



INDONESIA

Disaster Management Reference Handbook

December 2021

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Front Cover

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Letter from the Director

Disasters, including recent volcanic eruptions, earthquakes, flooding, and forest fires, have claimed lives and devastated communities in Indonesia. Although it is now receding into history, the 2004 Indian Ocean Tsunami looms large as an example of the immense destruction that a natural disaster can wreak. However, as a result of disaster risk reduction (DRR) and disaster risk mitigation (DRM) efforts undertaken in the past 15 years, Indonesians are better prepared to respond. Indeed, the country's National Board for Disaster Management (BNPB) most recently led the national response to the Coronavirus Disease 2019 pandemic in a demonstration of how government agencies and society can mobilize in reaction to large-scale threats.

The international humanitarian community makes significant contributions in saving lives and alleviating the suffering of those affected by large-scale disasters. Indonesia's local and national governments lead overall disaster responses, with recent disasters also having been met with assistance from Indonesia's regional and international partners. In addition to disaster response, the civilian and military communities in which Indonesia participates help build response capacity and reduce risks associated with natural hazards. The United States (U.S.) and Indonesian armed forces have worked together annually through training engagements and various exercises that enhance regional partnerships and improve interoperability. Through regular exercises – GEMA BAKHTI, GARUDA SHIELD, Pacific Partnership, etc. – both countries' military forces rehearse coordination between themselves and with civilian players who may be leading the disaster response.

As the world continues to grapple with how global climate change will influence the elements driving disaster risk, Indonesia will be at the forefront of efforts to mitigate risk and bolster resilience. As one of the countries most at risk from sea level rise and more extreme cyclonic activity and sea temperature variation, Indonesia confronts not only more frequent and damaging individual events but also longer-running drought and fire periods that will strain national and local disaster response resources. The country's partners may receive more appeals for assistance both in implementing climate change adaptation policies and in responding to disasters. Partners may also learn from tactics and strategies that Indonesia implements to mitigate risk and adapt.

This Indonesia Disaster Management Reference Handbook provides the reader a baseline for understanding factors that influence disaster management in the country. It is hoped that this book provides useful information for civilian and military actors who may support humanitarian assistance and disaster relief in Indonesia to help prevent loss of life and reduce suffering.



Sincerely,

Joseph D. Martin, SES
Director

About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

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

Vision

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

Mission

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

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EXECUTIVE SUMMARY

Indonesia is located along the Pacific Ring of Fire and faces many natural threats including earthquakes, tsunamis, volcanic eruptions, flooding, and droughts. The country records upwards of 3,000 natural disasters across the country in any given year. On average, 90% or more of these events are hydro-meteorological (e.g., storms, tornadoes, and floods); however, the remainder of events – earthquakes and tsunamis – are usually more deadly and more damaging.¹ In any given decade, the country can suffer disaster events that cost thousands of lives and displace tens of thousands of people while the economic losses can total US\$3 billion annually.²

The key event that formed the Indonesian government's present approach to disasters was the 2004 Indian Ocean tsunami that wreaked havoc in the country's western regions. Since then, the country has reformed its laws, policies, and institutions to better manage disaster risk and management. The more robust disaster management capabilities were reflected in the response to the September 2018 Sulawesi earthquake and tsunami, in which Indonesia proactively managed foreign responders, with the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) playing a notable role. The 2007 disaster management law laid the foundations for the National Disaster Management Agency (*Badan Nasional Penanggulangan Bencana*, BNPB), which is the country's central governing body for all disaster-related activities. It coordinates preparedness, prevention, mitigation, and response, and it directs and manages national disaster risk reduction (DRR) and disaster risk mitigation (DRM) efforts.

The DRR and DRM facets of BNPB's responsibilities are increasingly linked into the country's institutional efforts to confront climate change, to which Indonesia is among the world's most vulnerable countries. In October 2017, the government announced an initiative aimed at incorporating climate

action into the development agenda, and there are specific policies for adapting farming to climate change, optimal use of land, water, and natural resources, conserving rainwater, developing early warning systems for extreme weather events, protecting coastal zone, making infrastructure more resilient, and better urban planning. The current 20-year development plan, Rencana Pembangunan Jangka Panjang Nasional (RPJPN), targets the eradication of illegal logging, fishing, and mining, and it increases participation of local people in forest management. It also aims to increase vulnerable communities' resilience to climate change impacts. A 2019 government report found that the RPJPN's "low carbon" development pathway could drive a gross domestic product (GDP) growth rate of 6% annually until 2045 and cut emissions by 43% by 2030.³

Of course, the Coronavirus Disease 2019 (COVID-19) epidemic has disrupted some of these plans. Within a few months of the first cases in the country, the pandemic reversed some hard-won advances in well-being, with poverty, malnutrition, and hunger rising fast.⁴ Indonesia will face years of competition for resources and strained budgets as the government and private sector seek to reduce poverty, increase food security, and rebuild education and health care even as it also tries to fund the construction and expansion of resilient infrastructure to vulnerable areas.

As an archipelagic state that stretches 5,100 kilometers (3,200 miles) east to west and comprises 17,500 islands,⁵ boosting connectivity among the country's geographically remote communities is a perennial challenge that can only partially be overcome by modern communications. Thus, the extension of transport, communication, and energy infrastructure and service underpins any extension of health and education service and any boost in economic productivity in the private sector.

COUNTRY OVERVIEW

History

Indonesia was once under the control of various Buddhist and Hindu rulers. A Buddhist kingdom had formed by the 7th century on Sumatra and then expanded into Java and the Malay Peninsula until it was conquered in the 13th century by the Java-based Hindu Majapahit Empire, which united the majority of modern-day Indonesia and Malaysia. By the 16th century, the Portuguese conquered parts of Indonesia but later were driven out by the Dutch, who colonized the islands as the Dutch East Indies (or Netherlands East Indies) from the early 17th century until the 20th century.⁶

During World War II, Japan occupied the islands (1942-45). Indonesia declared its independence shortly before Japan's surrender, but it required four years of costly fighting and intermittent negotiations before the Dutch officially recognized Indonesian sovereignty in 1949. In 1969 the United Nations (UN) acknowledged the western segment of the island of New Guinea as part of Indonesia, and in 1976 Timor-Leste (the former Portuguese territory of

East Timor) was incorporated into Indonesia. However, Timor-Leste declared its independence and became fully sovereign in 2002.⁷

Indonesia is located south of Malaysia and north of Australia as depicted as the light-colored areas of the map in Figure 1.⁸ Indonesia is an archipelago of five major islands and approximately thirty smaller groups. There are more than 17,000 islands of which 7,000 are inhabited.⁹

Culture and Demographics

The culture of Indonesia has been influenced by ancient and modern local and regional traditions as migrants and traders have come and gone due to the islands' history as a major trading post.

Ethnic Makeup

Most of Indonesia's people are of Malay ancestry; however, the country has more than 300 different ethnic groups, mainly as a result of



Figure 1: Map of Indonesia

its archipelagic nature and the geologic barriers – mountains and seas – that have protected the traditions and cultures of several groups. Indonesia is very diverse. The Indonesian national motto, “Bhinneka tunggal ika” (“Unity in diversity”), refers to the diversity of the country.¹⁰

The ethnic breakdown of Indonesia includes Javanese 40.1%, Sundanese 15.5%, Malay 3.7%, Batak 3.6%, Madurese 3%, Betawi 2.9%, Minangkabau 2.7%, Buginese 2.7%, Bantenese 2%, Banjarese 1.7%, Balinese 1.7%, Acehnese 1.4%, Dayak 1.4%, Sasak 1.3%, Chinese 1.2%, and other 15%.¹¹

Key Population Centers

Indonesia is the fourth most populous nation in the world. The most populated islands are Sumatra, Java, Kalimantan (Indonesian Borneo), Sulawesi, and the Indonesian part of New Guinea (known as Papua or Irian Jaya). The largest population cluster is on Java, home to 130 million people, more than half of the country’s population.¹² Jakarta, the capital, hosts 10.9 million people, followed by Bekasi (3.5 million), Surabaya (2.9 million), Bandung (2.6

million), Tangerang (2.3 million), and Medan (2.3 million).¹³ Figure 2 shows the population pyramid for Indonesia. It illustrates the age and sex structure of the country with males shown on the left and females on the right. Populations are broken down into 5-year age groups represented as horizontal bars with the youngest age groups on the bottom of the pyramid.¹⁴

Language

There are several hundred languages spoken in Indonesia, but most of them fall within the Austronesian language family. Exceptions are found in western New Guinea and some of the Malukus, where different Papuan languages are used.¹⁵ The official language is Bahasa Indonesia (related to Malay). Local dialects, like Javanese, are widely used. English and Dutch are spoken as second languages.¹⁶

Religion

Indonesian history shows religious influences from India. Historic Indonesian states that centered on Java or Sumatra evolved through many forms of Hinduism and Theravada and Mahayana Buddhism. During the 9th century,

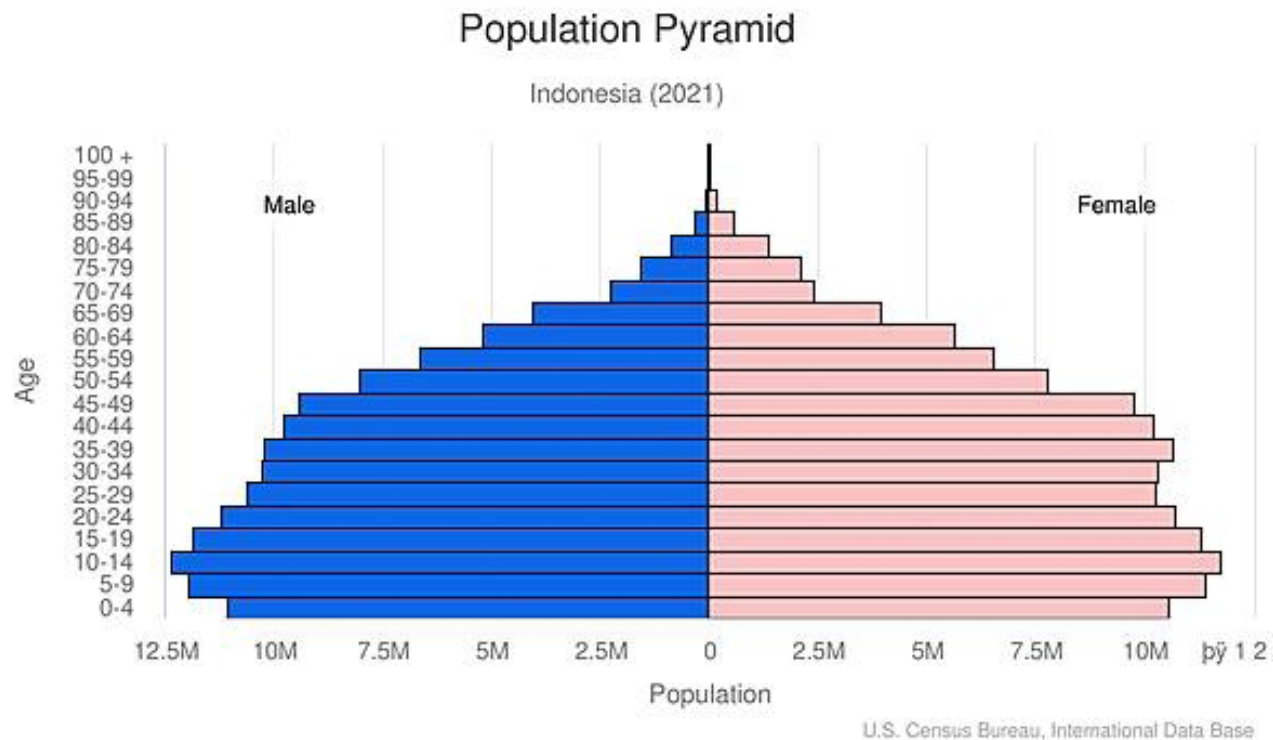


Figure 2: Indonesia Population Pyramid (2021)

both Hinduism and Buddhism were practiced, and Shiva and Buddha were looked upon as manifestations of the same spiritual being. Thus, there are several Buddhist Temples in the country. Borobudur – shown in Photo 1 – is a 9th century Mahayana Buddhist Temple located in Magelang, Central Java, Indonesia. The dome-shaped structure is referred to as a stupa, erected as a Buddhist shrine. The Sanskrit word stupa means “heap” and can refer to a burial mound, for housing sacred relics, or for prayer and meditation.¹⁷



Photo 1: Stupas at Borobudur Temple, Magelang, Indonesia

The syncretic adherence to Hinduism and Buddhism continued until the 14th century. Islam, brought by Muslim traders, many from other Southeast Asian regions, would first emerge as the dominant religion along the coasts of Java and Sumatra. It became the dominant religion by the 15th century in coastal areas of other islands of the archipelago as well.¹⁸

Almost 90% of the Indonesian population profess Islam. There are pockets of faithful of other religions namely Protestants (7%), Roman Catholics (2.9%), Hindus 1.7%, and others.¹⁹

Vulnerable Groups

Children, women, people with disabilities, the elderly, the poor, and migrants are some of the most vulnerable groups in Indonesia. Populations residing in coastal or isolated areas of the country are also vulnerable, especially during natural disasters. The Disaster Management Law (No. 24/2007), states that one function of the National Board for Disaster Management (*Badan Nasional Penanggulangan Bencana*, BNPB) is to coordinate integrated disaster management among all participating entities and that this management in “emergency response should include protection towards vulnerable groups” – defined as children, pregnant and lactating women, disabled persons, and the elderly. This section will discuss vulnerable populations, specifically children, women, and persons with disabilities.²⁰

Children

Children in remote and rural areas experience multidimensional inequality of opportunities like accessing education and transportation services. In addition, children already living in poverty are especially vulnerable in areas frequently affected by shocks including natural disasters and, more recently, COVID-19. A complicating factor in many areas is that poor air quality is dangerous to young children. An estimated 10 million children are at risk in areas where pollution is extremely high, and the air quality is degraded from industry and congestion in urban areas. Approximately 80% of the population lives in areas where the average particulate pollution levels exceed the World Health Organization (WHO) guidelines.²¹

Indonesia has made progress in decreasing poverty and inequality, as well as in reducing food insecurity, stunting, and wasting. However, the stunting prevalence and chronic malnutrition of children under the age of 5 years – at more than 27% - is still very high.²²

Children are not immune to violence, including physical, sexual, and emotional violence. Varying studies suggest that between 26% and 73% of children reported experiencing abuse in their homes, with some citing corporal punishment. Furthermore, 21% do not have birth registrations, a lack that poses life-long complications as they will struggle to access

public services; in addition, this lack prevents accurate censuses that feed national planning.

Child employment and trafficking make this population especially vulnerable with 3.2 million children between 10 and 17 years of age reported to be engaged in employment. Furthermore, a recent United Nations Partnership for Development Framework (UNPDF) progress report notes that human trafficking of children, women, and men occurs in the provinces of West Java, Central Java, East Java, West Nusa Tenggara, East Nusa Tenggara, and Banten.

Approximately 4.5 million children of secondary school age (13–18 years) are out of school due to their economic situation (poverty), residency in rural-remote areas, disability, and early marriage of adolescent girls.

Women

Major gender inequality persists in the country. More than 16% of girls are married before they reach age 18; girls who marry early have been reported to be less likely to complete their education and face increased risks for intimate partner violence (IPV). In addition, female genital mutilation (FGM) was until recently permitted by law, and more than half of girls 0–11 years of age were reported to have undergone FGM. Furthermore, access to adequate health services remains a challenge, and the maternal mortality rate is relatively high compared to other middle-income countries.

In terms of employment, there are significant wage gaps for women, and this gap is larger than in other countries in the region. On average, women earn 70% of what men earn, and women workers tend to have less secure employment and

are more likely to work in the informal sector or be self-employed with only half of women in the working-age population participating in the labor market.²³

Disabled Persons

Almost 9% of the population experiences moderate or severe disability, but it must be noted that Indonesia’s disabled population count varies depending on the institution reporting. People with disability are more likely to live in poverty and must often rely for support on family members who are often struggling themselves. This population has consistently lower educational attainment, lower health outcomes, fewer economic opportunities, and less access to public services than people without disabilities.

The right to social protection for persons with disability stipulated in the UN Convention of Rights for People with Disability (UNCRPD) was incorporated into the Indonesian Disability Law (No. 8/2016), yet 94.5% of people who have a severe disability do not benefit from social protection programs. In addition, children with disabilities are much less likely to have a birth certificate or attend primary or secondary education compared to children without disabilities. Data shows that disabled adults participate less in the labor force than the general population. Finally, almost half of people above the age of 60 experience some form of disability, with almost 10% with severe disability, limiting their ability to support themselves and requiring them to depend on others for support.

Table 1 depicts the number of people with a disability in Indonesia sorted by age group.²⁴

Age Group	All Population	Persons with Moderate or Severe Disability		Persons with Severe Disability	
		Number	%	Number	%
Aged 0 - 6 yrs	24,083,555	1,047,703	4	305,918	1
Aged 7 - 18 yrs	38,230,392	622,108	2	173,217	0
Aged 19 - 59 yrs	162,732,512	9,549,485	6	1,449,725	1
Aged 60 yrs ++	21,609,716	9,888,281	46	2,683,278	12
Total	246,636,175	21,107,575	9	4,612,138	2

Table 1: Persons with Disabilities in Indonesia

Economics

Since 1965, the country has diversified away from being an economy highly dependent on agriculture. As of 2017, agriculture accounted for about 14% of GDP, industry for 41%, and services for 45%. Meanwhile, about one-third of laborers work in agriculture, one-fifth in industry, and nearly one-half in services.²⁵ The country has a market economy in which state-owned enterprises (SOE) and large private business conglomerates play a significant role and funnel wealth to the interlinked corporate and political elite. At the same time, Indonesia's micro, small, and medium enterprises, which together make up 99% of the total number of active enterprises account for about 60% of GDP and create employment for nearly 108 million (40% of the population).²⁶

Indonesia's economic planning follows a 20-year development plan, Rencana Pembangunan Jangka Panjang Nasional (RPJPN), and the current plan runs from 2005 to 2025. It is segmented into 5-year medium-term plans, each of which lays out different development priorities. The last phase of the current long-term plan runs from 2020 to 2024 and aims to further strengthen Indonesia's economy by improving the human capital and competitiveness in the global market.²⁷ RPJPN 2005-2025 was drawn up in 2004 as part of an effort to continue institutional restructuring to uphold equality, rule of law, and security and peace. The stated objective is the establishment of a structure in which agriculture and mining form the basis of an efficient and modern economy, in which manufacturing becomes the motor of the economy, and in which services "become the glue of economic resilience." While there are concrete targets for annual income per capita and poverty reduction, they are not necessarily binding given the role of external shocks and global trends in influencing the national economy.²⁸

RPJPN 2005-2025 came into force following a very difficult decade of recovery from the Asian financial crisis in 1997. In the early years of the plan, the country was marked by

growth, low government debt, and prudent fiscal management that saw Moody's, Fitch, and Standard and Poor's upgrade Indonesia's credit rating, which, in turn, attracted foreign direct investment (FDI). FDI inflows were particularly important after the global financial crisis (2008-2009) but did weaken somewhat after 2014 after a prolonged national economic slowdown. Since then, softening FDI linked to global shifts – particularly China's stalling demand for Indonesian commodities – have led to a reassessment of funding sources for major industrial, manufacturing, and infrastructure projects.²⁹

The impact of the COVID-19 pandemic in Indonesia will play out over many years as missed school years and lost production set some communities back. The 2020 pandemic-linked recession saw GDP shrink by 2.1% while the unemployment rate rose and progress in poverty reduction was halted. Given the structure of the economy – based more on export commodities than on consumers – the current account deficit in 2020 shrank and the size of the trade surplus in 2020 was the largest in a decade. The trade balance remained positive in the first quarter of 2021, with support from higher international prices of commodities such as coal, palm oil, and rubber. On the other hand, tourism showed no sign of a recovery after 2020's precipitous decline; indeed, January-March 2021 arrivals were 85% lower than in the same period in 2020 just before pandemic-induced travel bans came into force. Economic support measures were set to remain in place as long as uncertainty prevailed.

