
SAPANGAR BAY OIL TERMINAL				
Berths 1, 2, and 3	82.32 / 270	12.0 / 39.4	30,000	Total Tank Capacity: 30,000 metric tons
Berth 4	45.73 / 150	12.0 / 39.4	1,000	
KOTA KINABALU PORT 5.9951° N / 116.0815° E				
Berths 1, 2, and 3	350 / 1,150	12.0 / 39.4	16,000	Open storage (16,500 m^2; 177,600 square feet)
Berth 4	120 / 394	6.2 - 9.5 / 20.3 – 31.2	16,000	
Berths 5 and 6	120 / 394	6.2 - 9.5 / 20.3 – 31.2	16,000	
Berth 7	120 / 394	7.4 - 8.6 / 24.3 – 28.2	16,000	
KUDAT PORT 6° 53’ 16” N / 116° 51’ 31” E				
Inner	112 / 367	6.2 / 20.3	-	Open Storage (3,028 m^2; 32,590 square feet)
Outer	92 / 302	6.4 / 21.0	4,000	
Passenger Ferry	24 / 79	3-4 / 9.8-13.1	1,000	
Ferry / RO-RO Ramp	69 / 226	3-4 / 9.8-13.1	1,000	
SANDAKAN PORT 5.8120° N / 118.0769° E				
Main Wharf Berth 1	213 / 699	10 / 32.8	20,000	Cranes; Open Storage (5,900 m^2; 63,507 square feet); 700 Container Slots; 32 Reefer Points
Main Wharf Berth 2A (Outer)	281 / 922	10 / 32.8	-	
Main Wharf Berth 2B (Inner)	241 / 791	6 / 19.7	-	
Main Wharf Berth 3	76 / 249	6 / 19.7	-	
Main Wharf Berth 4	155 / 508	9 / 29.5	-	
Karamunting Bulk Oil Terminal	170 / 558	9.4 / 30.8	30,000	
Karamunting Palm Oil Terminal (Outer)	200 / 656	11.1 / 36.4	45,000	
Karamunting Palm Oil Terminal (Inner)	130 / 427	10.2 / 33.5	8,000	
Mowtas Oil Terminal	170 / 558	9 / 29.5	20,000	
TAWAU PORT 04° 14’ 58.89” N / 117° 54’ 18.38” E				
Berths 6 and 7 (Inner)	170 / 558	5.5 / 18	16,000	2 Cranes; Open Storage (12,700 m^2; 136,700 square feet); 40 Reefer Points; 1,010 Container Slots
Berths 3, 4, and 5 (Outer)	302 / 991	11 / 36.1	16,000	
Tanjung Batu Oil Jetty	76 / 249	9 / 29.5	30,000	

Table 4: Specifications for Sabah Ports

Port Name and Coordinates / Berths	Length (m / feet)	Depth (m / feet)	Maximum Vessel Size (Deadweight Tonnage; DWT)	Equipment and Facilities
LAHAD DATU PORT 5.0215° N / 118.3496° E				
Berth 3	100 / 328	9 / 29.5	9,000	Open Storage (5,653 m^2; 60,850 square feet); 93 Container Slots
Berth 4	190 / 623	12 / 39.4	45,000	
Berth 5	140 / 459	9 / 29.5	9,000	
Old Wharf 1	97 / 318	9.3 / 30.5	25,000	
Old Wharf 2	73 / 240	8.5 / 27.9	2,000	

Table 4: Specifications for Sabah Ports (cont.)

Port Name and Coordinates / Berths	Length (m / feet)	Depth (m / feet)	Maximum Vessel Size (DWT)	Notes
KUCHING PORT 1.5550° N / 110.3946° E				
Pending Terminal	Total Quays: 613 / 2,011	Alongside: 8.5 / 27.9	12,500	Pending: 33,201 m^2 (357,372 square feet) of sheltered storage; 30,000 m^2 (322,917 square feet) of open yard
Senari Terminal	Total Quays: 635 / 2,083	Draft: 7.5 / 24.6	20,000	Senari: 20,000 m^2 (215,278 square feet) of sheltered storage; 182,500 m^2 (1.96 million square feet) container yard with 192 reefer points
RAJANG PORT 2.2901° N / 111.8233° E				Four centers of operations – Sibu, Sarikei, Tanjung Manis, and Sungei Merah
Sibu 02° 24 N / 116°56 E				Four transit sheds, a dangerous goods shed, an open yard, and a container yard
General Cargo (4)	154 / 505 (×2)	-	-	
Sarikei 2.12107754 N / 111.436882 E				Two transit sheds; annual capacity of 104,000 tons of general cargo and 1,000 TEU of containerized cargo
General Cargo / Container Berth	146 / 479	7.6 / 24.9	3,000	
Sungai Merah Jetty				-
Wharf	48.8 / 160	4.6 / 15.1	-	
Tanjung Manis 2° 08’ N / 111° 21’ E				Two mobile cranes and other container handling equipment; container yard
Wharf	303 / 994	11 / 36	32,000	
MIRI PORT 4.5641° N / 114.0402° E				
General Wharves	1,440 / 4,724	-	-	16,789 m^2 (180,715 square feet) of open yards, 2,442 TEU of container storage; 200 m^2 (2,153 square feet) of dangerous goods storage
Kuala Baram Wharf	390 / 1,279	-	-	
Wharf 4	100 / 328	-	-	
Wharf 5	200 / 656	-	-	

Table 5: Details of State-Run Sarawak Ports

gateway for Sarawak and the BIMP-EAGA. Its handles Liquefied Natural Gas (LNG), palm oil and other agro-industry products, oil and gas, and timber. In 2016, throughput was 46.45 million tons of cargo with 277,711 TEU of containerized cargo. There are 12 berths, including four that serve LNG vessels, two for bulk and general cargo, and terminals for containers, petrochemicals, and edible oils. There is space for 4.1 million tons of cargo in open storage yards and for 2.1 million tons of cargo in 10 covered sheds alongside additional warehouses and open space. The container storage yard has space for 3,786 units as well as 84 reefer points. Table 6 shows the specifications of Bintulu Port.[219]

Johor Port
1.4441° N / 103.9061° E

Located at the southernmost tip of Peninsular Malaysia, Johor Port is within the Pasir Gudang Industrial Estate. The port has a designed capacity of 40 million tons annually. With 24 berths and a total berthing length of 4.9 km (3 miles), the Port includes the Container Terminal, Bulk and Break Bulk Terminal, Liquid Terminal, and Warehousing Facilities. The Container Terminal has a capacity of 1.2 million TEUs at one time via nine post-Panamax gantry cranes, 30 transfer cranes, four reach stackers (40-ton capacity), and other equipment to serve the 291,150 m^2 (3.13 million square feet) container yard. The Bulk and Breakbulk Terminal handles various cargo including edible and non-edible dry bulk, breakbulk, heavy lift, and gas-related cargoes. Table 7 shows the details of the berths at Johor Port.[220]

Kemaman Port
4° 17' 60" N / 103° 28' 0" E

Kemaman is one of the deepest seaports in Malaysia and is emerging as a gateway to the Asia-Pacific region. Konsortium Pelabuhan Kemaman operates the Kemaman Port terminals, which include the East Wharf and the Liquid Chemical Berth, and the facilities can host vessels with a maximum draught of 16.4 m (53.8 feet) and 18 m (59 feet) respectively. As a deep-sea, all-weather port, it is capable of handling "cape-size" vessels – the largest class of bulk cargo ship that cannot pass through the Panama Canal but must go around the Cape of Good Hope – with various types of cargo. The East Wharf has a total quay length of 648 m

Name / Facility (Number of berths)	Length (m / feet)	Depth (m / feet)	Max Vessel Size (DWT)	Capacity (Million Tons unless otherwise noted)
General Cargo Wharf (×3)	514.5 / 1,688	10.5 / 34.4	25,000	2.91
Bulk Cargo Wharf (×1)	270 / 886	13.5 / 44.3	60,000	1.33
LNG Jetty (×3)	-	15 / 49.2	80,000	34.24
Liquid Petroleum Gas Jetty (×1)	-	11 / 36.1	51,000	0.94
Petrochemical Terminal (×2)	-	11 / 36.1	30,000	2.46
Shell MDS Jetty (×1)	-	13 / 42.7	40,000	1.22
Container Terminal (×2)	450 / 1,476	14 / 45.9	55,000	400,000 TEUs
Edible Oils Terminal (×2)	-	14 / 45.9	50,000	5.38
Multipurpose Terminal (×5)	950 / 3,117	14 / 45.9	55,000	2.55
Single Buoy Mooring (×2)	-	19.5 / 63.9	320,000	13.18
Oil Barge Berth	65 / 213	7 / 22.9	2,000	0.45
Coastal Terminal (×1)	120 / 394	4.5 /14.8	1,000	0.38

Table 6: Bintulu Port Specifications and Facilities

Facility / Berth	Length (m / feet)	Depth (m / feet)	Max Vessel Size (DWT)
Container Terminal			
1	236 / 774	11.5 / 37.7	80,000
2	236 / 774	11.5 / 37.7	80,000
3	236 / 774	11.5 / 37.7	80,000
3A	250 / 820	12.5 / 41	88,000
Bulk / Breakbulk Terminal			
9	61 / 200	5.5 / 18	5,000
10	110 / 361	5.5 / 18	20,000
11	183 / 600	10.0 / 32.8	60,000
12	183 / 600	10.1 / 33.1	80,000
Wharf 4	192 / 630	12.5 / 41	60,000
Wharf 5	217 / 712	12.4 / 40.7	60,000
Wharf 6	214 / 702	12.4 / 40.7	60,000
Wharf 7	195 / 640	12.5 / 41	60,000
Wharf 8	195 / 640	12.3 / 40.4	60,000
Wharf 9	195 / 640	12.3 / 40.4	60,000
Wharf 10	195 / 640	12.3 / 40.4	60,000
Wharf 11	240 / 787	10.1 / 33.1	10,000
Ferry Terminal	-	3.9 / 12.8	-
Liquid Terminal			
1	260 / 853	12.8 / 42	90,000
2	298 / 978	12.1 / 39.7	90,000
3	241 / 791	10.5 / 34.4	45,000
4	200 / 656	8.1 / 26/6	8,000
5	215 / 705	10.8 / 35.4	40,000
6	195 / 640	11.2 / 36.7	40,000
7	130 / 427	8.5 / 27.9	10,000
8	215 / 705	9.7 / 31.8	10,000

Table 7: Johor Port Specifications

(2,126 feet) and is capable of handling vessels up to 150,000 DWT. The Liquid Chemical Berth is a specialized terminal to handle liquid chemical cargo. The 320 m (1,050 feet) berth is capable of accommodating vessels up to 150,000 DWT. It also has space available for 50 pipelines and six marine loading arms.[221]

Kuantan Port

03°55'N / 103°29'30E

Kuantan Port is at Tanjung Gelang on the eastern coast of Peninsular Malaysia, 25 km (15.5 miles) north of Kuantan, the capital of Pahang State, and 220 km (137 miles) from Kuala

Lumpur, to which the Port is connected via road, rail, and air. The port primarily serves shipping routes to/from China, Indochina, the Far East, and Pacific Rim. The Container Terminal has a capacity of 600,000 TEUs with three berths equipped with container cranes. Breakbulk – e.g., steel pipes, heavy cargo, sawn timber, and plywood – are handled at the multi-purpose berths, which also handle dry bulk cargo. The multipurpose berths have cranes to handle gearless ships. Kuantan Port has developed specialized liquid chemical, mineral oil, and palm oil berths. To facilitate transportation of petrochemicals between the petrochemical plants in Gebeng Industrial Estate and tank farm facilities at the Port, a common pipe-rack running 9 km (5.6 miles) has been built. There are seven warehouses with a total floor area of 31,750 m^2 (341,754 square feet). Table 8 shows the details of the berths at Kuantan Port.[222]

Penang Port
5.4098° N / 100.3679° E

Penang Port serves as the primary gateway to northern Malaysia and southern Thailand and the basins of the Strait of Malacca and the Gulf of Bengal. The port specializes in breakbulk, dry bulk, and liquid bulk with an emphasis on dangerous goods. The Butterworth Wharves can handle up to 2.5 million tons of breakbulk annually, and the Prai Bulk Cargo Terminal (PBCT) handles up to 3.9 million tons of dry and liquid cargo annually. Additionally, the Prai Wharves serve small-scale local traders. The North Butterworth Container Terminal (NBCT) was gazetted as a Free Commercial Zone in 2021, a status that enables Penang Port to be the focal point for shipping and transshipment activities into the Bay of Bengal market. NBCT has a capacity of 2.3 million TEUs annually and

Facility / Berth	Length (m / feet)	Depth (m / feet)	Max Vessel Size (DWT)
Container Berth 1	200 / 656	11.2 / 36.7	35,000
Container Berth 2	200 / 656	11.2 / 36.7	35,000
Container Berth 3	200 / 656	11.2 / 36.7	35,000
Palm Oil Berth 1	240 / 787	11.2 / 36.7	40,000
Palm Oil Berth 2	150 / 492	8.0 / 26.2	6,000
Palm Oil Berth 3	240 / 787	11.2 / 36.7	40,000
Mineral Oil Berth	150 / 492	8.0 / 26.2	6,000
Liquid Chemical Berth 1	240 / 787	11.2 / 36.7	40,000
Liquid Chemical Berth 2	240 / 787	11.2 / 36.7	40,000
Liquid Chemical Berth 3	240 / 787	11.2 / 36.7	40,000
Methyl tert-butyl ether Berth	240 / 787	11.2 / 36.7	40,000
Multi–purpose Berth 1	200 / 656	11.2 / 36.7	35,000
Multi–purpose Berth 2	175 / 574	11.2 / 36.7	35,000
Multi–purpose Berth 3	175 / 574	11.2 / 36.7	35,000
Multi–purpose Berth 4	175 / 574	11.2 / 36.7	35,000
Multi–purpose Berth 1A	70 / 230	8.0 / 26.2	6,000
Service Jetty	140 / 459	4.0 / 13.1	4,000
Multi–purpose Berth 5	18 / 59	6.0 / 19.7	10,000
Multi–purpose Berth 6	120 / 394	8.0 / 26.2	12,000

Table 8: Kuantan Port Specifications

hosts a container yard with more than 10,000 container slots and 648 reefer slots. Table 9 shows the details of the berths at Penang Port.[223]

Port Klang
2.9999° N / 101.3928° E

Port Klang is on the west coast of Peninsular Malaysia, about 40 km (25 miles) southwest of Kuala Lumpur. Its proximity to the greater Klang Valley - the commercial and industrial hub of the country - ensures that the port plays a pivotal role in economic development. The port is served by daily Malayan Railways routes that directly connect Port Klang to Penang and Bangkok, Thailand. There is also a 6-day-a-week rail service between Port Klang and the Ipoh Cargo Terminal (an inland port in Perak State). Port Klang handles all types of cargo, with breakbulk served by 11 berths (draft: 5.5-15m; 18-50.9 feet) and more than 230,000 m^2 (2.48 million square feet) of storage (open and warehoused). An additional 10 berths serve liquid bulk cargo (draft: 9-16.5 m; 29.5-54.1 feet) with over 1 million tons of tank storage. Dry bulk cargo is handled at eight berths (draft: 11.9-15 m; 39-49.2 feet) with nearly 150,000 m^2 (1.6 million square feet) of storage (open and warehouse). The Container terminals can handle upwards of 19 million TEUs annually. The operation has 33 berths (draft: 11-17.5 m; 36-57.4 feet), and there are 64,000 ground slots and 5,184 reefer points within it.[224]

The port is divided into Northport and Westports, each operated by a separate corporate structure. Northport is a large multi-purpose port that handles containers, cars, break bulk cargo, and liquid and dry bulk cargo. The 5.6 million TEU Container Terminal at Northport is made up of four dedicated terminals – i.e., CT1, CT2, CT3, and CT4 – all of which are fully equipped with handling equipment and facilities. Depth alongside at the container quays is 11.5-17 m (37.7-55.8 feet). Non-container cargo is handled at two facilities – a dedicated conventional cargo terminal in Southpoint and

Facility / Berth	Length (m / feet)	Depth (m / feet)	Maximum DWT	Maximum Arrival Displacement (Tons)
NBCT 1	200 / 656	11 / 36	-	70,000
NBCT 2	200 / 656	11 / 36	-	70,000
NBCT 3	200 / 656	11 / 36	-	72,600
NBCT 4	300 / 984	12 / 39.4	-	72,600
NBCT 5	300 / 984	12 / 39.4	-	135,000
NBCT 6	300 / 984	12 / 39.4	-	135,000
NBCT Inner Berth	120 / 394	7.5 / 24.6	-	6,000
Butterworth 1	-	10 / 32.8	25,000	40,000
Butterworth 2	-	10 / 32.8	25,000	40,000
Butterworth 3	-	9 / 29.5	25,000	40,000
Butterworth 4	-	9 / 29.5	25,000	40,000
Butterworth 5	-	9 / 29.5	25,000	40,000
Butterworth 6	-	9 / 29.5	25,000	40,000
PBCT 1	-	11 / 36	50,000	66,667
PBCT 2	-	11 / 36	25,000	33,300
PBCT 3	-	11 / 36	50,000	66,667
PBCT Inner Berth	-	7.5 / 24.6	10,000	13,333
Dangerous Goods	-	11 / 36	25,000	33,300

Table 9: Penang Port Specifications

the conventional cargo terminals in Northport. Combined handling capacities for both are 12 million tons. The liquid bulk terminal has a total of four wharves with a total quay length of 800 m (2,625 feet) and a maximum depth alongside 11.5 m (37.7 feet). The terminal can accommodate vessels of up to 60,000 tons in displacement. Table 10 details the Northport facilities.[225]

Westports handles containerized cargo, breakbulk, dry and liquid bulk, and RO-RO with handling capacity of 4.7 million tons at the main (breakbulk) terminals, 1.5 million tons of dry bulk, 1.5 million tons of cement, 6.8 million tons of liquids, and 200,000 RO-RO units. There are more than 18,580 m^2 (200,000 square feet) of warehouses and 60,201 m^2 (648,000 square feet) of open yards. The container terminal handled 10.4 million TEUs in 2021 and has a designed capacity of 14 million TEUs. There are 20 berths along the 5.8 km (3.6 miles) of container quays with a 17.5 m (57.4 feet) draft, and the yard has 11,892 m^2 (128,000 square feet) of covered warehouse and 4,132 reefer points. Table 11 details the Westport details.[226]

Facility	Berths	Depth (m / feet)
CT1	8, 9, 10, 11	1,079 / 3,540
CT2	16, 17, 18, 19, 20	1,065 / 3,494
CT3	12, 13, 14	534 / 1,752
CT4	8A	350 / 1,148
Multipurpose Wharf	15	244 / 801
Multipurpose Wharf	21	213 / 699
Liquid Bulk Terminal	22, 23	426 / 1,398
Dry Bulk Terminal	24, 25	426 / 1,398

Table 10: Port Klang Northport Terminals

Facility	Berths	Depth (m / feet)
Break Bulk and RO-RO (3 berths)	600 / 1,969	15 / 49.2
Dry Bulk 1 (2 berths)	400 / 1,312	15 / 49.2
Dry Bulk 2 (1 berth)	250 / 820	14.5 / 47.6
Liquid Bulk Terminal (LBT)	-	9 – 16.5 / 29.5 – 54.1
LBT 1 Outer	139 / 456	-
LBT 1 Inner	193 / 633	-
LBT 2	320 / 1,050	-
LBT 3	305 / 1,001	-
LBT 4	350 / 1,148	-
LBT 5	400 / 1,312	-
Cement Terminal	285 / 935	-

Table 11: Port Klang Westports Terminals

Port of Tanjung Pelepas
1.3622° N / 103.5533° E

PTP is on the eastern side of the mouth of the Pulai River in Johor State, at the southern end of the Peninsula. It is a naturally sheltered deepwater port that serves only containerized cargo. The Terminal has a 12.6 km (7.8 miles) access channel for two-way traffic with a turning basin of 600 m (1,968 feet). Major industrial estates are accessible through the second Malaysia-Singapore expressway and the north-south highway. Sea and air inter-modal linkages connect the port to the national rail grid passing through Peninsular Malaysia from Singapore to Southern Thailand.[227] With more than 30 shipping lines and operators calling at PTP, the port is connected to over 300 ports of call globally with more than 90 weekly sailings. PTP can handle 12.5 million TEUs of containers annually via 5.04 km (3.13 miles) of quays wherein 14 berths serve vessels. There are 4,778 reefer points in the 240,000 TEU-capacity container yard. The yard is home to 60 super Post-Panamax cranes, 172 rubber-tired gantry cranes, and hundreds of other pieces of handling equipment.[228] Table 12 shows the specifications of PTP facilities.[229]

Roads

Malaysia's road network more than tripled between 2000 and 2019, from 66,445 km (41,287 miles) to 254,479 km (158,125 miles). In 2019, 74.8% of the road network was paved.[230] The two major classifications of roads are federal and state, and the Ministry of Works builds and maintains the 17,830 km (11,079 miles) of federal roads throughout the country, including in Sabah and Sarawak.[231] Federal roads generally encompass major (at least four-lane) interurban highways – toll and non-toll – that join state capitals and roads leading to points of entry to and exit from the country. State roads generally comprise the primary roads providing intra-state travel among district administrative centers although urban collector roads and other minor roads within villages and the rural inhabited areas also fall under state purview.[232] The states maintain the paved, gravel, and earth roads that make up 93% of the entire national road network; some 63,000 km (30,146 miles) of this state network are not paved. The states of Pahang, Perak, and Sabah each have more than 7,000 km (4,350 miles) of gravel roads, and the states of Pahang, Sarawak, and Terengganu each have more than 5,000 km (3,107 miles) of earthen road.[233] Traffic in Malaysia moves on the

Berth	Displacement Tonnage (tons)	Length (m / feet)	Declared Depth (m / feet)
1	119,300	360 / 1,181	15.3 / 50.2
2	119,300	360 / 1,181	15.3 / 50.2
3	119,300	360 / 1,181	15.3 / 50.2
4	119,300	360 / 1,181	15.3 / 50.2
5	250,000	360 / 1,181	16.5 / 54.1
6	250,000	360 / 1,181	16.5 / 54.1
7	250,000	360 / 1,181	18.4 / 60.4
8	250,000	360 / 1,181	18.4 / 60.4
9	250,000	360 / 1,181	18.4 / 60.4
10	250,000	360 / 1,181	18.4 / 60.4
11	250,000	360 / 1,181	18.4 / 60.4
12	250,000	360 / 1,181	18.4 / 60.4
13	250,000	360 / 1,181	19.0 / 62.3
14	250,000	360 / 1,181	19.0 / 62.3

Table 12: Port Tanjung Pelepas Facilities

left-hand side of the road, as in Japan and the United Kingdom.

The North-South "PLUS" Highway (772 km; 480 miles) is the longest highway in the country and is among the most important as it connects to key industrial and logistics hubs and reaches areas that are home to 81% of the population and 89% of GDP in Peninsular Malaysia. On a normal day, nearly 2 million vehicles use the highway[234] that runs down the western coast of the Peninsula from Bukit Kayu Hitam in Kedah near the Malaysia-Thailand border to Johor Bahru near the southern tip of the Peninsula. Most of the highway is dual carriageway (two lanes) in each direction, but some section have more lanes. The northern portion, from Selangor north, includes some of Malaysia's longest bridges and an 800-m (2,625-feet) tunnel.[235] Spurs of toll expressway connect key cities and industrial zones. They include:

- New Klang Valley Expressway (35 km; 21.7 miles) between Kuala Lumpur (Jalan Duta) and the New Klang industrial and urban area (Bukit Raja)
- Seremban-Port Dickson Highway (23 km; 14.3 miles) connecting Mambau in Seremban to Port Dickson, south of Kuala Lumpur
- "ELITE Highway" North-South Expressway Central Link (63 km; 39.1 miles) that provides a bypass around Kuala Lumpur from Shah Alam to Nilai North
- "Linkedua" Malaysia-Singapore Second Link (47 km; 29.2 miles), a bridge from Tanjong Kupang to Senai in Johor and a twin deck bridge supporting a dual three-lane carriageway linking Tanjung Kupang in Johor and Tuas, Singapore
- Butterworth-Kulim Expressway (17 km; 10.6 miles) serving Penang and Kedah; and
- Penang Bridge connecting Penang Island and Perai (13.5 km; 8.4 miles).[236]

The East Coast Highway, linking Kuala Lumpur on the west coast to Kuantan on the east coast of the Peninsula, is the major cross-Peninsula artery. In latter 2021, Malaysia set a substantial budget for transport development works. The Finance Ministry announced US$829.6 million for infrastructure projects. The two key road projects are the Central Spine Road (CSR) and the Pan-Borneo highway.[237] The CSR will run 306 km (190 miles) from central Kelantan in the north to the East Coast Highway; although sections are already open, the full CSR is expected to be completed by 2026.[238] Plans in hand for the Pan-Borneo Highway Sabah Eastern Zone will see the route upgraded to dual carriageway status with two lanes in either direction between Sandakan, Kinabatangan, Beluran, and Telupid; it is slated to be complete by the third quarter of 2024.[239] Completion of all 1,600 km (994 miles) of the Pan-Borneo highway is expected in 2028 at which point it will run along the entire Malaysian coast of Borneo with links via Brunei.[240] An East Coast Expressway, paralleling the Peninsula's eastern coast, is also under development. The currently operational 358 km (222 miles) of the Expressway run between Karak, Pahang State, and Kuala Nerus, Terengganu State.[241]

Malaysia's road system facilitates almost 80% of freight transport. Road networks connect Port Klang, PTP, and Penang Port to and from the hinterland.[242] According to a report by the Asian Development Bank (ADB), there are obstacles to seamless road transport on Borneo where licensing and permitting are conducted by the respective Sabah and Sarawak Commercial Vehicle Licensing Boards. Bruneian transport operators on routes linking the Sultanate with or through Malaysia's Sabah, Sarawak, or Labuan are required to acquire permits via three different offices in a process than can, anecdotally, take weeks. The ADB also reports that Indonesian trucks must load and unload cargo at Tebedu Inland Port (located on the border between Malaysia and Indonesia) and are not permitted to go into Malaysia from the port.[243]

Among the issues addressed in the 2019-2030 Transport Policy, Malaysia is seeking to confront the long-term consequences of congestion, carbon emissions, and safety. Urban Kuala Lumpur residents spend an estimated

10% of household income on transport, well above their counterparts in other major Asian cities. In part, this stems from the inefficiencies of the urban transport system that cost the country some 2% of GDP annually. Meanwhile, an estimated 90% of carbon emissions from the transport sector are from land transport, and 67% of such emissions are from cars. Reducing the contributions of personal and delivery vehicles to carbon emissions is among the "green" and "sustainable" initiatives introduced in the latest policy document. Finally, as of 2016, Malaysia's roads still saw 24 deaths per 100,000 people on its roads, well above the 10.7 in South Korea and 19.7 in Indonesia, but below the 33.5 in Thailand. In 2017, deaths on Malaysia's roadways increased to 6,740 with 63% accounted for by motorcycles. Each year, more than 4,000 motorcyclists are killed.[244]

Railways

In 2019, the total length of railway track was 1,775 km (1,103 miles)[245] with nearly all of it narrow 1.000-m gauge.[246] The main operator is Malayan Railways (Keretapi Tanah Melayu Berhad, KTMB), a corporation wholly governed by the MOT. There is a limited amount of freight transport by rail;[247] as of the formulation of the 2019-2030 transport policy, movement of goods by rail accounted for only 30% of total railway track capacity and less than 5% of land freight.[248] Among the major projects that Malaysia has agreed to under China's Belt and Road framework is the 688-km (427-mile) East Coast Rail Link (ECRL). Initially launched in 2016, it fell prey to internal political bickering between the federal government and opposition-led Selangor State, home to Port Klang, but in latter 2021, the state authorities relented, and the US$12 billion project was given the green light. Once built, the project is expected to provide a new rail link between the east and west coasts of Peninsular Malaysia and replace the existing narrow-gauge colonial-era rail network that does not connect directly with Kuala Lumpur. The ECRL is nominally scheduled to be completed in 2026 and will serve part of Selangor, Pahang, Terengganu, and Kelantan States.[249]

The following sections detail some of the key rail transport systems currently operating in the country.

Klang Valley Integrated Transit System

The Klang Valley Integrated Transit System consists of two airport links - KLIA Ekspres and KLIA Transit – as well as Mass Rapid Transit, Light Rail Transit, Keretapi Tanah Melayu Komuter, and KL Monorail. There are two commuter rail lines, five rapid transit lines, and a third airport rail link serving Subang Airport.

Intercity Services in Peninsular Malaysia

KTMB also provides railway services to connect main cities via the Electric Train Service and the Intercity Service. Electric Train Service is an express, using an electrified double track network from Gemas, Negeri Sembilan State, to Padang Besar, Perlis State. For single and non-electrified track, KTMB's Intercity Services use Diesel Multiple Units and cover services from Gemas, Negeri Sembilan State, to Tumpat, Kelantan State, and from Gemas, Negeri Sembilan State, to Johor Bahru, Johor State. Figure 10 shows KTMB's main network, with two double-track projects (DTP) in progress.[250]

Railway Services in Sabah

The Sabah railway network, operated by Sabah State Railways (Jabatan Keretapi Negeri Sabah), is a single track with total distance of 134 km (83 miles) and 15 stations. This line connects Kota Kinabalu city to other areas of Sabah, from Tanjung Aru, through Beaufort, to Tenom.[251]

Waterways

Major waterways in Peninsular Malaysia still provide some mobility for people and freight. The Pahang and Maur Rivers in particular have been examined for their potential usefulness as transport arteries. However, development of other types of transportation have made larger-scale commercial river transport less attractive for investment. The MOT argues that the world's shift to containerized international



Figure 10: KTMB Rail Network, Including Projects in Process

cargo shipping is a reason for larger coastal ports to serve as hubs from which smaller shipments move onward via multi-modal transport although the 2019-2030 Policy is silent on the potential role for riverine freight vessels.[252] Given the limited reach of Peninsular rivers, river-borne cargo is unlikely to be a major industry in the near future although rivers will remain important for passengers.

East Malaysia, in contrast to the Peninsula, can benefit from more investment in riverine transport. The recent development of airports and trunk roads in East Malaysia, such as the Pan-Borneo Highway between the major urban centers, has created a significant shift in passenger and freight transport from the inland waterways to road and air services. The resulting reduction in interurban use of river transport in the past decade does not, however, mean a reduction in the importance of river transport for interior communities. Further road development of urban roads and feeder links into the new trunk road network is expected to compete with river transport for urban and interurban freight and passenger traffic.[253]

Sarawak has a total of 35 rivers with a combined navigable length of 3,300 km (2,050 miles). In some rural areas, boat services are the only means of public transport. The state's river transport system has great significance to the portion of Sarawak's population who live in the interior and along the coast.[254] The Rajang, at 567 km (352 miles), is the most important river in Sarawak and the longest river in Malaysia. Sarawak's other major navigable rivers are the Baram, Kemena, Tatau, Limbang, Lupar, Sadong, and Sarawak. Between 300 and 500 vessels are active on the rivers every day, and about half of them are for passenger transport, with the remainder involved in transporting bulk and breakbulk freight. Sarawak has an extensive express passenger boat service, which connects various coastal towns and the rural areas of the interior that are inaccessible by road. These scheduled services are operated by private companies under a permit from the Sarawak Rivers Board. In rural riverine locations, a variety of methods are used involving private speedboats, longboats, and small paddleboats. Figure 11 shows an example

of how a Sarawak community's river and road networks work together to provide mobility.[255]

There are 83 gazetted wharves and jetties, and there are more than 900 other facilities serving Sarawak's rivers. Numerous small jetties and piers exist along riverbanks serving dispersed villages. Freight transport comprises a wide range of services that include bulk shipment of logs, coal, and gravel by towing of floating logs, small bulk carriers, and tug-barge systems. This cargo is transported to riverine and coastal ports for transshipment to domestic or export destinations. General cargoes and provisions are moved in a range of craft and loaded and discharged at private and Government wharves and jetties using shipboard and shore-based cranes.[256]

Schools

The primary and secondary school system is structured on a 6+3+2+2 model, with six years of compulsory primary education, followed by three years of lower secondary education, two years of upper secondary, and two years of pre-university senior secondary study. The primary language of instruction is Malaysian although some ethnic minority students can attend primary school in their home language; some upper-level math and science courses are taught in English.

