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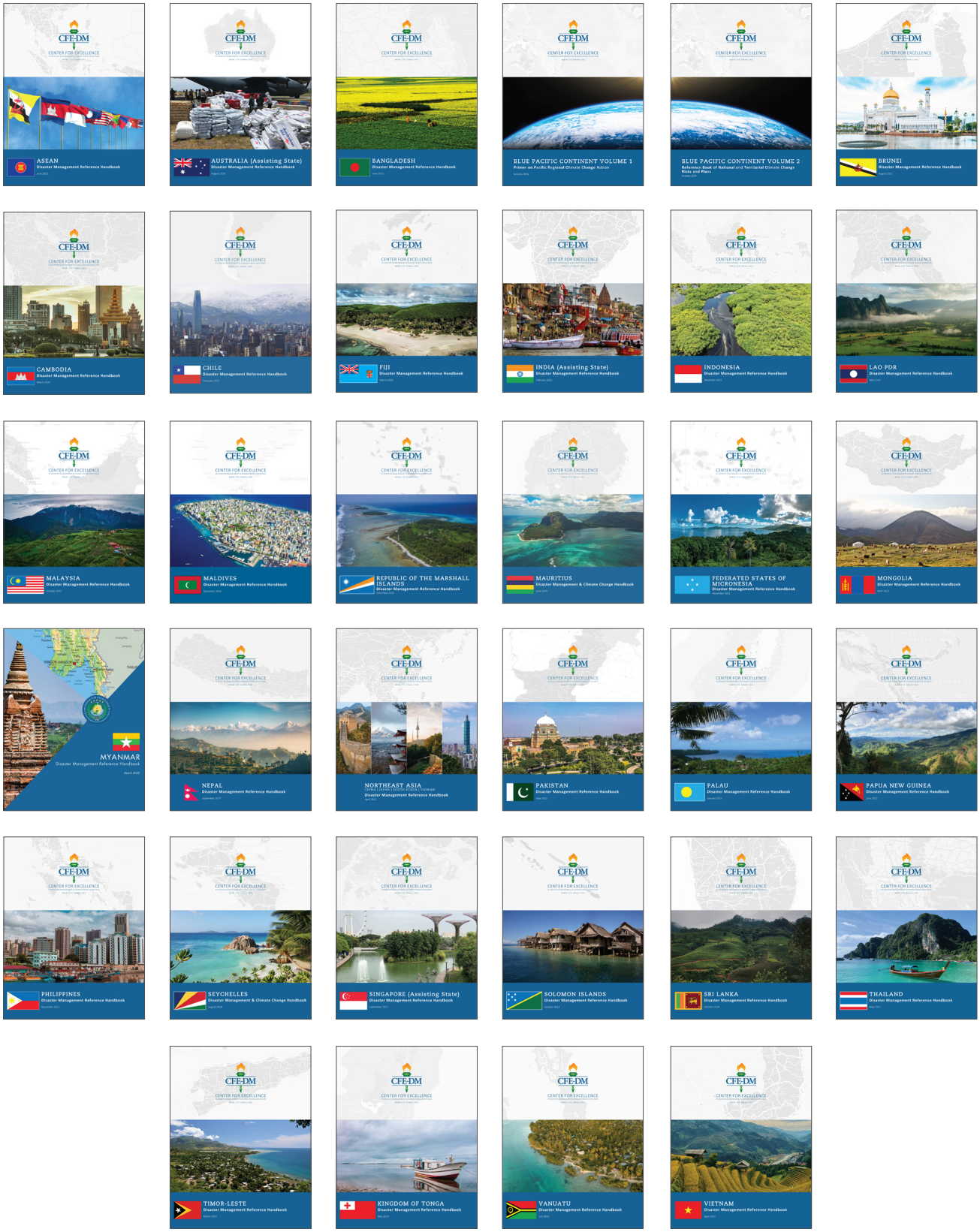
THAILAND

Disaster Management Reference Handbook

May 2025

Disaster Management Reference Handbook Series

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Front Cover

Koh Phi Phi Don, Thailand y David Gardiner on Unsplash.com. https://unsplash.com/photos/a-boat-floating-on-top-of-a-body-of-water-SE9IQfkN9IA

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Letter from the Director

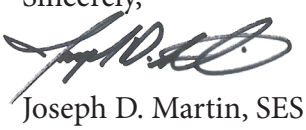
Thailand is one of the United States' closest partners in Southeast Asia. It plays a vital role in regional stability, economic development, and disaster management coordination. Recent events have underscored the importance of Thailand's leadership in times of crisis. In the wake of the devastating March 2025 earthquake in Myanmar, Thailand served as a key coordination hub for regional and international response efforts. Even as it responded to major damage at home, Thailand worked in close collaboration with regional partners and the international community to ensure aid flowed to Myanmar. These efforts were a showcase of the strength of longstanding partnerships and of Thailand's ability to lead during complex emergencies.

Thailand is not only a regional hub for multinational response coordination but also for preparedness activities. Exercises such as COBRA GOLD – the world's longest running and the Indo-Pacific's largest annual multinational military exercise – underscore the country's ongoing commitment to interoperability and disaster readiness. In addition to multi- and bi-lateral training and operations, Thailand hosts multiple workshops and engagements that help align domestic civilian and military stakeholders around shared response goals. A robust legal and institutional framework guides disaster risk management from the national to the village level. Recent efforts have focused on building local capacity, sustainable development strategies, and water management – critical in a country where urban growth has concentrated in flood-prone areas like Bangkok and the Chao Phraya River Basin.

As Thailand's model of integrated disaster planning – combining military, civilian, and community-led approaches – continues to develop, the United States remains committed to building shared understanding and skills with Thai stakeholders. It is clear that this commitment will pay dividends not just regionally but internationally, as Thailand's disaster management contributions increasingly extend beyond its borders. Whether responding to international disasters, such as the 2023 Türkiye-Syria earthquake and the March 2025 Myanmar-Thailand earthquake, or preparing for future transboundary crises, Thailand has shown a clear commitment to both leadership and collaboration.

This 2025 edition of the Thailand Disaster Management Reference Handbook reflects an effort of the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) to provide a comprehensive overview of the country's hazard landscape, response capabilities, and operational systems. It is our hope that this resource supports planners, practitioners, and responders in strengthening their understanding of Thailand's disaster management environment and its role in helping communities before, during, and after disaster strikes.

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

Resilient Joint Forces, Allies, and Partners that are fully prepared to respond across the spectrum of humanitarian crises.

Mission

CFE-DM builds crisis response capacity in US, Allies and Partner militaries across the Indo-Pacific to save lives before, during, and after emergencies.

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EXECUTIVE SUMMARY

The Kingdom of Thailand is a key economic, social, political, and security player in Southeast Asia, with broad and deep partnerships around the world. Despite a sometimes turbulent domestic political landscape, Thailand has consistently contributed to regional stability, economic growth, and people-to-people relationships. These connections are valuable assets in disaster management at local, national, and international levels.

Thailand faces a wide range of natural and human-induced hazards, including air pollution, droughts, earthquakes, epidemics, floods, forest fires, industrial and transport accidents, landslides, storms, and tsunamis. Storms and floods are the most frequent and costly hazard events, but Thailand's disaster experience also includes rare events of historic impact—most notably the 2004 Indian Ocean Tsunami. Though it caused extensive damage and loss of life, the tsunami's economic toll was less than 0.2% of the losses from five decades of flood damage. Its legacy, however, continues to shape Thailand's disaster management, particularly in the development of early warning systems, risk assessment platforms, and international partnerships.

The Ministry of Interior (MoI) leads national disaster management. It oversees the Department of Disaster Prevention and Mitigation (DDPM) and supervises the country's 75 provincial governors. While the Prime Minister assumes coordination for catastrophic events, the Minister of Interior typically serves as the national-level Incident Commander for large-scale emergencies, coordinating through the DDPM and the national emergency operations center (EOC). The DDPM leads prevention, preparedness, response, recovery, and reconstruction efforts across Thailand.

Provincial governors, appointed by the Minister of Interior, are responsible for disaster planning and response in their jurisdictions. At the local level, district, municipal, and sub-district authorities are the frontline actors for disaster risk reduction (DRR) and immediate response. For small-scale hazards, local officials lead the response within their areas; during larger-scale events, they coordinate with national government agencies, the Royal Thai Armed Forces (RTArF), and international partners as needed.

Because many hazards are transboundary—especially water-related threats—Thailand's disaster management entities maintain strong regional and international ties. Floods are a recurring challenge in coastal areas and river basins, which are essential to agriculture, industry, and daily life. Thailand's water resources also face growing threats from drought, pollution, and overuse. Droughts reduce water availability, threatening food security and public health, while pollution and overuse affect riverine communities, especially those along the Mekong River. The Chao Phraya River Basin, central to national agriculture, floods frequently—highlighting the need for long-term solutions in water management, retention, and drainage.

As a member of the Association of Southeast Asian Nations (ASEAN), Thailand plays an active role in regional DRR and resilience efforts. Civilian agencies, led by the DDPM, are well integrated into ASEAN's disaster coordination mechanisms. The RTArF also collaborates closely with other ASEAN militaries to prepare for and conduct disaster relief operations. Together, the DDPM and RTArF have conducted domestic, regional, and international responses, including Thailand's response to the 2023 Türkiye-Syria earthquake and the domestic response to the March 2025 Myanmar-Thailand earthquake. Both are increasingly engaged with global partners—including the United States (U.S.), United Nations (UN), and other international actors—strengthening Thailand's capacity and leadership in the global disaster management community.

COUNTRY OVERVIEW

Thailand is a kingdom with an economy linked into global markets. In the heart of mainland Southeast Asia, its people are integral parts of regional political, diplomatic, economic, and social systems. Despite its strong socio-economic systems, there remain some vulnerable populations – e.g., the elderly, migrant workers, and people living in poverty – who are at increased risk of experiencing adverse consequences from disasters and other emergencies.

History

In the territory of contemporary Thailand, there is evidence for continuous modern human habitation dating back over 6,000 years. Bronze tools and rice cultivation are markers of the early social, economic, and political activities of the inhabitants.[1] Early inhabitants are thought to be the ancestors of today's Mon and Khmer people, while the ancestors of the ethnic Tai (or Thai) came to northern Thailand later, possibly from China, Vietnam, and Laos.

In the early centuries of the Common Era (CE), dynasties ruling in the modern Indonesian archipelago extended their influence into modern southern Thailand, on the Isthmus of Kra. Further north, by the latter first millennium CE, the Dvaravati Mon dominated the central plains. They managed an important network of trade routes that connected their territory to the wider world, and they left many Buddhist artworks to testify to the influence of the Indian subcontinent over the region. An ethnic Mon state also existed separately in the north of modern Thailand from about the 9th century and remained independent until the 13th century. Concurrently, from the 9th through 11th centuries CE, the Khmer empire based at Angkor (in modern Cambodia) ruled much of the territory of contemporary Thailand. During this period, the Tai emerged as the largest ethnic group over much of the territory, and the area around Lopburi (central Thailand) became a hub of Tai "Siam" culture.[2] "Siam" appears to be what neighboring people called the Tai or what they used to refer to the area inhabited mostly by the Tai.[3] In 1001 CE, Lopburi requested "Siam's" independence from Angkor, but it would not be until the 13th century that full local rulership over the territory was asserted.

Various independent Mon, Khmer, and Tai kingdoms continued to rise and fall throughout the territory. In 1238, the Sukhothai dynasty was founded. Its reputation is that of a golden age of art, and the Thai alphabet emerged during the Sukhothai era.[4] Lan Na, a Tai kingdom further north, initially succeeded Sukhothai in the mid-15th century,[5] but it was swiftly overwhelmed by the stronger Ayutthaya of the central plains.[6] During the Ayutthaya period of the 14th-18th centuries, Theravada Buddhism became the official religion of the Kingdom,[7] and the kings of Ayutthaya issued the first formal civil and criminal law codes known in the territory. Theravada Buddhism had originally emerged in Sri Lanka and was carried by monks into Southeast Asia, where it was widely adopted by Mon, Khmer, and Tai peoples. Ayutthaya grew from a small city-kingdom by pushing into Khmer territory, and in 1431, Ayutthaya forces sacked Angkor itself.[8] At its zenith at the turn of the 17th century, Ayutthaya also ruled parts of modern-day Cambodia, Laos, and Myanmar.[9] The rulers and people of the kingdom came into contact with extra-regional powers, especially East Asian and European powers, and in the 17th century, the Ayutthaya rulers sealed diplomatic and trade pacts with the West. However, in 1767, Burman invasions toppled Ayutthaya. A brief inter-regnum between Burman rule and the current dynasty had its roots in resistance to the Burman forces and was based in Thonburi, near modern Bangkok.

Since the rise of the Chakri dynasty in 1782, the center of the Kingdom has been Bangkok. The early monarchs during this period successfully staved off external pressure and kept

Thailand from becoming a colony of Western European powers, and the Kingdom took on most of its present borders.[10] In 1932, King Rama VII accepted the outcome of a bloodless coup, which led to the shift from an absolute to a constitutional monarchy,[11] but it also led to his abdication. In 1939, under military dictatorship, Siam officially became Thailand. The Kingdom largely sided with the U.S. during the Cold War and received financial support from Washington to build infrastructure and undertake industrial reforms in exchange for military and diplomatic support against Communist regimes, especially during the conflict in Vietnam, where Thailand deployed thousands of forces on the side of the U.S.[12] As the country nears 100 years since the 1932 coup, successive Chakri monarchs and military and civilian governments have administered the Kingdom under several constitutions.

Culture and Demographics

Thailand is home to several ethno-linguistic groups and religions, although ethnic Tai (Thai) and Buddhists are a significant majority.[13] Among influences on society and families, Theravada Buddhism may be the most important. It emphasizes individualism, personal responsibility, and independent decision-making, and those values are important for both sexes, meaning that Thai women have great independence and can gain high status separate from male family members.[14] Despite this influence, the family is still the cornerstone of society, and multi-generational households are common. Elders are commonly deferred to. Moreover, there is an effort to ensure no one is made to feel uncomfortable, and public confrontations are shunned.[15] Photo 1 shows Phra Wiharn Yod, a chapel built by King Rama II within Bangkok's Grand Palace; it houses images of Buddha.[16]

As of 2023, the country's civil registration included more than 66 million people, with females making up more than 51% of the population. All but about 1 million residents have Thai citizenship.[17]

After decades of high fertility rates, Thailand implemented a voluntary family planning program in the 1960s, and the population growth rate and overall fertility rate fell swiftly across all segments of society. As of 2024, the overall growth rate stood at only 0.17%, among the lowest in the world, and the fertility rate stood at 1.54 children born per woman, also among the lowest in the world. Meanwhile, life expectancy has risen to 78.2 years overall. Females do, on aggregate, live longer than males – 81.3 years versus 75.2 years. As of 2024, over 15% of the total population were age 65 years or older, and this proportion is expected to grow as fertility rates remain low and health advancements extend lifespans.

Women's workforce participation in 2023 was relatively high at nearly 60%. However, this rate continues a slow, steady decline, mirroring trends across East Asia, the Pacific, and other upper-middle-income countries. Nonetheless, Thailand's female workforce



Photo 1: Phra Wiharn Yod Chapel

participation rate is higher than the global average.[18] This characteristic of the Thai socio-economic structure means there is little ability to bring in more native workers as Thai society continues to age and labor shortages emerge.[19] It is estimated that the native population of working-age people will fall from 43.2 million in 2020 to 36.5 million in 2040, as the proportion of working-age individuals has already peaked and the proportion of elderly residents is growing rapidly.[20] It is likely that the country will increasingly rely on migrant workers and technological advancements such as automation to support the workforce.[21]

Ethnic Makeup

Observers note that there are more than 70 ethnic groups native to Thailand. Many of them are related, and there are five broad ethno-linguistic families – Thai (or Tai Kadai), Mon-Khmer, Miao-Yao, Tibeto-Burman, and Malayo-Polynesian.[22] "Thai" is used for the ethnic group, the language, and the nationality.[23] The Thai ethnic group is a majority, comprising more than 97% of residents of Thailand. The largest minority ethnic group is the Tibeto-Burman at just more than 1% of the population.[24] Despite these broad estimates, the National Statistical Office (NSO) does not ask about ethnicity on its census questionnaire; moreover, the 2020 census was postponed due to the Coronavirus Disease 2019 (COVID-19) pandemic, and any estimates would be based on the 2010 count.[25]

In the latter 19th century, regions of contemporary Thailand were formally recognized as having distinct ethno-cultural and linguistic characteristics.[26] However, throughout the 20th century, internal migration to the Chao Phraya Basin from all parts of the country has contributed to shaping a national urban identity, with lifestyles and socio-economic characteristics increasingly converging under a broader sense of what it means to be "Thai."[27] Nonetheless, the Thai groups – Northern, Southern, and Central Thai, along with the Tai Lao and Tai Korat – have historically inhabited much of the northern, southern, and central regions. Traditionally, the Tibeto-Burman lived in many areas of northern Thailand and along the border with Myanmar, the Mon-Khmer lived on the borders with both Myanmar and Cambodia, Miao-Yao groups lived throughout northern Thailand, and Malayo-Polynesian communities lived on the western peninsular coast, on the Andaman Sea.[28]

Key Population Centers

The overall population density is estimated at 137.1 people per square kilometer (km^2; 355 people per square mile [mi^2]).[29] As of 2022, the government estimated that one-third of the population (22.6 million people) resided in urban areas.[30]

The Greater Bangkok Metropolitan Area includes Bangkok proper and its twin city, Thonburi, as well as the contiguous cities of Samut Prakan to the southeast and Nonthaburi to the north. This conurbation remains the dominant – and only – major urban center.[31] As of 2023, Bangkok proper was home to 5.47 million people.[32] Udon Thani, in the northeast, is the next largest city at 600,000 people.[33] Cities such as Khon Kaen, Ubon Ratchasima, and Nakhon Ratchasima in the northeast; Chiang Mai in the north; Hat Yai, Surat Thani, and Nakhon Si Thammarat in the south; and Pattaya on the eastern seaboard have grown significantly over the course of 30-40 years, and they have taken on various urban characteristics, like heavy traffic, built-up peri-urban areas and high levels of digitalization.[34]

A key long-term challenge for Thailand's urban centers is that they have largely developed in flood plains, along rivers, and in coastal areas, all of which are highly exposed to flooding. Extreme rainfall, sea level rise, and other climate-related hazards can be expected to affect urban residents, industries, and public services in the coming decades.[35]

Language

Thai is the official language, and more than 90% of the population only speaks Thai. An estimated 6-7% of the population speaks Thai and another language, and 3% are thought to

only speak a minority language – e.g., Malay or Burmese.[36] The Thai alphabet has its origins in Indian and old Khmer script and took on its current form during the 18th century.[37] As of 2022, an estimated 91% of adults could read, according to the UN Educational, Scientific, and Cultural Organization (UNESCO).[38] A 2019 study by the UN Children's Fund (UNICEF) found that 98% of Thais ages 15-24 years were literate, an indication that younger generations are increasingly acquiring foundational reading skills that their elders did not. There are some indications that people from non-Thai speaking households have significantly lower foundational reading and numeracy skills, potentially related to the primary language of instruction.[39]

Religion

There are limits on the freedom of religion although the constitution prohibits discrimination based on religious beliefs. Exercises of religion that are deemed "harmful to the security of the State" may be prohibited. Five religious groups are explicitly recognized; they are Buddhists, Muslims, Brahmin-Hindus, Sikhs, and Christians.[40] Buddhism is, by far, the largest faith group in the country. An estimated 92.5% of Thais adhere to Buddhism, while 5.4% are Muslim, 1.2% are Christian, and the remainder belong to small communities of animists, Confucians, Hindus, Jews, Sikhs, or Taoists.[41] Most of the country's Muslims follow Sunni Islam, and at least half of the Christians are Roman Catholic. Religion is a required subject in all schools.

The Religious Affairs Department of the Ministry of Culture is responsible for registering religious groups – except Buddhist groups – to allow them to access state subsidies, tax exemptions, and allocation of visas for officials. For Buddhism, the National Office of Buddhism under the Prime Minister's Office (PMO) is responsible for supervising the administrative aspects of the religion. The state is empowered to promote Theravada Buddhism through education, propagation, and mechanisms to prevent any damage to the faith or its institutions. Defaming or insulting Buddhism or the Buddhist clergy is prohibited by law. The Buddhist clerical establishment (sangha) is divided into two schools of Theravada Buddhism – Mahanikaya and Dhammayuttika.

In the four "Deep South" provinces – Narathiwat, Pattani, Songkhla, and Yala, three of which have Malay-Muslim majority communities – the law allows for the use of Islamic sharia for legal processes relating to family and inheritance.[42]

Vulnerable Groups

Although hazard events affect everyone, some groups in society experience their impacts more severely than others. While a tsunami, typhoon, or even virus does not differentiate between rich and poor or between adult and child, the ability of a person to react to early warning information, take appropriate action, and recover from the event may depend on their status within their community and resources available to them. Moreover, if the different effects on groups of people are not planned for during preparedness phases of disaster management, then the relief and rebuilding stages may not address the needs of all and may leave many to struggle unnecessarily.

Thailand disaster management authorities have begun to address the needs of key groups like women, people living with disabilities, and youth across DRR projects. Community-based DRR projects, especially those conducted by the Thai Red Cross, have successfully integrated women, sexual or gender minorities, people living with disabilities, elders, and school children in vulnerability and capacity assessments. All projects by the DDPM are also required to integrate contributions by all relevant stakeholders, including vulnerable groups.[43]

The groups addressed in this section do not cover all possible vulnerable groups within Thai society, but they can help illustrate potential gaps in planning and preparedness.

Children

Children are especially vulnerable during

hazard events because they often do not have autonomous control over information access, cannot make decisions to evacuate or relocate without parental or adult supervision, or do not have access to the financial or other material resources needed to respond to or recover from a disaster. Moreover, in the wake of an emergency, children who have been separated from their families or whose families have been cast into dire straits are at greater risk of exploitation – e.g., trafficking or abuse – because of a lack of protection or financial or material resources. In 2019, UNICEF found that 22% of Thai children lived apart from their parents although both parents were still alive. This rate has shown a sustained, steady rise,[44] likely a reflection of increased labor mobility where Thai adults migrate – domestically or internationally – for work and leave their children with extended family.

A 2023 study by UNICEF and the Thailand Development Research Institute examined the impact of hazard events on Thailand's children. It found that those living in the northeastern and southern provinces of Ubon Ratchathani, Nakhon Ratchasima, Si Sa Ket, Nakhon Si Thammarat, and Narathiwat are at highest risk from a combination of floods, droughts, and high temperatures, all of which can cause water contamination, spread of water- and vector-borne diseases, and food insecurity. Moreover, they disrupt children's access to education and health services and increase the potential for life-long health and livelihood barriers. Children who are in impoverished households, in rural areas, living with disabilities, or migrants are the most vulnerable.[45]

Elders

A National Economic and Social Development Council (NESDC) report from January 2024 found that 20% of the population, 13.2 million Thai citizens, were 60 years of age or older.[46] In the most recent Survey of Older Persons in Thailand, the NSO found that the rural elderly population is significantly larger than the urban elderly population. In the area surrounding Bangkok, the percentage of the population over 60 years old is about 10%, while in the northern provinces, it is closer to 25%. In terms of total numbers, Bangkok is home to just over 1 million elders, while the central region has nearly three times as many, and the northeastern region is home to more than 3.5 million elders.[47]

The 2024 NESDC report found that 25% of men and 41% of women over 60 years of age had mobility-related disabilities or challenges with specific daily tasks (e.g., walking up flights of stairs, lifting heavy objects, taking public transport alone, or self-care). Meanwhile, more than 628,000 seniors were affected by dementia, and more than 23% of elders lived alone.[48]

A survey of elders in Thailand has found that 8.2% require assistance with daily living activities, and one-third of those needing help do not have it. Given social systems based on grown children looking after aged parents, more than half of elderly Thais age "in-place" or in a multi-generational family home, and more than two-thirds live either with their adult child or in a dwelling adjacent to that of their adult child. This percentage has steadily fallen since the turn of the 21st century.[49] Seniors who are isolated from peers or family are more likely to lack information regarding hazards in their areas, where to seek help in case of emergency, and how to access – physically or digitally – assistance. Without specific planning, facilities caring for elders may be overlooked during decision-making, affecting mobility and informational access to assist seniors in case of a disaster.

Migrant Labor and Refugees

Thailand is a destination, transit, and source country for migrants. It had 3-4 million migrant workers as of 2017,[50] but this number likely fluctuated significantly during the COVID-19 pandemic and more recently. The International Organization for Migration (IOM) reported in 2024 that the estimated population of migrant laborers in the country stood at 5.2 million, and at least 1.8 million of them were not properly documented.[51] These laborers mainly fill low-skilled positions in the construction, agriculture,

manufacturing, services, and fishing and seafood processing sectors.[52] Those migrant laborers working in formalized circumstances may have opportunities to participate in and understand disaster preparedness activities, including accessing information on hazards and early warning systems that allow them to reduce their personal risk. However, their ability to access assistance after a disaster largely depends on their legal status and efforts within their communities – i.e., fellow laborers or Thai supervisors. Many may return – voluntarily or otherwise – to their countries of origin if a disaster is severe enough to disrupt their industries and halt their pay.

Thailand has hosted ethnic minority refugees from Myanmar for more than 30 years.[53] As of 2024, the UN High Commissioner for Refugees (UNHCR) reported that there were some 85,500 refugees residing in nine camps in four provinces along the Thailand-Myanmar border.[54] International agencies manage the camps inhabited by these refugees, who receive services from UN agencies and non-governmental organizations (NGO). Therefore, there are opportunities to share hazard information and early warnings as needed. However, the levels of inclusion of refugees into planning for emergency responses, and their ability to understand or act on early warnings are limited given their lack of community connections within Thailand and potential linguistic obstacles.

People Living in Poverty

People living in poverty in urban areas, especially in Bangkok, are disproportionately vulnerable to the effects of disaster events. Low-income households are less resilient because they often reside in areas that are poor and prone to hazards. They also have limited access to critical services such as health care, education, and early warning systems.[55]

On the strength of across-the-board economic gains, Thailand's national poverty rate dropped by more than 60 percentage points over three decades (1986-2016),[56] but the transition to more productivity and higher-value industries and services slowed after about 2015. More recent years have seen income and labor productivity stagnate and trigger the introduction of social assistance, which was scaled up during the COVID-19 pandemic to avert the worst socio-economic impacts of public health measures. Still, the poverty rate ticked up from 6.2% in 2019 to 6.8% in 2020, but it did fall again to 6.3% in 2021 as the slow recovery began. Sustainable efforts to continue gains will rely heavily on renewed pushes to bolster labor productivity and address inflation and wage challenges,[57] as the already low unemployment rate - 0.9% in 2022[58] – means that bringing additional workers into formal jobs is unlikely to be sufficient to lift the remaining impoverished households out of poverty. In addition, there are an estimated 50,000-100,000 people living near poverty who, despite having monetarily cleared the poverty line, lack sufficient access to health, education, or decent housing.[59] These people do not enjoy the standard of living of their fellow Thais and could, if an economic or societal shock strikes, fall below the poverty line.

People Living with Disability

The NSO conducts a Disability Survey every five years. For the purpose of the Survey, disability is defined as: 1) health or other problems that limit activity; or 2) physical, mental, or intellectual impairment. In the 2022 survey, the NSO noted a rise in people living with disabilities as a percentage of the total population from 5.5% in 2017 to 6% in 2022. Thus, the NSO estimates that there are more than 4.2 million people living with disability in Thailand.[60]

Since 2007, there has been a legal requirement for the government to provide cash support for people living with disabilities, and this social support is managed by the Ministry of Social Development and Human Security, in cooperation with the National Office of Promotion and Development of Life Quality of Disabled Persons. To receive financial support, recipients must be registered as living with a disability, and elders living with disabilities are eligible for both old-age pensions and disability

allowances. Moreover, since 2009, the Ministry of Education has overseen the implementation of laws and regulations requiring provision of specialized services to learners with disabilities.[61] Nonetheless, as of 2024, it was estimated that only 6.2% of people living with disabilities in Thailand were in the formal work force.[62] The NSO's 2022 Disability Survey found that half of employed people with disabilities were working in the agricultural sector,[63] which is both disproportionately vulnerable to disruption after a disaster and a sector with lower-paying jobs than many parts of the services and industrial sectors.[64]

Women

While all adult children are expected to care for elders, women start dropping out of the workforce 15 years earlier than their male counterparts, at approximately 50 years of age, to begin caring for their parents and parents-in-law.[65] Along with additional caring responsibilities, women in Thailand are more likely to work in the informal sector. Before the COVID-19 pandemic, the NSO's Informal Employment Survey found that 9 million women were in informal work; they accounted for approximately 44% of the informal workforce. In these jobs, they lack access to contributory social protection, paid leave, or sick days, and they may face higher rates of wage theft or abuse because they have no formal mechanism for compensation. When the pandemic shut down many sectors of the economy, informal workers lost their daily wages and did not have access to many of the formal financial support programs the government instituted. Moreover, as household financial strain worsened, women faced higher rates of physical and emotional abuse.[66] Extrapolating from the pandemic experience, women's experiences after future disasters may hinge on their participation in the formal economy and their ability to access relief programs directly rather than through spouses or parents. Such access ensures the ability to build resources before a disaster and helps avoid the strains that often lead to domestic abuse.

Economics

Thailand ranks among the world's "upper-middle-income" countries, a label the World Bank defines as countries with a gross national income per capita of between US$4,516 and US$14,005.[67] As part of its desire to achieve high-income status by 2037, the country's 20-year National Strategy emphasizes investment, sustainable industrial development, resilient infrastructure, digital transformation, green tourism, small- and medium-sized enterprises, human capital, and support for the service sector.[68] The "Thailand 4.0" economic model to achieve high-income status rests on three pillars:

1. The development of a knowledge-based economy with an emphasis on research and development, science and technology, and innovation
2. Moving towards an inclusive society with equitable access to prosperity and development
3. Focus on sustainable growth and development[69]

The Bank of Thailand – the country's central bank – assessed the country's gross domestic product (GDP) growth at 2.7% in 2024, and it projects GDP growth of 2.9% during 2025.[70] At present, the country is combatting more than a decade of deceleration in GDP growth that preceded the COVID-19 pandemic. Pre-pandemic, reforms had stalled, and the economy was heavily oriented toward consumption such that, by 2020, financial, labor, and environmental weaknesses had permeated agricultural and industrial production. The pandemic caused further disruption, with the GDP contracting by 6.2% in 2020. By 2024, the recovery was still underway but was experiencing headwinds linked to other global shocks – e.g., an economic slowdown in the People's Republic of China (PRC) and high energy prices linked to the continued war in Ukraine. The World Bank estimates that, over the medium term, the country can expect annual growth rates of 3%.[71]

The economy is heavily weighted toward

exports, with exports of goods and services accounting for some two-thirds of GDP in 2023. This percentage shows minimal change over the long term, although 2021-2023 saw significant rises as the economy recovered from the depths of the pandemic when exports as a share of GDP fell by more than 13%.[72] The PRC, Japan, and the U.S. (in that order) are Thailand's top export and import markets.[73]

Agriculture accounts for an estimated 9% of GDP, but its future is precarious as heat, saltwater intrusion, drought, and shifts in the rainfall regime all threaten productivity.[74] At least 40% of Thailand's land is under cultivation, and some estimates find that one-half of all cultivated land is dedicated to rice growing.[75] Rice cultivation dominates commercial agriculture, and Thailand is one of the world's largest rice exporters. However, rice cultivation demands vast amounts of water for irrigation. As demand for water for residential and industrial uses competes with demand from rice cultivators, competition will make sustainable management of water resources – as well as food security and exports earnings – difficult to achieve.[76] Despite these long-term challenges, the country does enjoy a self-sufficiency ratio of over 100%, meaning that its demand for staples – rice, chicken, eggs, pork, and farmed shrimp – is more than met by domestic production.[77]

The entirety of the services sector was estimated to account for more than 60% of GDP in 2022.[78] Tourism alone accounts for an estimated 12% of GDP, but it is concentrated in coastal areas and, thus, is vulnerable to flooding and coastal erosion,[79] in addition to other disruptions, as shown by the COVID-19 pandemic. In 2018, direct receipts from tourism contributed about 12% of Thailand's GDP, and indirect revenues may have pushed that total closer to 20%.[80]

There were 40 million people in the workforce in late 2024. The unemployment rate stood at just over 1% or 410,000 individuals seeking but not in a job. Employment numbers did fall by 0.1% year-on-year, and job losses in agriculture at 3.4% outpaced losses in other sectors, with some observers chalking the agricultural job losses up to extensive flooding in mid-2024.[81] Agriculture is still estimated to employ one-third of the overall labor force,[82] and, increasingly, this sector relies on migrant laborers from Cambodia, Laos, and Myanmar to fill shortages in available workers. By 2019, more than 300,000 agricultural workers were documented foreign workers, but some studies suggest that fully one-third of migrant laborers may be undocumented in an indication that the sector demands considerably more workers than legal employment schemes can provide.[83]

In 2021, the government laid out a vision for the country to develop a "Bio-Circular-Green" (BCG) economy that integrates the creation of high-value, eco-friendly products with a services-oriented economy to reduce resource inputs and preserve natural and biological resources. This type of economy would be expected to put the country on a path that is both sustainable and competitive and that will ensure long-term capacity to address challenges linked to deceleration of growth, climate vulnerability, and environmental degradation. Among the most shocking climate-linked threats to the economy is that the country already loses 2 km^2 (0.8 mi^2) of land each year to coastal erosion, and experts assess this loss as equivalent to a loss of 0.04% of GDP annually. Similarly, climate change is already reducing labor productivity; losses in the agriculture and construction sectors are linked to work disruptions on days of extreme heat and humidity, and estimated impacts range from a 6.5% loss under optimistic emissions scenarios to a 9.6% loss under pessimistic scenarios by 2050. Meanwhile, the World Bank assesses that successfully transitioning to the BCG economy will buoy the country's growth by 1.0% of GDP and create some 160,000 jobs by 2030.[84]

Government

The Kingdom of Thailand is a constitutional monarchy with a monarch as head of state.[85] The reigning monarch is King Maha Vajiralongkorn, who has been in power since 2016. The monarch

is advised by a Privy Council.[86]

The current constitution has been in force since 2017, after a popular referendum approved it in 2016.[87] It was amended in 2021 to change the methods of election for some members of the legislature and to adjust the balloting system.[88] The country has had several previous constitutions.[89]

The monarch exercises power through the Council of Ministers, National Assembly, and the Courts. Executive power is vested in the Council of Ministers (or Royal Thai Government [RTG]), headed by the Prime Minister,[90] who is appointed by the monarch based on selection by the House of Representatives.[91] All other Council members – up to 35[92] – are also appointed by the monarch in consultation with the Prime Minister.[93] The RTG is charged with administering state policy.[94]

The National Assembly is bicameral, made up of the House of Representatives and the Senate. The 500-seat House of Representatives is filled by direct election every four years. Members of the House are elected by a mixture of individual constituencies and party lists.[95] The 250-seat Senate was filled by military appointment in 2019[96] but, from 2024 elections onward, the membership is made up of Senators selected by indirect election from 20 eligible professional sector groups – e.g., agriculture, educators, law and justice practitioners, public health experts, women, and elderly, disabled, or ethnic group representatives. Senators serve 5-year terms.[97]

The Courts have exclusive power to try and adjudicate cases; all Courts are established by dedicated laws rather than the Constitution.[98] The judicial system is headed by three justices – President of the Supreme Court, President of the Constitutional Court, and President of the Supreme Administrative Court.[99] The Supreme Court is the final court of appeal for both civil and criminal cases, and there are intermediary appeals courts throughout the country to handle mid-level appeals on cases from the courts of first instance, also found throughout the country.[100] There are various Judicial Commissions that select the justices for each type of court, and justices are appointed by the monarch for terms that vary but may be lifetime, nine years, or determined by the monarch.[101]

Below the central, national government, there are provincial governments made up of executives and councils in each of the 76 provinces[102] and Bangkok municipality. Provinces are further broken down into districts, and Bangkok is divided into sub-districts.[103] Provincial governors are appointed by the MoI,[104] and Bangkok's Governor is elected by popular vote.[105] Under districts, local administration is managed by thousands of sub-district and village administrators and officers.[106] The state has traditionally been quite centralized, and 25 years of efforts toward decentralization have made only fitful progress due partly to a lack of human and fiscal resources at the lower levels of administration. Since the establishment of the Department of Local Administration within the MoI in 2008, there has been more systematic promotion of both devolving resources to local administration and promoting citizen participation in local governments. Nonetheless, broad power over most public services and resources rests with the central government.[107] In 2025, the MoI announced that it would begin appointing four deputies to each governor, one of which would be responsible for preventing natural and anthropogenic hazards from developing into disasters.[108]

Environment

Thailand lies between the Tropic of Cancer and the Equator in mainland Southeast Asia. It has a varied geography and a tropical climate. Figure 1 shows a map of Thailand.[109]

Geography

Thailand stretches between 5° 37' N and 20° 27' N at its longest and between 97° 22' E and 105° 37' E at its widest,[110] although the southern region on the Isthmus of Kra is much narrower east-west than are the northern regions. The country covers approximately 513,120 km^2 (198,117 mi^2) of territory.[111]

The topography varies widely, but it can be roughly divided into five geographic regions: 1)



Figure 1: Map of Thailand

mountains in the north and west; 2) the Khorat Plateau in the northeast; 3) the central Chao Phraya River basin; 4) the maritime southeast; and 5) the peninsular southwest. The northern mountains line the border between Thailand and Myanmar. The average elevation in this region stands at 1,600 meters (m; 5,200 feet [ft]) above sea level. Found in these mountains, Mount Inthanon, at 2,585 m (8,481 ft), is the highest point in the country. The Khorat Plateau bulges out to the northeast at an elevation of 90-200 m (300-650 ft). It is a vast tableland southwest of the Mekong River, which forms much of Thailand's northern and eastern border with Laos. The hilly plateau looks westward over the plain of the Chao Phraya basin, the heartland of Thailand. The Basin, or Central Plain, consists of rolling plains in the north and flat, low-lying floodplains and the Chao Phraya delta in the south. The southeast is mostly rolling hills that are higher in the center and at the eastern border with Cambodia. There are some heights reaching above 1,500 m (4,900 ft) in this region that drifts down to the indented coastline, which is lined with sandy beaches and fringed with islands. The southwest along the Isthmus of Kra has a western mountainous spine, reaching heights of 1,500 m (4,900 ft), and a gently sloping sandy coastline. Off the rugged west coast lie numerous large islands.[112]

The country comprises 25 river basins, flood plain areas, and canal networks. The complex river systems that extend throughout the country are both critical to its socioeconomic development and key to understanding its disaster risk. The main flood plain of the Chao Phraya is only one of the key river basins.[113] From the high mountains, valleys, and forests of the northern region, streams and rivers flow southward to unite as the Chao Phraya; these rivers include the Ping, Wang, Yom, and Nan Rivers.[114] The Chi and Mun Rivers, both in the country's east, flood seasonally.[115] The northeastern upland is home to many shallow lakes, from which rivers and streams flow into the Mekong River. There are no large rivers in the peninsular south.[116]

Borders

Thailand shares a total of 5,673 km (3,525 mi) of land borders with neighboring countries, including Myanmar (2,416 km; 1,501 mi), Cambodia (817 km; 508 mi), Laos (1,845 km; 1,146 mi), and Malaysia (595 km; 370 mi). It also has 3,219 km (2,000 mi) of coastline on the Gulf of Thailand to the east and the Andaman Sea and Strait of Malacca to the west.[117]

Climate

The country lies in the tropical monsoon zone. The southwestern monsoon brings warm, humid air from May through approximately November, and rainfall from these systems tends to peak in September.[118] This monsoon interacts with the Inter-Tropical Convergence Zone to spin off tropical cyclones that can bring significant heavy rains to Thailand.[119] Between November and February, the northeast monsoon brings cool, relatively dry air to much of the country,[120] with the exception of the southeast coast, where this season brings mild temperatures and abundant rain.[121] The inter-monsoon period of March-April is hot and dry.[122] A separate phenomenon that can impact Thailand's weather is the El Niño Southern Oscillation, and El Niño years are significantly more likely to see drier periods.[123]

There are some notable variations in the general weather patterns. Uplands on the peninsular southern region can cause significant precipitation differences; Ranong on the west coast receives approximately 4,000 millimeters (mm; 160 inches [in]) of rain annually, while Hua Hin on the east coast receives less than 1,000 mm (40 in). Areas of the Khorat Plateau are also in a rain shadow and receive less precipitation than other areas. Songkhla, in the far south, has its rainy period during the winter rather than summer.[124] During the year, nationally, the rainiest months are August and September, with an average 255 mm (10 in) of rain recorded annually during these two months. Mean annual rainfall is 1,542 mm (61 in).