Within a few months of the first cases of COVID-19 in the country, the pandemic reversed some hard-won advances in well-being, with poverty, malnutrition, and hunger rising fast. Asian Development Bank (ADB) estimated that 9.8% of Indonesians lived in poverty in 2020.³⁰ Poverty is concentrated in rural areas, with 15.8 million people or 13.2% of the rural population living in poverty based on the March 2018 twice yearly household survey conducted by the Indonesian statistical agency. Additionally, challenges of high food prices and unequal access

to food remain unresolved.³¹ Rice, a staple in Indonesian diets, is 50-70% more expensive in Indonesia than in neighboring countries; as a result, 19.4 million people are unable to meet their dietary requirements. More than 27% of children under 5 years of age suffer from stunted growth due to malnutrition, with higher prevalence among families reliant on subsistence farming or living in slums. Almost one-quarter of women of reproductive age are anemic, and an increasing number of people over the age of 15 years are overweight or obese.³²

The country estimates that it has a total labor force of 128.5 million workers. By August 2020, 2.67 million Indonesians had lost their jobs due to the pandemic, driving the unemployment rate to 7.07%, the highest rate the country had seen since 2011, and an increase on the 5.23% recorded in August 2019. In total, in latter 2020, 9.77 million Indonesians were unemployed formally while 24 million were reportedly working shorter hours and 1.7 million had been furloughed. The pandemic is also believed to have boosted the ranks of informal workers who are vulnerable to labor abuses and sudden losses of employment without recourse. Of those unemployed during the pandemic, 4.6 million are believed to have joined the informal sector, and informal employment was thought to have risen to nearly 60% of total employment while formal employment fell to below 40%.³³

Fiscal policy did mitigate some pandemic-

related damage, with planned capital expenditures partly diverted to relief measures and the deficit exceeding 6% of GDP, although actual spending was 14% below target.³⁴ To respond to the shock, the government implemented emergency fiscal packages equivalent to 3.8% of GDP (actual spending) in 2020 and to 4.2% of GDP (tentative) in 2021, to deal with the health impact, provide relief to households and firms, and support the vaccine roll-out, and the recovery.³⁵ Beyond social spending, the country’s fiscal position shifted in 2020 as Bank Indonesia resumed monetary financing of the deficit after more than two decades of not funding revenue shortfalls. The “burden sharing” arrangement proved useful in reducing the government’s interest costs and freeing up resources for relief measures.³⁶

The economy is expected to grow by 3.5% in 2021 and 4.8% in 2022, ADB suggests. Exports and government spending are expected to be the main growth drivers while supportive fiscal policy and accommodative monetary policy will help.³⁷ Figure 3 shows the World Bank estimate for Indonesia’s GDP growth recovery in the post-pandemic world after the country saw its first economic recession since 2011.³⁸

Industry

The two most important industrial sub-sectors are mining and manufacturing, the latter of which constitutes Indonesia’s largest

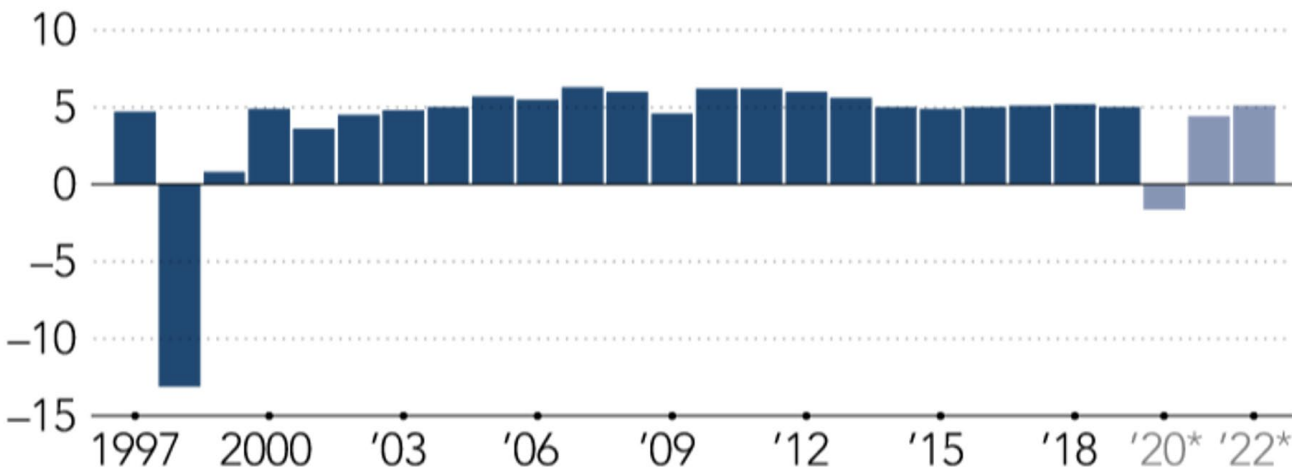


Figure 3: GDP Growth Estimate for 2020 and Forecast for 2021-2022 (in percent)

recipient of FDI, followed by mining, which, alone, contributes about 12% of GDP. Since the close of the global financial crisis (2008-2009), foreign companies and investors have gained confidence due to robust domestic demand and the promising perspectives of mining. Coal, oil, gold, footwear, textiles, paper products, furniture, electronics, and automobiles are mainstays of industry, and there is room for improvement, particularly in infrastructure and legal frameworks, that will allow greater diversity and productivity. In January 2009, the new “Mining Law No. 4 2009” came into force with the aim of providing a conducive investment climate that is also more environmentally friendly; it foresees a larger role for domestic stakeholders and aims for more value-added processing within the country.³⁹

Palm Oil

Palm oil is widely used in food, cosmetics, and hygiene products, and it can be used as a source for biofuel or biodiesel. Indonesia and Malaysia together account for 85-90% of the world's palm oil production at 36 million and 21 million metric tons annually, respectively. Indeed, estimates are that 1.5-2.5% of Indonesia's GDP come from the palm oil industry. However, they pay a steep social and ecological price for this production. Between 2000 and 2020, the total area under palm oil cultivation in Indonesia rose from 4 million hectares to 13 million hectares. Almost 70% of Indonesia's oil palm plantations are located on Sumatra while around 30% are on Kalimantan.

In the past 20 years, driven by increased global demand and higher yields, palm oil cultivation has expanded significantly in Indonesia even at the expense of production figures of other agricultural products, such as cocoa or coffee, because farmers switched to palm oil plantation due to promising prospects. However, palm oil plantation development results in deforestation and destruction of carbon-rich peat lands. To address a growing international demand that palm oil be more sustainable, in 2011, Indonesia established Indonesian Sustainable Palm Oil

(ISPO) to enhance the global competitiveness of Indonesian palm oil and bring it under stricter environmental legislation. All Indonesian palm oil producers are now compelled to receive ISPO certification. The government also signed a two-year primary forest moratorium that came into effect in May 2011 and was extended through 2017 and meant a temporary stop to new permits to clear rain forests and peat lands. Results have been mixed in terms of halting new clearing or planting.

Another major ecological challenge stemming from palm cultivation is linked to fire. From June through October 2015, Sumatra and Kalimantan were engulfed by massive forest fires that spread toxic haze to other parts of Southeast Asia. One study suggested these fires released approximately 11.3 million tons of carbon each day (a figure that exceeds the 8.9 million tons of daily carbon emissions in the entire European Union). According to the World Bank, it cost Indonesia 1.9% of the country's gross domestic product. On the ground, more than 100,000 fires destroyed about 2.6 million hectares of land.⁴⁰

Natural Rubber

Indonesia is one of the world's largest producers and exporters of natural rubber, second only to Thailand and producing upwards of 3.2 million tons annually. A key limit on the flexibility of this commodity is the life cycle of the tree. It takes seven years for a rubber tree to reach a productive age, after which, it can produce for up to 25 years. Most of the country's rubber output - approximately 80% - is produced by smallholder farmers. Most production is in South Sumatra, North Sumatra, Riau, Jambi, and West Kalimantan. The total size of Indonesia's rubber plantation area has risen steadily during the last decade. In 2016, the country's rubber plantations covered a total of 3.64 million hectares. As prospects of the rubber industry are positive, there has been a shift away from commodities such as cocoa, coffee and tea, in favor of palm oil and rubber with smallholder estates preferring rubber while government estates have preferred palm. Around 85% of

Indonesia's rubber production is exported. Almost one-half of exports are shipped to other Asian countries, and the top five Indonesian rubber importing countries are the U.S. (22%), China, Japan, Singapore, and Brazil. Domestic rubber consumption is concentrated in the automotive sector (tires). The downstream rubber industry is underdeveloped, and the country depends on imports of processed rubber products.⁴¹

Tourism

Tourism taken as a whole is the second largest sector by contribution to GDP; this includes domestic transport, retail and services sectors that serve tourists, and the logistics chains that underpin tourism activities. As a response to estimates that tourism could be the dominant sector during the 2020s, the government has accelerated development of additional tourism destinations, the "10 New Balis" program. The objective is to develop additional local hubs that mimic Bali's success as an international destination.⁴² To achieve this will require infrastructure development as well as marketing and accommodations business development that will, in turn, force shifts in education, skills training programs, and technology adoption.

Government

The Republic of Indonesia is a presidential republic with decentralized administration whereby the 31 provinces, autonomous province of Aceh, special region of Yogyakarta, and National Capital District (Jakarta) hold responsibility for implementing policy and providing services.⁴³ The provinces, led by Governors, are divided into regencies (*kabupaten*) and municipalities (*kota*), headed by Regents (*bupati*) and Mayors (*walikota*), and each region has wide-ranging autonomy. Each level of authority has its own Regional People's House of Representatives.

The Constitution is explicitly anti-colonial and reflects the period of its writing in the post-World War II era and Indonesia's key place within the Non-Aligned Movement as

formed after the Bandung conference, hosted by Indonesia in 1955.

The President of the Republic is the head of state and chief of government as well as the Supreme Commander of the armed forces; there is one Vice-President who is elected alongside the President on the same ticket and for the same term. Ministers are appointed and dismissed at the pleasure of the President and hold responsibility for specific cabinet portfolios. The President may submit bills to the People's Representative Council (*Dewan Perwakilan Rakyat*, DPR) and may issue government regulations to implement laws. The President may also declare states of emergency and, with the approval of the DPR may declare war, make peace, and conclude treaties with other countries. The President and Vice-President serve a five-year term and may be re-elected once for a total of two five-year terms. Presidential elections have two requirements to declare a winner; a ticket must poll: 1) more than 50% of the total number of votes; and 2) at least 20% of the votes in more than one-half of the provinces. If no ticket wins after the first round, the two tickets that received the two highest totals in the general election shall go to a second round of voting in which the entire electorate votes directly for one or the other.⁴⁴

The People's Consultative Assembly (*Majelis Permusyawaratan Rakyat*, MPR) is the bicameral legislature. It consists of the members of the DPR and Council of Representatives of the Regions (*Dewan Perwakilan Daerah*, DPD). DPD has 136 seats; the non-partisan DPD members are directly elected in multi-seat constituencies - four each from the country's 34 electoral districts - by proportional representation vote to serve five-year terms. The DPR has 575 seats; its members are directly elected in multi-seat constituencies by single non-transferable vote to serve five-year terms.⁴⁵ As a whole, MPR is tasked with reviewing the Constitution at least once every five years and with inaugurating or dismissing the President. DPR holds legislative, budgetary, and oversight functions while DPD may propose bills to DPR that are related to

regional autonomy, the relationship of central and local government, the formation, expansion, and merger of regions, management of natural resources and other economic resources, and bills related to the financial balance between the central government and regions.⁴⁶

Article 24 of the Constitution stipulates that judicial power shall be implemented by the Supreme Court (*Mahkamah Agung*) and Constitutional Court (*Mahkamah Konstitusi*). The Constitution also stipulates the presence of a Judicial Commission, independent and authorized to nominate Supreme Court Justices,⁴⁷ of which there are 51 and who must retire at age 65.⁴⁸ The court system includes not only the general courts but also religious, state administrative, and military courts; each jurisdiction consists of courts of first instance (the first court taking jurisdiction of a case) and appellate courts. The Courts of General Jurisdiction have authority over general criminal and civil matters for most people, and there may be specialized general courts for taxation, business, corruption, fisheries, human rights, and industrial relations. The Religious Courts have authority over family matters for Muslim citizens; these matters include divorce, inheritance, and custody. Since 2008, the Religious Courts' authority has included economic shariah cases. An exception is Aceh province where criminal matters belong to Mahkamah Syari'ah, the religious court, which in other regions only have authority over civil matters. The State Administrative Courts hear disputes arising between individuals against agencies or State Officials, including disputes over employment of civil servants. Crimes committed by members of the armed forces are heard before the Military Court.⁴⁹

The 2011 amendment of the 2008 law on political parties lays out the administrative, territorial, and financial requirements for organizations to participate in electoral politics and public administration. It sets relatively low membership requirements of 50 Indonesians but does require that the organization have chapters in all provinces and in no less than 75%

of all regencies/municipalities in each province and in no less than 50% of all counties in each of the regencies/municipalities. Parties and their registrations fall under the purview of the Minister of Laws and Human Rights.⁵⁰ In general, entrenched political interests have control over the political parties, and they tend to operate as vehicles for political elites rather than funneling grassroots-level political demands up toward administrative power.⁵¹ There are 11 major parties operating in the country as of 2021, and the President's Indonesia Democratic Party-Struggle, holds about 20% of seats in the DPR.⁵²

Environment

Indonesia is an archipelagic state that stretches between the Indian and Pacific Oceans and straddles the Equator. It is composed of some 17,500 islands, of which more than 7,000 are uninhabited. Almost three-fourths of Indonesia's land area is on the islands of Sumatra, Borneo, and western New Guinea. There are over 100 active volcanoes and hundreds more that are considered extinct. These volcanoes run in a crescent-shaped line along the outer margin of the country, as shown in Figure 4.⁵³

Geography

Indonesia stretches 5,100 kilometers (km) (3,200 miles) west to east between the Indian and Pacific Oceans and 1,800km (1,100 miles) north to south on the Equator. The territory is located between 6°08' N and 11°15' S latitude, and between 94°45' E and 141°05' E longitude. It is composed of more than 17,500 islands, and it covers 1,919,443 square kilometers (km²) (741,101 square miles) of total area, 95% of which is land and the remainder made up of inland seas such as straits and bays.⁵⁴ The additional surrounding sea areas bring Indonesia's generally recognized territory to about 5 million km² (1.9 million square miles).⁵⁵ The five main islands are: Sumatra (473,606 km² (182,860 square miles)), Java (132,107 km² (51,006 square miles)), Kalimantan (Indonesia's portion of Borneo) (539,460 km² (208,286 square



Figure 4: Map of Indonesia’s Volcanoes

miles)), Sulawesi (189,216 km² (73,056 square miles)), and Irian Jaya (Indonesia’s portion of New Guinea) (421,981 km² (162,927 square miles)).⁵⁶

Underneath Indonesia’s islands and seas lies the junction of three major tectonic plates, and the whole of the country involves a series of shelves, volcanic mountain chains, and deep-sea trenches. The island of Borneo and the island arc that includes Sumatra, Java, Bali, and the Lesser Sundas sit on the Sunda Shelf, a southward extension of the continental mass of Asia. The shelf is bounded on the south and west by deep-sea trenches, such as the Java Trench (about 7,450 meters (m) (24,440 feet) deep at its lowest point). New Guinea and its adjacent islands sit on the Sahul Shelf, which is a northwestern extension of the Australian continental mass; the shelf is bounded to the northeast and northwest by oceanic troughs, a chain of coral reefs, and a series of submarine ridges. The third major section is an extension of the belt of mountains that forms Japan and the Philippines; the mountains run southward between Borneo and New Guinea and include a series of volcanoes and deep-sea trenches on and around Sulawesi and the Maluku.

Islands of the Sunda Shelf

Borneo is the world’s third largest island and is shared by Indonesia, Malaysia, and Brunei. The Indonesian portion of the island, Kalimantan, seldom exceeds an elevation of 1,700m (5,577 feet), and most of the island lies below 300m (984 feet). Most of Kalimantan consists of undulating lowlands, with alluvial swamps near the coast and forest-covered mountains in the deep interior. A broad mountain system runs roughly northeast to southwest across Borneo and into the associated Sunda Shelf islands. The islands of the Riau archipelago east of Sumatra, near the southern outlet of the Strait of Malacca, are generally low-lying and swampy.

Sumatra stretches northwest to southeast for more than 1,600km (994 miles), with a maximum width (including offshore islands) of 525km (325 miles). It is flanked on its western edge by a string of non-volcanic islands. The Sumatran mainland divides into the narrow, western, coastal plain, the volcanic Barisan Mountains along the western coast, an inner non-volcanic zone of low hills, and the broad alluvial lowland that constitutes the eastern half of the island.

Java is 1,060km (658 miles) long and has a maximum width of about 200km (125

miles). Java can be divided into five latitudinal physiographic regions: a series of limestone platforms along the southern coast; a mountain belt just to the north, in the western segment of the island; a belt of 50 active volcanoes that runs through the center of the island; a northern alluvial belt; and a second limestone platform area along the northern coast of Madura (an island off the northeastern coast of Java) and the adjacent section of eastern Java.

The many islands of the Lesser Sundas to the east of Java are much smaller and less densely populated. The physiography of Bali and Lombok is similar to eastern Java. As the Lesser Sundas continue through Sumbawa and Flores, they narrow progressively until they appear on a map as a spine of volcanic islands that loops northeast into the Banda Islands.

Islands of the Sahul Shelf

The islands of the Sahul Shelf include the Maluku, Sulawesi, and New Guinea. The western portion of New Guinea has a varied landscape. Mangrove swamps seal much of the southern and western coastline, while the Maoke Mountains form a natural barrier across the central area. There is a narrow coastal plain in the north. Much of the region is heavily forested.⁵⁷ Indonesia's tallest mountains, which reach between 4,700m and 5,000m (15,419 feet and 16,404 feet), are located in the Jayawijaya Mountains and the Sudirman Mountains on New Guinea. The highest peak, Puncak Jaya, which reaches 5,039 m (16,532 feet), is located in the Sudirman Mountains.⁵⁸

Sulawesi's complex shape that somewhat resembles a capital K forms three large gulfs: Tomini (or Gorontalo) to the north, Tolo to the east, and Bone to the south. The coastline is long, and the land consists of ranges of mountains cut by deep rift valleys, many of which contain lakes. The island is fringed by coral reefs and is bordered by oceanic troughs in the south. The northeastern arm, the Minahasa Peninsula, is volcanic and structurally different from the rest of the island, which is composed of a complex of

igneous and metamorphic rocks.

The Malukus, which include the islands once known as the Spice Islands, consist of a group of roughly 1,000 islands with a combined area that is about two-thirds the size of Java. Halmahera is the largest, followed by Ceram and Buru. The Malukus lie in the same geologically unstable zone as Sulawesi, although the northern islands are associated more with the Sahul Shelf. Halmahera is volcanic, as are the islands of the Banda Sea, which are frequently rocked by earthquakes. Most of the northern and central Malukus have dense vegetation and rugged mountainous interiors where elevations often exceed 900m (2,952 feet).⁵⁹

Borders

Indonesia shares an 1,881-km (1,168-mile) border with Malaysia in the northern part of Borneo. It also shares an 824-km (512-mile) border with Papua New Guinea down the center of the island of New Guinea and a 253-km (157-mile) border with Timor-Leste on the island of Timor. There remain some spots of disputed claims or disputed demarcation between Indonesia and Malaysia on Borneo, and on-going negotiations have stalled any development in the disputed zones.⁶⁰

Two land borders separate Indonesia and Timor-Leste: a 150-km (93-mile) stretch divides the island of Timor in two, and in Indonesia's Nusa Tenggara province in the western half of the island, a 120-km (75-mile) curve creates an East Timorese enclave, Oecusse, within Indonesia's territory. While the mid-island border has successfully been negotiated, the border surrounding Oecusse remains disputed in some stretches. The two countries began negotiating their borders in 2000, but the latest meeting of the countries' foreign ministers in January 2018 made no progress on Oecusse as they differ in their interpretations of the 1904 Treaty between Portugal and the Netherlands. Indonesia insists the border lies in the Noelbesi River, and Timor-Leste says the border lies in the smaller Nonotuinan River.⁶¹

Climate

The climate of Indonesia is determined partly by its island structure and its position astride the Equator. In addition, its location between the two landmasses of Asia and Australia exposes it to seasonal patterns of precipitation brought by monsoon winds.