The Education Act 1996 (Act 550) provides for preschool and makes primary education compulsory starting at 6 years of age. The Ministry of Education (MOE) is responsible

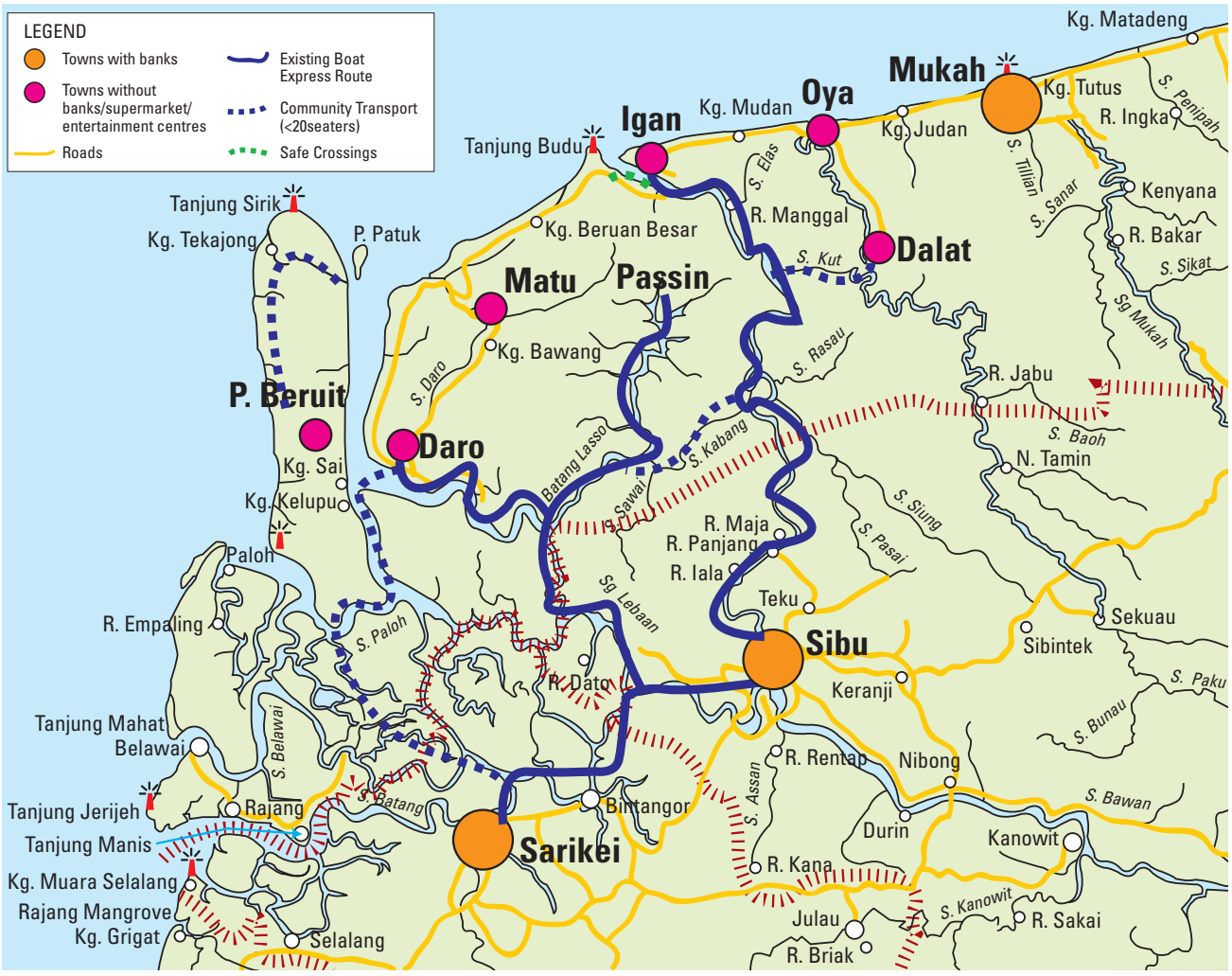


Figure 11: Community Water Transport Network in Mukah Division, Sarawak

for providing non-compulsory preschool education to children ages 4-6 years regardless of family income, area of residence, and ethnic group, and including children with special needs with the use of the National Preschool Curriculum.[257] The period of compulsory education is the six years of primary education and coincides with children roughly ages 6-12 years.[258] There are various school types at the primary level, including national schools, ethnic schools (Chinese and Tamil), private schools, and international schools. They all follow the Malaysian National Curriculum, which includes languages, arts, Islam (compulsory for Muslims), and various other basic subjects. All students automatically progress to secondary school.[259]

Lower Secondary Education is for students ages 13-15 years and consists of Forms One through Three.[260] Enrollment is near universal, topping 96% of Malaysian children of the appropriate age. At the end of the lower secondary cycle, students take an assessment, which they must pass to continue to upper secondary school.[261] Upper Secondary incorporates students ages 16-17 years (Forms Four and Five) and has three streams: academic (literature, science, etc.), religious, and technical and vocational education and training (TVET).[262] There are more than 500 institutions offering TVET streams with most institutions specializing in specific sectors.[263] In TVET streams, students generally take courses geared towards employment and trades – e.g., mechanical, civil, or electrical engineering, agriculture, fashion, automotive, catering, or computer programming.

At the end of Form 5, students from all streams take the Sijil Pelajaran Malaysia (SPM – Open Certification Examination). Students who are awarded the SPM can go on to pre-university or matriculation studies, or they can enter private colleges or universities for pre-university programs to advance to a bachelor's degree program or other program. Pre-university or Form Six lasts two years and focuses on either humanities or science. It leads to the Sijil Tinggi Pelajaran Malaysia (Malaysian Higher School Certificate Examination).[264] The one- or two-year Matriculation Program is a fully government-funded program that teaches four subjects (all in sciences and accounting). The courses can be taken at one of 17 matriculation schools across the country. In existence since 1999, the matriculation program is intended to prepare students to move onward to national or international university studies or into civil service.[265]

Children with special needs are taught either in an integrated school wherein the state education department is responsible for ensuring an integrated education plan or at one of several special education schools. The MOE has published programming and curriculum support for schools to use in planning and implementing integrated education for children with special needs.[266]

Disaster Risk Reduction in the Education Sector

In a country with 10,000 school buildings and 4.7 million students, the hazards to which Malaysia is vulnerable also loom over its education sector. Several key events illustrate the risks to students and schools when disasters strike: 1) in 2015, 23 schools were damaged by a 5.2 magnitude earthquake in Sabah; 2) in 2017, 24 children died in a fire at a religious school;[267] and 3) during the September 2019 transboundary haze event, when the air pollution index topped 200 (very hazardous), more than 2,600 schools closed in five Malaysian states where around 1.7 million students were affected. The MOE released a Standard Operating Procedure (SOP) for haze after the 2019 event.[268] However, it was not until after the climate change-influenced massive flooding that struck the country in December 2021 and January 2022 and that killed 54 people, that the government decreed that climate change and whole-of-society disaster risk management would become subjects of instruction and research across Malaysia's schools and universities.[269]

The United Nations Development Programme (UNDP) leads the cooperation

initiative "Strengthening School Preparedness for Tsunamis in the Asia Pacific." The initiative is currently in "Phase II," which emphasizes institutionalizing disaster preparedness in schools for sustainability beyond the project and aims to fill gaps, scale-up, and integrate the preparedness program and drills into the school curriculum and systems. Malaysia is one of the countries where the Tsunami Project Phase II is being carried out, in a partnership between UNDP and NADMA. Outputs envisioned include institutionalization of school preparedness and awareness programs for tsunamis and enhanced data collection capacity.[270] As part of the Malaysian government's contributions, it has developed a Training of Trainers module that provides general and specific guidelines for effectively conducting periodic trainings according to the level of vulnerability, scale, and impact of tsunami disaster risks in schools and surrounding areas. It introduces concepts and outlines interactive activities such as Disaster Imagination Games, Town/School Watching, and 7 Steps of Tsunami Evacuation Drill.[271]

The Malaysian Red Crescent Society (MRCS) has constructed the MRCS Youth Policy and Youth Engagement Strategy, both of which recognize the importance of investing in education, empowerment, and creating an enabling environment for young people to bring positive change. Among those initiatives signed onto by MRCS are the IFRC's Youth in School Safety initiative that, since 2015, has targeted the Red Cross/Crescent National Societies in key ASEAN member-states. The goal is to encourage youth to take a leading role in school safety via training, drills, and simulations that teach them not only how to identify hazards but also to engage their teachers, administrators, and parents in a whole-of-community approach to school safety. The Youth in School Safety initiative dovetails with the ASEAN Safe Schools Initiative and the organization of the ASEAN Conference on School Safety as the Red Crescent Youth help sustain and scale up school safety initiatives across ASEAN member-states.[272]

Alongside Malaysian government agencies and MRCS, MERCY Malaysia is among the key implementing partners for the ASEAN Safe Schools Initiative. The MERCY Malaysia School Preparedness Programme (SPP) launched in 2007 and, by 2017, the SPP had reached 12,248 students and 972 teachers. MERCY Malaysia developed modules on DRR and SPP that focus on building the resilience of students and teachers, and the MOE provided the list of schools affected by disasters and gave approval for MERCY Malaysia to apply their modules in the targeted schools. One of the more recent projects was started in January 2018; it was a 12-month program that targeted 20 schools where it encouraged students to be part of disaster preparedness initiatives. It focused on hands-on safety training to prevent and prepare for potential disasters by highlighting the steps to take in the event of a specific emergency or disaster.[273]

Major academic and research institutions that conduct and publish research as well as build the Malaysian and regional network of disaster management professionals include the following schools and centers.

The S**outheast Asia Disaster Prevention Research Institute, Universiti Kebangsaan Malaysia (SEADPRI-UKM)** conducts research and provides advice in disaster-related fields via its technological platform for cross-, multi-, and inter-disciplinary research. SEADPRI research contributes to new systems and technologies to deepen knowledge about disasters. SEADPRI offers master's and doctoral degree programs.

The objectives of SEADPRI are:

- To become a research center focused on climatic, geological, and technological hazards at the national level and in the region
- To become a multidisciplinary research center in disaster management, especially in the contexts of disasters, governance, and prevention, as well as post-disaster response
- To develop skilled human capital in disaster issues for governments and the private sector through graduate programs that focus on scientific, technological, social, and

governance aspects of disasters; and
- To become the reference center on disaster science and governance in Southeast Asia.[274]

To complement the research undertaken by fellows, SEADPRI also conducts workshops and training courses on specialized subjects in the fields of environmental and technological hazards, DRR, and policy, governance, and disaster management. To develop knowledge and disseminate information and technology. fellows collaborate with other agencies and institutions. Among others, SEADPRI has partnerships or Memoranda of Understanding with NADMA, the Disaster Prevention Research Institute and Global Alliance of Disaster Research Institutes, both of Kyoto University, the Digital Belt and Road Initiative in DRR, the International Development Research Centre of Canada, and the Intergovernmental Panel on Climate Change (IPCC).[275]

The **Disaster Management Institute (DMI) at the Universiti Utara Malaysia** is a 10-member, interdisciplinary school of excellence that has three research clusters: Disaster Recovery and Resilience, Disaster Education and Community Empowerment, and Disaster Preparedness and Mitigation. DMI has three objectives:
- To build and transfer knowledge on disaster management through research, training, and specific programs or activities
- To provide disaster management knowledge with the aim of developing disaster resilience communities; and
- To become a national resource center for disaster management and a platform for exchange focusing on the social and management aspects of disaster risk reduction.

In addition to their research, DMI fellows conduct workshops and field visits, and they network with local agencies, NGOs, and other disaster research centers. One of the key activities is providing disaster resilient community education in schools and businesses as well as to members of volunteer groups and NGOs.[276]

The **Natural Disaster Research Unit (NDRU) at the Universiti Malaysia Sabah** was established to study the natural hazards that impact the country in order to enhance the country's capability to manage natural disasters. NDRU acts as a focal point for all research activities within the Universiti Malaysia Sabah that are related to natural disasters. Its objective is to generate new knowledge related to the mechanisms, impacts, and mitigation of natural hazards to reduce natural disasters. NDRU conducts fundamental and applied research, provides expertise, produces scientific and popular publications, organizes public awareness activities, and develops a database on natural disasters in Malaysia.

NDRU research emphases are:
- Mechanisms, impacts, and mitigation of slope instability and landslides
- Impact and early warning system for flooding
- Development of policies for earthquakes and tsunamis
- Mitigation of riverbank and coastal erosion
- Prediction of droughts and mitigation of forest fires; and
- Prediction of storm and typhoon occurrence.[277]

The **Infrastructure University Kuala Lumpur - Geo Disaster Research Center (I-GEO)** is a center of reference in research areas related to natural disasters and disaster forecasting. Its mission is to collaborate in research and consultancy services related to natural disasters nationally and internationally and to produce inventions, innovations, designs, techniques, and products that contribute to development. It brings together more than one dozen scholars and professionals in construction materials and design, engineering, new materials, geo-technology, artificial intelligence, and statistics to provide seminars, workshops, and consulting.[278]

The **Disaster Preparedness and Prevention Centre (DPPC) of the Malaysia-Japan International Institute of Technology (MJIIT)** is housed within the Universiti Teknologi Malaysia Kuala Lumpur. It is a research and training center for building resilience to natural disasters and climate change. Its mission is to facilitate national and international collaborations in applied research, training, and field practice in collaboration with partners. DPPC MJIIT's objectives are:

- To conduct applied research, promote technological innovations, and build a knowledge database on disaster resilient societies
- To develop highly skilled human resources with state-of-the-art technologies through higher education programs; and
- To practice field-oriented and evidence-based actions for supporting decisionmakers and stakeholders.

MJIIT's disaster risk management program includes a master's degree track and professional training. In addition, it produces research, conducts experiments, and publishes findings that then feed and draw upon field surveys and consulting projects. In the end, it works to build a more skilled and networked disaster management work force that links researchers and practitioners who build and implement disaster risk management and reduction measures.[279]

Communications

The Malaysian Communications and Multimedia Commission (MCMC) under the Ministry of Communications and Multimedia is the country's regulator for the communications industry. The overall telecommunication system is very advanced, underpinned by a strong commitment to developing a technological society. One of the key challenges is closing the urban-rural divide.

Telephones

Fixed lines: 7,467,900 (23 per 100 inhabitants)
Mobile cellular subscriptions: 43,723,600 (135 per 100 inhabitants)[280]

The monopoly incumbent, Telekom Malaysia (TM), is the only fixed-line telephone provider in the country,[281] but it has been broadly superseded by mobile services. There are six mobile-cellular (including wireless broadband) providers: MAXIS, Digi, YTL, CELCOM, UNIFI Mobile, and U Mobile.[282] Digi, Maxis, and Celcom together account for nearly 70% of total mobile subscriptions.[283] As of 2020, many people still used 3G networks for voice calls. Although the country intended to sunset 3G service in 2021, it had not done so by February 2022. There are 4G and 5G networks in operation with a strongly competitive market.[284] Reaching the entire national territory, 4G represents the leading service with more than 95.5% of total mobile subscriptions. As of March 2022, 3G customers still numbered more than 1.5 million while the first few hundred customers had up-graded to 5G.[285] The first 5G projects launched in early 2020 in controlled use-case demonstrations, and the country continues to press toward large-scale roll-out of the new network.[286]

There are nearly two dozen landing points for submarine cables that provide connectivity to Asia, the Middle East, Southeast Asia, Australia, and Europe. In addition, there are two Intelsat satellite earth stations.[287]

Internet Access

Internet users: 29,129,398 (90% of population)
Broadband - fixed subscriptions: 3,358,800 (10 per 100 inhabitants)
Broadband – mobile subscriptions: 38,300,000 (119 per 100 inhabitants)

According to the Department of Statistics, household internet access has topped 91%. Steadily increasing internet penetration rates are driven primarily by developments in mobile broadband infrastructure, including optimization of 4G and new mobile data subscriptions.[288] Mobile broadband has gained dominance over fixed broadband in recent years.

In contrast to the six mobile providers (who are also mobile telephone service providers), there are only three in the fixed broadband market: MAXIS, Time, and TM. MAXIS and TM are the only cable internet providers.[289] A 2022 study found that the median mobile internet connection speed was 24.56 megabits per second (Mbps) while the median fixed internet connection speed was 74.84 Mbps; both of these are increases over 2021 numbers.[290] Despite improvements, some one-fifth of the country may still have very poor internet access, and there have been cases where internet access is disrupted due to vandalized internet infrastructure caused by digging up cables or theft of copper wires. Among other initiatives, the government is utilizing satellite technologies to expand internet access to rural and remote areas; however, their capacity can be limited, their operational costs high, and their services unstable in poor weather.[291]

One of MCMC's main policy thrusts is the National Fibre-Optic and Connectivity Plan (NFCP), a five-year plan (2019-2023) to provide robust, pervasive, high quality, and affordable digital connectivity and a conducive environment for the adoption of new technologies such as 5G. Among the key goals of NFCP is to ensure internet for rural residents to reduce the urban-rural digital divide. Since 2007, the country has operated 873 Pusat Internet Komuniti (PIK; Community Internet Centers); PIKs provide Internet access to unconnected people and communities, and they serve as learning centers that provide training, awareness, and community engagement. Of the 873 PIK, 248 are in rural areas and 113 in remote areas.

COVID-19 and the associated Movement Control Order showed the country's crucial need for digital connectivity enhancement. Internet traffic increased by 30-70% at any given time while Internet usage in residential areas also spiked 50-70% at any given time. Meanwhile, Internet speeds decreased 30-40% and complaints on internet quality and coverage increased. PIK played a significant role during the COVID-19 pandemic after face-to-face schools closed. PIK became the main avenue for students to take classes and sit for examinations. Throughout 2020, registered PIK membership numbers reached almost 678,000 while an additional 520,000 non-members benefitted from PIK facilities and services. During 2020, 2.79 million people participated in various information and communications technology (ICT)-based programs and training offered at PIKs. Of this number, more than 1.7 million participants attended ICT trainings comprising Science, Technology, Engineering and Mathematics, Internet of Things, and e-Learning while the remaining 1.09 million were community members who attended entrepreneurship trainings or advocacy and awareness programs.[292]

In 2022, some 73% of Malaysians owned a laptop or desktop computer, 35% owned a tablet device, and 98% owned a mobile phone. On average, a Malaysian spends more than nine hours each day on-line, including three hours watching TV, three hours on social media, and one and one-half hours reading or watching traditional news media. More than 96% of Malaysians who are on-line use their mobile devices for at least some of their browsing. Time spent on-line via mobile versus via laptop/desktop is roughly equal at 4-5 hours each day. More than 80% of Malaysians say they use the internet for finding information, 75% for following news, 72% for staying in touch with family and friends, 66% for watching TV and movies, 57% for listening to music, 56% for education and study, 52% for personal finances, and 40% for gaming. Nearly three-quarters of Malaysian internet users use Google Chrome as their browser. The top ten most visited sites are: Google.com, Facebook.com, YouTube.com, Wikipedia.org, Malaysiakini.com, Blogspot.com, Shopee.com.my, TheStar.com.my, MayBank2U.com.my, and Instagram.com.[293]

Mass Media

Press freedom is guaranteed by Article 10 of the Constitution, which provides for the freedom of expression. However, laws allow authorities to

restrict this freedom, for example by threatening up to 20 years in prison for violating the 1948 Sedition Act. The Communications and Multimedia Act gives the government strict control over issuing of media licenses, and the 2021 "anti-fake news" emergency ordinance (that came within the context of the COVID-19 pandemic) gives government the power to demand the removal of any report it regards as "false."[294]

Radio Television Malaysia (RTM) is the state-owned TV and radio broadcaster; it operates two TV networks with relays throughout the country as well as multiple national, regional, and local radio stations. The leading private commercial media group operates four TV stations with numerous relays throughout the country. Satellite TV subscription service is available, and many private commercial radio broadcasters and some subscription satellite radio services are available.[295]

More than half of Malaysians watch the commercial network TV3 in any given week, making it the station with the largest audience; 24-hour news station, Astro Awani, has a 35% market share. Malay-language daily newspapers, Harian Metro, Berita Harian, and Sinar Harian, all net approximately 30% of the newspaper market while English-language daily/online newspaper, The Star, retains more than 20% of the market. RTM (radio and television) claims only about 22% of the total national market, and global majors like CNN and BBC net only 10-12% of the weekly audience. The on-line audience is similarly fragmented with Malaysiakini being seen by 48% of the Malaysian audience every week and Astro Awani's on-line portal getting looks from about 40% of Malaysians. The on-line versions of The Star, Berita Harian, and Harian Metro all are viewed by about one-quarter of the market each week. Surveys between 2017 and 2022 consistently show 80-90% of Malaysians get all or some of their news on-line, including via social media. Some 50% of Malaysians watch TV news, and only 17% of the population reads a newspaper as of 2022, a drop from over 40% in 2017.[296]

There are nearly 30 million social media users in Malaysia, meaning that just about every internet user is also a social media user. There are some 21 million Facebook profiles registered in Malaysia, 23 million YouTube users, 15 million Instagram users, 14,5 million TikTok users, and 4.4 million Twitter users.[297]

Only approximately one-third of Malaysians say they trust mass media information. National-language and other vernacular newspapers have long been recognized as being politically owned and aligned, and competition from new media in recent years has challenged the dominant narratives those newspapers had constructed. Formerly dominant newspapers have lost significant ground to upstarts like AstroAwani and Malaysiakini, which, together, get some of the best marks among surveyed Malaysians for their "balanced yet critical approach" or their "independence." The marked difference in trust between traditional and new media has meant that old political actors and elites are increasingly moving into the new media sphere by buying on-line portals. Five major national media companies –Media Prima, Utusan Melayu, Star Media Group, Astro, and Media Chinese International Limited – are involved in this activity; they all represent continued political–media tie-ups that have existed for 40 years.[298]

Malaysia completed its switch to fully digital TV in October 2019. As of 2020, there were 7.3 million paid TV subscriptions with 98.5% of households having access to TV. Only in Perlis, Sabah, and Sarawak States does the percentage fall below 98%; even in these states, it is above 95%.[299]

Post

Since 1 November 2001, MCMC has been the regulator for postal and courier services. It is responsible for the application and implementation of the Postal Services Act 2012, which governs postal and courier services, including small-package delivery services.[300] In 2020, MCMC reported that there were more than 100 courier licensees operating in the country, most of them in the international

inbound and domestic courier group (as opposed to international inbound and outbound or intrastate domestic). After a drastic (567%) rise in consumer complaints over delivery delays and lost packages amidst a spike in online shopping during the COVID-19 pandemic, MCMC decided on a moratorium (through September 2022) to review licensees.[301]

Postal-services provider Pos Malaysia is majority owned by major Malaysian conglomerate DRB-HICOM, although the Ministry of Finance retains a Special Rights Redeemable Preference Share in the company. Under the Postal Services Act 2012, Pos Malaysia is the designated Postal Operator awarded the Universal Service License. It also undertakes courier services, logistics services (container haulage services, freight forwarding, shipping agency, chartering, warehousing, and distribution), aviation services (flight-related services, such as air cargo handling, in-flight catering, aircraft maintenance and engineering, and facilities equipment), and international services. Pos Malaysia has a fleet of 10,327 land vehicles, three aircraft (for shipments to East Malaysia), and two bulk-carrier ships as well as a network of more than 3,500 "touchpoints" and 250 "self-service terminals," and it reaches all rural areas and islands.[302]

Utilities

The government reports that 100% of the population has access to electric power, and more than 99% have access to improved water sources for drinking and sanitation. However, these rates have been achieved relatively recently, and the country faces challenges in keeping all communities served as it tries to cope with disrupted water supplies and the need to reduce fossil fuel usage to address climate change.

Power

The Ministry of Energy and Natural Resources (KeTSA) devises policy related to electricity, renewable energy, and energy efficiency. The government has begun prioritizing clean energy and aims to integrate 25% renewables by 2025. One of the ways it is moving in this direction is by significantly expanding its use of hydroelectricity.[303] The Chief Secretary of KeTSA oversees the Energy Commission, which is the regulatory authority for the energy sector, including supply, security, reliability, safety, and price. It formed in 2001 to take over responsibilities from the Department of Electricity and Gas Supply.[304]

Malaysia's electricity demand continues to expand rapidly, and growth coupled with insufficient natural gas supply is driving the country to diversify its fuel mix and to add electricity capacity to avoid future power shortages. As of 2021, petroleum, natural gas, and other liquids were the primary energy sources, with estimated shares of 37% (petroleum) and 36% (liquids, natural gas). Coal meets approximately 21% of the country's energy demand. Renewable energy accounts for 6% of total consumption. Total installed electricity generation capacity at the end of 2018 was about 34 gigawatts (GW), located mostly in Peninsular Malaysia, and net electricity generation was about 160 gigawatt hours (GWh). Fossil fuels, primarily coal and natural gas, accounted for about 78% of installed capacity and 83% of electricity output.[305]

In 2020, the total installed capacity on the Peninsula amounted to 25.25 GW, with a generation mix of coal (65%), natural gas (29.8%), hydro (4.4%), and others (0.8%). Several power plants had been decommissioned in 2019 while several others, including three solar projects, came online. The breakdown of plants is shown in Table 13.[306]

Type	Amount (GW)
Coal	12.05
Gas	9.8
Hydro	2.2
Solar	0.579
Mini Hydro	0.295
Interconnection	0.300
Total	**25.257**

Table 13: Total Installed Electricity Generation Capacity in Peninsular Malaysia (2020)

Overall, at the end of 2020, there were a total of 63 power plants connected to the network system in the Peninsula, consisting of 16 gas-fired power plants, eight coal-fired power plants, six hydroelectric power plants, and 33 large scale solar projects. A total of 12 large scale solar plants had commenced commercial operations, with several more projects scheduled to be operational in the next few years. Renewable resources as of 2020 consisted of solar photovoltaic, biogas, biomass, and small hydropower, all generated through programs such as feed-in tariffs and net energy metering. In 2020, renewable energy accounted for 15.2% of the total electricity capacity in the Peninsula and Sabah, an increase of 6.6% over 2019. The most significant increase was in solar capacity which went from 3.7% in 2019 to 4.6% in 2020.

In Sabah, the Energy Commission reported an installed generation capacity of 1.17 GW, including gas, diesel, hydro, and renewables. A total of RM2.3 billion (US$516 million) was allocated under the 10th Malaysia Plan (2011-2015) and 11th Malaysia Plan (2016-2020) for network strengthening projects by Sabah Electricity Sendirian Berhad (Sdn Bhd) (SESB) and the Sabah Electricity Supply Special Project Team. The projects included a 132 - 275 kilovolt (kV) transmission line upgrade project to increase transmission capacity from 216 megawatts (MW) to 400 MW from the West Coast to the East Coast of Sabah. The project is expected to be fully operational in 2022.[307]

Sarawak Energy Berhad (SEB) serves 750,000 accounts in urban and rural areas. Its energy predominantly comes from hydropower resources. The corporation is divided into Generation, Transmission, Fuel Resources, and Rural Electrification units. The total installed capacity of the eight major power stations connected to the Sarawak grid is 4.64 GW. Additionally, to meet the demand of Limbang and Lawas in the north, there are two urban-rural diesel and mini-hydro power stations with a total installed capacity of 43.5 MW. The total installed capacity of large hydro plants is 3.45 GW. Batang Ai, Sarawak's first hydroelectric plant, utilizes a 90 km² (34.7 square mile) reservoir impounded by an 85 m (279 feet) high and 649 m (2,129 feet) wide dam. It delivers up to 108 MW of power to Kuching via a purpose-built 275 kV transmission line. The Murum plant is located in the upper Rajang River basin, 200 km (124 miles) from Bintulu. It is designed to produce 635 MW (constant) and 944 MW (peak) from a 270 km² (104 square mile) reservoir. The Bakun plant is 37 km (23 miles) upstream of Belaga town. The plant has an installed generation capacity of 2.4 GW via a dam standing at 205 m (673 feet) high. Bakun is the largest power generation station in Sarawak. Baleh hydroelectric project (1.29 GW) is under construction and is expected to be commissioned by 2027. Beyond hydro, SEB operates three coal-fired plants: Sejingkat (210 MW) at Kampung Goebilt, serving Kuching; Mukah (270 MW), supplying southern and central regions of Sarawak; and Balingian (312 MW). It also operates the Bintulu Combined Cycle Plant (317 MW) and Miri Power Station (102 MW).[308]

Transmission and distribution of electric power are monopolies in all sections of the country: Tenega Nasional Berhad (TNB) in Peninsular Malaysia, SESB in Sabah, and SEB in Sarawak. While these companies are also the largest stakeholders in generation, large private independent power producers generate most of the country's electricity. Peninsular Malaysia's National Grid is interconnected with the grids of Thailand and Singapore. SEB exports electricity through a transmission line that connects with Indonesia's West Kalimantan.[309]

TNB's transmission system comprises double-circuit 500 kV, 275 kV, and 132 kV transmission lines connecting power stations and demand centers. The grid system is operated by a Grid System Operator, which is virtually separated from other TNB entities; it manages the grid and coordinates connections. The distribution network includes the parts of the grid that operate below 132 kV and is comprised of electric lines, cables, substations, and associated equipment.[310]

TNB's Generation Division develops,

operates, and maintains the company's thermal and major hydro-generation units in Peninsula Malaysia. From these plants, TNB transmission lines, substations, and distribution lines supply customers. TNB's Grid Division manages and operates the 132 kV, 275 kV, and 500 kV transmission network. It also formulates strategy, and conducts system planning, engineering, project management, control operations, maintenance, and management. The TNB national grid is interconnected to Thailand's transmission system operated by Electricity Generating Authority of Thailand via a high-voltage, direct current interconnection with a transmission capacity of 300 MW and a 132 kV high-voltage, direct current overhead line with maximum transmission capacity of 80 MW. The grid is also connected to Singapore's transmission system at Senoko via two 230 kV submarine cables with a firm transmission capacity of 200 MW. The Distribution Network Division plans, constructs, operates, repairs, and maintains the 33 kV, 22 kV, 11 kV, 6.6 kV, and 415/240-volt portions of the Peninsula distribution network.[311]

SESB is a subsidiary of TNB (80%) and the State Government of Sabah (20%). It undertakes generation, transmission, and distribution services in Sabah and the Federal Territory of Labuan. The only power utility in Sabah, SESB's Sabah Grid is made up of 66kV, 132 kV, and 275 kV lines, all of which link up the major towns in Sabah and Labuan.[312]

SEB's major transmission assets are both 500 km (311 mile) lines, one a 275 kV backbone and the other a 500 kV line, both running from Similajau to Kuching.[313]

Malaysia has invested heavily in refining and can meet most of its domestic demand for petroleum products with domestic supplies. There are about 880,000 barrels per day (b/d) of refining capacity at seven facilities, detailed in Table 14.[314]

Natural gas pipelines on the Peninsula and in Sabah and Labuan are just longer than 4,900 km (3,045 miles) in total with steel lines making up nearly 90% while polyethylene pipe makes up the remainder. In the Peninsula, most of the pipelines are owned by Petronas Gas Berhad, Trans Thai-Malaysia (Malaysia) Sdn Bhd, and Gas Malaysia Distribution Sdn Bhd. Petronas owns more than half of all the pipe on the Peninsula. The 13.81 km (8.6 miles) of distribution pipelines in Sabah and Labuan are owned by Sabah Energy Corporation.[315]

In contrast to its natural gas pipelines, Malaysia has a limited oil pipeline network and relies on tankers and trucks to distribute petroleum products onshore. An oil product pipeline runs from the Dumai refinery in Indonesia to the Melaka oil refinery in Melaka City, Malaysia. An interconnecting oil products