The hottest months nationally are April and May, and the coldest months are December and January.[125] Nationwide, temperatures are steady at 25-29°C (77-84°F). High elevations in the north may get cold enough for occasional frost in December.[126]

Environmental Challenges

The country's environment is under strain from unregulated or exploitative land use, urban expansion, erosion, and ecosystem degradation related to deforestation and land clearing for economic activities, especially shrimp farming, which has had a major impact on coastal mangroves. Additional pressures on the environment are transnational. Since the mid-20th century, regional temperatures have risen by nearly 1°C (1.8°F), which is a larger rise than seen globally. Higher temperatures have the potential to disrupt water resources and, more importantly, agricultural production by shifting growing seasons and decreasing labor productivity as the agricultural labor force cannot work sufficient hours without suffering health impacts. Areas that were once key agricultural areas may no longer be suitable if their climate regimes shift too far from historical norms. Separately, sea levels in the Gulf of Thailand are rising faster than the global average – 3-5 mm (0.12-0.2 in) annually versus 0.7 mm (0.03 in) annually between 1993 and 2008.[127] Much of Bangkok sits lower than 1.5 m (5 ft) above mean sea level; not only is it already prone to river flooding, but it has been sinking by 1-2 centimeters (cm; 0.4-0.8 in) annually as the soft substrata of the city subside.[128] The combination of the ground sinking and the waters rising threaten Bangkok and other coastal cities, which have historically contributed massively to the economy.

DISASTER OVERVIEW

EM-DAT, the international disaster database, recorded 177 disasters in Thailand between 2000 and 2024. To be included in the database, an event must have met one of the following criteria:

- 10 fatalities
- 100 affected people
- Declaration of state of emergency
- Call for international assistance[129]

Of the recorded disasters, 121 events were linked to natural hazards, and 46 were caused by "technological" hazards,[130] which, according to the UN Office of Disaster Risk Reduction (UNDRR), are industrial activities that include dangerous conditions, processes, all transport systems (i.e., land, sea, and air), defensive or offensive weapons systems, and power plants.[131] Technological hazards can sometimes be called "anthropogenic" as they are induced entirely or predominantly by human activities and choices.[132] The anthropogenic events recorded by EM-DAT were almost entirely linked to transport accidents and structure fires. The most common natural hazard-related event during the period 2000-2024 was flooding; storms were the next most common. Figure 2 illustrates the occurrence of disaster events in the country, by hazard, during this time period.[133]

Climate Change

Thailand is vulnerable to the impacts of climate change due to a combination of natural and human factors. The Notre Dame Global Adaptation Initiative (ND-GAIN) provides an index of countries' vulnerabilities to disruption by climate-influenced hazards alongside an assessment of those countries' readiness to leverage adaptation investment.[134] In the ND-GAIN index, Thailand ranks 61st of 182 countries, where a rank of "1" equals best placed to face challenges. The country's total score was 53.9 on a scale of 0-100, where the closer to "100" a country scores, the fewer challenges it confronts and the greater its demonstrated ability to adapt.[135] Thailand's overall score places it in the group of countries assess as less vulnerable and more ready to adapt.[136] With baselines of vulnerability and readiness assessed, each country's exposure to the impacts of climate change can be projected based on various scientific and mathematical models that rely on specific characterizations of future emissions and socio-economic and political mitigation and adaptation pathways.

Using the worst-case greenhouse gas (GHG) emissions and socio-economic pathways for modelling, the Pacific Disaster Center (PDC) at the University of Hawaii estimates that 68 million people in Thailand will be exposed to the primary impacts of climate change – sea level rise, more frequent drought, extreme heat, intense storms, and extreme precipitation – by 2050. Among those exposed to these impacts, an estimated 11.2 million are children, and an estimated 8 million are over the age of 65 years. Although estimates of the geographic impact of sea level rise are concentrated in the northern Gulf of Thailand, on the coasts of the Bay of

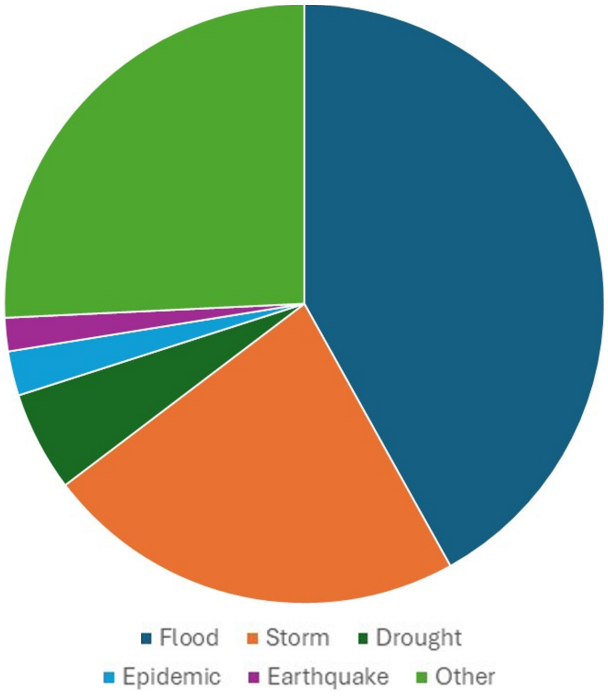


Figure 2: Disaster Events in Thailand, by Hazard (2000-2024)

Bangkok, PDC projects that 8.8 million people will be directly exposed to coastal erosion, flooding from tides and storm surge, saltwater intrusion, and land destabilization because of the dense urbanization of this zone.[137] Figure 3 illustrates the areas in and around Bangkok that are projected to be below tideline after warming of 1.5°C (2.7°F) and 3.0°C (5.4°F), according to Climate Central.[138]

Although the concentration of future sea level rise puts significant human and economic assets at risk, extreme heat is projected to affect most of the country. The PDC projects that, in 2050, up to 65.1 million people – in contrast to no people in 2000 – will be exposed to extreme heat, defined as 30 or more days with the maximum temperature above 35°C (95°F) over the course of a year.

Hazards

Thailand is exposed to various hazards, including drought, earthquake and tsunami, epidemic disease, flooding, forest fire, landslide, and tropical cyclone. Figure 4 provides a 40-year look at human loss from disasters linked to these hazards. It shows the prevalence of storms and floods with periodic droughts and epidemics, but events of historic regional significance – the 2004 Indian Ocean "Boxing Day" Tsunami – are notable as well.[139] This event killed a shocking 8,400 people in Thailand, but it is the only tsunami to impact the country in records dating to the 1970s. The tsunami's impact on the national economy came to less than US$100 million, whereas 50 years of statistics point to losses of US$47.5 billion from flooding between 1970 and 2021.[140]

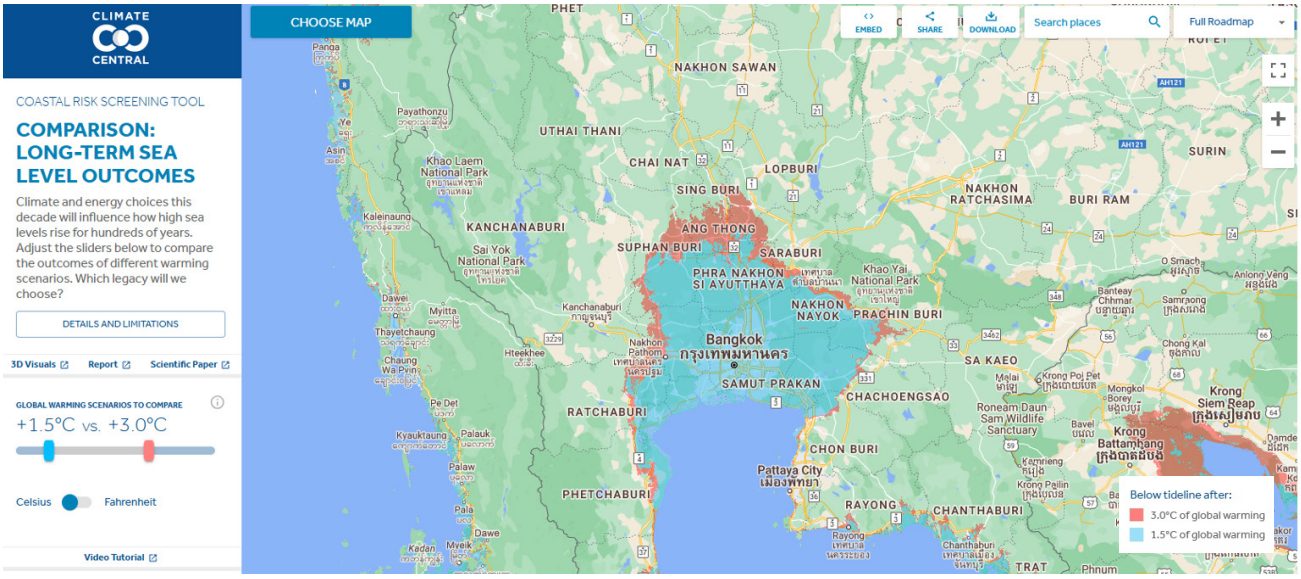


Figure 3: Bangkok, Areas Projected below Tideline after 1.5°C and 3.0°C Global Temperature Rise

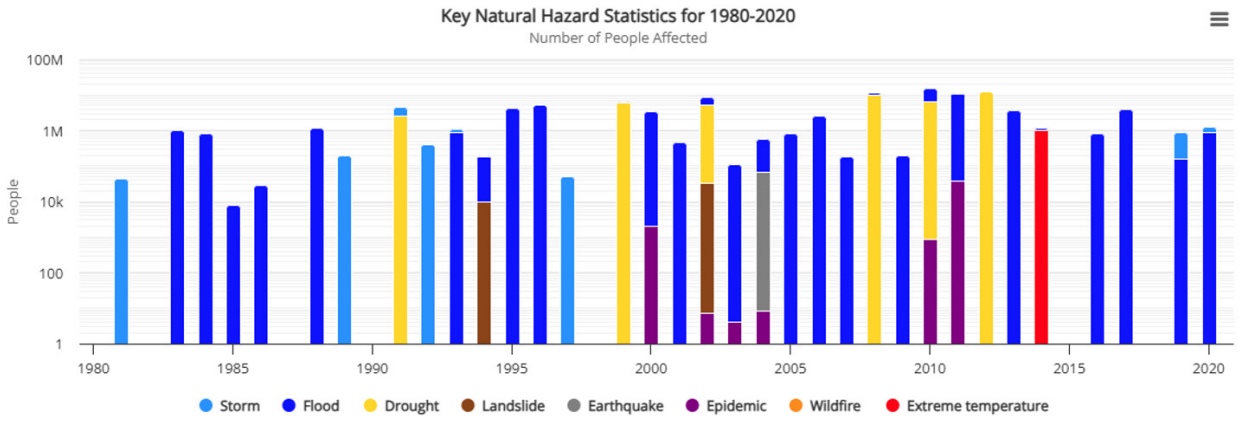


Figure 4: People Affected by Hazard Events, Thailand (1980-2020)

Epidemic Diseases

Thailand is exposed to the epidemic spread of various vector-borne and communicable diseases. Due to the potential for a highly contagious or highly pathogenic microorganism to spread swiftly and undermine socio-economic development, the country has invested in a network of more than 1 million village health volunteers who work within communities to prevent outbreaks. They proved successful in national campaigns to mitigate the impacts of Severe Acute Respiratory Syndrome (SARS) and avian influenza in the 2010s, and they were again relied upon during the COVID-19 pandemic, during which they were tasked with moving door-to-door through their communities to deliver health information and screen for infections. Finally, these workers have responsibility for passing information to health authorities regarding notifiable disease infections. Despite this strong front-line worker capacity, the country does not have a robust method for addressing the socio-economic consequences of an epidemic, and this weakness undermines some efforts by public authorities to limit the spread of diseases. A complicating factor going forward is ecosystem disruption. Ever more people are encountering disease vectors (e.g. insects and other animals) and novel microorganisms, and Thailand is expected to be on the front lines of new and emerging diseases with epidemic potential as climate shifts drive vectors into new geographic spaces.[141]

Drought and Forest Fire

Droughts periodically affect areas of Thailand, with the northeastern and central regions being the most frequently impacted. Major drought events occurred in 1995-1996 and 2005-2006, and these periods saw significant devastation to agricultural areas that led to food scarcity and lost livelihoods among farmers.[142] Drought can occur throughout the year either because of delayed onset of rains or after insufficient precipitation during rainy seasons. Drought commonly occurs in association with El Niño conditions in the Pacific Ocean. Dry conditions correlate with the incidence of forest fire in the country. Fires usually occur between December and May and are often ignited by human activities, such as land clearing and gathering of forest products.[143]

Earthquake and Tsunami

Thailand is located on 14 active faults, which extend through 22 provinces. Seismic activity is technically possible nationally, with higher exposure in the northern provinces.[144] Since 1975, the northern regions have seen many low- to moderate-magnitude, shallow-depth earthquakes that have caused slight to moderate damage to buildings.[145] The only tsunami to strike the country in recorded history was the 2004 Indian Ocean tsunami event, which was generated by a distant fault.[146] The faults that pose the greatest potential threat to the country due to tsunamigenic quakes are the Burma subduction zone (northwest of Thailand), the Andaman thrust fault (to the west of Thailand), and the Sunda Arc (to the south of Thailand).[147]

Flooding

Floods are the single most common hazard event in Thailand, and they tend to cluster in the latter part of the southwest monsoon period (July-October). One history of flooding events recorded 96 floods over the course of 63 years. Some estimates find that 100,000-800,000 people are affected by flooding annually. Low-lying river basin areas with insufficient drainage and plains that have been affected by deforestation are especially exposed, but urban areas, including Bangkok, are susceptible to flooding after heavy rains, and these events disrupt key infrastructure, transport, and livelihoods activities. While the highest absolute risk for loss of human lives due to flooding is concentrated along the Mekong River in areas of northern and eastern Thailand, the highest risk of total economic loss is concentrated in the Chao Phraya Basin, which includes built-up areas of Pathum Thani, Phra Nakhon, Chiang Mai, and Kanchanaburi. Figure 5 illustrates the extent of the country at risk of floodwater depths up to 5 m (16 feet) with 10-year, 100-year, and 1,000-year return periods.[148]

Separate from pluvial (rain-related) and

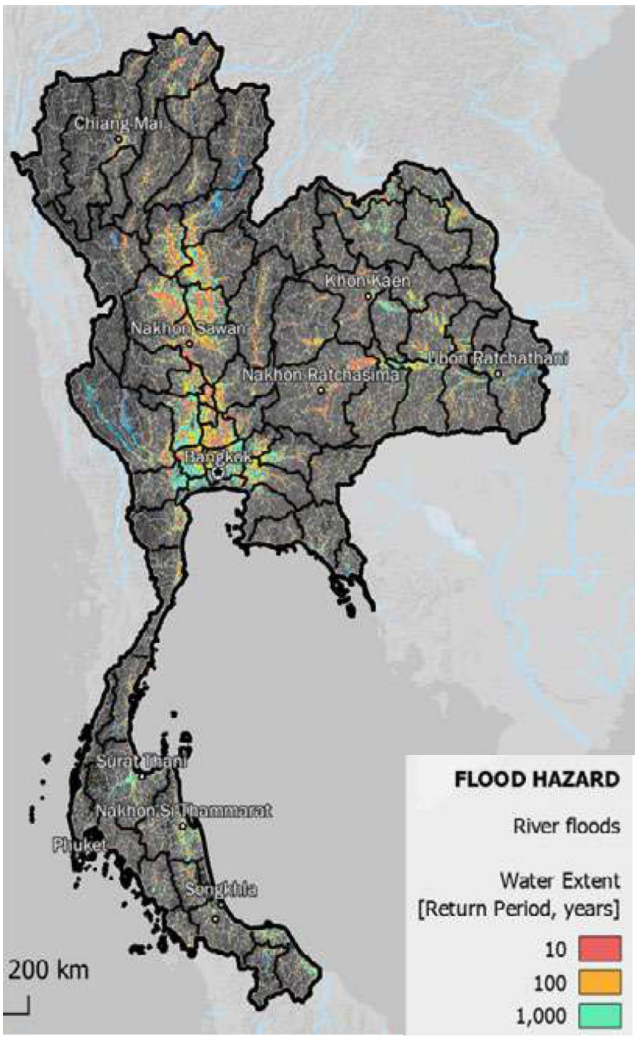


Figure 5: Flood Exposure Intensity in Thailand, by Return Period

fluvial (river-related) flooding, Bangkok is highly exposed to the threat of coastal flooding. The Organisation for Economic Co-operation and Development ranks the city as the world's 7th most exposed city by population and 10th most exposed city by important economic assets. Coastal flooding is associated with coastal erosion, tropical storm surges, and higher-than-normal tides, all of which are expected to worsen this century. While Bangkok is the most exposed due to its built environment, Rayong, Songkhla, and Phatthalung are also highly exposed to coastal flooding.[149] All of these areas are prone to saline intrusion into their aquifers and a heightened risk of water and soil contamination.[150]

Landslide

The northern and western mountain regions of Thailand commonly experience landslides after heavy rains. Areas of the southern regions with steep slopes are also not immune. However, satellite observation of the country for the period 2007-2022 noted only eight slides that had impacted communities or infrastructure.[151] The most common landslide driver is extreme rainfall, which causes downhill movement of land masses, rocks, and debris. Land clearing, cultivation, and deforestation can contribute to soil damage and reduced absorption capacity that increase the potential for slides.[152]

Tropical Cyclones and Storms

Thailand is less exposed to tropical cyclones than some of its neighbors. There are two areas of the country that do confront some risk from regional cyclonic storms. Storms that form in the southwest Pacific Ocean rarely reach Thailand, but when they do, they impact the country's northeastern regions after having weakened as they moved over Vietnam and Laos. The southern coasts of the country confront some risk from storms that commonly bring heavy rain, strong winds, and storm surges. Between 1960 and 2023, Thailand was impacted by 45 tropical storms or cyclones.[153]

History of Natural Disasters

In the first two decades of the 21st century, according to its own records, the RTG reported 137 natural disasters in the country. The single worst event of this period was the 2011 flooding event, which accounted for 87% of total damage suffered over the two-decade period.[154]

The following is a list of disasters in Thailand in the last 10 years.

Myanmar Earthquake: Regional Impact on Thailand – 28 March 2025

On 28 March 2025, a 7.7-magnitude earthquake struck Myanmar's central Sagaing Region; it was shortly followed by a

6.4-magnitude aftershock.[155] The quake caused widespread destruction in Myanmar, with over 3,600 fatalities and nearly 200,000 people displaced, as of 11 April 2025.[156] Although Thailand experiences fewer in-country earthquakes than its neighbors, this event highlights the regional seismic risks that can still impact Thai infrastructure and public safety. The 28 March tremor was felt in major Thai cities such as Bangkok and Chiang Mai, where evacuations were conducted. As of 11 April, Thailand reported 30 fatalities and 38 injuries as a result of the quake.[157]

The RTG led the response and coordinated with the activities of domestic and international partners. At the request of Thailand, U.S. Indo-Pacific Command deployed over 100 U.S. servicemembers to assist with search and rescue operations from 28 March to 4 April. The personnel included specialized teams from the U.S. Army, Air Force, Navy, and Marine Corps. They were equipped with unmanned systems, engineering equipment, and structural stabilization expertise. U.S. forces provided critical support at the collapsed State Audit Office building in Bangkok. This bilateral support highlighted the importance of regional preparedness, civil-military coordination, and international disaster response capabilities.[158]

Flooding – August-December 2024

During the second half of 2024, thousands of villages experienced rain-induced flooding, and some landslides were reported. From mid-August through mid-December 2024, the country reported that 35 people were killed and more than 737,000 people were affected by flooding across 11 provinces.[159] Media reports from late August indicated that at least 22 people had already died, including 13 people killed in a landslide in Phuket. Meanwhile, at least 30,000 people were affected by flooding across Chiang Rai, Sukhothai, and Phrae Provinces.[160] Flooding continued through late September in northern Thailand, which was especially impacted by the remnants of Typhoon Yagi, which damaged 140 schools, according to Save the Children. The group also reported that 30,500 children had missed school and received aid, including replaced school uniforms, books, and other supplies.[161] In October, northern provinces were again affected as Chiang Mai evacuated some villages and train transport was disrupted.[162] During November, the northeast monsoon was particularly heavy over the Isthmus provinces, where some 136,000 households were affected in Satun, Surat Thani, Nakhon Si Thammarat, Songkhla, Pattani, Narathiwat, and Yala, according to the DDPM. Provincial authorities led the delivery and distribution of relief. The DDPM mobilized operational teams and equipment, such as water pumps, long-distance water pumping vehicles, evacuation vehicles, drinking water production vehicles, flat-bottomed boats, and one KA-32 disaster prevention and relief helicopter.[163] On 10 September, the DDPM also requested and received authorization from the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) to access non-food items stockpiled in the Disaster Emergency Logistics System for ASEAN (DELSA) warehouse in Chainat, Thailand.[164]

Flooding – December 2023

As of 27 December 2023, the DDPM reported that more than a week of heavy rain had led to flooding and landslides in southern areas. Some 400,000 people were affected in Satun, Songkhla, Pattani, Narathiwat, and Yala Provinces.[165] Roads and railway lines were forced to close. At least 12 inundated schools were closed.[166] The government response included the DDPM and provincial and local authorities as well as RTArF personnel, who were tasked with supporting delivery of food packages and survival kits and with conducting damage surveys and assessments.[167]

Typhoon Noru and Heavy Rains – September-October 2022

Typhoon Noru struck Thailand on 28 September 2022, in the middle of the monsoon

season. The typhoon brought heavy rainfall and strong winds to at least 25 provinces. By the time the typhoon arrived, monsoon rains had already delivered flash floods and rivers had overflowed, with significant impacts in rural areas. Additional flooding was driven by rapid releases of water from major dams. One week after Typhoon Noru struck, on 6 October, more heavy rain fell over northeastern and southern provinces. Riverside residents in Nonthaburi were advised to evacuate. On 11 October, the DDPM reported that flooding had affected nearly 500,000 people in total; four people were killed. The DDPM led the response to flooding and mobilized support from within the RTG and domestic and international NGOs. The Minister of Interior ordered governors of all provinces, as directors of their respective Provincial Disaster Prevention and Mitigation Directorates, to set up a working group and war room to monitor the flood situation and provide assistance to affected people.

The Thai Red Cross Society (TRCS) played a key role during the response to the flooding. It activated its EOC at its Bangkok headquarters to command, communicate, supervise, and coordinate across its chapters and with other responders. TRCS deployed its Rapid Assessment Team (RAT) to affected areas to assess the impacts, identify needs, and identify gaps. The TRCS also facilitated evacuations and delivered initial relief kits to people in evacuation centers. In addition to providing more than 98,000 relief kits, which contained rice, canned food, flashlights, candles, generic medications, and bottled water, TRCS deployed its emergency Water Purification Unit (WPU) from headquarters to Ubon Ratchathani. For one month from launch on 7 October, the WPU produced 6,400 liters (1,280 gallons) of clean drinking water daily. TRCS also benefited from the presence of the International Federation of Red Cross and Red Crescent Societies (IFRC) Country Cluster Delegation (CCD) in Bangkok as the CCD supported TRCS's funding appeal.

Although monsoon rains did continue into December, flooding after October remained localized.[168]

Storms and Flooding – August-October 2021

From late August 2021, the southwest monsoon and several major weather systems brought heavy rains and winds to much of the country. They caused flooding that damaged many homes and public buildings. The DDPM reported flash floods in 10 provinces on 31 August, and some 325,440 people were affected. Throughout September, additional flooding and landslides displaced people and damaged buildings and infrastructure. Tropical Cyclone Dianmu affected the country from 23 September into the first week of October; during this storm, eight people died, and more than 271,000 people were impacted. Although the extent of flooding decreased in mid-October, continued rains drove localized floods and several landslides, and one more person had died by 15 October.[169] Tropical Cyclone Kompasu lashed the country from 15 to 17 October, and it brought additional flooding to six provinces where more than 16,600 people were affected.[170] After Kompasu struck, waters in some areas reached 20 cm (7.9 in) above normal before they began to recede. The Ministry of Public Health (MoPH) set up mobile medical units for affected communities in Chanthaburi, Trat, and Prachin Buri, where hospitals were flooded. The MoPH also delivered 3,000 first aid kits.[171] Throughout most of the season, national authorities delivered various types of assistance. However, many of the individual events were addressed by provincial governors with support from the RTArF, TRCS local chapters, civil society, and the private sector.[172] With the flooding coming amidst the COVID-19 pandemic, TRCS disaster response teams were badly stretched, but they delivered more than 52,000 relief kits with food, water, medicines, sanitary pads, mosquito repellents, cloth masks, and hand sanitizers in 20 provinces. TRCS boats and an evacuation truck also rescued people.[173]

Flooding – January 2021

Heavy rains triggered widespread floods and landslides in southern Thailand's Songkhla, Yala, Narathiwat, and Pattani Provinces between 4 and 11 January 2021. Official and media

reports indicated that three people had died, and hundreds were evacuated[174] to seven evacuation points in three of the provinces. During the week of flooding and landslides, more than 186,000 people were affected, and 57 houses were damaged by landslides in Yala and Narathiwat.[175] Provincial authorities, the DDPM, and RTArF provided initial relief.[176]

Flooding – September-December 2020

From mid-September until 6 December 2020, flooding affected large parts of the country.[177] By 8 December, the DDPM reported that 2.75 million people had been affected, and 29 people had been killed,[178] 21 of them in Nakhon Si Thammarat.[179] More than 555,000 homes were damaged. Additional losses to livelihoods included 8.47 million head of livestock, fisheries, rice paddies, and other crops.[180] Late-season floods followed during September and October. As of 18 October, the DDPM had reported that nearly 24,000 households in 22 provinces were affected. The DDPM, authorities from affected provinces, RTArF, and other agencies delivered relief items, drained floodwater, and carried out damage surveys.[181]

Tropical Storm Sinlaku – August 2020

Tropical Storm Sinlaku made its way across Vietnam into Thailand on 3 August 2020. Strong winds from the storm uprooted trees, downed power lines, and damaged buildings, while heavy rains caused flooding that damaged hundreds of homes and forced people to evacuate. While nine provinces were affected, the provinces of Loei, Nan, Nong Bua, Lam Phu, and Udon Thani were the hardest hit. Some rain gauges recorded 350 mm (13.8 in) of rain in 24 hours. The Mekong River rose in some areas by 70 cm (27.6 in) over the course of one day.[182] Two people were killed, and the RTArF were called upon to conduct boat rescues and deliver aid to affected communities.[183] Most of the damage was concentrated in the agricultural sector as more than 5,800 hectares (22.4 mi2) of rice and 3,300 hectares (12.7 mi2) of other crops were inundated.[184]

Drought and Fires – December 2019 – May 2020

The late-2019 monsoon season arrived late and ended early, and, as a result, large areas of Thailand suffered drought in the first half of 2020. Saltwater intrusion into drinking water resources, damage to crops, and stalled hydropower generation all disrupted lives and livelihoods between December 2019 and May 2020. The RTG introduced a water management command center, headed by the Prime Minister.[185] In February, the DDPM declared that 21 provinces were affected.[186] As part of the response, the Royal Thai Army's mobile development unit deployed vehicles equipped with reverse osmosis systems to provide drinking water in some of the hardest-hit areas.[187] Military units also drilled additional wells for affected communities, repaired water systems, and delivered water to schools and hospitals.[188] Beneficial rains did fall from 1 March to 14 April 2020.[189] Nonetheless, as late as the end of April, the DDPM reported that 25 provinces still had declared drought-affected areas, covering 6,846 villages in 146 districts. Disaster areas had been declared in six northern provinces – Chiang Rai, Phayao, Nan, Uttaradit, Sukhothai, and Phetchabun – in 10 northeastern provinces – Nong Khai, Bueng Kan, Nakhon Phanom, Sakhon Nakhon, Kalasin, Maha Sarakham, Nakhon Ratchasima, Buriram, Chaiyaphum, and Si Sa Khet – in eight central and eastern provinces – Nakhon Sawan, Uthai Thani, Chainat, Kanchanaburi, Suphan Buri, Chachoengsao, Prachinburi, and Chanthaburi – and in Songkhla in the southern region.[190] In the midst the dry period, nearly 20% of the forested area of Northern Thailand burned in the first four months of 2020. These fires caused dangerous levels of air pollution. A total of 25,518 hectares (100 mi2) burned across the country that year and caused US$380 million in damages.[191]

COVID-19 – 2020-2023

Between January 2020 and July 2023, Thailand recorded over 4.7 million confirmed COVID-19 cases and reported 34,371 deaths linked to the disease.[192]

The RTG declared COVID-19 a dangerous communicable disease under the Disease Control Act (2015) in February 2020, and the MoPH subsequently developed the Public Health Emergency Response Action Plan for COVID-19 and Roles of Relevant Agencies. In March 2020, the Centre for COVID-19 Situation Administration was established under the PMO, and a state of emergency was declared on 26 March. Nationwide restrictions – social distancing, closure of borders to foreign travelers, school closures, lockdowns, and a curfew – were all introduced. RTG measures aimed at mitigating the impacts included a phased stimulus package with financial assistance to small and medium-sized enterprises, tax relief, cash handouts, an educational fund to support children in vulnerable families, social health insurance to cover medical costs for those with COVID-19, increased unemployment benefits, and aid targeted at the tourism sector. By July 2022, many restrictions were lifted as vaccines were rolled out. By February 2023, three-quarters of the population had been fully vaccinated.[193]

Tropical Storms, Floods, and Landslides – August-September 2019

On 29 August 2019, Tropical Storm Podul crossed into northeast and northern Thailand where it delivered rain and winds and caused flash flooding and landslides that affected 32 provinces. The DDPM reported that more than 158,000 households had been affected, and 19 people had died. At least 3,800 houses, 430 schools, and 57 health centers were damaged. Widespread damage was also recorded on cropland, fisheries, and livestock operations. Road damage hindered some relief operations. The local and provincial authorities helped in evacuations, set up emergency shelters, and delivered food and drinking water. Despite this assistance, additional damage and loss were set to emerge as Tropical Storm Kajiki hit Thailand on 3 September. It brought more rain to six provinces. In all, 33 people were killed. By 16 September, 24,000 people were still displaced, and the two storms had affected more than 418,000 people in total. Most areas had begun to recover by 25 September, but the DDPM was still monitoring four provinces where nearly 18,000 people were still accommodated in 41 evacuation centers.[194] The TRCS worked throughout the emergency to support the DDPM and local authorities. TRCS chapters in 10 provinces delivered 32,342 emergency relief kits.[195]

Tropical Storm Pabuk – January 2019

Thailand was hit by Tropical Storm Pabuk from 3 to 5 January 2019. Authorities first issued warnings on 1 January and had evacuated 30,000 people from coastal areas by the time the storm arrived. Flights had been suspended and various other warnings issued to ensure people stayed away from areas vulnerable to storm surge or flooding.[196] Additional evacuations meant that some 700,000 people were sheltering outside their homes, either with other families elsewhere or in public shelters as the storm moved through.[197] After the storm passed, the DDPM assessed that Pabuk had affected 212,000 people across 2,600 villages in 18 provinces across southern Thailand. Seven people were killed, including two people working as rescuers. Widespread flooding and heavy winds damaged infrastructure, crops, and schools, and the losses totaled an estimated US$150 million.[198] The RTG, RTArF, and the TRCS all participated in the immediate response and recovery.

Tropical Storm Bebinca – August 2018

In mid-August 2018, the remnants of Tropical Storm Bebinca arrived in northern Thailand.[199] Nan Province was the hardest hit area as rivers in the province overtopped their banks. At one point, flood waters were 50 cm (10.7 in) above normal level, and schools and homes were damaged. Royal Thai Army troops were dispatched to help evacuate and rescue people, as roads were impassable to many passenger vehicles. Eleven villages in one district were evacuated as they were assessed to be at high risk of landslides [200] Soldiers and local officials used flat-bottomed boats to distribute drinking water and relief aid to affected households in the flood-

hit communities.[201] Days after Bebinca passed, Nan Province was still dealing with aftereffects as landslides blocked key sections of roads and forced 5,000 people to make a 100-km (62-mi) detour to reach their nearest town.[202] Bebinca's rains soaked already sodden slopes in Nan where heavy rains in July had led to a deadly landslide that killed eight people and forced the relocation of 60 village families.[203]

Typhoon Son-Tinh – July 2018

In mid-July 2018, Tropical Storm Son-Tinh formed over the South China Sea. Its remnants reached Thailand on 21 July and brought heavy rains to northern and northeastern provinces. Flash floods were reported in many areas.[204] The DDPM reported that 11 provinces experienced flooding during 17-21 July as the rains that fell over Vietnam and Thailand raised the level of the Mekong River, which flooded some communities and farmland. Respective DDPM Regional Offices collaborated with the RTArF and local administrators to rush assistance to flood victims and to install more water pumps in affected areas.[205]

Flooding – August-December 2017

During July and August 2017, heavy rains impacted much of the country. Flooding was especially persistent in nine provinces of the northeast. The DDPM reported that 44 provinces were impacted between 5 July and 8 August and that more than 578,000 households had been affected. Twenty-nine people were reportedly killed. Thousands of homes, kilometers of roads, 14,000 fishponds, and large expanses of cropland were damaged.[206] In September, the remnant tropical depression that had been Tropical Storm Doksuri hit much of the country, which experienced heavy rainfall. The DDPM reported flooding in 29 districts and 215 villages in eight provinces. Local authorities were responding with relief items and by repairing flood-damaged bridges and roads. Soldiers supported efforts by using boats to rescue stranded residents and deliver them to temporary shelters.[207] Then, between 10 October and 9 November 2017, 23 provinces were affected by heavy rains and flooding that killed 18 people and affected more than 233,000. A tropical depression had mixed with monsoon systems to deliver extreme rains. The DDPM worked closely with RTArF units and local authorities in Prachuap Khiri Khan to evacuate affected people. Temporary shelters were set up and water pumps installed to help drain the flood waters.[208] Fresh monsoon storms hammered areas of southern Thailand for several days in late November and early December 2017. Flooding disrupted transport throughout the southern provinces. It forced the closure of the Nakhon Si Thammarat airport at one point as a runway flooded and electrical equipment was damaged. Nakhon Si Thammarat authorities also reported that six people were killed,[209] but the DDPM reported that the total death toll across the affected provinces stood at 15.[210] The Songkhla Disaster Prevention and Mitigation Office reported that 16 districts of that province suffered damage and loss that totaled some 72 million baht (US$2.1 million).[211] Much of the damage in the province came from Songkhla Lake, which overflowed and flooded the homes of more than 114,000 people. More than 130,000 people in Phatthalung were affected, and 207,000 people in Nakhon Si Thammarat were impacted. The DDPM asked the army and local administrators to assist.[212] Army units based in the jurisdiction used flat-bottom boats to deliver relief supplies to many communities.[213]

Flooding – December 2016 – January 2017

From 1 December 2016 into late January 2017, flooding affected 1.8 million people across 12 provinces, mostly in the south. The death toll was at least 91. Floods also damaged thousands of roads and hundreds of bridges, as well as major water system infrastructure, many public buildings, and at least 2,300 schools.[214] Local agencies and Royal Thai Army units delivered relief to affected residents, many of whom were cut off by waters and could only be accessed by boat. The Livestock Department dispatched officials to assist farmers in restoring livelihoods.[215] Provincial public health offices

and the MoPH deployed 180 medical teams to deliver medical services to flood-affected communities. They were using mobile medical units and vehicles because health centers had been damaged.[216]

Flooding – October 2016

In the first week of October 2016, the DDPM reported that flooding had killed three people in Nakhon Sawan Province, where 27,000 houses had been inundated. Ayutthaya Province was also heavily affected as 22,000 homes were flooded, along with key public buildings. After two weeks of heavy rains, 12 other provinces were experiencing flooding. The DDPM led the response with assistance from the armed forces to deliver relief items and repair roads while the Irrigation Department ramped up efforts to drain off excessive water.[217]

Flooding – June 2016

On 21 June 2016, Bangkok experienced one of its worst floods in 25 years. A low-pressure system that had moved over Vietnam and Cambodia brought heavy rains to northeastern, central, and southern Thailand. Rainfall exceeded 100 mm (3.9 in) within a 24-hour period at five locations in the capital, with one rain gauge recording 141.5 mm (5.57 in) in a single day. There were no reports of casualties, but the DDPM, municipal authorities, the Royal Thai Army and Police, and various other agencies cooperated to drain the waters and address damage.[218]

Drought – 2015-2016

The strong El Niño of 2015/2016 brought drought to much of mainland Southeast Asia. Some areas saw a 6-month rainfall accumulation of less than 25 mm (0.98 inches).[219] The year 2015 was the second year in a row of below average rainfall in Thailand, and, by September, the RTG had asked farmers to reduce water use during the 2015/2016 dry season because all reservoirs were low. Some early estimates expected rice production to fall by 12.5% year-on-year as the drought entered its second year.[220] By early 2016, 12 provinces were declared to be in drought, and 28 provinces were at risk. National authorities trucked water into affected areas for drinking and hygiene.[221] By June, the monsoon had arrived and alleviated some of the situation.[222] By the time the drought conditions lifted in 2016, overall losses were estimated to have reached US$3.4 billion.[223]

Country Risk

Risk calculation takes into account exposure to hazards, vulnerability, and coping capacity. Addressing all of these elements is important in reducing and mitigating disaster risk. Various indices emphasize structural or institutional risk while others emphasize hazards or losses (human and economic). Regardless of emphasis, disaster risk calculations use some form of the equation:

Disaster Risk = (Hazard × Vulnerability) / Capacity[224]

Taken from the UNDRR glossary, definitions will help clarify this formula:

- Capacity - The combination of strengths, attributes, and resources available within an organization, community, or society to manage and reduce disaster risks and strengthen resilience.
- Disaster risk - The potential loss of life, injury, or destroyed or damaged assets, which could occur to a system, society, or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.
- Hazard - A process, phenomenon, or human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption, or environmental degradation.
- Vulnerability - The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards.[225]

In general, the goal of indexing risk is to inform decision makers and DRR and climate

adaptation practitioners of the level of risk to and underlying capacity of the target community. The various risk calculation models support proactive crisis management frameworks and are helpful for prioritizing allocation of resources and for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.