Regional temperature variation is a function of elevation rather than latitude. Temperatures are highest along the coast, where mean annual readings range from the low 20s to low 30s degrees Celsius (°C) (mid-70s to the upper 80s degrees Fahrenheit (°F)). Regions above 600m (2,000 feet) are significantly cooler, but only the Maoke Mountains of Papua are high enough to receive snow. The diurnal difference of temperature in Jakarta is at least five times as great as the difference between the high and low temperatures of January and July; on an exceptionally hot day in Jakarta the temperature may reach nearly 38 °C (100 °F), while on an especially cool one it may drop to about 18 °C (65 °F).

Precipitation is varied in extremes and distribution. Most of Indonesia receives heavy rainfall throughout the year, the greatest amounts occurring from December to March. As one moves eastward from central Java toward Australia, the dry season (June to October) is progressively more pronounced; the islands of Timor and Sumba receive little rain during these months. Sumatra and Kalimantan, close to the Equator and far from Australia, have no dry season, although precipitation tends to be slightly lower during July and August. Strong cyclones and typhoons, which normally occur in higher latitudes, are absent in Indonesia, but afternoon thunderstorms are common.

The highest amount of precipitation occurs in the mountainous regions of Sumatra, Kalimantan, Sulawesi, and western New Guinea, where annual rainfall totals more than 3,000 millimeters (mm) (120 inches). The rest of Kalimantan, Sumatra, western New Guinea, western and central Java, and much of Sulawesi and the Malukus average at least 2,000mm (80 inches) of rainfall per year. Eastern Java,

Bali, southern and central Sulawesi, and Timor generally receive 1,500-2,000mm (60-80 inches), while the Lesser Sunda Islands that are closest to Australia get only 1,000-1,500mm (40-60 inches).

The absolute daily maximum of precipitation can be extremely high, with a number of stations recording 500-700 mm (20-28 inches). Local variations, caused in large part by geographic features, are great. For example, Jakarta, which is near sea level, has a mean annual rainfall of 1,750 mm (70 inches), while just 50km (30 miles) to the south, at an elevation of about 240m (790 feet), Bogor records nearly 4,300mm (170 inches).

Seasonal variations are caused by monsoonal Asian air drifts and the convergence of tropical air masses from both north and south of the Equator along an intertropical front of low pressure. The monsoon pattern in any given part of the archipelago depends on location either north or south of the Equator, proximity to Australia or mainland Asia, and the position of the intertropical front. During December, January, and February, the west monsoon from the Asian mainland brings heavy rain to southern Sumatra, Java, and the Lesser Sunda Islands. In June, July, and August, these areas are affected by the east monsoon, which brings dry air from Australia. By the time the east monsoon has crossed the Equator and become the southwest monsoon of the Northern Hemisphere, its winds have become humid and a source of rain.⁶² Photo 2 shows Cyclone Fay churning between Australia and Indonesia in 2011.⁶³

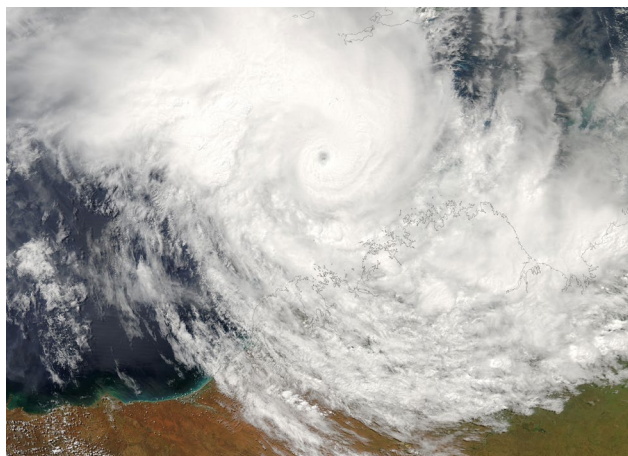


Photo 2: Cyclones - Like 2011's Fay - Can Strike Indonesia at Any Time of Year

DISASTER OVERVIEW

Many areas of Indonesia are considered hotspots for the impacts of hazards, including geological and hydro-meteorological events. The National Board for Disaster Management's (BNPB) Indonesia Disaster Risk Index (*Index Rawan Bencana Indonesia*, (IRBI)) lists 497 disaster prone districts or cities out of which 65% are "high risk" and 35% at "moderate risk." The government categorizes hazards as "natural," "non-natural," and "social." These categories include natural (earthquake, tsunami, flood, landslide, volcanic eruption, extreme tidal wave or erosion, extreme weather, drought, and forest or other fire), non-natural (epidemic or pandemic, and technological failure), and social (social conflict or terrorism).⁶⁴ BNPB records upwards of 3,000 natural disasters across the country in any given year. They are generally dominated (90% or more) by hydro-meteorological phenomena (e.g., tornadoes, floods, and landslides). However, hydro-meteorological events do tend to be less deadly than earthquakes, tsunamis, and other seismic impacts, and the upshot is that years without major seismic events see fewer human loss.⁶⁵ In any given decade, the country can suffer disaster events that cost thousands of lives and displace tens of thousands while the economic losses can total US\$3 billion annually.⁶⁶ The ten deadliest disasters in Indonesia between 1980 and 2015 are shown in Table 2.⁶⁷

The impacts of disasters on the economy are significant. The 2004 Indian Ocean Tsunami stood out in terms of human and economic costs with an estimated US\$4.45 billion in losses in Indonesia alone. Most events do not approach this scale. Nonetheless, earthquakes cause significant damage; between 1970 and 2015, there were 97 damaging earthquakes whose destruction amounted to US\$11.7 billion.⁶⁸

Climate Change

Indonesia is one of the most vulnerable countries to climate change. The national

Disaster Type	Year	Fatalities	Description
Earthquake and tsunami	2004	165,708	Indian Ocean, 9.2 magnitude
Earthquake	2006	5,778	Yogyakarta and Central Java, 6.3 magnitude
Earthquake	1992	2,500	Flores, 7.8 magnitude
Earthquake	2009	1,117	West Sumatra, 7.6 magnitude
Earthquake	2005	915	Nias, 8.7 magnitude
Earthquake	2006	802	Tasik Malaya, West Java, 7.7 magnitude
Epidemic	1998	777	Dengue, Jakarta
Drought	1997	672	Central Papua
Epidemic	1998	672	Rabies, Flores
Epidemic	2004	658	Dengue, Jakarta

Table 2: Ten Deadliest Disasters in Indonesia (1980-2015)

strategy is to reduce risks in all development sectors including agriculture, water, energy security, forestry, maritime and fisheries, health, public service, infrastructure, and urban system by 2030. There are specific policies for adapting farming to climate change, optimal use of land, water, and natural resources, conserving rainwater, developing early warning systems for extreme weather events, protecting coastal zone, making infrastructure more resilient, and better urban planning.

In addition to being vulnerable to the impacts of climate change, Indonesia is among the world's leading carbon emitters. It was the world's fourth largest emitter of greenhouse gases in 2015. It is the 16th biggest economy in the world and the largest in Southeast Asia. Its emissions stem from deforestation and peatland megafires and, to a lesser extent, the burning of fossil fuels for energy. In 2019, the country became the world's largest exporter of thermal coal, and it had plans to substantially increase domestic coal-powered generation. Although the government had pledged to cut emissions, action to curb emissions by key industries has frequently fallen

victim to political needs, and there is minimal public pressure for such action. In part, this is due to the perceived economic damage and development slowdown that would emerge if expansion of agricultural activities like palm oil plantations decelerates.

Indonesia contains 36% of the world's tropical peatlands, which are wet and swampy with soil that can hold up to 20 times more carbon than other types of mineral soil. Indonesia's peatlands are estimated to hold around 28 billion tons of carbon. At the same time, Indonesia accounts for 53% of the world's palm-oil cultivation. A global thirst for palm oil has transformed the country's landscape. From 2000 to 2015, Indonesia lost an average of 498,000 hectares of forest each year – making it the world's second biggest deforester after Brazil. Most past deforestation involved “slash and burn” clearing, which drove polluting megafires across the country's peatlands. When fires rip across peatlands, much of their vast stores of carbon are released. The risk of megafires is also increased by draining peatlands to grow palm oil and other crops, such as timber. In 2015, the number of peatland fires spiked. On some days, Indonesia's fire emissions alone were higher than those from the entire U.S. economy.

The country's climate-related legislation is directed towards tackling emissions from the forest sector. These policies include moratoriums on the draining of peatlands and the conversion of primary rainforest. For example, in September 2018, the President issued a decree to place a moratorium on new permits for palm plantations for three years.⁶⁹ Under the Paris Agreement, in 2015 the Government of Indonesia had pledged to reduce emissions from 2020-2030 by 29% - unconditionally – or by up to 41% - if external support and other conditions are met – against the 2030 business as usual scenario, an increased unconditional commitment compared to 2010 pledge of 26%.⁷⁰ In October 2017, the government announced an initiative aimed at incorporating climate action into the development agenda. At the time, the National Medium Term Development Plan (RPJMN 2015-2019; the third five-year block of the 20-year

RPJPN) said that a “green economy” should be at the foundation of Indonesia's development. The plan targeted the eradication of illegal logging, fishing, and mining and increased participation of local people in forest management. It also aimed to increase vulnerable communities' resilience to climate change impacts.⁷¹ Then, under the RPJMN 2020-2024 (the final five-year block of the 20-year RPJPN), Indonesia aspires to become a high middle-income country with fair and sustainable development through a seven-point agenda, one of which is enhancing the environment and resilience to natural disaster and climate change impacts.⁷²

Finally, ahead of the 2021 United Nations Climate Change Conference (COP26) in Glasgow, Scotland, the government submitted an updated Nationally Determined Contributions (NDC) slate to the UN. The plan included new measures on adaptation and resilience and some new targets in specific sectors, but has the same topline emissions targets submitted in 2016 – 29% unconditionally and 41% conditionally. Indonesia also submitted its first long-term strategy to the United Nations Framework Convention on Climate Change (UNFCCC), which indicates the country plans for greenhouse gas emissions to peak in 2030 and may reach net-zero emissions by 2060 or sooner.⁷³ In November 2021, in Scotland, President Joko Widodo reiterated the need for developed economies to contribute funds and share technology so that countries like Indonesia can ramp up climate change efforts. Indeed, under its up-dated NDCs, Indonesia outlined three pathways to a low carbon economy, the most ambitious, the net-zero by 2060 target, being contingent on foreign assistance.⁷⁴

The country is highly vulnerable to extreme events such as floods and droughts and to long-term changes from sea level rise, shifts in rainfall patterns, and increasing temperature. High population density in hazard prone areas, coupled with strong dependence on natural resources, make Indonesia vulnerable to projected climate variability and change with impacts across multiple sectors with a potential

cost of 2.5–7% of GDP. In addition to economic impacts, expected changes include:

- Temperature increases of 0.2–0.3°C (0.3–0.5°F) per decade
- Increasing annual precipitation across all but the southern islands where it is projected to decline by up to 15%
- Changes in the seasonality of precipitation:
 - o parts of Sumatra and Borneo may become 10–30% wetter by the 2080's during December–February.
 - o a 30-day delay in the annual monsoon, bringing a 10% increase in rainfall later in the crop year, April–June, and
 - o up to a 75% decrease in rainfall later in the dry season, July–September.

The eastern and western portions of Java and coastal regions of Sumatra, parts of western and northern Sulawesi, and southeastern Papua are all highly vulnerable to multiple climate hazards, including drought, floods, landslides, and sea level rise. A global risk analysis conducted by the World Bank ranks Indonesia as 12th out of 35 countries facing a relatively high mortality risk from multiple hazards. Floods have posed the greatest threat to Indonesians in major urban centers, including Jakarta, Medan, and Bandung.⁷⁵ However, over time, sea level rise is expected to be the primary driver of hydrological threats. Indeed, some studies find that Indonesia is the world most exposed country to climate change-induced sea level rise. Already, based on climate change and groundwater extraction, sea level in Indonesia is rising four times faster than elsewhere.⁷⁶ At greatest risk as the 42 million Indonesians who live less than 10m (32 feet) above sea level. A one-meter (3.2-foot) rise in sea level could inundate 405,000 hectares (1,564 square miles) of land and reduce Indonesia's territory by flooding low-lying islands. A 50 centimeter (cm) (1.6 feet) rise in sea level, combined with land subsidence in Jakarta Bay, could permanently inundate densely populated areas of Jakarta and Bekasi.

Climate change will also decrease food security as production patterns and outputs change due to shifts rainfall, evaporation, run-off

water, and soil moisture. Agricultural activities in the country center on five subsectors: annual food crops, estate crops, livestock, forestry, and fisheries. Food crop farming contributes almost 50% of the whole agriculture-produced GDP and is particularly important on the island of Java, which is home to over 60% of the country's population, 70% of whom live in rural areas. Estate crops account for approximately 17% of agricultural GDP. As climate change alters the water cycle, production of these crops will be severely affected as past trends indicate a low capacity to adapt. Rising temperatures will increase the incidence and range of pests and, when combined with decreased rainfall and increased demand, higher temperatures will also present new challenges related to water storage or transfer mechanisms.⁷⁷

Hazards

Indonesia is exposed to the following hazards:

Cyclone

In April 2021, after Cyclone Seroja, the most powerful cyclone to hit the country in recorded history, Indonesia's Meteorology, Climatology and Geophysics Agency (*Badan Meteorologi, Klimatologi, dan Geofisika*, BKMKG) said that it has seen a trend of more frequent, powerful storms. Launched in 2008, BKMKG's Tropical Cyclone Warning Center has proven important as, between 2008 and 2016, one tropical cyclone struck the country every few years; however, between 2016 and 2021, one or two storms have struck annually.⁷⁸ The country is impacted by tropical cyclones in the southeastern Indian Ocean between January and April and the eastern Pacific between May and December, with the country usually impacted by strong winds and heavy rainfall.

Climate change is expected to interact with cyclone hazards in complex ways. Known risks include the action of sea level rise to enhance the damage caused by cyclone-induced storm surges, and the possibility of increased windspeed and precipitation intensity. Indonesia is estimated to have one of the largest coastal populations

exposed to flooding from once in 100-year storm surges. Modelling points to a general trend of reduced cyclone frequency but increased intensity and frequency of the most extreme events.⁷⁹

Disease

While exposure to flooding remains the most significant concern for the country, it is not only the direct impact of flood waters on lives, livelihoods, and infrastructure that poses a threat. Flood waters are also associated with the spread of diseases, as they may wash up waste in areas where sanitation is compromised or lacking, and lead to the loss of access to safe water altogether. Droughts may also drive the spread of diarrheal diseases as desperate people use increasingly polluted water resources. Finally, the tropical climate increases peoples' exposure to vector-borne diseases, including dengue and chikungunya, which have the potential to develop into epidemics. An upward trend of Dengue infection has been reported over the past 50 years, and it is currently present in 80% of cities and regencies.⁸⁰

Drought and Fire

Two drought types affect Indonesia: meteorological (associated with a precipitation deficit) and hydrological (associated with a deficit in surface and subsurface water flow). As of the early 21st century, the country faces an annual median probability of severe meteorological drought of around 4%. By the 2090s, the annual probability of experiencing a year with a severe drought roughly doubles to 9%, according to some climate models.⁸¹

Droughts are expected to increase in frequency and intensity given the association of accentuated drought with El Niño events. During El Niño, chances for drought increase across Indonesia and the broader region, while La Niña tends to bring wetter conditions. Studies in recent years have suggested that extreme El Niño and La Niña events may increase in frequency from about one every 20 years to one every 10 years by the end of the 21st century.

Thus, under the worst-case warming scenarios, El Niño events will shift ever more rainfall eastward along the equator, exacerbating drought in Indonesia.⁸² Some areas including Sumatra and Kalimantan tend to have much lower-than-normal rainfall during La Niña years, which contributes to a severe escalation in fire events in Indonesia. Some studies show that increased fire risk is not only associated with drought, but also temperature rise in non-drought years. During the summer months of July to October, anomalously warmer months increase the probability of fires considerably more than anomalously dry months during this period. The risks of fire and associated air quality impacts (haze) were underscored by the severe forest and peatland fires of 2015, which cost the national economy an estimated US\$16 billion in lost productivity and resulted in an estimated 90,600 excess deaths (smoke-related mortality). Such events also make very significant contributions to global greenhouse gas emissions.⁸³

Given the expected impacts of climate change on rainfall patterns and heat, Indonesia is expected to see some increase in food insecurity. In the 2020 Global Hunger Index (GHI), Indonesia ranked 70th out of 107 countries and had a score of 19.1, meaning it has a “moderate” level of hunger. This level is an improvement after several years of falling into the “serious” level group of countries. Indeed, all component indicators except the prevalence of wasting among children under 5 years of age have shown marked improvement in recent years. GHI tracks hunger at global, regional, and national levels and bases its scores on the values of four component indicators: undernourishment (share of the population with insufficient caloric intake), child wasting (share of children under age five who have low weight for their height, reflecting acute undernutrition), child stunting (share of children under age five who have low height for their age, reflecting chronic undernutrition), and child mortality (mortality rate of children under age five, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments).⁸⁴

Earthquake

Due to its position at the intersection of three tectonic plates, Indonesia experiences an average of 20 earthquakes every day; most are too weak to be felt. At the same time, BNPB estimates that 62% of the population lives in areas prone to earthquake.⁸⁵ Thus, earthquakes are the biggest threat to lives and livelihoods as they come suddenly and can strike in populous areas. Earthquakes of around 5.0 magnitude occur almost daily but usually cause little damage. When the magnitude of the quake rises above 6.0, then the potential for damage also rises. On average, Indonesia experiences about one 6.0 magnitude or higher earthquake per year and that causes casualties and damage. In part, the high number of casualties and damage can be laid at the feet of the poor condition of housing and infrastructure.⁸⁶

Flooding

Indonesia is affected by regular flooding and coastal inundation associated with storms, landslides, and cyclones. Moreover, high precipitation associated with La Niña conditions increases the risk and intensity of hydrometeorological hazards. During some years, rainfall amounts may treble. At the same time, it must be noted that the normal rainy season occurring between November and April brings copious amounts of rainfall, which may have catastrophic consequences.⁸⁷

The World Resources Institute's AQUEDUCT Global Flood Analyzer estimates that the population annually affected by flooding in Indonesia is 1.5 million people and annual urban damage is US\$1.4 billion. Development and climate change are increasing these figures. By the 2030s, climate change is expected to increase the annually affected population by 400,000 people and increase urban damage by US\$6.1 billion.

Flooding associated with sea level rise threatens significant physical changes to coastal zones due to permanent inundation, high tides, and land subsidence, and these impacts will affect settlements, rice fields, ponds, harbors,

and airports. The total population likely to be exposed to permanent flooding by the 2070s tops 4.2 million (assuming no adaptation). An exacerbating factor is land subsidence, to which Indonesia is disproportionately exposed due to ecosystem degradation in lowlands. Finally, sea level rise is not just a threat due to long-term encroachment on coastal areas, but also due to the projected increase in the frequency of extreme events. Exceptionally high sea levels, potentially driven by cyclones, are expected to increase substantially in frequency, and low-lying Indonesian islands are particularly at risk. Wave heights that historically occurred only once every 10 years could occur every 4-10 years by 2070–2100, even under the least severe sea level rise scenarios.

Heatwaves

Indonesia regularly experiences high maximum temperatures. It has a very stable temperature regime, with the hottest month, October, experiencing a maximum temperature of 31.1°C (88°F). However, it is positioned as one of the most vulnerable countries to extreme heatwaves (three or more days where the daily temperature is above the long-term 95th percentile of daily means). By the 2080s, based on all climate projections, the likelihood of experiencing a heatwave increases dramatically to more than 70%. A Heat Index (effective temperature experienced by the human body while factoring in relative humidity) of 35°C (95°F) is often highlighted as a threshold beyond which conditions become extremely dangerous for human health. Under some scenarios, Indonesia will experience extremely dangerous conditions almost every day of the year by the end of the century.⁸⁸

Landslide

BNPB estimates that 40.8 million Indonesians are exposed to landslide risks. Landslides may be caused by a complex interaction of factors, including triggers such as seismic activity or high precipitation, ground conditions (e.g., soil types and slope angle), and anthropogenic stressors

resulting from cutting roads through landscapes and unplanned development in unstable land. Due to the country's growing population and increasing urbanization, landslides have become more common, rising from 112 events in 2008 to 515 in 2015, and the most affected areas are in West, Central, and East Java, and in West Sumatra and East Kalimantan.