Refinery/Operator	Nameplate Capacity (b / d)	Notes
Melaka 1 (PSR-1) / Petronas	88,400	Distills sweet crude oil and condensate
Melaka 2 (PSR-2) / Petronas and ConocoPhillips Joint Venture	158,100	Processes sour crude oil grades
Port Dickson / Malaysia Hengyuan International (China)	135,000	Can accept heavier crude oil grades
Port Dickson / San Miguel/Petron (Philippines)	79,100	-
Kerteh / Petronas	112,800	Processes naphtha condensates through a splitter
Kemaman / Kemaman Bitumen Company	27,900	Converts heavy crude oils to bitumen
Pengerang refining and petrochemicals integrated development project (RAPID) / Petronas	279,000	Facility shut down in March 2020; restart expected 2021
Tanjung Bin / Vitol	32,600	Topping plant
Pengerang RAPID / Pengerang Energy Complex	139,500	Condensate splitter; construction launched in 2022; completion expected in 2026

Table 14: Malaysia's Petroleum Refineries and Their Capacities

pipeline runs from the Melaka refinery through Shell's Port Dickson refinery to the Klang Valley airport and to the Klang oil distribution center. The Pengerang oil storage terminal in Johor completed Phase 2 of construction and increased its crude oil storage capacity to 20.8 million barrels. It has now begun Phase 3 of construction, which it expects to complete by mid–2021 and to add about 2.7 million barrels of storage for clean petroleum products.[316]

Water and Sanitation

Malaysia has dependable, plentiful, and safe water. Renewable water resources are 580 billion cubic meters (20.5 trillion cubic feet).[317] Groundwater accounts for 90% of freshwater resources. However, streams and rivers contribute 98% of total water used, and there are over 150 river systems in the country. There are more than 100 dams, 62 of which have a primary purpose of supplying water, and these water supply dams have a total storage capacity of about 25 billion cubic meters (882.9 billion cubic feet).[318]

More than 99% of the population uses both improved drinking water sources and improved sanitation facilities. Water utilities in Malaysia are managed and overseen by individual state water authorities. The Central Federal Public Works Department oversees state operations, while the National Water Services Commission (Suruhanjaya Perkhidmatan Air Negara; SPAN) serves as the national regulatory body for water supply. The Water Resources Master Plan sees the development of water resources for the country up to 2050 as involving around 60 major water projects, including building new dams, raising the height of existing dams, constructing new treatment plants, inter-state water transfer, and identifying catchment areas for development.[319]

As part of a set of Constitutional and legal reforms in 2005 and 2006, the main legal framework for the water and sanitation sector in Peninsular Malaysia changed from a state-led one to a federal one with the federal government holding authority over water-based projects, while the states retain their power to declare and regulate water catchment areas, water sources, and river basins. Sabah and Sarawak retained their own legal frameworks on water and sanitation services.[320]

Water utilities services are provided by SPAN and Pengurusan Aset Air Berhad (PAAB). PAAB, the asset manager, is wholly owned under the federal Ministry of Finance and regulated by SPAN through the Water Services Industry Act 2006. Among other tasks, PAAB is tasked with assisting the federal government in implementing the National Water Services Industry Restructuring Plan by developing water asset infrastructure on the Peninsula.[321] PAAB's primary responsibility is to develop water infrastructure in Peninsular Malaysia and Labuan; the water assets are then leased to water operators licensed by SPAN for operations and maintenance.[322] As of 2019, PAAB had more than 2,200 assets (dams, reservoirs, treatment plants, etc.) and 48,000 km (29,825 miles) of pipelines under management on the Peninsula. It has capacity to treat 3,686 million liters (973.7 million gallons) of water daily.[323]

The Sabah State Water Department falls under the state's Ministry of Infrastructure Development, and its operations were codified by the Sabah Water Supply Enactment 2003 ordnance to supply treated water to Sabah communities. The Department serves its 531,000 customers across the state via 84 water treatment plants that average 1,300 million liters (343.4 million gallons) pumped daily via 15,031 km (9,340 miles) of pipe.[324]

In Sarawak, the state Ministry of Utility and Telecommunication has policy and regulatory oversight over water provision, but operations are actually carried out by four agencies: Sarawak Rural Water Supply Department (JBALB), Kuching Water Board, Sibu Water Board, and Laku Management Sdn Bhd. As of mid-2022, the Ministry was seeking to unify the four agencies into one entity to streamline development, operations, and maintenance.[325] Serving Sarawak's largest city, the Kuching board's service area covers 730 km^2 (282 square miles)

and, via its treatment plants at Batu Kitang and Matang, it produces nearly 200 million liters (52.8 billion gallons) of water annually. It maintains more than 2,500 km (1,553 miles) of water pipes.[326] JBALB began operations in 2016 and oversees the water supply system in suburban and rural areas of Sarawak, and based on this remit, its objective is 100% water supply coverage in rural areas of Sarawak by 2025. JBALB has 97 active water treatment plants with a total capacity of 525.6 million liters (138.8 million gallons) daily to serve 1.12 million users. JBALB has 89 active booster pump stations, 360 water tanks, and 8780 km (5,456 miles) of pipeline.[327] The Sibu board's service area covers 1,950 km^2 (753 square miles); it manages two treatment plants, five tanks, five pumping stations, and one reservoir. There are 1,510 km (938 miles) of pipes serving Sibu customers.[328] Laku Management serves Miri, Bintulu, Limbang, and Samalaju. It has seven plants with a total capacity of 568 million liters (150 million gallons) daily.[329]

Despite its abundant resources and near universal service, Malaysia's water and sanitation system is not without problems. There have been highly publicized incidents of water pollution and cuts. Three of the key issues are: 1) lack of environmental law enforcement; 2) non-revenue water (NRW; losses to leaks or breakage); and 3) unsustainable use.

In early 2019, diesel and chemical contamination in Selangor and Johor States saw hundreds of thousands of people affected and thousands of people sickened while treatment plants had to shutter for decontamination. Then in September 2020, more than 1 million households in the Klang Valley – home to Kuala Lumpur and Putrajaya – suffered extended water cuts after illegal chemical dumping debilitated water purification systems. Criminal charges were brought against two directors of the construction equipment company blamed for the 2020 incident under both the Environmental Quality Act (EQA) of 1974 and the Penal Code with the maximum sentences for polluting inland waters (EQA) being five years in jail while the charges for wrongfully diverting water (Penal Code) brought a penalty of 30 years in jail. There are on-again-off-again efforts to reform the EQA and stiffen its penalties, but political will has so far been lacking.[330] The Department of Environment has a water quality index based on five classifications (I-V with I the best quality and V the worst) that reveal the amounts of dissolved chemicals (e.g., ammonia, chemical oxygen, suspended solids, etc.). Data released by the Department in 2017 showed that of the country's 477 rivers, 47% were classified as clean and the rest were slightly polluted (43%) and polluted (10%). Overall, most of the rivers (64%) were in Class II and 31% were in Class III.[331]

Agricultural and industrial discharges into the country's rivers are often seen as local "political" problems because they involve targeting profitable enterprises – often with political links – for enforcement. While addressing this challenge may be thorny and long-term, the country's water boards and people have the ability to change usage and NRW immediately. First, Malaysians consume an average of 201 liters (53 gallons) of water per person per day. While the UN suggests sustainable use is about 165 liters (43.5 gallons) per person per day, the government has sought to help citizens reduce water consumption to 180 liters (47.5 gallons) per person per day by 2025.[332] Second, high rates of NRW are linked to pipe materials, joining methods, installation problems, water conditions, and external environmental conditions. The Eighth Malaysia Plan (2001-2005) introduced numerous strategies and initiatives to curtail loss, including funding for replacing old water meters and enhancing general public infrastructure, and replacing some pipes with more durable ones. Still, as of 2017, the NRW rate was approximately 5.9 billion liters (1.6 billion gallons) per day.[333] By reducing NRW, water utilities decrease costs and increase revenue without having to raise rates. Moreover, in areas already facing water scarcity, cutting NRW can help reduce the amount of usage that customers are expected to cut.

HEALTH

Malaysia is expected to reach its maximum population in about 2070 before the population starts to shrink. However, the past thirty years have seen Malaysians living longer and, thus, the number of Malaysians over 65 years of age is steadily rising. In 2020, there were approximately 2.3 million Malaysians 65 and older, making up 7% of the population.[334] As with other "greying" countries, the burden of chronic disease has risen in Malaysia as its people have lived healthier lives in general but contend with the impacts of aging. The current causes of death in the country bear this out as heart disease, stroke, chronic respiratory conditions, cancers, and diabetes dominate; only respiratory infections and road injuries, among the top ten, are not chronic conditions. Figure 12 shows the top ten causes of death in Malaysia.[335]

Hospital care shows similar trends to causes of mortality in Malaysia with overall hospitalizations falling somewhat year-on-year to 2.4 million admissions in 2020 from 2.8 million in 2019. Despite the COVID-19 pandemic, 2020 hospital admissions were related to common, often chronic, conditions. Pregnancy or childbirth and perinatal conditions take the top two slots in reasons for hospitalization, and together, these admissions account for nearly one-third of all hospitalizations; many of these are routine. Respiratory and circulatory system conditions each account for about 8% of hospitalizations while injuries, poisonings, and other conditions with external causes round out the top five causes of hospitalization.[336]

Health Care System Structure

The Ministry of Health (MOH) is the primary policy body that lays out the broad objectives and formal procedures for the entire health industry. Figure 13 shows the organization chart of Malaysia's Ministry of Health.[337] Income taxation levied on all Malaysian citizens pays for public-sector healthcare, a funding model that allows public providers to require only minimal fees from citizen clients and patients. In addition to the government-led and -funded public healthcare system, there is a large private sector that, in fact, delivers treatment to about

What causes the most deaths?

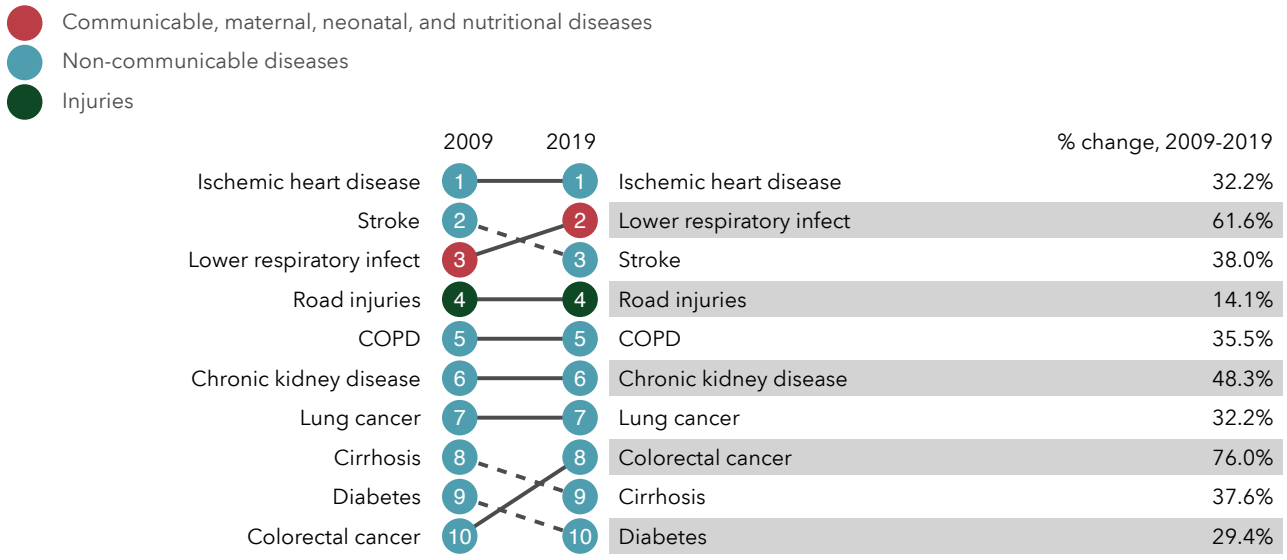


Figure 12: Top Ten Causes of Total Deaths (2019) and Percent Change (2009-2019)

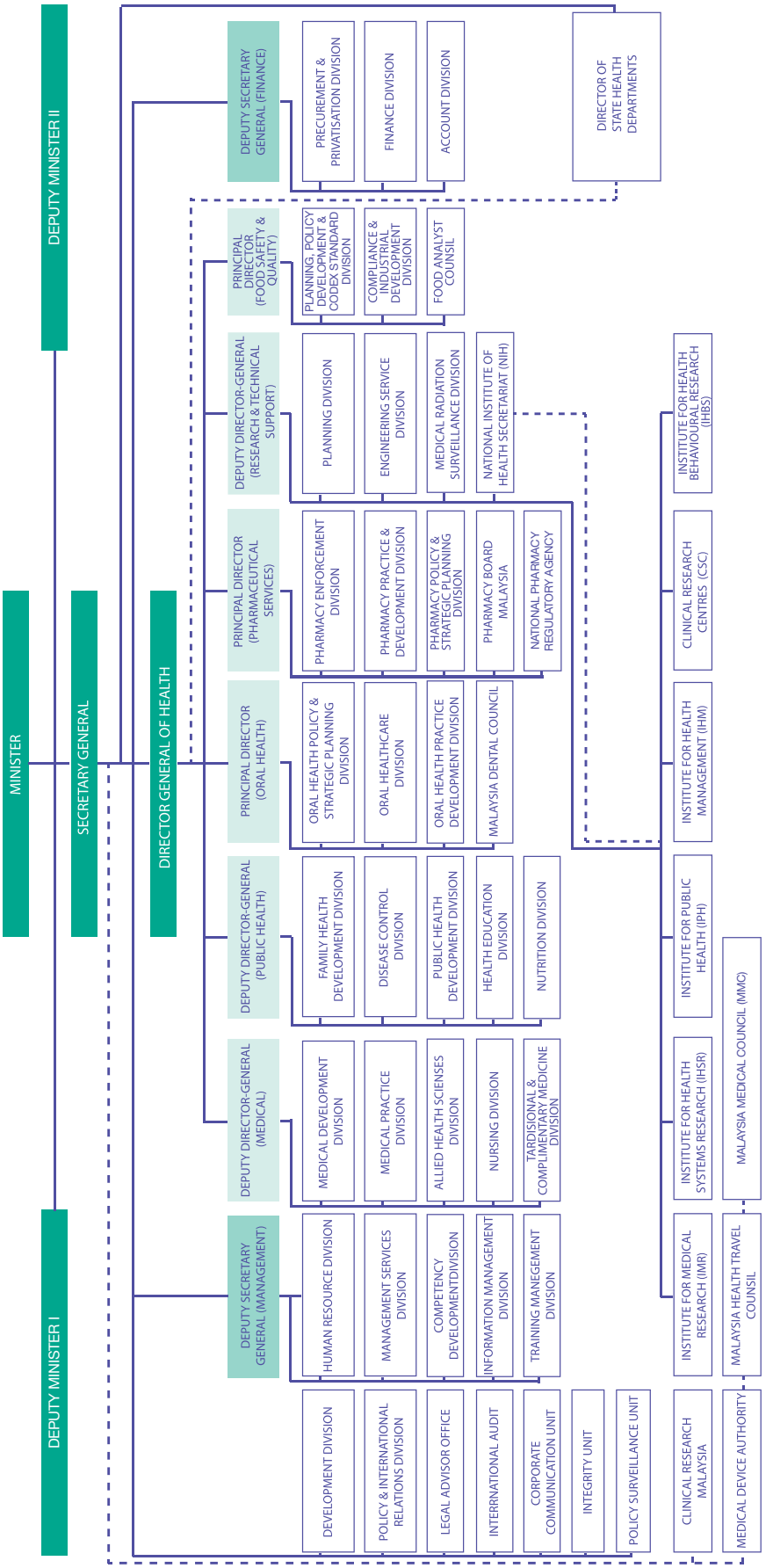


Figure 13: Organizational Chart of the Ministry of Health

65% of Malaysians and employs about 45% of all registered doctors. Doctors must complete three years of service in the public sphere before shifting into the private sector.[338]

Public, MOH doctors and facilities are present in most of the country although remote areas remain underserved. In recent years, doctors working in remote areas have gained access to a tele-health tool, Teleprimary Care, designed to allow them to consult with specialists and other doctors working in bigger hospitals.[339] There are 146 MOH facilities of which 135 are hospitals and 11 are Special Medical Institutions. There are also 1,051 Health Clinics, 1,752 Rural Clinics, and 87 Maternal and Child Health Clinics. As of 2018, the facilities formerly known as 1Malaysia Clinics became Community Clinics (Klinik Komuniti or KKom), and there are 257 KKoms nationwide that provide immediate basic medical services for illnesses and injuries within the community.[340] There are an additional seven MOH mobile bus clinics. The Ministry of Defence (MOD) has five army hospitals while the MOE has five university hospitals. There are 3,892 combined official beds under MOD and MOE hospitals.[341]

Urban residents can choose from public and private hospitals; both are well-staffed and have ultra-modern medical equipment. In many cases, private facilities offer faster service, but there is little difference in quality between public and private services.[342] There are some 200 private hospitals with some 15,000 beds as well as 7,571 registered private clinics, 16 maternity homes, 22 nursing homes, 100 ambulatory care centers, one community mental health center, and various diagnostic and specialist laboratory and care facilities.[343] The MOH's Private Medical Practice Control Section enforces the Private Healthcare Facilities and Services Act 1998, under which private healthcare facilities and services are registered, approved, licensed, and evaluated.[344]

The MOH website retains lists and contact information for all types of public facilities throughout the country, from major hospitals through KKoms at *https://www.moh.gov.my/index.php/pages/view/4374?mid=1499*.

Health Strategies and Surveillance

Healthcare system development is addressed in the country's five-year plans. In the Twelfth Malaysia Plan (12MP; 2021-2025), the government reflected on the outcomes of the Eleventh Plan (2016-2020); it found that the performance of healthcare service delivery was below target as reflected by increased infant mortality rates, a worsening maternal mortality ratio, and the rising incidence of non-communicable diseases (NCD). Among projects completed under the Eleventh Plan were four new hospitals, 77 new clinics, and more than 150 other healthcare facility projects including rural water supply and sanitation services. 12MP lays out expectations for a redesign of the healthcare system in general. Reform is expected to include public healthcare sector transformation, private healthcare sector regulatory reform, and sustainable health financing. The plan sets the following targets: a 1:400 doctor to population ratio, 2.06 hospital beds per 1,000 people, a 2% reduction in the risk of premature mortality, and a 6.3% reduction in the prevalence of smoking.[345]

Malaysia complies with 2005 International Health Regulations (IHR) core capacity requirements and has established monitoring and surveillance activities for detection of influenza and Emerging Infectious Diseases. Most recently, Malaysia spent a year preparing for and participating in a WHO-facilitated Joint External Evaluation that took place in October 2019, and this experience, coming just before the COVID-19 pandemic, meant that the government and health authorities had taken steps to bolster capacity for health emergencies and disaster preparedness. Among these steps was implementation of the Malaysia Strategy for Emerging Diseases and Public Health Emergencies II (MYSED II) Workplan (2017-2021) and establishment of the Crisis Preparedness and Response Centre (CPRC). The national CPRC is MOH's Public Health Emergency Operation Centre (PHEOC), located within the Disease Control Centre. CPRC's

standard operating procedures guide MOH staff for management of crises.[346]

Established in 2007, MOH's CPRC in Putrajaya originally dealt with nationwide communicable disease outbreaks under the Prevention and Control of Infectious Diseases Act 1988, but after 2013 it expanded its scope to encompass an all-hazards approach under National Security Council Directive No. 20 to support its legal mandate to coordinate public health emergency response to disasters at the national level. All of Malaysia's states have a state-level CPRC (or PHEOC) within each state health department. National and state CPRCs operate 24 hours every day throughout the year. Most of the time, the State CPRCs receive public health emergency alerts and notifications from the district level where the District Health Office can staff an Operations Room on an ad hoc basis. All CPRCs use an Incident Management System and Incident Command System when executing public health emergency measures at the field alongside other agencies.

Every year, CPRC conducts simulation exercises with State CPRCs and participates annually in the WHO's IHR Crystal Tabletop Exercise (TTX) conducted by WHO's Manila-based Western Pacific Regional Office (WPRO) and involving all WPRO member-states. In December 2018, CPRC participated in a four-day Geneva-based WHO Global Emergency Operations Centre Exercise on Pandemic Influenza A. Finally, CPRC connects to other national multiagency EOCs, including the NDCC run by NADMA and the Malaysian Command Center run by the Royal Malaysian Police. They coordinate on a regular basis via face-to-face meetings, online meetings, and emails for information sharing and response coordination.[347] The CPRC's place within the MOH and health emergency structures is shown in Figure 14.[348]

In combatting communicable diseases, Malaysia was recognized by the WHO in 2018 as the first country in the Western Pacific Region to eliminate mother-to-child transmission of Human Immunodeficiency Virus (HIV) and syphilis.[349] The country's experiences during past epidemics – e.g., severe acute respiratory syndrome (SARS) in 2002-2003 and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2014 – alongside development and implementation of MYSED, helped shape Malaysia's COVID-19 plans to prevent, prepare, ensure rapid response, and recover. Among other factors was the preparedness of CPRC, which works as the functional center that monitors reports of emergencies nationwide via a robust early warning system, and subsequently coordinates preparedness planning, resource management, and the health sector response.[350]

Various offices within MOH are responsible for monitoring and notification of a slate of diseases. Surveillance of zoonotic diseases falls to the Communicable Disease Control Section. Zoonotic diseases that are notifiable under the Prevention and Control of Infectious Diseases Act 1988 include avian influenza, Ebola, leptospirosis, Nipah, plague, and rabies. Brucellosis and melioidosis are both administratively notifiable diseases. One non-

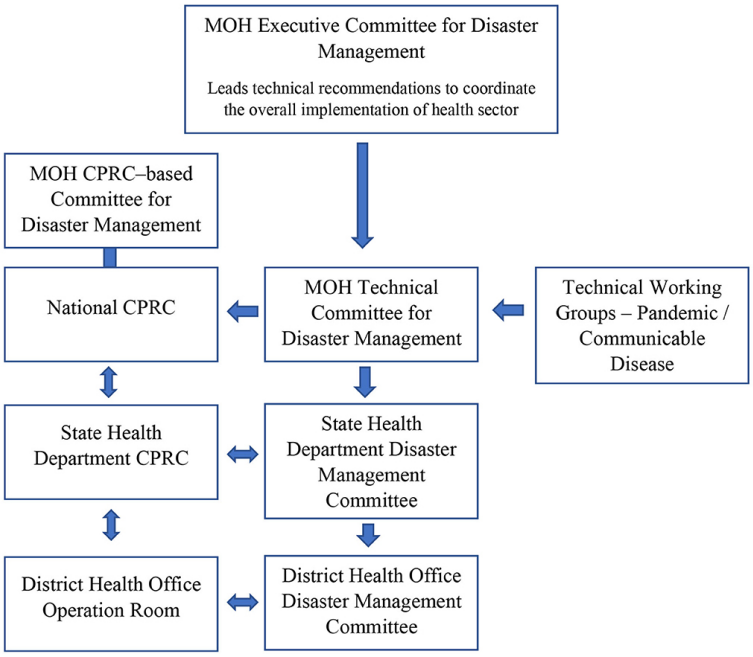


Figure 14: Place of MOH's CPRC in Emergency Operations

notifiable disease also handled by this Section is hand, foot, and mouth disease.

A major challenge to MOH's public health and surveillance programming is the continued existence of very remote settlements of vulnerable ethnic minorities. As part of its public health outreach, MOH has a focus on delivering health services to Orang Asli communities in urban, rural, and remote localities. The goal is four weekly Health Service visits to remote Orang Asli villages by the Orang Asli Mobile Teams. Orang Asli Mobile Teams use 4-wheel-drive vehicles, but there is also a Flying Doctor Service based at Hospital Bahagia Ulu Kinta and the Kinta District Health Office, Perak State. The Flying Doctors provide health services to 10 extremely remote Orang Asli villages, which are difficult to access via land or water. In 2020, a total of 532,889 visits involving Orang Asli patients were reported for various health services offered by MOH Primary Health Care Services.[351]

One of the less visible challenges to public health in Malaysia is health care for transgender individuals. General health services are frequently not accessible to them because of discriminatory treatment by service providers or prohibitive costs. Many transgender persons report experiencing discrimination in the health care sector, including inappropriate comments, refusal of physical examination, and even denial of treatment.[352] When their appearances do not match the gender on their national identity cards,[353] which they do not have a legal option of changing, transgender persons report experiencing discrimination in health care as well as employment, education, and housing.[354] Malaysia has an estimated 30,000 – 40,000 individuals who identify as transgender women, though a lack of research makes it harder to estimate the number of transgender men. Lack of access to appropriate healthcare contributes to transgender individuals facing health disparities, contributing to their high vulnerability to sexually transmitted infections.[355]

Communicable Diseases

Under 12MP, awareness, prevention, and intervention programs focus on COVID-19, HIV, dengue, tuberculosis (TB), rabies, and hepatitis B and C. There is not yet a national immunization registry, but 12MP calls for the founding of one alongside an expansion of the immunization program to include children in private schools, older persons, Orang Asli, and underserved communities in Sabah and Sarawak.[356]

Dengue

Malaysia is an endemic zone for dengue. By mid-2022, the country had reported 20,195 dengue cases for the calendar year to date, an increase of 65.7% compared to 12,188 cases reported during the same period in 2021. During the same six-month period (January-June 2022), 13 deaths due to dengue had been reported, compared to eight deaths during the same period in 2021.[357]

Dengue fever is caused by the dengue virus – a flavivirus with four serotypes; it is one of the most important vector-borne viral diseases in terms of human morbidity and mortality. Already widespread in tropical and subtropical regions, it is observed to be ever more common as the habitat of the vector – female Aedes mosquitoes – expands due to climate change. Dengue occurs from the bite of an infected mosquito, and symptoms tend to emerge 3-14 days after infection. Symptoms include high fever, headache, backache, other pains, vomiting, loose stool, spontaneous bleeding, and rash. The fever may come in two separate episodes or waves, and most patients recover after a few days. However, some patients may come down with dengue hemorrhagic fever, which is an acute onset of fever followed by other symptoms, or Dengue Shock Syndrome, which sees severe hypotension develop, requiring urgent medical treatment. With timely therapy, the mortality rate is 1% or less. There is no specific treatment, but rest, hydration, and over-the-counter painkillers (e.g., Paracetamol / acetaminophen or Ibuprofen) can help relieve symptoms.[358]

To control dengue, Malaysia uses the Wolbachia program by which Wolbachia

bacteria, which help reduce transmission of Zika, dengue, chikungunya, and yellow fever from mosquitos to humans, are introduced into the Aedes aegypti mosquito population so that, over time, mosquitoes carrying Wolbachia outcompete those not carrying it.[359] In addition, the country has two databases for dengue: the e-Dengue database for registered cases, and the e-Notifikasi database for notified cases. The e-Dengue database has latitude and longitude information, obtained manually, for each registered dengue case.[360]

Hepatitis

Viral hepatitis debilitates those carrying the disease as it causes fibrosis, cirrhosis, and liver cancer. Liver cancer is the eighth most common cancer in Malaysia and the fifth most common cancer among Malaysian males. While the country continues to struggle with Hepatitis A, which is foodborne and causes acute disease, Hepatitis B and C (HBV and HCV) viruses are of greater public health concern as they are spread through sex, exposure to contaminated blood, and mother-to-child transmission. Most individuals infected with HBV or HCV are unaware that they have the disease and remain undiagnosed until late stages. HBV and HCV infections can be prevented through provision of safe blood transfusions and sterile injecting equipment and sharps, and HBV vaccination. Effective treatments are available to suppress HBV replication and cure HCV infection, but the costs can be substantial.[361]

Malaysia was among the 194 countries to commit to ending viral hepatitis transmission by 2030. As of 2017, an estimated 1 million people in Malaysia were chronically infected with HBV. In 1989, the country introduced nationwide universal HBV vaccination of all newborns, and nationwide coverage tops 96%. However, notification of new cases reveals somewhat mixed results as there have been consistently low rates of infection among people born after 1989 alongside a high disease burden among those born before 1989, and the burden could increase as people live longer despite infection with the disease.[362]

HCV infection is a growing problem as routine screening uncovers ever more cases with an estimated 450,000 Malaysians living with the virus as of 2019.[363] An estimate of the prevalence of HCV suggests that about 2.5% of the adult population are HCV positive with some 60% having contracted the disease through injection drug use. There are concerns the HCV disease burden in Malaysia could rise steeply over the coming decades with a cumulative total of 63,900 HCV-related deaths by 2039.[364]

HIV

The first reported cases of human immunodeficiency virus / acquired immunodeficiency syndrome (HIV/AIDS) in Malaysia date to 1986.[365] As of 2020, there were 92,000 people living with HIV in Malaysia, and anti-retroviral treatment had reached about 47,000 or 51% of HIV-positive people.[366] Malaysia has reduced the annual number of new HIV infections since its peak in 2002 via its Harm Reduction Program. However, from 2010 to 2020, the trend plateaued to about a 0.9% decline in the annual number of new HIV infections. As of 2019, the MOH estimated that 0.4% of people living with HIV were children younger than 15 years of age while an overwhelming 70% of new infections were among people 20-39 years of age. The overall epidemic is concentrated in the urbanized states of Selangor, Kuala Lumpur, and Johor, which, taken together, are home to more than 50% of HIV cases.[367]

The epidemic is concentrated among injecting drug users, sex workers, the transgender community, and men who have sex with men.[368] Between 2010 and 2020, the country observed a change in the HIV epidemic landscape with fewer infections among injecting drug users and more sexual transmission. The proportion of sexually transmitted cases increased to more than 90% in 2019. The National Strategic Plan For Ending AIDS (2016-2030) is the overarching guide for government spending and programming. Some 70% of program funding

has gone to testing and treatment. However, the Harm Reduction Program is the key outreach program; it consists of the Needle and Syringe Exchange Program and Opioid Substitution Therapy, both targeting injection drug users. The Opioid Substitution Program has been offered at selected government and private health facilities since 2006 while the Needle Exchange Program is implemented through a partnership with NGOs at outreach points throughout the country. Since its introduction, the Needle Exchange Program has ensured safe injecting practices are used by 80% of the injecting population.[369]

Leprosy

Leprosy - also known as Hansen's disease – is endemic in Malaysia, but the incidence is low. The country has had a National Leprosy Control Programme (NLCP) since 1969, and in the first 20 years of the NLCP, there was a 63% decline in the number of patients around the country. As of 1994, Malaysia officially reached "elimination" status wherein it reported 0.9 cases per 10,000 population. However, there remains the struggle to halt discrimination against leprosy patients, and, as of 2020, the MOH reported that many affected people in Orang Asli and remote communities opt to live in isolation, self-stigmatize due to disfigurement, and remove affected children from schools to avoid a whole family being the target of discrimination.[370]

Leprosy is a slowly progressing bacterial infection caused by Mycobacterium leprae that affects the skin, nerves in the arm and leg, and other organs such as nose and eyes. The mode of spread remains uncertain but is thought to be respiratory droplets from an infected person to another person. Environmental factors such as unhygienic and crowded living conditions contribute. Malnutrition and a weak immune system also favor infection. The incubation period is very long (up to 40 years). There are two types of leprosy; Paucibacillary is characterized by one or a few red or white patches with no itchiness or pain, and rough and dry affected skin with no sweat and no hair growth while Multibacillary is characterized by multiple red patches all over the body, early skin patches on the ears and face, and, when untreated, deformity.