INFORM Risk Profile

INFORM is a collaboration of the Inter-Agency Standing Committee (IASC) Reference Group on Risk, Early Warning, and Preparedness with the European Commission. It is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. The Joint Research Centre of European Commission is the scientific lead. There are three operational dashboards – i.e., INFORM Risk, INFORM Severity, and INFORM Climate Change.[226]

The **INFORM Risk Index** is an open-source assessment that supports prevention, preparedness, and response decisions. It measures the risk of humanitarian crises and disasters in 191 countries. The INFORM model is based on the standard 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.[227]

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 and 10 the highest) for each of the dimensions, categories, and components of risk, as well as an overall risk score.[228] The higher the score the more at risk a country is. In the 2025 INFORM Risk Index, Thailand had an overall risk score of 4.4/10, which INFORM categorizes as the "Medium" risk class and lands Thailand as the 51st most at-risk country in the Index. The Hazards and Exposure dimension score takes into account a combination of both natural and anthropogenic hazards, and Thailand rated 6.1/10 or 36th of 191 countries. The Vulnerability dimension score was 3.7/10 or 101st of 191, and the Lack of Coping Capacity dimension score was 3.9/10 or 115th of 191. Physical exposure to River Floods at 9.8/10, was the greatest threat in the Hazards and Exposure dimension. Uprooted People measured 7.6/10, the highest risk in the Vulnerability dimension. Governance rated 5.6/10 to be the most significant risk in the Lack of Coping Capacity dimension. Figure 6 shows the INFORM Risk dashboard for Thailand for 2025.[229]

World Risk Report

The World Risk Report by Bündnis Entwicklung Hilft strives to raise awareness of disaster risk among the global public and political decision-makers and to provide practitioners with data to promote faster

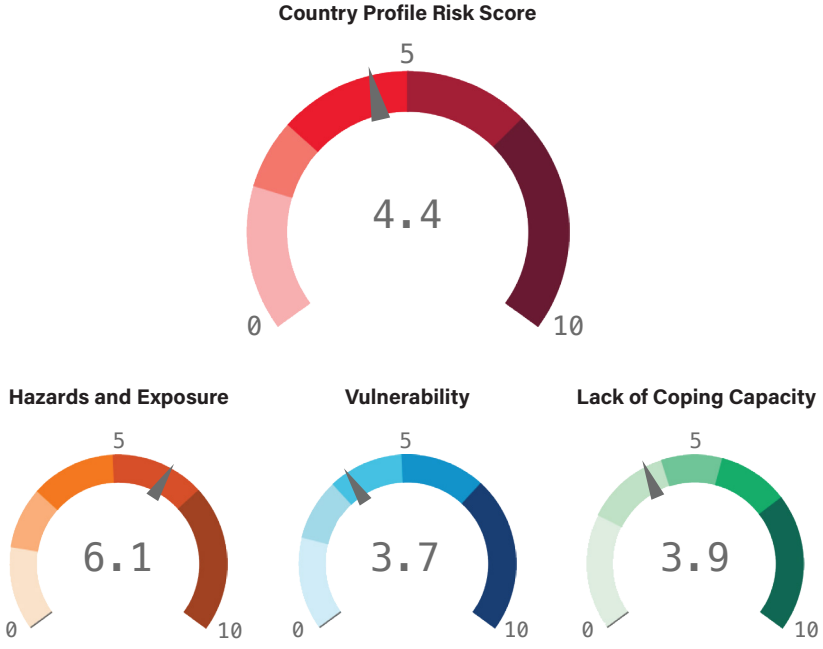


Figure 6: INFORM Risk Index, Thailand (2025)

orientation to complex situations – i.e., societies experiencing disasters. This effort stems from the perception that disaster risks are not solely determined by the occurrence, intensity, or duration of extreme events. Social factors, political conditions, and economic structures play an important role in turning these events into crises. Thus, this index is based on the assumption that every society can take precautions – e.g., effective disaster preparedness and management – to reduce the impact of extreme events and lower the risk of disasters.

The World Risk Report calculates the level of risk a country faces based on a formula of exposure to hazards and vulnerability. It provides an assessment of the risk that countries will confront disasters but does not indicate probabilities for the emergence of disasters, nor does it forecast the timing of future disasters. This index uses 100 indicators that include risk, hazard exposure, vulnerability, and coping capacity (as defined above), and adds two others:

- Susceptibility - The disposition to suffer damage in the event of extreme natural events. Susceptibility relates to structural characteristics and frameworks of societies.
- Adaptation - A long-term process that also includes structural changes and comprises measures and strategies that address and try to deal with future negative impacts of natural hazards and climate change. Analogous to "lack of coping capacity," the lack of adaptive capacities is included in the Index.

In the 2024 World Risk Report, Thailand ranked 21st of 193 countries wherein the lower the rank, the greater risk the country faces. Thailand's total Index score was 21.70 (on a scale of 0-100 wherein the lower the number the less risk a country faces). This score puts the country in the "very high" risk class. The component scores were:

- Exposure: 14.32 (very high)
- Vulnerability: 32.87 (high)
- Susceptibility: 21.12 (very high)
- Lack of Coping Capacity: 47.95 (very high)
- Lack of Adaptive Capacity: 35.08 (medium)

In this index, Thailand ranks 5th among the 10 ASEAN member-states, whose rankings range from the Philippines, which ranks as the #1 most at-risk country in the index, to Singapore, which, with a total score of 0.80, ranks as the least at-risk ASEAN member-state and the 186th least at-risk of all 193 countries. Thailand's "exposure" score makes it the 5th most exposed ASEAN member-state, but it is also among six ASEAN member-states that have a "very high" exposure score. Broadly, this score reflects the common hazards to which the countries of mainland Southeast Asia are exposed. Similarly, Thailand's "vulnerability" score and those of Vietnam, Malaysia, Cambodia, and Laos are closely grouped as "high" score countries in a reflection of common challenges across the aspects of socio-economic conditions, governance, and health and educational systems. Indeed, the "susceptibility" scores of these five countries are also closely grouped, as they all share similar geographic, public health, conflict, and inequality challenges. However, Thailand (47.95) scores much worse than its mainland Southeast Asia fellows (Malaysia – 20.35; Cambodia – 13.71; Lao – 13.38; Vietnam – 12.38) in "lack of coping capacity," which reflects a country's governance, social safety nets, health system, and infrastructural resilience. And conversely, Thailand's (35.08) score on "lack of adaptive capacity" is close only to Malaysia's 35.99, while Vietnam (42.13), Cambodia (48.14), and Laos (62.09) score worse, seemingly in a reflection of Thailand's relatively stronger education and investment climates.[230]

ORGANIZATIONAL STRUCTURE FOR DISASTER MANAGEMENT

The Disaster Prevention and Mitigation Act of 2007 established the National Disaster Prevention and Mitigation Committee (NDPMC), which is headed by the Prime Minister and comprises the leadership of various cabinet ministries and departments. The NDPMC sets the policy direction for overall disaster management (DM), including DRR. By law, the DDPM, under the MoI, is the NDPMC Secretariat and the department responsible for all facets of DM – prevention, preparedness, response, and recovery. It is the primary point for collaboration among national, provincial, and local DM authorities. There are also Disaster Management Committees (DMC) at the provincial level. They coordinate DRR and response plans. Local authorities are responsible for front-line action under provincial plans.[231]

While this structure holds for domestic DM, Thailand continues to build capacities that can be useful for foreign disaster response operations. As of the 2015 National Disaster Risk Mitigation (DRM) Plan, the Ministry of Foreign Affairs (MFA), in conjunction with the MoI, Ministry of Defence (MOD), and other RTG agencies, was delegated the responsibility for developing standards, operational plans, and a public relations handbook on providing humanitarian assistance or DM support to foreign countries. The MFA was also tasked with laying down the procedures and practical guidance for that aid provision and that would be applicable to RTG agencies and foreign countries to which Thailand provides aid. A key capacity that continues to develop is search-and-rescue (SAR) teams that meet the standards of the International Search and Rescue Advisory Group (INSARAG). With the MoI / DDPM as the focal point, various RTG agencies and NGOs have been working to build specialized teams capable of responding both at home and internationally.[232] As of February 2025, the DDPM, in cooperation with medical, urban SAR, chemical, canine, and engineering specialists was working toward INSARAG classification for a "medium" class team, set for final testing in November 2025.[233] A "medium" team has the ability to conduct complex technical SAR operations in collapsed or failed structures of wood or reinforced masonry, to conduct rigging and lifting operations, and to have the operational capacity to work at only one site.[234]

Lead Government Agencies in Disaster Response

The NDPMC, chaired by the Prime Minister, comprises the Ministers or Permanent Secretaries of Interior, Defence, Social Development and Human Security, Agriculture, Transportation, Natural Resources and Environment, Information and Communication Technology, and Public Health, as well as representatives from the Bureau of Budget, the Royal Thai Police (RTP), the Royal Thai Air Force, Army, and Navy, and the National Security Council. The Committee's mission is to establish national policy to promote the development and implementation of the master plan for disaster risk reduction and management.[235] The MoI has been designated the national headquarters and, as such, the Minister of Interior will serve as the National Disaster Prevention and Mitigation Commander for a major incident at the National Disaster Prevention and Mitigation Command Headquarters (NDPMCHQ); in case of a catastrophic incident, the Prime Minister may become the national incident commander.

The Director-General of the DDPM is designated as the Director of the Central Disaster Prevention and Mitigation Coordination Center (CDPMCC), which functions during both non-emergency and emergency periods. In the case of a major or catastrophic disaster event,

the CDPMCC may function as the Emergency Response Coordination Centre (ERCC) under the NDPMCHQ, but during localized or less-severe emergencies, the CDPMCC serves as a focal point through which local incident commanders can manage responses. When activated, the ERCC also coordinates response contributions by the private sector and by civil society, and the MFA may designate personnel and duties to the ERCC for coordination of foreign affairs issues during an emergency response.

The CDPMCC is mirrored at the provincial level by the Provincial Disaster Prevention and Mitigation Coordination Centers (PDPMCC), which direct, control, support, and coordinate DM efforts within their provinces. If the PDPMCC becomes an operational command, the Provincial Governor will serve as the Provincial Incident Commander within the PDPMCC. The Bangkok Metropolitan Administration's Disaster Prevention and Mitigation Coordination Center (BMA-DPMCC) has similar responsibilities and mandates as a PDPMCC. One step lower is the District Disaster Prevention and Mitigation Coordination Center (DDPMCC), which performs DM functions within its jurisdiction as well as any additional duties assigned by the PDPMCC. At the lowest level are the Pattaya City, Municipal, and Subdistrict Administrative Disaster Prevention and Mitigation Coordination Centers (PC-, M-, or SDA-DPMCC). All lower-level DPMCCs not only direct and support emergency responses within their jurisdictions, but they also are emergency response units (ERU) that take action during an actual emergency.[236] Figure 7 illustrates this arrangement of jurisdictional-level management centers.[237]

The DDPM is tasked with all DM actions for both natural and anthropogenic hazards.[238] Its mission is to improve national mechanisms to prevent disaster damage and loss and to mitigate calamities due to natural and anthropogenic hazards. The department has the following mandate:

- Formulate policy, guidelines, and measures on disaster prevention and mitigation
- Study, analyze, research, and develop systems on disaster prevention, disaster warning, and disaster mitigation
- Develop information technology on disaster prevention and mitigation
- Promote the participation of people in DM activities
- Build disaster risk awareness
- Provide training to build capacity and improve skills on DM and disaster relief
- Promote, support, and implement programs for assisting disaster victims and disaster recovery
- Direct and coordinate operations to assist disaster victims in large-scale disasters
- Coordinate with domestic and international agencies or organizations[239]

In addition to its headquarters in Bangkok, the DDPM maintains 18 Regional Offices (RO), 30 sub-provincial offices, and 76 provincial offices. There are more than 2,500 staff, 500 at the headquarters and the remainder at offices through Thailand. The staff are also supported by more than 2 million Civil Defence Volunteers. The DDPM also operates the Disaster Prevention and Mitigation Training Institute and Fire and Rescue Academy[240] to train DDPM staff, other government stakeholder personnel, and some private-sector representatives. There are six training campuses - Prachinburi, Songkhla, Chiang Mai, Khon Kaen, Phuket, and Phitsanulok.[241]

Each DDPM RO covers five to six provinces. These ROs can operate as training and operations centers for the DDPM staff and Civil Defence Volunteers. An RO can operate as a staging area for humanitarian response in the area it covers as it houses a command center as well as supplies and equipment. The supplies and equipment at an RO reflect the hazards prevalent in the provinces the RO covers; for example, ROs at Chaing Rai and Lampang have earthquake equipment, simulators, and training, whereas ROs at Prachuap Khiri Khan and Chanthaburi have water rescue academies. The RO at Chainat

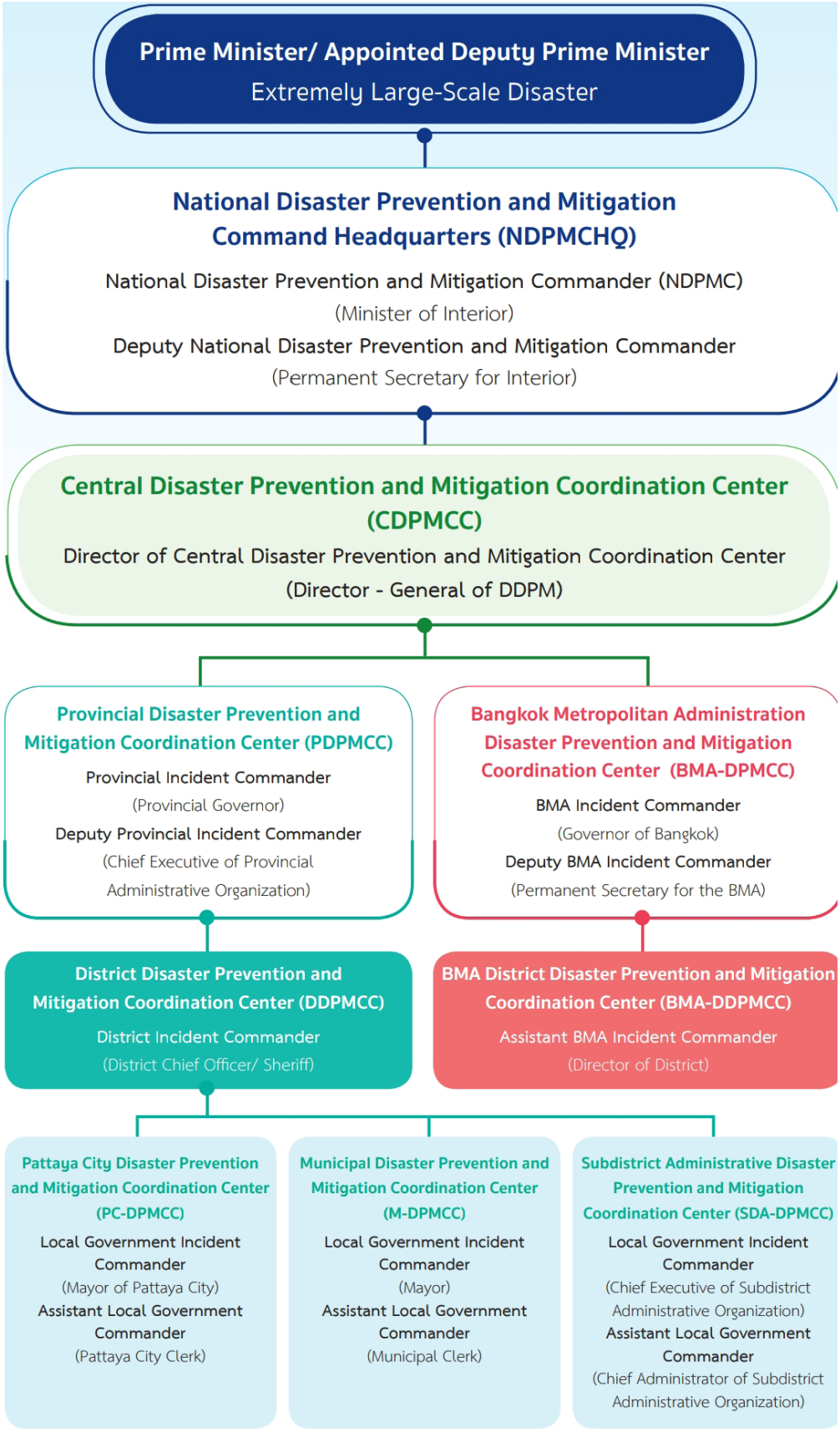


Figure 7: Levels of Disaster Management

is the home of the national SAR team and the location of a DELSA warehouse.[242]

The DDPM's actions cover the entire DM cycle. In the Preparedness Phase, it supports provinces to formulate plans, trains officials and volunteers, educates the public, procures equipment, vehicles, and materials, and conducts annual drills and other exercises. In the Prevention and Mitigation Phase, the DDPM activates early warning systems, activates the EOC, coordinates with all agencies to mobilize relief efforts, coordinates with utilities and other companies impacted or that may provide assistance, and disseminates information to the public. In the Recovery Phase, it supports the responding authorities by procuring and delivering relief items or funding, coordinates clean-up activities, and coordinates all agencies in long-term rehabilitation.[243]

The DDPM is also one of the primary collaborators in the cross-agency effort to mitigate the risks of climate change. This effort is shared by the DDPM and the two departments under Ministry of Natural Resources and Environment (MNRE) — the Department of Climate Change and the Environment (DCCE) and Department of Public Works and Town and Country Planning (DPT). Together, they aim to strengthen the preparedness and adaptive capacity of individuals, communities, and cities. Among the measures laid out for these Departments are to develop infrastructure alternatives, promote planning regulations and construction laws, support business continuity planning, cooperate in development of local disaster prevention and mitigation plans, create networks of practitioners to communicate to all communities ahead of a disaster, and develop accessible and accurate warning and situation reporting mechanisms for settlements of all sizes.[244] The MNRE is the lead agency at the national level for developing and overseeing policies and activities to mitigate adverse climate impacts. MNRE's DCCE oversees intra-governmental collaboration on water management, agriculture and food security, tourism, public health, natural resources management, and human settlements and security. The DCCE's main partners on human settlements and security are the DDPM and MNRE's DPT.[245]

Disaster and Emergency Response

The DDPM operates the CDPMCC, which has designated functions before, during, and after a disaster event. During non-emergency situations, the CDPMCC coordinates and integrates emergency response information, resources, and planning among RTG agencies to maintain readiness for potential disasters. When there is the potential for a disaster, the CDPMCC conducts large-scale preparedness operations, monitors developments, performs data analysis and rapid assessments, and issues early warning messages. It also provides reports and recommendations to the National Incident Commander. During a disaster, the CDPMCC directs, integrates, and coordinates response operations for small-scale (Level 1) and medium-scale (Level 2) disasters. It is also responsible for conducting disaster assessments and providing technical support to the NDPMCHQ. If a disaster escalates to a large-scale (Level 3) incident, the center advises the National Incident Commander on response measures. If the situation worsens to Level 4, recommendations are submitted to the Prime Minister or the designated Deputy Prime Minister.[246]

Local authorities are responsible for overseeing the immediate response to a disaster. The district chief executive will be the Director of the local DPMCC and will rely on the support of local sub-district or village leaders and representatives of key private sector entities. Local DPMCCs will:

- Direct, control, perform, and coordinate disaster management activities within the area under responsibility
- Provide support to adjacent and other DPMCCs upon request
- Coordinate with government agencies and other relevant public entities and the private

sector for cooperation on DM
- When a disaster occurs or is imminent, the respective DPMCC is obliged to establish an EOC to provide assistance to the public

Municipal administrations, the Bangkok Metropolitan District, and the Pattaya City administration will oversee disaster operations within their jurisdictions. The mayor plays the role of Director of an M-DPMCC, and the municipal divisions and private sector stakeholders will support. District administrations are tasked with standing up a DDPMCC to carry out operations within the district and to assist provincial-level operations. The district chief executive will be the Director with support from staff across the district offices and local administrations, as well as private sector stakeholders. A PDPMCC is headed by the Provincial Governor, with support from provincial agency leaders and their staffs.[247]

During responses, the DDPM's 2 million Civil Defence Volunteers are on the ground, doing the work of the response. They are community members who have trained under the DDPM to conduct basic SAR and early warning, as well as other tasks. They and response leaders have access to the DDPM's ROs, which are staging points for DDPM-led humanitarian activity and house supplies, equipment, and a command center, available to oversee responses to incidents that strike more than one province.[248] After a small-scale hazard incident where the affected area and community are limited and local resources are sufficient to respond, the PC-, M-, or SDA-DPMCC EOC oversees operations. In a larger-scale incident, when multiple sub-districts or areas of Bangkok are affected and local resources need supplemented or assistance with coordination, the PDPMCC, DDPMCC, or BMA-DPMCC EOCs will exercise coordinating and support authority. In a large-scale disaster that impacts multiple provinces, the central EOC under the Director-General of the DDPM and the NDPMCHQ under the Interior Minister will activate to deliver coordination, manage supporting relationships, and provide funding and budgetary oversight. In the case of an extremely large disaster that overwhelms national capacity, the Prime Minister will be the top-level authority.[249] Figure 8 illustrates this hierarchy based on the severity of an incident.[250]

When the national EOC is activated, the Incident Commander is the Minister of Interior. As the Commander within the NDPMCHQ, the Minister has the duty to direct, control, oversee, supervise, and coordinate disaster operations undertaken by EOCs at national, provincial, and district or local levels. The NDPMCHQ integrates representation from across the RTG, public agencies, and private sector bodies as appropriate. The DDPM provides the headquarters staff.[251] When disasters are declared at any level, an EOC will be activated to provide the Incident Commander a space from which to supervise all entities conducting emergency operations. If a situation exceeds local response capacities, authority over operations – and the responsibility to operate an EOC – is transferred to provincial levels, or further

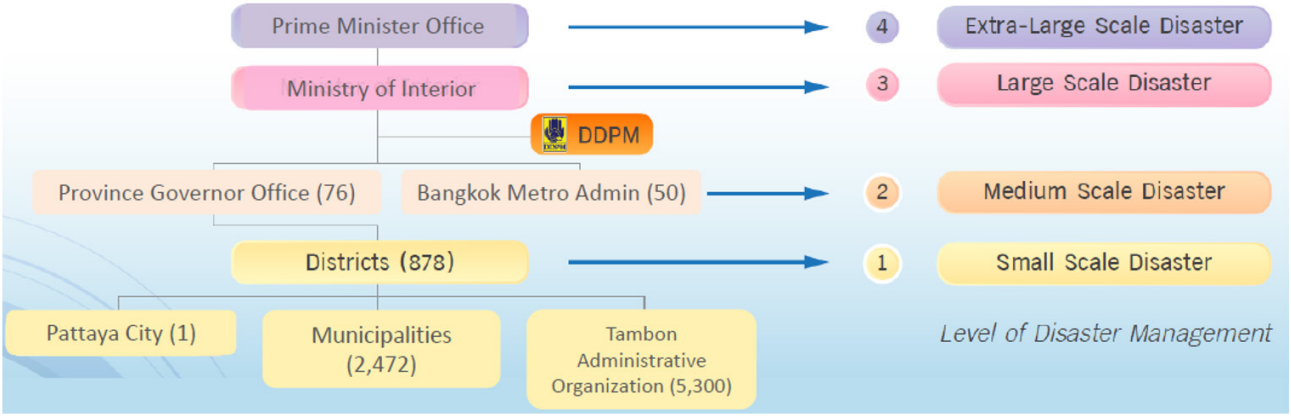


Figure 8: Hierarchy of Disaster Management by Scale of Event

upwards to national-level leaders. In the case of large-scale disasters, Emergency Support Functions (ESF) will be formed to support emergency management and operations.[252] The EOC / Headquarters or incident command center will integrate operations, planning, and support ESFs under the leadership of the incident commander / EOC Director. Figure 9 illustrates this structure.[253]

The DDPM is responsible for ESF-5: Emergency Management. It executes this ESF every time an emergency occurs. For example, Thailand seasonally suffers poor air quality with a high level of particulate matter of 2.5 micrometers or smaller, and this level of pollution is a threat to human health. The DDPM executes ESF-5 by producing daily situation reports and conducting monitoring, information sharing, and coordination to support local and national stakeholders as they develop solutions to this pollution.[254]

For Thai responses to foreign disasters, the MFA will first gather information from Thailand's diplomatic representation in the affected state and from the affected state's representation within Thailand. The MFA will then recommend assisting measures and seek approval for assistance at the cabinet level. The DDPM can deploy if Thai assistance is sent outside Thailand, but the MFA can determine the type and scope of assistance and, therefore, may not include DDPM staff or resources.[255] For example, the MFA initially rejected DDPM's involvement in Thailand's response to the 2023 Türkiye-Syria earthquake. However, a direct call from the Thai Ambassador in Türkiye to MFA impressed upon the RTG the scale of the devastation and urgent humanitarian need. As a result, a larger-scale operation ensued. Thailand's SAR team ultimately deployed to Türkiye, where they participated in the recovery of remains and supported on-the-ground relief efforts. The RTG sent dozens of SAR personnel along with specialized equipment, and coordinated donations of emergency shelter supplies, non-food items, and financial assistance. The Royal Thai Army also deployed officers from its medical emergency response team, which contributed to on-site medical support. In parallel, MFA facilitated the

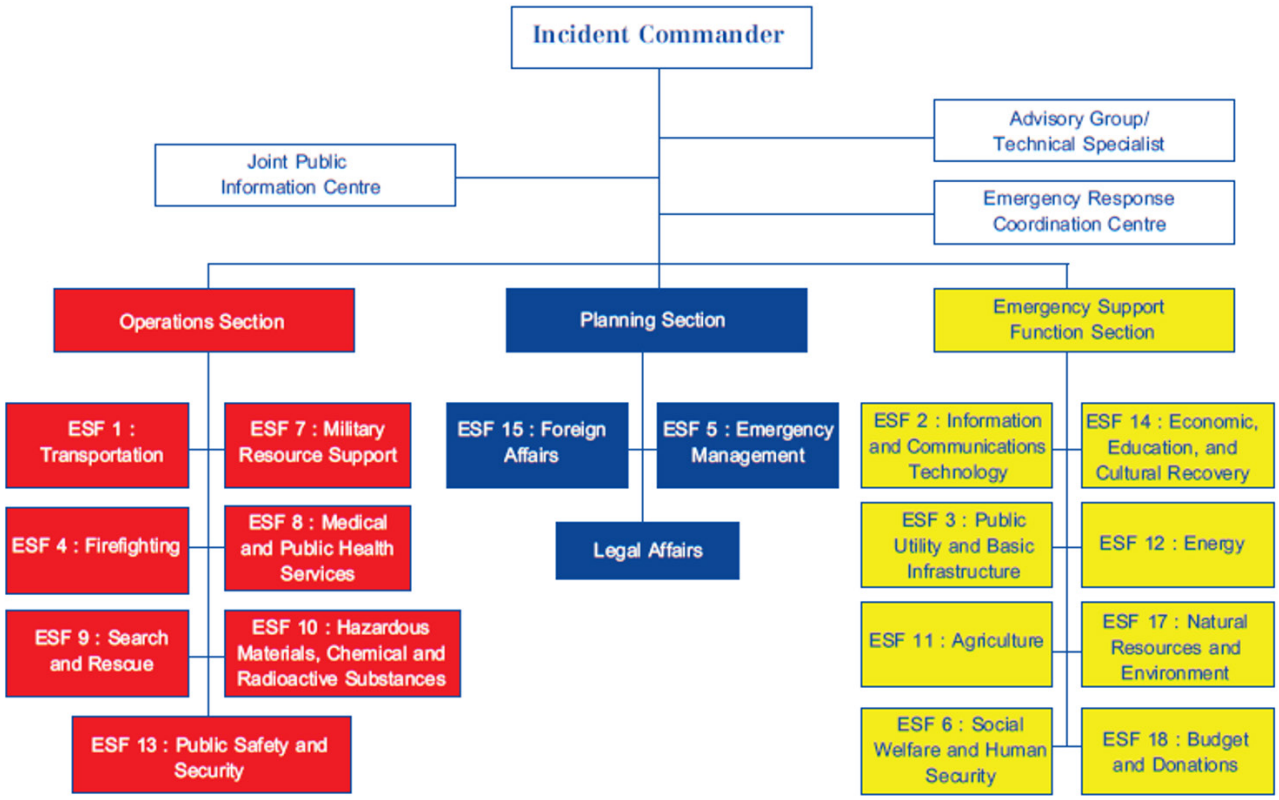


Figure 9: Organization of Emergency Support Functions

repatriation of Thai nationals living in or visiting Türkiye at the time of the disaster. This response marked one of Thailand's most significant international humanitarian operations to date and reflected a growing willingness to project its disaster response capabilities abroad in support of regional and global partners.

Armed Forces Role in Disaster Response

The RTArF is made up of the Headquarters, Royal Thai Army, Royal Thai Navy, and Royal Thai Air Force.

Under the National Disaster Prevention and Mitigation Plan, the MOD is tasked with providing support and assistance to national disaster prevention and response efforts.[256] The military's role in emergency response is outlined in both the Disaster Prevention and Mitigation Act and the MOD's Disaster Relief Plan. The most recent MOD Disaster Relief Plan was published in 2021, and it is under review to align it with the National Disaster Prevention and Mitigation Plan 2021-2027. The key MOD entity involved in DM is the MOD Disaster Relief Center (MOD-DRC), under the leadership of the Defence Minister and comprising two DRCs – 1) the Office of the Permanent Secretary for Defence (OPSD) DRC, and 2) the RTArF DRC. Under the RTArF DRC are individual DRCs for the RTArF Headquarters, Royal Thai Army, Royal Thai Navy, and Royal Thai Air Force. The MOD-DRC has three mandates:

- Set policies and guidelines on disaster prevention, mitigation, and response
- Serve as a coordination hub for RTG, civilian agencies, civil society, and the private sector for matters related to military operations in disaster relief
- Monitor, direct, and coordinate disaster relief and victim assistance and use of military resources during disaster situations.

To support the NDPMCHQ and local DPMCCs at all levels, the military may establish either a Civil-Military Coordination Center (CMCC) or a Civil-Military Operations Center (CMOC) or both.[257] A CMCC supports the Incident Commander by providing advice and recommendations on use of civilian and military tools, equipment, assets, and personnel. A CMOC is established by RTArF-DRC or one of the component service DRCs to support the situation commander at each level below the national. The CMOC provides advice and recommendations on use of civilian and military resources and coordinates operations plans with units within its area of responsibility.[258] The structure of a CMCC or CMOC depends on the level of the military unit involved. The primary function of either a CMCC or CMOC is to maintain situational awareness and a common operating picture and to ensure effective response efforts and streamlined collaboration across all involved agencies, including foreign military assets (FMA). A military representative will also be delegated to the NDPMCHQ and other DPMCCs to coordinate and facilitate military support to civilian responders.[259] Figure 10 illustrates where RTArF and MOD agencies will interface with RTG and local administrations' DMCs.[260]

Provincial governments have a level of command over the military units that operate within their jurisdictions. There is direct communication between the Governor and those RTArF units. In addition, the MoI can utilize military forces and Civil Defence or Territorial Defence Volunteers as part of the RTG response.[261]

The MOD-DRC has also established a network for enhancing civil-military coordination to reduce overlapping responsibilities and to ensure disaster victims receive prompt assistance. The Civilian Disaster Relief Network Partners comprise RTG agencies, the private sector, civil society organizations (CSO), and international organizations that voluntarily participate in disaster relief operations alongside the MOD-DRC and its components. Each Partner entity assigns a main contact point (MCP) and a Local Point of Contact (LPOC), each of whom receives and disseminates information and coordinates with the RTArF on behalf of their organization;

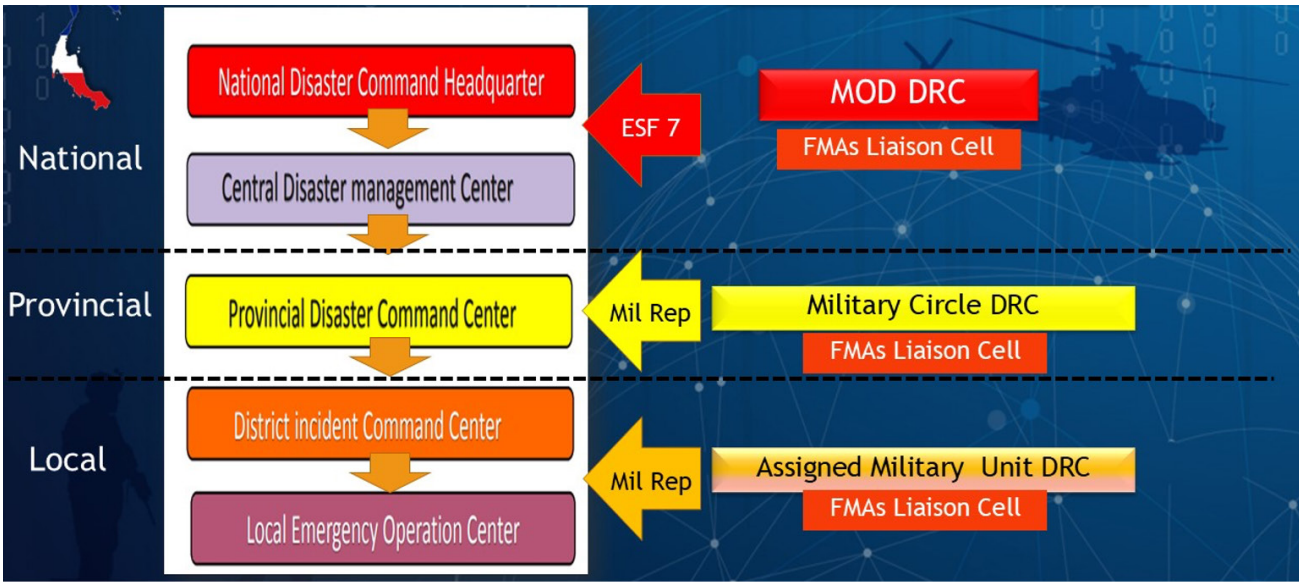


Figure 10: Civil-Military Coordination in Emergency Management

the MCP works at the MOD-DRC level and may attend meetings, while the LPOC works with the military DRC operating in the affected area. In both cases – MCPs and LPOCs – the MOD-DRC has established a database to maintain contact with these important civilian entities. When a disaster occurs at any level, the MPC or LPOC, as appropriate, will be in contact with the DRC and will exchange information and updates on needed or available resources for delivering relief.[262]

As the primary agency for ESF-7 – Military Resource Support, the MOD coordinates among military units responding to an emergency and coordinates the development of the Military Resource Support Operational Plan. Activities under ESF-7 include:

- Provide the coordination of military resources to support civil authorities and DPMCCs at all levels on their emergency response efforts as well as on demobilization and return of such resources to their point of origin
- Provide military advice services and expertise related to military support services if needed
- Track and report the duty status of all military resources deployed to undertake their ESF roles and responsibilities.[263]

Specific capabilities brought by the RTArF under ESF-7 include resources for Modular Fast Bridges to restore transportation networks after floods, mobile satellite communications in case of communication failures, helicopters for fire control, and teams for hazardous material (HAZMAT), chemical, biological, radiological, and nuclear (CBRN) response, or oil spill containment in the Gulf of Thailand. The MOD-DRC also provides military resources to support the other RTG stakeholders. The RTArF are part of the Thailand SAR team, which works alongside the DDPM's SAR team and civil society.[264]

As one of two primary agencies – along with the MoI – for ESF-9 – Search and Rescue, the MOD is responsible for coordinating multi-agency collaboration and development of the SAR Support Operational Plan. Under ESF-7, activities include:

- Provide specialized SAR operations and life-saving services
- Coordinate with other government agencies and with the DPMCC at each level on SAR support operations
- Coordinate with associations and charitable and non-profit volunteer organizations dedicated to SAR operations
- Systematize SAR systems of both government and non–government entities to achieve unified standards of SAR operations

- Provide trained personnel and advanced equipment in support of SAR operations
- Provide SAR agencies with related information and technical knowledge

The MOD is one of seven agencies tasked with ESF-10 – Hazardous Materials, Chemical and Radioactive Substances, under which activities are:

- Put in place an action plan for the prevention of chemical and radioactive hazards and other HAZMAT incidents, as well as controlling their harmful effects on human health, natural resources, and the environment
- Develop appropriate systems, models, or methods for management of chemical, radioactive, and other HAZMAT disasters
- Work to eliminate or minimize hazardous effects of the residual chemicals and radioactive or other hazardous material contamination remaining in the polluted areas, and to conduct environmental damage assessments
- Provide technical assistance and consultation services for management of chemical, radioactive, and other HAZMAT disasters
- Provide information and technical knowledge on chemical, radioactive, and other HAZMAT in order to support emergency management operations
- Bear responsibility for nuclear and radiological DM and provide regulatory support for nuclear power and nuclear radiation
- Take action against a possible CBRN incident

Finally, the MOD is also a supporting agency to the MFA for ESF-15 – Foreign Affairs. As part of this line of effort, the MOD, along with the NDPMCHQ, MFA, MoI, and other key agencies, are expected to undertake simulation exercises on steps involved in requesting or accepting foreign humanitarian assistance. These exercises are expected to incorporate representatives from embassies, consulates, and international organizations resident in Thailand. They demonstrate to participants the content of the national guidelines for accepting, requesting, and declining foreign humanitarian assistance offers, maintaining a "National Single Window System" (a paperless import-export tracking system to support audits), and facilitating and ensuring safety and security of humanitarian personnel of foreign governments, international organizations, and other foreign organizations, including FMA.[265]

In the event of a large-scale disaster that results in the RTG requesting international assistance and assistance is received from partner militaries, the Thai MOD-DRC acts as the central coordinating body to facilitate collaboration among Thai and foreign military personnel. This collaboration would typically occur via a Multi-National Coordination Center (MNCC), a foreign military asset liaison cell, or a similar coordination center set up and staffed by the RTArF. The MNCC facilitates, coordinates, and assigns military personnel to disaster-affected areas, and it operates using a coordination framework that outlines the interaction between military and civilian agencies at strategic, operational, and tactical levels.