Tsunami

More than 4 million Indonesians live in areas where they are at risk of the impact of tsunamis.⁸⁹ A submarine earthquake or volcanic eruption in the ocean can cause a tsunami wave with devastating effects on people and objects on the coast. The 2004 Indian Ocean Tsunami is the example that is most frequently used as the worst-case scenario; in that event, more than 167,000 people were killed in Indonesia alone, and more than 500,000 were displaced after thousands of homes were washed away. Although a tsunami of this scale is rare, the Sumatra region is often startled by offshore earthquakes that can potentially trigger a tsunami. On average, once every five years a large tsunami hits Indonesia, mostly on the islands of Sumatra and Java. In general, damage done to the infrastructure exceeds the loss of lives, in part because there are warning systems installed on many coastal areas.⁹⁰

It is worth noting that some impacts of climate change increase the risk posed to communities when tsunamis are generated off Indonesia's coasts. The threat is from rising sea temperatures, mechanical action of cyclones, and the impact of stormwater run-off. Tropical cyclones can cause extensive damage to individual corals and to reef structure. Powerful waves generated during cyclones damage habitats and landforms, and intense rainfall can see floodwater run-off laden with sediment and nutrients can block light needed for coral growth and/or drive outbreaks of coral predators.⁹¹ Meanwhile, increasing sea temperature threatens coral life via massive coral bleaching. In general, an increase of sea surface temperature of 1-2°C (2-5°F) from mean annual value can trigger bleaching.⁹² Coral bleaching has

significant impacts not only on the ecosystem but for the sea floor and coastal environment. Reef deaths and destruction open a path for erosion,⁹³ thereby removing a high energy wave absorber.⁹⁴ Thus, a tsunami generated anywhere near Indonesia has a greater potential to strike the country's coast in a damaging way rather than having some of its energy dissipated by reef.

Volcano

The country is home to 500 volcanoes, of which 128 are active and have erupted in recorded history. The most active are: Sinabung, Merapi, Kaba, Kerinci, Anak Krakatau, Papandayan, Slamet, Bromo, Semeru, Batur, Rinjani, Sangeang Api, Rokatenda, Egon, Sopotan, Lokon, Gamalama, Dukono, Karangetang, Ibu, and Talang.⁹⁵ The Centre of Volcanology and Geological Hazard Mitigation (*Pusat Vulkanologi dan Mitigasi Bencana Geologi*, PVMBG) estimates that more than 5 million people live or work within the "danger zone" of a volcano and, therefore, need to be evacuated in case of significantly rising activity. There is at least one significant volcanic eruption in Indonesia every year. Usually, it does not cause great damage or cause casualties as most of the active volcanoes are in isolated regions and are closely monitored by PVMBG. Some historic eruptions have caused tens of thousands of casualties, but the most recent of these was the 1883 eruption of Krakatau. In the 20th century, only three eruptions, Kelut in 1919, Merapi in 1930, and Agung in 1963 caused more than 1,000 casualties.⁹⁶

History of Natural Disasters

The following is a list of natural disasters in Indonesia in the last ten years. Of course, one of the major events that drove Indonesia's current disaster management, risk reduction, and climate change adaptation frameworks and policies was the 2004 Indian Ocean tsunami. Since then, the country has put into practice lessons learned from that event to save lives and reduce loss from subsequent events.

2021 – Mount Semeru Eruption

On 4 December 2021, Mount Semeru in Lumajang Regency, East Java, had its largest eruption in recent history and produced a hot cloud avalanche with volcanic materials and heavy ashfall. As of 6 December, the BNPD had reported 34 people killed, more than 15 people unaccounted for, and 5,205 people directly affected, including some 3,697 people displaced within the regency. The eruption damaged 2,970 houses and affected 24 schools. The Government has prohibited any human activity within a 1-km (0.62-mile) radius from the volcano and within 5 km (3.1 miles) south-southeast of the mountain. The local Lumajang authorities declared a 30-day emergency response period and established a command post. OCHA reports that more than 300 government and non-government institutions have provided relief assistance.⁹⁷

2021 – Flooding

Between 1 and 6 December 2021, floods were reported in Hulu Sungai Tengah and Banjarmasin of South Kalimantan, Makassar of South Sulawesi, North and West Lombok of West Nusa Tenggara, North Jakarta and Thousand Islands of Jakarta, Semarang of Central Java, and Denpasar and Badung of Bali. These flooding events were caused by heavy rains and high tides and were exacerbated by La Niña. The directly affected population was estimated at 80,000, with at least 8,000 people displaced for several days. Local governments and the Indonesian Red Cross responded.⁹⁸

2021 – Cyclone Seroja

Tropical Cyclone Seroja formed over the Savu Sea on 4 April 2021 and moved southwest towards the Western Australia coast. Following its passage on 12 April, BNPB reported that at least 500,000 people had been impacted with 11,406 people displaced, 181 deaths, 271 injuries, 45 missing persons and 66,036 houses damaged in East Nusa Tenggara and West Nusa Tenggara.⁹⁹ Flooding, mudslides, and landslides were the primary cause of damage to homes, public facilities, and infrastructure throughout

East Flores, Malacca, Lembata, Ngada, Alor, East Sumba, Sabu Raijua, Rote Ndao, Timor Tengah Selatan, Ende, and Kupang City. Access and communication to affected areas in the immediate aftermath of the storm was hindered as roads and communication facilities were damaged. Impassable roads and loss of local food crops led to a spike in food insecurity as well as shortages of shelter materials. There were efforts to keep people near their homes rather than in evacuation camps due to the spread of COVID-19. Thus, responding organizations reported a need for mobile clinics as public health facilities were damaged or overwhelmed.¹⁰⁰

2021 – West Sulawesi Earthquake

On 15 January 2021, a magnitude 6.2 earthquake struck Majene District, West Sulawesi, and the main quake was followed by several aftershocks, the strongest of which reached 4.1 magnitude. At least 107 people were killed, and 15,000 houses were damaged, displacing upwards of 71,000 people, many of them seeking shelter in 335 camps within West Sulawesi Province. An overall estimate found that nearly 100,000 people were impacted as government offices, private businesses, schools, markets, religious institutions, and hospitals were also damaged. Electricity and communications networks were disrupted, slowing the assessment and response process in the initial stages. The Indonesian Red Cross (*Palang Merah Indonesia*, PMI) tapped into its Makassar warehouse supplies, and the Air Force helped deliver relief items, including personal protective equipment given that the emergency occurred within the context of the still raging COVID-19 pandemic. Provincial authorities took responsibility for emergency medical treatment and evacuation while BNPB coordinated National Search and Rescue Agency (*Badan Nasional Pencarian dan Pertolongan*, BASARNAS), the Armed Forces, National Police, and cluster activities. The Ministry of Health was among the most active government agencies; it mobilized its Emergency Medical Team as well as 25 ambulance units

and sent orthopedics kits, medicine, and other equipment. Additional support to health, water, sanitation, hygiene (WASH), and food security were provided by Islamic Relief, World Vision, CARE, ADRA, and Save the Children.¹⁰¹

2020 – Ili Lewotolok Eruption

On Sunday, 29 November 2020, PVMBG raised the alert level for Ili Lewotolok Volcano to Level 3 (watch/alert) after an increase in volcanic activity. Between 29 November and 31 December, PVMBG recorded 137 eruptions at the site. The height of the ash column ranged 200-4,000m (650-13,123 feet) above the peak. PVMBG advised villagers to remain at least 4km (2.5 miles) from the main crater as the volcano spewed out lava, hot gas, ash, and rock fragments. On 1 December, the Lembata District government issued a state of emergency for the district. The most severely affected areas were 26 villages in Ile Ape and Ile Ape Timur, with a total population of almost 20,000 people. At the peak of the emergency phase, officials reported that at least 9,044 people from the two sub-districts were temporarily displaced, many to 13 evacuation centers, but many villagers preferred to seek shelter with relatives in neighboring villages. Many evacuees required treatment for injuries and illnesses related to volcanic eruption (e.g., eye injuries, suffocation, skin irritation, and respiratory issues). Moreover, many evacuees were without essential items. As a result, basic necessities such as hygiene kits, blankets, mattresses, and tarpaulins were needed. Additionally, given the COVID-19 pandemic context, the risk of the virus spreading in confined spaces such as evacuation centers was high.

Losses were high as many houses and agricultural lands were damaged by hot ash. Villagers also lost hundreds of cattle that died from starvation after being left untended for weeks while villagers sought shelter in evacuation centers. In January 2021, the government of Lembata ended the state of emergency, and evacuees gradually returned to their villages. The last of them returned home in February

2021. Nonetheless, the volcano's status remained at level 3. PVMBG did reduce the danger zone to 3km from the main crater. While volcanic activity was reduced, significant volcanic activities such as eruption and ash clouds were still taking place.

Upon villagers' return, problems associated with exposure to volcanic materials persisted. Moreover, there was an increased risk of water shortages due to contamination of harvested rainwater and well water.

On 4 April 2021, torrential rains produced by the Tropical Cyclone Seroja caused solidified lava to tumble down the slopes of Ili Lewotolok and triggered flash floods. Natural debris such as soil and rocks that were carried by the cold lava flows and flash floods swept through villages, burying houses, buildings, and agricultural land. There were 46 reported deaths, 53 people severely injured, and 1,104 people displaced. Hundreds of buildings and houses were damaged, buried in mud, or completely swept away. Agricultural land, schools, village halls, places of worship, and bridges were also damaged or destroyed. The Lembata District government again issued a state of emergency. During this phase, search and rescue, first aid, psychosocial support, and clean water were very much needed, but relief efforts faced significant challenges due to the remoteness of the affected area. Access was blocked by debris and wreckage, and many bridges were destroyed by cold lava flows and flash floods. The flow of information was also disrupted due to internet shutdowns that resulted from power cuts.¹⁰²

2019-2020 – Flooding

Heavy rains from mid-December 2019 through June 2020 led to nearly 700 occurrences of flooding, tornadoes, and landslides across the country, particularly in western Sumatra, central Sulawesi, and western Java, including Jakarta. BNPB reports during the entire period indicated that at least 200 deaths can be laid directly at the feet of the severe weather and landslides while more than 1.4 million people were temporarily displaced at some point during the prolonged

weather instability. BNPB, the Armed Forces, National Police, BASARNAS, other ministries, and PMI were all involved in the responses alongside community-based organizations. In some situation, such as North Sumatra on 29 January, local authorities declared emergencies for periods of one to two weeks and used available police and military search and rescue assets. In some periods, such as late December and early January, authorities reported upwards of 100,000 displaced within the greater Jakarta area alone. The impacts of the floods not only destroyed or damaged homes but also brought destruction to public facilities, particularly schools and health centers, while landslides often cut off affected villages from help.¹⁰³

2019 – Drought

The government estimated that nearly 50 million people were affected by the country's long-running drought during 2019. Some 92% of the country experienced some level of drought due to the El Niño cycle that began in late 2018. During this period, emergencies were declared in Banten, Central Java, West Java, East Java, Yogyakarta, West Nusa Tenggara, and East Nusa Tenggara. The official dry season peaked in August 2019, according to BMKG, which forecast the rainy season to begin in November.¹⁰⁴ A number of regional governments reported scarcity of clean water, declining supply of irrigation water and crop failure. BNPB reported in August 2019 that approximately 20,269 hectares of crops were damaged and nearing failure because of the drought. The PMI and BNPB were distributing clean water in Banten, West Java, Central Java, Yogyakarta, East Java, Bali, West Nusa Tenggara, and Central Sulawesi.¹⁰⁵

2019 – Maluku Earthquake

On 26 September 2019, a 6.5 magnitude earthquake struck 40km (24 miles) northeast of Ambon, and it was followed by hundreds of aftershocks. Local authorities reported that 170,000 people had been displaced, 39 were killed, and at least 1,500 injured. More than 500

public facilities (e.g., health centers, schools, markets, etc.) and 6,300 houses were damaged. A challenge specific to this emergency was that the on-going swarms of aftershocks led to the circulation of rumors that a tsunami was arriving, and displaced people were refusing to return to their remote homes out of fear that they would be harmed if they returned. The concentration of displaced people was, by mid-October, creating a health challenge as the rainy season and lack of facilities were undermining access to clean water and sanitation.¹⁰⁶

2018 – Sunda Strait Tsunami

A landslide on Mount Krakatoa on 22 December 2018 sent tsunami waves onto coastal areas around the Sunda Strait. Areas of Banten Province and Pandenglang, South Lampung, and Serang districts were damaged. Government reports suggested that 2,200 houses were damaged or destroyed, displacing upwards of 16,000 people. At least 400 people were killed and 14,000 injured, more than one-half of them in Pandenglang. Tsunami waves were recorded in various locations at between 0.3m and 0.9m (0.9-2.9 feet), the highest hitting Serang. While BNPB had issued a high-tide warning ahead of the waves' arrivals, there was not an early warning issued because the cause was not seismic. The Armed Forces, National Police, BASARNAS, local offices, and PMI volunteers responded with a locally situated command post and displacement sites while heavy equipment arrived to clear debris. Most recovery was complete by mid-March 2021.¹⁰⁷

2018 – Sulawesi Earthquake and Tsunami

On 28 September 2018, a series of earthquakes occurred. The largest was a 7.4 magnitude quake that struck off the coast of Central Sulawesi. It generated a tsunami that hit coastal areas of Donggala and Palu. The 3m (9.8 feet) tsunami waves and quake-induced liquefaction and landslides killed 4,140 people, injured 4,400 people, destroyed or damaged 110,000 homes, and displaced 173,000 people. An additional 320 health facilities and 1,300 schools were

damaged. PMI joined local governments in the initial response. PMI was swiftly joined by other Red Cross/Crescent international personnel and national societies, and eventually BNPB directed PMI to support management of relief goods entering Palu and to coordinate international and local NGO efforts in the greater area.¹⁰⁸

2018 – Lombok Earthquakes

On 29 July 2018, a 6.4 magnitude earthquake struck off the coast of Lombok. It was followed on 5 August by a 7.0 magnitude quake in the same location and on 9 and 18 August by magnitude 5.9 and 6.4 quakes respectively. BNPB estimated that the quartet of quakes killed more than 500 people, injured 7,100 people, and displaced more than 430,000 people.¹⁰⁹ Assistance operations transitioned from emergency to recovery on 26 August with long-term assistance being slated for 20,000 households. Damage to roads and communications lines slowed the initial response as accurate assessments of damage were unavailable immediately, and delivery of relief teams and items was disrupted. Nonetheless, PMI volunteers were on the scene swiftly and, by 21 September, PMI had distributed over 4.3 million liters of clean water, delivered psychosocial support to 6,827 individuals, constructed 1,423 emergency shelters, delivered emergency medical services to 6,048 individuals, and delivered 14,917 hot meals.¹¹⁰ Less than one week after this accounting, on 28 September, the response to the Lombok quakes was rolled into the overall government and NGO response to the Sulawesi quakes that struck on 28 September.¹¹¹

2017 – Drought

BNPB's Emergency Operations Center reported that 2,726 villages in 105 cities were impacted by drought in 2017, leaving 3.9 million people in need of clean water. The drought also caused crop failures across 18,516 hectares of agricultural land, one-third of available agricultural land in those areas. The drought was notable in West Java, Central Java, Yogyakarta, East Java, West Nusa Tenggara, and East Nusa

Tenggara. Central Java authorities declared the drought an emergency as it affected 1.41 million people. In West Java, eight regencies declared emergencies with 936,328 people affected. A drought emergency was also declared in West Nusa Tenggara and East Nusa Tenggara while 32 villages in Yogyakarta declared emergencies as the drought impacted 12,721 people. BMKG forecast that the peak of dry season would run through October 2017, and, in response, BNPB provided water and financial assistance to local governments.¹¹²

2017 – Mount Agung Eruption

On 22 September 2017, PVMBG raised the alert level for Mount Agung in Bali to Level IV (Red Alert/Danger). This triggered a mass evacuation of villages near the volcano. By 29 September, the number of evacuees topped 143,000 people staying in 471 camps. A month later, the alert level was downgraded, reducing the number of evacuees to 133,349 people in 383 camps. The alert level was re-raised to Level IV on 27 November, correspondingly widening the exclusion zone to 10km (6.2 miles) from the crater. From 10 February 2018, the alert level was lowered to Level III although dozens of mild magmatic and phreatic eruptions were recorded afterward. Although dozens of shallow earthquakes continued to be reported daily through December 2017, those numbers had dropped precipitously by February 2018. Still through to June 2019, the volcano generated frequent eruptions and ejected generous amounts of tephra.

Geographically, there are 22 villages located in the disaster-prone area with a total population of 239,231 people. Given the prolonged duration of the emergency and at the instruction of the head of the district, the exclusion zone was reduced to 6km. The number of evacuees also declined such that by 26 February 2018, official records stated that only 1,791 evacuees remained in 41 evacuation sites in Karangasem District.¹¹³

2016 – Aceh Earthquake

On 7 December 2016, a 6.4 magnitude

earthquake struck off Pidie Jaya, Aceh Province. BNPB reported that more than 100 people were killed and 857 people injured; 11,378 buildings were damaged. Upwards of 85,000 people were impacted as roads in the area were damaged, slowing the emergency response. There was heavy damage to water sources, and many local community members had to rely on water delivery for months after the quake.¹¹⁴ Armed Forces personnel were among the first mobilized to respond with 740 troops deployed to Pidie to assist in evacuation and relief. A transport and logistics detachment and military health unit were among the key military assets supporting the rescue and relief phases.¹¹⁵ PMI volunteers were among the earlier responders, and the national society also sent ambulances and medical crews from across Sumatra during the immediate response. Meanwhile, the local government established a task force and command post led by provincial authorities with support from Oxfam, CARE International, and Save the Children. Four national clusters were informally activated, including Health, Education, Logistics and Displacement, and Protection. The primary activities undertaken were provision of emergency medical services, psychosocial support, epidemic control, WASH, and shelter.¹¹⁶

2016 – Floods and Landslides

During 1-7 August 2016, approximately 45 houses were flooded in Ende, East Nusa Tenggara. The local authority evacuated 231 people. Then, during 8-14 August, floods inundated 250 houses in Ciamis, West Java, followed by heavy rains during 15-21 August that triggered floods and flash floods in several districts in East Java. In West Java's Sukabumi, landslides affected 386 families and damaged rice fields and infrastructure. The flooding and landslides affected 19,964 people and damaged 4,991 houses and 48 hectares of agricultural land. Additional heavy rains from 22 to 28 August caused flooding in Jakarta, impacting almost 33,000 people. Also affected were parts of Aceh Jaya, where 4,000 houses were flooded and

15,000 people affected. From 29 August through 4 September, four floods affected approximately 750 people in West Java, and approximately 600 people were evacuated in Deli Serdang, North Sumatra Province. On 21 September, flash floods in West Java caused 33 deaths and displaced 6,000 people. Then, during 3-9 October, heavy rains triggered floods and landslides in Banjar City, West Java, and in Central Java's Surakarta. On 21-22 October, torrential rainfall and high tides caused flooding in 1,000 homes in coastal areas of Palopo City, South Sulawesi, and affected 3,000 people. Rice fields and farmland were also damaged. Again, heavy rains on 25-26 October caused 11 deaths in the Merangin District (Jambi Province, Sumatra Island), and 1,500 homes in Gorontalo were damaged. Additional flooding during 29-31 October killed three people, affected 15,700 more, and flooded 5,000 houses.¹¹⁷

2015 – Drought and Fires

BMKG recorded drought in Indonesia during 2015 due to the El Nino phenomenon. As a result, the dry season was noticeably drier, and the beginning of the rainy season was late. Areas impacted by the drought were South Sumatra, Java, West Nusa Tenggara, Bali, East Nusa Tenggara, South Sulawesi, and parts of Kalimantan. This cycle caused damage to 215,505 hectares of rice paddy, and BNPB said that 12 provinces had been experiencing a water crisis as of July 2015. The water deficit was expected to continue through November.¹¹⁸

Starting in July 2015 and running through late October, fires burned 2,089,911 hectares of land, with 80% of impacted land in Sumatra and Kalimantan. BNPB reported on 6 November that 556,945 people were suffering from acute respiratory infections and more than 43 million people were affected by the resulting haze. Ministry of Health reports also suggested that the haze affected Singapore, Malaysia, Thailand, and Philippines. Rains during the last week of October improved the situation although a thin haze remained in some areas of South Sumatra and Jambi through mid-November.¹¹⁹

2013-2015 – Volcanic Eruption

Mount Sinabung in North Sumatra became active and erupted periodically from September 2013 to November 2015. Volcanic eruptions triggered the government to increase the volcano's alert status to Level 4 (highest alert level) on 24 November 2013. On 1 February 2014, the volcano erupted killing 15 people and causing many people to be displaced to Internally Displaced Persons (IDP) shelters. Recovery efforts began on 13 February 2014, and the National Task Force facilitated the return of IDPs to their homes. By late December 2014, eruptions were on-going, and 2,400 people remained displaced in seven shelters. In November 2015, Mount Sinabung erupted again, spewing volcanic ash and lava down the mountain's southeastern slopes, and displacing 9,300 people.¹²⁰

2014 – Floods and Landslides

In November and December 2014, multiple areas of Nanggroe Aceh Darussalam were affected by flooding. The Governor declared a provincial flooding emergency for ten days. Approximately 120,000 people were temporarily displaced, and fishponds and agricultural land were damaged. In December, a landslide killed 97 people and displaced 1,400 in the Banjarnegara District of Central Java. Between October and December, landslides killed approximately 170 people.¹²¹

2014 – Kelud Eruption

On 2 February 2014, PVMBG raised the Kelud Volcano alert level; eight days later, the status was raised to ALERT and, on 13 February, to DANGER (Level IV). Based on this alert, the government ordered all communities living within a 10-km (6.2 mile) radius from the crater to evacuate. The area was declared a "Red Zone," prohibiting any activity or anyone from access except emergency authorities. Just two hours after the declaration of the DANGER status, the first eruption occurred at 2255 local time (13 February 2014), followed by a series of eruptions. Plumes rose up to 19km (11.8 miles) into the atmosphere, as ash and stones were thrown

into the air and fell over the Kediri District. The volcanic ash drifted across the provinces of Central and West Java the next day and affected several areas including Kediri, Malang, Blitar, Surabaya, Ponorogo, Pacitan, Solo, Yogya, Boyolali, Magelang, Purworejo, Temanggung, Wonogiri, Bantul, Yogya, Sleman, Kulon Progo, Kebumen, and Ampenan. Seven international airports were closed especially the major airport hubs of Surabaya, Solo, Yogyakarta, Semarang, and Malang. Seven people were killed, and 70 people were hospitalized due to smoke inhalation on the first day of the eruption. The number of displaced people topped 100,000 as people fled and camped across the province in 172 IDP camps. Within days, some IDPs found refuge with family and friends and moved out of the camps. By 18 February, 83,088 IDPs from 40 villages remained in shelters.