By early diagnosis and appropriate treatment, leprosy can be controlled. Prevention consists of avoiding close physical contact with untreated people. People who are in immediate contact with a patient should be tested for leprosy. Annual examinations should also be conducted on these people for a period of five years following their last contact with an infectious patient. Leprosy is curable, and treatment in the early stages averts disability. WHO recommends multidrug therapy, which consists of three drugs: dapsone, rifampicin, and clofazimine. This combination kills the pathogen and cures the patient. Upon completion of treatment, annual follow-up can last 5-15 years.[371]

Leptospirosis

Leptospirosis incidence remains high with 2,914 cases reported at an incidence rate of 8.63 per 100,000 population in 2020, during which year there were 38 deaths with a mortality rate of 0.1 per 100,000 populations, and there were eight reported leptospirosis outbreaks, 50% of them within households.[372]

Leptospirosis is a severe and contagious bacterial infection caused by several species of the genus Leptospira, a spiral-shaped microorganism (spirochete). It is caused by exposure to the bacteria, which can be found in fresh water contaminated by animal urine. Risk is associated with outdoor work (e.g., farming, abattoir work, trapping, veterinary medicine, logging, sewer work, and military service), recreational activities (e.g., swimming, canoeing, kayaking, and trail biking), and household exposure linked to pet dogs, domesticated livestock, rainwater catchment systems, and infestation by infected rodents. To avoid infection, avoid areas of stagnant water.

The incubation period ranges 2-26 days, and symptoms include an abrupt onset of fever, rigors, myalgias, and headache, dry cough, nausea, vomiting, and diarrhea with

less common symptoms such as joint aches, bone pain, sore throat, abdominal pain, conjunctivitis, muscle tenderness, enlarged spleen or liver, enlarged lymph glands, sore throat, muscle rigidity, abnormal lung sounds, or skin rash. It can be treated with penicillin, tetracycline, doxycycline, chloramphenicol, and erythromycin.[373]

Malaria

Malaysia committed to eliminate indigenous human malaria transmission by 2020, and since 2018, it has seen zero incidence of human malaria (local transmission).[374] In 2017, the country reported a total of 508 cases (local and imported), down substantially from 6,141 cases in 2010. An important aspect of the disease in the country is the presence of Plasmodium (P.) knowlesi malaria, a parasite normally found in monkeys and which accounts for the majority of local cases. P. knowlesi remains a zoonotic disease without documented sustained human-to-human transmission. Overall, malaria transmission in Malaysia is largely confined to Sabah and Sarawak.[375]

Malaria is a disease caused by plasmodium parasite which is transmitted through the bite of infected Anopheles mosquitoes. Once the parasites enter the human body, they travel through the bloodstream to the liver. In the liver they mature and then re-enter the bloodstream and infect red blood cells and multiply inside them. Within 48 to 72 hours of becoming infected, the red blood cells rupture, releasing more parasites, which in turn infect more red blood cells. Malaria causes sequential chills, fever, and sweating, as well as headache, fatigue, muscle pain, nausea, anemia, jaundice, convulsions, and coma. Left untreated, it can lead to liver and kidney failure, hemolytic anemia, meningitis, and rupture of the spleen and subsequent massive hemorrhage.

In most cases, malaria is treatable. Antimalarial drugs are readily available at hospitals and clinics. Drugs used include chloroquine, quinine and primaquine. The drug regime used for treatment depends on factors such as age, where the malaria was acquired (as the malarial parasite from certain areas may be resistant to common ant-malarial drugs), and drug allergies.

There is no effective vaccination against malaria, but antimalarial drugs may be given prophylactically to persons travelling to areas where the disease is widespread. Other preventive measures are concentrated on destroying the mosquito by filling in swamps and other places containing stagnant water where mosquitoes breed, and by use of insecticides and natural biologic predators of mosquitoes. Avoid mosquito bites by wearing protective clothing over the arms and legs, using screens on windows, and using insect repellent.[376]

Measles

Measles is a vaccine-preventable viral disease, characterized by fever, cough, runny nose, conjunctivitis, and Koplik spots (white lesions clustered in the mucosal membranes) followed by rash. Measles is transmitted via respiratory droplets and by small, suspended aerosol particles. The incubation period is generally 10-14 days, and the host is most infectious from four days before onset of the rash to four days after its appearance. The virus is highly infectious. Malaysia started its Measles Elimination Program in 2004 with a target of elimination by 2010, and measles-containing vaccines have been in the national immunization schedule since 1982. Despite coverage of more than 96% of the population vaccinated, the incident rate of infection increased from 6.1 per million population in 2013 to 52.1 per million population in 2017. According to MOH, the number of measles cases in Malaysia increased exponentially from 2013, hitting 1,934 cases in 2018, with more than 130 clusters of cases, and the country pushed back the target date for eradication to 2025.[377]

Polio

Polio, or poliomyelitis, is a disabling and life-threatening disease. Poliovirus spreads from person to person and can infect a person's

spinal cord. Most people (about 72%) who get infected will not have any visible symptoms. About 25% will have flu-like symptoms that may include sore throat, fever, fatigue, nausea, headache, and stomach pain. Symptoms usually last 2-5 days before resolving on their own. A small proportion of people (1-5 of 1,000) with poliovirus infection will develop more serious symptoms such as paresthesia (feeling of pins and needles in the legs), meningitis (infection of the covering of the spinal cord and/or brain), paralysis, or weakness in the arms, legs, or both. Paralysis can lead to permanent disability and death. Even children who seem to fully recover can develop new muscle pain, weakness, or paralysis as adults, 15-40 years later in what is known as post-polio syndrome.

In December of 2019, polio was detected in Malaysia for the first time in 27 years. Over 18 months later, in September 2021, after the implementation of a successful public health response and polio vaccination campaign, the Government declared the polio outbreak to be over. The outbreak was first confirmed as vaccine-derived in Sabah State and Labuan, and MOH launched a mass immunization campaign, targeting children under 13 years of age, even those who had received inactivated polio vaccine according to the national immunization schedule. The oral vaccine used in this effort by MOH included 2.5 million doses delivered by WHO and managed by UNICEF; the effort was implemented by Sabah and Labuan state-level authorities alongside health workers, NGOs, and community volunteers.[378]

Tuberculosis

Malaysia is a country in the "intermediate" band of countries with an elevated TB burden. It registers 20,000-25,000 new cases every year, and six people die every day from the disease.[379] In 2019, Malaysia's TB incidence rate was 92 per 100,000 population, and the TB mortality rate was estimated at 4/100,000 population per year.[380] A reported 20-30% of Malaysia's TB cases are located in the state of Sabah,[381] which registers 128 cases per 100,000 population and a case fatality rate of 8%.[382]

TB is a bacterial infection. It is airborne and usually attacks the lungs. It can also affect other parts of the body such as brain, bones, lymph nodes, kidneys, and skin. The bacteria are spread through the air in tiny droplets discharged in a cough by a person suffering from active (infectious) pulmonary TB. The disease usually presents with a cough lasting for two weeks or more, blood in sputum, fever with sweating in the evening or at night, loss of weight or appetite, chest pain, and fatigue.

Diagnosis and treatment are available at government health clinics and hospitals throughout Malaysia. TB is curable. Treatment uses the Directly Observed Treatment Short-course strategy recommended by WHO. It emphasizes that patients should take medication for six months. Treatment consists initially of two months of daily treatment with four types of antibiotics, followed by daily maintenance treatment for four months with two types of antibiotics.[383]

Coronavirus Disease-2019 (COVID-19)

Malaysia reported its first confirmed case of COVID-19 on 25 January 2020, days before the WHO declared the outbreak a public health emergency of international concern. The country had activated MOH's CPRC on 5 January, and the government adapted the National Influenza Pandemic Preparedness Plan, developed in 2006, to inform a comprehensive response.[384] In an immediate attempt to curtail transmission, Malaysia closed its borders and allowed only Malaysians to enter, and even these returning citizens faced a mandatory 14-day quarantine. The country enforced the "Search, Test, Isolate, Treat, and Quarantine" strategy to uncover suspected cases and to ensure that all individuals who test positive would be hospitalized for a minimum of 14 days; this applied even to those who were asymptomatic. Quarantine centers were established in different parts of the country with NADMA monitoring the facilities.

From mid-March, Malaysia faced difficulties

combating the spread of the disease with 5,305 cases and 88 deaths reported by late April.[385] The government issued a Movement Control Order (MCO) on 18 March. The MCO consisted of six distinct phases and six critical measures. There were four individual and gradual transitions within the MCO, followed by a Conditional MCO and the Recovery MCO; all phases applied nationwide.[386] Each phase of the MCO entailed details for schools, churches, and businesses as well as what body would enforce the order:

- 18 March-4 May 2020 – MCO (second wave of infections impacts the whole country) – police and army enforce full movement restrictions, schools closed, no mass gatherings, only essential business may operate
- 5 May-9 June 2020 – Conditional MCO – 14-agency Compliance Operations Task Force enforces restrictions, including no inter-state travel without permission, schools closed, and only family gatherings permitted, businesses allowed to open if they observed public health measures
- 10 June-31 August 2020 – Recovery MCO (local transmission controlled) – no restrictions on movement within the country, Compliance Operations Task Force enforces limits on social and religious gatherings, schools re-opened in stages, and businesses could operate if they followed public health measures[387]

By the time the MCO had been in effect for about two months, the number of confirmed cases nationally had risen only to 7,009 with 114 deaths.[388] And the steadily low daily case counts saw the country end the MCO in late August. However, in October 2020, case counts began rising dramatically, and they peaked at nearly 6,000 cases daily in late January-early February 2021. A short respite prevailed into April, but cases rose even more swiftly over the summer of 2021, topping 20,000 daily cases for several days in late August. Although there would be another trough in the winter of 2021-2022, cases rose swiftly again in February 2022 and topped 30,000 each day for several days in late April before dropping swiftly again. As of late July 2022, there were indications of another wave although the amplitude of it could not be predicted at the time of publication.

The country's vaccination roll-out was swift and effective with shots going into arms at a rate nearing 600,000 a day at the program's peak in July and August 2021, and deaths from waves that came after this campaign were well below where they were in mid-2021. Indeed, whereas deaths per day peaked in August 2021 at about 400, the April 2022 case peak never saw more than 100 deaths in any given day.[389] From 3 January 2020 through 28 September 2022, there were 4,834,560 confirmed cases of COVID-19 with 36,363 deaths. As of 18 September 2022, 72,105,683 doses of vaccine had been administered. Figure 15 shows Malaysia's overall experience of cases and deaths, as reported to WHO.[390]

Malaysia's key responses were whole-of-government and whole-of-society with assurances of access to services and supports, quarantine and isolation systems, and legislation and enforcement. Although NADMA was initially the main coordinator, the National Security Council took over as the top-level coordinating body as of the second wave of infections. Throughout, the MOH played the role of advisor to both NADMA and the National Security Council, which led national surveillance, delivery of medical services, and management of related physical and digital infrastructure, and collaborated with other countries, NGOs, the private sector, and the public. CPRC coordinated case detection, contract tracing, and monitoring.[391]

From April 2020 onward, federal and state governments developed various mobile phone apps (via inter-ministerial or public-private partnerships) to work directly with the public to perform contract tracing, provide updates and advisories, guide self-check assessments, and to support clinic scheduling. However, the proliferation of various platforms meant there was no shared database or common slate of

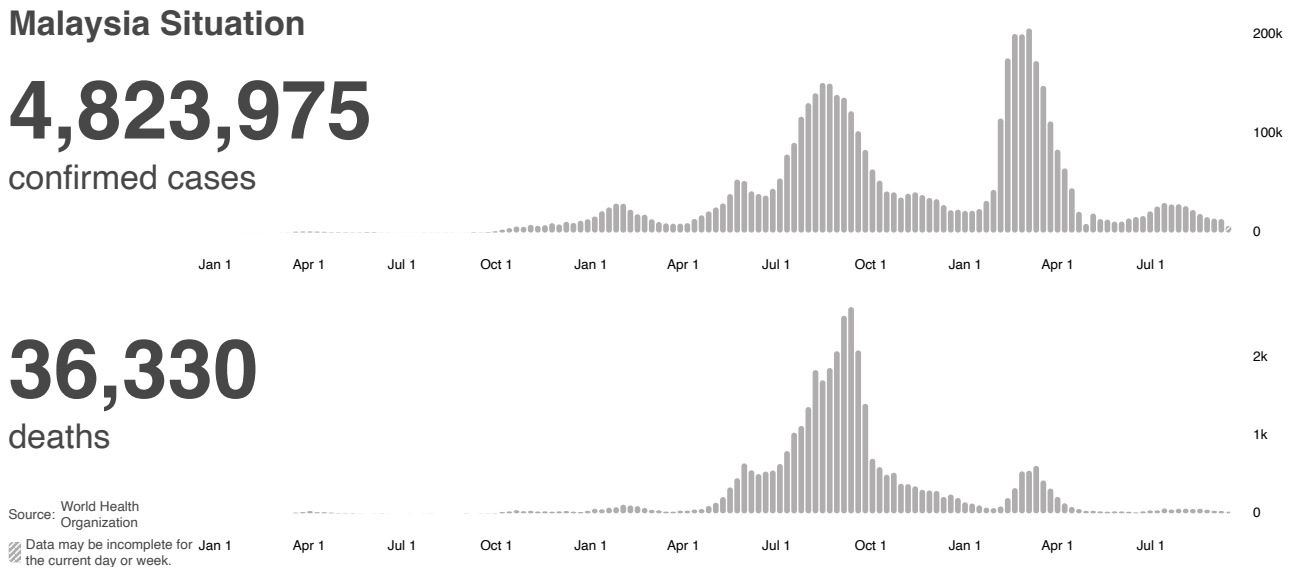


Figure 15: Malaysia's COVID-19 Statistics, as Reported to WHO

functions. Eventually, after August 2020, several states dropped their apps and helped residents use those of neighboring states with which they could establish shared databases.[392]

In addition to the technical and political aspects of the pandemic, the Malaysian government went to great lengths to ensure a comprehensive approach to communications and community engagement, working to provide transparency regarding the COVID-19 situation. Authorities established and promoted trusted sources of information very early on to offset the risk of an "infodemic." In addition, the government developed mass media campaigns, conducted media monitoring and research on public insights and opinion, strengthened coordination with UN agencies and partners, and gave continuous briefings to diplomatic missions. Social media platforms and mobile applications became a powerful channel for outreach when paired with creative content and strategic messaging to reach the culturally diverse community. The National Security Council sent mass daily SMS messages to all telephone numbers registered in Malaysia to provide updates on policies and regulations. The National Security Council also developed a Telegram presence to allow for rapid access to breaking news and information via that instant messaging platform. Materials were often translated into multiple languages, covering Malay, Burmese, Rohingya, Somali, Tamil, Tedim, and Urdu.[393] MOH also met directly with religious leaders to update them and provide advice while also listening to their recommendations before publishing certain SOPs (e.g., for handling bodies of the deceased).[394]

MCMC played a significant role in support of MOH and the National Security Council. It dealt with matters involving SOP formation as well as the prevention of the spreading of false information, and it cooperated with the Royal Malaysian Police in the production of the Gerak Malaysia app, tracking detailed movement records as well as enabling Police to manage state cross-border travel permits. Gerak Malaysia was terminated in July 2020 as the end of the MCO neared. MCMC then helped mobilize the MySejahtera app, developed in collaboration with National Security Council, MOH, Malaysian Administrative Modernisation and Management Planning Unit, and the Ministry of Science, Technology, and Innovation. The app facilitated self-health assessments, sharing information on COVID-19 and risk areas, self-registrations before entering public premises, and registering for the COVID-19 vaccination program.[395]

Non-Communicable Diseases

Demographic and behavioral shifts, including rapid urbanization, aging, low health literacy, and lifestyles that increasingly promote obesity, have contributed to a steady increase in the prevalence of NCDs in Malaysia. The incidence of cardiovascular diseases, diabetes mellitus, cancer, mental illness, and injury-related conditions continues to rise, contributing to nearly three-quarters of total deaths. In addition, under-nutrition among children under 5 years of age remains a problem, and the stunting prevalence increased from 17.7% in 2015 to 21.8% in 2019. Meanwhile, the prevalence of obesity among adults showed an increasing trend from 17.7% in 2015 to 19.7% in 2019.[396]

MOH's Infection Control Division has overall responsibility for policies and programs to address the prevalence of NCDs. The three most important NCDs in terms of morbidity and mortality are cardio-vascular disease, diabetes, and cancers, together estimated to have cost the Malaysian economy RM12.88 billion (US$2.9 billion) in terms of productivity loss due to lost workdays or premature deaths in persons of working age. As of 2020, there were almost 1.7 million diabetes patients registered in the National Diabetes Registry.

The Komuniti Sihat Pembina Negara (KOSPEN) is the country's community-based NCD intervention program; it trains volunteers to carry out advocacy and health promotional activities, community screenings, and community-level health intervention activities. KOSPEN focuses on healthy diet, active lifestyle, smoking cessation and abstention, healthy mind, alcohol harm reduction, screening of NCD risk factors, and body weight management. KOSPEN volunteers promote specific, small-scale interventions like tracking 10,000 steps, banishing smoking from within homes, and hanging "no smoking" signs in public areas.[397]

There is a robust monitoring system for NCD surveillance for indicators that are monitored by the WHO NCD Global Monitoring Framework. However, Malaysia still lacks data for surveillance of health system indicators. For data on premature mortality due to NCDs, the country relies on national vital statistics data collected and managed by the Department of Statistics, Malaysia (DOSM), but even this national source has gaps. Due to the absence of a coroner-based system, almost 50% of all deaths in the country are not medically certified. To improve DOSM data, the government has introduced the Verbal Autopsy initiative to increase the proportion of deaths with medically certified causes alongside a mechanism to facilitate data sharing and collaboration among local officials, DOSM, and MOH. In addition to improving data collection and monitoring, the National Health and Morbidity Survey for NCD risk factors runs a population-based cross-sectional survey every four years to monitor NCD risk factors among the adult population. Finally, to ensure health system capacity and response, all healthcare facilities are equipped with essential technologies and first-line medications, and immunizations and routine cancer screenings are logged in a web-based reporting system. However, Malaysia does not routinely collect data on access to palliative care.[398]

The National Strategic Plan for Mental Health 2020-2025 was formulated to close gaps in addressing the burden of mental health. As part of a systematic approach, screening within primary health clinics has been rolled out nationwide. To specifically address the mental health aspects of the COVID-19 pandemic, MOH produced mental health promotional videos for social media. Moreover, at the start of the pandemic, MOH's Mental Health and Psychosocial Support Services provided screening, psychosocial support helplines, pre- and post-deployment briefings, webinar sessions, online forum discussions, media broadcasts, and interviews to ensure general public awareness of the mental health aspects of the crisis.[399]

Training for Health Professionals

There are 36 public and private universities training medical doctors with degree programs leading to either a Bachelor of Medicine and Bachelor of Surgery (MBBS) or a Doctorate in Medicine; in addition, there more than 50 institutions providing nursing educations and 11 educating medical assistants.[400] The Malaysian Medical Council oversees the setting and maintenance of standards of medical ethics, education, and practice for the medical professions.[401]

Registered nurses are the largest group of health professionals, numbering about 131,000 in 2019. There were also 67,500 doctors licensed in the country in 2019.[402] There are more doctors working in the public than in the private sector (ratio of 3:1), but less than 10% of public sector doctors work in primary healthcare. Family Medicine specialists are few despite the MOH goal of expanding primary healthcare.[403] For example, as of December 2021, there were 924 Family Medicine specialists in the country, including 625 in 397 (of more than 1,000) MOH clinics.[404] Of note, a majority of healthcare providers are female, apart from assistant medical officers (16% female) and overall specialists. Nurses are almost all female, while more than 70% of pharmacists, 69% of dentists, and 53% of doctors are female. Among specialists, Family Medicine recorded the highest number of females (72%) followed by Public Health Medicine (59%).[405]

Nurses graduate with a three-year diploma or a four-year degree, as offered by 16 MOH colleges and 50 private colleges, all accredited by the Ministry of Higher Education and approved by the Nursing Board. Community nurses undertake a two-year certificate course. Assistant medical officers are similar to physician assistants or nurse practitioners. The three-year diploma is offered in five MOH training colleges and six private colleges. Their basic diagnostic and curative skills enable them to assist doctors, initiate care plans for minor ailments and emergency care, and carry out simple procedures. In rural areas with no resident doctors, assistant medical officers provide basic primary care for the population. In hospitals and urban clinics, they assist doctors by triaging cases and by carrying out basic procedures.[406]

Malaysia has long been known for having a high number of foreign-trained medical professionals, but between 2010 and 2018, local universities expanded the number of places they offered for medical training. Consequently, the number of locally trained doctors and nurses has grown, but as of 2018, about 35% of graduates were still trained overseas with the largest numbers having been trained in Egypt, Russia, and Indonesia with 200-400 doctors having had training in each of these countries.[407]

MOH offers various types of training to ensure a ready supply of appropriately trained personnel within the service pipeline. Pre-service training covers 11 programs, including nursing, medical assistant, pharmacy, radiography, environmental health, laboratory technology, occupational therapy, physiotherapy, dental nursing, dental technology, dental surgery assistant, and public health. Advanced diplomas and specialized courses are available to both MOH personnel and the staff of other government agencies or private health institutions; the most frequently taken of these courses are midwifery and emergency care although the specialist courses also range from orthopedic nursing through HIV/AIDS counselling to health law.

In addition to in-house career training, MOH provides scholarships and time for mid-career professionals to undertake graduate studies. Common master's and doctoral degree subjects include anesthesiology, public health, and oncology.

The House Officer program is a two-year training program to produce medical practitioners who are safe and competent before they are eligible for full licensure. As of 2020, there were 50 hospitals accredited to provide House Officer training; they include 46 MOH hospitals, 3 university hospitals, and 1 military hospital have a total of 12,153 training slots.[408]

WOMEN, PEACE, AND SECURITY

United Nations Security Council Resolution (UNSCR) 1325 was adopted in October 2000; it affirms the important role women play in the prevention and resolution of conflicts, peace negotiations, peacebuilding, peacekeeping, and humanitarian response, as well as in post-conflict reconstruction, maintenance, and promotion of peace and security in their countries and communities. In the intervening 22 years, the Security Council has adopted additional resolutions addressing the intersecting issues of gender and security, including the need to stop gender-based violence and to promote women's roles in conflict resolution, recovery, and peacebuilding. These UNSCRs comprise the Women, Peace, and Security (WPS) agenda: 1325 (2000); 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019).[409] The WPS agenda has broadened to include applying a gendered perspective to disaster management and humanitarian aid for more equitable participation, which will not only address humanitarian needs but also benefit society as a whole.

In its own 2021 release of Statistics on Women Empowerment in Selected Domains, DOSM reported that overall gender equality had improved to 71.4. The Malaysia Gender Gap Index identifies the gap between women and men across four sub-indices – i.e., Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment. A score with a value of 1.0 (100%) indicates equality of women and men while a 0.0 (0%) shows complete inequality. Women's achievement has surpassed men in Educational Attainment with a score of 1.059.[410] UN Women concurs in its assessment of female educational participation and achievement in Malaysia; it reports that female literacy rates edge out male literacy rates 94.9% to 93.5% while only 4.1% of school-age girls are out of school compared to 5.5% of boys the same age.[411] Health and Survival results also reveal relative equality with a score of 0.956,[412] and UN Women findings support this finding. Some 16% of Malaysian adult women experience severe food insecurity compared to 20.1% of adult men[413] while at birth, Malaysian females can be expected to live more than 3 years longer than Malaysian males.[414]

Scores for economic achievement and political inclusion are significantly lower than the other two indices. Economic Participation and Opportunity (score 0.738) is impacted by a labor force participation rate wherein only 55.3% of women are in the formal sector[415] and women spend nearly 20% of their time on unpaid domestic chores or family care work compared to men spending 6% of their time on such tasks.[416] Meanwhile, Political Empowerment recorded the lowest score at 0.100; not only do women lag behind men in holding top government (ministerial) and legislative positions,[417] but fewer than 15% of seats in the national parliament are held by women.[418] Figure 16 shows Malaysia's own assessment of its gender gap with scores from 2018, 2019, and 2020 shown as mostly consistent.[419]

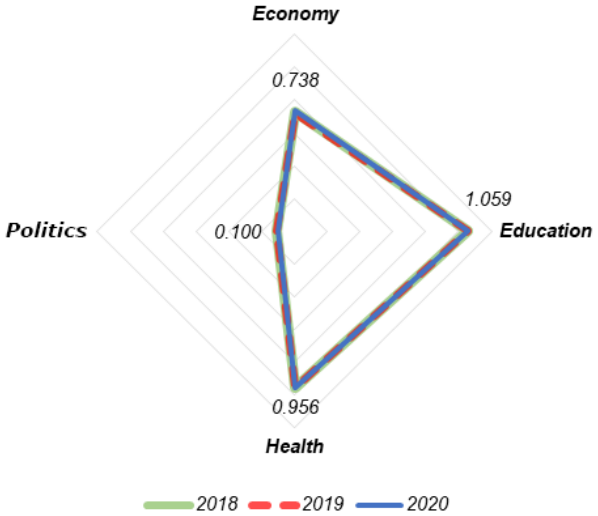


Figure 16: Malaysia's Gender Gap Index (2018-2020)

Malaysia's internal scores are a close match for those delivered by the World Economic Forum's 2022 Global Gender Gap Report. This Report shows a cumulative score of 0.681 (on the same style scale as Malaysia's Gender Gap report), netting Malaysia a rank of 103rd of 146 countries scored. Echoing Malaysia's own statistics, the World Economic Forum scores female Malaysians' Educational Attainment at 0.995 and Health and Survival at 0.972 whereas Economic Participation and Opportunity stand at 0.656 and Political Empowerment sits at 0.102. In areas like primary, secondary, and tertiary school enrollment, Malaysia nets a 1.000 score, earning it a shared 1st place in the world in these measures. In contrast, its 0.331 score for having less than 50% of senior official and management positions filled by women earns it a rank of 106th in the world, and its already cited low numbers of female ministers and legislators earns it the rank of 123rd of 146 countries.[420]

The most glaring point of inequality remains political participation with Malaysian women severely underrepresented in Parliament and the Cabinet. In part, the very low participation rate is chalked up to a very small pool of women candidates during national elections and a subsequently low number of federal seats won. In more than 60 years since independence, Malaysia has had only 18 female cabinet ministers out of 477 ministers (4%) and 32 female deputy ministers (6.6%). The country has never had a female head of government,[421] and the post of King (chief of state) is filled from among the country's nine hereditary sultans, all of whom must be male.[422] The judiciary is one bright spot as eight female judges and six male judges made up the Federal Court, the highest court as of January 2021. The Court of Appeal, the second highest court, had eight female judges and 18 male judges. In 2019, Tun Tengku Maimun Tuan Mat made history when she was appointed the first female Chief Justice of Malaysia.[423]

Malaysia ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1995 and submitted reports on progress to implementing this framework in 2004 and 2018. It has not submitted a national action plan on protection of women in armed conflict that would bring the country into line with UNSCR 1325. Various women's rights NGOs have raised issues related to discrimination under Islamic law, the lack of conveyance of citizenship to foreign husbands of Malaysian women, and inadequate laws on marital and intimate partner assault. Based on its endorsement of the Beijing Declaration in 1995, Malaysia has pledged to work on female labor force participation and increase support for single mothers.

A Gender Equality Bill was developed in 2017 by the Ministry of Women with the cooperation of UNDP Malaysia. The Bill was initiated partially in response to the country's commitments under CEDAW and it aimed to prohibit discrimination based on gender as well as establish equality commissions and tribunals. However, progress stalled in 2020[424] and, by December 2021, the bill was back in draft status with one Member of Parliament suggesting that there was hope of a bill reaching the legislature by 2023. A law that has fared better in drafting and passage is the Anti-Sexual Harassment Bill, passed in latter 2021.[425] The Domestic Violence Act (Act 521, 1994) was amended in 2012, but marital rape is still not criminalized in Malaysia. Victims of domestic abuse face barriers in going to the authorities; these barriers include social stigma, possible retaliation, and institutional apathy. Official figures on domestic violence are believed to represent only a small fraction of total cases of abuse. Nonetheless, the total number of gender-based violence cases rose by 83% between 2010 and 2020, with domestic violence complaints being the highest number of gender-based violence offences. In the same period, the number of rape cases declined by 53%, and the number of domestic worker abuse cases declined by 64%, although underreporting remains a problem.

Stress related to the COVID-19 pandemic led to a dramatic increase in reports of domestic violence. Prior to lockdowns, calls to a crisis hotline maintained by the Social Welfare

Department averaged slightly fewer than six domestic violence calls per day. Volumes spiked to an average of 26.4 in the fourth week of April 2020 and remained elevated through May. Although there was a decrease from June 2020 onwards following the lifting of the most stringent MCO restrictions, the average daily domestic-violence related call volume remained higher than pre-lockdown. The increase was corroborated by a 70% jump in help-seeking Internet searches as found by a UN Women study, and an increase in women reaching out to the local NGO, Women's Aid Organisation, to report gender-based violence and domestic abuse.[426]

Civil society actors have increasingly advocated for WPS programs to include an awareness of sexual orientations and gender identities, including lesbian, gay, bisexual, transgender, and queer (LGBTQ) women.[427] Malaysia's federal penal code punishes oral and anal sex with up to 20 years in prison, with mandatory whipping.[428] States also may apply Islamic law codes that typically criminalize same-sex activity and gender nonconformity.[429] Human Rights Watch personnel describe statutes that criminalize LGBTQ people as "out of bounds with regard to international law."[430]

In its own index, the Georgetown Institute for Women, Peace, and Security WPS Index ranks Malaysia 103rd of 170 countries. With a total index score of 0.702 (where 1.000 is total equality and 0.000 is complete inequality), Malaysia ranks slightly below the East Asia and Pacific regional average of 0.730; there are 18 other countries in this grouping, including heavyweights such as Japan and Singapore as well as troubled states like Timor-Leste and Myanmar. The WPS Index notes the following measurements:

- 10.3 years of schooling on average for Malaysian women
- 53.8% of women participating in the labor force
- 83.5% of Malaysian women having a mobile phone
- 82.5% of Malaysian women having a bank account
- 14.6% of seats in the federal parliament held by women
- 20% of men (ages 15 years or older) disagreed with the acceptability of a woman in their families having a paid job outside the home
- 0 deaths of women related to organized conflict
- 49.1% of women perceive their communities as safe
- 13.1% of women report intimate partner violence.[431]

In March 2022, the director-general of Malaysia's armed forces defense training section, Brigadier-General Fadzillah Abdullah spoke on WPS alongside the Defence Services Asia 2022 and National Security Conference Asia 2022 held in Malaysia. She said that to overcome shortfalls in local and international inclusion of women "we must address the social, cultural, political obstacles, and protection risks that restrict women's full involvement in reaching and sustaining peace." She pointed to the ASEAN Political Security Community as critical for millions of women globally who "relied on us, our governments, and our organisations to deliver on our pledges to protect women's right, giving equal opportunities and promote women's empowerment in promoting peace and security globally." She added that Malaysia is dedicated to the WPS agenda on a global and local level, with UNSCR 1325, CEDAW, the Beijing Platform for Action, and ASEAN plans of action propelling progress as Malaysia has "increase[ed] the number of civilians and uniformed women serving in peacekeeping at all levels and in crucial capacities." She also cited Malaysia's dedication to providing peacekeepers with training and capacity development at the Malaysian Peacekeeping Centre, which also offers gender-related modules.[432] Photo 1 shows Malaysian Armed Forces Corporal Munira Mohtar (in uniform) participating in peacekeeping training in Port Dickson, Malaysia, in 2015.[433]



Photo 1: Malaysian Peacekeepers Train during Exercise (2015)

In June and July 2022, Malaysia's representatives at the UN reiterated commitments to the WPS agenda, particularly as it relates to female Malaysian troops deployed as part of peacekeeping missions. Not only did Malaysia recommit to providing appropriate training on WPS, but during the Permanent Representative's visit to the Malaysian Battalion within United Nations Interim Force in Lebanon (UNIFIL) on 10 July, the country noted that its women's contingent is the second largest contingent of peacekeepers within UNIFIL. Moreover, the country's Mission at the UN Tweeted its endorsement of the position that, "Women peacekeepers play a crucial role in furthering peace & building trust in local communities. From conducting patrols, doctors & community facilitators they also serve as great role models."[434] While there are small numbers of Malaysian female experts with missions in Abyei, Democratic Republic of Congo, and Western Sahara, the country's battalion in Lebanon includes 84 female troops and three female officers as of April 2022.[435]

CONCLUSION

Malaysia is exposed to various natural hazards that put the lives and livelihoods of Malaysia's people at risk. The most challenging and frequent natural disaster facing Malaysia is flooding, a hazard that can be expected to worsen due to climate change. Already 9% of the country's land area is flood prone and 4.8 million people live in areas at risk to flood, and sea level rise as well as more erratic and more extreme rainfall events put ever more people and places at risk.