The MoD's Guidelines for Assisting – Receiving of FMA in Humanitarian Assistance and Disaster Response (HADR) Operations provides a framework for how foreign military personnel can enter, operate alongside Thai agencies, and eventually depart from Thailand when Thailand is the affected state. During the reception of FMA, the OPSD and MOD, acting as the secretary of the MOD-DRC, coordinate with RTG agencies to identify and assess the needs of the affected areas, engage with partner militaries, and facilitate customs processes.

The Guideline has six principles that support RTG decision-making on FMA. They are:

- Alignment with Government Policy – Aid must align with the policies of the affected state.
- Addressing Affected States' Needs – Assistance should directly correspond to the needs of the affected population.
- Adherence to International Principles – Aid

must comply with established international humanitarian standards.
- Respect for the Laws of the Affected State – Humanitarian efforts must respect the legal framework of the affected state.
- Humanitarian Principles and Cultural Respect – Aid should uphold humanitarian values while respecting local traditions and cultures.
- Non-Profit and Non-Interference – Assistance must be provided on a non-profit basis and must not disrupt or negatively impact the state's systems.

Under the Guideline, the RTArF envisions coordination working through the structures illustrated in Figure 11.[266]

Meanwhile, if another country requires assistance, the Thai military is also capable of providing support to allied nations. The MoD's Guidelines for Assisting – Receiving of FMA also provides a framework for how the RTArF supports affected states. RTArF typically would participate in SAR, medical, logistics, or financial support. In case the RTArF is asked to participate in a foreign assistance operation, the OPSD will coordinate humanitarian assistance efforts, submit proposals for approval, and budget for operations. The RTArF maintains an on-call list and standard operating procedures for when it is called upon. It is prepared to oversee the Command-and-Control section, manage communications, coordinate Urban SAR operations, serve as MNCC Liaison Officers, and adhere to financial constraints. The three forces are wholly tasked with preparing personnel and equipment for deployment.[267]

Disaster Management Partners

There are many local, national, and international civic and non-governmental organizations operating in Thailand. During a disaster response, CSOs and NGOs are expected to designate points of contact who will coordinate with the incident commander at each level – i.e., central, provincial, district, etc. This coordination is intended to ensure that CSO and NGO action during emergencies is integrated with the overall response. Along with key government ministries, CSOs and NGOs are required to establish operational guidelines for provision of personnel, equipment, and supplies to support implementing agencies' operations during emergencies.[268]

Through its membership in ASEAN, Thailand is a key partner in developing and maintaining the mechanisms and capabilities of the AHA Centre. In 2019, the DDPM and AHA Centre signed a memorandum of understanding to establish a satellite DELSA warehouse in Chainat, Thailand, to house ASEAN stockpiles for immediate use in Cambodia, Laos, Myanmar, Thailand, and Vietnam. This DELSA Satellite Warehouse can serve as a hub for ASEAN member states and communities to participate in a disaster response.[269] It has proven useful several times. In 2020, 2,900 hygiene kits from the warehouse were delivered to Cambodia to address COVID-19-related needs; an additional 5,100 hygiene kits and 500 tents from the warehouse were used for COVID-19-related operations within Thailand in 2021. In 2022, 9,000 hygiene kits and 3,500 family kits from Chainat were deployed to flooded provinces after Typhoon Noru struck Thailand. The DELSA warehouse's location in Thailand takes advantage of the lower cost of using overland rather than air transport on mainland Southeast Asia.[270]

As an ASEAN member state, Thailand also has the ability to access and participate in the regional bloc's DM system. A key human resources capacity of the AHA Centre is the ASEAN Emergency Response and Assessment Team (ERAT), which is rapidly deployable and supports the government of a disaster-affected ASEAN member state. The ASEAN ERAT can deliver support on assessments and facilitate relief reception and coordination.[271] Thailand has more than 40 trained ERAT members.[272]

In case of a disaster that overwhelms the affected government's capacity, that ASEAN member state may request assistance from its fellow ASEAN member states. The National Focal Point – usually the national disaster

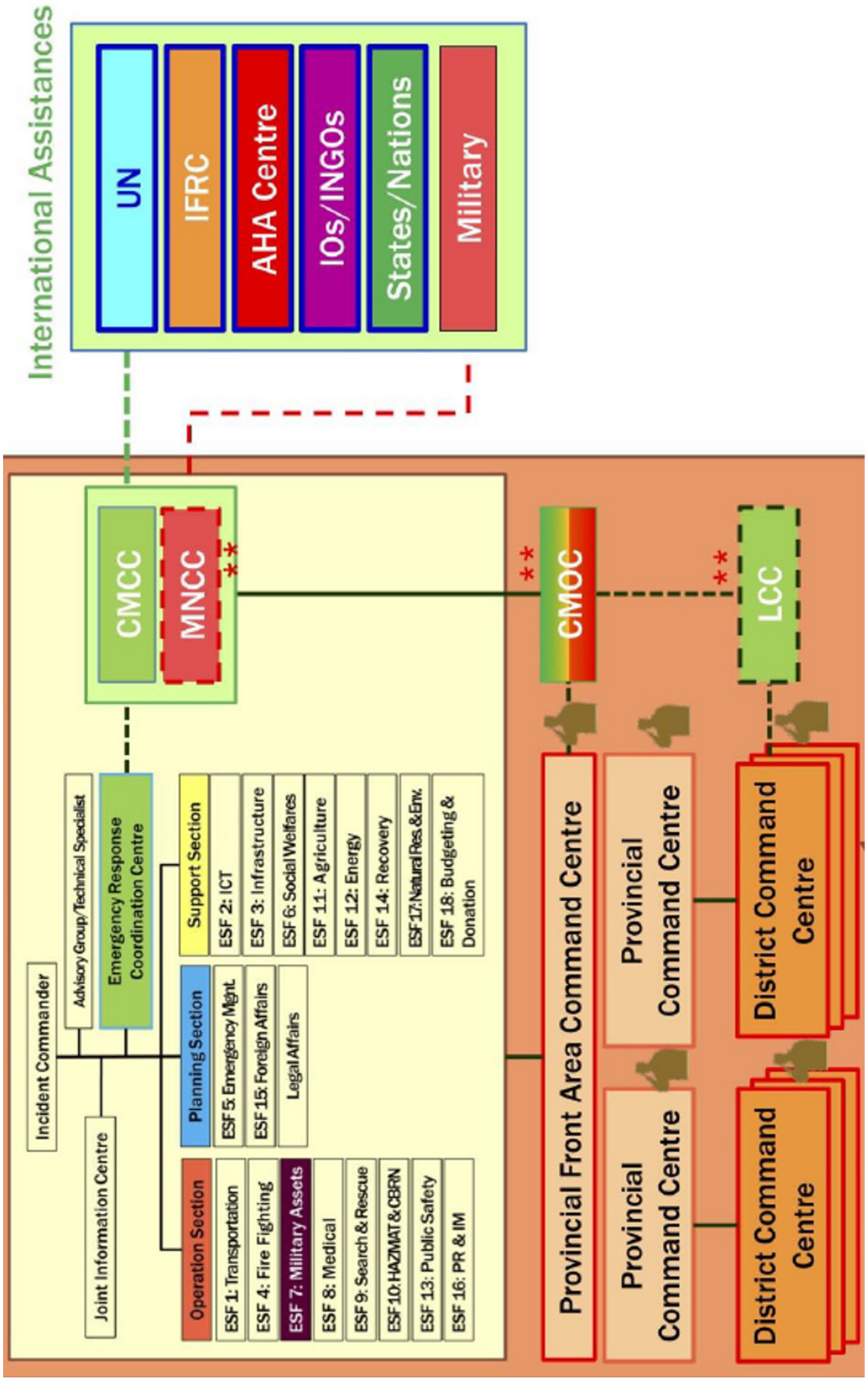


Figure 11: Military-Military Coordination during Disaster Response

management agency and, in Thailand, the DDPM – submits a formal Request for Assistance (RFA) to the AHA Centre. Once the affected-state government approves the corresponding offer of assistance, the deployment process begins. This process includes, among others, Customs, Immigration, and Quarantine procedures at the designated port of disembarkation. If FMA is approved, personnel must register at the MNCC, which is typically established by the affected country's military. Key organizations in a response that includes the affected state, international responders, and ASEAN are shown in Figure 12.[273]

The UN Country Team (UNCT) in Thailand comprises 21 UN system agencies; many of these agencies will play a role during a disaster response. Located in Bangkok, the UN Office for the Coordination of Humanitarian Affairs (OCHA) Regional Office for Asia and the Pacific (ROAP) is a key node for coordination of humanitarian response after a disaster in Thailand or regionally. OCHA's ROAP chairs the IASC Regional Network for Asia and the Pacific (IASC RN), an informal platform focused on supporting preparedness to ensure a high-quality disaster response. OCHA also serves as co-secretariat of the Regional Consultative Group (RCG) on Humanitarian Civil-Military Coordination for Asia and the Pacific, a regional forum that brings together humanitarian, civilian, and military actors involved in planning and executing disaster responses.[274] Part of UN OCHA, the UN Disaster Assessment and Coordination (UNDAC) system is a mechanism to support the UNCT, affected-country governments, and incoming humanitarian responders during the early phases of a disaster response. UNDAC teams are made up of individuals trained and resourced to conduct coordination, assessments, and information management and to deploy to anywhere in the world within 48 hours of a disaster's onset. In addition to these personnel, the UNDAC system integrates equipment and service packages for UNDAC team self-sufficiency and predefined coordination methods.[275] Thailand's DDPM and other agencies have some staff trained to participate in UNDAC team deployments.[276]

Another key UN stakeholder in humanitarian and disaster response is IOM, which works to enhance the disaster preparedness of migrants across 14 provinces of Thailand. IOM and local authorities work to ensure that migrants are integrated into response planning and to ensure that local responders are prepared to manage shelters that house either migrants or local evacuees. Meanwhile, UNHCR is also active to address the needs of refugees and stateless people within Thailand, and its presence ensures that people who flee into Thailand from disasters in neighboring countries may also be served.[277]

In addition to those UNCT member-agencies that have roles in disaster response, the key UN players in the DRR space are the UN Development Programme (UNDP) and UNDRR, both of which work closely with the DDPM on projects nationally. Among the key projects has been to train urban disaster resilience practitioners alongside the Thai Disaster Preparedness Foundation and Thai Network for Disaster Resilience,[278] the latter of which formed in 2020 to integrate 15 universities to cooperate in DRR research, human resource development, educational development, and training for government and private sector actors.[279] In addition, Thailand is one of the countries targeted by the "Tsunami Project," led by UNDP and the Government of Japan; in partnership with the DDPM and the TRCS, this Project focuses on fostering a culture of tsunami preparedness, particularly in schools and communities, to help ensure that there is no repeat of the losses from the 2004 Indian Ocean "Boxing Day" Tsunami. In the country, the "Tsunami Project" has fostered education, inclusivity, and community engagement by developing the "National Guidelines for Tsunami Evacuation Plans and Drills for Schools in Thailand" and by supporting the process of conducting drills that have resulted in school evacuation routes upgraded to become more accessible for wheelchair users.[280]

Among the largest CSOs working in the disaster response space are the Ruamkatanyu Foundation (RKU) and the Poh Teck Tung

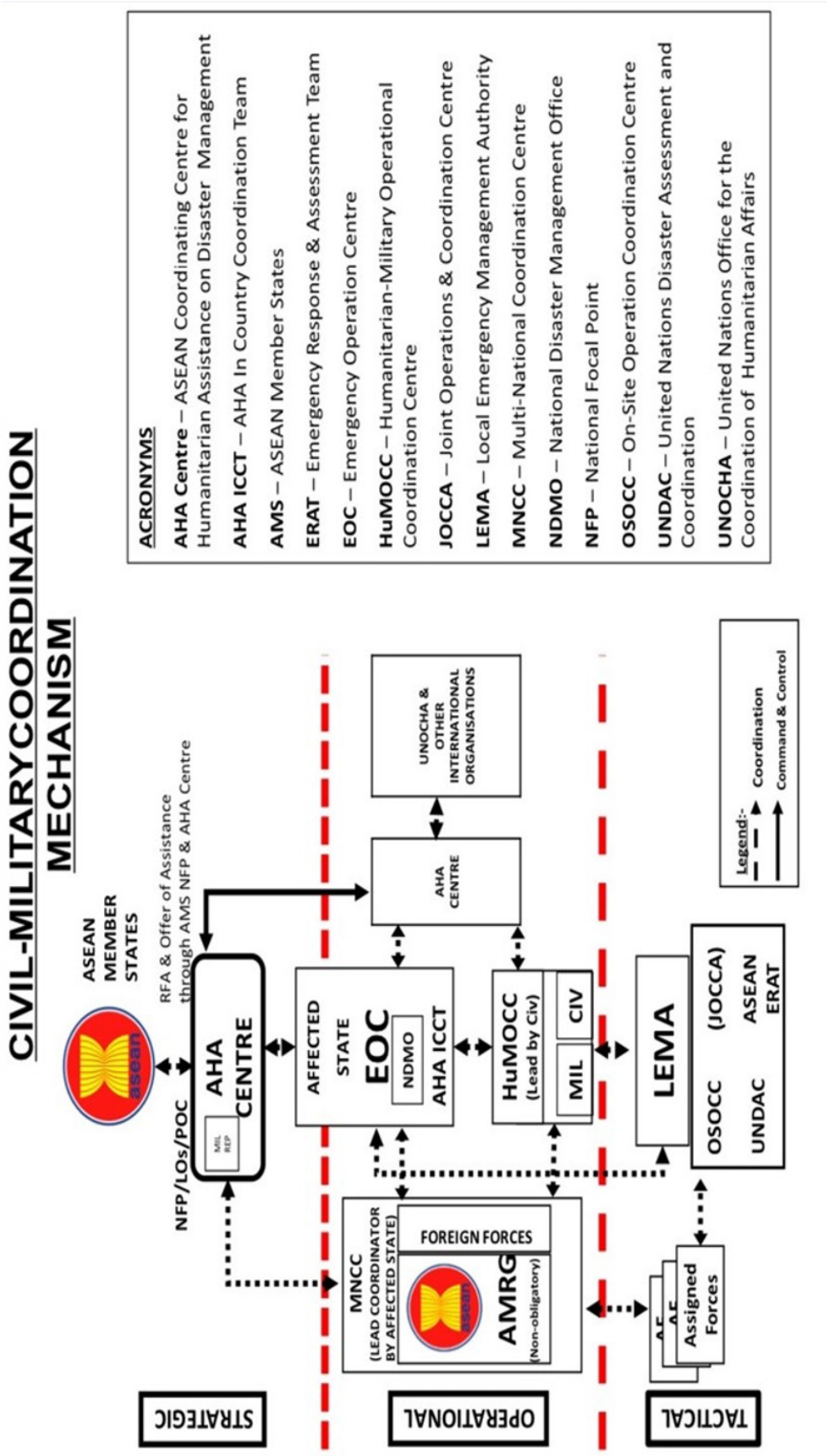


Figure 12: ASEAN Coordination Structure for Disaster Management

Foundation, both of which have additional programming to support poverty alleviation and societal wellbeing. RKU's rescue and disaster services are staffed by volunteers trained in medical and emergency support. It is present throughout the country[281] and is most commonly seen responding to traffic accidents or calls for ambulances for sick or injured people.[282] Poh Teck Tung has more than 4,000 volunteers trained and prepared to respond to emergencies ranging from vehicle accidents to major incidents, like a 2023 fireworks warehouse explosion in Narathiwat Province, where Poh Teck Tung assisted more than 500,000 affected people.[283] During the COVID-19 pandemic, RKU and Poh Teck Tung both trained and equipped members to respond to emergencies related to infections by and illness from the virus. They were trained by the National Institute of Emergency Medicine (NIEM).[284] Photo 2 shows members of the RKU demonstrating a water rescue during exercise COBRA GOLD 2025.[285] Both RKU and Poh Teck Tung played a key role in search and rescue and recovery efforts after the March 2025 earthquake that impacted Bangkok.

In case of an emergency that requires international assistance, the MFA is responsible for coordinating with foreign government agencies and international organizations based in Thailand. It is further tasked with contacting foreign or international partners and coordinating requests for cooperation, assistance, and support for implementing projects across all DM phases – i.e., pre-, mid-, and post-disaster. Finally, it is required to clarify and provide information on DRM in the country to foreign and international agencies and embassies in Thailand.



Photo 2: Thai Rescuers Rehearse a Water Rescue

When it is determined that international assistance should be requested during a catastrophic emergency, the MFA will submit proposals regarding that request to the NDPMCHQ. Upon approval of the proposal, the MFA will coordinate with the MoI / DDPM and other stakeholders but will act as the coordinating agency for requests for and acceptance of offers of assistance. The MFA will develop and socialize standard operating procedures to be followed by responding foreign governments and international organizations in conformity with international standards of relief.[286]

The International Red Cross and Red Crescent Movement

International Committee of the Red Cross

The International Committee of the Red Cross (ICRC) is a private, independent humanitarian organization, headquartered in Geneva, Switzerland. The ICRC bases its activities on the provisions of International Humanitarian Law (IHL), 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.[287] The ICRC has maintained an office in Thailand since the 1970s and established a regional delegation in Bangkok in 2003. Its focus has been to address the needs of conflict-affected communities across Cambodia, Laos, and Vietnam in conjunction with the national Red Cross and Red Crescent Societies in each country. As of 2024, the delegation covered seven countries – Brunei, Cambodia, Malaysia, Laos, Singapore, Thailand, and Vietnam – and it serves as a resource for regional humanitarian action. Within Thailand, the ICRC regional delegation works with the TRCS to promote understanding of the International Red Cross and Red Crescent Movement and to highlight the importance of IHL.[288]

International Federation of Red Cross and Red Crescent Societies

The IFRC is a humanitarian organization that provides assistance and promotes humanitarian activities carried out by the National Societies, with a view to preventing and alleviating human suffering. The IFRC was founded in 1919 and includes 191 National Societies. It carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of its member National Societies.[289] The IFRC CCD, housed in Bangkok, supports the National Societies of Cambodia, Laos, Thailand, and Vietnam.

Thai Red Cross Society

The TRCS was founded in 1893 and recognized by the IFRC in 1921. It focuses its national work on medical and health services, disaster preparedness and response, blood services, and social welfare and quality of life promotion.[290] The Royal Family are patrons and executives of the TRCS, and the head of the Society within a given province is usually the spouse of the Governor.[291] The Society is designated in law as a primary responder within the national DM system and is written into the National DRM Plan. Across its 392 branches nationally, the Society has more than 11,000 staff and more than 51,000 volunteers. The Relief and Community Health Bureau is the Society's lead on DM,[292] and it works in close cooperation with the DDPM on exercises, responses, and community events.[293] The TRCS not only provides knowledge, skills, and training on DM but also has a disaster operations center that serves as a coordination and information hub during emergencies.[294] The Society's Community Disaster Response Project works to ensure that local communities understand their own risk by understanding their levels of exposure, vulnerability, and capacity to respond and cope. The Project incorporates training in vulnerability capacity assessments, preparation of risk mitigation plans, and support to develop community committees.[295] Moreover, via its PhonPhai mobile app, the TRCS can coordinate its operations, assistance, and relief supply acquisition and distribution with national government and NGO stakeholders.[296]

U.S. Government Agencies in Thailand

The U.S. Embassy in Thailand hosts representatives of various U.S. Government agencies, including the U.S. Centers for Disease Control and Prevention (CDC) and the Joint United States Military Advisory Group, Thailand (JUSMAGTHAI). The U.S. relationship with Thailand supports regional security and prosperity, with a focus on public health, humanitarian assistance, combatting transnational crime, support for civil society, and promoting democracy. Since 2003, Thailand has ranked as a major ally of the U.S., and the defense relationship is underpinned by various pacts, declarations, and communiqués.

Thailand is the only treaty partner of the U.S. in mainland Southeast Asia. The RTArF and U.S. armed forces have strengthened their interoperability not only through RTArF purchases of various U.S.-origin defense articles but also through people-to-people ties cemented with professional military education, military exercises, and regular troop engagements. Among the cornerstones of this program of partnership is Exercise COBRA GOLD, co-hosted by Thailand and the U.S. The exercise is the region's largest and longest-running multinational exercise. The annual exercise integrates various components of HADR, and U.S. funding also supports HADR operations within Thailand every year.[297]

The U.S. Agency for International Development (USAID) Bureau for Humanitarian Assistance (BHA) is the U.S. Government lead federal coordinator for international disaster response and humanitarian assistance. USAID/BHA requests U.S DoD support to disaster response operations on an as-needed basis, and only in situations where the U.S. military can provide a unique capability that other first responders, including those of the host nation and international humanitarian partners, have

insufficient capacity to provide. USAID/BHA responds to humanitarian crises in approximately 80 countries every year—including natural disasters, conflicts, and severe food insecurity—and fulfills its mandate of saving lives, alleviating human suffering, and reducing the physical, social, and economic impact of disasters worldwide. USAID/BHA provides funding, supplies, and expertise for the rapid and effective provision of humanitarian aid throughout the world.

As the lead federal coordinator for Foreign Disaster Response (FDR), USAID/BHA's annual budget reflects the U.S. Government's interest in providing needs-based assistance, and it has been as high as US$11.9 billion annually in recent years for humanitarian assistance activities. All USAID/BHA programs and activities are humanitarian assistance, targeting populations most vulnerable to the impacts of shocks from slow or sudden-onset emergencies. USAID/BHA's humanitarian assistance consists of two major conceptual areas, which may frequently be interlinked programmatically and strategically. The first area is humanitarian response pursuant to a Declaration of Humanitarian Need (DHN) issued by the U.S. Ambassador or Chief of Mission in the affected country based on four criteria:

1. There is evidence of significant unmet humanitarian need;
2. U.S. Government humanitarian assistance will save lives, reduce human suffering, and mitigate the impact of humanitarian emergencies on the most vulnerable;
3. The host country requests or will accept international assistance; and
4. Responding aligns with U.S. Government interests and humanitarian objectives.

This DHN permits USAID/BHA to begin emergency response activities. Humanitarian response is characterized by urgent action, including rapid assessment of needs and provision of funding to partners to meet those needs, logistical support to local and national actors, and frequently the deployment of USAID/BHA disaster response experts or teams. The second conceptual area of USAID/BHA assistance is known as early recovery, risk reduction, and resilience (ER4) activities, which aim to improve the well-being of vulnerable people by strengthening their capacities to manage risk, to anticipate, withstand, recover from, and adapt to shocks and stresses, and to support positive, transformative change. These ER4 activities may be integrated with humanitarian response programming or may be stand-alone activities. ER4 programs and activities are cost-effective, reducing the need for future humanitarian assistance when shocks occur.

Core USAID/BHA Responsibilities During an Emergency Response

- Conducting assessments of humanitarian needs
- Developing U.S. Government response strategy
- Coordinating the operational on-ground response in support of the U.S. Ambassador
- Providing fast and effective funding to established partners (NGOs, international organizations, etc.)
- Leading official reporting on humanitarian issues and U.S. Government response activities
- Requesting support from other U.S. Government agencies as required.

When civilian and host nation military response capacity is overwhelmed and the U.S. military has a unique capability, USAID/BHA may request supplemental FDR support from DoD for a limited period. These requests occur in less than 5% of all official U.S. Government responses. Interagency requests for DoD support to FDR are transmitted to the Secretary of Defense (SecDef) in an official memorandum (Executive Secretariat Memo), which is required in order to leverage such DoD support. With SecDef approval, DoD components may provide non-reimbursable foreign disaster relief support to USAID using available

Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) funds. The DoD capabilities most commonly requested by USAID/BHA during a disaster response are logistics and airlift support rather than direct assistance to beneficiaries. USAID uses the Mission Tasking Matrix form as the formal means of tasking for DoD resources at the tactical level. OHDACA steady-state projects are distinct from FDR activities, and their implementation requires coordination with the local or regional USAID mission as well as approval by the relevant U.S. Ambassador and DoD combatant command.

The U.S. Government prioritizes civilian leadership in humanitarian operations in accordance with international humanitarian principles, including both the leadership of our responses and engagement with partner nations. The unique socio-political context of each partner nation is a key consideration for decision makers at all levels before, during, and after the use of DoD capabilities in a disaster response scenario.

U.S. Mission in Thailand

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95 Wireless Road
Bangkok 10330, Thailand
Tel: +66-2-205-4000

U.S. Consulate General Chiang Mai
387 Witchayanond Road
Chiang Mai 50300, Thailand
Tel.: +66-53-107-700
Fax: +66-53-252-633

Laws, Policies, and Plans on Disaster Management

While there are overarching strategic policies and plans for cohesive DRM on the national level, sub-national administrations are mandated to develop and maintain DRM plans for their respective jurisdictions. The DDPM provides guidance for and supports the process of development of these plans.

National Strategy (2018-2037)

The National Strategy, developed by the National Strategy Committee, lays out a vision of Thailand becoming "a developed country with security, prosperity and sustainability in accordance with the Sufficiency Economy Philosophy." The desired outcome is for "all Thai people's happiness and well-being" through, among other actions, adaptation to prevent and reduce loss and damage caused by natural disasters. Among the key targets related to DRR and climate adaptation, the Strategy provides guidelines for developing weather forecasts and warning systems that are more timely and accurate, for increasing the effectiveness of structural and non-structural protective measures based on society and geography, for improving the overall DRM system, and for enhancing people's capacity to cope.[298]

National Economic and Social Development Plan

The country maintains 5-year national development plans. The 13th plan covers 2023-2027 and points to the "Sufficiency Economy Philosophy" by which Thailand seeks to continue building stability, prosperity, and sustainability. It does address disaster and climate risks. "Development Milestone 11" is the transition to sustainability by strengthening the ability to cope with new global contexts. Under this Milestone are targets that include reducing the damage from impacts of disasters and climate change, reducing the risk of disaster and climate impacts, and building societal resilience. The Plan proposes five strategies to meet this Milestone:

- Preventing and reducing the impacts of natural disasters and climate change in key areas
- Developing and building the capacity of people and communities to deal with natural disasters and climate change
- Using science and technology to manage risks of natural disasters and climate change
- Conserving and restoring natural resources and ecosystems to prevent and reduce the impact of natural disasters and climate change

- Promoting cooperation with other countries for managing and reducing the risk of natural disasters and climate change[299]

Disaster Prevention and Mitigation Act

The main disaster law is the Disaster Prevention and Mitigation Act of 2007. It covers multiple natural and anthropogenic hazards. The Act deals primarily with the relationships among Thailand's national and provincial government authorities and delivers requirements for stockpiles of relief items, training, planning, and evacuation processes, in addition to the financial and budgetary mechanisms to be used for disaster response and recovery.[300] The Act created the NDMPC and delegates to it the task of developing the National Disaster Prevention and Mitigation Plan. Moreover, it names the DDPM as the central actor to undertake national-level action on DM.[301] Alongside the national DDPM, the law introduced the provincial and Bangkok Metropolitan policy and planning bodies. Finally, the Act authorized local governments to take responsibility for DM within their jurisdictions.[302]

National Disaster Management Policy

The NDPMC set Thailand's four disaster management focus areas in the national DM policy.

- Improving and promoting DRR by means of boosting the efficiency of disaster prevention and preparedness, reducing disaster impacts through creating safe communities, promoting community and local involvement in improving DM practices to build resilience, and fostering adaptation to the effects of disaster events towards sustainable development
- Synergizing multisectoral partnership efforts to develop and enhance the capacities necessary for more effective, efficient, and coherent emergency management and for equitable, timely, and impartial distribution of relief supplies to disaster victims, and to mitigate disaster impacts
- Developing a disaster recovery system that ably handles the demand for recovery assistance of disaster victims in a timely and impartial manner and meets the needs for rapid rehabilitation and reconstruction of disaster-devastated areas to their previous state or by building back better and safer
- Developing and promoting the standards of international cooperation for DRR between and among partnerships and networks at both national and international levels to be more efficient and effective

Based on the policy, the country is focused on DRR to reduce the chances of being impacted by hazard events, to entrench the emergency management system to mitigate the impacts of hazard events that do occur, to enhance recovery activities to feed back into DRR, and to promote international cooperation to build partnerships and a community of practice.[303]

National DRM Strategy

The NDPMC laid out the strategy along four lines:

- Focus on DRR
- Apply an integrated emergency management system
- Strengthen and enhance the efficiency of sustainable disaster recovery
- Promote and strengthen international cooperation on DRM[304]

The intention of the strategy is to enhance the efficiency and effectiveness of national structures in meeting DRM targets and objectives and in meeting international standards in terms of protecting human life and public and private property. Under Strategy #2 related to an integrated emergency management system, the country commits to systematizing resource management and assigning roles and responsibilities in such a way as to promote response to any hazard event. The integrated system is expected to include appropriate standards, mechanisms, and operational guidelines.[305]

National Disaster Prevention and Mitigation Plan

The current National Disaster Prevention and Mitigation Plan (2021-2027) provides a concept of operations intended to enable implementation of DRM activities in an integrated manner across local and national government, the private sector, and CSOs.[306] It delivers a set of objectives to manage existing risk and prevent new risks by integrating the response systems and standards nationally, developing support tools, and optimizing practices.[307] The DDPM develops the Plan in consultation with other government agencies, local administrations, and the private sector. It serves as the national master plan, upon which lower-level plans are based. The Plan:

- Establishes guidelines, measures, and budgeting to support prevention and mitigation operations
- Delivers guidelines and methods for aid delivery, including evacuation procedures, public health and public utilities actions, and disaster communications
- Provides perspectives on personnel, equipment, and other material to use for preparedness, on training and capacity building for these resources, and on deployment of those equipment, personnel, and materials for preparation or mitigation operations
- Provides guidelines on recovery and restoration[308]

As an "all-hazards" framework, the Plan allows the DDPM to detail what each of the 23 RTG ministries involved in DM are doing and what the legal foundation for the action is. More importantly, it is crafted to ensure that the public is informed on how to reduce risk rather than just responding. This integration of community-based DRM was new in the most recent revision (2021-2027). It commits Thailand to global involvement in DRM and to the concept of "built-back-better."[309]

National DRM Plan

Originally developed in 2015 to integrate lessons learned from the preceding Disaster Prevention and Mitigation Plan (2010-2014), the National DRM Plan not only laid out the central tenets for reducing disaster risk and responding to emergencies, but it also laid the groundwork for lower-level plans – e.g., Provincial DRM Plans, Bangkok Metropolitan DRM Plans and action plans, and ESF Plans.[310] Updated in 2019, the National DRM Plan aligns with the Sendai Framework for DRR (2015-2030). Thus, it has a four-pronged agenda:

- Enhance DRR and resilience across sectors and communities through risk assessment, risk reduction measures, early warning, public awareness, education, and capacity building
- Strengthen and enhance efficiency of sustainable disaster recovery and build back better and safer by developing recovery plans, allocating resources, restoring livelihoods, and addressing the needs of vulnerable groups
- Apply integrated emergency management system by strengthening the roles and coordination of DM agencies at all levels and improving emergency response and relief operations
- Promote international cooperation on DRR by participating in regional and global platforms, sharing knowledge and best practices, supporting disaster-affected countries, and enhancing mutual assistance and partnership[311]

Regional Frameworks

As a member state of ASEAN, Thailand is a signatory of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which laid the framework for ASEAN's collective action to address disaster risk and response. It shares the objectives of the Sendai Framework for Disaster Risk Reduction (2015-2030) in terms of reducing disaster losses in terms of lives and social, economic, and environmental assets. The AADMER provides the mechanisms and frameworks through which member states can deliver and

request assistance to each other across the DM cycle – prevention, mitigation, preparedness, response, and recovery.[312] Under the AADMER Work Programme 2021-2025, member states agreed to work along five priority programs toward 30 outcomes. Among the key efforts during this period are systematic data collection, communicating the results of implementation, using data to drive planning, delivering objective evaluation of results, and enhancing transparency.[313]

Thailand is also a party under the Asia Regional Plan for Implementation of the Sendai Framework. Developed in 2016, the Asia Regional Plan is intended to guide national implementation of the Sendai Framework by identifying regional-level priorities that can support national and local actions, by enhancing exchange of good practice, by promoting knowledge and information sharing among governments and other stakeholders, and by strengthening regional cooperation. It works as a broad policy guide and a long-term roadmap of chronological activities and targets.[314]

Climate Change

Thailand is a Party to the UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, and to meet its obligations under these agreements, Thailand is working to reduce its GHG emissions and implement an adaptation agenda that integrates local and traditional knowledge with ecosystem- and nature-based solutions and with global scientific input.[315] As of February 2025, the DCCE continued to move its Climate Change Bill through the legislative process. The Bill provides specific GHG reduction targets and provides the legal framework for mechanisms for climate change adaptation and mitigation.[316] The country has published a Nationally Determined Contributions (NDC) Roadmap (2021-2030) for sector-based mitigation measures, and the electricity and transport sectors have various development plans for investment.[317] The MNRE's Climate Change Master Plan (2015-2050) provides the national policy framework to address climate impacts. It lays out three priorities – adaptation, mitigation, and capacity building – with the goal of low-carbon growth and sustainable development. With a focus on enabling climate change management, the Master Plan led to the development of the National Adaptation Plan (NAP).[318] The NAP provides a framework for building resilience, reducing vulnerabilities, and increasing capacity in line with sustainable development. It lays out six priority sectors – water resources management, agriculture and food security, tourism, public health, natural resources management, and human settlement and security. Each sector brings MNRE's DCCE together with an expert agency to oversee adaptation action over short- (2023-2027), medium- (2028-2032), and long-term (2033-2037) horizons.[319]

Disaster Management Communications

Communications procedures before, during, and after an emergency were described in the National DRM Plan. It detailed that the communication of information related to hazards and hazard events by government agencies to the public via mass media and other alerting mechanisms is critical to ensure the public is well-informed and to reduce anxiety and panic. The Plan highlights that communication is also indispensable for coordination of operational activities. Communication cuts across all ERUs and agencies responsible for ESFs not only for disseminating warnings but also for coordination, command, and control functions and for reporting results.[320] Under the National Disaster Prevention and Mitigation Plan (2021-2027), Strategy 2 promotes the continued development of DRM communications methods and tools to focus on delivering messages and warnings to the public, as well as the continued development of the end-to-end Early Warning System (EWS).[321] The DDPM and other agencies have supported local administrations to develop volunteer networks of designated individuals responsible for disseminating alerts

in communities.[322]

The focus of non-emergency communication is on hydrometeorological and seismic hazards and risk. In addition to the DDPM, key players include the Department of Water Resources (DWR), Thai Meteorological Department (TMD), and Department of Mineral Resources (DMR). They each maintain different systems and tools for describing and monitoring hazards and sending information or warnings, as appropriate, to stakeholders.