In addition to volcanic ash, heavy rain fell and produced cold lava flooding in Malang, Kediri, and Blitar districts. This flooding caused road closures and further damage to buildings and farmland. Houses, schools, farms, and public facilities were inundated with ash. Many factories and businesses halted production. On 20 February, PVMBG decreased the alert status to level 3, with a 5km (3.1 miles) exclusion zone from the crater. BNPB led the process to identify and assess the needs and coordinate the response with other stakeholders. Three clusters were formed as the main body for the emergency response: return of IDPs; security and safety; and improvement of houses, infrastructure, and facilities. PMI, civil society, humanitarian organizations, and private sector enterprises provided support in water and sanitation, health, psychosocial support services, field kitchens, and distribution of relief items.¹²²

2013-2014 – Floods and Landslides

A prolonged wet season in 2012-2013 caused floods and landslides that killed at least 35 people in November 2013. By January 2014, flooding in Jakarta affected approximately 135,000 people and 100 villages. National response was mobilized when the Government announced

that it had the capacity to respond to short and long-term needs created by the floods. However, the Indonesian government eventually welcomed technical assistance from the international community, particularly for relief aid logistic management.¹²³

2013 – Aceh Earthquake

A 6.2 magnitude earthquake struck Aceh on 2 July 2013. Areas close to the Central Aceh epicenter were cut off from access to power and telecommunications. The quake also set off landslides that led to road closures and that disrupted electrical, water, and communication lines. Some 53,403 people were displaced, and at least 42 died. The earthquake damaged nearly 21,000 buildings, including houses, schools, health centers, religious structures, and community facilities. For the first two weeks of the response, the area was under a state of emergency with the Governor leading via an Incident Command Post at Takengon, and government, the Armed Forces, and United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) worked via an On-Site Operational Coordination Center (OSOCC). When the recovery phase began on 17 July, local government received support from United Nations Development Programme (UNDP) and the World Bank. PMI was involved at all stages of the response by delivering relief items and providing medical and first aid services. PMI stocks in warehouses in Padang and Banten were released for quick delivery.¹²⁴

2013 – Flooding

More than 600mm (23.5 inches) of precipitation fell on Jakarta in January 2013; this set the record for the most rainfall in the city during the month of January. On 17 January alone, at least 175mm (6.9 inches) fell in western Jakarta within five hours. On top of this immense daily precipitation, the prolonged torrential rains caused rivers to overflow. The Ciliwung and Cikeas rivers inundated houses in eastern Bekasi. Moreover, dams reached critically dangerous levels, causing authorities to open various

floodgates, including a main one in Jakarta. This caused a stretch of river channel to collapse and inundated the Central Business District of Jakarta. A total of 97,000 homes suffered damage and 250,000 people were affected. The total economic losses and damages were at least US\$490 million.¹²⁵

2012 – Cyclone Iggy

Cyclone Iggy occurred in the Indian Ocean south of West Java during 25-29 January 2012. It caused 15 deaths and 60 injuries, and it damaged an estimated 2,364 houses in 35 districts in Java and Bali. The cyclone brought heavy rains and whirlwinds in areas from southern Lampung to the southern Arafuru Sea, and trees felled by winds were, by far, the biggest cause of death. In West Java, high tides caused the flooding of dozens of houses in Sukabumi District, while flash floods on 29 January led to hundreds of houses being inundated across three sub-districts in Sumba Besar in West Nusa Tenggara.¹²⁶

Country Risks

Indonesia is generally assessed as being at “medium” risk of natural and manmade disasters due, in large part, to its physical exposure to tsunamis, floods, earthquakes, and epidemics. Inequality and displacements account for the country’s main vulnerabilities while a lack of access to health care is assessed as the main lack in communities’ coping capacity. With upwards of 3,000 natural disasters of various sizes and scopes occurring each year, the country has built disaster management and risk reduction structures in hopes of mitigating vulnerabilities.

Country Risk Profile

Risk calculation takes into account exposure to hazards, vulnerability, and institutional coping capacity, all of which are important factors in Disaster Risk Management. The Index for Risk Management (INFORM) Global Risk Index (GRI) measures the risk of humanitarian crisis and disasters in 191 countries. The INFORM GRI supports a proactive crisis management framework. INFORM GRI is

helpful for establishing an objective allocation of resources for disaster management as well as for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies. The INFORM GRI model is based on risk concepts published in scientific literature with three dimensions of risk: Hazards & 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.¹²⁷

The INFORM GRI 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.¹²⁸ The higher the score the more at risk a country is to disasters. In the 2022 INFORM GRI, Indonesia has an overall risk of 4.6/10, which INFORM categorizes as the “medium” risk category. The Hazards and Exposure dimension score takes into account a combination of both natural and human hazards, and Indonesia rates 6.7/10. The Vulnerability dimension score is 3.2/10, and the Lack of Coping Capacity dimension score was 4.5/10. Physical exposure to tsunamis, 9.7/10, was the highest risk in the Hazards & Exposure dimension, with Inequality measuring at a 4.9/10 risk for the vulnerability dimension. Access to health care was rated 6.4/10 in the Lack of Coping Capacity dimension. Figure 5 shows the INFORM GRI dashboard for Indonesia.¹²⁹

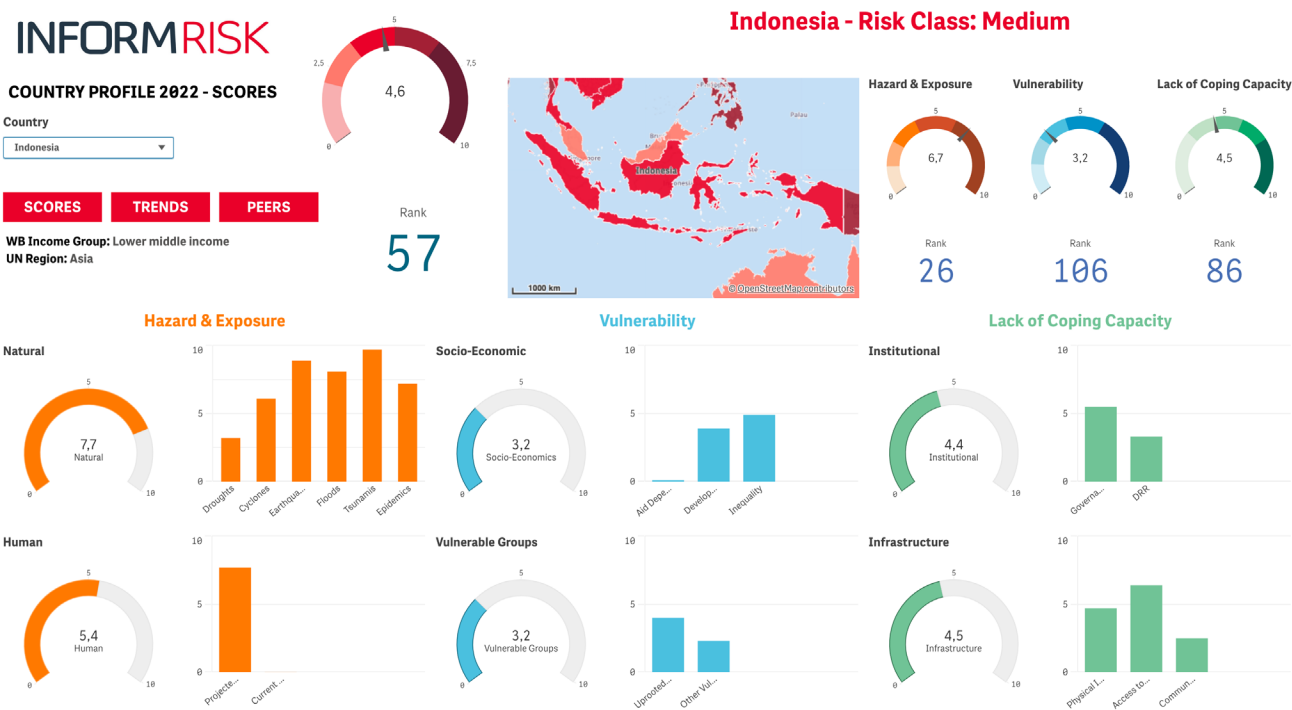


Figure 5: INFORM Risk Index, Indonesia (2022)

ORGANIZATIONAL STRUCTURE FOR DISASTER MANAGEMENT

Indonesia's National Board for Disaster Management (*Badan Nasional Penanggulangan Bencana*, BNPB), is the country's central governing body for all disaster-related activities. It coordinates all disaster related activities from preparedness, prevention, and mitigation to response, and it directs and manages national disaster risk reduction (DRR) and disaster risk mitigation (DRM) efforts. The Indonesian Armed Forces (*Tentara Nasional Indonesia*, TNI) and National Police (*Kepolisian Negara Republik Indonesia*, POLRI) are important contributors and are represented in the Disaster Management Steering Committee operating under BNPB. As a heavily decentralized country, operations at sub-national level are run by provincial, municipal, and district governments with the support of BNPB. Provincial and local Disaster Management Agencies (*Badan Penanggulangan Bencana Daerah*, BPBD) are mandated to undertake DRM/DRR functions in their respective jurisdictions. The National Development Planning Agency (BAPPENAS) and local agency for planning and development (BAPPEDA) also play a role in DRR as they are authorities for development, including land-use, planning.¹³⁰

Lead Government Agencies in Disaster Response

Indonesia's disaster response architecture mirrors its tri-level governance structure: national, provincial, and regency/municipal. Each level of government has its own disaster management organizations, policy frameworks, and budgets. When disasters occur, municipalities should be the first to respond. In case disasters overwhelm their capacity, national and provincial governments provide support.

BNPB sits at the head of the national

disaster management structure.¹³¹ The BNPB has a Head, a Steering Committee, and an Executive Committee. The Steering Committee is appointed by the President, chaired by the BNPB Head, and has 19 members, whose responsibilities include formulating policy, monitoring, and evaluating the implementation of disaster management. The 19 members include nine community professionals and ten government officials. The ten government officials represent the Coordinating Ministry for Human Development and Culture, Ministry of Home Affairs, Ministry of Social Affairs, Ministry of Public Works and Public Housing, Ministry of Health, Ministry of Finance, Ministry of Transportation, Ministry of Energy and Mineral Resources, POLRI, and TNI.

The Executive Committee under the BNPB Head includes the Secretary-General; Deputy for Prevention and Preparedness, Deputy for Emergency Response, Deputy for Rehabilitation and Reconstruction, Deputy for Logistics and Equipment, Inspector General, Heads of two supporting committees, and the Technical Executing Unit Head. The Secretary-General coordinates disaster management programs (including assisting in policy formulation, technical expertise, services, public relations, and reporting), and facilitates the Steering Committee.¹³² The Inspector-General supervises tasks and functions within BNPB. The remaining Deputies coordinate and implement policy germane to the pre-, during, and post-disaster timeframes.¹³³ The Executive Committee has authority to mobilize human resources, equipment, logistics, TNI, and POLRI, and any other measures required for disaster emergency management.¹³⁴ Figure 6 displays the Organizational Structure of BNPB.¹³⁵

The two primary functions of BNPB are to formulate and determine management policies for both disasters and displaced persons (IDPs or

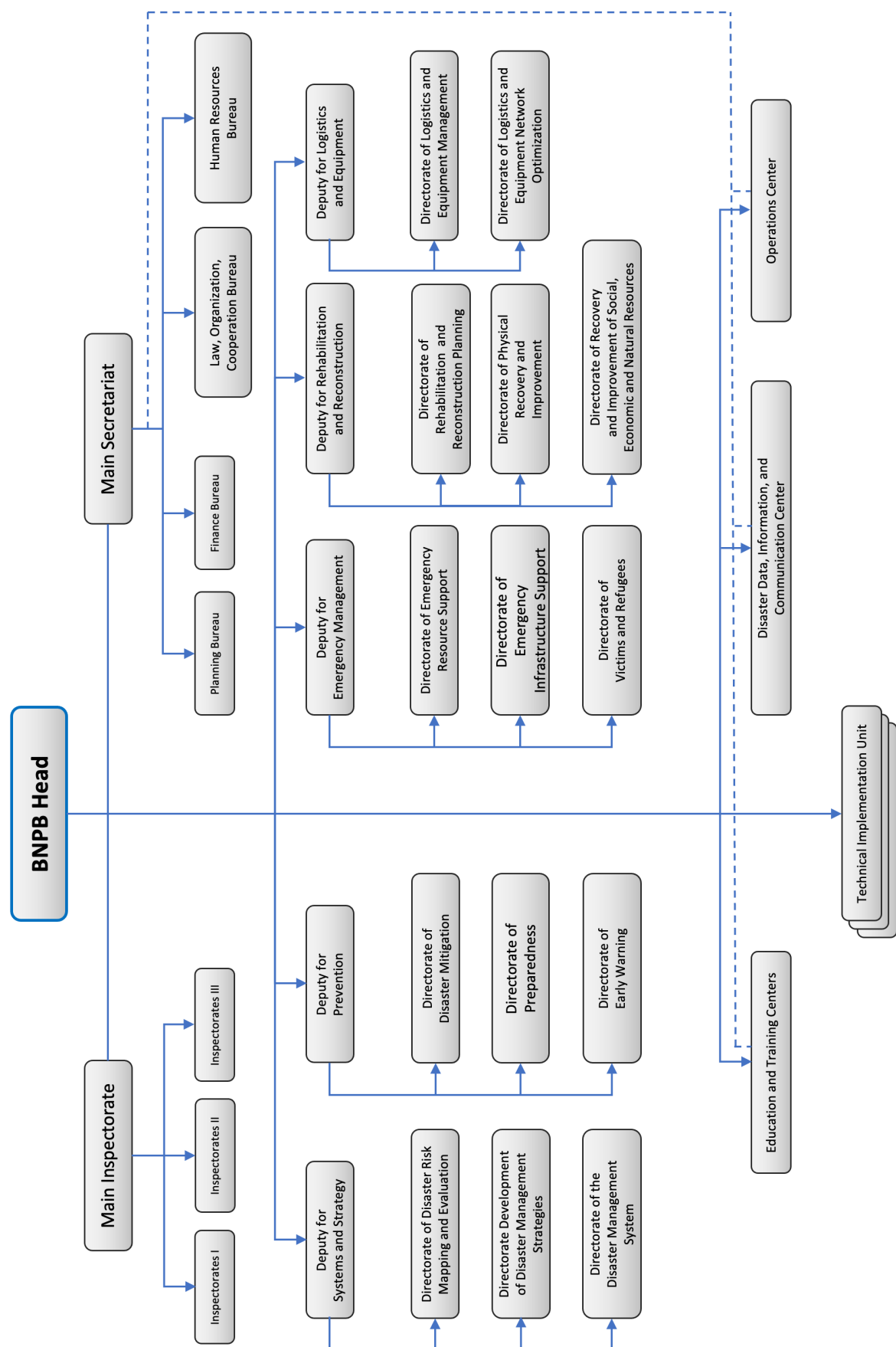


Figure 6: Organizational Structure of BNPB

refugees), and to coordinate the implementation of disaster management activities in a planned, integrated, and comprehensive manner. By law BNPB's duties are:

- Provide guidelines and direction for disaster management efforts that include disaster prevention, disaster emergency management, rehabilitation, and reconstruction in a fair and equitable manner
- Determine standardization and the need for disaster management based on laws and regulations
- Delivering information on disaster management activities to the public
- Report the implementation of disaster management to the President once a month under normal conditions and at any time in a state of disaster emergency
- Use and account for national and international donations/assistance
- Account for the use of the budget received from the State Revenue and Expenditure Budget; and
- Prepare guidelines for the formation of the Regional Disaster Management Agency.¹³⁶

At the Provincial level, a BPBD is headed by the province's chief executive (usually a Governor). Under the Head are an Executive Secretary and three Chiefs (Prevention and Preparedness, Emergency Field and Logistics, and Rehabilitation and Reconstruction). This structure is replicated at the BPBD in each regency or municipality.¹³⁷ The BPBD at the local level is the first responder in case of an emergency. However, shortfalls in budgets, human resources, and capacity limit BPBDs' effectiveness in terms of DRM development and implementation and, therefore, limit BPBDs' response capacity. In practice, BPBDs rely heavily on central government financial allocations.

As an example of how BNPB acts in times of crisis, Indonesia reported its first confirmed COVID-19 case on 2 March 2020, and the President established Task Force COVID-19

(*Gugus Tugas Percepatan Penanganan COVID-19*) with the Head of BNPB as commander. The task force's key focus was to help the country's medical workers mitigate the impact and reduce the loss of life. A number of presidential decrees, rules, and regulations were issued to guide the national and local responses. One of the most important legal instruments was Presidential Directive 4/2020 instructing a refocusing of development activities, reallocation of government budget, and procurement of goods and services for rapid and accelerated response to COVID-19. BNPB collaborated with the Ministry of Health in the following ways:

- to disseminate information through different media platforms including SMS blasts
- to establish a rapid response team
- to provide logistics, materials, and health facilities
- to conduct surveillance for new potential cases of Covid-19; and
- to collaborate with TNI and POLRI.¹³⁸

The Disaster Management Education and Training Center (*Pusat Pendidikan dan Pelatihan PB*, PUSDIKLAT PB) is the body tasked with developing BNPB's human resources. Its missions are:

- Improving the competency standard of disaster resources
- Improving the quality of disaster education and training
- Increase disaster awareness community.