The country continues to build up planning, mitigation, and climate change adaptation to protect its citizens and economy. NADMA is the federal government authority that oversees disaster management and DRR as well as international partnerships focused on disaster preparedness and response. The SMART is an operational arm of the Malaysian Government and is tasked with responding to international level disasters within the region and beyond. The SMART has assisted with search and rescue missions for tsunami victims in Aceh (Indonesia) (2004), earthquake victims in Muzaffarabad, Pakistan (2005), people affected by the Leyte (Philippines) landslide (2006), and with the efforts around Mount Kinabalu following the Sabah earthquake (2015).

Malaysia was a founding ASEAN member and continues to engage with its regional fellows on issues of economic, social, and physical security, to include developing shared disaster management policies, procedures, and tools. Malaysia has active ASEAN Emergency Response and Assessment Team members and is home to the main ASEAN Disaster Emergency Logistics System warehouse that serves as a regional relief stockpile of items needed for emergency and disaster support and a hub to support logistics capacity and operations for the AHA Centre and ASEAN member-states.

In the past half century, the west coast states of Peninsular Malaysia have led the country in terms of development, including in density of transport and communications infrastructure as well as the reach of utilities. These networks not only support national trade and politics but also allow these states to dominate Malaysia's international links. While these connections have allowed the country to build its socio-economic clout and become an upper-middle income country, the infrastructure and industries that have propelled this growth are at risk from current hazards and climate change-influenced threats. Most recently, the country has intensified its focus on resilience. Planning and preparing for natural disasters, identifying which areas and communities are at risk, and providing the right tools are important strategies. 12MP incorporates strategies to build on the details of the Eleventh Plan to incorporate climate change considerations into the evolution of the country's disaster risk management concepts.

The hazards to which the country is vulnerable also loom over its 10,000 school buildings and 4.7 million students and over its hospitals and health providers. Although the Ministries of Education and Health have developed various SOPs for emergency operations, shortfalls in human resources, funding, and communication remain in some areas. Malaysia partners with UNDP and ASEAN bodies to institutionalize disaster preparedness in primary and secondary schools even as the federal government promotes disaster research and innovation in the country's universities. Meanwhile, the country operates under the Malaysia Strategy for Emerging Diseases and Public Health Emergencies II (MYSED II) Workplan (2017-2021) and has established the Crisis Preparedness and Response Centre (CPRC), which has the legal mandate to coordinate public health emergency response to disasters at the national level in coordination with NADMA.

APPENDICES

DoD DMHA Engagements in the Past Five Years (FY 2017-2022)

The list below describes the DMHA engagements that the U.S. DoD has had with Malaysia in the last five years.

RIMPAC 2022

A total of 22 ships from 14 countries arrived at Joint Base Pearl Harbor-Hickam Hawaii for the Rim of the Pacific 2022 (RIMPAC 2022) exercise that kicked off on 29 June 2022 and ended on 4 August. Twenty-six nations took part in the exercise in and near the Hawaiian Islands and Southern California. The largest contingent of participants came from South Korea, which sent three ships and one submarine, followed by the Royal Australian Navy, with three ships. Canada, Japan, and Mexico sent two ships each, while Chile, France, India, Indonesia, Malaysia, New Zealand, Peru, the Philippines, and Singapore each sent a single ship. Malaysia's Corvette KD Lekir (FSG26) joined thirty-seven other surface ships, four submarines, nine national land forces, over 170 aircraft, and about 25,000 personnel who were scheduled to take part in the drills.[436]

KERIS STRIKE 2022

U.S. Army, Pacific (USARPAC) and the Malaysian Army officially began the 26th edition of KERIS STRIKE after a combined opening ceremony at Camp SG Buloh, Malaysia, on 11 June 2022. KERIS STRIKE is a bilateral army-to-army exercise that focuses on enhancing partner land force capacity and capabilities, addressing internal security challenges, and increasing interoperability that reaffirms shared security commitments to the Indo-Pacific region. U.S. soldiers assigned to the 3rd Cavalry, 4th Squadron, 3rd Infantry Brigade Combat Team, 25th Infantry Division were set to train with their Malaysian counterparts on jungle skills, military operations in urban terrain, and live fire exercises, and to conduct a myriad of subject matter expert exchanges (SMEE) where soldiers share best practices within their field of study.[437]

BERSAMA WARRIOR 2022

The eighth annual BERSAMA WARRIOR began on 6 June with a ceremony presided over by First Admiral Baharudin bin Wan Md Nor, Malaysian Armed Forces Joint Force Headquarters deputy assistant chief of staff for the J3, and Brig. Gen. Bryan Grenon, commander of the Land Component Command for the Joint Force Headquarters, Washington National Guard. The joint, bilateral exercise is sponsored by USINDOPACOM and hosted by the Malaysian Armed Forces to develop the capacity to plan and conduct joint and combined operations. The Washington National Guard is a partner with the Malaysian Armed Forces. Since signing their formal partnership through the Department of Defense National Guard Bureau State Partnership Program (SPP) in August 2017, the Washington National Guard and the Malaysian Armed Forces have met regularly through exercises like BERSAMA WARRIOR to enhance mutual capabilities and security cooperation. Six members from the U.S. Army's 5th Security Force Assistance Brigade (SFAB) from Joint Base Lewis-McChord, Washington, were also part of the training audience. The mission of the 5th SFAB, aligned with USINDOPACOM, is to conduct "train, advise, and assist" missions with military partners overseas.[438]

COBRA GOLD 2022

The multinational military exercise, COBRA GOLD 2022, started in Thailand on 22 February with about 3,500 personnel from 20 countries participating, a scaling-down of the annual event due to the COVID-19 pandemic. Hosted by Thai

and U.S. forces, one of the largest multinational military exercises in Southeast Asia was set for various locations across Thailand through 5 March. Official participants included Thailand and the United States as well as Indonesia, Japan, Malaysia, Singapore, and South Korea, while Australia, China, and India were involved in a limited scope. The drill consisted mainly of a command post exercise, and humanitarian assistance field training.[439]

BERSAMA WARRIOR 2020/21

In March 2020, members of the Washington National Guard were deep into the BERSAMA WARRIOR staff exercise with their counterparts in the Malaysian Armed Forces in Kuala Lumpur. At the same time, the COVID-19 virus was beginning to spread rapidly around the world. Shutdowns went into effect, stay-at-home orders were issued, and travel bans were put into place. Halfway through the exercise, participants underwent an emergency evacuation. For 18 months, exercise planners tried to salvage the progress made and finally settled on a virtual event held in Hawaii, Washington state, and Malaysia from 10 to 19 November 2021. BERSAMA WARRIOR, an annual bilateral joint exercise hosted by the Malaysian Armed Forces and sponsored by USINDOPACOM, is designed to enhance U.S. and Malaysian defense readiness and strengthen the SPP relationship between the Malaysian Armed Forces and the Washington National Guard. The 2020-2021 iteration provided an opportunity to incorporate members of the 5th SFAB based at Joint Base Lewis-McChord, Washington. For the Washington National Guard members involved, it was a chance to continue building on their relationship with their counterparts in Malaysia. The staff exercise provided a venue for exchanging ideas, tactics, and problem-solving while demonstrating U.S. resolve to support the security interests of allies and partners in the Indo-Pacific region.[440] In a normal year, participants from both countries plan and coordinate peace enforcement operations, counterterrorism, and humanitarian assistance missions, using military decision-making and multinational forces' standard operating procedures.[441]

SEACAT 2021

The United States-led Southeast Asia Cooperation and Training (SEACAT) military exercises began on 10 August 2021 in Singapore and online. In its 20th year, the annual drill involved the navies of 21 countries – Australia, Bangladesh, Brunei, Canada, France, Germany, India, Indonesia, Japan, Malaysia, Maldives, New Zealand, Philippines, South Korea, Singapore, Sri Lanka, Thailand, East Timor, United Kingdom, United States, and Vietnam. The U.S. Navy's 7th Fleet said the 2021 drills included 10 ships and more than 400 personnel and that the exercise is designed to encourage countries to use their maritime forces to enhance understanding of the "operational environment, build capacity for humanitarian support missions, and uphold international laws and norms." During the SEACAT drills, an operations post in the International Fusion Centre in Singapore served as a centralized hub for crisis coordination and information-sharing as the participating navies tracked merchant vessels "simulating suspicious vessels of interest throughout Southeast Asian seas." Several international and non-governmental organizations also took part in the 2021 drills; they included the United Nations Office of Drugs and Crime, EU Critical Maritime Route Wider Indian Ocean, and the ICRC.[442]

COBRA GOLD 2021

The 40th iteration of Exercise COBRA GOLD took place 3-13 August 2021 in Thailand. The annual Thai-U.S. co-sponsored military exercise featured several virtual and in-person events with service members from five full participating nations aside from the U.S. and Thailand. Other participants were Indonesia, Japan, Malaysia, Singapore, and South Korea as well as observers and additional participants from other nations and organizations. As one of the world's longest running international exercises, COBRA GOLD is a demonstration of the United States'

commitment to Thailand and like-minded allies and partners, in support of a free and open Indo-Pacific. The exercise is designed to advance regional security and ensure effective responses to regional crises. The 2021 exercise was carefully modified to mitigate risk during the COVID-19 pandemic. COBRA GOLD 21 emphasized joint military training, civic action, humanitarian assistance, and disaster relief. The fourth annual HADR TTX moved to a fully virtual format for the first time. From 30 July to 1 August, a total of 54 participants from nine nations discussed civil-military efforts associated with disaster response and assisting those in need. The event featured experts from the U.S. and Royal Thai Governments, as well as international organizations such as the UN, ASEAN, and the International Red Cross and Red Crescent Movement.[443]

COBRA GOLD 2020

Exercise COBRA GOLD 2020 officially started on 25 February 2020 at Camp Akathotsarot, Phitsanulok, Thailand; it was set to run for 10 days. COBRA GOLD is the largest joint and combined military exercise in Southeast Asia. Conducted annually since 1982, it prepares participant countries to work together multilaterally across a full spectrum of operations. The servicemembers participating in the 2020 iteration hailed from the host countries: the U.S. and Thailand; additional participants came from Indonesia, Japan, Malaysia, Singapore, and South Korea. In addition, dozens of other nations participated as observers. The key training events were an amphibious assault demonstration, a non-combatant evacuation operation, humanitarian civic action projects, landmine destruction, defensive cyber techniques, and a combined arms live fire exercise.[444] The third annual HADR TTX portion commenced on 24 February and consisted of a four-day program to learn and share civil-military coordination challenges across a spectrum of operational environments, including international disaster response operations and complex emergencies. Areas of emphasis discussed throughout the exercise included principles, guidelines, and practices for civil-military interaction across both natural disasters and conflict situations, roles and responsibilities of civilian and military actors, guidance and mechanisms to support effective coordination, protection of civilians, and international humanitarian law. The event brought together subject matter experts from Thailand's Department of Disaster Prevention and Mitigation, the Changi Regional HADR Coordination Centre in Singapore, the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre), Malaysian Armed Forces, Thai Ministry of Defence, OCHA, UNHCR, IFRC, ICRC, and USINDOPACOM. Photo 2 shows Mr. Joseph Martin, the director of the CFE-DM as he spoke to participants in the HADR TTX, saying, "Over the next four days, this group will have the unique opportunity to explore challenges in both a natural disaster environment as well as humanitarian assistance in conflict."[445]

AUMX 2019

The United States and 10 Southeast Asian countries kicked off maritime drills on 2 September as part of a joint exercise extending into the flashpoint South China Sea with eight warships, four aircraft, and more than 1,000 personnel. Co-led by the U.S. and Royal Thai navies, the first ASEAN-US Maritime Exercise (AUMX) between the regional bloc and U.S. forces was set to last five days and stretch into "international waters in Southeast Asia, including the Gulf of Thailand and South China Sea" before concluding in Singapore, according to a statement from the U.S. embassy in Bangkok. U.S. assets participating in the exercise included the littoral combat ship USS Montgomery, guided-missile destroyer USS Wayne E. Meyer, three MH-60 Sea Hawk helicopters, a P-8 Poseidon aircraft, and staff assigned to Destroyer Squadron 7 and Combined Task Force 73. The drills came under criticism for looping in Myanmar's navy in a rare show of inclusion despite Washington imposing



Photo 2: CFE-DM Director Addresses HADR Exercise Participants (2020)

sanctions on the nation's top army leaders over the Rohingya crisis. All 10 members of ASEAN were set to take part in the exercises, which include the boarding of target vessels to simulate search and seizure.[446]

SEACAT 2019

The U.S. Navy and maritime forces from 10 Indo-Pacific partner nations began the 18th iteration of Southeast Asia Cooperation and Training (SEACAT) in Singapore on 19 August 2019. The goal of the SEACAT series is to bring together regional partner nations to engage in "real world, real time" training designed to enhance partner nation abilities to communicate, coordinate, and counter illegal smuggling and piracy. The exercise emphasizes realistic training scenarios wherein exercise participants practice identifying, tracking, and boarding vessels. SEACAT promotes shared commitments to maritime partnerships, security, and stability in Southeast Asia. Participating nations included Bangladesh, Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Thailand, United States, and Vietnam. Throughout the exercise, maritime forces executed a variety of realistic scenarios designed to reinforce interoperability. A maritime operations center in Singapore served as a centralized hub for crisis coordination and information sharing. In all, SEACAT 2019 included 14 ships and more than 400 personnel.[447]

HADR Course 2019

With a focus on building relationships among emergency management professionals, the Washington State Emergency Management Division and Washington National Guard participated in the first Malaysian HADR Civil-Military Course at the Malaysian Armed Forces Officer Mess, Wisma Perwira, 17-19 April 2019. A representative of the Washington Emergency Management Division traveled to Malaysia under the aegis of the Malaysia – Washington National Guard SPP to help teach lessons learned from the Oso, Washington, landslide that happened in March 2014 and killed 43 people. Presentations focused on civil-military collaboration in federally-supported, state-managed, and locally-executed response efforts as well as on the use of the incident management

system. During a planning conference in August 2018, a group of delegates from Malaysia focused on emergency management and resiliency. Leaders agreed that establishing relationships between the Washington Emergency Management Division and Malaysia's NADMA would benefit both partners and allow for further exchanges in the future.[448]

BERSAMA WARRIOR 2019

Exercise BERSAMA WARRIOR 2019 kicked off in Kuala Lumpur, Malaysia, on 6 March 2019 and ran through 15 March. BERSAMA WARRIOR is designed to develop and improve the collective capacity of the U.S. and Malaysia to plan and conduct joint and combined operations. The 2019 exercise was a command post exercise and was the third iteration of BERSAMA WARRIOR with the Washington National Guard participating as the primary training audience. The exercise series aims to strengthen the relationship between Malaysian Armed Forces and the U.S. while identifying effective solutions to common challenges such as counterterrorism, humanitarian assistance, and maritime security as well as to develop the capacity to quickly respond to crises with greater efficiency and effectiveness.[449]

KERIS STRIKE 2019

Exercise KERIS STRIKE 2019 kicked off at Camp Sungai Buloh on 11 March 2019 and ran for five days. KERIS STRIKE consists of several SMEEs designed to develop capacity to quickly respond to a crisis with greater interoperability and increased mission effectiveness. Topics of the SMEEs included aviation, military police, medicine, counter improvised explosive device, public affairs, unmanned aerial systems, civil affairs, and chemical, biological, radiological, nuclear, and explosive events. The purpose of the exchanges is to integrate the various topics as the way ahead to support future bilateral training events. The 2019 exercise was the 24th iteration and provided the venue for the exchange of tactics, techniques, and procedures that contribute to regional HADR capability in the Indo-Pacific.[450]

COBRA GOLD 2019

The second annual HADR TTX, as part of the 38th annual COBRA GOLD, commenced in Phitsanulok Province, Thailand, on 11 February 2019. The event was hosted by Lt. Gen. Siravuth Wongkantee, Director of Joint Civil Affairs, Royal Thai Armed Forces, in collaboration with Joseph Martin, the Director of the CFE-DM, and Maj. Gen. Jaras Panyadee, the Chief of Staff of the Thai 3rd Army Area. Participants represented nine nations. The HADR TTX consisted of a four-day program to learn and share civil-military challenges across a spectrum of operational environments, including international disaster response and complex contingencies. The exercise was composed of two parts: the first focused on international disaster response, and the second focused on complex contingencies. Areas of emphasis discussed throughout the exercise included: principles of humanitarian action, guidelines and practices for civil-military interaction across both natural disasters and complex emergencies, roles and responsibilities of core civilian actors operating in natural disaster and complex emergency responses, coordination concepts, guidance and mechanisms to support effective civil-military coordination in and across these operational environments, and protection of civilians and international humanitarian law. The goal of this exercise was to increase participant understanding of the many actors within the HADR realm and how they coordinate and coexist in a shared operational environment. The event brought together subject matter experts from Thailand's Department of Disaster Prevention and Mitigation, OCHA, UNHCR, ICRC, RedR Australia, and IFRC, and it included approximately 100 participants not only from Thailand and the U.S., but also from China, India, Indonesia, Japan, Malaysia, Singapore, and South Korea. The COBRA GOLD 19 Exercise program also included an HADR Field Training Exercise (FTX) from 18 through 20 February in Chachoengsao Province.[451]

SEACAT 2018

The 17th annual Southeast Asia Cooperation and Training (SEACAT) exercise commenced 27 August with nine partner nations in Singapore. The exercise focused on increasing maritime domain awareness through collaborative and coordinated sharing of information toward ensuring a common understanding of the maritime environment and how best to operate as an effective unified maritime force. SEACAT brought together sailors and Coast Guards from Bangladesh, Brunei, Indonesia, Malaysia, Philippines, Singapore, U.S., Thailand, and Vietnam in a series of tailored seminars. The sea phase included fifteen boarding operations by multiple nations across three vessels designed to provide training opportunities in real-world at-sea environments. This iteration of the exercise incorporated complex maritime interdiction scenarios that required sharing information from all available sources including Singapore's Information Fusion Center and Maritime Operations Centers in Brunei, Philippines, and Thailand.[452]

KERIS STRIKE 2018

Soldiers with the 96th Troop Command, Washington Army National Guard, took the lead as the primary U.S. administrative element in KERIS STRIKE 2018, from 23 July through 3 August 2018. Soldiers from across the 96th Troop Command's Headquarters and Headquarters Detachment, 122nd Public Affairs Operation Center, 420th Chemical Battalion, and the 56th Theater Information Operations Group participated in an FTX, a command post exercise (CPX), and several live fire exercises during KERIS STRIKE. The 96th Troop Command's primary effort was a bilateral CPX that simulated a humanitarian disaster caused by a tsunami. The CPX solidified the lines of communication between the U.S. and Malaysia by familiarizing the 96th Troop Command's leadership with Malaysian disaster response procedures and communication networks. The 96th Troop Command's participation was key in affirming and building the state partnership between Washington State and Malaysia. While in Malaysia, 96th Troop Command facilitated a SMEE with Malaysian personnel that involved Washington Army National Guard and active-duty elements. They trained on criminal investigation, medical aid, and responses to chemical, biological, radiological, and nuclear contaminants.[453]

RIMPAC 2018

The world's largest international maritime exercise concluded on 2 August 2018 following more than a month of training events conducted in and around the Hawaiian Islands and Southern California. Some 25,000 personnel from twenty-five nations with 46 surface ships, five submarines, 17 land forces, and more than 200 aircraft participated in Rim of the Pacific (RIMPAC) 2018, which marked the 26th in the series. Hosted by U.S. Pacific Fleet, RIMPAC 2018 was led by U.S. Vice Adm. John D. Alexander, commander of the U.S. 3rd Fleet, who served as the combined task force commander. Alexander said the involvement of so many different countries working together successfully was a strong reminder of the unity coalition forces can exhibit in a real-world situation. The 2018 exercise included forces from Australia, Brunei, Canada, Chile, Colombia, France, Germany, India, Indonesia, Israel, Japan, Malaysia, Mexico, Netherlands, New Zealand, Peru, Philippines, Singapore, South Korea, Sri Lanka, Thailand, Tonga, United Kingdom, United States, and Vietnam. Participating nations and forces exercised a wide range of capabilities and demonstrated the inherent flexibility of maritime forces. These capabilities ranged from disaster relief and maritime security operations to sea control and complex warfighting. The relevant, realistic training program included amphibious operations, gunnery, missile, anti-submarine, and air defense exercises, as well as counter-piracy operations, mine clearance operations, explosive ordnance disposal, and diving and salvage operations.[454]

COBRA GOLD 2018

The HADR portion of COBRA GOLD 2018 ran 13-23 February with five participating nations beyond the co-hosts Thailand and the U.S. They included China, Japan, Malaysia, Singapore, and South Korea as well as numerous civilian organizations. This HADR exercise was the beginning of the various events that make up the multi-national COBRA GOLD, each one designed to showcase each nation's capabilities in disaster response and promote interoperability focusing on saving lives. Drills such as this one provide a venue for both U.S. and partner nations to increase capacity in planning and executing complex and realistic multinational force and combined task force operations.[455]

International/Foreign Relations

As a small, diverse, trading nation located amid strategic trade and shipping routes, how Malaysia relates to other countries and how it views its internal and external security challenges are a function of size, geography, and demography. The country's historic foreign policies have been noted for their political judiciousness, pragmatism, and an openness to change. Nonetheless, there are several long-standing touchstones to Malaysia's international relations – i.e., neutrality, non-aligned and pragmatic dealings with the U.S. and China, centrality of ASEAN, disdain for great power hegemony, development of Malaysia's economy through trading relationships, and promotion of human rights, particularly concerning Muslims.[456]

As a means to transcend its small size and lack of individual power in an Asia-Pacific region where large powers like China and India operate, Malaysia has invested in ASEAN as an opportunity for multilateral and regionally cohesive international action. A founding member-state of ASEAN in 1967, Malaysia saw the institutionalization of the "ASEAN Community" in 2015 as a means to elevate engagement. Moreover, as a member of the UN, Malaysia is fully committed to multilateralism in advancing global peace, security, and prosperity. The country's record in peacekeeping operations under the UN reveals dedication to the international community. The country also places an emphasis on solidarity and cooperation with various cultural, economic, and diplomatic communities, including within the Organisation of Islamic Cooperation, the Non-Aligned Movement, the Developing Eight, Asia Middle East Dialogue, Far East Asia Latin America Cooperation, Indian Ocean Rim Association, and Asia Pacific Economic Cooperation (APEC). Through these organizations, Malaysia has sought to promote South-South cooperation both among developing countries and across the Muslim world. Malaysia also advocates a "Prosper thy neighbor" outlook for enhanced economic relations and cooperation through the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) and the Indonesia-Malaysia-Thailand Growth Triangle.[457]

Five Power Defence Arrangements

The Five Power Defence Arrangements (FPDA) refer to a 1971 agreement among Australia, Malaysia, New Zealand, Singapore, and the United Kingdom (UK) to provide for the defense of Malaysia and Singapore from external aggression. While the original communiqué set up the FPDA as a consultative forum whereby the five signatories would consult in case of attack or threat of attack, it was formalized via a series of bilateral status of forces agreements between Malaysia and each of Australia, New Zealand, and the UK, and between Singapore and each of Australia, New Zealand, and the UK.

Originally, the two major components of the FPDA were the Joint Consultative Council of senior officials relating to defense arrangements, and the Air Defence Council, responsible for the Integrated Air Defence System (IADS) located in Butterworth, Penang State, Malaysia, for the air defense of Malaysia and Singapore. In 1997, these two Councils merged into the FPDA Consultative Council with the mandate to set

policy guidelines and provide oversight and approval for FPDA activities. In the meantime, the FPDA Defence Ministers had agreed that an FPDA Defence Chief Conference should occur every two years and an FPDA Defence Ministers Meeting (FDMM) every three years.

In the past twenty years, FDMM re-designated the old IADS as the Integrated Area Defence System (IADS) to give greater emphasis to jointness, and land components were integrated into regular exercises. However, it must be noted that the IADS mostly covers Peninsular Malaysia and Singapore, leaving East Malaysia outside the most active FPDA component. In 2003, the FDMM had agreed that FPDA exercises would incorporate challenges having to do with terrorism, maritime security, and HADR, and their first FDMM after the 2004 Indian Ocean Tsunami, in 2006, agreed that there was a need for FPDA forces to take on greater roles in building capacity and enhancing inter-operability in HADR operations. The 2006 Exercises Bersama Padu and Suman Warrior involved maritime security and HADR elements.

Although FPDA is explicitly a defense arrangement, the regular activities and consultations ensured growing confidence between Malaysia and Singapore, and they were subsequently able to overcome many tensions that arose between them. Moreover, FPDA offered both Malaysia and Singapore the opportunity to diversify the ways they engaged the other signatories in military-to-military cooperation, such as support from the FPDA armed forces during the search for the missing Malaysian Airlines 370 in March 2014, and in cooperation under HADR scenarios or United Nations peacekeeping operations such as in Timor-Leste and Afghanistan. As it reached its 50th anniversary, the five signatories continued to share expertise via regular exercises, courses, and seminars, and have incorporated civil-military interactions whereby the armed forces cooperate with civilian agencies such as Singapore's Immigration and Checkpoints Authority, Singapore Police Coast Guard, Maritime Port Authority, Customs, and the International Red Cross and Red Crescent Movement.[458]

U.S.-Malaysia

The U.S. and Malaysia share a diverse partnership in trade, investment, security, environmental cooperation, and educational and cultural relations. Malaysia is important within the context of U.S. engagement with Southeast Asia. The countries cooperate closely on security matters, including counterterrorism, maritime domain awareness, and regional stability, and they participate frequently in bilateral and multilateral military training, exercises, and visits. Economic ties are robust, and there is a long history of people-to-people exchanges. The U.S. has had a consular or commercial presence in the area comprising modern-day Malaysia since the 1800s. In 1957, the U.S. established official diplomatic relations with Malaysia, and the two countries elevated the bilateral relationship to a Comprehensive Partnership in April 2014.

U.S. assistance to Malaysia focuses on education, professional exchanges, combatting trafficking in persons, human rights, non-proliferation, security cooperation, counterterrorism, countering violent extremism, and enhancing transparency, accountability, and responsiveness of government. English language capacity building continues through placement of English Language Fellows within local universities and through the English Access Microscholarship Program, an in-country program targeting Malaysia's underprivileged communities. Additional exchange programs, such as the International Visitor Leadership Program and the Young Southeast Asian Leaders Initiative, help empower emerging voices in government, civil society, and business. There are more than 4,600 Malaysian alumni of U.S. Department of State-sponsored exchange programs, and many of these alumni are leaders in Malaysia's government, serving in the cabinet, parliament, and academia.

U.S. security cooperation and training builds the capabilities of Malaysia's armed forces and

maritime law enforcement agencies and boosts Malaysia's ability to protect its sovereignty and take on an expanded international role. Assistance to Malaysia's counterterrorism efforts focuses on information sharing and capacity building programs for law enforcement and judicial authorities, and support to improve immigration security and border controls. The United States also partners with the Malaysian government and civil society organizations on programs and initiatives to counter the spread of violent extremism ideology. Non-proliferation assistance aims at enhancing Malaysia's ability to enforce its export control laws to interdict shipments and trans-shipments of controlled technology, dual-use commodities, and weapons of mass destruction and related commodities.

The United States supports Malaysia's vulnerable populations through programs to increase a victim-centered approach to trafficking in persons crimes. Support includes awareness campaigns, technical assistance for legal reforms, and capacity building for law enforcement officers to identify victims of trafficking and legal professionals to effectively prosecute perpetrators of trafficking crimes. The U.S. also supports programs and organizations that uphold freedom of expression, civic engagement, good governance, human rights, religious freedom, and the role of women in the economy and government. In response to the COVID-19 pandemic, the United States contributed US$2.8 million to Malaysia to support vaccination of hard-to-reach and vulnerable communities, in addition to the donation of 1 million safe and effective vaccines, along with COVID-19 test kits, and ambulances.

The U.S. and Malaysia have a long history of successful engagement under the bilateral Trade and Investment Framework Agreement, as well as at the World Trade Organization, within ASEAN, and at the APEC forum. Bilateral trade in goods stood at US$71.4 billion in 2021. Malaysia is the United States' 17th largest trading partner, and the United States is Malaysia's third-largest trading partner, after China and Singapore. U.S. direct investment in Malaysia was US$13.5 billion in 2020. U.S. foreign direct investment in Malaysia is focused on manufacturing, non-bank holding companies, and wholesale trade. Malaysian foreign direct investment in the United States is led by manufacturing, wholesale trade, and professional, scientific, and technical services.[459]

China-Malaysia

Malaysia's relationship with China is characterized by robust bilateral trade, investment, and people-to-people ties. Although there are myriad signs of affinity that have spanned Malaysia's political administrations in the nearly 50 years since the two countries opened official diplomatic ties, there remain some contentious issues.