All DMCs are required to have installed interoperable and redundant communications systems for use during disasters. The Ministry of Information and Communications Technology (MICT) is responsible for ensuring interoperability and two-way communications protocols among NDPMCHQ, DMCs at all levels, other government agencies, and the general public. The MoI, RTP, and MOD are detailed as support agencies to the MICT under ESF 2 – Information and Communications Technology (ICT), when the ESF is activated during a disaster response. Separately from ESF 2, the Joint Public Information (Coordination) Center under the EOC serves as a point of contact for interfacing with the mass media and with other agencies. DMCs at all levels incorporate a Joint Information Center within their EOCs.[323]

Early Warning Systems

The DDPM plays a key role in early warning by gathering information from scientific and technical agencies. It has continued to develop the capacity of local communities to monitor and use early warning tools, including the two-way Thai Disaster Alert app.[324] The DDPM is the developer and owner of the app, available on Android and Apple iOS. Users can get alerts for specific geographic areas via the app's map-based interface, and they can also find details for reporting emergency situations. Additional functions allow users to see details of hazards in an area and of past disasters.[325] Moreover, the DDPM encourages the public – and short-term tourists – to utilize the Thai disaster channel on the Line app; this channel (@1784DDPM) correlates to the DDPM's 1784 (local dialing) hotline and is customizable for geographic location and for use in Thai or English.[326]

The DDPM operates the National Disaster Warning Center (NDWC), which is a 24-hour-a-day / 365-days-a-year operational and monitoring office. It stood up in the wake of the 2004 Indian Ocean "Boxing Day" Tsunami.[327] After that event, the DDPM partnered with the PDC, a University of Hawaii Applied Science and Technology Center, to develop and implement the national EWS, which became operational in 2006.[328] Initially under the PMO, the NDWC has resided under the DDPM since 2018.[329] At its founding, the NDWC's main task was to detect and analyze seismic activity, determine the potential for a tsunami to impact Thailand, and issue notification messages to the public and authorities for action. Since its activation, it has extended its data collection and analysis to encompass multiple hazards.[330]

The NDWC's tsunami warning system, developed with assistance from UN and global technical agencies, including from the U.S., now includes six tsunami buoys in the Andaman Sea along with 130 tsunami warning towers across the six provinces that were impacted by the 2004 tsunami - Phuket, Phang Nga, Krabi, Trang, Satun, and Ranong. Alert messages are broadcast in Thai, English, German, Japanese, and Chinese, a reflection of the international impact that the 2004 tsunami had on tourist areas on Thailand's Andaman Sea coast. The NDWC tests the system every day at 0800 local time, and tests of response systems are conducted weekly.[331] In addition to the loudspeaker systems mounted on the towers, residents of these tsunami-exposed provinces will receive SMS alerts if a tsunami is imminent, and mobile telephone service providers have identified 70,000 "key contacts" who work in coastal areas – especially resorts – who will receive warnings and evacuation orders to allow them to evacuate non-locals who may not receive the alerts.[332] Figure 13 illustrates information flows in Thailand's tsunami warning system.[333]

The DMR within the MNRE provides

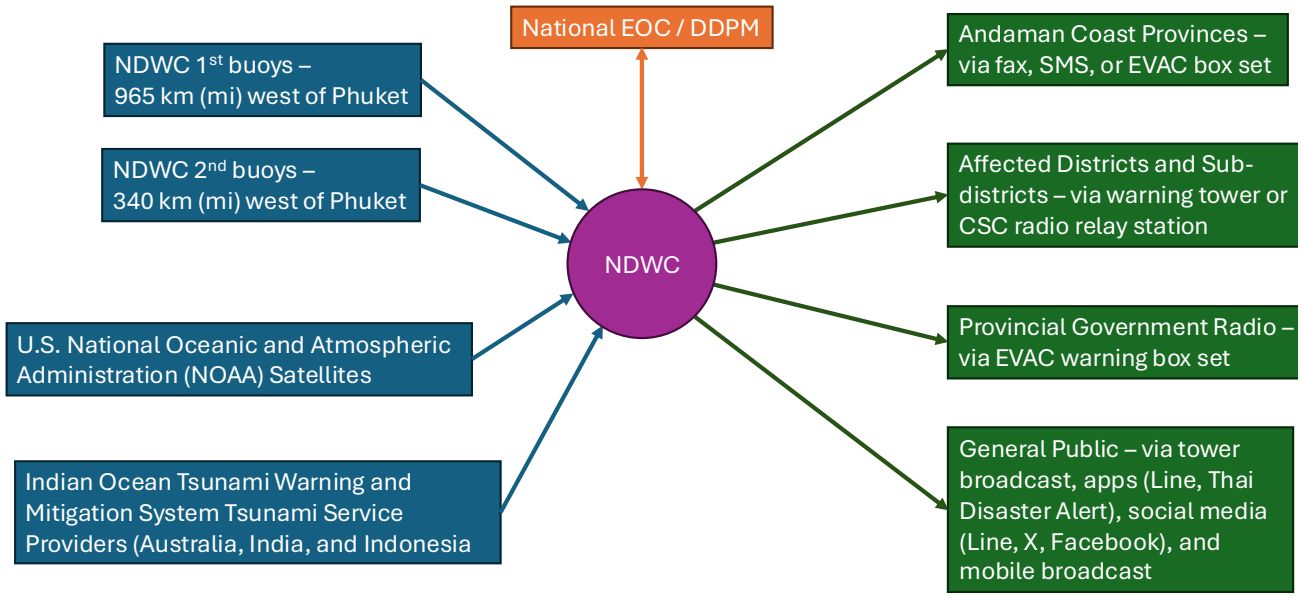


Figure 13: Thailand's National Tsunami Warning System

three types of geo-hazard map – active faults, seismic hazard, and landslide hazard. It also delivers scientific research and issues reports on coastal erosion, sinkholes, tsunami, and soil salinity, among other topics. It disseminates its hazard maps, with special focus on ensuring that potentially impacted communities have access to this information. The DMR operates the Geohazards Operation Center (GOC), located within the DMR head office. The GOC monitors weather and supports other scientific agencies and the mass media with watch bulletins regarding heavy rains and other weather information that could trigger geo-hazard events. The GOC installed the country's landslide monitoring and warning system in high-risk areas and set up landslide watch networks, which include teams trained to inform at-risk communities on how to avoid and rescue people from the impacts of geo-hazards.[334] Also under the MNRE, the DWR operates automated telemetry, which monitors rainfall volumes and water levels in real-time to be utilized in flash flood and landslide alerts for nearly 5,000 villages in mountainous areas across the north and south. At the local level, "last mile" EWSs focus on flash flooding and landslides. For example, rain gauges on hilly terrain and riverbanks provide information for communities as soon as signs of potential landslides are detected.[335]

In December 2021, a new early warning and hazard monitoring system came online. ThaiAWARE is the national variant on the PDC's DisasterAWARE platform that provides decision-support capabilities to global disaster managers. Thailand's ThaiAWARE delivers tailored data and analytics for national stakeholders. With the DDPM as the executing agency, ThaiAWARE delivers early warning and multi-hazard monitoring technology to all stakeholders in national DRR.[336]

Beyond emergency warnings, TMD's daily and seasonal forecasts and its storm trackers support other departments' monitoring of hydrometeorological hazards.[337] TMD operates four regional meteorological centers (Northern, Northeastern, Southern [East Coast], and Southern [West Coast]) and a Weather Watch and Warning Bureau.[338]

Separate from the government, the TRCS also delivers the PhonPhai application for Android and Apple iOS devices. Using global positioning, PhonPhai offers responding agencies the ability to locate and assess the extent of hazard event impacts by mapping user requests for assistance. The TRCS and some 20 government or other public agencies signed on to the app in 2020 with the vision of enhancing collaboration at the local level. Village and other local leaders have dedicated logins while the public can sync the

app with their Line or Facebook accounts and log on to report a disaster and request assistance. Assisting agencies can monitor responses and track the delivery of aid.[339]

Information Sharing

Understanding how to overcome the information challenges that civilian and military agencies experience during a typical disaster response mission is important. 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 the required information.[340] Collaboration, information sharing, and networking have been the backbone of successful disaster response and preparation. 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. There are many resources, stakeholders, and components to consider before, during, and after a natural disaster. This section will discuss country-specific, humanitarian, regional, government, and U.S. DoD information sources.

Thailand Information Sources

Department of Disaster Prevention and Mitigation

DDPM's website, hotline, and social media presence offer two-way communication among the Department, affected communities, and responders. The homepage runs a live map-based report of on-going situations throughout the country, in addition to news and updates.

Department of Disaster Prevention and Mitigation
3/12 U Thong Nok Road, Dusit Subdistrict
Dusit District, Bangkok 10300
Tel: 0-2637-3000
Hotline: 1784
Email: *saraband_center@disaster.go.th*
Website: *www.disaster.go.th/home*
Facebook: DDPMNews
X: @DDPMNews
National Disaster Warning Center
4353 Sukhumvit Road
Bang Na, Bangkok 10260
Tel: 0-2399-4114 or 0-2399-0881
Fax: 0-2399-1133

Thai Meteorological Department

The TMD's homepage provides access to all of its weather and other hazard forecasts and warnings.

Thai Meteorological Department
4353 Sukhumvit Road
Bang Na, Bangkok
Call Center: 1182
Facebook: tmd.go.th
X: @tmdthai2
Website: *https://www.tmd.go.th/en/*

Department of Mineral Resources

The DMR is the MNRE's key scientific and technical agency for addressing geological hazards. The GOC, located within the DMR head office, is the MNRE's main informational and analytical center for collecting, analyzing, and alerting other agencies regarding geo-hazards.

Department of Mineral Resources
75/10 Rama VI Road, Thung Phaya Thai Subdistrict
Ratchathewi, Bangkok 10400
Tel: 02-621-9500 or 081-890-3375
Email: *Saraban@dmr.mail.go.th*
Facebook: DRMTH
Website: *http://www.dmr.go.th*

Thai Red Cross Society

The TRCS is the National Society recognized by the IFRC. It is a critical player in national disaster management, across preparedness, relief, and recovery. During emergencies, it will activate its operations center to serve as a coordination and information hub. The Relief and Community Health Bureau of the TRCS has oversight over the PhonPhai app.

Office of the Secretary-General

Ted Prakiat Building, 1871 Rama IV Road
Bangkok 10330
Tel: 66-2-256-4037 or 66-2-256-4048
Email: *intertrc@redcross.or.th*
Website: *www.redcross.or.th*
Facebook: ThaiRedCrossSociety
X: @thairedcross

Humanitarian Information Sources

UN OCHA Regional Office for Asia and the Pacific

UN OCHA's ROAP seeks to optimize the speed, volume and quality of humanitarian assistance and coordinates emergency preparedness and response throughout the region in support of national governments. ROAP covers 41 countries with whom it partners 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.
X: @OCHAAsiaPac

ReliefWeb

ReliefWeb is a service of UN OCHA that consolidates information and analysis from organizations, countries, and disasters for the humanitarian community.

A subsection of ReliefWeb is ReliefWeb Response (RW Response). It aggregates operational content from other humanitarian action platforms to provide an authoritative source of information. The goal is to ensure that humanitarians can share, find, and re-use critical information quickly and efficiently.

Website: *https://reliefweb.int/*
RW Response: *https://response.reliefweb.int/*

PreventionWeb

PreventionWeb is provided by UNDRR to consolidate DRR reduction information into an online, easy to understand platform.

Website: *https://www.preventionweb.net/*

International Federation of Red Cross and Red Crescent Societies

The IFRC is the world's largest humanitarian organization, comprised of 191 National Societies, including the TRCS, 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.[341]

IFRC Country Cluster Delegation

CTI Tower, Level 30
191/9 Ratchadapisek Road, Khlong-Teoy
10110 Bangkok
Website: *https://media.ifrc.org/ifrc* and *https://go.ifrc.org/*

International Committee of the Red Cross

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.[342]

Regional Delegation Office

191/6-8 CTI Tower, 30th Floor
Ratchadapisek Road, Khlong-Teoy Bangkok
10110, Thailand
Tel: 66-1-2-262-1680
Website: *https://www.icrc.org/en*
Facebook: @ICRC or @icrcth
X: @ICRC or @ICRC_th

Global Disaster Alert and Coordination System (GDACS)

GDACS is a cooperation framework among the UN, 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, and regional and international organizations.

Website: *https://vosocc.unocha.org/*
The latest alerts can be found here: *https://www.gdacs.org/Alerts/default.aspx*
To subscribe: *https://www.gdacs.org/About/contactus.aspx*

ThinkHazard!

ThinkHazard! is a website that provides detailed information on a country. Information is provided on Thailand regarding hazards, country assessments, projects, EWS, and other resources.

Website: *https://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 IOM, international NGOs, and the IFRC and the National Red Cross/Crescent Society. 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 Disaster Information Network (ADINet)

ADINet is owned by ASEAN member states and operated by the AHA Centre. It serves as a repository of information concerning hazards and disasters that have happened in the region. ADINet is open for public use, and the public can submit information about any hazard or disaster to the AHA Centre, which verifies and validates submitted information to ensure accuracy and may add new information when relevant and necessary. ADINet includes disasters that have occurred since 2012.[343]

AHA Centre

Graha BNPB, 13th floor, Jl. Raya
Pramuka Kav.38 East Jakarta 13120 Indonesia
Tel: 62-21-21012278 or 62-21-21012287
E-mail: *info@ahacentre.org*
Website: *www.ahacentre.org*
Facebook: ahacentre
X: @AHACentre
Instagram: @ahacentre

Changi Regional HADR Coordination Centre

The Singapore Armed Forces launched Changi Regional HADR Coordination Centre (RHCC) in September 2014 to support the military of a disaster-affected state in coordinating the response with assisting foreign militaries. Changi RHCC 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. To facilitate this mission, the Changi RHCC has a network of international military liaison officers and operational links with regional militaries. It manages the OPERA web portal where it maintains situational updates to ensure that an affected country can broadcast its needs and requests for assistance as well as where assisting states can upload their offers or pledges of military assistance. Assisting militaries can share key logistics information via the portal, which is login protected. As a member-state of ASEAN, Thailand has representation in and

access to Changi RHCC's portal and links.

Website: *https://www.changirhcc.org/*
To subscribe to RHCC Weekly and Spot Reports, email: *Changi_RHCC@defence.gov.sg*

U.S. Government Sources

Pacific Disaster Center

Pacific Disaster Center (PDC) supports the world's most demanding DM decision makers – from the senior level to the operational practitioner – with advanced science, technology, tools, and information to reduce disaster risk. PDC's offerings include its robust DisasterAWARE® technology, which boasts the largest, scientifically-vetted big data catalogue of geospatial information for disaster mitigation, preparedness, response, and recovery. DisasterAWARE features a PDC-developed global exposure model, which is among the world's most powerful, to provide near real-time analytics about potential impacts, humanitarian needs, and other key indicators to enable effective anticipatory action during large-scale hazard events. The system includes global early warning, hazard monitoring, and situational awareness for all types of natural and technical hazards worldwide and is free to disaster management practitioners at: *https://disasteraware.pdc.org*

In cooperation with Thai authorities, PDC developed ThaiAWARE for national use. It is based on DisasterAWARE and is used by Thailand's decisionmakers to model the potential impacts of a hazard event and trigger warning and alert systems.[344]

PDC is also advancing the use of artificial intelligence (AI) for DRR through its AI for Humanity™ initiative. The Center conducts specialized research on national fragility, climate change, and women, peace and security, among other topics. It also supports the humanitarian and disaster response community with training, best practices, and exercise support.

Website: *https://www.pdc.org/*

Joint Typhoon Warning Center (JTWC)

JTWC provides advanced warning for U.S. Government agencies and organizations.

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. DoD institute that addresses regional and global security issues by inviting military and civilian representatives of the U.S. and Asia-Pacific nations to its program of executive education and workshops.

Website: *https://dkiapcss.edu/*

The Center for Excellence in Disaster Management and Humanitarian Assistance

The CFE-DM is a U.S. DoD organization established by the U.S. Congress in 1994 and is a direct reporting unit to USINDOPACOM. 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 civil-military coordination, reduce duplication of efforts, and promote U.S. involvement in civil-military consultations and dialogues with relevant humanitarian and disaster response parties such as UN OCHA and the Changi RHCC. CFE-DM provides resources and updates at its website, as well as via their Facebook (cfedmha) and X (@cfedmha) accounts.

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*
Best Practices Resources are available at: *https://www.cfe-dmha.org/Publications/Best-Practices-Pamphlets*

INFRASTRUCTURE

Thailand's infrastructure sector plays a critical role in driving economic growth, enhancing connectivity, and attracting foreign investment. Over the past decade, the country has significantly increased infrastructure spending to strengthen transport networks, digital infrastructure, and energy systems. Despite substantial investment, challenges remain in maintaining and improving infrastructure quality, ensuring sustainable development, and addressing regional disparities.

Thailand's global infrastructure ranking provides insights into the country's competitiveness and development progress. The International Institute for Management Development World Competitiveness Rankings evaluate countries based on various criteria, including overall infrastructure, which is further broken down into subcategories such as transport, energy, and digital infrastructure. As of 2024, Thailand ranks 35th out of 67 countries globally in overall competitiveness but falls behind in infrastructure, ranking 43rd. Within the infrastructure category, the country performs relatively well in basic infrastructure at 23rd but ranks significantly lower in health and environment at 55th and education infrastructure at 54th.[345]

The country's 20-Year National Strategy (2018-2037) and the "Thailand 4.0" model have allowed Thailand to focus infrastructure development toward projects that promote a value-based, innovation-driven economy. Key initiatives include:

- **Eastern Economic Corridor (EEC):** A flagship project aimed at transforming Thailand into a high-tech industrial hub through the expansion of ports, airports, and smart cities.
- **Public-Private Partnerships:** Leveraging private investment to finance large-scale projects and reduce the fiscal burden on the government.
- **Renewable Energy Development:** Expanding solar and wind power projects to diversify energy sources and reduce dependence on fossil fuels.
- **Special Economic Zones (SEZ):** Establishing border SEZs to boost cross-border trade and investment; requires significant infrastructure development.[346]

Despite this investment, Thailand's infrastructure sector faces several challenges. Large-scale projects contribute to deforestation, pollution, and climate-related risk. Fiscal constraints are another concern, as heavy reliance on loans and public debt raises questions about long-term financial sustainability. Additionally, urban-rural disparities persist, with Bangkok and major cities benefiting from infrastructure expansion while rural areas lag.[347]

The RTG has announced additional investments worth over THB 650 billion (US$19 billion) to further improve transport, energy, and digital networks. Addressing current challenges and ensuring sustainable development will be key to maintaining Thailand's economic competitiveness and achieving long-term growth.[348]

Transport

The Ministry of Transport (MOT) oversees the state enterprises that manage the various transport systems in Thailand. Airports are managed by Airports of Thailand PCL (AOT), seaports by the Port Authority of Thailand (PAT), roads by the Department of Highways, Department of Rural Roads, and the Expressway Authority of Thailand, railways by the State Railway of Thailand (SRT), and the mass transit system by the Mass Transit Authority of Thailand (MRTA).

Thailand's mass transit system is multi-modal, with a significant focus on urban rail systems in densely populated areas like Bangkok. Buses remain widely used due to their

extensive network and affordability. However, the growing urban rail systems, particularly the Bangkok Transit System (BTS) Skytrain and Mass Rapid Transit System (MRT), play a crucial role in reducing road traffic by offering efficient alternatives to car travel.[349] Bangkok Metropolitan Administration (BMA) owns the BTS lines and oversees urban transit within Bangkok, while MRTA owns the MRT lines and is responsible for the development of mass transit systems in the Bangkok Metropolitan Region.[350]

Airports

Thailand has 11 international airports[351], with the majority operated by AOT. The Koh Samui International Airport is privately owned and operated by Bangkok Airways. The U-Tapao International Airport is managed by the U-Tapao International Aviation Co., Ltd. and jointly operated with the Royal Thai Navy.[352] The country's many domestic airports are operated by the MOT's Department of Airports, with the exception of Sukhothai Airport and Trat Airport, which are privately owned and operated by Bangkok Airways. Tables 1 and 2 provide some details of the international and domestic airports, respectively.

Airport	Nearest City	Elevation	IATA/ ICAO Code	Maximum Runway Length	Runway Surface
Chiang Mai International Airport	Chiang Mai - 6 km (3.7 mi)	316 m (1,037ft)	CNX/VTCC	3,400 m (11,155 ft)	Asphalt
Don Mueang International Airport	Bangkok - 25 km (15.5 mi)	3 m (9 ft)	DMK/ VTBD	3,700 m (12,139 ft)	Asphalt
Suvarnabhumi International Airport	Bangkok (Bang Phli, Samut Prakan) - 37 km (23 mi)	2 m (5 ft)	BKK/VTBD	4,000 m (13,123 ft)	Asphalt
Chiang Rai International Airport	Chiang Rai - 8 km (5 mi)	290 m (1,280 ft)	CEI/VTCT	3,000 m (9,843 ft)	Asphalt
Hat Yai International Airport	Songkhla - 41 km (25.5 mi)	28 m (89 ft)	HDY/VTSS	3,050 m (10,007 ft)	Asphalt/Concrete
Phuket International Airport	Phuket - 32 km (20 mi)	25 m (82 ft)	HKT/VTSP	3,000 m (9,843 ft)	Concrete
Koh Samui International Airport	Samui Island	20 m (64 ft)	USM/ VTSM	2,100 m (6,890 ft)	Asphalt
Krabi International Airport	Krabi - 12 km (7.5 mi)	25 m (82 ft)	KBV/VTSG	3,000 m (9,843 ft)	Asphalt/Concrete
Surat Thani International Airport	Surat Thani - 30 km (18.6 mi)	6 m (20 ft)	URT/VTSB	3,000 m (9,843 ft)	Asphalt
U-Tapao International Airport	Rayong - 48 km (30 mi)	13 m (42 ft)	UTP/ VTBU	3,500 m (11,483 ft)	Concrete
Udon Thani International Airport	Udon Thani - 11.7 km (7.3 mi)	176 m (579 ft)		3,048 m (10,000 ft)	Concrete

Table 1: International Airports in Thailand

Airport	Nearest City	Elevation	IATA/ ICAO Code	Maximum Runway Length	Runway Surface
Betong Airport	Betong - 12 km (7.5 mi)	233 m (765 ft)	BTZ/VTSY	1,800 m (5,906 ft)	Concrete
Buriram Airport	Buriram - 30 km (18.6 mi)	180 m (591 ft)	BFV/ VTUO	2,100 m (6,890 ft)	Asphalt
Chumphon Airport	Chumphon - 35 km (22 mi)	5 m (18 ft)	CJM/VTSE	2,100 m (6,890 ft)	Asphalt

Table 2: Domestic Airports in Thailand

Airport	Nearest City	Elevation	IATA/ ICAO Code	Maximum Runway Length	Runway Surface
Hua Hin Airport	Hua Hin - 6 km (3.7 mi)	19 m (62 ft)	HHQ/ VTPH	2,100 m (6,890 ft)	Asphalt
Khon Kaen Airport	Khon Kaen - 8 km (5 mi)	204 m (670 ft)	KKC/ VTUK	3,050 m (10,007 ft)	Asphalt
Lampang Airport	Lampang - 1.5 km (1 mi)	247 m (811 ft)	LPT/ VTCL	1,975 m (6,480 ft)	Asphalt
Loei Airport	Loei - 5km (3 mi)	262 m (860 ft)	LOE/ VTUL	2,100 m (6,890 ft)	Asphalt
Mae Hong Son Airport	Mae Hong Son - 750 m (0.5 mi)	282 m (929 ft)	HGN/ VTCH	2,000 m (6,562 ft)	Asphalt
Mae Sot Airport	Mae Sot - 2 km (1.2 mi)	210 m (690 ft)	MAQ/ VTPM	1,500 m (4,921 ft)	Asphalt
Nakhon Phanom Airport	Nakhon Phanom - 18 km (11 mi)	179 m (587 ft)	KOP/ VTUP	2,500 m (8,202 ft)	Asphalt
Nakhon Ratchasima Airport	Nakhon Ratchasima - 32 km (20 mi)	233 m (765 ft)	NAK/ VTUN	2,100 m (6,890 ft)	Asphalt
Nakhon Si Thammarat Airport	Nakhon Si Thammarat - 14 km (8.7 mi)	4 m (13 ft)	NST/VTSN	2,100 m (6,890 ft)	Asphalt
Nan Nakhon Airport	Nan - 3.5 km (2 mi)	209 m (685 ft)	NNT/ VTCN	2,100 m (6,890 ft)	Asphalt
Narathiwat Airport	Narathiwat - 13 km (8 mi)	5 m (16 ft)	NAW/ VTSC	8,202 m (2,500 ft)	Asphalt
Pai Airport	Mae Hong Son - 106 km (66 mi)	387 m (1,270 ft)	PYY/ VTCI	900 m (2,953 ft)	Asphalt
Pattani Airport	Pattani - 15 km (9 mi)	2 m (8 ft)	PAN/VTSK	4,593 m (1,400 ft)	Asphalt
Phetchabun Airport	Phetchabun - 32.5 km (20.2 mi)	137 m (450 ft)	PHY/ VTPB	2,100 m (6,890 ft)	Asphalt
Phitsanulok Airport	Phitsanulok - 7.5 km (4.6 mi)	44 m (145 ft)	PHS/ VTPP	3,000 m (9,843 ft)	Asphalt
Phrae Airport	Phrae - 2.7 km (1.7 mi)	47 m (154 ft)	PRH/ VTCP	1,500 m (4,921 ft)	Asphalt
Ranong Airport	Ranong - 23 km (14 mi)	17 m (57 ft)	UNN/ VTSR	2,000 m (6,562 ft)	Concrete
Roi Et Airport	Roi Et - 13.5 km (8.4 mi)	137 m (451 ft)	ROI/ VTUV	2,100 m (6,890 ft)	Asphalt
Sakon Nakhon Airport	Sakon Nakhon - 10 km (6.2 mi)	161 m (529 ft)	SNO/ VTUI	2,600 m (8,530 ft)	Asphalt
Sukhothai Airport	Sukhothai - 30 km (19 mi)	55 m (179 ft)	THS/VTPO	2,100 m (6,890 ft)	Asphalt
Tak Airport	Tak - 17.6 km (11 mi)	146 m (478 ft)	TKT/ VTPT	1,500 m (4,921 ft)	Hard
Trang Airport	Trang - 7 km (4.3 mi)	12 m (40 ft)	TST/VTST	2,100 m (6,890 ft)	Asphalt
Trat Airport	Trat - 30 km (19 mi)	32 m (105 ft)	TDX/ VTBO	5,906 m (1,800 ft)	Asphalt
Ubon Ratchathani Airport	Ubon Ratchathani - 1 km (0.6 mi)	124 m (406 ft)	UBP/ VTUU	3,000 m (9,843 ft)	Asphalt

Table 2: Domestic Airports in Thailand (cont.)

Seaports

Thailand has a total coastline of 3,219 km (2,000 mi), and approximately 1,900 km (1,200 mi) of the Laos-Thailand border is on the Mekong River. Thailand's major ports are:

Commercial Seaports

- Laem Chabang Port (Chonburi) – Thailand's largest and busiest deep-sea port, handling most of the country's international cargo.
- Bangkok Port (Khlong Toei Port) – A major port on the Chao Phraya River, mainly handling domestic and regional cargo.
- Map Ta Phut Port (Rayong) – A key industrial port serving petrochemical and energy industries.
- Songkhla Port – A commercial port supporting trade in southern Thailand.
- Sriracha Harbor (Chonburi) – A smaller commercial port near Laem Chabang.

Passenger and Tourism Ports

- Phuket Deep Sea Port – Used for cruise ships and cargo shipments.
- Krabi Port – A key gateway for travelers heading to nearby islands.
- Samui Pier (Nathon Pier) – Main ferry port for Koh Samui.
- Pattaya Bali Hai Pier – A tourist port connecting to Koh Larn and nearby islands.
- Hua Hin Pier – Serves ferries to Pattaya and other destinations.

Border and Regional Ports

- Ranong Port – Facilitates trade with Myanmar.
- Chiang Saen Port (Chiang Rai; Mekong River) – Handles trade with Laos, PRC, and Myanmar.
- Chiang Khong Port (Chiang Rai; Mekong River) – Cross-border trade.

In December 2022, the total annual container throughput for Thailand's ports was reported at 10,497,112 twenty-foot equivalent units (TEU), surpassing the average of 8,883,689 TEU annually from 2008 to 2021.[353] The Bangkok Port (Khlong Toei Port), located on the west side of the Chao Phraya River, has a capacity of approximately 1.5 million TEU per year.[354] Laem Chabang Port, Thailand's largest port, spans over 21 km^2 (8 mi^2) of harbor and was strategically built 130 km (80 mi) from Bangkok to reduce congestion and improve efficiency.[355] Positioned on the west coast of the Bay of Bangkok near the Gulf of Thailand, Laem Chabang Port provides easier access to open waters and has a capacity of approximately 11.1 million TEU per year.[356]

Sriracha Harbor is a privately owned deep-sea port located in Chonburi Province, near Laem Chabang Port. It primarily handles bulk cargo, container shipments, and industrial goods and can accommodate vessels up to 120,000 deadweight tonnage.[357] The port serves as a key logistics hub for Thailand's EEC by supporting industries such as manufacturing, automobiles, and petrochemicals. Due to its strategic location, it helps alleviate congestion at Laem Chabang and Bangkok Port.[358] Map Ta Phut Port, located in Rayong Province, is one of Thailand's most important industrial and petrochemical ports. It serves as the primary gateway for liquefied natural gas, chemicals, and petroleum products and supports Thailand's energy sector and heavy industries.[359] As part of the Map Ta Phut Industrial Estate, a major economic zone, the port features extensive storage facilities, including the Map Ta Phut I liquids storage terminal, which has a 4.5 million-barrel capacity across 102 tanks.[360] Its deep-sea facilities allow for the handling of large vessels, making it a critical asset for Thailand's energy security and industrial growth.

The PAT governs seaports and river ports. It is a public utility state enterprise under the general supervision of the MOT and has the following main duties:

- Provide services and facilities to vessels and cargo
- Conduct dredging operations and maintenance of the bar channels and basins
- Supervise stevedoring, handling, moving, storing, and delivering of cargo
- Cooperate and coordinate with other

government agencies concerned and international ports
- Develop the organization to cope with economic changes.[361]

Roads

Thailand has one of the most extensive road transportation networks in Southeast Asia. It totals over 390,026 km (242,351 mi) of road, with 98.5% of these roads being concrete or asphalt paved.[362] Approximately 66,266 km (41,176 mi) of Thailand's roads form the national highway system, effectively connecting all regions of the country. The comprehensive highway network facilitates efficient travel and commerce and ensures that major cities across Thailand are well-connected. This connectivity supports economic activities and regional development.

Thailand's roadways play a pivotal role in regional economic corridors, enhancing trade and transportation with neighboring countries.

East–West Economic Corridor (EWEC) - The EWEC spans approximately 1,700 km (1,056 mi) of road, linking Myanmar, Thailand, Laos, and Vietnam. Within Thailand, Highway 12 serves as a critical segment, connecting the western border at Mae Sot to the eastern border at Mukdahan. This route passes through key cities such as Tak, Phitsanulok, and Khon Kaen.[363]

North–South Economic Corridor (NSEC) - The NSEC connects southern PRC to Thailand and traverses Laos and Myanmar. In Thailand, the corridor utilizes routes such as Highway 1 and Highway 11, facilitating movement from Chiang Rai in the north to Bangkok in the south.[364]

Southern Economic Corridor (SEC) - The SEC links Thailand with Cambodia and Vietnam and enhances connectivity along the Gulf of Thailand. In Thailand, routes such as Highway 3 (Sukhumvit Road) play a significant role, connecting Bangkok to eastern provinces and onward to Cambodia.[365]

Eastern Economic Corridor - Focused on the provinces of Chonburi, Rayong, and Chachoengsao, the EEC aims to transform Thailand into a hub for technological innovation and advanced industries. The development plan includes upgrading existing road networks and constructing new motorways to improve connectivity within the corridor and to other parts of Thailand. Key projects involve the expansion of Motorway 7, linking Bangkok to Pattaya and Map Ta Phut.[366]

Railways

Thailand's railway network serves as a critical component of the country's transportation system. It spans approximately 5,000 km (3,100 mi) of rail and connects 47 provinces. The SRT is responsible for operation, maintenance, and expansion of the rail system. The network radiates from Bangkok, with major lines including the Northern Line to Chiang Mai, the North-Eastern Line to Nakhon Ratchasima and Nong Khai, the Southern Line extending to Malaysia and Singapore, and the Eastern Line serving Chachoengsao and Pattaya. In addition to intercity and freight rail services, Bangkok hosts an urban rail network comprising the BTS Skytrain, MRT, Airport Rail Link, and commuter rail lines.[367]

Most of Thailand's railway infrastructure utilizes a 1,000 mm narrow-gauge track, which is standard for much of Southeast Asia. However, as part of ongoing modernization efforts, new high-speed rail projects and upgrades incorporate standard-gauge tracks (1,435 mm) to enhance efficiency and integration with international networks.[368] Thailand aims to expand rail connectivity from 47 to 61 provinces by focusing on the Red Line commuter network with major extensions to the Dark Red Line (Ayutthaya to Ratchaburi) and Light Red Line (Nakhon Pathom to Chachoengsao). Bangkok's mass transit system is also growing, with additional BTS, MRT, and Airport Rail Link lines, along with new urban rail projects in Phuket, Chiang Mai, and Khon Kaen.[369]

Thailand is also developing its first high-speed rail lines, spanning a total of 2,656 km (1,650 mi) in multiple phases. One of the most significant projects is the Bangkok-Nong Khai high-speed rail, which is part of the PRC's Belt

and Road Initiative and the broader Singapore-Kunming Rail Link (SKRL). This line is expected to improve travel times and enhance trade with neighboring countries.[370]

Freight rail plays a growing role in Thailand's logistics sector. It currently accounts for approximately 2% of total freight movement, or 11.37 million metric tons (MMT; 12.5 million tons) annually.[371] Efforts to increase freight capacity are underway, as rail provides a more cost-effective and sustainable alternative to road transport. The expansion of double-track lines, along with investments in new locomotives and the adoption of modern signaling systems, is expected to improve service reliability and boost freight transport to an estimated 46 MMT (50.7 million tons) per year by 2027.[372]

Thailand's railway expansion is being supported by substantial government investments and international partnerships. The Thai Transport Infrastructure Development Plan (2015-2022) allocated approximately THB 1.9 trillion (US$56.4 billion) for rail and other transportation projects.[373] Additional funding is sourced through domestic and international loans, as well as collaboration with agencies such as the Japan International Cooperation Agency (JICA). Recent approvals by the SRT board include track-doubling projects totaling THB 292.5 billion (US$8.1 billion), with completion expected by 2031. These investments position Thailand as a key player in Southeast Asia's rail transportation sector, fostering economic growth and improved regional connectivity.[374]

Waterways

Thailand's inland waterways extend for approximately 4,000 km (2,485 mi), encompassing rivers, canals, and lakes that historically played a vital role in transportation. Key river ports, primarily located in Bangkok and Ayutthaya, facilitate cargo movement, with 61 ports accommodating vessels up to 450 metric tons (500 tons).[375] The Chao Phraya and Pa Sak Rivers serve as major arteries for goods transport, connecting inland areas to coastal ports like Laem Chabang and Samut Prakan. Despite its cost efficiency and environmental benefits, river transport accounts for only a fraction of Thailand's logistics network and faces stiff competition from road and rail.[376] However, ongoing investments in maritime infrastructure, such as navigation dam construction and channel improvements, aim to enhance connectivity and increase waterway transport's share of total freight from 11.44% to 19% by 2036.[377]

Public water transport, once central to Bangkok's identity as the "Venice of the East," has declined due to urbanization and shifting commuter preferences. While express boats, ferries, and long-tailed boats still operate along the Chao Phraya River and remaining canals, accessibility issues, pollution, and aging infrastructure have led to decreasing passenger demand. Plans for revitalization include integrating water routes with Bangkok's rail and bus systems and expanding services in high-traffic areas, such as the Padung Krungkasem Canal.[378] However, challenges remain, including shallow channels, limited intermodal connections, and environmental concerns. Future development efforts will need to balance modernization with sustainability to maintain inland waterways as a viable transport option.

Schools

Thailand's education system is structured into three main levels: pre-primary, primary, and secondary. While pre-primary education (ages 3-6 years) is optional, the government provides three years of free pre-primary schooling. Compulsory education spans nine years, consisting of six years of primary school (Prathom 1-6) and three years of lower secondary school (Matthayom 1-3). Following these cycles, students may continue with three additional years of upper secondary education (Matthayom 4-6), either in general academic schools or vocational programs.[379] The Thai government funds public education, offering 12 years of free schooling. [380] In addition to public schools, there are private and international institutions, which offer alternative curricula and often cater to expatriate and affluent families.

Education statistics indicate continued gains. The completion rate for primary education has risen from 98.5% in 2015 to 99.6% in 2024. Similarly, the completion rate for lower secondary education increased from 86.4% in 2015 to 91.1% in 2024. Upper secondary education has also seen notable improvement, with completion rates rising from 58.4% in 2015 to 69.3% in 2024.[381] These figures reflect advancements in educational access and attainment, though continued efforts are necessary to address remaining disparities.

Despite significant investment, Thailand's education sector faces several challenges, including political instability, an aging population that spells reduced demand for higher education, and ongoing reforms hindered by high ministerial turnover—20 different education ministers in 17 years.[382] Historically, Thailand's education system developed independently, as the country was never colonized. Initially rooted in Buddhist temple education, the system underwent modernization efforts in the 19th century, and it now reflects aspects of Western models, particularly in higher education. The Ministry of Education oversees the sector, with different offices managing basic, vocational, and higher education. Decentralization efforts in the late 1990s aimed to improve local administration, but recent trends indicate a push towards re-centralization. Quality disparities persist, with small, under-resourced rural schools struggling with teacher shortages and inadequate materials. Proposed reforms focus on consolidating schools, enhancing teacher training, and increasing school autonomy to improve educational outcomes and global competitiveness.[383]

Disaster Risk Reduction in the Education Sector

Disasters have a profound impact on human capital, particularly in education, by disrupting learning, damaging school infrastructure, and forcing students—especially those from vulnerable communities—to drop out.[384] In Thailand, the 2004 Indian Ocean "Boxing Day" tsunami highlighted the need for DRR in schools and led to significant policy reform. The government, in collaboration with international organizations, integrated DRR into primary and secondary curricula, incorporating child-led preparedness initiatives and teacher training programs. Save the Children played a pivotal role in developing school preparedness and evacuation plans, as well as introducing storybooks like Alert Rabbit and Alert Little Mole to teach key DRR concepts to young children.[385] These efforts helped establish DRR as a fundamental part of education in Thailand. Today, the Comprehensive School Safety Framework is a cornerstone of Thailand's education sector and equips students and educators with essential skills to mitigate risks and respond effectively to disasters. [386]

DRR efforts integrate multiple stakeholders, including the Ministry of Education, the Office of the Basic Education Commission, NGOs like Save the Children and Plan International, and international partners such as UNDRR.[387] One notable example of successful DRR implementation is the Chumchon Baan Sanchampa School in Chiang Rai; it was heavily impacted by an earthquake in 2014 and now integrates Science, Technology, Engineering, and Math (STEM)-based DRR education into its curriculum, providing hands-on learning experiences that help students understand and respond to disaster risks. Teachers receive specialized training to facilitate this education, and students participate in earthquake drills, project-based learning, and technology-driven preparedness activities. These initiatives not only enhance school safety but also foster a culture of resilience, ensuring that future generations are better equipped to face Thailand's diverse natural hazards.[388]

Communications

In Thailand, mobile phone service providers and mass media play crucial roles in disseminating government-issued disaster warnings and emergency information. The National Broadcasting and Telecommunications

Commission mandates that mobile operators implement systems like the Cell Broadcast Service (CBS), enabling rapid delivery of emergency alerts to all mobile devices within a specified geographic area. The CBS categorizes alerts into five levels: National Alert, Emergency Alert, Missing Person Alert, Public Safety, and Test Alert.[389] Mass media outlets are similarly required to broadcast critical public safety information during emergencies to ensure timely communication across various platforms.[390] These measures enhance public awareness and response, supporting Thailand's broader DM efforts.