More than half of PUSDIKLAT's annual training is in analyzing and planning for DM. About one-third of training sessions are "Train the Trainer" sessions, and another 8% of training is for operators. Senior managers, facilitators, and expert training sessions are also offered annually. PUSDIKLAT has developed its own Advanced Disaster Management Simulator (ADMS) to allow trainees to work through each phase of a disaster and build skills to lead or work within a team during a real-world response.¹³⁹

Disaster Relief and Emergency Response

According to Regulation 10/2008 (Guidelines for Disaster Emergency Response Command), the establishment of a Disaster Emergency Response Command occurs in four stages:

- 1. Information of initial disaster event
- 2. Deployment of Rapid Response Team (*Tim Respon Cepat*, TRC)
- 3. Declaration of disaster emergency status
- 4. Establishment of Disaster Emergency Response Command

From the information gathered on the initial event (type of disaster, when, where, number of victims, cause, and capacity), BNPB/BPBD may deploy a TRC to provide additional information to be used to declare status of disaster. Depending on the size of disaster the Mayor/District Head/Governor/President will establish disaster status level, which may call for the initiation of a Disaster Emergency Response Command. District/City level disaster response will be led by the Head of the District/City BPBD. A provincial-level disaster is led by the Head of the Provincial BPBD. The Command is organized under one clear chain of command, illustrated in Figure 7.¹⁴⁰

The organizational structure consists of a Commander, Deputy Commander, Command Staff (Secretariat, Public Relations, Safety and Security, Representatives of institutions/agencies), and General Staff (Operations, Planning, Logistics/Equipment, and Finance). TNI and POLRI are among the “other institutions” that may be represented within the Command. Key duties include planning the operation, submitting requests for assistance, and implementing and coordinating emergency response. The Command must collect detailed event information and ensure dissemination of information to the media and the public. The Commander has the authority to activate and upgrade an Emergency Operations Center (*Pusdalops-PB*) into the Command Post, set up Field Posts (*Puskolap*), formulate strategic/

tactical plans and operations, and exercise command and control of resources, equipment, and logistics.

Based on the type and scope of the disaster, stakeholders in the disaster management process will include various ministries, agencies, and civil society organizations. The following ministries are members of the BNPB Steering Committee and are integral to pre-, during, and post-disaster phases.

The Ministry of Energy and Mineral Resources (*Kementerian Energi dan Sumber Daya Mineral*, ESDM) provides knowledge regarding geologic hazards. It provides recommendations for alert levels and is responsible for monitoring geologic hazards including volcanic eruptions and landslides. It is an integral part of geologic early warning systems. ESDM Regulation 15/2011 provides guidelines for data management of volcanoes, landslides, earthquakes, and tsunamis, and, thus, the Ministry works to disseminate and coordinate pre-disaster mapping, emergency response monitoring, and post-disaster evaluation and recommendation standards.

The Ministry of Finance (*Kementerian Keuangan*) works with insurance and re-insurance providers, using different public, private, and micro-financing programs to bolster community capacity to withstand shocks.

The Ministry of Foreign Affairs (*Kementerian Luar Negeri*) is the primary contact for international assistance requests and offers. While BNPB is in charge of overall emergency operation and assessing the need for international assistance, the Ministry of Foreign Affairs acts as the entry point for required resources. If disaster management aid comes from a foreign country, BNPB consults and coordinates with the Ministry. International assistance in the form of military resources is coordinated by TNI but should also have Ministry of Foreign Affairs approval. The Ministry also liaises with foreign government representatives working to locate their citizens, determine status, and provide assistance for citizens impacted by a disaster within Indonesia.

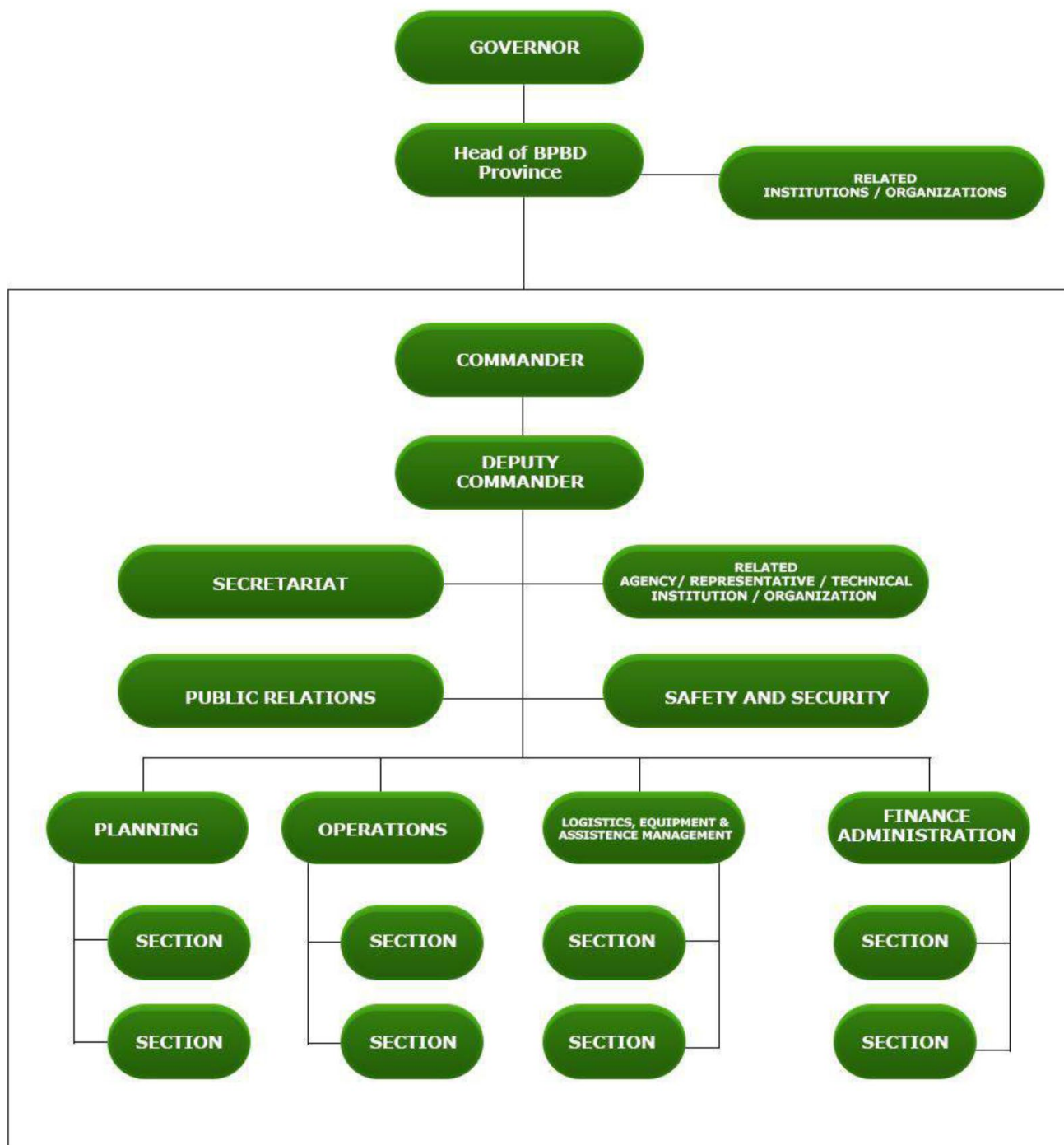


Figure 7: Structure of Incident Command

During a disaster, the **Ministry of Health** (*Kementerian Kesehatan*) monitors health concerns, provides treatment as needed and possible, and monitors air and water quality. Ministry of Health Regulation 1144/2010 provides guidance for establishment of a Health Crisis Center to develop policy, implement plans, monitor, evaluate, report, and coordinate during emergency and recovery. The Ministry maintains a close relationship with the World Health Organization (WHO) and published Technical Guidelines for Safe Hospitals in Disaster and Emergency Situations, adapted from the WHO's guide on the same subject.

Ministry of Home Affairs (*Kementerian Dalam Negeri*) has oversight over BPBDs. Ministry of Home Affairs Reg. 131/2004 addresses local level disaster management while Ministry of Home Affairs Reg. 131/2003 includes guidelines for managing internally displaced persons. Regulation 84/2014 adds to local level capacity by mandating community protection units trained to assist in their local area. Training includes first aid, rescue, evacuation, and public cooking facilities.

The Ministry of Public Works and Public Housing (*Kementerian Pekerjaan Umum dan Perumahan Rakyat*) plays an important role both as a leader in pre-disaster activities that include construction of roads to evacuation sites and construction of temporary evacuation sites with funding from both their own budget and the BNPB budget. The Ministry works in flood risk monitoring, mapping, and analysis and is mandated to improve infrastructure throughout Indonesia. During disaster response, the Ministry works on improved accessibility to disaster zones, restoration of base functions and facilities, establishing access to clean water, sanitation, and shelter, and inventory of damaged buildings. Post-disaster activities include rebuilding infrastructure and facilities. The Ministry command structure operates as a task force within the emergency response command structure and can deploy its own TRC or assist a BNPB TRC.

The Ministry of Social Affairs (*Kementrian Sosial*, MOSA) is mandated to manage the

process of humanitarian assistance in the event of disaster through the Directorate of Humanitarian Assistance, which works with refugees, the elderly, and the disabled. MOSA Regulation 128/2011 allows for select members of the public to be trained as volunteers in anticipation of disaster. Funding for this training is through state, local, and community budgets and foreign aid. Moreover, MOSA 29/2012 establishes local Tagana, community-based organizations that include specially trained and officially registered individuals. The Ministry is responsible for keeping records of non-government organizations (NGO) operating in country and liaisons with the organizations as need in a disaster response. Also, when responding to disaster many BPBD's reach out to MOSA for assistance in procuring relief goods and logistics.

The Ministry of Transportation (*Kementerian Perhubungan dan Transportasi*) is responsible for repair, recovery, ongoing rehabilitation, and recovery of public transportation. This mandate includes assessment, opening/closing transportation hubs, and fulfilment of basic transportation needs. The Ministry monitors and evaluates data pertaining to transportation in a disaster. In special circumstances, the Ministry may permit foreign aircraft to operate unscheduled flights.

Indonesian National Police (*Kepolisian Negara Republik Indonesia*, POLRI) duties include protection of people, assets, and the environment from disturbance and disaster. POLRI Regulation 17/2009 details disaster response management roles. In response to a disaster, police respond by implementing Field Control Command to assist and rescue disaster victims. This command may precede BNPB/BPBD operations, but its overall coordination is handed over to BNPB/BPBD once the civilian command operation is established.¹⁴¹

Armed Forces Role in Disaster Relief

The Indonesian National Armed Forces (*Tentara Nasional Indonesia*, TNI) is a tri-service force, made up of the Army, Navy, and Air Force. Under Law 34/2004, the military's role in internal

affairs is limited, but it retains its mandate to act in times of disaster. Indeed, the law stipulates disaster response as a Military Operation Other than War (MOOTW) and specifies that actions may include delivering relief aid and assisting with search and rescue. Legally, TNI involvement must come at the request of civilian authorities; however, in practice, TNI personnel will often be among the first responders before other authorities are in place and, thus, TNI activities usually must be rolled into the rest of the response afterward. Indeed, frequently a TNI member is appointed Incident Commander to lead at the provincial or district level.¹⁴²

TNI holds one of ten government seats on the BNPB Steering Committee. According to Head of BNPB Regulation 10/2008, TNI personnel provide support for search and rescue, peacekeeping, and other humanitarian assistance needs. Based on this regulation, TNI is tasked with approval of foreign military assistance such as transport, equipment, or personnel. TNI or foreign military personnel may provide professional expertise in search and rescue, health, construction, and communications when national, civilian resources are stretched beyond capacity. In these circumstances, the Minister of Defense coordinates with TNI to determine eligibility and permit entry. Once approved, flight and ship clearances are TNI's purview, and a TNI officer acts as a security officer who is attached to all foreign military granted entry.¹⁴³

An additional prescription for TNI involvement in disaster response is to participate in a Rapid Reaction Force for Disasters (SRC PB). The SRC PB requirements include:

1. Incorporation of a medical team, electrical handling team, communication handling team, and fast motion team
2. Ability to deploy in a matter of hours
3. Ability to be transported by C-139 Hercules aircraft
4. Use of TNI units as the core under the command of BNPB

TNI personnel are joined in the SRC PB

by POLRI and agents of various ministries and agencies. In addition to being prepared to respond within the country, STC PB must be prepared to assist in disaster management in other countries, as requested. As of 2021, there were two SRC PB regional divisions: West, under the 1st Infantry Division Cilodong, and East, under the 2nd Division Malang.¹⁴⁴ While the military has its own command structure, within the context of disaster operations, the Head of BNPB maintains overall command and control of the disaster area, and this required a clear understanding of the civilian/military interface.

The Ministry of Defense (*Kementerian Pertahanan*) works with TNI during emergency response to provide quick access for foreign military assistance, often via ASEAN Agreement on Disaster Management and Emergency Response (AADMER) protocols. The Ministry will have a presence at military bases to support processing of foreign entry since Ministry and TNI approvals are required prior to foreign military entrance.

The Indonesia Search and Rescue Agency (*Badan SAR Nasional*, BASARNAS) is an independent, non-ministerial agency that reports directly to the President. The organization is tasked with assisting in the field of search and rescue governance. Key functions include:

- National, general, and technical policy formulation
- Policy coordination, planning, and programing
- Supervising, mobilizing, and controlling search and rescue
- Preparedness in search and rescue
- First responder and search and rescue operation
- Education, training, research, development, and human resources in search and rescue; and
- Data, information, and communication management.

BASARNAS is headed by a member of military with a three-star general rank. There are

34 Technical Implementation Units and some additional Search and Rescue Posts. BASARNAS is supported by TNI, POLRI, PMI, and search and rescue volunteers. BNPB has established an SRC-PB. Located in Jakarta and Malang, this team has 550 members, primarily from TNI. The team is coordinated by BASARNAS.¹⁴⁵

Disaster Management Partners

Many different ministries, agencies, and organizations participate in disaster response. Thus, coordination and information exchange are components laid out in regulations pertaining to disaster management. Indonesia has a growing cadre of NGOs that have built expertise and assets that contribute positively to disaster response. BNPB and various Ministries recognize the importance of NGOs not only in disaster response but also in pre-disaster and post-disaster work. The coordination and cooperation of these organizations during disaster has led authorities to use a cluster system to organize contributors and provide leadership, collaboration, and information conduits. The cluster approach is implemented during a large-scale disaster or in case the government needs international assistance in a multi-sector response with broad participation of international humanitarian actors. Table 3 from the Humanitarian Country Team shows major clusters for Indonesia, governmental leadership, and how the international clusters fit into the

Indonesian cluster system.¹⁴⁶

As a member-state of Association of Southeast Asian Nations (ASEAN), Indonesia is a key player in the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). Moreover, Indonesia’s BNPB is a member of the governing board of the ASEAN Committee on Disaster Management (ACDM). The AHA Centre was formed by AADMER, which has been in force since 2009 and was given further impulse by the ASEAN Vision 2025 on Disaster Management, adopted in 2015 to map the broad direction and policy guidance on implementing AADMER. The AHA Centre follows the Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP) in managing and sharing information and in facilitating ASEAN’s response. A disaster-affected member-state may request AHA Centre assistance, including deployment of the ASEAN Emergency Response and Assessment Team (ERAT) and ASEAN relief items managed by the AHA Centre under the Disaster Emergency Logistics System for ASEAN (DELSA). The affected member-state may also request assistance from other Member States through the AHA Centre. Finally, the AHA Centre can offer assistance or facilitate assistance from ASEAN Member States to the affected country.¹⁴⁷

The West Sumatra/Padang Earthquake of

Cluster	National Lead/Co-Lead	International Support
Education	Ministry of Education and Culture / Ministry of Religious Affairs	UNICEF
Health	Ministry of Health / POLRI	WHO / UNICEF
Logistics & Equipment	BNPB / Ministry of Social Affairs / TNI	WFP
Early Recovery	Ministry of Home Affairs / BNPB	UNDP
Displacement & Protection	Ministry of Social Affairs / POLRI	IFRC / UNICEF / UNFPA
Infrastructure & Facilities	Ministry of Public Works and Public Housing	UNICEF / WFP
Economy	Ministry of Agriculture / Ministry of Cooperatives and Small and Medium Enterprises	FAO / WFP
Search & Rescue	BASARNAS / TNI	OCHA

Table 3: Indonesia’s Clusters with Leads and International Partners

2009 is useful to understand the constellation of international and national partners who respond to support Indonesian government action in times of disaster. After the earthquake, various countries – particularly the U.S. through the U.S. Agency for International Development (USAID) and Australia through the Australian Agency for International Development (AUSAID), now the Australian Department of Foreign Affairs and Trade (DFAT) – sent air and sea transport vehicles, search and rescue or medical teams and equipment, shelter, medicines, and funding to implement the response. Among those international NGOs with a presence already in Indonesia, Mercy Corps, Oxfam, Plan International, and World Vision contributed transport, personnel, goods, and equipment. Meanwhile, BNPB was able to apply various chapters of the disaster management law and regulations to ease visa and import or customs procedures for specific items such as information and communications technology (ICT) equipment imported by WFP to support logistics activities. Finally, in addition to WFP, other UN agencies directly involved were OCHA, UNDP, and the International Organization on Migration (IOM). Finally, the Indonesian Red Cross National Society (PMI) is a key stakeholder, coordinator, and planner in all national

emergencies.¹⁴⁸ Photo 3 shows PMI volunteers participating in the response to earthquakes that shook Lombok in 2018.¹⁴⁹

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, 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.¹⁵⁰

International Federation of Red Cross and Red Crescent Societies

The International Federation of Red Cross and Red Crescent Societies (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. IFRC was founded in 1919 and includes 192 National Societies. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of its member National Societies.¹⁵¹

IFRC's country cluster delegation for Indonesia and Timor-Leste consists of programs for technical capacities in disaster management; risk management; health; WASH; national society development; protection, gender, and inclusion; communications; community engagement and accountability; support services in planning, monitoring, evaluation, and reporting; finance, logistics, human resources, and administration.¹⁵²



Photo 3: PMI Volunteers Respond to Lombok Earthquakes (2018)

Indonesian Red Cross

The Indonesian Red Cross (*Palang Merah Indonesia*, PMI) formed in 1945 and was formally recognized by Presidential decree in 1950. Its strategic work plan focuses on disaster management, blood collection, and health. There are 34 provincial chapters with more than 400 district branches and 460,000 volunteers working across its programs. Disaster management is a priority program due to the frequency and severity of disasters that strike Indonesia. PMI provides training, information systems, logistical capacity, and warehousing to support disaster preparedness. Moreover, it conducts community health and WASH projects that are community-based, and it incorporates elder-focused blood services and HIV/AIDS support as needed.¹⁵³

U.S. Government Agencies in Indonesia

The U.S.-Indonesia partnership spans economic, political, military, and ecological issues and is considered of great importance to the U.S. because of Indonesia's geographic location and leadership role in regional organizations like ASEAN. Although official diplomatic ties date back to 1949, they have gained impetus since 1998 when Indonesia began its democratization and reform process. In 2010, the U.S. and Indonesia initiated a Comprehensive Partnership to foster consistent high-level engagement on democracy and civil society, education, security, resilience, and mitigation, and on maritime, energy, and trade issues. Based on past successes, in 2015, the two countries upgraded the relationship to the U.S.-Indonesia Strategic Partnership and extended cooperation to issues of regional and global significance.

Indonesia faces domestic development challenges that include uneven democratic and economic progress, institutions that lack capacity to adequately address social service needs, and risks from environmental degradation. Bilateral cooperation extends across a range of development areas: strengthening education and professional ties, improving governance, strengthening health systems, advancing

security, partnering on international issues, and supporting environmental stewardship. USAID partners with the Government of Indonesia (GOI), local leaders, the private sector, civil society, and other development partners. Among key projects, USAID supports GOI efforts to combat illegal, unreported, and unregistered fishing and to counter illegal wildlife trafficking as part of a strategy of promoting local efforts to improve land use practices and increase the amount of renewable energy generated as a proportion of Indonesia's overall energy production.¹⁵⁴

USAID Indonesia's Country Development Cooperation Strategy (CDCS) for 2020-2025 outlines USAID's development engagement and reinforces commitment to the U.S.-Indonesia Strategic Partnership. CDCS's stated goal is, "Indonesia is an advanced, just, prosperous, and self-reliant Indo-Pacific partner"; this goal aligns with GOI's medium-term development plan (RPJMN 2020-2024). CDCS comprises four Development Objectives (DO), as illustrated in Figure 8 with their respective Intermediate Results (IR).¹⁵⁵

USAID supports GOI's efforts to deliver essential human services in two key areas: health and education. The top-level objectives are to eliminate preventable maternal, newborn, and child deaths, and to build the capacity of sub-national governments, civil society, and the private sector to be able to improve Indonesia's health and education sectors. Access to quality, relevant education and health services, particularly for the poorest and most vulnerable Indonesians, remains a major challenge.