Since the 1990s, the countries have built especially strong economic ties, in part based on Malaysia's ethnic Chinese population. This community had earlier been seen as a potential fifth column during Malaysia's battle with Communist rebels, but after a 1989 peace agreement, they became a key means to build ties with and reach out to China to foster more business opportunities. However, a new contention would emerge: Beijing's claims in the South China Sea. Malaysia is among Southeast Asian countries whose territorial claims overlap with China's in the South China Sea, and recent years have seen high-level diplomatic and military interactions. In December 2019, Malaysia's Prime Minister authorized a new submission to the UN Commission on the Limits of the Continental Shelf, asserting Malaysia's claim to an external continental shelf in the South China Sea, a submission that immediately prompted China to issue a protest note to the same commission. Then in July 2020, Malaysia submitted another memo to the Commission that stated: "Malaysia rejects China's claims to historic rights, or other sovereign rights and jurisdiction, with respect to the maritime areas of the South China Sea encompassed by the relevant part of the 'nine-dashed line… Malaysia considers that the People's Republic of China's claim to the maritime features in the South

China Sea has no basis under international law."[460]

During a June 2021 incident, 16 Chinese military aircraft flew over disputed waters off Malaysia's eastern state of Sarawak, and Malaysia scrambled fighter jets to intercept the Chinese aircraft. Malaysia's foreign ministry described the maneuver as a "serious threat to national sovereignty" and summoned the Chinese ambassador to lodge a diplomatic protest.[461] In January 2022, Malaysian Foreign Minister Saifuddin told reporters that "[China] have changed from using mostly the nine-dash line narrative to the Four Sha. I can see some policy change in the way they approach the South China Sea. It is yet to be seen whether the Four Sha [approach] is more aggressive or the nine-dash line [is] more aggressive." The "Four Sha," or Four Sands Archipelagos, are the four island groups in the South China Sea to which Beijing claims to hold "historical rights." Internationally, these four areas are known as Pratas Islands, Paracel Islands, the Macclesfield Bank area, and Spratly Islands. The concept they may be eclipsing, the nine-dash line, is a U-shaped line encircling most of the South China Sea that China has been using to possibly demarcate its claimed sovereignty over the sea. China has never fully articulated exactly what the nine-dash line is meant to claim or on what legal basis it makes its claims. In 2016, an international arbitration tribunal, convened under the United Nations Convention on the Law of the Sea, invalidated the line saying there are no legal bases for it. Although Beijing rejected the ruling, other nations have endorsed it. Figure 17 shows the area of the South China Sea subject to dispute among various Southeast Asian countries and China.[462]

In 1999, Malaysia signed a framework agreement for comprehensive bilateral cooperation with China. In 2004, Malaysia and China signed their second joint communiqué and committed to have "greater cooperation . . . in strategic areas." In 2013, they defined the bilateral relationship as a "comprehensive

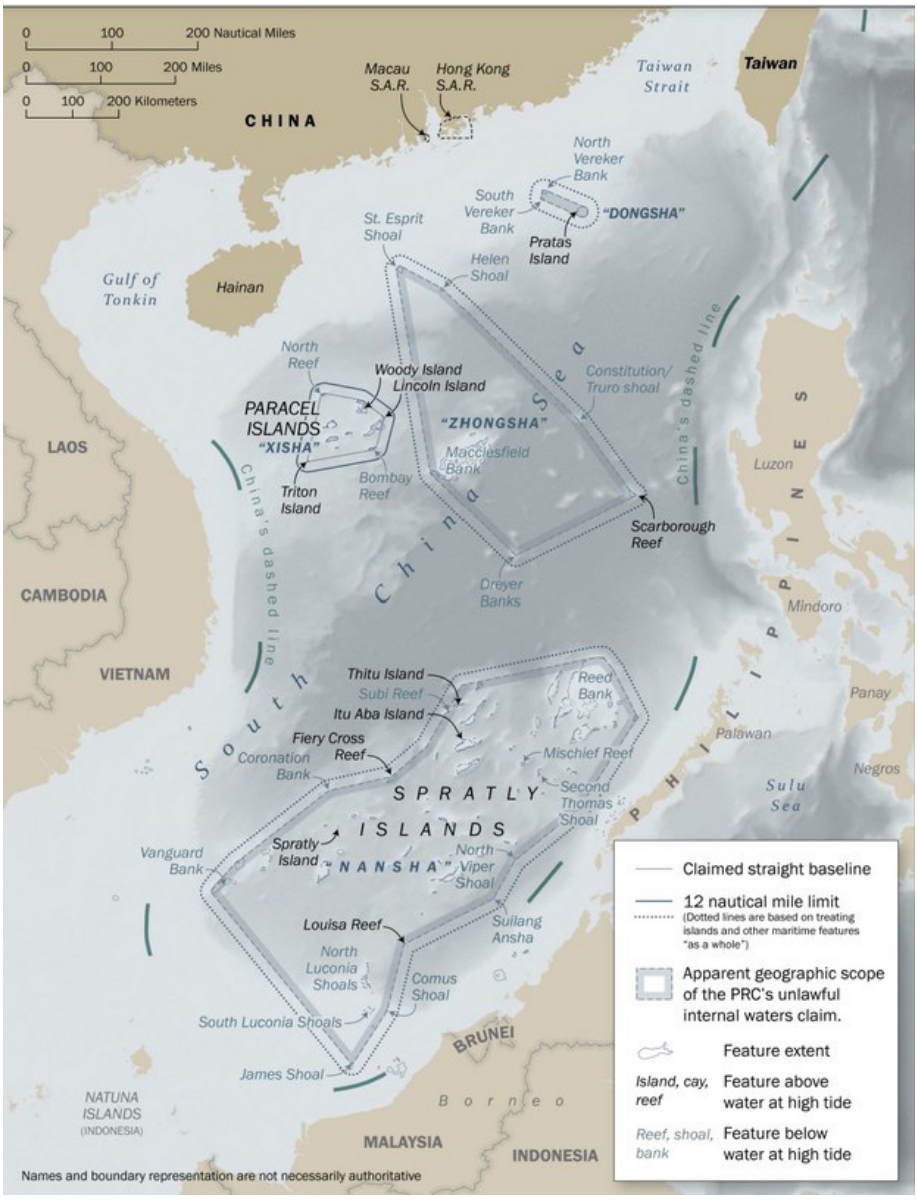


Figure 17: Map of "Four Sha" to which China Lays Claim in the South China Sea

strategic partnership." Bilateral trade boomed afterwards. Indeed, China displaced Singapore as Malaysia's largest trading partner in 2009 and has remained in that position ever since. Over the years, China has been among the most frequently visited countries by successive Malaysian prime ministers, cabinet ministers, and state leaders. The opening of more consulates in cities beyond Beijing and Kuala Lumpur and the approval of more direct air links between the two countries have testified to the dynamism of China-Malaysia societal exchanges. Indeed, during the tenure of Prime Minister Najib Abdul Razak (2009-2018), Malaysia endorsed Chinese President Xi Jinping's Belt and Road Initiative (BRI), courted more Chinese investment, and facilitated greater military-to-military ties by holding combined military exercises and procuring Chinese-made weapon systems. Meanwhile, Najib sought to downplay Chinese maritime assertiveness and to separate the South China Sea issue from other areas of the bilateral relationship.

After Najib left office in 2018, the East Coast Rail Link (ECRL), a flagship BRI project contracted to a Chinese state-owned construction company and financed with a loan from the Export-Import Bank of China, came under scrutiny. Critics complained that the project and its funding terms were negotiated without adequate transparency, posed a financial burden to Malaysia, had dubious commercial viability, and carried an inflated price tag. Under the next Prime Minister, the ECRL, along with two China-financed oil and gas pipeline projects, were suspended; the ECRL was later cancelled although that cancellation was rescinded after April 2019 renegotiations that led to a reduced price tag and new arrangements that would benefit Malaysia more than the original.

Additional aspects of Malaysia-China cooperation unfolded during the COVID-19 pandemic. In April 2020, Beijing dispatched a medical advisory team to assist Kuala Lumpur. In March and May 2020, China donated two batches of medical equipment including over 1 million masks, 70,000 pieces of personal protective equipment, 150,000 test kits, and 200 ventilators. In November 2020, Malaysia and China signed a joint agreement on vaccine cooperation and development. As of early June 2021, Malaysia had received more than 3 million doses of China's Sinovac shot.[463]

Australia-Malaysia

Australia and Malaysia have a long-standing friendship, based on common interests in the Indo-Pacific region. In January 2021, the bilateral relationship was elevated to a Comprehensive Strategic Partnership (from a Strategic Partnership, signed in 2015) that commits leaders to meeting annually and is underpinned by three streams of cooperation: economic prosperity; society and technology; and defense and regional security. Under the Partnership, Australia and Malaysia will expand cooperation on economic recovery and growth, health, education, the digital economy, and science and innovation.

Australia's economic and trade relationship with Malaysia is strong. In 2020, Malaysia was Australia's 11th largest partner. They have two free trade agreements in force: the Malaysia-Australia Free Trade Agreement and the Agreement Establishing the ASEAN-Australia-New Zealand Free Trade Area. They are both signatories to the Regional Comprehensive Economic Partnership and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

A shared history in defense and security dates to World War II when Australian soldiers fought in defense of Malaya and for the subsequent liberation of Sarawak, Sabah, and Labuan. The defense relationship has developed in recent years under the auspices of the FPDA and the Malaysia Australia Joint Defence Program.[464] The FPDA provides Australia with a forward presence at Butterworth Air Base where Royal Australian Air Force (RAAF) P3 Orion aircraft conduct surveillance of maritime approaches to Australia. The RAAF also continues to staff the appointment of FPDA Commander IADS with a two-star Air Vice Marshall.[465] There

are also close links between Australian and Malaysian police, security, counterterrorism, and immigration agencies.

Australia and Malaysia cooperated throughout the COVID-19 pandemic, including through technical health exchanges on immunization registers/certificates, vaccine strategic communications, and mental health. Under the AUS$523 million (US$370.3 million) regional COVID-19 Vaccine Access and Health Security Initiative (VAHSI), Australia allocated AUS$2.9 million (US$2.1 million) to Malaysia for 2020-2023 to fund technical assistance and support for COVID-19 vaccine delivery. In addition, Australia contributed AUS$100 million (US$70.8 million) to the Quad Vaccine Partnership to support access to COVID-19 vaccines in Southeast Asia, including Malaysia. Under VAHSI, Australia contributed AUS$21 million (US$14.9 million) to the establishment of the ASEAN Centre for Public Health Emergencies and Emerging Diseases, which will assist Malaysia and all ASEAN member-states to prepare for, detect, and respond to emerging diseases.[466]

Japan-Malaysia

In 2022, Japan and Malaysia marked the 65th anniversary of the establishment of bilateral diplomatic relations and the 40th anniversary of the "Look East Policy." They signed Memoranda of Cooperation regarding specified skilled workers, youth and sports exchanges, and the aircraft industry, and they concurred to start discussion on establishing industrial policy dialogue.[467] The "Look East Policy" dates to the early 1980s, when then Prime Minister Mahathir announced an initiative to learn from the experiences of Japan and South Korea in nation-building. He considered that the secret of Japan's successful post-World War II development lay in labor ethics, morale, and management capability. He felt a program enabling young Malaysians to learn in Japan would contribute to the economic and social development of Malaysia. For this purpose, Malaysia began to dispatch students to Japan's universities and institutes of technology while other trainees went to Japanese industries and training institutes. In exchange, Japan sent Japanese teachers to Malaysia and shared the costs of the program. Between 1982 and 2017, more than 16,600 students and trainees had benefitted from the policy.[468]

During his most recent stint in power (2018-2020), Prime Minister Mahathir sought to renew "Look East" by examining the growth strategies and models of China, Japan, and South Korea. He said the 40-year-old policy could serve as a platform for exploring the development models of the Asian giants and charting new possibilities and opportunities as Malaysia rebounds from the COVID-19 pandemic. As of 2022, more than 400,000 Malaysians are employed by close to 1,500 Japanese companies operating in Malaysia.[469]

Outside of these people-to-people and economic ties, in 2015, Japan and Malaysia concluded an agreement to enhance relations through a strategic partnership that included global cooperation on issues such as search and rescue, peacekeeping, and the security of sea lines of communications. More recently, they stepped up cooperation on law enforcement at sea after Malaysia's coast guard received a second patrol vessel from Japan.[470] In September 2018, Japan and Malaysia signed a memorandum of understanding to increase defense and security cooperation. Tokyo said the memorandum provided a structure for expanded collaboration across a range of activities, including defense equipment and technologies, military-to-military exchanges, joint maritime security, and disaster relief operations.[471]

Participation in International Organizations

Malaysia is a member of, participates in, or cooperates with the following international organizations and agreement frameworks either as a government or via a national NGO or other entity:

Asian Development Bank (ADB), Asia-Pacific Economic Cooperation (APEC), ASEAN Regional Forum, Association of Southeast Asian Nations (ASEAN), Bank for International Settlements, Commonwealth, Conference on Interaction and Confidence Building Measures in Asia (observer), Colombo Plan, D-8 Organization for Economic Cooperation, East Asia Summit (EAS), Food and Agriculture Organization of the United Nations, Group of 15 (G-15), Group of 77 (G-77), International Atomic Energy Agency, International Bank for Reconstruction and Development, International Civil Aviation Organization (ICAO), International Chamber of Conference (national committees), Institute of Catastrophe Risk Management, International Development Association, International Development Bank, International Fund for Agricultural Development, International Finance Corporation, International Federation of Red Cross and Red Crescent Societies (IFRC), International Hydrographic Organization, International Labour Organization, International Monetary Fund, International Maritime Organization, International Mobile Satellite Organization, International Criminal Police Organisation (INTERPOL), International Olympic Committee, Inter-Parliamentary Union, International Organization for Standardization, International Telecommunications Satellite Organization, International Telecommunications Union, International Trade Union Confederation (NGOs), Multilateral Investment Guarantee Agency, Non-Aligned Movement, Organization of Islamic Cooperation, Organisation for the Prohibition of Chemical Weapons, Permanent Court of Arbitration, Pacific Islands Forum (partner), United Nations (UN), United Nations Conference on Trade and Development, UN Educational, Scientific, and Cultural Organization, UN Industrial Development Organization, World Tourism Organization, Universal Postal Union, World Customs Organization, The World Federation of Trade Unions (NGOs), World Health Organization (WHO), World Intellectual Property Organization, World Meteorological Organization, World Trade Organization

UN peacekeeping missions that Malaysia is contributing personnel to, as of 30 April 2022:[472]

- United Nations Mission for the Referendum in Western Sahara (MINURSO) – 9 experts
- United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) – 4 experts, 2 staff officers
- United Nations Interim Force in Lebanon (UNIFIL) – 9 staff officers, 822 troops
- United Nations Interim Security Force for Abyei (UNISFA) – 1 expert, 1 staff officer

Force Protection/Pre-Deployment Information

The following information is provided for pre-deployment planning and preparations.[473] Visit *www.travel.state.gov* prior to deployments for further up-to-date information. DoD personnel must review the Foreign Clearance Guide for travel to Malaysia (*www.fcg.pentagon.mil*). All official travel and personal travel for active-duty personnel must be submitted through an APACS request. Contact information for the Defense Attaché Office can be found in the Foreign Clearance Guide.

Passport/Visa

To Enter Malaysia: Your passport must be valid for at least six months. You must have at least one blank page required for entry stamp. Permission to enter and remain in Malaysia is at the decision of and discretion of the Malaysian Immigration Department. If you are planning onward travel after departing Malaysia, please note that many other countries in the region require at least six months' remaining validity on your passport to enter. You do not need a visa if you are coming for business or tourism for 90 days or less. Immigration officials will place an entry stamp, known as a social visit pass (visa), in your passport authorizing a stay of up to 90 days. Travelers may apply to the Malaysian Immigration Department for extensions of up to

two months. Neither the U.S. Government nor the U.S. Embassy in Kuala Lumpur can intervene on your behalf when you apply for a Malaysian visa, nor can we advocate for your admission into Malaysia if you are denied entry.

Travel Document: Persons traveling on a USCIS-issued Travel Document must apply for a visa prior to traveling to Malaysia.

Border Crossings: Follow all entry instructions, present your passports only to immigration officials, and be sure immigration officials stamp your passport with the correct date upon entering and exiting Malaysia. Lacking correct documentation or proof of entry into Malaysia may result in high fines and detention.

Sabah and Sarawak: The eastern states of Sabah and Sarawak (on the island of Borneo) have special entry requirements. You must have your passport to enter or exit Sabah or Sarawak, even when arriving from Peninsular Malaysia on domestic flights.

Dual Nationality: Malaysia does not recognize or permit dual nationality. If Malaysian authorities learn that you are a U.S.-Malaysia dual national, they may require you to immediately forfeit your U.S. passport or your Malaysian citizenship. U.S.-Malaysia dual nationals should consider this issue seriously before traveling to Malaysia.

U.S.-Israeli Dual Nationals: Immigration officials have denied entry to U.S.-Israeli dual nationals who have presented their Israeli passports to show exit stamps from their last destination. U.S.-Israeli dual nationals should use their U.S. passports to depart the last country on their itinerary prior to arriving in Malaysia.

Visa Overstays: Malaysian immigration authorities have exit controls at all ports of departure and routinely fine and detain foreigners who overstay their social visit passes (visas). If you overstay your visa, you will not be allowed to exit Malaysia until you resolve the overstay with the Immigration Department of Malaysia.

Carry your passport (containing the Malaysian entry stamp) with you at all times in case authorities question your immigration status. Several U.S. citizens have been arrested during immigration sweeps and detentions may last from a few hours to several weeks. Check your visa status periodically while in Malaysia and strictly follow immigration laws and regulations.

Safety and Security

Terrorism: Terrorist groups and those inspired by such organizations are intent on attacking U.S. citizens abroad. Terrorists are increasingly using less sophisticated methods of attack – including knives, firearms, and vehicles – to more effectively target crowds. Frequently, their aim is unprotected or vulnerable targets, such as:

- High-profile public events (sporting contests, political rallies, demonstrations, holiday events, celebratory gatherings, etc.)
- Hotels, clubs, and restaurants frequented by tourists
- Places of worship
- Schools
- Parks
- Shopping malls and markets; and
- Public transportation systems (including subways, buses, trains, and scheduled commercial flights).

Information suggests that there is a continued risk of armed terrorist and criminal groups operating and planning attacks against foreigners, including U.S. citizens. Since 2013, Malaysian authorities have arrested more than 500 supporters of the Islamic State terrorist group, including many individuals who planned to fight in Syria and Iraq.

Use caution in eastern Sabah because of the threat of kidnappings-for-ransom and violence from both terrorist and criminal groups, including the Philippines-based Abu Sayyaf Group. In addition to targeting coastal or resort islands themselves, criminal or terrorist groups may attempt to intercept boats ferrying tourists from the mainland to resort islands. Due to safety concerns, U.S. government employees traveling for both personal and official travel to Sabah east of the north-south line drawn

from the cities of Kudat to Tawau, including all islands, must obtain official written permission from the Embassy. The exceptions are the cities of Sandakan, Lahad Datu, Tawau, the Sepolik Nature Reserve, and the Kinabatangan River areas, which require U.S. government employees to officially notify the Embassy prior to travel. Malaysian law enforcement officials have enacted land and water-based curfews in the coastal areas of eastern Sabah. Check local media or ask local police for the most recent curfew information if traveling to eastern Sabah.

Crime: Petty theft and violent crime in Kuala Lumpur continue to be concerns. Purse snatchings, pick-pocketing, and residential burglaries are the most common crimes committed against foreigners. Avoid wrapping purse straps around arms or shoulders to avoid injury. Taxi drivers in central Kuala Lumpur have perpetrated violent crimes against foreign tourists and local residents. Book taxis in downtown shopping areas by phone or online, rather than hailing a taxi on the street, particularly after dark. Criminals also target motorists stuck in traffic or stopped at a light with smash and grab robberies. Keep valuables out of sight while driving or remove them from the car (including from the trunk) when parked. GPS devices should not be left on the windshield or dashboard.

Demonstrations occur frequently. They may take place in response to political or economic issues, on politically significant holidays, and during international events. Even demonstrations intended to be peaceful can turn confrontational and possibly become violent. Avoid areas around protests and demonstrations. Check local media for updates and traffic advisories. Local law prohibits non-Malaysians from participating in public protests.

Sophisticated internet romance and financial scams are prevalent in Malaysia. Scams are often initiated through Internet postings/profiles or less frequently by unsolicited emails and letters. Scammers almost always pose as U.S. citizens who have no one else to turn to for help. Common scams include:

- Romance/Online dating
- Money transfers
- Lucrative sales
- Gold purchase
- Contracts with promises of large commissions
- Inheritance notices
- Work permits/job offers; and
- Bank overpayments.

Credit Card Fraud: Safeguard your credit cards at all times and use them only at reputable establishments. If you must use a credit card in Malaysia, check your account information frequently for fraudulent charges.

Victims of Crime: U.S. citizen victims of sexual assault are encouraged to contact the U.S. Embassy for assistance. Report crimes to the local police via the emergency line at 999 (landline) or 112 (cell/mobile). Alternatively, call the Royal Malaysia Police Operations Center in Kuala Lumpur, 03-2115-9999 or 03-2266-2222. Contact the U.S. Embassy at +60-3-2168-5000. A police report is necessary for the embassy to help victims follow up on incidents of crime. In some tourist areas, the police have established small "Tourist Police" stations manned by personnel familiar with helping visitors to Malaysia. Remember that local authorities are responsible for investigating and prosecuting the crime.

The U.S. Embassy can:

- Help victims find appropriate medical care
- Assist in reporting a crime to the police
- Contact relatives or friends with written consent
- Provide general information regarding the victim's role during the local investigation and following its conclusion
- Provide a list of local attorneys
- Provide information on victim's compensation programs in the U.S.
- Provide an emergency loan for repatriation to the United States and/or limited medical support in cases of destitution
- Help find accommodation and arrange flights home; and

- Replace a stolen or lost passport.

Domestic Violence: U.S. citizen victims of domestic violence are encouraged to contact the Embassy for assistance.

Tourism: The tourism industry is generally regulated, and rules regarding best practices and safety inspections are regularly enforced. Hazardous areas/activities are identified with appropriate signage and professional staff is typically on hand in support of organized activities. In the event of an injury, appropriate medical treatment is widely available throughout the country. Outside of a major metropolitan center, it may take more time for first responders and medical professionals to stabilize a patient and provide life-saving assistance, and first responder capabilities may vary. When participating in trekking or other activities in extremely remote areas, particularly in the eastern states of Sabah and Sarawak on the island of Borneo, it may be difficult for first responders to reach patients quickly. U.S. citizens are encouraged to purchase medical evacuation insurance.

Emergency Contact Information

The American Citizen Services Unit assists U.S. citizens in the event of an emergency such as death, arrest, illness, injury, missing persons, destitution, or other circumstances. Normal service hours are 0745-1630, Monday through Friday, except on U.S. Embassy holidays. U.S. citizens seeking emergency services should contact the Embassy through email at *KLACS@state.gov* or by calling the hotline:

From Malaysia: 60-3-2168-5000 (NOT for visa questions)

From the U.S.: 011-60-3-2168-5000 (NOT for visa questions)

U.S. Embassy Kuala Lumpur
376 Jalan Tun Razak
50400, Kuala Lumpur
Telephone: +60-3-2168-5000
Emergency: +60-3-2168-5000 (press 1 at the recording)
Fax: +60-3-2148-5801
Email: *klacs@state.gov*
Website: *https://my.usembassy.gov/*

Currency Information

Malaysian Ringgit (RM)
US$1.00 = RM 4.419; or MR 1.00 = US$0.226 (as of 5 July 2022)[474]

Travel Health Information

The U.S. Centers for Disease Control and Prevention (CDC) provides guidance that all travelers to Malaysia should be up to date on routine vaccinations. The following are additional recommendations for travel to Malaysia. The information in Tables 15 and 16 are taken directly from the CDC website under the Travelers Health Section (*https://wwwnc.cdc.gov/travel/destinations/list/*).[475]

Health Alerts for Malaysia: At the time of writing this handbook (5 July 2022), there is one health risk alert for Malaysia:

- High Level of COVID-19 in Malaysia
- Make sure you are up to date with your COVID-19 vaccines before traveling to Malaysia
- Even if you are up to date with your COVID-19 vaccines, you may still be at risk for getting and spreading COVID-19
- Anyone 2 years or older should properly wear a well-fitting mask in indoor public spaces
- If you have a weakened immune system or are at increased risk for severe disease, even if you are up to date with your COVID-19 vaccines, talk with your clinician about your risk, and consider delaying travel to Malaysia; and
- Follow all requirements and recommendations in Malaysia.

The following actions you can take to stay healthy and safe on your trip include:

Eat and Drink Safely

Unclean food and water can cause travelers' diarrhea and other diseases. Reduce your risk by sticking to safe food and water habits.

Eat
- Food that is cooked and served hot
- Hard-cooked eggs
- Fruits and vegetables, you have washed in clean water or peeled yourself
- Pasteurized dairy products

Don't Eat
- Food served at room temperature
- Food from street vendors
- Raw or soft-cooked (runny) eggs
- Raw or undercooked (rare) meat or fish
- Unwashed or unpeeled raw fruits and vegetables
- Unpasteurized dairy products
- "Bushmeat" (monkeys, bats, or other wild game)

Drink
- Bottled water that is sealed
- Water that has been disinfected
- Ice made with bottled or disinfected water
- Carbonated drinks
- Hot coffee or tea
- Pasteurized milk

Don't Drink
- Tap or well water
- Ice made with tap or well water
- Drinks made with tap or well water (such as reconstituted juice)
- Unpasteurized milk

Take Medicine

Talk with your doctor about taking prescription or over-the-counter drugs with you on your trip in case you get sick.

Prevent Bug Bites

Bugs (like mosquitoes, ticks, and fleas) can spread a number of diseases in Malaysia. Many of these diseases cannot be prevented with a vaccine or medicine. You can reduce your risk by taking steps to prevent bug bites.

To prevent bug bites:
- Cover exposed skin by wearing long-sleeved shirts, long pants, and hats.
- Use an appropriate insect repellent (see below).
- Use permethrin-treated clothing and gear (such as boots, pants, socks, and tents). Do not use permethrin directly on skin.
- Stay and sleep in air-conditioned or screened rooms.
- Use a bed net if the area where you are sleeping is exposed to the outdoors.

For protection against ticks and mosquitoes:

Use a repellent that contains 20 percent or more DEET for protection that lasts up to several hours.

For protection against mosquitoes only:

Products with one of the following active ingredients can also help prevent mosquito bites. Higher percentages of active ingredient provide longer protection.
- DEET
- Picaridin (also known as KBR 3023, Bayrepel, and Icaridin)
- Oil of lemon eucalyptus (OLE) or para-Menthane-3,8-diol (PMD)
- IR3535
- 2-undecanone

If you are bitten by bugs:
- Avoid scratching bug bites and apply hydrocortisone cream or calamine lotion to reduce the itching.
- Check your entire body for ticks after outdoor activity. Be sure to remove ticks properly.

Safety and Security

Note that conditions can change rapidly in a country at any time. To receive updated Travel Advisories and Alerts for the countries you choose, sign up at step.state.gov.

Routine vaccines (for all travelers)	Make sure you are up to date on all routine vaccines before every trip. Some of these vaccines include: • Chickenpox (Varicella) • Diphtheria-Tetanus-Pertussis • Flu (influenza) • Measles-Mumps-Rubella (MMR) • Polio • Shingles • Immunization schedules
COVID-19	All eligible travelers should be up to date with their COVID-19 vaccines
Hepatitis A	Recommended for unvaccinated travelers one year old or older going to Malaysia. Infants ages 6-11 months old should also be vaccinated against Hepatitis A. The dose does not count toward the routine 2-dose series. Travelers allergic to a vaccine component or who are younger than 6 months should receive a single dose of immune globulin, which provides effective protection for up to 2 months depending on dosage given. Unvaccinated travelers who are over 40 years old, immunocompromised, or have chronic medical conditions planning to depart to a risk area in less than 2 weeks should get the initial dose of vaccine and at the same appointment receive immune globulin.
Hepatitis B	Recommended for unvaccinated travelers of all ages to Malaysia
Japanese Encephalitis	Recommended for travelers who: • Are moving to an area with Japanese encephalitis to live • Spend long periods of time, such as a month or more, in areas with Japanese encephalitis • Frequently travel to areas with Japanese encephalitis. Consider vaccination for travelers: • Spending less than a month in areas with Japanese encephalitis but will be doing activities that increase risk of infection, such as visiting rural areas, hiking or camping, or staying in places without air conditioning, screens, or bed nets • Going to areas with Japanese encephalitis who are uncertain of their activities or how long they will be there. Not recommended for travelers planning short-term travel to urban areas or travel to areas with no clear Japanese encephalitis season.
Malaria	CDC recommends that travelers going to certain areas of Malaysia take prescription medicine to prevent malaria. There have been no indigenous cases of human malaria since 2017; simian malaria occurs in rural, forested areas. Depending on the medicine you take, you will need to start taking this medicine multiple days before your trip, as well as during and after your trip. Talk to your doctor about which malaria medication you should take
Measles	Infants ages 6-11 months old traveling internationally should get 1 dose of measles-mumps-rubella (MMR) vaccine before travel. This dose does not count as part of the routine childhood vaccination series
Rabies	Rabid dogs are commonly found in Malaysia. However, if you are bitten or scratched by a dog or other mammal while in Malaysia, rabies treatment is often available. Consider rabies vaccination before your trip if your activities mean you will be around dogs or wildlife. Travelers more likely to encounter rabid animals include: • Campers, adventure travelers, or cave explorers (spelunkers) • Veterinarians, animal handlers, field biologists, or laboratory workers handling animal specimens • Visitors to rural areas. Since children are more likely to be bitten or scratched by a dog or other animals, consider rabies vaccination for children traveling to Malaysia.
Typhoid	Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas
Yellow Fever	Required if traveling from a country with risk of Yellow Fever virus transmission and ≥1 year of age, including transit >12 hours in an airport located in a country with risk of virus transmission

Table 15: CDC Travel Health Information for Vaccine Preventable Diseases in Malaysia

Chikungunya	Chikungunya virus is spread to people by the bite of an infected mosquito. Mosquitoes become infected when they feed on a person already infected with the virus. Infected mosquitoes can then spread the virus to other people through bites. Symptoms usually begin 3–7 days after being bitten by an infected mosquito. The most common symptoms are fever and joint pain. Other symptoms include headache, muscle pain, joint swelling, or rash. Most people feel better within a week. In some people the joint pain may persist for months. Avoid bug bites.
Dengue	Dengue viruses are spread to people through the bite of an infected mosquito. Dengue symptoms usually start within a few days of being bitten but can take up to 2 weeks to develop. Symptoms can be mild or severe and can include fever, nausea, vomiting, rash, headache, eye pain, and joint and muscle pain. In severe cases, dengue can cause shock, internal bleeding, and even death. Not everyone who gets infected with dengue will feel sick; only about 1 out of 4 infected people get sick. You are more likely to develop severe dengue if you were infected before. Infants and pregnant women are more likely to develop severe dengue. Avoid bug bites.
Hantavirus	You can be infected with a hantavirus if you: • Breathe air or eat food contaminated with the urine, droppings, or saliva of infected rodents • Are bitten by an infected rodent (typically a mouse or a rat). Hantaviruses in Asia cause organ damage, especially the kidneys and blood vessels. This is known as hemorrhagic fever with renal syndrome. Complete recovery from this type of disease can take weeks to months and may sometimes be fatal. Symptoms of hantavirus disease usually develop 3-4 weeks after infection but can occur as early as 1 week and, in rare cases, up to 8 weeks. Early symptoms include fatigue, fever, and muscle aches. There may also be headaches, dizziness, chills, nausea, vomiting, diarrhea, and abdominal pain. Avoid rodents and where they live, and avoid sick people.
Leptospirosis	Leptospirosis is a disease caused by bacteria. Infected animals spread the bacteria through their urine, which can deliver the bacteria into water or soil where it can live for weeks to months. You can be infected if you touch fresh water, soil, or other objects contaminated with infected animal urine. The most common way you can get infected is urine or contaminated water getting in your eyes, nose, mouth, or broken skin (such as a cut or scratch). You can also get infected by eating contaminated food or drinking contaminated water. Some people with leptospirosis will not have any symptoms. When symptoms occur, they can include fever, headache, chills, muscle aches, vomiting, jaundice (yellow eyes and skin), red eyes, stomach pain, diarrhea, and sometimes a rash. Without proper treatment with antibiotics, people with leptospirosis may develop serious problems with their kidneys, liver, or lining of the brain and spinal cord (meningitis). In some cases, leptospirosis can cause death. Avoid contaminated water and soil.
Tuberculosis (TB)	TB is a disease caused by bacteria called Mycobacterium tuberculosis. People with TB can spread it in the air to others when they cough, speak, or sing. You can get sick when you breathe TB bacteria into your lungs. TB bacteria in the lungs can move through the blood to infect other parts of the body, such as the kidney, spine, and brain. Symptoms of TB disease in the lungs include: • Cough that lasts 3 weeks or longer • Pain in the chest • Coughing up blood or mucus • Weakness or fatigue • Weight loss • Loss of appetite • Chills • Fever • Sweating at night. Symptoms of TB infection in other parts of the body depend on the area affected. Not everyone infected with TB bacteria becomes sick or has symptoms. This is called latent TB infection. People with latent TB infection cannot spread TB to others. However, a person with latent TB infection can get sick years later if their immune system becomes weak. People with latent TB infection can take medicine to prevent getting TB Disease. Avoid sick people.
Zika	Zika can spread several ways, including: • Through the bite of an infected mosquito. Mosquitoes become infected when they bite a person infected with the virus. • From a pregnant woman to her developing fetus, or at the time of birth, if the mother is infected with Zika during pregnancy. • Through sex with a person who is infected with Zika. Zika can be sexually transmitted from an infected man or woman. But Zika can stay in a man's semen longer than in a woman's body fluids. Zika can stay in a man's semen for months after infection and be transmitted through sex during that time. Many people infected with Zika virus do not get sick or only have mild symptoms. However, infection during pregnancy can cause severe birth defects. Avoid bug bites.

Table 16: CDC Travel Health Information for Non-Vaccine Preventable Diseases in Malaysia

Sendai Framework

The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 is the global blueprint and fifteen-year plan to build the world's resilience to natural disasters.[476] It aims to achieve substantial reduction of disaster risk and losses of lives, livelihoods, health, and economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries by 2030. It was adopted at the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015.[477] It is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters.[478] Figure 18 shows the Sendai DRR Framework.[479]

SFDRR outlines seven clear targets and four priorities for action to prevent new and reduce existing disaster risks:

The Seven Global Targets include:

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rates in the decade 2020-2030 compared to the period 2005-2015.
- Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- Reduce direct disaster economic loss in relation to global GDP by 2030.
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

The Four Priorities of Action include:

- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Investing in disaster reduction for resilience; and
- Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.[480]

Since the 1990s, the Malaysian government has instituted various policy, infrastructure, and operational mechanisms that link national, state, and district administrations to ensure involvement of various government agencies and the non-governmental sector in addressing risks posed by hazards. DRR, within the country's framework and policies, involves systematic efforts to analyze and manage causal factors, including through reduced exposure to hazards, lessened vulnerability of people and property, sustainable management of land and the environment, and improved preparedness of individuals, communities, and agencies. The National Security Council of the Prime Minister's Department is responsible for ensuring effectiveness of the disaster management mechanisms. The Melaka Declaration on DRR (2011) encapsulated the direction of DRR in the country and described Malaysia's efforts towards implementing the priority areas of the HFA. The Council formalized the National Platform for DRR in 2013 by expanding stakeholders to include policymakers and practitioners from government, universities, NGOs, and the private sector to take ownership of DRR.