Telephones

Mobile cellular usage in Thailand grew rapidly, but there has been a contraction in recent years, with 176 mobile cellular subscriptions per 100 people as of 2022.[391] Meanwhile, the number of fixed telephone subscriptions has continued to decline, falling from 9,955,000 in 2017 to 4,087,000 as of 2023.[392] These trajectories are on par with worldwide trends, in which mobile phones continue to dominate telecommunication, while landline phones are still widely used in rural areas of developing countries.[393]

Thailand's telecom market is a mature sector dominated by a duopoly of True Corporation and Advanced Info Service (AIS). The government has been promoting Mobile Virtual Network Operator development to enhance competition. The mobile market is set for future expansion driven by 5G and advancements in connectivity, and there is growing interest in establishing Thailand as a regional data center hub, supported by significant government and private sector investment.[394]

Internet Access

As of 2023, internet users made up 90% of the population, a significant increase from 29% in 2013.[395] While fixed broadband subscriptions declined from 12.6 million in 2022 to 11.5 million in 2023, this drop likely reflects a shift toward mobile internet access.[396] Thailand rolled out 5G in 2020, with AIS launching first, followed by TrueMove H and dtac, which later merged to form the True Corporation. As of early 2024, AIS remained the market leader in 5G speed, coverage, and performance, and it covered 95% of the population. True Corporation covers over 90%. Both providers are driving 5G growth by bundling affordable 5G devices with service plans to boost adoption and revenue.[397]

Mass Media

Thailand's media landscape includes a mix of government-controlled and private outlets across television, radio, print, and digital platforms. Multichannel TV is widely available through cable and satellite providers such as Channel 3 HD, Thai Rath TV, and Channel 7 HD.[398] However, the government and military control most national terrestrial networks and operate several radio stations. The radio market, especially in Bangkok, remains highly competitive.[399]

While print outlets are largely privately owned, the market is dominated by only a few major Thai-language dailies, including Thai Rath and Khaosod. Many traditional outlets have transitioned online, with Thai Rath leading digital consumption. Social media platforms like Facebook, YouTube, and TikTok have become primary news sources, with YouTube playing a key role in content monetization.[400]

Although Thai media can report on government policies and corruption, strict lèse-majesté laws prohibit criticism of the royal family. Journalists often self-censor on politically sensitive topics, including the military and judiciary. Recent political shifts have further eroded trust in media transparency, with mainstream news outlets often cautious in their reporting.[401]

Furthermore, artificial intelligence (AI) is reshaping Thailand's media landscape by influencing content creation and newsroom operations. Thailand's Public Broadcasting System is at the forefront of AI adoption, integrating text-to-speech services and expanding multilingual content. However,

concerns remain about ethical journalism and the need for oversight in AI-driven reporting. Experts emphasize the importance of transparency and accountability as AI continues to shape news consumption.[402]

Social Media

Thailand has a highly engaged online population, and social media platforms are central to communication, entertainment, and news consumption, with many users relying on them as their primary source of information. Social media usage is almost evenly split by gender, with slightly higher engagement from women on platforms like Instagram and Facebook. The average daily time spent on social media is around 2.5 hours, reflecting its deep integration into daily life.[403]

Facebook remains the most popular platform in Thailand and is widely used for social interaction, news, and business. YouTube is dominant for video content, with many content creators generating income through the platform. TikTok has seen rapid growth, with 39% of users now turning to it for news—a 9% increase from 2023. Instagram is a key platform for lifestyle content, influencers, and businesses. X is widely used for political discussions and real-time updates.[404]

Despite the openness of social media, government censorship is prevalent, particularly regarding criticism of the monarchy, military, and judiciary. The lèse-majesté law strictly prohibits negative commentary on the royal family, and this restriction leads to self-censorship. The government has also requested platforms like Facebook and YouTube remove content deemed politically sensitive, and activists or journalists have faced legal action for online posts. This digital landscape reflects both the increasing role of social media in public discourse and the challenges posed by government oversight and legal restrictions on free expression.[405]

Post

The postal service is operated by the Thailand Post Company, which has a comprehensive network of over 1,200 post offices and 16 postal centers nationally. Thailand Post offers a comprehensive range of services including financial services and retail services.[406] International shipping services, FedEx and UPS, are available in Thailand.[407]

Utilities

Power

Thailand boasts near-universal electricity access, with 99.9% of its population connected to the grid as of 2022.[408] The country's power sector is overseen by the Ministry of Energy and involves key agencies such as the Electricity Generating Authority of Thailand (EGAT), the Metropolitan Electricity Authority (MEA), and the Provincial Electricity Authority (PEA). EGAT, a state-owned enterprise, plays a central role in electricity generation and transmission, while MEA and PEA handle distribution—MEA serving Bangkok and surrounding areas, and PEA covering the rest of the country.[409] Thailand's total installed electricity generation capacity is approximately 53 gigawatts. Of electricity generated, 56.4% derives from natural gas, followed by coal (19.6%), oil (5.7%), and an increasing share of renewables such as biofuels (9.8%), solar (2.7%), wind (1.6%), and hydropower (3.7%).[410] The government aims to shift toward cleaner energy sources, with a target of over 50% renewable energy use under its National Energy Plan 2023.[411]

Thailand's energy landscape is undergoing a transformation as the country seeks to reduce its reliance on natural gas and diversify its energy mix. While natural gas remains dominant, domestic reserves are depleting, prompting Thailand to accelerate its adoption of renewable energy sources.[412] In 2022, renewables—including hydro, biofuels, wind, and solar—accounted for 17.8% of the electricity mix. Coal continues to play a role, but its share is expected to decline as the government pushes for cleaner alternatives.[413] Thailand's long-term strategy includes increasing solar power, particularly through floating solar farms, and expanding bioenergy by utilizing agricultural waste. Energy

efficiency measures, alongside investments in smart grid technologies, will be critical in managing demand fluctuations and improving overall system resilience.

In 2022, Thailand's electricity production reached 185,976 gigawatt-hours, a 94% increase over production in 2000. This growth is driven by economic expansion and urbanization, and this total makes Thailand the 10th-largest electricity producer in the Asia-Pacific region and 25th worldwide. Per capita electricity consumption nearly doubled over the same period, reaching 2.869 megawatt-hours in 2022. Electricity consumption is heavily skewed toward Industrial customers, who account for 44.8% of final consumption, followed by the residential (27.2%) and commercial (23.4%) sectors.

While Thailand contributes only 0.7% of global carbon dioxide emissions, the country recognizes the need to transition toward low-carbon energy solutions.[414] Historically reliant on fossil fuels, the country has made significant progress in integrating renewables and modernizing its electricity grid. As Thailand navigates its energy transition, it faces challenges in balancing energy security, affordability, and sustainability. Looking ahead, advancements in decentralized energy systems, battery energy storage, and cross-border electricity trade will play a crucial role in Thailand's clean energy future. The government remains committed to achieving carbon neutrality by 2050 and net-zero emissions by 2065. Meeting these goals will ensure that Thailand remains a leader in Southeast Asia's energy transformation.[415]

Solid Waste

Thailand's solid waste management system is struggling to keep pace with the country's rapid urbanization and modernization. Increased consumption, fueled by economic growth and changing lifestyles, has led to a surge in waste production. However, outdated infrastructure and inadequate waste management systems have resulted in widespread pollution, with mismanaged waste often ending up in the environment and oceans. Compounding this issue is Thailand's role as a global waste recipient; until recent policy changes, the country imported millions of metric tons of plastic waste from industrialized nations, and this importation overwhelmed an already strained system.[416] While efforts to curb waste importation and reduce single-use plastics have been implemented, challenges remain in waste collection, segregation, and enforcement of environmental policies.[417]

Thailand employs various waste disposal methods, both proper and improper. Legally sanctioned facilities include landfills, incinerators for energy production and air pollution treatment, composting sites, and refuse-derived fuel plants. However, illegal open dumping and burning persist, exacerbating air pollution and environmental degradation.[418] While total waste generation declined from 26 MMT (28.71 million tons) in 2019 to 23.3 MMT (25.7 million tons) in 2022, inadequate investment in waste recycling technology and governance issues continue to undermine waste management efforts.[419] Many businesses fail to comply with waste regulations, and enforcement remains inconsistent, allowing illegal disposal practices to continue.

To address these challenges, the Thai government launched the Action Plan on Plastic Waste Management Phase II (2023–2027), building on earlier efforts to reduce plastic waste through collaboration between public and private sectors. The plan emphasizes a circular economy approach, integrating the 3Rs (Reduce, Reuse, Recycle) and extending producer and consumer responsibility. Key strategies include improving waste segregation, enhancing recycling infrastructure, and strengthening policies to prevent plastic pollution, particularly in marine environments. Aligning with international sustainability commitments, this initiative aims to create a more resilient and efficient waste management system while mitigating the long-term environmental impact of plastic waste.[420]

Water and Sanitation

While Thailand has made significant progress in providing access to improved drinking water

sources, the quality of this water is often not safe for consumption without further treatment. In an analysis of Thailand's progress towards UN Sustainable Development Goal (SDG) 6, "Ensure availability and sustainable management of water and sanitation for all," it was found that:

- 26% of the population uses a safely managed sanitation service
- 85% of the population has a handwashing facility with soap and water available at home
- 25% of domestic wastewater is safely treated
- 37% of monitored water bodies have good ambient water quality[421]

The government continues to expand infrastructure to bridge this gap, especially through initiatives like public-private partnerships that enhance wastewater treatment and water supply systems. However, untreated wastewater remains a significant issue, contributing to widespread water pollution that affects public health and the environment. Investment in sanitation infrastructure is crucial, yet political and financial constraints have slowed progress in wastewater treatment and leave a large portion of surface water contaminated.[422]

A survey conducted by the MoPH between 2018 and 2024 found that of 10,271 village tap-water plants assessed nationwide, only 420—just 4%—produced water hygienic enough for drinking. Given that Thailand has over 69,000 tap-water plants, it is likely that the majority do not meet drinking water safety standards. In response, the government has announced plans to upgrade 1,750 village tap-water plants to meet hygiene standards under the "3C" policy, ensuring water is "clear, clean, and treated with chlorine" to eliminate harmful pathogens.[423]

Thailand's water resources, including wetlands, rivers, and reservoirs, are essential for agriculture, industry, and daily life. However, these resources are increasingly threatened by disasters, pollution, and overuse. The country frequently experiences extreme weather events, such as severe floods and droughts, which disrupt water availability and quality.[424] The Chao Phraya River Basin, which supports a significant portion of Thailand's agriculture, faces recurring floods that damage livelihoods and infrastructure. In response, the government has launched large-scale projects like the "Chao Phraya 9 Plans" to enhance flood management and improve water retention. Additionally, climate-resilient water management strategies, including ecosystem-based adaptation, are being integrated into national planning.[425]

Legislation plays a vital role in addressing Thailand's water challenges. The National Water Resources Act provides a framework for water governance, emphasizing sustainable management, disaster resilience, and equitable distribution. Complementing this legislation, Thailand's 20-year National Water Resources Master Plan (2018–2037) outlines long-term strategies to tackle droughts, floods, and wastewater issues.[426] By incorporating climate change adaptation, DRR, and nature-based solutions, the plan aims to strengthen Thailand's water security. Moving forward, increased investment in sanitation, improved wastewater treatment, and stronger enforcement of environmental regulations will be critical in ensuring sustainable water resources for future generations.

HEALTH

Thailand ranks fifth globally and first in Southeast Asia on the Global Health Security Index (GHSI), with a score of 68.2, a score that reflects the country's strong capacity to prevent, detect, and respond to public health threats. The GHSI, developed by the Johns Hopkins Center for Health Security, assesses 195 countries across six categories: prevention, detection, rapid response, health system capacity, compliance with international norms, and overall risk environment.[427] Thailand's universal health coverage (UHC), robust disease surveillance, and emergency response systems contribute to its high ranking. Despite these achievements, Thailand's healthcare system faces ongoing challenges such as an aging population, urban primary care gaps, and economic vulnerabilities.

Health Care System Structure

Thailand's healthcare system is recognized for its implementation of UHC, which began in 2002 and now ensures that all Thai citizens have access to essential preventive, curative, and palliative health services.[428] The MoPH is the principal agency overseeing health care and is responsible for policy formulation, regulation, and the provision of health services. The country is divided into health regions, each managed by a regional health office that coordinates public health activities and services. Thailand's healthcare infrastructure includes a vast network of public hospitals, community health centers, and rural health facilities, with over 75% of hospitals being publicly operated.[429] Healthcare delivery is structured across multiple levels:

- **Primary Care:** Comprises health centers and community hospitals that offer basic medical services and preventive care.
- **Secondary Care:** Includes general hospitals at the district level providing more specialized services.
- **Tertiary Care:** Encompasses regional and university hospitals equipped with advanced medical technology and specialists.

Other key agencies include the National Health Security Office, Health Systems Research Institute, and Thai Health Promotion Foundation, while non-state actors and civic groups also play an increasingly important role.[430] The country operates three public health insurance schemes: one for civil servants, another for private sector employees, and a universal coverage scheme for all other citizens.[431]

Health Strategies and Surveillance

The Sixth Country Cooperation Strategy (CCS) (2022–2026) of the World Health Organization's (WHO) outlines that agency's strategic vision for collaboration with the RTG and its partners to strengthen health systems, align national policies with global health goals, and advance toward the SDGs. Developed through a highly participatory, multi-stakeholder consultation process, the CCS builds on lessons from its predecessor (2017–2021) and aligns with Thailand's Thirteenth National Economic and Social Development Plan and 20-year Strategic Plan. It supports the MoPH in integrating WHO's global initiatives with national priorities and ensures a coordinated approach to public health challenges. The CCS provides strategic direction for WHO's work in Thailand by emphasizing harmonization of global, regional, and national health objectives through a structured governance framework.[432]

Six priority programs were selected for the CCS for Thailand 2022-2026. The programs cover:

1. **Convergence of Digital Health Platforms and Health Information Systems (Digital Health):** Thailand's healthcare system, despite achieving UHC, lacks adequate digitization, leading to inefficiencies in

service delivery. This program aims to integrate and streamline digital health platforms, enhance data systems, and establish a national digital health governance mechanism to improve health outcomes through technology-driven solutions.

2. **Enhancing Leadership in Global Health-Thailand (EnLIGHT):** Recognizing the interconnected nature of global health challenges, this program strengthens Thailand's role as a leader in global health initiatives. It supports the country's contributions to international health collaborations and policy development while leveraging WHO's expertise to enhance Thailand's influence in global health governance.
3. **Health in All Public Policies for the Prevention and Control of Noncommunicable Diseases (NCD):** The majority of deaths and lost productivity in Thailand can be attributed to NCDs, despite being largely preventable. This program integrates NCD prevention and control into national policies across multiple sectors, leveraging WHO's expertise and international partnerships to drive a coordinated, multisectoral response.
4. **Migrant Health:** With nearly 4.9 million documented and undocumented migrants in Thailand, ensuring equitable access to health care is a major priority. This program supports the RTG in addressing health disparities among vulnerable migrant populations by promoting health equity, strengthening migrant health management systems, and improving health literacy. WHO and its partners work to bridge policy gaps, enhance healthcare access, and integrate migrant health financing mechanisms for a more inclusive public health system.
5. **Public Health Emergency Policy and System:** This program enhances Thailand's ability to prepare for, prevent, detect, and respond to public health emergencies. Aligned with national health security reforms, it focuses on strengthening policy decisions, monitoring and evaluation systems, capacity building, and fostering partnerships. WHO supports these efforts by promoting evidence-based policymaking, securing multisectoral commitments, and mobilizing financial and intellectual resources to improve Thailand's public health resilience.
6. **Road Safety:** Road safety is a major public health concern in Thailand, which has one of the highest road traffic death rates in Southeast Asia. Young people and motorcyclists are the most affected, and traffic deaths and injuries contribute to significant economic and social losses. Despite a national road safety plan, progress has been slow. WHO supports Thailand's efforts by providing technical expertise, strengthening policies, and promoting evidence-based interventions to reduce traffic-related injuries and fatalities.[433]

Communicable Diseases

Thailand is burdened with the following communicable diseases:

HIV/AIDS

Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome (HIV/AIDS) remains a significant public health concern in Thailand, though the country has made remarkable progress in reducing new infections and AIDS-related deaths. Since 2010, new HIV infections have declined by 49%, and AIDS-related deaths have dropped by 65%, with the infection rate stabilizing at 0.13 per 1,000 uninfected individuals as of 2023.[434] Thailand's national strategy to end AIDS (2017-2030) aligns with global targets, aiming to reduce new HIV infections to below 1,000 cases annually and cut AIDS-related deaths to fewer than 4,000 per year. The government, in collaboration with civil society, networks of people living with HIV, and the private sector, has implemented innovative programs such as the "100 Percent Condom Program," prevention of mother-to-child transmission, and nationwide anti-retroviral treatment coverage, which currently reaches 82%

of those living with HIV.[435]

Malaria

Malaria transmission in Thailand is primarily concentrated in rural forested areas along the borders with Myanmar, Cambodia, and Malaysia, while urban centers and popular tourist destinations report few to no cases. Antimalarial drugs are recommended for travelers visiting high-risk border provinces, while insect bite precautions suffice in lower-risk areas. [436] In 2024, Thailand recorded 4,582 malaria cases, according to an epidemiology report for the Greater Mekong sub-region, and this total reflects a 12% decrease from the previous year.[437] Thailand's malaria elimination strategy emphasizes surveillance through the 1-3-7 protocol, which mandates case notification within 1 day, classification within 3 days, and local response within 7 days. This approach, along with integrated drug efficacy surveillance, has strengthened Thailand's progress toward malaria elimination.[438]

Tuberculosis

In 2023, Thailand reported a tuberculosis (TB) incidence of 157 cases per 100,000 people, continuing a downward trend over the past decade.[439] Despite this progress, TB remains a significant public health concern, particularly among migrant populations. Migrant workers, who often live in crowded conditions with limited healthcare access, represented a notable portion of new and relapse cases, particularly in Bangkok, industrial hubs, and border provinces. To combat TB, Thailand's Operational Plan to End Tuberculosis (2023-2027) aligns with the WHO's End TB Strategy, aiming to reduce TB incidence to 89 per 100,000 by 2027 through intensified case finding, improved treatment, expanded latent TB diagnosis, strengthened healthcare support systems, and research-driven innovations. Addressing TB among vulnerable groups remains a priority, with a focus on early detection, treatment adherence, and healthcare accessibility to drive continued progress toward elimination by 2035.[440]

Antimicrobial Resistance

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi, and parasites evolve to resist the effects of antimicrobial drugs (such as antibiotics, antivirals, antifungals, and antiparasitics) and make infections harder to treat. While AMR is not a disease, it affects the treatment of communicable diseases, such as TB, malaria, HIV/AIDS, and bacterial infections.[441] Thailand has recognized AMR as a major public health challenge and has taken significant steps to address it through a One Health approach, which integrates human health, animal health, food production, and environmental sectors. Following the Global Action Plan on AMR, Thailand developed its National Strategic Plan on Antimicrobial Resistance (2017–2022), later extended to 2023–2027, to enhance surveillance, strengthen governance, and promote responsible antimicrobial use. The National Action Plan for Health Security, which includes a dedicated AMR section, was informed by the Joint External Evaluation (JEE) with WHO; the JEE identified AMR as a high-priority technical area. Key achievements include a 24.8% reduction in human antibiotic consumption and a 36% decrease in antimicrobial use in animals, alongside improved national AMR management capacity. However, challenges remain, including fragmented implementation, environmental concerns, and increasing drug-resistant infections. To address these, Thailand is scaling up integrated hospital-based AMR management, enhancing surveillance systems, and increasing public awareness through multi-sectoral collaboration.[442]

Non-Communicable Diseases

NCDs such as cancer, cardiovascular diseases, diabetes, and chronic obstructive pulmonary disease are the leading causes of death in Thailand. Collectively, they are responsible for 74% of all fatalities, or approximately 400,000 deaths annually.[443] Many of these deaths occur prematurely, between the ages of 30-70 years,

and are linked to risk factors such as poor diet, tobacco and alcohol use, and lack of physical activity. NCDs also pose a significant economic burden, costing THB 1.6 trillion (US$47.66 billion) annually, or nearly 10% of Thailand's GDP, primarily due to lost productivity from absenteeism, disability, and premature death.[444] Additionally, road traffic accidents remain a major public health issue, with a mortality rate of 25.4 per 100,000 people.[445] Addressing NCDs and road safety is crucial for improving public health and reducing long-term economic strain.

Training for Health Professionals

Thailand has made notable strides in medical education, though challenges persist in ensuring equitable healthcare access. The country has approximately 42,000 doctors, resulting in a doctor-to-population ratio of 1 to 1,500 —short of the WHO standard of 1 to 1,000.[446] However, the distribution of doctors is uneven, with urban centers like Bangkok having far greater access to medical care than rural regions, where the ratio is closer to 1 doctor per 2,000 people.[447] Rural areas often lack basic health facilities and resources, conditions that drive doctors to seek work in cities and further deepen the urban-rural divide in medical capabilities. To address this disparity, government initiatives aim to increase medical student enrollment, especially from rural communities, and offer incentives for doctors to practice in underserved areas.[448]

Medical training in Thailand follows a six-year Doctor of Medicine (MD) program divided into general education, basic medical science, and clinical experience, with additional postgraduate training required for specialization. The country has 12 medical schools, with only four located in rural areas, contributing to the concentration of healthcare professionals in urban centers. Thai medical education integrates Western influences while adapting to national priorities, and partnerships with European and U.S. institutions allow for student transfers and global learning opportunities.[449] Reforms occur every 6–7 years to keep pace with medical advancements and societal needs, focusing on practical clinical skills and enhancing the quality of health care. Recent updates include courses in law, management, digital technology, and communication to equip doctors with broader competencies for more effective care and collaboration.[450] Photo 3 shows Thai healthcare professionals attending training.[451]



Photo 3: Thai Healthcare Professionals Attending Training

WOMEN, PEACE AND SECURITY

Since the adoption of United Nations Security Council Resolution (UNSCR) 1325 on Women, Peace and Security (WPS) on 31 October 2000, Thailand and its partners in Southeast Asia have made great strides to implement WPS policy. Although UNSCR 1325 has been followed up by nine additional UNSCRs that have built a WPS Agenda, the landmark 2000 resolution focused on the essential role of women in conflict prevention, resolution, peace negotiations, peacekeeping, humanitarian response, and post-conflict reconstruction. It underscored the need for women's equal participation and inclusion in all efforts to maintain and promote peace and security. Additionally, UNSCR 1325 called on all parties in conflict to take measures to protect women and girls from gender-based violence, particularly sexual violence.[452]

UNSCR 1325 acknowledged the shifting nature of warfare, in which civilians, especially women and girls, are disproportionately affected by violent conflict. The resolution emphasized that sustainable peace is only achievable when women are actively engaged in peacebuilding processes. The four pillars of the WPS Agenda that has emerged are:

1. Participation – Advocates for increased representation of women at all levels of decision-making in peace processes, peacekeeping missions, and policy development.
2. Protection – Calls for safeguarding women and girls from gender-based violence, particularly in conflict and post-conflict settings.
3. Prevention – Supports efforts to prevent violence against women, including legal prosecution of perpetrators of violence and strengthening women's rights.
4. Relief and Recovery – Emphasizes the necessity of incorporating a gender perspective in humanitarian responses, ensuring women and girls' needs are met in post-conflict recovery efforts.[453]

Implementation of UNSCR 1325: National and Regional Action Plans

Since 2005, UN member states have worked to implement UNSCR 1325 through National Action Plans (NAP) and other strategies. ASEAN has been a strong advocate for the WPS Agenda and has built on key initiatives such as the Declaration on the Elimination of Violence Against Women (2004), the ASEAN Regional Plan of Action (RPA) on the Elimination of Violence Against Women (2015), and the Joint Statement on Promoting Women, Peace and Security, adopted in 2017. In 2020, the ASEAN Ministerial Dialogue further emphasized the integration of WPS across the region's three community pillars: political-security, economic, and socio-cultural. The adoption of the RPA on WPS in 2022 builds on these efforts, following recommendations from the 2021 ASEAN Regional Study on Women, Peace and Security, supported by USAID and UN Women.[454]

The RPA WPS is structured into six key sections. It begins with an overview of relevant contextual factors, acknowledging both traditional and emerging security challenges, such as climate change, natural disasters, pandemics, and violent extremism. The second section outlines the foundational global and ASEAN regional frameworks that the RPA WPS builds upon, ensuring alignment with existing commitments while addressing gaps. The third section provides a snapshot of progress, challenges, and opportunities related to WPS in the ASEAN region. Section four defines the rationale and objectives of the plan, followed by section five, which details the development process behind the RPA WPS. The final section presents a results-based framework for implementation, specifying priority actions,

expected outputs, and desired outcomes.[455]

Thailand has actively supported the WPS Agenda through policies that prioritize women's participation in peacebuilding and security governance, linking WPS with the UN SDGs—particularly SDG 5 (Gender Equality) and SDG 16 (Peace, Justice, and Strong Institutions). In 2020, Thailand reaffirmed its commitment to WPS through a written statement to the UN; it emphasized the critical role of women in peace processes and the necessity of protecting them from gender-based violence. By aligning national policies with ASEAN's RPA WPS, Thailand continues to strengthen its leadership in advancing gender-responsive security policies and fostering regional cooperation on WPS initiatives.[456]

WPS in Thailand: Key Stakeholders and Initiatives

UN Women Thailand provides technical support to the RTG and civil society to advance WPS policies and empower women in peacebuilding efforts. Partnering with UN Women, the Ministry of Social Development and Human Security plays a crucial role in implementing and localizing WPS guidelines at both national and sub-national levels.[457]

Reinforcing the country's commitment to integrating WPS into global security efforts, Thailand deploys female peacekeepers in UN peacekeeping operations. These peacekeepers play a vital role in fostering gender-sensitive approaches to conflict resolution and humanitarian assistance.[458] Among these peacekeepers, Lieutenant Colonel Peabprom Mekhiyanont, who serves as the Deputy Superintendent of Cyber Crimes against Children at the RTP in Bangkok, brought invaluable expertise to peacekeeping missions in Haiti, South Sudan, and Iraq. Drawing from her experiences, she highlighted the critical challenges faced by female peacekeepers and the impact of WPS training programs in Thailand in preparing personnel for gender-responsive operations.[459] Back in Thailand, her engagement in specialized WPS training programs reinforced the importance of integrating gender perspectives into security and law enforcement strategies. This emphasis on capacity-building and regional cooperation is further reflected in Thailand's recent collaborations with UN Women and U.S. INDOPACOM, where WPS-focused workshops have strengthened cross-sectoral approaches to security challenges.

In June 2024, Bangkok hosted the ASEAN 2024 workshop on NAP training and localization. It brought together over 60 government officials from ASEAN and Timor-Leste. The workshop focused on translating ASEAN's WPS goals into national policies using a localization toolkit and addressed emerging security challenges such as climate risks and cybersecurity threats.[460] Additionally, a workshop with INDOPACOM was conducted in May and August 2024; its aim was to enhance WPS implementation strategies in Thailand and strengthen collaboration between regional stakeholders and international security actors.[461]

CONCLUSION

Over the past four decades, Thailand has made significant strides in strengthening its disaster management system by establishing a robust institutional framework and enacting key legislation to meet evolving risks. The increasing emphasis on community engagement and capacity building reflects Thailand's commitment to fostering resilience and reducing vulnerability across all levels of society.

Despite these advancements, Thailand continues to face serious challenges from both natural and human-induced hazards. Water-related disasters such as floods and droughts remain the most frequent and damaging, while earthquakes—though less common—pose growing risks, especially given increasing urbanization and regional seismic activity. These hazards have far-reaching impacts on public health, food security, and socio-economic stability, particularly in the agriculture sector, where livelihoods are highly sensitive to environmental shifts. In response, Thailand has prioritized strengthening its flood control and drought mitigation systems, advancing early warning capabilities, and investing in resilient infrastructure to reduce future risks.

Urbanization trends further compound disaster risk. Much of Thailand's population and economic activity is concentrated in Bangkok and other urban centers located in flood-prone areas along rivers and near coastal zones. These high-density regions are increasingly exposed to sea level rise, storm surges, and inland flooding. As a result, flood management, land-use planning, and climate-resilient development are critical components of Thailand's long-term strategy. Addressing these vulnerabilities is essential to protect urban infrastructure and safeguard the lives and livelihoods of millions of residents.

Thailand is not only focused on national resilience, but it is also a regional leader in disaster management and humanitarian coordination. The country regularly facilitates and participates in multinational exercises such as COBRA GOLD, which includes a HADR TTX and field training focused on civil-military coordination. Thailand has also played a central role in regional coordination following transboundary disaster events, including earthquakes impacting Myanmar and other neighbors. In these cases, Thailand has worked closely its partners to streamline logistics, share critical information, and mobilize support.

Through these activities and its membership in ASEAN, Thailand serves as a hub for emergency logistics and DM expertise in Southeast Asia. It hosts regional workshops, simulations, and knowledge exchanges that help strengthen the capacity of national and regional actors. Its long-standing partnerships with U.S. agencies and UN entities have helped institutionalize best practices in preparedness, response, and recovery across the region.

Looking ahead, Thailand's priorities include fortifying infrastructure against extreme events, expanding community-based DRR initiatives, and enhancing public awareness campaigns to build long-term resilience. The government is also focused on improving risk-informed development planning, empowering local governments, and fostering inclusive approaches to sustainable development.

As Thailand continues to evolve and adapt to complex risk environments, its commitment to reducing disaster risk, enhancing response systems, and strengthening people-centered resilience remains core to its national strategy. By investing in strong institutions, promoting cross-border collaboration, and leveraging regional partnerships, Thailand is well-positioned to lead in shaping a safer, more resilient future—for its own citizens and for the broader Asia-Pacific region.

APPENDICES

DoD DMHA Engagements in the Past Five Years (FY 2020-2025)

The list below highlights a few disaster management and humanitarian assistance (DMHA) engagements that the U.S. has had with Thailand in the last five years. This list is not exhaustive of all DMHA engagements.

Exercise COBRA GOLD 2025 – February 2025

Exercise COBRA GOLD 2025 (CG25), the latest iteration of the world's longest-running international military exercise, took place from 18 February to 7 March 2025 in Thailand, with key events in Pattaya, Bangkok, Korat, and Nakhon Ratchasima. Co-hosted by Thailand and the U.S., the exercise brought together military and civilian participants from across the Indo-Pacific, including India, Indonesia, Japan, Malaysia, South Korea, Singapore, and PRC, to enhance regional security, interoperability, and disaster response capabilities. A major component of the exercise was the HADR program, which included a Tabletop Exercise (TTX) and a live HADR Demonstration featuring 500 participants responding to simulated disaster scenarios such as fire response, water rescue, SAR, and emergency medical services.

As a supporting stakeholder, CFE-DM played a key role in facilitating civil-military coordination during the exercise. CFE-DM staff co-led the HADR TTX alongside the RTArF. The TTX brought together nearly 100 participants, including representatives from ASEAN, the Red Cross, UN OCHA, and the Washington National Guard. CFE-DM staff also contributed to the COBRA GOLD Staff Exercise (STAFFEX), during which they advised multinational forces on crisis response and civil-military considerations. In addition, CFE-DM leadership engaged with U.S. and international partners in Bangkok to strengthen disaster preparedness collaboration. The exercise concluded on 7 March. It reinforced regional cooperation and ensured participating forces are prepared to respond effectively to humanitarian crises.

Washington National Guard Disaster Relief Exchange – September 2024

From 24 to 26 September 2024, the Washington Army National Guard, U.S. Department of Homeland Security, and Washington Emergency Management Division hosted a HADR exchange with the Royal Thai Army at Camp Murray, Washington. This annual event, part of the U.S. National Guard State Partnership Program, focused on disaster response, mitigation, and operational planning. Participants discussed multi-jurisdictional coordination, wildfire response, and border security challenges. The exchange strengthened collaboration between Thailand and the state of Washington, both vulnerable to natural disasters.[462]

Exercise COBRA GOLD 2024 HADR TTX – February 2024

From 20 to 22 February 2024, military members from nine countries participated in an HADR TTX in Pattaya, Thailand, as part of Exercise COBRA GOLD 2024. The exercise focused on international disaster response coordination, addressing floods and earthquakes in a simulated scenario. Co-hosted by the RTArF and CFE-DM, the event emphasized overcoming language barriers, enhancing readiness, and fostering multinational cooperation. Participants developed response plans for large-scale disasters in activities that reinforced the importance of collaborative crisis management in the Indo-Pacific, a region prone to natural disasters.[463]

Exercise COBRA GOLD 2023 – February 2023

Exercise COBRA GOLD 2023 (CG23) featured a robust HADR TTX in Rayong Province, Thailand. Over 100 participants from eight countries gathered to discuss

disaster response strategies, with insights from organizations like the RTArF, International Red Cross and Red Crescent Movement, UN, and ASEAN. This iteration marked the first in-person TTX since 2019. It fostered collaboration on crisis management and international coordination. The event aimed to enhance multinational disaster response capabilities by emphasizing shared solutions and strengthening partnerships in the Indo-Pacific region.[464] CG23 also incorporated other events. The Washington National Guard played a significant role across CG23 events, with over 500 members participating in various engagements across Thailand. Their activities included wildland fire management discussions, hands-on humanitarian assistance operations, and a cyberspace exercise to address digital threats. Additionally, alongside the Royal Thai Army, they conducted tactical military training, focusing on urban and jungle warfare, medical evacuation, and counter-improvised explosive device operations. The exercise reinforced the long-standing military partnership between the U.S. and Thailand by demonstrating a commitment to regional stability, disaster preparedness, and strategic defense cooperation.[465]

Exercise COBRA GOLD 2022 – February/March 2022

COBRA GOLD 2022 (CG22), held from 28 February to 11 March 2022, was a multinational military exercise conducted in Thailand with a focus on enhancing regional security and strengthening disaster response capabilities. In addition to Thailand and the U.S., military personnel and civilians from Indonesia, Japan, Singapore, and other partners participated. A key component of the exercise was the HADR TTX, which aimed to improve coordination and decision-making among participating nations during simulated disaster scenarios. In addition, major Engineering Civic Action Projects (ENCAP) involved U.S. and Thai forces working together on infrastructure projects such as building schools, medical clinics, and water systems to improve local communities' resilience and disaster preparedness. CG22 exemplified the commitment of partner nations to regional cooperation, humanitarian efforts, and the advancement of mutual defense capabilities.[466]

Exercise COBRA GOLD 2021 – August 2021

The 40th iteration of Exercise COBRA GOLD, CG21, took place 3-13 August in Thailand. CG21 emphasized joint military training, civic action, and HADR. In Sa Kaeo Province, Thai and U.S. military engineers worked together to construct a new multipurpose facility at Baan Mai Thai Pattan School, which would enable the school to welcome a growing number of students. The project was part of COBRA GOLD's ENCAPs, which utilize the capabilities of both RTArF and U.S. forces to support local communities. The fourth annual HADR TTX moved to a fully virtual format for the first time ever. From 30 July to 1 August, a total of 54 participants from nine countries discussed civil-military efforts associated with disaster response and assisting those in need. The HADR TTX featured experts from the U.S. and RTG, as well as international organizations such as the UN, ASEAN, and the International Red Cross and Red Crescent Movement.[467]

Southeast Asia Cooperation and Training (SEACAT) – August 2021

The 20th annual Southeast Asia Cooperation and Training (SEACAT) exercise took place from 10 to 20 August 2021. SEACAT is a multilateral exercise that brings together 21 partner nations' military and civilian agencies, international organizations, and NGOs, and it is designed to provide mutual support and a common goal to address crises, contingencies, and illegal activities in the maritime domain by using standardized tactics, techniques, and procedures. The largest iteration if the SEACAT series to date, the 2021 event involved participants from Australia, Bangladesh, Brunei, Canada, France, Germany, India, Indonesia, Japan, Malaysia, Maldives, New Zealand, Philippines, South Korea, Singapore, Sri Lanka, Thailand, Timor-Leste, the United Kingdom, U.S., and Vietnam.[468]

Cooperation Afloat Readiness and Training (CARAT) Exercise – September 2021

The U.S. and Thailand conducted joint naval training during the 27th annual CARAT exercise, which took place 6-10 September 2021. The CARAT Exercise included virtual exercises to mitigate risk associated with the ongoing COVID-19 pandemic as well as at-sea training in the Gulf of Thailand. The two countries demonstrated their ability to work together by practicing helicopter landings and search and rescue exercises and testing communications as ships sailed together in complex maneuvers. The at-sea phase took place in territorial and international waters near Sattahip and Koh Samui, where USS Green Bay (LPD 20) and a P-8A Poseidon aircraft joined with ships and aircraft from Thailand for allied training. Royal Thai Navy ships at-sea included the Naresuan-class frigates HTMS Naresuan (FFG 421), HTMS Taksin (FFG 422), and HTMS Bhumibol Adulyadej (FFG 471). Beginning in 1995, CARAT built upon other engagements in the Indo-Pacific region. Each CARAT exercise features professional symposia and a robust at-sea phase that increases interoperability. CARAT improves a broad range of naval competencies including search and rescue, humanitarian assistance, and disaster response.[469]

Exercise COBRA GOLD 2020 – February 2020

The 39th COBRA GOLD was conducted from 25 February to 6 March 2020 in Thailand. The U.S and Thailand jointly sponsored the exercise, which included participation from seven countries. In addition to the U.S. and Thailand, participants came from Indonesia, Japan, Malaysia, Singapore, South Korea, and other observer countries. The COBRA GOLD series is the largest joint and combined military exercise in Southeast Asia. Conducted annually since 1982, COBRA GOLD prepares participants to work together multilaterally across a full spectrum of operations. These operations provide great benefits to interoperability and contribute to the operational readiness of all the forces involved.[470]

International/Foreign Relations

Thailand has long maintained a foreign policy characterized by balance and strategic neutrality, particularly in its relationships with major global powers such as the United States and PRC. As one of the oldest U.S. allies in Asia, Thailand's deep military cooperation with the United States dates back to the Treaty of Amity and Commerce of 1833.[471] Despite this historical alliance, Thailand has not allowed its ties with Washington to compromise its growing relationship with Beijing. The Kingdom follows a flexible foreign policy, often described as a "bamboo bending with the wind," ensuring it can navigate shifting global dynamics while safeguarding national interests.[472] Thailand has embraced regional economic and security initiatives led by both the U.S. and PRC in an effort to benefit from engagements with both without firmly aligning with either. The country's stance within ASEAN reflects this neutrality, as seen in its diplomatic approach to global conflicts, including the Russia-Ukraine war, where it avoided direct sanctions but supported UN resolutions calling for peace.[473]

Thailand and ASEAN: A Pillar of Regional Stability

As a founding member of ASEAN in 1967, Thailand has played a pivotal role in shaping regional diplomacy and economic cooperation. Alongside Indonesia, Malaysia, the Philippines, and Singapore, Thailand helped establish ASEAN with a vision of promoting peace, stability, and economic growth. Over the years, ASEAN expanded to include Brunei, Cambodia, Laos, Myanmar, and Vietnam and has evolved into a key platform for regional collaboration.[474]

Thailand has contributed significantly to ASEAN's frameworks, including the Zone of Peace, Freedom and Neutrality (ZOPFAN), the Treaty of Amity and Cooperation (TAC), and the Southeast Asian Nuclear-Weapon-Free Zone Treaty (SEANWFZ). These initiatives have reinforced regional stability and conflict

resolution. Economically, Thailand has championed ASEAN's integration efforts, leveraging initiatives such as the ASEAN Free Trade Area (AFTA) and participation in the Regional Comprehensive Economic Partnership (RCEP) to boost trade and investment.[475]

Thailand also leads in humanitarian cooperation within ASEAN. In January 2025, the Kingdom's DDPM co-organized a training event with the AHA Centre to enhance disaster logistics management. Attended by representatives from ASEAN member states, the program focused on improving emergency response and customs procedures for humanitarian aid. Supported by partners like Japan and the European Commission, the initiative reflects Thailand's leadership in regional disaster preparedness.[476]

Ministry of Foreign Affairs: Vision and Strategic Goals

Thailand's MFA is dedicated to advancing national interests through proactive diplomacy. Guided by the RTG's commitment to transforming geopolitical challenges between major powers into strategic opportunities, the Ministry upholds a firm stance of non-involvement in international conflicts while fostering sincere and constructive relations with other nations.[477] Thailand is determined to promote peace and shared prosperity, ensuring the Kingdom remains an attractive destination for highly skilled workers, entrepreneurs, and investors. The Ministry's strategic framework, known as the "5S" foreign affairs master plan, focuses on:

- **Security:** Addressing traditional and non-traditional threats, including transnational crime, terrorism, and disaster management.
- **Sustainability:** Promoting long-term development goals, economic diplomacy, and soft power initiatives.
- **Standard:** Enhancing international cooperation on labor standards, human rights, and environmental protection.
- **Status:** Strengthening Thailand's global influence through proactive diplomatic engagement.
- **Synergy:** Ensuring seamless cooperation between Thailand's domestic and international policy efforts.[478]

These priorities align with Thailand's broader goal of reinforcing its role as a regional hub for trade, investment, and connectivity while maintaining its strategic autonomy. In pursuit of these objectives, the RTG continues its proactive economic diplomacy and enhancement of soft power initiatives to promote trade, investment, and tourism.[479]

Humanitarian and International Development Initiatives

Thailand emphasizes humanitarian assistance and development cooperation as key components of its foreign policy. Recognizing its role as a regional leader, Thailand has actively contributed to international humanitarian efforts, particularly in response to refugee crises and food security challenges. Recent contributions in November 2024 include financial support to UNICEF, UNHCR, and the World Food Programme to assist displaced populations along the Thailand-Myanmar border and Rohingya refugees in Bangladesh.[480] Thailand's commitment to humanitarian aid reflects its dedication to regional stability and sustainable development.