Education programming pertains to both high level research and vocational skills training. USAID provides youth with job skills and entrepreneurship training. This effort is designed to empower 200,000 low-income and vulnerable youth (18-34 years of age), including women and youth with disabilities, across the island of Java. It involves partnerships with schools and training centers to implement supplementary curricula and engage companies and businesses to be more inclusive in hiring. Through USAID's

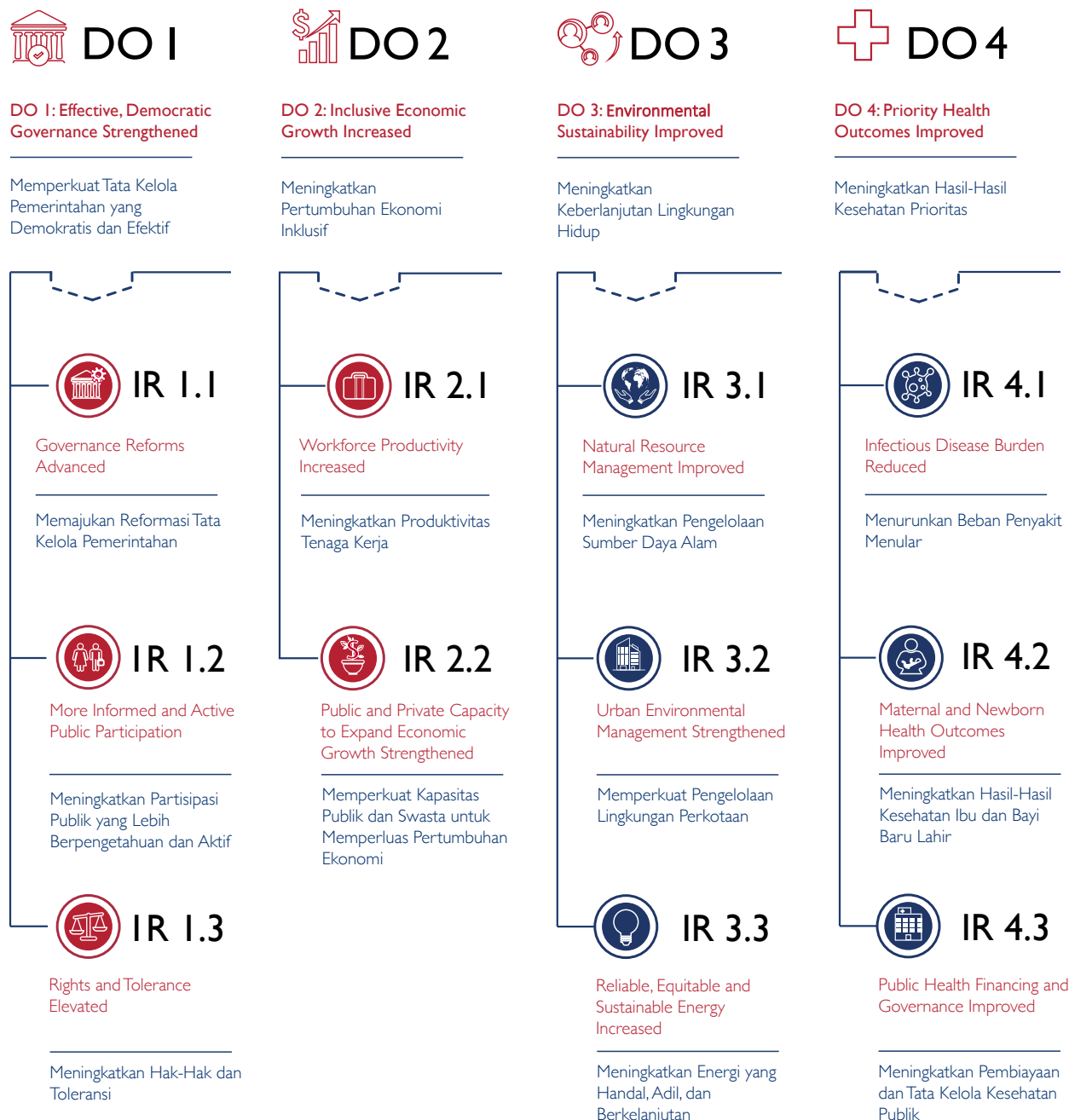


Figure 8: USAID's Strategic Results Framework for Work in Indonesia

inclusive workforce development programs, in 2020 alone, USAID improved workforce development programs in training centers and universities to increase employability for 52,000 youth. Meanwhile, USAID established and supports five Centers of Collaborative Research (CCR) at Indonesian universities to facilitate research partnerships with American universities in cutting-edge fields. Over the first four years of the program, CCRs published 507

peer-reviewed research papers in journals in the fields of renewable energy, green environment, biotechnology, engineering, and innovative technology.

Health interventions encompass water and sanitation programs, maternal and child mortality, technical support, and infectious disease prevention and control. Indonesia is a priority country in the U.S. Global Water Strategy, and USAID focuses on Indonesia's

domestic resources for increased access to WASH services as well as improved key hygiene behaviors among urban poor and vulnerable populations. To ensure that improvements in access are sustained, USAID strengthens WASH service delivery systems so they can more effectively reach the poorest and most vulnerable populations. In 2020 alone, USAID leveraged US\$97 million to finance WASH sector investments, helped improve water services for 372,000 people, and provided access to safely managed sanitation for 252,000 people and basic sanitation for 90,000 people. In some cases, USAID support focuses on water utilities to review and reform tariff structures and, in some cases, to move away from manual billing and accounting to web-based systems to improve collection.

USAID engages the entire healthcare sector as part of its work to reduce maternal and newborn deaths by addressing quality of care, referral systems, health financing, and emergency transportation. USAID contributed to reducing preventable maternal newborn deaths by improving the quality of care in public hospitals and enhancing the electronic monitoring, reporting, and data management systems in 120 districts. Related USAID-supported online training sessions reached 3,000 participants, and the electronic monitoring and reporting systems have been adopted by the Ministry of Health for a national scale up. At a local level, USAID leveraged private investments to sustain and scale up USAID-supported solutions that helped 6,000 women and nearly 3,000 newborns while also helping 35,200 pregnant women register in an online application to detect high risk pregnancy. USAID also facilitated a collaboration between local manufacturers and the provincial government in Banten to develop and implement a four-wheel drive “feeder ambulance” that quickly transports women from hard-to-reach areas to locations reachable by standard ambulance. Finally, in 2020, USAID worked with the Ministry of Health to ensure continuity of essential maternal and child health services during the pandemic, including hosting virtual training for over 6,000 midwives and training

for 853 health workers on infection prevention control.

Beyond direct interventions, USAID is a technical partner that supports innovative budgeting and costing practices, workforce information systems, and education of the populace on health topics. Of note are programs to support Indonesia’s move toward universal health coverage. USAID provided technical support to GOI partners to refine the Jaminan Kesehatan Nasional (universal healthcare scheme) benefits package and pricing, apply standards for hospitalization, and innovate provider payments mechanisms. Additional support went to the Ministry of Health to develop and use National Health Accounts, a system that tracks spending in the health sector to improve planning, budgeting, and accountability.

USAID’s key infectious disease interventions include:

- **COVID-19 Emergency Assistance** - In addition to redirecting existing funding, USAID programmed an additional US\$11 million to work with bilateral, multilateral, university, and private sector partners to support GOI efforts to reduce COVID-19 transmission, provide information, and improve testing and treatment. USAID provided direct technical assistance to the Ministry of Health, Indonesia’s COVID-19 Task Force, BNPB, and other offices and agencies. USAID and Mercy Corps Indonesia engaged to build awareness about COVID-19 and help ensure that the most vulnerable and marginalized groups were not left behind. In partnership with the UN Children’s Fund (UNICEF), USAID provided technical support and content for the National COVID-19 dashboard, <https://covid19.go.id/>. USAID and PMI together supported the training of volunteers and humanitarian workers on how to reduce COVID-19 stigma within communities and help people manage stress. To equip pharmacy frontline experts, USAID also supported mClinica’s SwipeRx digital platform to get information and e-learning out fast.

- Tuberculosis (TB) and HIV/AIDS*** - USAID supports Indonesia's Presidential Instructions on Disasters and Health Security and the National Action Plan for Health Security. Indonesia is a leader on parts of the Global Health Security Agenda, particularly on zoonotic diseases, and remains active regionally and globally in areas such as TB, HIV/AIDS, and antimicrobial resistance. To support Indonesia's commitment in achieving the UN Sustainable Development Goal (SDG) of eliminating TB by 2030, USAID bolstered Indonesia's commitment to diagnose and treat 3.7 million TB patients by 2022. In 2020, USAID supported seven labs to adopt the use of molecular tests to rapidly detect drug-resistant TB and enable eligible patients to use short-term regimens which reduce treatment time and cost. Further, USAID supported the Ministry of Health to pilot two automated data reporting software options for the GeneXpert machine to improve data collection and reporting, reduce equipment downtimes, and facilitate adequate maintenance planning. With USAID support, Indonesia has purchased over 900 GeneXpert machines so that all Indonesians can access efficient TB and HIV testing.

USAID's Bureau for Humanitarian Assistance (BHA) supports DRR programs implemented through assistance agreements to international organizations and NGOs and through agreements with other U.S. Government agencies. These programs improve the capacity of first responder agencies, expand and extend multi-hazard, end-to-end early warning systems, and increase the awareness and preparedness of communities at high risk of disasters. In 2020, programs focused on drought mitigation and climate adaptation, management and organizational strengthening, and community-based DRM. At the community level, Village Disaster Management Committees, formed and

trained by USAID partner World Neighbors, kept their villages safe from COVID-19 by controlling and monitoring movement, establishing isolation and quarantine facilities, and monitoring and enforcing compliance with preventive behaviors. Via various initiatives with Mercy Corps, USAID provided technical advisors to the Human Resources Office of BNPB, worked with BNPB's training center to develop a management information system to record and track instructor qualifications and staff training, laid the foundations for a new diploma program in DRM, and provided specialist technical advisors to BNPB's Emergency Operations Center to enable them to meet information and coordination demands during the COVID-19 pandemic.

Also in 2020, the USAID-supported Pacific Disaster Center worked with BNPB to establish the InAWARE alert management and decision support system. InAWARE links to Indonesian and international authorities to receive multi-hazard early warning and disaster alerts. Information, reports, photos/videos, and all other information related to each disaster is uploaded into a consolidated record for use for decision-making, internal reporting, and public outreach. Pacific Disaster Center trained 31 provincial/regency disaster management authorities and developed an online training program for new staff. At the end of 2020, BNPB assumed full management of InAWARE with Pacific Disaster Center shifting to advice and troubleshooting.¹⁵⁶ USAID's contact information includes:

USAID Mission in Indonesia

Ryan Washburn, Director
 U.S. Embassy Jakarta
 Jl. Medan Merdeka Selatan 3-5
 Jakarta
 DKI Jakarta, Indonesia, 10110
 Tel: (62) (21) 5083-1000
 Fax: (62) (21) 3505-809
 E-mail: jinfo@usaid.gov

USAID Contact

Anthony Orlando, Desk Officer
U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
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E-mail aorlando@usaid.gov

U.S. Embassy in Indonesia

Jl. Medan Merdeka Selatan No. 3 - 5
Jakarta 10110, Indonesia
Tel: (62) 21-5083-1000
Emergency Tel: (62) 21-5083-1000, press 1 for assistance
E-mail: JakartaACS@state.gov

U.S. Consulate General Surabaya

Jl. Citra Raya Niaga No. 2
Surabaya, Indonesia 60217
Tel: (62) 31-297-5300
Emergency Tel: (62) (0)21-5083-1000, select 0 to speak with the operator
E-mail: SurabayaACS@state.gov

U.S. Consulate Medan

Uni Plaza Building
4th Floor (West Tower)
Jl. Let. Jend. MT Haryono A-1
Medan 20231, Indonesia
Tel: (62-61) 451-9000
Fax: (62-61) 455-9033
E-mail: Sumatra@state.gov

U.S. Consular Agency, Bali

Jl. Hayam Wuruk 310
Denpasar 80235, Bali, Indonesia
Tel: (62) 361-233-605, (62) 361-246-859
After Hours Emergencies: +62-(0)21-5083-1000, select 0 to speak with the operator
E-mail: CABali@state.gov

Laws, Policies, and Plans on Disaster Management

Disaster Management Law (No. 24/2007)

The Disaster Management Law laid out Indonesia's principles of disaster management,

including national and regional responsibilities, rights, and obligations. In addition, it laid the foundations for coordination among stakeholders – public and private – during the phases of a disaster response. It explicitly rejected any form of discrimination in delivery of assistance.¹⁵⁷ The Law laid the groundwork for creation of BNPB and called for creation of regulations for that agency's operation, disaster funding, local disaster management capacity building, and coordination of international assistance. Presidential Regulation 8 of 2008, then, provided the authorities for BNPB and the agency's structure.

Government Regulation No. 21/2008 - Concerning Disaster Management

Regulation 21 mandates the formation of an action plan for DRR at the national and regional levels. This regulation explores the pre-disaster, emergency response, and post-disaster stages. Thus, it addresses some facets of prevention, risk analysis and reduction, planning and development, education and training, and spatial planning. It requires planning on a five-year basis to be engaged in at all levels. Coordination is defined as preparing and exercising disaster emergency management plans, providing and testing early warning systems, planning supplies, provision to fulfil basic needs, and preparations to fully recover facilities and infrastructures. Disaster management during an emergency begins with rapid assessment performed at the direction of BNPB/BPBD and which informs a Presidential, Gubernatorial, or Regency/Mayoral decision to declare a disaster, which, in turn, provides access rescue and evacuation, fulfilment of basic needs, protection of vulnerable population, and recovery of essential facilities and infrastructure. Finally, BNPB/BPBD can establish a Command Post and Incident Commander to provide planning and communication during the response.

Government Regulation No. 22/2008 - Disaster Aid Financing and Management

This regulation stipulates that funding of

disaster management activities is shared between national and regional governments and comes from the state budget (*Anggaran Pendapatan dan Belanja Negara*, APBN), regional budget (*Anggaran Pendapatan, dan Belanja Daerah*, APBD), and/or the community. Regional and national governments are responsible for allocating sufficient funds in APBN/APBD budgets to cover pre-disaster, emergency response, and post-disaster needs as well as to allocate APBN/APBD funds for the Disaster Contingency Fund, Ready Fund, and Grant-Patterned Social Assistance Fund. On limit is that regional governments may only receive funds from domestic resources. Pre-disaster funds are for planning, mitigation, prevention, integration of disaster management into development, risk analysis, spatial design, disaster management training and education, preparation of technical standards, alertness activities, and development of early warning systems. Emergency response funds provide financing for assessment, rescue and evacuation, provision of basic needs, protection of vulnerable populations, and emergency recovery of facilities and infrastructure. Full accounting for these funds is due no later than three months after an emergency. Post-disaster funds may be used for rehabilitation and reconstruction. Additional disaster aid from regional and national governments may consist of donation to a relative of a deceased person, compensation money for disability, soft loans for business, and aid for basic necessities.

Government Regulation No. 23/2008 - Participation of International Agencies and Foreign NGOs

The BNPB Head has authority over participation of international organizations and NGOs in pre-disaster, emergency response, and post-disaster phases. In non-emergency situations, international organizations and NGOs are required to prepare a proposal, MoU, and work plan, and they must adapt to national policy. During an emergency, proposals, memoranda of understanding, and work plans

are not required. Lists of personnel, logistics, and equipment may be submitted before, during, or immediately following arrival of aid in Indonesia. BNPB grants approval based on needs. International organizations and NGOs may participate individually, jointly, and/or in conjunction with an Indonesian work partner. They are prohibited from engaging in activities with political or national security background as defined by BNPB in coordination with appropriate agencies.¹⁵⁸

Master Plan for Disaster Management (Rencana Induk Penanggulangan Bencana)

The Master Plan for Disaster Management (*Rencana Induk Penanggulangan Bencana*, RIPB) for 2020-2044 is a national guideline for use by ministries, TNI, POLRI, and local governments. It lays out the long-term goals and targets for disaster management, disaster management policies and strategies, and the implementation of roadmaps. It includes five stages lasting five years each. In each, RIPB drives the formulation and adaptation of national disaster management (DM) plans by BNPB and with TNI and POLRI involvement. The Plan requires an evaluation of risk, an assessment of community vulnerability, and an analysis of the potential impacts of a catastrophe. Moreover, RIPB seeks to institutionalize risk mitigation, preparation, and management of resources available in the pre-, during, and post-disaster periods.¹⁵⁹

National Disaster Management Plan (Rencana Nasional Penanggulangan Bencana), 2020-2024

The National DM Plan (RENAS PB) for 2020-2024 is an element of RIPB 2020-2044 and the fourth RPJMN. RENAS PB policy and strategy is broken down into 27 actions and 119 action indicators to support the three main objectives: collaborative implementation from the central government down, maintaining a functional perspective that ensures that action plans are agreed upon and jointly used, and involving all stakeholders to increase resilience. In addition to laying out the BNPB Steering Committee roles, it lays out the development of a dashboard

to manage stakeholder inputs and outcomes and establishes a non-government collaborative forum to mainstream the government goals with partners outside the government. Given the different issues that arise during responses to different types of disasters, RENAS PB tries to lay out frameworks rather than prescriptions for responses. It lays out ways to incorporate gendered perspectives in disaster preparedness, to bring people with disabilities into the planning and response frameworks, and to address child protection.¹⁶⁰

National Development Plan

The National Long Term Development Plan (*Rencana Pembangunan Jangka Panjang Nasional*, RPJPN) for 2005-2025 involves institutional restructuring and keeping the country's development on pace with other countries. The RPJPN is divided in four stages, the medium-term plans (*Rencana Pembangunan Jangka Menengah*, RPJMN), which run parallel with government tenures. The vision and mission of RPJPN is to establish a country that is developed and self-reliant (human resources, infrastructure, science and technology, and foreign policy), just and democratic (rule of law), and peaceful and united (secure, sovereign, and protected from threats).¹⁶¹ RPJMN 2020–2024 completes RPJPN 2005–2024. It establishes the goal of achieving prosperous, fair, and sustainable development. The government's policy priorities include accelerating the development of human capital, improving infrastructure and connectivity, simplifying regulations and bureaucracy, and promoting economic transformation. For example, to close the infrastructure gap, the government plans to mobilize US\$450 billion in infrastructure development. However, the impact of COVID-19 means that the topline goals of the current RPJMN may be difficult to achieve.¹⁶²

National Action Plan for Climate Change Adaptation (2013-2025)

The National Action Plan (NAP) for Climate Change Adaptation (CCA) (*Rencana Aksi*

National-Perubahan Iklim, RAN-API), intends to mainstream CCA into national development, provides guidance in cross-sectoral interventions, supports identification of immediate adaptation priorities, and offers local governments a means to link CCAs across the country.¹⁶³ RAN-API identifies two key areas of climate change pertinent in the Indonesian context due to their potential impact on livelihoods. These are: sea level rise and changes in weather, climate, and rainfall. Increasing sea levels threaten fisheries, marine economies, and agriculture. Changes in weather, climate, and rainfall threaten health due to the shifts in vector-borne diseases and fire-fueled respiratory illnesses. BAPPENAS implements RAN-API.¹⁶⁴

ASEAN Agreement on Disaster Management and Emergency Response (AADMER)

AADMER entered into force in 2009. This binding agreement is the regional policy backbone for ASEAN and sets the foundation for regional cooperation, coordination, technical assistance, and resource mobilization for disaster management and emergency response. It serves as the legal basis of the AADMER Work Programmes, the most recent of which covers the period 2021-2025. AADMER supports initiatives related to disaster risk reduction, disaster management, and disaster response and has proven useful in building regional and national capacities in responding to disasters within the ASEAN region.¹⁶⁵

Disaster Management Communications

While TV continues to dominate the news landscape, the Indonesian public are more likely to hear about disasters from social media. The country is a massive Twitter and Facebook market. Still, Law 24/2007 on DM mandates official media providers cover disasters, and the commercial media approach to providing disaster information varies due to the competitive nature of the sector, and many may seek to increase visibility and stray into

sensationalism.

Indonesia maintains a comprehensive network of end-to-end early warning systems, including the Tsunami Early Warning System (InaTEWS), which comprises seismographs, broadband stations, accelerometers, and tidal gauges. Warnings are spread through SMS, email, Warning Receiver Systems, and social media, alongside radio and fax. However, the functioning of InaTEWS and other comprehensive systems is limited. Budget shortfalls mean the whole system cannot be maintained. A 2019 review found limitations of governance, poor condition and quality of infrastructure, communication issues, and shortfalls in risk awareness.¹⁶⁶

Early Warning Systems

The Meteorology, Climatology, and Geophysics Agency (*Badan Meteorologi, Klimatologi dan Geofisika*, BMKG) is the main body providing real time hazard monitoring, maintaining data on hydro-meteorological hazards and volcanic and seismic activity, and feeding data to the media, civil society, and humanitarian agencies in times of emergency. The BMKG homepage (<https://www.bmkg.go.id/?lang=ID>) serves as a dashboard for information on weather, climate, and seismic activity.