Since that 2013 founding, the Malaysian National Platform and Action Plan for DRR, myDRR, has become a national, multi-stakeholder forum for work on DRR. The

Chart of the Sendai Framework for Disaster Risk Reduction
2015-2030

Scope and purpose

The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors

Expected outcome

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

Goal

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

Targets

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015	Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015	Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030	Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030

Figure 18: Sendai Framework for Disaster Risk Reduction (2015-2030)

National Security Council is the myDRR focal point with NADMA as the Secretariat; they engage stakeholders, particularly private sector representatives who are encouraged to develop Business Continuity Plans and support the National Disaster Fund that provides financial assistance to those affected by disasters. Other stakeholders engaged by the National Security Council from the beginning of myDRR include representatives of local commercial banks, who disburse micro credit; the Amanah Ikhtiar Malaysia cooperative that provides financial assistance to its members; Telekom Malaysia, which introduced a Fixed-Line Disaster Alert System for dissemination of disaster alert in high risk areas; MERCY Malaysia; and the Ministry of Higher Education, which is responsible for the Southeast Asia Disaster Prevention Initiative (SEADPRI-UKM) to address knowledge gaps and promote policy-relevant solutions to reduce underlying risk factors at all levels of planning.[481]

More recently, CCA and DRR issues have ascended the national agenda. Malaysia ratified the Paris Climate Agreement in November 2016. In 2018, the Ministry of Natural Resources and the Environment submitted Malaysia's Third National Communication and Second Biennial Update to the United Nations Framework Convention on Climate Change (UNFCCC).[482]

At the Seventh Session of the Global Platform for Disaster Risk Reduction (GP2022), the Malaysian delegation noted that in the seven years after adoption of the SFDRR, the world continues to grapple with the effects of climate change and that, in recent years, Malaysia's exposure to a range of climate-related hazards had intensified. Following the adoption of SFDRR, Malaysia integrated the Sendai Framework Monitor (SFM) to evaluate progress toward the seven global targets. Malaysia has emphasized use of the SFDRR tools to improve management of disaster risk and to fully transform from a reactive disaster management approach to one of managing risk. After the launch of the online SFM in 2018, Malaysia has been able to make disaster damage and loss data dating back to 2005 publicly available. As of 2022, additional steps to strengthen DRR governance were underway via finalization of the National Policy on DRR and drafting of the DRR Act. The Government was aiming for local governments to adopt and implement local DRR policies and strategies in line with national level policy, strategies, action plans, and programs.[483]

Ahead of GP2022, in October 2021, Prime Minister Yaakob had reiterated that Malaysia required a DRR action plan, strategy, and programs that cohere with global instruments like the SFDRR and the Sustainable Development Goals and that are mainstreamed across all sectors. He pointed to the most recent initiatives, particularly the Communication, Education, and Public Awareness portion of 12MP, which came on the heels of NADMA efforts in partnership with SEADPRI-UKM to prepare the National Risk Register aimed at creating awareness and understanding the risk of disasters.[484] Leading up to these programs, concerns had been raised that climate change could accelerate processes threating Malaysia's natural resources. In its Tenth (2011–2015) and Eleventh (2016–2020) National Plans, Malaysia's government had targeted significant investment at climate resilience enhancements.[485]

Comprehensive, inclusive, and targeted social protection systems are required to systematically address varying degrees of socio-economic inequality and vulnerability across different population groups. Malaysia's current social protection systems remain fragmented, underfunded, and poorly targeted with a lack of employee safety nets and income support for disadvantaged persons (e.g., unemployed, single parents, persons with disabilities, and older persons). The most vulnerable populations are overlooked, unable to access services, or classified as too small a group to benefit from sufficient and regular support. Although significant progress has been made to enhance social protection and poverty reduction, additional initiatives were prepared under 12MP (2021-2025).[486]

HFA Country Progress Report

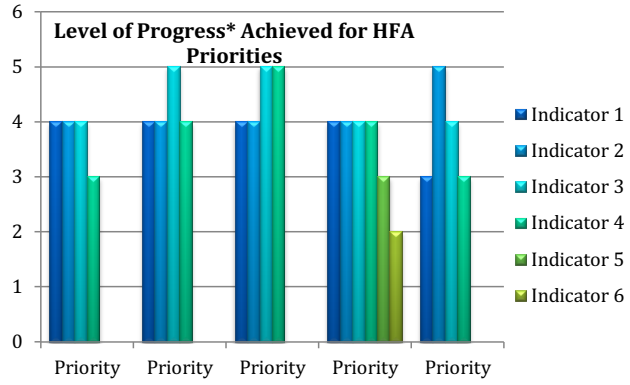


Figure 19: HFA Level of Progress Achieved

The Hyogo Framework for Action (HFA) was adopted as a guideline to reduce vulnerabilities to natural hazards. The HFA was designed to assist participating countries to become more resilient and to better manage the hazards that threaten their development. The most recent levels of progress results published from Malaysia are from 2011-2013 and are represented in Figure 19 and Table 17. Table 18 provides an overview of the overall challenges and the future outlook statement from the 2013 HFA report, which is the most recent HFA report available for Malaysia. The information in this section is sourced directly from the HFA Country Progress Report.[487]

Core Indicator*	Indicator Description	Level of progress Achieved*
Priority for Action #1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.		
1	National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels.	4
2	Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels.	4
3	Community participation and decentralization is ensured through the delegation of authority and resources to local levels.	4
4	A national multi sectoral platform for disaster risk reduction is functioning.	3
Priority for Action #2: Identify, assess, and monitor disaster risks and enhance early warning.		
1	National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.	4
2	Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.	4
3	Early warning systems are in place for all major hazards, with outreach to communities.	5
4	National and local risk assessments take account of regional / trans-boundary risks, with a view to regional cooperation on risk reduction.	4
Priority for Action #3: Use knowledge, innovation, and education to build a culture of safety and resilience at all levels		
1	Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems, etc.).	4
2	School curricula, education material, and relevant trainings include disaster risk reduction and recovery concepts and practices.	4
3	Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.	5
4	Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.	5

Table 17: National Progress Report on the Implementation of the HFA

Priority for Action #4: Reduce the underlying risk factors.		
1	Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.	4
2	Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.	4
3	Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities.	4
4	Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.	4
5	Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes.	3
6	Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.	2
Priority for Action #5: Strengthen disaster preparedness for effective response at all levels.		
1	Strong policy, technical and institutional capacities, and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.	3
2	Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programs.	5
3	Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.	4
4	Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.	3

Table Notes:
*Level of Progress:
1 – Minor progress with few signs of forward action in plans or policy
2 – Some progress, but without systematic policy and/ or institutional commitment
3 – Institutional commitment attained, but achievements are neither comprehensive nor substantial
4 – Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
5 – Comprehensive achievement with sustained commitment and capacities at all levels

Table 17: National Progress Report on the Implementation of the HFA (cont.)

Future Outlook Area 1: The more effective integration of disaster risk considerations into sustainable development policies, planning, and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness, and vulnerability reduction.	
Challenges:	DRR remains the main priority within national, state, and local concerns as well as the existing disaster mechanism approach, which emphasizes response and post-disaster relief and recovery. There are other issues that compete for human and financial resources necessary for DRR initiatives.
Future Outlook Statement:	A national policy for disaster management, once developed, will enable greater integration of disaster risk consideration in relevant plans, policies, and programs at all levels. The formulation process will be an opportunity for awareness-raising and capacity building for involved stakeholders. Currently, the National Policy on Climate Change will provide the opportunity to mainstream and integrate DRR through climate change adaptation responses as envisaged in the Policy.
Future Outlook Area 2: The development and strengthening of institutions, mechanisms, and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.	
Challenges:	The awareness and capacity of key agencies and other stakeholders needs to be strengthened to encompass the whole spectrum of disaster management.
Future Outlook Statement:	A national platform on disaster management will be established during the Tenth Malaysia Plan to improve effectiveness in multi-stakeholder mobilization and drive more proactive and comprehensive multi-hazard approach in identifying, preventing, mitigating, and preparing for the disaster risks.
Future Outlook Area 3: The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response, and recovery programs in the reconstruction of affected communities.	
Challenges:	Scarcity of resources among local authorities for DRR programs needs to be addressed.
Future Outlook Statement:	The National Security Council is in the process of reviewing Directive No.20: "National Policy and Mechanism on Disaster Management and Relief" to include DRR considerations and functions at the national, state, and local levels.

Table 18: HFA Country Progress Report Future Outlook Areas, Malaysia

Country Profile

The information in the Country Profile section is sourced directly from the CIA World Factbook for Malaysia. Additional numbers on country comparison to the world can be found by going directly to the CIA website (https:/www.cia.gov). It discusses topics including geography, people and society, government, economy, energy, communications, military and security, transportation, terrorism, and transnational issues.[488]

Background

Malaysia's location has long made it an important cultural, economic, historical, social, and trade link between the islands of Southeast Asia and the mainland. Through the Strait of Malacca, which separates the Malay Peninsula from the archipelago, flowed maritime trade and with it influences from China, India, the Middle East, and the east coast of Africa. Prior to the 14th century, several powerful maritime empires existed in what is modern-day Malaysia, including the Srivijayan, which controlled much of the southern part of the peninsula between the 7th and 13th centuries, and the Majapahit Empire, which took control over most of the peninsula and the Malay Archipelago between the 13th and 14th centuries. The adoption of Islam between the 13th and 17th centuries also saw the rise of a number of powerful maritime states and sultanates on the Malay Peninsula and the island of Borneo, such as the port city of Malacca (Melaka), which at its height in the 15th century had a navy and hosted thousands of Chinese, Arab, Persian, and Indian merchants.

The Portuguese in the 16th century and the Dutch in the 17th century were the first European colonial powers to establish themselves on the Malay Peninsula and Southeast Asia. However, it was the British who ultimately secured their hegemony across the territory and during the late 18th and 19th centuries established colonies and protectorates in the area that is now Malaysia. These holdings were occupied by Japan from 1942 to 1945.

In 1948, the British-ruled territories on the Malay Peninsula except Singapore formed the Federation of Malaya, which became independent in 1957. Malaysia was formed in 1963 when the former British colonies of Singapore, as well as Sabah and Sarawak on the northern coast of Borneo, joined the Federation. The first several years of the country's independence were marred by a communist insurgency, Indonesian confrontation with Malaysia, Philippine claims to Sabah, and Singapore's expulsion in 1965. During the 22-year term of Prime Minister MAHATHIR Mohamad (1981-2003), Malaysia was successful in diversifying its economy from dependence on exports of raw materials to the development of manufacturing, services, and tourism. Prime Minister MAHATHIR and a newly-formed coalition of opposition parties defeated Prime Minister Mohamed NAJIB bin Abdul Razak's United Malays National Organization (UMNO) in May 2018, ending over 60 years of uninterrupted rule by UMNO. MAHATHIR resigned in February 2020 amid a political dispute. King ABDULLAH then selected Tan Sri MUHYIDDIN Yassin as the new prime minister. MUHYIDDIN resigned in August 2021 after losing a majority of support in parliament. King ABDULLAH next selected ISMAIL SABRI Yakoob as the successor prime minister.

Geography

Location

Southeastern Asia, peninsula bordering Thailand and northern one-third of the island of Borneo, bordering Indonesia, Brunei, and the South China Sea, south of Vietnam

Geographic coordinates

2 30 N, 112 30 E

Area

total: 329,847 sq km
land: 328,657 sq km
water: 1,190 sq km
country comparison to the world: 73

Area - comparative

slightly larger than New Mexico

Land boundaries
total: 2,742 km
border countries (3): Brunei 266 km; Indonesia 1,881 km; Thailand 595 km

Coastline
4,675 km (Peninsular Malaysia 2,068 km, East Malaysia 2,607 km)

Maritime claims
territorial sea: 12 nm
exclusive economic zone: 200 nm
continental shelf: 200-m depth or to the depth of exploitation; specified boundary in the South China Sea

Climate
tropical; annual southwest (April to October) and northeast (October to February) monsoons

Terrain
coastal plains rising to hills and mountains

Elevation
highest point: Gunung Kinabalu 4,095 m
lowest point: Indian Ocean 0 m
mean elevation: 419 m

Natural resources
tin, petroleum, timber, copper, iron ore, natural gas, bauxite

Land use
agricultural land: 23.2% (2018 est.)
arable land: 2.9% (2018 est.)
permanent crops: 19.4% (2018 est.)
permanent pasture: 0.9% (2018 est.)
forest: 62% (2018 est.)
other: 14.8% (2018 est.)

Irrigated land
3,800 sq km (2012)

Population distribution
a highly uneven distribution with over 80% of the population residing on the Malay Peninsula

Natural hazards
flooding; landslides; forest fires

People and Society
Population
33,871,431 (2022 est.)
country comparison to the world: 43

Nationality
noun: Malaysian(s)
adjective: Malaysian

Ethnic groups
Bumiputera 62.5% (Malays and indigenous peoples, including Orang Asli, Dayak, Anak Negeri), Chinese 20.6%, Indian 6.2%, other 0.9%, non-citizens 9.8% (2019 est.)

Languages
Bahasa Malaysia (official), English, Chinese (Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow), Tamil, Telugu, Malayalam, Panjabi, Thai; note - Malaysia has 134 living languages - 112 indigenous languages and 22 non-indigenous languages; in East Malaysia, there are several indigenous languages; the most widely spoken are Iban and Kadazan
major-language sample(s): Buku Fakta Dunia, sumber yang diperlukan untuk maklumat asas. (Bahasa Malaysia)

Religions
Muslim (official) 61.3%, Buddhist 19.8%, Christian 9.2%, Hindu 6.3%, Confucianism, Taoism, other traditional Chinese religions 1.3%, other 0.4%, none 0.8%, unspecified 1% (2010 est.)

Demographic profile
Malaysia's multi-ethnic population consists of the bumiputera – Malays and other indigenous peoples – (62%), ethnic Chinese (21%), ethnic Indians (6%), and foreigners (10%). The majority of Malaysia's ethnic Chinese and Indians trace their roots to the British colonialists' recruitment of hundreds of thousands of Chinese and Indians as mine and plantation workers between the early-19th century and the 1930s. Most Malays have maintained their rural lifestyle, while the entrepreneurial Chinese have achieved greater wealth and economic dominance. In order to eradicate Malay poverty, the Malaysian

Government in 1971 adopted policies that gave preference to the bumiputera in public university admissions, government jobs and contracts, and property ownership. Affirmative action continues to benefit well-off urban bumiputera but has done little to alleviate poverty for their more numerous rural counterparts. The policies have pushed ethnic Chinese and Indians to study at private or foreign universities (many do not return) and have created and sustained one of the world's largest civil services, which is 85-90% Malay.

The country's age structure has changed significantly since the 1960s, as fertility and mortality rates have declined. Malaysia's total fertility rate (TFR) has dropped from 5 children per woman in 1970, to 3 in 1998, to 2.1 in 2015 as a result of increased educational attainment and labor participation among women, later marriages, increased use of contraception, and changes in family size preference related to urbanization. The TFR is higher among Malays, rural residents (who are mainly Malay), the poor, and the less-educated. Despite the reduced fertility rate, Malaysia's population will continue to grow, albeit at a decreasing rate, for the next few decades because of its large number of reproductive-age women. The youth population has been shrinking, and the working-age population (15-64 year olds) has been growing steadily. Malaysia's labor market has successfully absorbed the increasing number of job seekers, leading to sustained economic growth. However, the favorable age structure is changing, and around 2020, Malaysia will start to become a rapidly aging society. As the population ages, Malaysia will need to better educate and train its labor force, raise productivity, and continue to increase the number of women workers in order to further develop its economy.

More than 1.8 million Malaysians lived abroad as of 2015, including anywhere from 350,000 to 785,000 workers, more than half of whom have an advanced level of education. The vast majority of emigrants are ethnic Chinese, seeking better educational and job opportunities abroad because of institutionalized ethnic discrimination favoring the Malays. The primary destination country is nearby Singapore, followed by Bangladesh and Australia. Hundreds of thousands of Malaysians also commute across the causeway to Singapore daily for work.

Brain drain is an impediment to Malaysia's goal of becoming a high-income country. The situation is compounded by a migrant inflow that is composed almost entirely of low-skilled laborers who work mainly in manufacturing, agriculture, and construction. Officially, Malaysia had about 1.8 million legal foreign workers as of mid-year 2017 – largely from Indonesia, Nepal, the Philippines, and Bangladesh – but as many as 3 to 4 million are estimated to be in the country illegally. Immigrants outnumber ethnic Indians and could supplant the ethnic Chinese as Malaysia's second largest population group around 2035.

Age structure
0-14 years: 26.8% (male 4,504,562/female 4,246,681)
15-24 years: 16.63% (male 2,760,244/female 2,670,186)
25-54 years: 40.86% (male 6,737,826/female 6,604,776)
55-64 years: 8.81% (male 1,458,038/female 1,418,280)
65 years and over: 6.9% (2020 est.) (male 1,066,627/female 1,184,863)

Figure 20 is the population pyramid for Malaysia.[489]

Dependency ratios
total dependency ratio: 44.2
youth dependency ratio: 33.8
elderly dependency ratio: 10.4
potential support ratio: 9.7 (2020 est.)

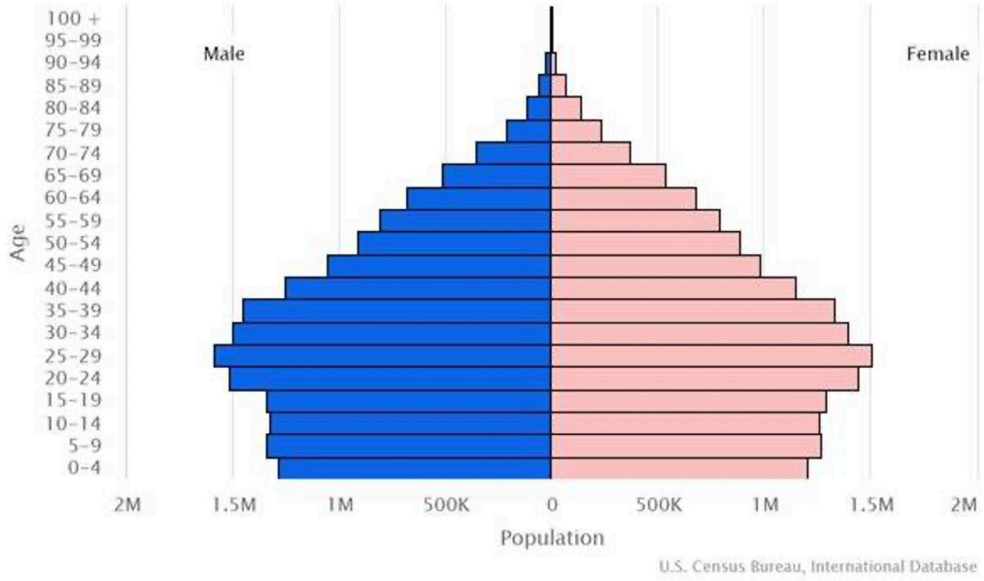


Figure 20: Population Pyramid for Malaysia (2022)

Median age
total: 29.2 years
male: 28.9 years
female: 29.6 years (2020 est.)
country comparison to the world: 134

Population growth rate
1.03% (2022 est.)
country comparison to the world: 94

Birth rate
14.55 births/1,000 population (2022 est.)
country comparison to the world: 120

Death rate
5.69 deaths/1,000 population (2022 est.)
country comparison to the world: 174

Net migration rate
1.48 migrant(s)/1,000 population (2022 est.)
country comparison to the world: 60

Population distribution
a highly uneven distribution with over 80% of the population residing on the Malay Peninsula

Urbanization
urban population: 78.2% of total population (2022)
rate of urbanization: 1.87% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Major urban areas - population
8.420 million KUALA LUMPUR (capital), 1.065 million Johor Bahru, 842,000 Ipoh (2022)

Sex ratio
at birth: 1.07 male(s)/female
0-14 years: 1.06 male(s)/female
15-24 years: 1.05 male(s)/female
25-54 years: 1.07 male(s)/female
55-64 years: 1 male(s)/female
65 years and over: 1.14 male(s)/female
total population: 1.05 male(s)/female (2022 est.)

Maternal mortality ratio
29 deaths/100,000 live births (2017 est.)
country comparison to the world: 113

Infant mortality rate
total: 6.59 deaths/1,000 live births
male: 6.97 deaths/1,000 live births
female: 6.19 deaths/1,000 live births (2022 est.)
country comparison to the world: 164

Life expectancy at birth
total population: 76.13 years
male: 74.5 years
female: 77.87 years (2022 est.)
country comparison to the world: 108

Total fertility rate
1.75 children born/woman (2022 est.)
country comparison to the world: 155

Contraceptive prevalence rate
52.2% (2014)

Drinking water source
improved: urban: 99.4% of population
rural: 90.7% of population
total: 97.5% of population
unimproved: urban: 0.6% of population
rural: 9.3% of population
total: 2.5% of population (2020 est.)

Current Health Expenditure
3.8% (2019)

Physicians density
1.54 physicians/1,000 population (2020)

Hospital bed density
1.9 beds/1,000 population (2017)

Sanitation facility access
improved: urban: 99% of population
rural: NA
total: NA
unimproved: urban: 0.1% of population
rural: NA
total: (2020 est.) NA

HIV/AIDS - adult prevalence rate
0.4% (2020 est.)
country comparison to the world: 76

HIV/AIDS - people living with HIV/AIDS
92,000 (2020 est.)
country comparison to the world: 47

HIV/AIDS - deaths
2,000 (2020 est.)
country comparison to the world: 46

Major infectious diseases
degree of risk: intermediate (2020)
food or waterborne diseases: bacterial diarrhea
vectorborne diseases: dengue fever
water contact diseases: leptospirosis

Obesity - adult prevalence rate
15.6% (2016)
country comparison to the world: 125

Tobacco use
total: 22.5% (2020 est.)
male: 43.8% (2020 est.)
female: 1.1% (2020 est.)
country comparison to the world: 68

Children under the age of 5 years underweight
14.1% (2019)
country comparison to the world: 40

Education expenditures
4.2% of GDP (2019)
country comparison to the world: 95

Literacy
definition: age 15 and over can read and write
total population: 95%
male: 96.2%
female: 93.6% (2019)

School life expectancy (primary to tertiary education)
total: 13 years
male: 13 years
female: 14 years (2019)

Unemployment, youth ages 15-24
total: 12%
male: 11.4%
female: 13% (2020 est.)

Environment

Environment - current issues
air pollution from industrial and vehicular emissions; water pollution from raw sewage; deforestation; smoke/haze from Indonesian forest fires; endangered species; coastal reclamation damaging mangroves and turtle nesting sites

Environment - international agreements
party to: Antarctic-Environmental Protection, Antarctic Treaty, Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Climate Change-Paris Agreement, Comprehensive

Nuclear Test Ban, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 2006, Wetlands

Air pollutants
particulate matter emissions: 16.04 micrograms per cubic meter (2016 est.)
carbon dioxide emissions: 248.29 megatons (2016 est.)
methane emissions: 51.51 megatons (2020 est.)

Climate
tropical; annual southwest (April to October) and northeast (October to February) monsoons

Land use
agricultural land: 23.2% (2018 est.)
arable land: 2.9% (2018 est.)
permanent crops: 19.4% (2018 est.)
permanent pasture: 0.9% (2018 est.)
forest: 62% (2018 est.)
other: 14.8% (2018 est.)

Urbanization
urban population: 78.2% of total population (2022)
rate of urbanization: 1.87% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Revenue from forest resources
forest revenues: 1.57% of GDP (2018 est.)
country comparison to the world: 40

Revenue from coal
coal revenues: 0.02% of GDP (2018 est.)
country comparison to the world: 44

Major infectious diseases
degree of risk: intermediate (2020)
food or waterborne diseases: bacterial diarrhea
vectorborne diseases: dengue fever
water contact diseases: leptospirosis

Waste and recycling
municipal solid waste generated annually: 12,982,685 tons (2014 est.)
municipal solid waste recycled annually: 2,271,970 tons (2016 est.)
percent of municipal solid waste recycled: 17.5% (2016 est.)

Total water withdrawal
municipal: 1.342 billion cubic meters (2017 est.)
industrial: 1.641 billion cubic meters (2017 est.)
agricultural: 2.505 billion cubic meters (2017 est.)

Total renewable water resources
580 billion cubic meters (2017 est.)

Government

Country name
conventional long form: none
conventional short form: Malaysia
local long form: none
local short form: Malaysia
former: British Malaya, Malayan Union, Federation of Malaya
etymology: the name means "Land of the Malays"

Government type
federal parliamentary constitutional monarchy
note: all Peninsular Malaysian states have hereditary rulers (commonly referred to as sultans) except Melaka (Malacca) and Pulau Pinang (Penang); those two states along with Sabah and Sarawak in East Malaysia have governors appointed by government; powers of state governments are limited by the federal constitution; under terms of federation, Sabah and Sarawak retain certain constitutional prerogatives (e.g., right to maintain their own immigration controls)

Capital
name: Kuala Lumpur; note - nearby Putrajaya is referred to as a federal government administrative center but not the capital; Parliament meets in Kuala Lumpur

geographic coordinates: 3 10 N, 101 42 E
time difference: UTC+8 (13 hours ahead of Washington, DC, during Standard Time)
etymology: the Malay word for "river junction or estuary" is "kuala" and "lumpur" means "mud"; together the words render the meaning of "muddy confluence"

Administrative divisions
13 states (negeri-negeri, singular - negeri); Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Perak, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor, Terengganu; and 1 federal territory (Wilayah Persekutuan) with 3 components, Kuala Lumpur, Labuan, and Putrajaya

Independence
31 August 1957 (from the UK)

National holiday
Independence Day (or Merdeka Day), 31 August (1957) (independence of Malaya); Malaysia Day, 16 September (1963) (formation of Malaysia)

Constitution
history: previous 1948; latest drafted 21 February 1957, effective 27 August 1957
amendments: proposed as a bill by Parliament; passage requires at least two-thirds majority vote by the Parliament membership in the bill's second and third readings; a number of constitutional sections are excluded from amendment or repeal; amended many times, last in 2019

Legal system
mixed legal system of English common law, Islamic (sharia) law, and customary law; judicial review of legislative acts in the Federal Court at request of supreme head of the federation

International law organization participation
has not submitted an ICJ jurisdiction declaration; non-party state to the ICCt

Citizenship
citizenship by birth: no
citizenship by descent only: at least one parent must be a citizen of Malaysia
dual citizenship recognized: no
residency requirement for naturalization: 10 out 12 years preceding application

Suffrage
18 years of age; universal (2019)

Executive branch
chief of state: King Sultan ABDULLAH Sultan Ahmad Shah (since 24 January 2019); note - King MUHAMMAD V (formerly known as Tuanku Muhammad Faris Petra) (selected on 14 October 2016; installed on 13 December 2016) resigned on 6 January 2019; the position of the king is primarily ceremonial, but he is the final arbiter on the appointment of the prime minister
head of government: Prime Minister ISMAIL SABRI Yaakob (since 21 August 2021); note - Tan Sri MUHYIDDIN Yassin resigned on 16 August 2021
cabinet: Cabinet appointed by the prime minister from among members of Parliament with the consent of the king; note - cabinet dissolved 24 February 2020 with Prime Minister MAHATHIR resignation
elections/appointments: king elected by and from the hereditary rulers of 9 states for a 5-year term; election is on a rotational basis among rulers of the 9 states; election last held on 24 January 2019 (next to be held in 2024); prime minister designated from among members of the House of Representatives; following legislative elections, the leader who commands support of the majority of members in the House becomes prime minister

Legislative branch
description: bicameral Parliament of Malaysia or Parlimen Malaysia consists of:
Senate or Dewan Negara (70 seats; 44 members appointed by the king and 26 indirectly elected by 13 state legislatures; members serve 3-year terms)
House of Representatives or Dewan Rakyat (222 seats; members directly elected in single-seat constituencies by simple majority vote to serve 5-year terms) (2019)

elections: Senate - appointed
House of Representatives - last held on 9 May 2018 (next national elections are not scheduled until 2023 but are widely expected to be called in 2022)
election results:
Senate - appointed; composition - men 54, women 14, percent of women 20.6%
House of Representatives - percent of vote by party/coalition - PH 45.6%, BN 33.8%, PAS 16.9%, WARISAN 2.3%, other 1.4%; seats by party/coalition - PH 113, BN 79, PAS 18, WARISAN 8, USA 1, independent 3; composition - men 199, women 23, percent of women 10.4%; note - total Parliament percent of women 12.8%
note: as of 16 November 2019, seats by party - PH 129, BN 41, GS 18, GPS 18, WARISAN 9, GBS 3, UPKO 1, PSB 1, independent 1, vacant 1

Judicial branch
highest courts: Federal Court (consists of the chief justice, president of the Court of Appeal, chief justice of the High Court of Malaya, chief judge of the High Court of Sabah and Sarawak, 8 judges, and 1 "additional" judge); note - Malaysia has a dual judicial hierarchy of civil and religious (sharia) courts
judge selection and term of office: Federal Court justices appointed by the monarch on advice of the prime minister; judges serve until mandatory retirement at age 66 with the possibility of a single 6-month extension
subordinate courts: Court of Appeal; High Court; Sessions Court; Magistrates' Court

Political parties and leaders
National Front (Barisan Nasional) or BN:
United Malays National Organization (Pertubuhan Kebansaan Melayu Bersatu) or UNMO [Ahmad Zahid HAMIDI]
Malaysian Chinese Association (Persatuan Cina Malaysia) or MCA [Wee Ka SIONG]
Malaysian Indian Congress (Kongres India Malaysia) or MIC [Vigneswaran SANASEE]

(Formerly - Coalition of Hope (Pakatan Harapan) or PH (formerly the People's Alliance, before former PM MAHATHIR resigns 24 February 2020):
Democratic Action Party (Parti Tindakan Demokratik) or DAP [LIM Guan Eng]
Malaysian United Indigenous Party (Parti Pribumi Bersatu Malaysia) or PPBM [Tan Sri MUHYIDDIN Yassin; note - former PM MAHATHIR stepped down 24 Feb 2020]
National Trust Party (Parti Amanah Negara) or AMANAH [Mohamad SABU]
People's Justice Party (Parti Keadilan Rakyat) or PKR [ANWAR Ibrahim]

Coalition Perikatan Nasional or PN, after Pakatan Harapan or PH coalition fell apart 24 February 2020:
Malaysian United Indigenous Party (Parti Pribumi Bersatu Malaysia) or PPBM [Tan Sri MUHYIDDIN Yassin]
United Malays National Organization or UMNO [Zahid HAMID]
People's Justice Party (Parti Keadilan Rakyat) or PKR [ANWAR Ibrahim]
Pan-Malaysian Islamic Party (Parti Islam se Malaysia) or PAS [Abdul HADI Awang]
Democratic Action Party (Parti Tindakan Demokratik) or DAP [TAN Kok Wai]
National Trust Party (Parti Amanah Negara) or AMANAH [Mohamad SABU]
United Sabah People's Party (Parti Bersatu Rakyat Sabah) or PBRS [Joseph KURUP]
Malaysian People's Movement Party (Parti Gerakan Rakyat Malaysia) or GARAKAN/ PGRM [Dominic Lau Hoe CHAI]
Homeland Solidarity Party (Parti Solidariti Tanah Airku) or Sabah Star [Datuk Seri Jeffrey Kitingan]
Sabah Progressive Party [Yong Teck LEE]

Other:
Fighters of the Nation Party (Parti Pejuang Tanah Air) or Pejuang
Malaysian United Democratic Alliance or Muda
Progressive Democratic Party or PDP [TIONG King Sing]
Sabah Heritage Party (Parti Warisan Sabah) or WARISAN [SHAFIE Apdal]
Sarawak Parties Alliance (Gabungan Parti

Sarawak) or GPS [ABANG JOHARI Openg] (includes PBB, SUPP, PRS, PDP)
Sarawak People's Party (Parti Rakyat Sarawak) or PRS [James MASING]
Sarawak United People's Party (Parti Bersatu Rakyat Sarawak) or SUPP [Dr. SIM Kui Hian]
United Pasokmomogun Kadazandusun Murut Organization (Pertubuhan Pasko Momogun Kadazan Dusun Bersatu) or UPKO [Wilfred Madius TANGAU]
United Sabah Alliance or USA (Gabungan Sabah)
United Sabah Party (Parti Bersatu Sabah) or PBS [Maximus ONGKILI]
United Traditional Bumiputera Party (Parti Pesaka Bumiputera Bersata) or PBB

International organization participation
ADB, APEC, ARF, ASEAN, BIS, C, CICA (observer), CP, D-8, EAS, FAO, G-15, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICRM, IDA, IDB, IFAD, IFC, IFRCS, IHO, ILO, IMF, IMO, IMSO, Interpol, IOC, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MONUSCO, NAM, OIC, OPCW, PCA, PIF (partner), UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNIFIL, UNISFA, UNMIL, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO

Diplomatic representation in the US
chief of mission: ambassador (vacant); Charge d'Affaires Fairuz Adli Mohd ROZALI (since 28 August 2021)
chancery: 3516 International Court NW, Washington, DC 20008
telephone: [1] (202) 572-9700
FAX: [1] (202) 572-9882
email address and website: mwwashington@kln.gov.my
https://www.kln.gov.my/web/usa_washington/home
consulate(s) general: Los Angeles, New York

Diplomatic representation from the US
chief of mission: Ambassador Brian D. McFEETERS (since 26 February 2021)
embassy: 376 Jalan Tun Razak, 50400 Kuala Lumpur
mailing address: 4210 Kuala Lumpur, Washington DC 20521-4210
telephone: [60] (3) 2168-5000
FAX: [60] (3) 2142-2207
email address and website: KLACS@state.gov
https://my.usembassy.gov/

Flag description
14 equal horizontal stripes of red (top) alternating with white (bottom); there is a dark blue rectangle in the upper hoist-side corner bearing a yellow crescent and a yellow 14-pointed star; the flag is often referred to as Jalur Gemilang (Stripes of Glory); the 14 stripes stand for the equal status in the federation of the 13 member states and the federal government; the 14 points on the star represent the unity between these entities; the crescent is a traditional symbol of Islam; blue symbolizes the unity of the Malay people and yellow is the royal color of Malay rulers
note: the design is based on the flag of the US

National symbol(s)
tiger, hibiscus; national colors: gold, black

National anthem
name: "Negaraku" (My Country)
lyrics/music: collective, led by Tunku ABDUL RAHMAN/Pierre Jean DE BERANGER
note: adopted 1957; full version only performed in the presence of the king; the tune, which was adopted from a popular French melody titled "La Rosalie," was originally the anthem of Perak, one of Malaysia's 13 states

National heritage
total World Heritage Sites: 4 (2 cultural, 2 natural; Gunung Mulu National Park (n); Kinabalu Park (n); Malacca and George Town, Historic Cities of the Straits of Malacca (c); Archaeological Heritage of the Lenggong Valley (c))

Economy

Economic overview

Malaysia, an upper middle-income country, has transformed itself since the 1970s from a producer of raw materials into a multi-sector economy. Under current Prime Minister NAJIB, Malaysia is attempting to achieve high-income status by 2020 and to move further up the value-added production chain by attracting investments in high technology, knowledge-based industries and services. NAJIB's Economic Transformation Program is a series of projects and policy measures intended to accelerate the country's economic growth. The government has also taken steps to liberalize some services sub-sectors. Malaysia is vulnerable to a fall in world commodity prices or a general slowdown in global economic activity.