COBRA GOLD: Strengthening Regional Partnerships and Security Cooperation

One of the most significant military engagements in the region is Exercise COBRA GOLD, the largest and longest-running multinational military exercise in Asia. Established in the early 1980s as a bilateral exercise between Thailand and the United States, COBRA GOLD has expanded to include multiple international participants to reinforce multilateral military cooperation. The event focuses on peacekeeping operations, anti-terrorism strategies, HADR, and search-and-rescue missions. While the U.S. and Thailand remain co-hosts, countries such as Indonesia, Japan, Singapore, and South Korea actively participate, with the PRC engaging in HADR components. COBRA GOLD underscores Thailand's strategic importance in regional

security and its commitment to multilateral defense cooperation.[481] Photo 4 shows representatives from participating countries at the opening ceremony of COBRA GOLD 2025.[482]

Participation in International Organizations

Thailand 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:

Asia-Pacific Economic Cooperation (APEC), Asian Development Bank (ADB), ASEAN Regional Forum (ARF), Association of Southeast Asian Nations (ASEAN), Bank for International Settlements (BIS), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Colombo Plan (CP), Conference on Disarmament (CD), Conference on Interaction and Confidence Building Measures in Asia (CICA), East Asia Summit (EAS), Food and Agriculture Organization of the United Nations (FAO), Group of 77 (G-77), Institute of Catastrophe Risk Management (ICRM), Inter-Parliamentary Union (IPU), International Atomic Energy Agency (IAEA), International Bank for Reconstruction and Development (IBRD), International Chamber of Conference (ICC-national committees), International Civil Aviation Organization (ICAO), International Criminal Police Organisation (INTERPOL), International Development Association (IDA), International Federation of Red Cross and Red Crescent Societies (IFRC), International Finance Corporation (IFC), International Fund for Agricultural Development (IFAD), International Hydrographic Organization (IHO), International Labour Organization (ILO), International Maritime Organization (IMO), International Mobil Satellite Organization (IMSO), International Monetary Fund (IMF), International Olympic Committee (IOC), International Organization for Migration (IOM of the UN), International Organization for Standardization (ISO), International Organization of La Francophonie (OIF), International Telecommunications Satellite Organization (ITSO), International Telecommunications Union (ITU), International Trade Union Confederation (ITUC-NGOs), Multilateral Investment Guarantee Agency (MIGA), Non-Aligned Movement (NAM), Organisation for the Prohibition of Chemical Weapons (OPCW), Organization for Security and Co-Operation in Europe (OSCE, partner), Organization of American States (OAS, observer), Organization of Islamic Cooperation (OIC, observer), Pacific Islands Forum (PIF, partner), Permanent Court of Arbitration (PCA), United Nations (UN), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific, and Cultural Organization (UNESCO),



Photo 4: Opening Ceremony, COBRA GOLD 2025

United Nations High Commissioner for Refugees (UNHCR), United Nations Industrial Development Organization (UNIDO), Universal Postal Union (UPU), World Customs Organization (WCO), World Federation of Trade Unions (WFTU NGOs), World Health Organization (WHO), World Intellectual Property Organization (WIPO), World Meteorological Organization (WMO), World Tourism Organization (UNWTO), World Trade Organization (WTO)

UN peacekeeping missions that Thailand is contributing personnel to, as of October 2024:[483]

- United Nations Interim Security Force for Abyei (UNISFA) – 3 experts on mission
- United Nations Mission in South Sudan (UNMISS) – 5 experts on mission, 1 individual police officer, 5 staff officers, 273 troops
- United Nations Military Observer Group in India and Pakistan (UNMOGIP) – 5 experts on mission

Force Protection/Pre-Deployment Information

The following information is provided for pre-deployment planning and preparations. Visit www.travel.state.gov prior to deployments for further up-to-date information. DoD personnel must review the Foreign Clearance Guide (FCG) for travel to Thailand (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 FCG if you have additional questions.

Passport/Visa

U.S. citizen tourists entering Thailand for fewer than 60 days do not require a visa.

It is strongly recommended that arriving passengers' passports be valid for at least six months beyond the date of arrival in Thailand to avoid possible denied entry.

Thai immigration officials or airline staff may ask for travelers' onward/return ticket.

Business travelers, U.S. government employees travelling on official business, teachers, retirees, and those planning to stay longer than 30 days should check with the Royal Thai Embassy about visa requirements.

Visitors who overstay their visas will be fined. Depending on the length of overstay, they may also be arrested, detained, deported at their own expense, and banned from re-entering Thailand.

It is strongly recommended to carry a copy of the U.S. passport identification page and current Thai visa to help avoid detention by the Thai immigration police.

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
- Public transportation systems (including subways, buses, trains, and scheduled commercial flights)

Periodic acts of violence in Thailand remain a concern. In August 2019, several small explosions and related arson events occurred in various locations throughout Bangkok resulting in no deaths but some injuries and minor property damage. Several small-scale bombings occurred near some tourist locations in the far southern provinces in August 2016 and December 2018. In August 2015, an explosion near the Erawan Shrine in downtown Bangkok killed at least 20 people and injured more than 100. The U.S. Department of State assesses there

is a continued risk of terrorism in Southeast Asia, including in Thailand.

If a protest or demonstration is expected to pass near the U.S. Embassy or Consulate facilities, Embassy and Consulate entrances and functions may be restricted. The U.S. Embassy in Bangkok's website, Facebook, and X sites and the U.S. Consulate General in Chiang Mai's website, Facebook, and X sites post information about local events that may affect Embassy functions. Enroll in the Smart Traveler Enrollment Program (STEP) to receive security and safety messages.

Far Southern Thailand: Periodic violence directed mostly at Thai government interests by a domestic insurgency continues to affect security in the southernmost provinces of Yala, Pattani, Narathiwat, and Songkhla. U.S. citizens are at risk of death or injury due to the possibility of indiscriminate attacks in public places. Martial law is in force in this region.

The U.S. government has limited ability to provide emergency services to U.S. citizens in these provinces. Travel to this region by U.S government employees must be reviewed and approved in advance.

Crime: Crimes of opportunity, such as pick-pocketing, bag-snatching, and burglary, occur in Thailand. Violent crimes against foreigners are relatively rare. However, murders, rapes, and assaults against foreigners do occur. Sexually motivated violence, committed by either Thai citizens or foreigners, is most likely to occur after time spent at bars, clubs, and parties, on beaches, or in remote/isolated areas. The Thai police response will differ from an investigation in the United States; investigating officials have publicly discredited people who have reported being the victim of crimes. In addition to making a report at the police jurisdiction in which the crime occurred, we advise contacting the Embassy and engaging a local attorney if you are a victim of an assault.

When traveling alone, exercise caution, stay near other travelers, and ensure friends or family know how to contact you.

Taxi and "tuk-tuk" drivers may attempt to charge excessive fares or refuse passengers. You should either request the driver use the meter or agree on the fare beforehand.

At the airport use only public transportation from the airport's official pick-up area, cars from the limousine counters, or a car from your hotel.

Rental scams do occur in Thailand. Many rental motorbike, jet ski, and car companies will hold your passport until you pay for real or fictitious damages. We advise against using your passport as collateral.

Exorbitant bar tab scams occur in Thailand. Some bars and entertainment venues will charge exorbitant prices for drinks or unadvertised cover charges and threaten violence if you don't pay.

Other scams involving gems, city tours, entertainment venues, and credit cards are common, especially in tourist areas.

Internet romance and financial scams are prevalent in Thailand. Scams are often initiated through Internet postings/profiles or 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
- Grandparent/Relative targeting
- Free Trip/Luggage
- Work permits/job offers

Victims of Crime: U.S. citizen victims of crime are encouraged to contact the U.S. Embassy or Consulate for assistance. Remember that only local officials have the authority to investigate and to prosecute a crime.

The U.S. Embassy can:

- Help find appropriate medical care
- Assist in reporting a crime to the police
- Contact relatives or friends with the victim's written consent
- Explain the local criminal justice process in general terms
- Provide a list of local attorneys
- Provide our 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
- Replace a stolen or lost passport

Tourism: The tourism industry is unevenly regulated, and safety inspections for equipment and facilities do not commonly occur. Hazardous areas/activities are not always identified with appropriate signage, and staff may not be trained or certified either by the host government or by recognized authorities in the field. In the event of an injury, appropriate medical treatment is typically available only in/near major cities. First responders are generally unable to access areas outside of major cities and to provide urgent medical treatment. U.S. citizens are encouraged to purchase medical evacuation insurance. See our webpage for more information on insurance providers for overseas coverage.

Emergency Contact Information

Report crimes to the local police by calling 191 or the Tourist Police at 1155

Contact the U.S. Embassy at 66-0-2-205-4049 or Consulate at 66-53-107-777.

U.S. Embassy Bangkok
95 Wireless Road
Bangkok 10330
Tel: 66-2-205-4049
Emergency: 66-2-205-4000
Fax: 66-2-205-4103
E-mail: ACSBkk@state.gov
Website: *https://th.usembassy.gov/embassy-consulate/bangkok/*

Currency Information

Baht – THB or ฿

THB 1.00 = US$0.029 or THB 34.49 = US$1.00 (as of 17 January 2025)

Travel Health Information

The CDC provides guidance that all travelers to Thailand should be up-to-date on routine vaccinations. The following are additional recommendations for travel to Thailand. The information in Tables 3 and 4 is taken directly from the CDC website under the Travelers Health Section (*https://wwwnc.cdc.gov/travel/destinations/list/*).[484]

Health Alerts for Thailand: At the time of writing this handbook (17 January 2025), there are no health risk alerts.

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. If you are going to a high-risk area, fill your malaria prescription before you leave, and take enough with you for the entire length of your trip. Follow your doctor's instructions for taking the pills; some need to be started before you leave.

Prevent Bug Bites

Bugs (like mosquitoes, ticks, and fleas) can spread a number of diseases in Thailand. 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*.

Avian Influenza	"Bird Flu" is be contracted by being around, touching, or working with infected poultry, such as visiting poultry farms or live-animal markets. To avoid infection, avoid domestic and wild poultry.
Chikungunya	Chikungunya is contracted through the bite of an infected mosquito. To avoid infection, avoid bug bites.
Dengue	Dengue is contracted through the bite of an infected mosquito. To avoid infection, avoid bug bites.
Hantavirus	Hanta can be contracted by breathing in air or accidentally eating food contaminated with the urine, droppings, or saliva of infected rodents, by the bite from an infected rodent, or, less commonly, by being around someone sick with hantavirus (only occurs with Andes virus). To avoid infection, avoid rodents and areas where they live, and avoid sick people.
Leishmaniasis	Leishmaniasis is contracted through the bite of a sand fly. To avoid infection, avoid bug bites.
Leptospirosis	Leptospirosis can be contracted through touching urine or other body fluids from an animal infected with leptospirosis, through swimming or wading in urine-contaminated fresh water, or contact with urine-contaminated mud, or through drinking water or eating food contaminated with animal urine. To avoid infection, avoid contaminated water and soil, and avoid floodwaters.
Tuberculosis	Tuberculosis can be contracted through breathing in TB bacteria that is in the air from an infected and contagious person coughing, speaking, or singing. To avoid infection, avoid sick people.
Zika	Zika is contracted through the bite of an infected mosquito or pass from an infected pregnant person to an unborn baby. To avoid infection, avoid bug bites.

Table 3: CDC Travel Health Information for Non-Vaccine-Preventable Diseases in Thailand

Routine Vaccines	Be 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
COVID-19	All eligible travelers should be up to date with their COVID-19 vaccines.
Chikungunya	There has been evidence of chikungunya virus transmission in Thailand within the last five years. Chikungunya vaccination may be considered for the following travelers: • People aged 65 years or older, especially those with underlying medical conditions, who may spend at least two weeks (cumulative time) in indoor or outdoor areas where mosquitoes are present in Thailand • People planning to stay in Thailand for a cumulative period of six months or more
Hepatitis A	Recommended for unvaccinated travelers one year old or older going to Thailand. Infants 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 should receive a single dose of immune globulin, which provides effective protection for up to two months depending on dosage given. Unvaccinated travelers who are over 40 years old, are immunocompromised, or have chronic medical conditions planning to depart to a risk area in less than two weeks should get the initial dose of vaccine and at the same appointment receive immune globulin.
Hepatitis B	Recommended for unvaccinated travelers younger than 60 years old traveling to Thailand. Unvaccinated travelers 60 years and older may get vaccinated before traveling to Thailand.
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 Thailand take prescription medicine to prevent malaria. 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	Cases of measles are on the rise worldwide. Travelers are at risk of measles if they have not been fully vaccinated at least two weeks prior to departure, or have not had measles in the past, and travel internationally to areas where measles is spreading. All international travelers should be fully vaccinated against measles with the measles-mumps-rubella (MMR) vaccine, including an early dose for infants 6–11 months, according to CDC's measles vaccination recommendations for international travel.
Rabies	Dogs infected with rabies are sometimes found in Thailand. If rabies exposures occur while in Thailand, rabies vaccines are typically available throughout most of the country. Rabies pre-exposure vaccination considerations include whether travelers 1) will be performing occupational or recreational activities that increase risk for exposure to potentially rabid animals and 2) might have difficulty getting prompt access to safe post-exposure prophylaxis. Consult with a healthcare provider to determine whether you should receive pre-exposure vaccination before travel.
Typhoid	Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas.
Yellow Fever	Required for travelers ≥9 months old arriving from countries with risk for yellow fever virus transmission; this includes >12-hour airport transits or layovers in countries with risk for transmission.

Table 4: CDC Information for Vaccine- and Prophylaxis-Preventable Diseases, Thailand

Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015-2030 is the global blueprint and 15-year plan to build the world's resilience to natural disasters.[485] The Sendai Framework is the successor instrument to the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.[486] Adopted at the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015, the Framework aims to achieve 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 by 2030.[487]

The Framework outlines seven 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 DRR 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.[488]

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.

Figure 14 shows the Sendai DRR Framework.[489]

Midterm Review: Sendai Framework Implementation in Thailand

In Thailand, the NDPMC oversees DRR efforts in alignment with the SFDRR and the SDGs. Various government ministries and agencies contribute to implementing SFDRR priorities at both national and sub-national levels. A 2022 midterm review highlighted progress in policy integration and best practices, while identifying gaps in local capacity, financing, and knowledge management. Key recommendations included enhancing disaster risk financing, strengthening risk assessments in planning, and increasing community-level engagement to improve emergency preparedness.[490]

The following provides an overview of progress made towards the four SFDRR priorities of action in Thailand.[491]

Priority 1: Understanding Disaster Risk

- Disaster Information & Early Warning: Thailand has established systems for tracking, monitoring, and sharing disaster information. The EWS is well developed, and digital tools like the Thai Disaster Alert app and various channels on the Line platform improve public access to real-time disaster alerts and assistance requests.

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 during 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 during 2020-2030 compared to 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 people by 2030

Priorities for Action			
There is a need for focused action within and across sectors by States at local, national, regional, and global levels in the following four priority areas.			
Priority 1 Understanding disaster risk	**Priority 2** Strengthening disaster risk governance to manage disaster risk	**Priority 3** Investing in disaster risk reduction for resilience	**Priority 4** Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation, and reconstruction
Disaster risk management needs to be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics, and the environment	Disaster risk governance at the national, regional, and global levels is vital to the management of disaster risk reduction in all sectors and ensuring the coherence of national and local frameworks of laws, regulations, and public policies that, by defining roles and responsibilities, guide, encourage, and incentivize the public and private sectors to take action and address disaster risk	Public and private investment in disaster risk prevention and reduction through structural is non-structural measures are essential to enhance the economic, social, health, and cultural resilience of persons, communities, countries, and their assets, as well as the environment. These can be drivers of innovation, growth, and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses, and ensure effective recovery and rehabilitation	Experience indicates that disaster preparedness needs to be strengthened for more effective response and to ensure capacities are in place for effective recovery. Disasters have also demonstrated that the recovery, rehabilitation, and reconstruction phase, which needs to be prepared ahead of the disaster, is an opportunity to "Build Back Better" through integrating disaster risk reduction measures. Women and persons with disabilities should publicly lead and promote gender-equitable and universally accessible approaches during the response and reconstruction phases

Figure 14: UN Sendai Framework for Disaster Risk Reduction 2015-2030

- Risk Assessment & Mapping: Various government agencies and academic institutions have collaborated on Geographic Information System (GIS)-based risk maps for floods, droughts, landslides, and earthquakes. However, these efforts remain localized and fragmented, with limited integration into national databases.
- Community-Based Disaster Risk Management (CBDRM): Nearly 50% of local communities have received disaster risk training, and 456 Community Disaster Preparedness Centers have been established to enhance local resilience and self-sufficiency in disaster response.

Priority 2: Strengthening Disaster Risk Governance

- National DRM Policy & Planning: Thailand has strengthened its disaster governance through the Disaster Prevention and Mitigation Act (2005) and the National Disaster Prevention and Mitigation Plan (2021-2027), which align with SFDRR priorities and guide DRM implementation at all levels.
- Institutional Coordination & Capacity Building: The NDPMC oversees policy development, while the DDPM coordinates implementation through its national, regional, and provincial offices, including a dedicated Disaster Prevention and Mitigation Academy for training officials.
- Mainstreaming Risk Reduction: A cross-agency coordination mechanism has been established to integrate DRR into sectoral policies, with DRR focal points in key ministries and provincial agencies to promote unified and effective DRM.

Priority 3: Investing in DRR for Resilience

- National Development Planning: The 13th National Economic and Social Development Plan (2023-2027) integrates disaster and climate risk reduction, with strategies for prevention, capacity-building, science and technology, ecosystem conservation, and international cooperation.
- Sectoral Investments in DRR: The education sector has integrated DRR through teacher training, educational materials, and school safety programs, while the transport sector's action plan strengthens flood resilience and infrastructure sustainability.
- Community-Based and Data-Driven Initiatives: Investments in CBDRM projects, water and climate databases, and risk mapping for transport infrastructure aim to systematically reduce disaster risk and enhance Thailand's long-term resilience.

Priority 4: Enhancing Disaster Preparedness for Effective Response and "Build Back Better" in Recovery

- Thailand has enhanced disaster response and coordination through its National Disaster Risk Management Plan (2021-2027), Incident Management System, and EOC oversight. Local governments lead initial response, supported by provincial and national levels as needed and national levels as needed.
- Advancements in EWS & Community-Based Preparedness: Thailand has expanded automated telemetry stations for flood and landslide warnings, enhanced meteorological monitoring, and developed community-based disaster risk reduction programs, ensuring vulnerable groups participate in disaster preparedness and response.
- Progress in "Build Back Better" for Recovery & Resilience: Following major disasters, Thailand has focused on resilient infrastructure and post-disaster financial support, such as the 2011 Great Flood recovery plan with World Bank assistance. However, challenges remain in funding long-term recovery efforts, especially at the community level.

Country Profile

The information in the Country Profile section is sourced directly from the CIA World Factbook for Thailand. 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.[492]

Background

Two unified Thai kingdoms emerged in the mid-13th century. The Sukhothai Kingdom, located in the south-central plains, gained its independence from the Khmer Empire to the east. By the late 13th century, Sukhothai's territory extended into present-day Burma and Laos. Sukhothai lasted until the mid-15th century. The Thai Lan Na Kingdom was established in the north with its capital at Chang Mai; the Burmese conquered Lan Na in the 16th century. The Ayutthaya Kingdom (14th-18th centuries) succeeded the Sukhothai and would become known as the Siamese Kingdom. During the Ayutthaya period, the Thai/Siamese peoples consolidated their hold on what is present-day central and north-central Thailand. Following a military defeat at the hands of the Burmese in 1767, the Siamese Kingdom rose to new heights under the military ruler TAKSIN, who defeated the Burmese occupiers and expanded the kingdom's territory into modern-day northern Thailand (formerly the Lan Na Kingdom), Cambodia, Laos, and the Malay Peninsula. In the mid-1800s, Western pressure led to Siam signing trade treaties that reduced the country's sovereignty and independence. In the 1890s and 1900s, the British and French forced the kingdom to cede Cambodian, Laotian, and Malay territories that had been under Siamese control.

Following a bloodless revolution in 1932 that led to the establishment of a constitutional monarchy, Thailand's political history was marked by a series of mostly bloodless coups with power concentrated among military and bureaucratic elites. Periods of civilian rule were unstable. The Cold War era saw a communist insurgency and the rise of strongman leaders. Thailand became a US treaty ally in 1954 after sending troops to Korea and later fighting alongside the US in Vietnam. In the 21st century, Thailand has experienced additional turmoil, including a military coup in 2006 that ousted then Prime Minister THAKSIN Chinnawat and large-scale street protests led by competing political factions in 2008-2010. In 2011, THAKSIN's youngest sister, YINGLAK Chinnawat, led the Puea Thai Party to an electoral win and assumed control of the government.

In 2014, after months of major anti-government protests in Bangkok, the Constitutional Court removed YINGLAK from office, and the Army, led by Gen. PRAYUT Chan-ocha, then staged a coup against the caretaker government. The military-affiliated National Council for Peace and Order (NCPO) ruled the country under PRAYUT for more than four years, drafting a new constitution that allowed the military to appoint the entire 250-member Senate and required a joint meeting of the House and Senate to select the prime minister -- which effectively gave the military a veto on the selection. King PHUMIPHON Adunyadet passed away in 2016 after 70 years on the throne; his only son, WACHIRALONGKON (aka King RAMA X), formally ascended the throne in 2019. The same year, a long-delayed election allowed PRAYUT to continue his premiership, although the results were disputed and widely viewed as skewed in favor of the party aligned with the military. The country again experienced major anti-government protests in 2020. The reformist Move Forward Party won the most seats in the 2023 election but was unable to form a government, and Srettha THRAVISIN from the Pheu Thai Party replaced PRAYUT as prime minister after forming a coalition of moderate and conservative parties.

Geography

Location
Southeastern Asia, bordering the Andaman Sea and the Gulf of Thailand, southeast of Burma

Geographic coordinates
15 00 N, 100 00 E

Area
total : 513,120 sq km
land: 510,890 sq km
water: 2,230 sq km
comparison ranking: total 53

Area - comparative
about three times the size of Florida; slightly more than twice the size of Wyoming

Land boundaries
total: 5,673 km
border countries (4): Burma 2,416 km; Cambodia 817 km; Laos 1,845 km; Malaysia 595 km

Coastline
3,219 km

Maritime claims
territorial sea: 12 nm
exclusive economic zone: 200 nm
continental shelf: 200-m depth or to the depth of exploitation

Climate
tropical; rainy, warm, cloudy southwest monsoon (mid-May to September); dry, cool northeast monsoon (November to mid-March); southern isthmus always hot and humid

Terrain
central plain; Khorat Plateau in the east; mountains elsewhere

Elevation
highest point: Doi Inthanon 2,565 m
lowest point: Gulf of Thailand 0 m
mean elevation: 287 m

Natural resources
tin, rubber, natural gas, tungsten, tantalum, timber, lead, fish, gypsum, lignite, fluorite, arable land

Land use
agricultural land: 41.2% (2018 est.)
arable land: 30.8% (2018 est.)
permanent crops: 8.8% (2018 est.)
permanent pasture: 1.6% (2018 est.)
forest: 37.2% (2018 est.)
other: 21.6% (2018 est.)

Irrigated land
64,150 sq km (2012)

Major lakes (area sq km)
saltwater lake(s): Thalesap Songkhla - 1,290 sq km

Major rivers (by length in km)
Mae Nam Khong (Mekong) (shared with China [s], Burma, Laos, Cambodia, and Vietnam [m]) - 4,350 km; Salween (shared with China [s] and Burma [m]) - 3,060 km; Mun - 1,162 km
note – [s] after country name indicates river source; [m] after country name indicates river mouth

Major watersheds (area sq km)
Indian Ocean drainage: Salween (271,914 sq km)
Pacific Ocean drainage: Mekong (805,604 sq km)

Population distribution
highest population density is found in and around Bangkok; significant population clusters found throughout large parts of the country, particularly north and northeast of Bangkok and in the extreme southern region of the country

Natural hazards
land subsidence in Bangkok area resulting from the depletion of the water table; droughts

Geography - note
controls only land route from Asia to Malaysia and Singapore; ideas for the construction of a canal across the Kra Isthmus that would create a bypass to the Strait of Malacca and shorten shipping times around Asia continue to be discussed

People and Society

Population
total: 69,920,998
male: 34,065,311
female: 35,855,687 (2024 est.)
comparison rankings: female 20; male 20; total 20

Nationality
noun: Thai (singular and plural)
adjective: Thai

Ethnic groups
Thai 97.5%, Burmese 1.3%, other 1.1%, unspecified <0.1% (2015 est.)
note: data represent population by nationality

Languages
Thai (official) only 90.7%, Thai and other languages 6.4%, only other languages 2.9% (includes Malay, Burmese); English is a secondary language among the elite (2010 est.)
note: data represent population by language(s) spoken at home

Religions
Buddhist 92.5%, Muslim 5.4%, Christian 1.2%, other 0.9% (includes animist, Confucian, Hindu, Jewish, Sikh, and Taoist) (2021 est.)

Demographic profile

Thailand has experienced a substantial fertility decline since the 1960s largely due to the nationwide success of its voluntary family planning program. In just one generation, the total fertility rate (TFR) shrank from 6.5 children per woman in the 1960s to below the replacement level of 2.1 in the late 1980s. Reduced fertility occurred among all segments of the Thai population, despite disparities between urban and rural areas in terms of income, education, and access to public services. The country's "reproductive revolution" gained momentum in the 1970s as a result of the government's launch of an official population policy to reduce population growth, the introduction of new forms of birth control, and the assistance of foreign non-government organizations. Contraceptive use rapidly increased as new ways were developed to deliver family planning services to Thailand's then overwhelmingly rural population. The contraceptive prevalence rate increased from just 14% in 1970 to 58% in 1981 and has remained about 80% since 2000.

Thailand's receptiveness to family planning reflects the predominant faith, Theravada Buddhism, which emphasizes individualism, personal responsibility, and independent decision-making. Thai women have more independence and a higher status than women in many other developing countries and are not usually pressured by their husbands or other family members about family planning decisions. Thailand's relatively egalitarian society also does not have the son preference found in a number of other Asian countries; most Thai ideally want one child of each sex.

Because of its low fertility rate, increasing life expectancy, and growing elderly population, Thailand has become an aging society that will face growing labor shortages. The proportion of the population under 15 years of age has shrunk dramatically, the proportion of working-age individuals has peaked and is starting to decrease, and the proportion of elderly is growing rapidly. In the short-term, Thailand will have to improve educational quality to increase the productivity of its workforce and to compete globally in skills-based industries. An increasing reliance on migrant workers will be necessary to mitigate labor shortfalls.

Thailand is a destination, transit, and source country for migrants. It has 3-4 million migrant workers as of 2017, mainly providing low-

skilled labor in the construction, agriculture, manufacturing, services, and fishing and seafood processing sectors. Migrant workers from other Southeast Asian countries with lower wages – primarily Burma and, to a lesser extent, Laos and Cambodia – have been coming to Thailand for decades to work in labor-intensive industries. Many are undocumented and are vulnerable to human trafficking for forced labor, especially in the fisheries industry, or sexual exploitation. A July 2017 migrant worker law stiffening fines on undocumented workers and their employers, prompted tens of thousands of migrants to go home. Fearing a labor shortage, the Thai Government has postponed implementation of the law until January 2018 and is rapidly registering workers. Thailand has also hosted ethnic minority refugees from Burma for more than 30 years; as of 2016, approximately 105,000 mainly Karen refugees from Burma were living in nine camps along the Thailand-Burma border.

Thailand has a significant amount of internal migration, most often from rural areas to urban centers, where there are more job opportunities. Low- and semi-skilled Thais also go abroad to work, mainly in Asia and a smaller number in the Middle East and Africa, primarily to more economically developed countries where they can earn higher wages.

Age structure
0-14 years: 15.8% (male 5,669,592/female 5,394,398)
15-64 years: 69% (male 23,681,528/female 24,597,535)
65 years and over: 15.1% (2024 est.) (male 4,714,191/female 5,863,754)

Figure 15 shows the population pyramid for Thailand for 2023. A population pyramid illustrates the age and sex structure of a country's population and may provide insights about political and social stability, as well as economic development. The shape of the population pyramid gradually evolves over time based on fertility, mortality, and international migration trends.[493]

Dependency ratios
total dependency ratio: 43.5
youth dependency ratio: 22.7
elderly dependency ratio: 18.4
potential support ratio: 4.8 (2021 est.)

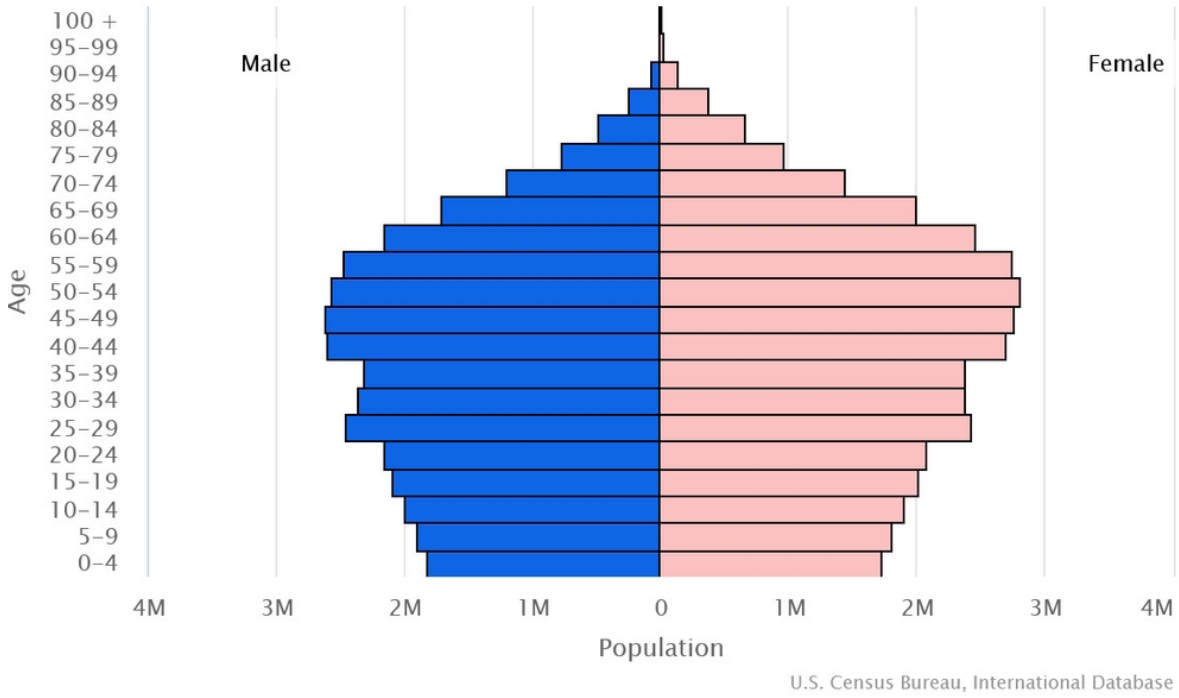


Figure 15: Population Pyramid, Thailand (2023)

Median age
total: 41.5 years (2024 est.)
male: 40.2 years
female: 42.7 years
comparison ranking: total 49

Population growth rate
0.17% (2024 est.)
comparison ranking: 180

Birth rate
9.9 births/1,000 population (2024 est.)
comparison ranking: 189

Death rate
8 deaths/1,000 population (2024 est.)
comparison ranking: 90

Net migration rate
-0.3 migrant(s)/1,000 population (2024 est.)
comparison ranking: 116

Population distribution
highest population density is found in and around Bangkok; significant population clusters found throughout large parts of the country, particularly north and northeast of Bangkok and in the extreme southern region of the country

Urbanization
urban population: 53.6% of total population (2023)
rate of urbanization: 1.43% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Major urban areas - population
11.070 million BANGKOK (capital), 1.454 Chon Buri, 1.359 million Samut Prakan, 1.213 million Chiang Mai, 1.005 million Songkhla, 1.001 million Nonthaburi (2023)

Sex ratio
at birth: 1.05 male(s)/female
0-14 years: 1.05 male(s)/female
15-64 years: 0.96 male(s)/female
65 years and over: 0.8 male(s)/female
total population: 0.95 male(s)/female (2024 est.)

Mother's mean age at first birth
23.3 years (2009 est.)

Maternal mortality ratio
29 deaths/100,000 live births (2020 est.)
comparison ranking: 113

Infant mortality rate
total: 6.3 deaths/1,000 live births (2024 est.)
male: 6.9 deaths/1,000 live births
female: 5.6 deaths/1,000 live births
comparison ranking: total 165

Life expectancy at birth
total population: 78.2 years (2024 est.)
male: 75.2 years
female: 81.3 years
comparison ranking: total population 81

Total fertility rate
1.54 children born/woman (2024 est.)
comparison ranking: 197

Gross reproduction rate
0.75 (2024 est.)

Contraceptive prevalence rate
73% (2019)

Drinking water source
improved: urban: 100% of population
rural: 100% of population
total: 100% of population
unimproved: urban: 0% of population
rural: 0% of population
total: 0% of population (2020 est.)

Current health expenditure
4.4% of GDP (2020)

Physician density
0.95 physicians/1,000 population (2020)

Sanitation facility access
improved: urban: 99.9% of population
rural: 100% of population
total: 100% of population
unimproved: urban: 0.1% of population
rural: 0% of population
total: 0% of population (2020 est.)

Obesity - adult prevalence rate
10% (2016)
comparison ranking: 140

Alcohol consumption per capita
total: 6.86 liters of pure alcohol (2019 est.)
beer: 1.85 liters of pure alcohol (2019 est.)
wine: 0.23 liters of pure alcohol (2019 est.)
spirits: 4.78 liters of pure alcohol (2019 est.)
other alcohols: 0 liters of pure alcohol (2019 est.)
comparison ranking: total 60

Tobacco use
total: 22.1% (2020 est.)
male: 41.3% (2020 est.)
female: 2.9% (2020 est.)
comparison ranking: total 71

Children under the age of 5 years underweight
7.7% (2019)
comparison ranking: 62

Currently married women (ages 15-49)
60.8% (2023 est.)