The NAJIB administration is continuing efforts to boost domestic demand and reduce the economy's dependence on exports. Domestic demand continues to anchor economic growth, supported mainly by private consumption, which accounts for 53% of GDP. Nevertheless, exports - particularly of electronics, oil and gas, and palm oil - remain a significant driver of the economy. In 2015, gross exports of goods and services were equivalent to 73% of GDP. The oil and gas sector supplied about 22% of government revenue in 2015, down significantly from prior years amid a decline in commodity prices and diversification of government revenues. Malaysia has embarked on a fiscal reform program aimed at achieving a balanced budget by 2020, including rationalization of subsidies and the 2015 introduction of a 6% value added tax. Sustained low commodity prices throughout the period not only strained government finances, but also shrunk Malaysia's current account surplus and weighed heavily on the Malaysian ringgit, which was among the region's worst performing currencies during 2013-17. The ringgit hit new lows following the US presidential election amid a broader selloff of emerging market assets.

Bank Negara Malaysia (the central bank) maintains adequate foreign exchange reserves; a well-developed regulatory regime has limited Malaysia's exposure to riskier financial instruments, although it remains vulnerable to volatile global capital flows. To increase Malaysia's competitiveness, Prime Minister NAJIB raised possible revisions to the special economic and social preferences accorded to ethnic Malays under the New Economic Policy of 1970 but retreated in 2013 after he encountered significant opposition from Malay nationalists and other vested interests. In September 2013 NAJIB launched the new Bumiputra Economic Empowerment Program, policies that favor and advance the economic condition of ethnic Malays.

Malaysia signed the 12-nation Trans-Pacific Partnership (TPP) free trade agreement in February 2016, although the future of the TPP remains unclear following the US withdrawal from the agreement. Along with nine other ASEAN members, Malaysia established the ASEAN Economic Community in 2015, which aims to advance regional economic integration.

Real GDP (purchasing power parity)
$855.6 billion (2020 est.)
$906.24 billion (2019 est.)
$868.85 billion (2018 est.)
note: data are in 2017 dollars
country comparison to the world: 29

Real GDP growth rate
4.31% (2019 est.)
4.77% (2018 est.)
5.81% (2017 est.)
country comparison to the world: 65

Real GDP per capita
$26,400 (2020 est.)
$28,400 (2019 est.)
$27,600 (2018 est.)
note: data are in 2017 dollars
country comparison to the world: 73

GDP (official exchange rate)
$364.631 billion (2019 est.)

Inflation rate (consumer prices)
0.6% (2019 est.)
0.9% (2018 est.)
3.8% (2017 est.)
note: approximately 30% of goods are price-controlled
country comparison to the world: 48

Credit ratings
Fitch rating: BBB+ (2020)
Moody's rating: A3 (2004)
Standard & Poor's rating: A- (2003)

GDP - composition, by sector of origin
agriculture: 8.8% (2017 est.)
industry: 37.6% (2017 est.)
services: 53.6% (2017 est.)

GDP - composition, by end use
household consumption: 55.3% (2017 est.)
government consumption: 12.2% (2017 est.)
investment in fixed capital: 25.3% (2017 est.)
investment in inventories: 0.3% (2017 est.)
exports of goods and services: 71.4% (2017 est.)
imports of goods and services: -64.4% (2017 est.)

Agricultural products
oil palm fruit, rice, poultry, eggs, vegetables, rubber, coconuts, bananas, pineapples, pork

Industries
Peninsular Malaysia - rubber and oil palm processing and manufacturing, petroleum and natural gas, light manufacturing, pharmaceuticals, medical technology, electronics and semiconductors, timber processing; Sabah - logging, petroleum and natural gas production; Sarawak - agriculture processing, petroleum and natural gas production, logging

Industrial production growth rate
5% (2017 est.)
country comparison to the world: 55

Labor force
15.139 million (2020 est.)
country comparison to the world: 35

Labor force - by occupation
agriculture: 11%
industry: 36%
services: 53% (2012 est.)

Unemployment rate
3.3% (2019 est.)
3.33% (2018 est.)
country comparison to the world: 46

Unemployment, youth ages 15-24
total: 12%
male: 11.4%
female: 13% (2020 est.)
country comparison to the world: 126

Population below poverty line
5.6% (2018 est.)

Gini Index coefficient - distribution of family income
41 (2015 est.)
49.2 (1997)
country comparison to the world: 55

Household income or consumption by percentage share
lowest 10%: 1.8%
highest 10%: 34.7% (2009 est.)

Budget
revenues: 51.25 billion (2017 est.)
expenditures: 60.63 billion (2017 est.)

Budget surplus (+) or deficit (-)
-3% (of GDP) (2017 est.)
country comparison to the world: 133

Public debt
54.1% of GDP (2017 est.)
56.2% of GDP (2016 est.)
note: this figure is based on the amount of federal government debt, RM501.6 billion ($167.2 billion) in 2012; this includes Malaysian Treasury bills and other government securities, as well as loans raised externally and bonds and notes issued overseas; this figure excludes debt issued by non-financial public enterprises and guaranteed by the federal government, which was

an additional $47.7 billion in 2012
country comparison to the world: 86

Taxes and other revenues
16.4% (of GDP) (2017 est.)
country comparison to the world: 180

Fiscal year
calendar year

Current account balance
$12.295 billion (2019 est.)
$8.027 billion (2018 est.)
country comparison to the world: 23

Exports
$207.37 billion (2020 est.) note: data are in current year dollars
$237.83 billion (2019 est.) note: data are in current year dollars
$245.89 billion (2018 est.) note: data are in current year dollars
country comparison to the world: 29

Exports - partners
Singapore 13%, China 13%, United States 11%, Hong Kong 6%, Japan 6%, Thailand 5% (2019)

Exports - commodities
integrated circuits, refined petroleum, natural gas, semiconductors, palm oil (2019)

Imports
$185.59 billion (2020 est.) note: data are in current year dollars
$210.68 billion (2019 est.) note: data are in current year dollars
$221.83 billion (2018 est.) note: data are in current year dollars
country comparison to the world: 30

Imports - partners
China 24%, Singapore 14%, Japan 6%, United States 6%, Taiwan 5%, Thailand 5% (2019)

Imports - commodities
integrated circuits, refined petroleum, crude petroleum, broadcasting equipment, coal (2019)

Reserves of foreign exchange and gold
$102.4 billion (31 December 2017 est.)
$94.5 billion (31 December 2016 est.)
country comparison to the world: 25

Debt - external
$224.596 billion (2019 est.)
$226.901 billion (2018 est.)
country comparison to the world: 36

Exchange rates
ringgits (MYR) per US dollar -
4.064 (2020 est.)
4.161 (2019 est.)
4.166 (2018 est.)
3.91 (2014 est.)
3.27 (2013 est.)

Energy

Electricity access
electrification - total population: 100% (2020)

Electricity - production
148.3 billion kWh (2016 est.)
country comparison to the world: 28

Electricity - consumption
136.9 billion kWh (2016 est.)
country comparison to the world: 26

Electricity - exports
3 million kWh (2015 est.)
country comparison to the world: 93

Electricity - imports
33 million kWh (2016 est.)
country comparison to the world: 109

Electricity - installed generating capacity
33 million kW (2016 est.)
country comparison to the world: 31

Electricity - from fossil fuels
78% of total installed capacity (2016 est.)
country comparison to the world: 90

Electricity - from nuclear fuels
0% of total installed capacity (2017 est.)
country comparison to the world: 135

Electricity - from hydroelectric plants
18% of total installed capacity (2017 est.)
country comparison to the world: 95

Electricity - from other renewable sources
4% of total installed capacity (2017 est.)
country comparison to the world: 112

Crude oil - production
647,000 bbl/day (2018 est.)
country comparison to the world: 26

Crude oil - exports
326,200 bbl/day (2015 est.)
country comparison to the world: 24

Crude oil - imports
166,000 bbl/day (2015 est.)
country comparison to the world: 35

Crude oil - proved reserves
3.6 billion bbl (1 January 2018 est.)
country comparison to the world: 27

Refined petroleum products - production
528,300 bbl/day (2015 est.)
country comparison to the world: 32

Refined petroleum products - consumption
704,000 bbl/day (2016 est.)
country comparison to the world: 28

Refined petroleum products - exports
208,400 bbl/day (2015 est.)
country comparison to the world: 31

Refined petroleum products - imports
304,600 bbl/day (2015 est.)
country comparison to the world: 24

Natural gas - production
69.49 billion cu m (2017 est.)
country comparison to the world: 13

Natural gas - consumption
30.44 billion cu m (2017 est.)
country comparison to the world: 31

Natural gas - exports
38.23 billion cu m (2017 est.)
country comparison to the world: 9

Natural gas - imports
2.803 billion cu m (2017 est.)
country comparison to the world: 45

Natural gas - proved reserves
1.183 trillion cu m (1 January 2018 est.)
country comparison to the world: 23

Communications

Telephones - fixed lines
total subscriptions: 7,467,900 (2020 est.)
subscriptions per 100 inhabitants: 23 (2020 est.)
country comparison to the world: 20

Telephones - mobile cellular
total subscriptions: 43,723,600 (2020 est.)
subscriptions per 100 inhabitants: 135 (2020 est.)
country comparison to the world: 36

Telecommunication systems
general assessment: one of the most advanced telecom networks in the developing world; strong commitment to developing a technological society; Malaysia is promoting itself as an information tech hub in the Asian region; closing the urban rural divide; 4G and 5G networks with strong competition, mobile dominance over fixed-broadband; government development of five-year fiber and connectivity plan; some of Malaysia's key exports are integrated circuits and broadcasting equipment to North America and China; importer of integrated circuits from Singapore and China (2020)

domestic: fixed-line roughly 23 per 100 and mobile-cellular teledensity roughly 135 per 100 persons; domestic satellite system with 2 earth stations (2020)

international: country code - 60; landing points for BBG, FEA, SAFE, SeaMeWe-3 & 4 & 5, AAE-1, JASUKA, BDM, Dumai-Melaka Cable System, BRCS, ACE, AAG, East-West Submarine Cable System, SEAX-1, SKR1M, APCN-2, APG, BtoBe, BaSICS, and Labuan-Brunei Submarine and MCT submarine cables providing connectivity to Asia, the Middle East, Southeast Asia, Australia and Europe; satellite earth stations - 2 Intelsat (1 Indian Ocean, 1 Pacific Ocean); launch of Kacific-1 satellite in 2019 (2019)

Broadcast media
state-owned TV broadcaster operates 2 TV networks with relays throughout the country, and the leading private commercial media group operates 4 TV stations with numerous relays throughout the country; satellite TV subscription service is available; state-owned radio broadcaster operates multiple national networks, as well as regional and local stations; many private commercial radio broadcasters and some subscription satellite radio services are available; about 55 radio stations overall (2019)

Internet country code
.my

Internet users
total: 29,129,398 (2020 est.)
percent of population: 90% (2020 est.)
country comparison to the world: 32

Broadband - fixed subscriptions
total: 3,358,800 (2020 est.)
subscriptions per 100 inhabitants: 10 (2020 est.)
country comparison to the world: 42

Transportation
National air transport system
number of registered air carriers: 13 (2020)
inventory of registered aircraft operated by air carriers: 270
annual passenger traffic on registered air carriers: 60,481,772 (2018)
annual freight traffic on registered air carriers: 1,404,410,000 (2018) mt-km

Civil aircraft registration country code prefix
9M

Airports
total: 114 (2021)
country comparison to the world: 50

Airports - with paved runways
total: 39
over 3,047 m: 8
2,438 to 3,047 m: 8
1,524 to 2,437 m: 7
914 to 1,523 m: 8
under 914 m: 8 (2021)

Airports - with unpaved runways
total: 75
914 to 1,523 m: 6
under 914 m: 69 (2021)

Heliports
4 (2021)

Pipelines
354 km condensate, 6439 km gas, 155 km liquid petroleum gas, 1937 km oil, 43 km oil/gas/water, 114 km refined products, 26 km water (2013)

Railways
total: 1,851 km (2014)
standard gauge: 59 km (2014) 1.435-m gauge (59 km electrified)
narrow gauge: 1,792 km (2014) 1.000-m gauge (339 km electrified)
country comparison to the world: 77

Roadways
total: 144,403 km (2010) (excludes local roads)
paved: 116,169 km (2010) (includes 1,821 km of expressways)
unpaved: 28,234 km (2010)
country comparison to the world: 37

Waterways
7,200 km (2011) (Peninsular Malaysia 3,200 km; Sabah 1,500 km; Sarawak 2,500 km)
country comparison to the world: 20

Merchant marine
total: 1,769
by type: bulk carrier 16, container ship 28, general cargo 174, oil tanker 153, other 1,398 (2021)
country comparison to the world: 17

Ports and terminals
major seaport(s): Bintulu, Johor Bahru, George Town (Penang), Pelabuhan Klang (Port Klang), Tanjung Pelepas
container port(s) (TEUs): Port Kelang (Port Klang) (13,580,717), Tanjung Pelepas (9,100,000) (2019)
LNG terminal(s) (export): Bintulu (Sarawak)
LNG terminal(s) (import): Sungei Udang

Military and Security

Military and security forces

Malaysian Armed Forces (Angkatan Tentera Malaysia, ATM): Malaysian Army (Tentera Darat Malaysia), Royal Malaysian Navy (Tentera Laut Diraja Malaysia, TLDM), Royal Malaysian Air Force (Tentera Udara Diraja Malaysia, TUDM); Ministry of Home Affairs: Royal Malaysian Police (PRMD, includes the General Operations Force, a paramilitary force with a variety of roles, including patrolling borders, counterterrorism, maritime security, and counterinsurgency) (2022)

note - Malaysia created a National Special Operations Force in 2016 for combating terrorism threats; the force is comprised of personnel from the Armed Forces, the Royal Malaysian Police, and the Malaysian Maritime Enforcement Agency (Malaysian Coast Guard)

Military expenditures

1% of GDP (2021 est.)
1.1% of GDP (2020)
1% of GDP (2019) (approximately $7.84 billion)
1% of GDP (2018) (approximately $7.63 billion)
1.1% of GDP (2017) (approximately $7.75 billion)
country comparison to the world: 131

Military and security service personnel strengths

the Malaysian Armed Forces have approximately 115,000 active-duty troops (80,000 Army; 18,000 Navy; 17,000 Air Force) (2021)

Military equipment inventories and acquisitions

the Malaysian Armed Forces field a diverse mix of mostly older imported weapons systems; since 2010, it has imported military equipment from approximately 20 countries, with Germany and Spain as the leading suppliers (2021)

Military service age and obligation

17 years 6 months of age for voluntary military service (younger with parental consent and proof of age); mandatory retirement age 60; women serve in the Malaysian Armed Forces; no conscription (2021)

note - in 2020, the Malaysian Armed Forces announced a goal of having 10% of the active military comprised of women

Military deployments

830 Lebanon (UNIFIL) (Feb 2022)

Military - note

maritime security has long been a top priority for the Malaysian Armed Forces, but it has received even greater emphasis in the 2000s, particularly anti-piracy operations in the Strait of Malacca and countering Chinese naval incursions in Malaysia's Economic Exclusion Zone, as well as addressing identified shortfalls in maritime capabilities; as such, it has undertaken modest efforts to procure more modern ships, improve air and maritime surveillance, expand the Navy's support infrastructure (particularly bases/ports) and domestic ship-building capacities, restructure naval command and control, and increase naval cooperation with regional and international partners; as of 2022, for example, the Navy had 6 frigates fitting out or under construction and scheduled for completion by 2023, which will increase the number of operational frigates from 2 to 8; in addition, it began tri-lateral air and naval patrols with Indonesia and the Philippines in 2017; Malaysia also cooperates closely with the US military, including on maritime surveillance and participating regularly in bilateral and multilateral training exercises

Malaysia is a member of the Five Powers Defense Arrangements (FPDA), a series of mutual assistance agreements reached in 1971 embracing Australia, Malaysia, New Zealand, Singapore, and the UK; the FPDA commits the members to consult with one another in the event or threat of an armed attack on any of the members and to mutually decide what measures should be taken, jointly or separately; there is no specific obligation to intervene militarily (2022)

Maritime threats

the International Maritime Bureau reports the territorial and offshore waters in the South China Sea as high risk for piracy and armed robbery

against ships; numerous commercial vessels have been attacked and hijacked both at anchor and while underway; hijacked vessels are often disguised and cargo diverted to ports in East Asia; crews have been murdered or cast adrift; the Singapore Straits saw 35 attacks against commercial vessels in 2021, a 50% increase over 2020 and the highest number of incidents reported since 1992; vessels were boarded in 33 of the 35 incidents, one crew was injured, another assaulted and two threatened during these incidents

Terrorism
Terrorist group(s)
Islamic State of Iraq and ash-Sham (ISIS); Jemaah Islamiyah; Abu Sayyaf Group (ASG)

Transnational Issues
Disputes - international

piracy remains a problem in the Malacca Strait

Malaysia-Brunei: per Letters of Exchange signed in 2009, Malaysia in 2010 ceded two hydrocarbon concession blocks to Brunei; in 2009, the media reported that Brunei had dropped its claims to the Limbang corridor, but Brunei responded that the subject had never been discussed during recent talks between the two countries

Malaysia-China-Philippines-Vietnam: while the 2002 "Declaration on the Conduct of Parties in the South China Sea" has eased tensions over the Spratly Islands, it is not the legally binding "code of conduct" sought by some parties, which is currently being negotiated between China and ASEAN; Malaysia was not party to the March 2005 joint accord among the national oil companies of China, the Philippines, and Vietnam on conducting marine seismic activities in the Spratly Islands

Malaysia-Indonesia: land and maritime negotiations with Indonesia are ongoing, and disputed areas include the controversial Tanjung Datu and Camar Wulan border area in Borneo and the maritime boundary in the Ambalat oil block in the Celebes Sea

Malaysia-Philippines: Philippines retains a dormant claim to the eastern part of Malaysia's Sabah State in northern Borneo

Malaysia-Singapore: disputes continue over deliveries of fresh water to Singapore, Singapore's land reclamation, bridge construction, and maritime boundaries in the Johor and Singapore Straits; in 2008, the International Court of Justice awarded sovereignty of Pedra Branca (Pulau Batu Puteh/Horsburgh Island) to Singapore, and Middle Rocks to Malaysia but did not rule on maritime regimes, boundaries, or disposition of South Ledge

Malaysia-Thailand: in 2008, separatist violence in Thailand's predominantly Muslim southern provinces prompts Malaysia to take measures to close and to monitor the border with Thailand to stem terrorist activities

Refugees and internally displaced persons
refugees (country of origin): 120,126 (Burma) (mid-year 2021)
stateless persons: 112,003 (mid-year 2021); note - Malaysia's stateless population consists of Rohingya refugees from Burma, ethnic Indians, and the children of Filipino and Indonesian illegal migrants; Burma stripped the Rohingya of their nationality in 1982; Filipino and Indonesian children who have not been registered for birth certificates by their parents or who received birth certificates stamped "foreigner" are not eligible to attend government schools; these children are vulnerable to statelessness should they not be able to apply to their parents' country of origin for passports

Trafficking in persons
current situation: Malaysia is a destination and, to a lesser extent, a source and transit country for women and children subjected to conditions of forced labor and women and children subjected to sex trafficking; Malaysia is mainly a destination country for foreign workers who migrate willingly from countries including Indonesia, Nepal, India, Thailand,

China, the Philippines, Burma, Cambodia, Laos, Bangladesh, Pakistan, and Vietnam, but subsequently they encounter forced labor or debt bondage at the hands of their employers in the domestic, agricultural, construction, plantation, and industrial sectors; a small number of Malaysian citizens were reportedly trafficked internally and to Singapore, China, and Japan for commercial sexual exploitation; refugees are also vulnerable to trafficking; some officials are reportedly complicit in facilitating trafficking; traffickers lure Rohingya women and girls residing in refugee camps in Bangladesh to Malaysia, where they are coerced to engage in commercial sex

tier rating: Tier 2 Watch List — Malaysia does not fully meet the minimum standards for the elimination of trafficking but is making significant efforts to do so; the government identified more victims, increased the number of trafficking-specialist prosecutors, drafted victim identification standard operating procedures, identified two volunteer victim assistance specialists that worked with more than 100 victims, and co-hosted the first national conference on anti-trafficking; however, authorities prosecuted and convicted fewer traffickers and investigated few trafficking cases; despite the issue of corruption, insufficient efforts were made to prosecute officials' complicity in trafficking-related crimes or to report the results of investigations into such crimes; insufficient interagency coordination and victim services discouraged foreign victims from participating in criminal proceedings; no resources were devoted to a written plan that, if implemented, would constitute significant efforts to meet the minimum standards; Malaysia was granted a waiver per the Trafficking Victims Protection Act from an otherwise required downgrade to Tier 3 (2020)

Illicit drugs

methamphetamine is the most used and trafficked drug controlled by criminal organizations that produce it; crystal methamphetamine, MDMA (ecstasy), cannabis products, heroin, ketamine, and Erimin 5 (nimetazepam) are smuggled into the country; a transit point for trafficking cocaine and other drugs to the Australian market

Acronyms and Abbreviations

°	Degree(s) of latitude or temperature (°N/S/E/W = North / South / East / West; °C/F = Celsius or Fahrenheit)
$	U.S. Dollar or Australian Dollar
12MP	Twelfth Malaysia Plan
1MDB	1 Malaysia Development Berhad
ADB	Asian Development Bank
ADINet	ASEAN Disaster Information Network
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on disaster management
APEC	Asia Pacific Economic Cooperation
APM	Malaysian Civil Defence Force (Angkatan Pertahanan Awam Malaysia, formerly Jabatan Pertahanan Awam Malaysia or JPAM)
APEC-EPWG	Asia Pacific Economic Cooperation – Emergency Preparedness Working Group
ASEAN	Association of Southeast Asian Nations
AUMX	ASEAN-US Maritime Exercise
b/d	barrels per day
BCE	Before Common Era (formerly AD, Anno Domini)
BHA	Bureau for Humanitarian Assistance (of USAID)
BIMP-EAGA	Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area
BOMBA	Fire and Rescue Department
BRI	Belt and Road Initiative
CCA	climate change adaptation
CDC	Centers for Disease Control and Prevention (of the U.S.)
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
cm	centimeter(s)
COVID-19	Coronavirus Disease 2019
CPRC	Crisis Preparedness and Response Centre
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CPX	command post exercise
CSR	Central Spine Road
DID	Department of Irrigation and Drainage (of Malaysia)
DM	disaster management
DMHA	Disaster Management and Humanitarian Assistance
DMI	Disaster Management Institute
DoD	Department of Defense (U.S.)
DOSM	Department of Statistics, Malaysia
DPPC	Disaster Preparedness and Prevention Centre
DRR	disaster risk reduction

DTP	double-track project
DWT	Deadweight Tonnage
EAS	East Asia Summit
ECRL	East Coast Rail Link
EQA	Environmental Quality Act
FDMM	FPDA Defence Ministers Meeting
FPDA	Five Power Defence Arrangements
FTX	Field Training Exercise
GDP	Gross Domestic Product
GP2022	Global Platform for Disaster Risk Reduction
GW	gigawatts
GWh	gigawatt hours
HADR	Humanitarian Assistance and Disaster Relief
HBV	Hepatitis B
HCV	Hepatitis C
HFA	Hyogo Framework for Action
HIV / AIDS	human immunodeficiency virus / acquired immunodeficiency syndrome
IADS	Integrated Area Defence System (formerly Integrated Air Defence System)
ICAO	International Civil Aviation Organization
ICRC	International Committee of the Red Cross
ICT	information and communications technology
IFRC	International Federation of Red Cross and Red Crescent Societies
I-GEO	Infrastructure University Kuala Lumpur - Geo Disaster Research Center
IHR	International Health Regulations
INFORM	Index for Risk Management
INSARAG	International Search and Rescue Advisory Group
IOTWMS	Indian Ocean Tsunami Warning and Mitigation System
IPCC	Intergovernmental Panel on Climate Change
JBALB	Sarawak Rural Water Supply Department
JKM	Social Welfare Department (Jabatan Kebajikan Masyarakat)
JPBP	Central Disaster Management Committee
KeTSA	Ministry of Energy and Natural Resources
Kg.	Kampong
KKom	Community Clinic (Klinik Komuniti)
km	kilometer(s)
km^2	square kilometer(s)
KOSPEN	Komuniti Sihat Pembina Negara
KTMB	Malayan Railways (Keretapi Tanah Melayu Berhad)
kV	kilovolt(s)
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer

LNG	Liquefied Natural Gas
m	meter(s)
m^2	square meter(s)
MAF	Malaysian Armed Forces (or Angkatan Tentera Malaysia [ATM])
MBBS	Bachelor of Medicine and Bachelor of Surgery
Mbps	megabits per second
MCMC	Malaysian Communications and Multimedia Commission
MCO	Movement Control Order
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
MJIIT	Malaysia-Japan International Institute of Technology
mm	millimeter(s)
MNTEWS	Malaysian National Tsunami Early Warning System
MOD	Ministry of Defence
MOE	Ministry of Education
MOH	Ministry of Health
MOSAR	Mountain Search and Rescue Team
MOT	Ministry of Transport
mppa	million passengers per annum
MRCS	Malaysian Red Crescent Society
MYSED	Malaysia Strategy for Emerging Diseases and Public Health Emergencies
MW	megawatts
NADMA	National Disaster Management Agency
NaFFWS	National Flood Forecasting and Warning System
NBCT	North Butterworth Container Terminal
NCD	non-communicable diseases
NCLP	National Leprosy Control Programme
NDCC	National Disaster Command Centre
NDRU	Natural Disaster Research Unit
NDP	New Development Policy
NEP	New Economic Policy
NFCP	National Fibre-Optic and Connectivity Plan
NGO	non-government organization
NRW	non-revenue water
NSC	National Security Council
OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
PAAB	Pengurusan Aset Air Berhad
PBCT	Prai Bulk Cargo Terminal
PHEOC	Public Health Emergency Operation Centre
PIK	Pusat Internet Komuniti (Community Internet Center)
PTP	Port of Tanjung Pelepas

PTWC	Pacific Tsunami Warning Center
RAAF	Royal Australian Air Force
RAPID	refining and petrochemicals integrated development
RIMPAC	Rim of the Pacific
ROAP	Regional Office for Asia and the Pacific (of UN OCHA)
RM	Malaysian Ringgit
RO-RO	roll on – roll off
RTM	Radio Television Malaysia
SARS	severe acute respiratory syndrome
Sdn Bhd	Sendirian Berhad (private limited company)
SEACAT	Southeast Asia Cooperation and Training
SEADPRI-UKM	Southeast Asia Disaster Prevention Research Institute, Universiti Kebangsaan Malaysia
SEB	Sarawak Energy Berhad
SESB	Sabah Electricity Sendirian Berhad
SFAB	Security Force Assistance Brigade
SFDRR	Sendai Framework for Disaster Risk Reduction
SFM	Sendai Framework Monitor
SMART	Special Malaysian Disaster Assistance and Rescue Team
SMEE	subject matter expert exchange
SOP	Standard Operating Procedure
SPAN	Suruhanjaya Perkhidmatan Air Negara (National Water Services Commission)
SPM	Sijil Pelajaran Malaysia (Open Certification Examination)
SPP	School Preparedness Programme or State Partnership Program (of the U.S. National Guard)
TB	tuberculosis
TEU	twenty-foot-equivalent unit(s)
TM	Telekom Malaysia
TNB	Tenega Nasional Berhad
TSP	tsunami service providers
TTX	Tabletop Exercise
TVET	technical and vocational education and training
UK	United Kingdom
UMNO	United Malays National Organisation
UN	United Nations
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIFIL	United Nations Interim Force in Lebanon

UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
USAR	urban search and rescue
USARPAC	United States Army, Pacific
USINDOPACOM	United States Indo-Pacific Command
VAHSI	COVID-19 Vaccine Access and Health Security Initiative
WHO	World Health Organization
WP	Wilayah Persekutuan
WPRO	Western Pacific Regional Office (of the World Health Organization)
WPS	Women, Peace, and Security

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