Child marriage
women married by age 15: 3%
women married by age 18: 20.2%
men married by age 18: 9.8% (2019 est.)

Education expenditures
3.2% of GDP (2020 est.)
comparison ranking: 148

Literacy
definition: age 15 and over can read and write
total population: 94.1%
male: 95.5%
female: 92.8% (2021)

School life expectancy (primary to tertiary education)
total: 15 years
male: 15 years
female: 16 years (2016)

Environment

Environment - current issues
air pollution from vehicle emissions; water pollution from organic and factory wastes; water scarcity; deforestation; soil erosion; wildlife populations threatened by illegal hunting; hazardous waste disposal

Environment - international agreements
party to: 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
signed, but not ratified: none of the selected agreements

Climate
tropical; rainy, warm, cloudy southwest monsoon (mid-May to September); dry, cool northeast monsoon (November to mid-March); southern isthmus always hot and humid

Land use
agricultural land: 41.2% (2018 est.)
arable land: 30.8% (2018 est.)
permanent crops: 8.8% (2018 est.)
permanent pasture: 1.6% (2018 est.)
forest: 37.2% (2018 est.)
other: 21.6% (2018 est.)

Urbanization
urban population: 53.6% of total population (2023)
rate of urbanization: 1.43% annual rate of change (2020-25 est.)
total population growth rate v. urban population growth rate, 2000-2030

Revenue from forest resources
0.34% of GDP (2018 est.)
comparison ranking: 76

Revenue from coal
0.03% of GDP (2018 est.)
comparison ranking: 35

Air pollutants
particulate matter emissions: 24.64 micrograms per cubic meter (2019 est.)
carbon dioxide emissions: 283.76 megatons (2016 est.)
methane emissions: 86.98 megatons (2020 est.)

Waste and recycling
municipal solid waste generated annually: 26,853,366 tons (2015 est.)
municipal solid waste recycled annually: 5,128,993 tons (2012 est.)
percent of municipal solid waste recycled: 19.1% (2012 est.)

Major lakes (area sq km)
saltwater lake(s): Thalesap Songkhla - 1,290 sq km

Major rivers (by length in km)
Mae Nam Khong (Mekong) (shared with China [s], Burma, Laos, Cambodia, and Vietnam [m]) - 4,350 km; Salween (shared with China [s] and Burma [m]) - 3,060 km; Mun - 1,162 km
note – [s] after country name indicates river source; [m] after country name indicates river mouth

Major watersheds (area sq km)
Indian Ocean drainage: Salween (271,914 sq km)
Pacific Ocean drainage: Mekong (805,604 sq km)

Total water withdrawal
municipal: 2.74 billion cubic meters (2020 est.)
industrial: 2.78 billion cubic meters (2020 est.)
agricultural: 51.79 billion cubic meters (2020 est.)

Total renewable water resources
438.61 billion cubic meters (2020 est.)

Geoparks
total global geoparks and regional networks: 2
global geoparks and regional networks: Khorat; Satun (2023)

Government

Country name
conventional long form: Kingdom of Thailand
conventional short form: Thailand
local long form: Ratcha Anachak Thai
local short form: Prathet Thai
former: Siam
etymology: Land of the Tai [People]"; the meaning of "tai" is uncertain, but may originally have meant "human beings," "people," or "free people"

Government type
constitutional monarchy

Capital
name: Bangkok
geographic coordinates: 13 45 N, 100 31 E
time difference: UTC+7 (12 hours ahead of Washington, DC, during Standard Time)
etymology: Bangkok was likely originally a colloquial name, but one that was widely adopted by foreign visitors; the name may derive from bang ko, where bang is the Thai word for "village on a stream" and ko means "island," both referencing the area's landscape, which was carved by rivers and canals; alternatively, the name may come from bang makok, where makok is the name of the Java plum, a plant bearing olive-like fruit; this possibility is supported by the former name of Wat Arun, a historic temple in the area, that used to be called Wat Makok; Krung Thep Maha Nakhon, the city's Thai name,

means "City of Angels, Great City" or simply "Great City of Angels" and is a shortening of the full ceremonial name: Krungthepmahanakhon Amonrattanakosin Mahintharayutthaya Mahadilokphop Noppharatratchathaniburirom Udomratchaniwetmahasathan Amonphimanawatansathit Sakkathattiyawitsanukamprasit; translated the meaning is: "City of angels, great city of immortals, magnificent city of the nine gems, seat of the king, city of royal palaces, home of gods incarnate, erected by Vishvakarman at Indra's behest"; it holds the world's record as the longest place name (169 letters); Krung Thep is used colloquially

Administrative divisions
76 provinces (changwat, singular and plural) and 1 municipality* (maha nakhon); Amnat Charoen, Ang Thong, Bueng Kan, Buri Ram, Chachoengsao, Chai Nat, Chaiyaphum, Chanthaburi, Chiang Mai, Chiang Rai, Chon Buri, Chumphon, Kalasin, Kamphaeng Phet, Kanchanaburi, Khon Kaen, Krabi, Krung Thep* (Bangkok), Lampang, Lamphun, Loei, Lop Buri, Mae Hong Son, Maha Sarakham, Mukdahan, Nakhon Nayok, Nakhon Pathom, Nakhon Phanom, Nakhon Ratchasima, Nakhon Sawan, Nakhon Si Thammarat, Nan, Narathiwat, Nong Bua Lamphu, Nong Khai, Nonthaburi, Pathum Thani, Pattani, Phangnga, Phatthalung, Phayao, Phetchabun, Phetchaburi, Phichit, Phitsanulok, Phra Nakhon Si Ayutthaya, Phrae, Phuket, Prachin Buri, Prachuap Khiri Khan, Ranong, Ratchaburi, Rayong, Roi Et, Sa Kaeo, Sakon Nakhon, Samut Prakan, Samut Sakhon, Samut Songkhram, Saraburi, Satun, Sing Buri, Si Sa Ket, Songkhla, Sukhothai, Suphan Buri, Surat Thani, Surin, Tak, Trang, Trat, Ubon Ratchathani, Udon Thani, Uthai Thani, Uttaradit, Yala, Yasothon

Independence
1238 (traditional founding date; never colonized)

National holiday
Birthday of King WACHIRALONGKON, 28 July (1952)

Legal system
civil law system with common law influences

Constitution
history: many previous; latest drafted and presented 29 March 2016, approved by referendum 7 August 2016, signed into law by the king on 6 April 2017
amendments: amendments require a majority vote in a joint session of the House and Senate and further require at least one fifth of opposition House members and one third of the Senate vote in favor; a national referendum is additionally required for certain amendments; all amendments require signature by the king; Thailand's 2017 constitution was amended in November 2021 to increase the number of constituency members of parliament (MPs) from 350 to 400, reduce the number of party-list MPs from 150 to 100, and change the election to a two-ballot system

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 Thailand
dual citizenship recognized: no
residency requirement for naturalization: 5 years

Suffrage
18 years of age; universal and compulsory

Executive branch
chief of state: King WACHIRALONGKON; also spelled Vajiralongkorn (since 1 December 2016)
head of government: Prime Minister PHAETHONGTHAN Chinnawat; also spelled PAETONGTARN Shinawatra (since 18 August 2024)
cabinet: Council of Ministers nominated by the prime minister, appointed by the king; a Privy Council advises the king
elections/appointments: the monarchy is

hereditary; prime minister candidate approved by the Senate and House of Representatives and appointed by the king; starting in 2024, approval of prime minister needed only by the House of Representatives
note: following its May 2023 election win, the MJP formed an eight-party coalition and put forward its leader PITA Limjaroenrat for prime minister; however, the Senate blocked PITA from becoming prime minister in the first National Assembly vote in July 2023, and the Assembly subsequently voted that he could not submit his name again; the Constitutional Court also suspended PITA after accepting cases accusing him of violating election law; in August 2023, MJP handed over the lead in forming a new government to the second largest party in the coalition, PTP, which then formed a new coalition without MJP; PTP put forward SRETTHA Thavisin for prime minister, and he was approved by the National Assembly 482 votes out of a possible 747

Legislative branch
legislature name: National Assembly (Rathhasapha)
legislative structure: bicameral

Legislative branch - lower chamber
chamber name: House of Representatives (Saphaphuthan Ratsadon)
number of seats: 500 (all directly elected)
electoral system: mixed system
scope of elections: full renewal
term in office: 4 years
most recent election date: 5/14/2023
parties elected and seats per party: Move Forward (151); Pheu Thai (141); Bhumjaithai (71); Palang Pracharath (40); United Thai Nation (36); Democrat Party (25); Other (36)
percentage of women in chamber: 19.4%
expected date of next election: May 2028

Legislative branch - upper chamber
chamber name: Senate (Wuthisapha)
number of seats: 200 (all indirectly elected)
scope of elections: full renewal
term in office: 5 years
most recent election date: 6/9/2024 to 6/26/2024
percentage of women in chamber: 22.5%
expected date of next election: June 2029
note: Senate members are indirectly elected from 20 eligible groups of professions, including agriculture, artists or athletes, business owners, education, employees or workers, independent professionals, industrialists, law and justice, mass communication, public health, science and technology, tourism-related professions, women, and elderly, disabled, or ethnic groups

Judicial branch
highest court(s): Supreme Court of Justice (consists of the court president, 6 vice presidents, 60-70 judges, and organized into 10 divisions); Constitutional Court (consists of the court president and 8 judges); Supreme Administrative Court (number of judges determined by Judicial Commission of the Administrative Courts)
judge selection and term of office: Supreme Court judges selected by the Judicial Commission of the Courts of Justice and approved by the monarch; judge term determined by the monarch; Constitutional Court justices - 3 judges drawn from the Supreme Court, 2 judges drawn from the Administrative Court, and 4 judge candidates selected by the Selective Committee for Judges of the Constitutional Court, and confirmed by the Senate; judges appointed by the monarch serve single 9-year terms; Supreme Administrative Court judges selected by the Judicial Commission of the Administrative Courts and appointed by the monarch; judges serve for life
subordinate courts: courts of first instance and appeals courts within both the judicial and administrative systems; military courts

Political parties
Bhumjaithai Party or BJT (aka Phumchai Thai Party or PJT; aka Thai Pride Party)
Chat Thai Phatthana Party (Thai Nation Development Party) or CTP
Move Forward Party or MFP (dissolved by order of the Constitutional Court, August 2024)
Palang Pracharat Party (People's State Power

Party) or PPRP
Pheu (Puea) Thai Party (For Thais Party) or PTP
Prachachat Party or PCC
Prachathipat Party (Democrat Party) or DP
Thai Sang Thai Party
United Thai Nation (Ruam Thai Sang Chat) or UTN

International organization participation
ADB, APEC, ARF, ASEAN, BIMSTEC, BIS, CD, CICA, CP, EAS, FAO, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICRM, IDA, IFAD, IFC, IFRCS, IHO, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, NAM, OAS (observer), OIC (observer), OIF (observer), OPCW, OSCE (partner), PCA, PIF (partner), UN, UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNMOGIP, UNOCI, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO

Diplomatic representation in the US
chief of mission: Ambassador Dr. SURIYA Chindawongse (since 17 June 2024)
chancery: 1024 Wisconsin Avenue NW, Suite 401, Washington, DC 20007
Tel: 1-202-944-3600
Fax: 1-202-944-3611
E-mail: *thai.wsn@thaiembdc.org*
Website: *https://washingtondc.thaiembassy.org/en/index*
consulate(s) general: Chicago, Los Angeles, New York

Diplomatic representation from the US
chief of mission: Ambassador Robert F. GODEC (since 7 October 2022)
embassy: 95 Wireless Road, Bangkok 10330
mailing address: 7200 Bangkok Place, Washington DC 20521-7200
Tel: 66-2-205-4000
Fax: 66-2-205-4103
E-mail: acsbkk@state.gov
Website: *https://th.usembassy.gov/*
consulate(s) general: Chiang Mai

Flag description
five horizontal bands of red (top), white, blue (double width), white, and red; the red color symbolizes the nation and the blood of life, white represents religion and the purity of Buddhism, and blue stands for the monarchy
note: similar to the flag of Costa Rica but with the blue and red colors reversed

National symbol(s)
garuda (mythical half-man, half-bird figure), elephant; national colors: red, white, blue

National anthem
name: "Phleng Chat Thai" (National Anthem of Thailand)
lyrics/music: Luang SARANUPRAPAN/Phra JENDURIYANG
note: music adopted 1932, lyrics adopted 1939; by law, people are required to stand for the national anthem at 0800 and 1800 every day; the anthem is played in schools, offices, theaters, and on television and radio during this time; "Phleng Sanlasoen Phra Barami" (A Salute to the Monarch) serves as the royal anthem and is played in the presence of the royal family and during certain state ceremonies

National heritage
total World Heritage Sites: 8 (5 cultural, 3 natural)

Economy

Economic overview
upper middle-income Southeast Asian economy; substantial infrastructure; major electronics, food, and automobile parts exporter; globally used currency; extremely low unemployment, even amid COVID-19; ongoing Thailand 4.0 economic development

Real GDP (purchasing power parity)
$1.516 trillion (2023 est.)
$1.488 trillion (2022 est.)
$1.452 trillion (2021 est.)
note: data in 2021 dollars
comparison ranking: 21

Real GDP growth rate
1.88% (2023 est.)
2.46% (2022 est.)
1.57% (2021 est.)
note: annual GDP % growth based on constant local currency
comparison ranking: 145

Real GDP per capita
$21,100 (2023 est.)
$20,800 (2022 est.)
$20,300 (2021 est.)
note: data in 2021 dollars
comparison ranking: 99

GDP (official exchange rate)
$514.945 billion (2023 est.)
note: data in current dollars at official exchange rate

Inflation rate (consumer prices)
1.23% (2023 est.)
6.08% (2022 est.)
1.23% (2021 est.)
note: annual % change based on consumer prices
comparison ranking: 24

Credit ratings
Fitch rating: BBB+ (2013)
Moody's rating: Baa1 (2003)
Standard & Poor's rating: BBB+ (2004)
note: The year refers to the year in which the current credit rating was first obtained.

GDP - composition, by sector of origin
agriculture: 8.6% (2023 est.)
industry: 32.9% (2023 est.)
services: 58.5% (2023 est.)
note: figures may not total 100% due to non-allocated consumption not captured in sector-reported data
comparison rankings: services 97; industry 49; agriculture 86

GDP - composition, by end use
household consumption: 57.7% (2023 est.)
government consumption: 16.6% (2023 est.)
investment in fixed capital: 23% (2023 est.)
investment in inventories: -0.4% (2023 est.)
exports of goods and services: 65.4% (2023 est.)
imports of goods and services: -63.7% (2023 est.)
note: figures may not total 100% due to rounding or gaps in data collection

Agricultural products
sugarcane, rice, cassava, oil palm fruit, maize, rubber, tropical fruits, chicken, pineapples, fruits (2022)
note: top ten agricultural products based on tonnage

Industries
tourism, textiles and garments, agricultural processing, beverages, tobacco, cement, light manufacturing such as jewelry and electric appliances, computers and parts, integrated circuits, furniture, plastics, automobiles and automotive parts, agricultural machinery, air conditioning and refrigeration, ceramics, aluminum, chemical, environmental management, glass, granite and marble, leather, machinery and metal work, petrochemical, petroleum refining, pharmaceuticals, printing, pulp and paper, rubber, sugar, rice, fishing, cassava, world's second-largest tungsten producer and third-largest tin producer

Industrial production growth rate
-2.27% (2023 est.)
note: annual % change in industrial value added based on constant local currency
comparison ranking: 185

Labor force
40.814 million (2023 est.)
note: number of people ages 15 or older who are employed or seeking work
comparison ranking: 16

Unemployment rate
0.91% (2023 est.)
0.94% (2022 est.)
1.22% (2021 est.)
note: % of labor force seeking employment
comparison ranking: 4

Youth unemployment rate (ages 15-24)
total: 5.3% (2023 est.)
male: 3.9% (2023 est.)
female: 7.4% (2023 est.)
note: % of labor force ages 15-24 seeking employment
comparison ranking: total 178

Population below poverty line
6.3% (2021 est.)
note: % of population with income below national poverty line

Gini Index coefficient - distribution of family income
34.9 (2021 est.)
note: index (0-100) of income distribution; higher values represent greater inequality
comparison ranking: 78

Average household expenditures
on food: 26.8% of household expenditures (2022 est.)
on alcohol and tobacco: 3% of household expenditures (2022 est.)

Household income or consumption by percentage share
lowest 10%: 3.2% (2021 est.)
highest 10%: 27.1% (2021 est.)
note: % share of income accruing to lowest and highest 10% of population

Remittances
1.9% of GDP (2023 est.)
1.8% of GDP (2022 est.)
1.79% of GDP (2021 est.)
note: personal transfers and compensation between resident and non-resident individuals/households/entities

Budget
revenues: $90.509 billion (2022 est.)
expenditures: $106.576 billion (2022 est.)
note: central government revenues (excluding grants) and expenses converted to US dollars at average official exchange rate for year indicated

Public debt
60.35% of GDP (2022 est.)
note: central government debt as a % of GDP
comparison ranking: 79

Taxes and other revenues
14.38% (of GDP) (2022 est.)
note: central government tax revenue as a % of GDP
comparison ranking: 145

Current account balance
$7.002 billion (2023 est.)
-$15.742 billion (2022 est.)
-$10.268 billion (2021 est.)
note: balance of payments - net trade and primary/secondary income in current dollars
comparison ranking: 30

Exports
$336.871 billion (2023 est.)
$324.063 billion (2022 est.)
$295.972 billion (2021 est.)
note: balance of payments - exports of goods and services in current dollars
comparison ranking: 27

Exports - partners
US 17%, China 11%, Japan 8%, Vietnam 4%, Malaysia 4% (2022)
note: top five export partners based on percentage share of exports

Exports - commodities
machine parts, integrated circuits, cars, trucks, vehicle parts/accessories (2022)
note: top five export commodities based on value in dollars

Imports
$328.009 billion (2023 est.)
$334.478 billion (2022 est.)
$296.115 billion (2021 est.)
note: balance of payments - imports of goods and services in current dollars
comparison ranking: 25

Imports - partners
China 26%, Japan 11%, UAE 6%, US 5%, Malaysia 5% (2022)
note: top five import partners based on percentage share of imports

Imports - commodities
crude petroleum, integrated circuits, gold, natural gas, vehicle parts/accessories (2022)
note: top five import commodities based on value in dollars

Reserves of foreign exchange and gold
$224.47 billion (2023 est.)
$216.501 billion (2022 est.)
$246.025 billion (2021 est.)
note: holdings of gold (year-end prices)/foreign exchange/special drawing rights in current dollars
comparison ranking: 13

Debt - external
$35.388 billion (2022 est.)
note: present value of external debt in current US dollars
comparison ranking: 20

Exchange rates
baht per US dollar -
Exchange rates:
34.802 (2023 est.)
35.061 (2022 est.)
31.977 (2021 est.)
31.294 (2020 est.)
31.048 (2019 est.)

Energy

Electricity access
electrification - total population: 99.9% (2022 est.)
electrification - urban areas: 100%
electrification - rural areas: 100%

Electricity
installed generating capacity: 57.216 million kW (2022 est.)
consumption: 199.672 billion kWh (2022 est.)
exports: 2.02 billion kWh (2022 est.)
imports: 34.223 billion kWh (2022 est.)
transmission/distribution losses: 14.464 billion kWh (2022 est.)
comparison rankings: transmission/distribution losses 186; imports 5; exports 57; consumption 23; installed generating capacity 26

Electricity generation sources
fossil fuels: 82.1% of total installed capacity (2022 est.)
solar: 2.8% of total installed capacity (2022 est.)
wind: 1.7% of total installed capacity (2022 est.)
hydroelectricity: 3.7% of total installed capacity (2022 est.)
biomass and waste: 9.7% of total installed capacity (2022 est.)

Coal
production: 13.642 million metric tons (2022 est.)
consumption: 36.03 million metric tons (2022 est.)
exports: 96,000 metric tons (2022 est.)
imports: 22.485 million metric tons (2022 est.)
proven reserves: 1.063 billion metric tons (2022 est.)

Petroleum
total petroleum production: 386,000 bbl/day (2023 est.)
refined petroleum consumption: 1.248 million bbl/day (2022 est.)
crude oil estimated reserves: 252.75 million barrels (2021 est.)

Natural gas
production: 30.797 billion cubic meters (2022 est.)
consumption: 48.898 billion cubic meters (2022 est.)
imports: 17.112 billion cubic meters (2022 est.)
proven reserves: 138.243 billion cubic meters (2021 est.)

Carbon dioxide emissions
307.934 million metric tonnes of CO2 (2022 est.)
from coal and metallurgical coke: 61.666 million metric tonnes of CO2 (2022 est.)
from petroleum and other liquids: 156.756 million metric tonnes of CO2 (2022 est.)
from consumed natural gas: 89.511 million metric tonnes of CO2 (2022 est.)
comparison ranking: total emissions 20

Energy consumption per capita
69.958 million Btu/person (2022 est.)
comparison ranking: 71

Communications

Telephones - fixed lines
total subscriptions: 4.368 million (2022 est.)
subscriptions per 100 inhabitants: 6 (2022 est.)
comparison ranking: total subscriptions 32

Telephones - mobile cellular
total subscriptions: 126.414 million (2022 est.)
subscriptions per 100 inhabitants: 176 (2022 est.)
comparison ranking: total subscriptions 15

Telecommunication systems
general assessment: Thailand's telecom sector is relatively mature and hosts a mix of public and private sector players; the mobile market is highly developed and has experienced strong growth over the last seven years; the market returned to growth in 2021 after it contracted in 2020 driven by the Covid-19 pandemic, and a steep decline in inbound tourism; it remains highly saturated, owing to overall maturity and the popularity of multiple SIM card use, which has resulted in a particularly high penetration rate; in general, the sector retains considerable potential given the impetus of 5G, the recent spectrum auctions, and continued network deployments by the country's network operators; further auctions of spectrum in the 700MHz band (being repurposed from digital TV broadcasting), and in the 3.6GHz range will further improve network capacity; in the wire line segment, the decline in fixed-line penetration is expected to continue as subscribers migrate to mobile networks for voice and data services; the emphasis among operators has been to bolster their fiber footprints in key high-value areas; the transition to fiber from DSL and cable has also been facilitated by changes to the regulatory structure that have removed some barriers to investment; this is supporting the cannibalization of older copper-based DSL lines by fiber; the returns from this investment remain a long-term prospect as consumers still favor entry-level packages; there is also strong interest from the government, as well as private vendors, in establishing Thailand as a data center hub to serve the region; the size, capacity and spread of existing data centers in the Greater Mekong Subregion (GMS) outside of Thailand is small; Thailand retains some advantages to attract investment, including improved fiber connectivity and international bandwidth; increasing submarine capacity, such as the SJC2 cable to come online later in 2023, will considerably improve Thailand's potential as a regional hub (2022)
domestic: fixed-line is 19 per 100 and mobile-cellular is 176 per 100 (2022)
international: country code - 66; landing points for the AAE-1, FEA, SeaMeWe-3,-4, APG, SJC2, TIS, MCT and AAG submarine cable systems providing links throughout Asia, Australia, Africa, Middle East, Europe, and US; satellite earth stations - 2 Intelsat (1 Indian Ocean, 1 Pacific Ocean) (2019)

Broadcast media
26 digital TV stations in Bangkok broadcast nationally, 6 terrestrial TV stations in Bangkok broadcast nationally via relay stations - 2 of the stations are owned by the military, the other 4

are government-owned or controlled, leased to private enterprise, and all are required to broadcast government-produced news programs twice a day; multi-channel satellite and cable TV subscription services are available; radio frequencies have been allotted for more than 500 government and commercial radio stations; many small community radio stations operate with low-power transmitters (2017)

Internet country code
.th

Internet users
total: 61.2 million (2021 est.)
percent of population: 85% (2021 est.)
comparison ranking: total 17

Broadband - fixed subscriptions
total: 11,478,265 (2020 est.)
subscriptions per 100 inhabitants: 16 (2020 est.)
comparison ranking: total 18

Transportation

National air transport system
number of registered air carriers: 15 (2020)
inventory of registered aircraft operated by air carriers: 283
annual passenger traffic on registered air carriers: 76,053,042 (2018)
annual freight traffic on registered air carriers: 2,666,260,000 (2018) mt-km

Civil aircraft registration country code prefix
HS

Airports
108 (2024)
comparison ranking: 50

Heliports
5 (2024)

Pipelines
2 km condensate, 5,900 km gas, 85 km liquid petroleum gas, 1 km oil, 1,097 km refined products (2013)

Railways
total: 4,127 km (2017)
standard gauge: 84 km (2017) 1.435-m gauge (84 km electrified)
narrow gauge: 4,043 km (2017) 1.000-m gauge
comparison ranking: total 43

Roadways
total: 180,053 km (2006) (includes 450 km of expressways)
comparison ranking: total 29

Waterways
4,000 km (2011) (3,701 km navigable by boats with drafts up to 0.9 m)
comparison ranking: 28

Merchant marine
total: 884 (2023)
by type: bulk carrier 28, container ship 28, general cargo 88, oil tanker 251, other 489
comparison ranking: total 28

Ports
total ports: 21 (2024)
large: 1
medium: 2
small: 3
very small: 15
ports with oil terminals: 14
key ports: Bangkok, Laem Chabang, Pattani, Phuket, Sattahip, Si Racha

Military and Security

Military and security forces
Royal Thai Armed Forces (Kongthap Thai, RTARF): Royal Thai Army (Kongthap Bok Thai, RTA), Royal Thai Navy (Kongthap Ruea Thai, RTN; includes Royal Thai Marine Corps), Royal Thai Air Force (Kongthap Akaat Thai, RTAF)
Office of the Prime Minister: Royal Thai Police (2024)
note 1: the Thai Internal Security Operations Command (ISOC) oversees counter-insurgency operations, as well as countering terrorism, narcotics and weapons trafficking, and other internal security duties; it is primarily run by the Army

note 2: official paramilitary forces in Thailand include the Thai Rangers (Thahan Phran or "Hunter Soldiers") under the Army; the Paramilitary Marines under the Navy; the Border Patrol Police (BPP) under the Royal Thai Police; the Volunteer Defense Corps (VDC or O So) and National Defense Volunteers (NDV), both under the Ministry of Interior; there are also several government-backed volunteer militias created to provide village security against insurgents in the Deep South or to assist the ISOC

Military expenditures
1.3% of GDP (2023 est.)
1.3% of GDP (2022 est.)
1.3% of GDP (2021 est.)
1.4% of GDP (2020 est.)
1.3% of GDP (2019 est.)
comparison ranking: 105

Military and security service personnel strengths
estimated 350,000 active-duty personnel (250,000 Army; 70,000 Navy; 30,000 Air Force); approximately 230,000 Royal Thai Police (2023)

Military equipment inventories and acquisitions
the RTARF has a diverse array of foreign-supplied weapons and equipment, as well as some domestically produced items; in recent years, Thailand has received arms from a wide variety of countries, including China and the US; Thailand has a domestic defense industry, which produces such items as armored vehicles, artillery systems, naval vessels, unmanned aerial vehicles, and other military technologies (2024)

Military service age and obligation
18 years of age for voluntary military service for men and women; 21 years of age for compulsory military service for men; men register at 18 years of age; volunteer service obligation may be as short as 6 or 12 months, depending on educational qualifications; conscript service obligation also varies by educational qualifications, but is typically 24 months (2023)
note: serving in the armed forces is a national duty of all Thai citizens; conscription was introduced in 1905; it includes women, however, only men over the age of 21 who have not gone through reserve training are conscripted; conscripts are chosen by lottery (on draft day, eligible draftees can request volunteer service, or they may choose to stay for the conscription lottery); approximately 75-100,000 men are drafted for military service each year

Military deployments
280 South Sudan (UNMISS) (2024)

Military - note
the RTARF's missions include defending the country's territory and sovereignty, protecting the monarchy, ensuring internal security, and responding to natural disasters; it also plays a large role in domestic politics and has attempted as many as 20 coups since the fall of absolute monarchy in 1932, the most recent being in 2014
since 2004, the military and associated paramilitary forces have fought against separatist insurgents in the southern provinces of Pattani, Yala, and Narathiwat, as well as parts of Songkhla; the insurgency is rooted in ethnic Malay nationalist resistance to Thai rule that followed the extension of Siamese sovereignty over the Patani Sultanate in the 18th century; the insurgency consists of several armed groups, the largest of which is the Barisan Revolusi Nasional-Koordinasi (BRN-C): since 2020, Thai officials have been negotiating with BRN, and has parallel talks with an umbrella organization, MARA Pattani, that claims to represent the insurgency groups; since 2004, violence associated with the insurgency has claimed more than 7,000 lives; the Thai Government has had as many as 100,000 military and paramilitary forces deployed in the south to combat the insurgency
Thailand has Major Non-NATO Ally (MNNA) status with the US, a designation under US law that provides foreign partners with certain benefits in the areas of defense trade and security cooperation; the Thai and US militaries host the annual "Cobra Gold" multinational military exercises in Thailand; the exercise is one of the largest multinational exercises in the Pacific region (2024)

Space

Space agency/agencies
Geo-Informatics and Space Technology Development Agency (GISTDA; created in 2000 from the Thailand Remote Sensing Center that was established in 1979; GISTDA is under the Ministry of Higher Education, Science, Research and Innovation); National Space Policy Committee (NSPC; advisory body to the prime minister) (2024)

Space launch site(s)
none; in 2023, announced intentions to build a spaceport with South Korean assistance (2024)

Space program overview
has an ambitious and growing space program focused on the acquisition and operation of satellites and the development of related technologies; operates communications and remote sensing (RS) satellites; manufactures scientific/research/testing cube satellites and developing the capabilities to produce RS satellites (has historically built satellites with foreign assistance); cooperates with a range of foreign space agencies and industries, including those of other ASEAN countries, China, France, India, the Netherlands, Pakistan, Russia, South Korea, and the US; founding member of the China-led Asia-Pacific Space Cooperation Organization (APSCO); has a growing space industry, including Southeast Asia's first dedicated satellite manufacturing facility, which opened in 2021 (2024)

Transnational Issues

Refugees and internally displaced persons
refugees (country of origin): 91,339 (Burma) (refugees and asylum seekers) (2023)
IDPs: 41,000 (2022)
stateless persons: 566,900 (2022) (estimate represents stateless persons registered with the Thai Government; actual number may be as high as 3.5 million); note - about half of Thailand's northern hill tribe people do not have citizenship and make up the bulk of Thailand's stateless population; most lack documentation showing they or one of their parents were born in Thailand; children born to Burmese refugees are not eligible for Burmese or Thai citizenship and are stateless; most Chao Lay, maritime nomadic peoples, who travel from island to island in the Andaman Sea west of Thailand are also stateless; stateless Rohingya refugees from Burma are considered illegal migrants by Thai authorities and are detained in inhumane conditions or expelled; stateless persons are denied access to voting, property, education, employment, healthcare, and driving
note: Thai nationality was granted to more than 23,000 stateless persons between 2012 and 2016 and more than 18,000 between 2018 and 2021; in 2016, the Government of Thailand approved changes to its citizenship laws that could make 80,000 stateless persons eligible for citizenship, as part of its effort to achieve zero statelessness by 2024 (2021)

Illicit drugs
not a cultivator or producer of significant quantities of opiates, methamphetamine, or other illicit drugs; not a significant source or transit country for drugs entering the United States; drugs smuggled through Thailand heading for Indo-Pacific region markets; large influx of methamphetamine and heroin from neighboring Burma to other markets, but also consumed domestically, most of which transits through Thailand to other markets, but is also consumed domestically; a major source of precursor or essential chemicals used in the production of illicit narcotics

Acronyms and Abbreviations

°	Degree(s) – of temperature (Celsius [C} or Fahrenheit [F]) or of latitude and longitude (North [N], South [S], East [E], and West [W])
$	Dollar(s) – of the U.S.
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on disaster management
AFTA	ASEAN Free Trade Area
AI	artificial intelligence
AIDS	Acquired Immunodeficiency Syndrome
AIS	Advanced Info Service
AMR	Antimicrobial resistance
AOT	Airports of Thailand PCL
ASEAN	Association of Southeast Asian Nations
BCG	Bio-Circular-Green economy
BHA	Bureau for Humanitarian Assistance (of USAID)
BMA	Bangkok Metropolitan Administration
BMA-DPMCC	Bangkok Metropolitan Administration's Disaster Prevention and Mitigation Coordination Center
BTS	Bangkok Transit System
CARAT	Cooperation Afloat Readiness and Training Exercise
CBDRM	Community-Based Disaster Risk Management
CBS	Cell Broadcast Service
CCD	Country Cluster Delegation (of the IFRC)
CCS	Country Cooperation Strategy (of the WHO)
CDC	Centers for Disease Control and Prevention (of the U.S.)
CDPMCC	Central Disaster Prevention and Mitigation Coordination Center
CE	Common Era (formerly AD [Anno Domini])
CG	Exercise COBRA GOLD
cm	centimeter(s)
CMCC	Civil-Military Coordination Center
CMOC	Civil-Military Operations Center
COVID-19	Coronavirus Disease 2019
CSO	civil society organization
DCCE	Department of Climate Change and the Environment
DDPM	Department of Disaster Prevention and Mitigation (DDPM)
DDPMCC	District Disaster Prevention and Mitigation Coordination Center
DELSA	Disaster Emergency Logistics System for ASEAN
DHN	Declaration of Humanitarian Need
DM	disaster management
DMC	Disaster Management Committee

DMR	Department of Mineral Resources
DoD	Department of Defense (of the U.S.)
DPT	Department of Public Works and Town and Country Planning
DRC	Disaster Relief Center (of the MOD or a subordinate command)
DRM	disaster risk mitigation
DRR	disaster risk reduction
DWR	Department of Water Resources
EEC	Eastern Economic Corridor
EGAT	Electricity Generating Authority of Thailand
ENCAP	Engineering Civic Action Project
EnLIGHT	Enhancing Leadership in Global Health -Thailand
EOC	emergency operations center
ER4	early recovery, risk reduction, and resilience
ERAT	Emergency Response and Assessment Team (of ASEAN)
ERCC	Emergency Response Coordination Centre
ERU	emergency response units
ESF	Emergency Support Function
EWEC	East-West Economic Corridor
EWS	Early Warning System
FDR	Foreign Disaster Response
FMA	foreign military assets
ft	foot / feet
GDP	gross domestic product
GHG	greenhouse gas
GHSI	Global Health Security Index
GOC	Geohazards Operation Center
HADR	Humanitarian Assistance and Disaster Response
HIV	Human Immunodeficiency Virus
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
ICT	Information and Communications Technology
IFRC	International Federation of Red Cross and Red Crescent Societies
IHL	International Humanitarian Law
in	inch(es)
INSARAG	International Search and Rescue Advisory Group
IOM	International Organization for Migration
JEE	Joint External Evaluation
JICA	Japan International Cooperation Agency
JUSMAGTHAI	Joint United States Military Advisory Group, Thailand
km / km^2	kilometer(s) / square kilometer(s)

LPOC	Local Point of Contact
m	meter(s)
MD	Doctor of Medicine
M-DPMCC	Municipal Disaster Prevention and Mitigation Coordination Center
MCP	main contact point
MEA	Metropolitan Electricity Authority
mi / mi^2	mile(s) / square mile(s)
MICT	Ministry of Information and Communications Technology
mm	millimeter(s)
MMT	million metric tons
MNCC	Multi-National Coordination Center
MNRE	Ministry of Natural Resources and Environment
MOD	Ministry of Defence
MOD-DRC	Ministry of Defence Disaster Relief Center
MFA	Ministry of Foreign Affairs
MoI	Ministry of Interior
MoPH	Ministry of Public Health
MOT	Ministry of Transport
MRT	Mass Rapid Transit
MRTA	Mass Transit Authority of Thailand
NAP	National Adaptation Plan or National Action Plan
NCD	Noncommunicable Disease
ND-GAIN	Notre Dame Global Adaptation Initiative
NDPMC	National Disaster Prevention and Mitigation Committee
NDPMCHQ	National Disaster Prevention and Mitigation Command Headquarters
NDWC	National Disaster Warning Center
NESDC	National Economic and Social Development Council
NGO	non-governmental organization
NSEC	North-South Economic Corridor
NSO	National Statistical Office
OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
OPSD	Office of the Permanent Secretary for Defence
PAT	Port Authority of Thailand
PC-DPMCC	Pattaya City Disaster Prevention and Mitigation Coordination Center
PDC	Pacific Disaster Center
PDPMCC	Provincial Disaster Prevention and Mitigation Coordination Center
PEA	Provincial Electricity Authority
PMO	Prime Minister's Office
PRC	People's Republic of China
RAT	Rapid Assessment Team (of the TRCS)
RCEP	Regional Comprehensive Economic Partnership

RHCC	Changi Regional HADR Coordination Centre
RKU	Ruamkatanyu Foundation
RO	Regional Office (of the DDPM)
ROAP	Regional Office for Asia and the Pacific (of UN OCHA)
RPA	Regional Plan of Action
RTArF	Royal Thai Armed Forces
RTG	Royal Thai Government
RTP	Royal Thai Police
SAR	search and rescue
SDA-DPMCC	Subdistrict Administrative Disaster Prevention and Mitigation Coordination Center
SDG	Sustainable Development Goal
SEACAT	Southeast Asia Cooperation and Training
SEANWFZ	Southeast Asian Nuclear-Weapon-Free Zone Treaty
SEC	Southern Economic Corridor
SEZ	Special Economic Zone
SFDRR	Sendai Framework for Disaster Risk Reduction
SKRL	Singapore-Kunming Rail Link
SRT	State Railway of Thailand
TB	tuberculosis
TEU	twenty-food equivalent unit
THB	Thai Baht
TMD	Thai Meteorological Department
TRCS	Thai Red Cross Society
U.S.	United States
UHC	universal health coverage
UN	United Nations
UNCT	United Nations Country Team
UNDAC	United Nations Disaster Assessment and Coordination
UNDP	United Nations Development Programme
UNDRR	United Nations Office of Disaster Risk Reduction
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
WHO	World Health Organization
WPS	Women, Peace and Security
WPU	Water Purification Unit
ZOPFAN	Zone of Peace, Freedom and Neutrality

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