Although BMKG can emit various types of bulletins regarding hydro-meteorological or seismic events, at times of emergency, a dedicated platform for early warnings and disaster management was required. From 2014, BNPB has deployed a hazard monitoring system, “InAWARE,” based on the Pacific Disaster Centre’s DisasterAWARE® platform. This platform consolidates available hazard information from various national and international sources and makes it easier to share such information between and within national and provincial stakeholders.¹⁶⁷

For volcanic eruption specifically, the Ministry of Energy and Mineral Resources Center for Volcanology and Geological Hazard Mitigation (*Pusat Vulkanologi dan Mitigasi Bencana Geologi*, PVMBG) is tasked with research, investigation, engineering, and services in the field of volcanology and geological disaster mitigation. On the ground, that includes determining the status of volcanic activity levels and early warning of volcanic activity and potential ground movements.¹⁶⁸ Since 2015, PVMBG has run the MAGMA Indonesia (Multiplatform Application for Geohazard Mitigation and Assessment in Indonesia) application to present integrated geological disaster information and recommendations (volcanoes, earthquakes, tsunamis, and ground movements) in quasi-real time. Figure 9 is the homepage of MAGMA with active icons as of 2 November 2021.¹⁶⁹

Beyond routine bulletins and early warning needs, BNPB recognized that the public needed greater, smartphone-based access to risk information to help inform planning. In cooperation with UNDP, in 2016, it launched InaRisk, a web-based portal for visualizing spatial distribution of disaster risk assessments. In Bahasa Indonesia and in English, InaRisk (<https://inarisk.bnpb.go.id/>) offers users the ability overlay risks, vulnerabilities, and capacities with specific threat types, including floods, volcanic eruptions, and even COVID-19 outbreaks.

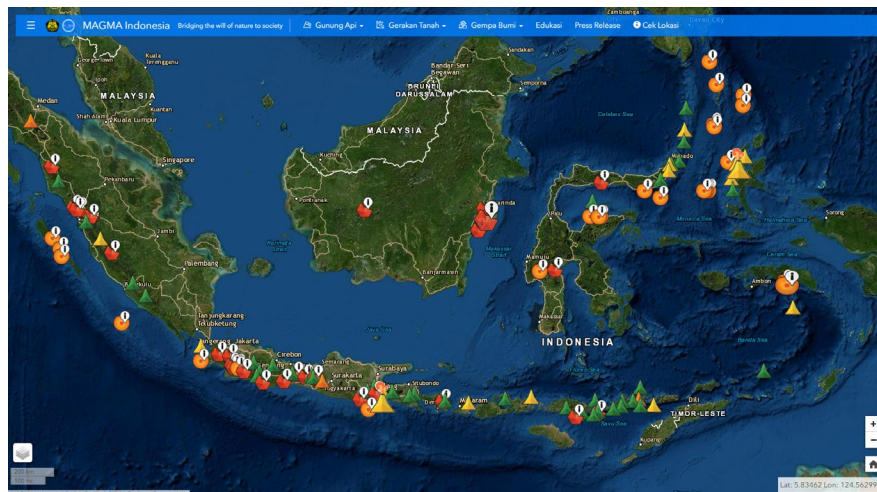


Figure 9: MAGMA Indonesia Consolidates Information on Volcanic and Geological Hazards

Finally, for post-disaster and baseline data, the Indonesia Disaster Database system (*Data Informasi Bencana Indonesia*, DiBi) was developed based on the UN's DesInventar system. DIBI includes communication forums to facilitate the process of collecting and validating disaster data, and data storage. It has further been expanded to cover provinces and districts, with local officials equipped with adequate skills to collect data, and to conduct provincial risk assessments based on available information. At the national level, DiBi helps mainstream risk mapping and risk-informed planning, and within the provinces it supports localized, contextual DRR planning. Collected information also provides information for risk identification, policy-formulation, and funding prioritization based on disaster trends. However, given the regional disparities in technical capacities, human resources and funding, the tangible utilization of the available data varies greatly.¹⁷⁰

The Indonesian Tsunami Early Warning System (InaTEWS) is a complex technological and administrative system whose impetus was the 2004 Indian Ocean tsunami. The InaTEWS assets themselves are operated by BMKG as part of its routine geophysical monitoring system. The technological aspects (the upstream) of the system include seismic monitoring devices and software-enabled data computation systems complemented by buoys, tide gauges, and global positioning system (GPS) receivers that confirm analytical conclusions. The designed goal is to receive, analyze, and confirm information in fewer than five minutes to, then, send a warning signal. The “downstream” aspects of the process include community receipt of warnings and local decision-making processes to deliver warnings. In addition to warning sirens installed in at-risk communities, “downstream” tools include trainings, hazard maps, risk maps, and publicized evacuation procedures.

InaTEWS relies on input from several sources to determine the emission of Tsunami Early Warning Bulletins (PDT).

- PDT-1 is issued fewer than 5 minutes after a potential tsunami-generating events; it

includes the parameters of an earthquake and whether there is any potential for tsunami. The parameters are used to select the possible tsunami scenario from a database of pre-calculated models.

- PDT-2 will come at least 10 minutes after the earthquake and reflects the expert opinion of the quake's focal mechanism. PDT-2 updates the earthquake parameter and tsunami threat information to include the estimated time of arrival and the estimated wave height.
- PDT-3 is based on observation of the sea level monitoring system (dart buoys) in the open sea and tide gauges on the coast. PDT-3 will confirm if a tsunami has been generated and will identify the speed, direction, estimated time of arrival, and estimated height at the coast. PDT-3 will be updated every time there is new information. Since its inauguration, the dart buoy has never been integrated to InaTEWS; thus, there has not been a real case where PDT-3 is issued based on information from dart buoys. Rather, PDT-3 has relied on the tide gauges network managed by the Indonesian Geospatial Information Agency (BIG).
- PDT-4 pertains to the conclusion of a tsunami warning and informs communities that the tsunami threat is over. PDT-4 usually is issued two hours after the last wave threat is considered passed and, therefore, the area is safe for communities and first responders to return.

Figure 10 shows PDT-1 from the September 2018 Palu-Donggala earthquake and tsunami.¹⁷¹

InaTEWS commenced operations in 2008 and, since then, has issued 22 tsunami early warnings. Most of these warnings have been followed by tsunamis of less than one meter (3.2 feet) and in which no significant damage occurred. By 2019, only two tsunamis had wave heights in excess of one meter, and both had substantial impact. These were the Mentawai tsunami on 25 October 2010, and the Palu-Donggala tsunami on 28 September 2018. The latter event saw at least 1,252 people killed by the direct impacts of the

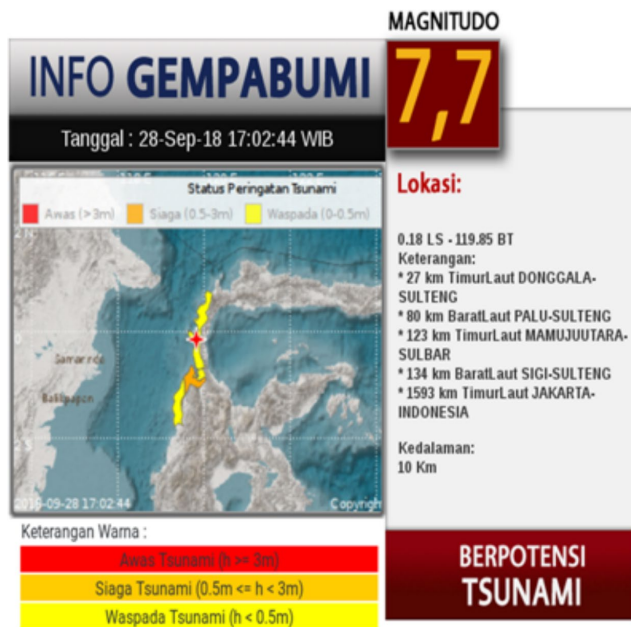


Figure 10: Early Warning Bulletin Issued by BMKG on 28 September 2018

tsunami while nearly 4,000 people died overall in the quake, liquefaction, and tsunami. The level of loss led to questions regarding InaTEWS. A subsequent investigation found that InaTEWS and BKMKG had both operated as laid out in standard operating procedures by delivering warning information to BNPB, local government, the media, and at-risk communities. The gaps appeared to be in how local governments funded and adhered to their portions of the operating picture.

Although much of the blame for casualties from the Palu-Donggala tsunami was placed on local leadership, BKMKG and InaTEWS do suffer from some shortfalls that reduce their ability to notify at-risk communities in case of a seismic event. One is that it does not have the data flexibility or analytical/communication capacity to effectively address near-range tsunamis that arrive in fewer than 10 minutes. Indeed, InaTEWS' design was focused on long-range, subduction zone-induced tsunamis that arrive in 20 minutes or more. For Palu in particular, this limitation is fatal as four major tsunamis that struck Palu Bay during the 20th century all had near-range epicenters that led to quick wave arrival times. Thus, communities waiting for an InaTEWS warning would already be unable

to escape. While Palu is the case study, other areas of Indonesia suffer from the same set of circumstances.

While data sets and processes can be managed from the national level to address the above shortcomings, changing the local, community attitude toward early warning and DRR is more difficult. A particular issue is the large number of agencies involved downstream. Government Regulation No. 21/2008 directed that BKMKG only has authority to issue a tsunami warning, while evacuation decisions are in the hands of local government. Under the current procedure, a tsunami early warning from BKMKG is communicated to local commanders (Governor, Deputy Governor, Military Commander, and Chief of Police). It takes time for these members to not only meet, but to agree on a course of action and then to activate the warning procedure, including sirens.

On the technical side, the early warning chain often experiences power outages and interruptions to the telecommunication system. Both these issues occurred during the Palu-Donggala event in 2018. The power cut out shortly after the earthquake, while the uninterrupted power supply (UPS) and backup generator at Pusdalop BPBD Palu City were not in working order. These matters are the responsibility of the local government. The upshot was that, in 2018, the early warning from BKMKG was not received, and due to power outages and telecommunication disruptions, the weak capacity of local government and BPBD operators, the inoperability of the only tsunami siren at Palu City, and the failure of SMS, the communities received no official advice to evacuate.

A complicating factor is that the relative success of InaTEWS in the recent past and occasional drills involving local communities practicing the InaTEWS-BKMKG-BNPB process may have inculcated a false sense of security. A 2012 event in which Palu residents participated likely led the community to expect an InaTEWS warning to trigger Palu City sirens. Thus, when they felt the 2018 quake that triggered the

tsunami, they may have expected that they would be warned if a tsunami had been generated. When the sirens did not go off, they likely assumed there was no danger.¹⁷²

Indonesia is a member-state of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Intergovernmental Oceanographic Commission (IOC), which has a mission of helping members reduce the risk posed by tsunami, coastal flooding, storm surges, and harmful algal blooms. It participates in the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS).¹⁷³

Information Sharing

Understanding how to overcome the information challenges that civilian and military agencies experience during a typical disaster response mission is important. Knowing what the available humanitarian assistance and disaster relief (HADR) resources are will assist Joint Task Force leaders and staff during mission planning.¹⁷⁴ 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.¹⁷⁵

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. Recent technology has advanced to aid predicting and alerting of disasters around the world which has resulted in early warning and evacuation measures as well as opportunities to react and prepare for incoming threats to countries. The following are some of the ways in which information regarding disaster risk management and response are shared. Managing information is central to the overall mechanisms within disaster preparedness and response. There are many resources, stakeholders, and components to consider with information

sharing before, during, and after a natural disaster. This section will discuss country-specific, humanitarian, regional, government, and DoD information sources.

Indonesia Information Sources

National Board for Disaster Management (Badan Nasional Penanggulangan Bencana, BNPB)

During an emergency, the Incident Command set up by BNPB or the provincial/regency BPBD will have a Public Relations section that will operate a Media Center. Per Head of BNPB Regulation 22 (2013), the Media Center will operate 24/7 during emergencies and provide information to all stakeholders. The Media Center Coordinator may come from BNPB, BPBD, or the Ministry of Communication; the Coordinator organizes facilities and equipment and recruits team members from BNPB/BPBD, related government agencies, military, police, and volunteers to collect data and information and deliver it to the media and public.¹⁷⁶

Two dedicated risk reduction and disaster management applications are under BNPB ownership and management.

InAWARE is linked to Indonesian and international authorities to receive multi-hazard early warning and disaster alerts. Information, reports, photos/videos, and all other information related to each disaster is uploaded into a consolidated record for use for decision-making, internal reporting, and public outreach. It requires a log-in approved by BNPB as the information recorded in it must be validated.

<https://inaware.bnpb.go.id/inaware/>

InaRisk is a web-based portal for visualizing spatial distribution of disaster risk assessments. It is available to the public via a smartphone app to help inform planning. In Bahasa Indonesia and in English, InaRisk offers users the ability overlay risks, vulnerabilities, and capacities with specific threat types, including floods, volcanic eruptions, and even COVID-19 outbreaks.

BNPB InaRisk (<https://inarisk.bnpb.go.id/>)

Meteorology, Climatology, and Geophysics Agency (Badan Meteorologi, Klimatologi dan Geofisika, BMKG)

BMKG is mandated to deliver hydro-meteorological and seismic or geophysical warnings to the public, media, and other stakeholders. The BMKG homepage serves as a dashboard for information on weather, climate, and seismic activity.

Website: <https://www.bmkg.go.id/?lang=ID>

Humanitarian Information Sources

United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Regional Office for Asia and the Pacific (ROAP)

UN OCHA's ROAP seeks to optimize the speed, volume and quality of humanitarian assistance and coordinates emergency preparedness and response in the world's most disaster-prone region in support of national governments. ROAP covers 41 countries partnering with them for coordinated and effective international responses to emergency situations.

Website: <https://www.unocha.org/roap>

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

ReliefWeb

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

Website: <https://reliefweb.int/>

PreventionWeb

PreventionWeb is provided by the UN Office for Disaster Risk Reduction (UNDRR) to consolidate disaster risk reduction information into an online, easy to understand platform.

Website: <https://www.preventionweb.net/english/>

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

IFRC is the world's largest humanitarian

organization, comprised of its 192-member National Societies including the Indonesian Red Cross, 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 its member National Societies. IFRC's work focuses on four core areas: promoting humanitarian values, disaster response, disaster preparedness, and health and community care.¹⁷⁷

Website: <https://ifrc.org/about-ifrc>

Twitter: @ifrc and Instagram: <https://instagram.com/ifrc>

International Committee of the Red Cross (ICRC)

ICRC is an impartial, neutral, and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. It also works to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. ICRC, together with IFRC and the 192 Red Cross Red Crescent Societies, make up the Red Cross Red Crescent Movement.¹⁷⁸

Website: <https://www.icrc.org/en>

Humanitarian Response

Humanitarian Response is a platform providing the humanitarian community a means to aid in coordination of operational information and related activities.

Website: <https://www.humanitarianresponse.info>

Global Disaster Alert and Coordination System (GDACS)

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

Website: <https://www.gdacs.org/alerts/>

Virtual OSOCC

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

Think Hazard

Think Hazard is a website that provides detailed information on a country. Information is provided on Indonesia regarding hazards, country assessments, projects, early warning systems, and other resources. Website: <http://thinkhazard.org>

Humanitarian Country Team (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 as well as the respective National Society in the country. During a disaster response, HCTs often produce a Situation Report (SitRep), usually in conjunction with OCHA. Most HCT SitReps can be found through ReliefWeb: <https://reliefweb.int/>

Humanitarian Data Exchange (HDX)

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

Regional Information Sources

AHA Centre

The ASEAN Coordinating Centre for Humanitarian Assistance on disaster

management (AHA Centre) was established to facilitate cooperation and coordination of disaster management amongst ASEAN Member States, of which Indonesia is one. AHA Centre primarily works with the National Disaster Management Organization of Member States and with partnerships such as international organizations, the private sector, and civil society organizations, such as the Red Cross and Red Crescent Movement, the UN, and AADMER Partnership Group.

AHA Centre Information products regarding disasters and disaster responses are available via the Disaster Monitoring and Response System (DMRS) and the ASEAN Disaster Information Network (ADINet). DMRS was designed in partnership with the Pacific Disaster Center (PDC) and receives constant information feeds from the PDC system. It shows real time information of the hazards in the region, as well as hydro-meteorological data. The basic maps can be overlaid with additional information, such as population density data, location of airports and seaports, and major roads and infrastructure. ADINet is a repository of information concerning hazards and disasters that have happened. The public can submit information about any hazard and disaster. Then, the AHA Centre verifies and validates information and can add new information when relevant. Request a DMRS account via: <https://dmrs.ahacentre.org/dmrs/>
For ADINet products, request an account via: <https://adinet.ahacentre.org/>
Twitter and Instagram: @AHACentre

Changi Regional HADR Coordination Centre (RHCC)

Changi RHCC was launched in September 2014 to support the military of a disaster affected state in coordinating assistance with assisting foreign militaries. It aims to provide open, inclusive, and flexible platforms that allow both regional and extra-regional militaries to work together effectively in a multinational disaster response. Changi RHCC manages the OPERA CIS web portal to broadcast the updated situation status of multinational military responses to

disasters to minimize duplication and gaps in the provision of foreign military assistance.

Website: <https://www.changirhcc.org/>

To subscribe to RHCC Weekly and Spot Reports, email: Changi_RHCC@defence.gov.sg

U.S. Government Sources

U.S. Agency for International Development (USAID)

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

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

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

More information and updates from USAID are available via their blog, IMPACT, at <https://blog.usaid.gov/> and on Facebook (<https://www.facebook.com/USAID>), Twitter (@USAID), and YouTube ([usaidindonesia](https://www.youtube.com/user/usaidindonesia)).

Website: <https://www.usaid.gov/>

Bureau for Humanitarian Assistance (BHA)

The Bureau for Humanitarian Assistance (BHA) is responsible for leading and coordinating the U.S. Government response to disasters overseas. BHA responds to an average of 75 disasters in 70 countries every year. BHA fulfils its mandate of saving lives, alleviating human suffering, and the reduction of the social and economic impact of disasters worldwide in partnership with USAID functional and regional bureaus and other U.S. government agencies. BHA works with the international population to assist countries to prepare for, respond to, and recover from humanitarian crises.¹⁷⁹

USAID/BHA products include situation reports and maps, which are available via email mailing lists as well as Reliefweb.org. Info

products (HA Updates/Fact Sheets, etc.) are also available on USAID.gov (<https://www.usaid.gov/humanitarian-assistance>)

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

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

Pacific Disaster Center Global

Pacific Disaster Center (PDC) Global has trademarked an early warning and decision support system called DisasterAWARE®. DisasterAWARE® is primarily for disaster management practitioners and senior decision makers. It supports disaster risk reduction and best practices throughout all phases of disaster management from early warning to multi-hazard monitoring. It has a collection of scientifically verified, geospatial, data and modeling tools to assess hazard risks and impacts. A restricted version of DisasterAWARE is the EMOPS (Emergency Operations) system, which is specifically for the disaster management community, including government agencies and humanitarian assistance organizations serving at local, state, federal, and regional levels.¹⁸⁰

PDC also provides a public version, Disaster Alert, which offers open access to a world map documenting 18 hazard types.¹⁸¹ Disaster Alert also has a free, early-warning app to receive customizable maps based visual alerts of active hazards. The app offers a global notification system covering natural and man-made hazards. It is available on both iPhone and Android.¹⁸²

Website: <https://www.pdc.org/> and <https://www.pdc.org/apps/disasteraware/>

Emergency Operations (EMOPS) system (request account): <https://emops.pdc.org/emops/>

All Partners Access Network (APAN)

APAN is the Unclassified Information Sharing Service for the U.S. DoD. APAN provides the DoD and mission partners community space and collaboration tools to leverage information to effectively plan, train and respond to meet their business requirements and mission objectives. Importantly, APAN's technology team has been supporting HADR operations for over 15 years.¹⁸³ APAN has played an integral role in the success of disaster responses, such as the 2015 California Wildfire Response and the 2013 Typhoon Haiyan Response in which they provided organizations and militaries a centralized location to share information, increase situational awareness and decrease response time and duplicated efforts for best practices in HADR services.¹⁸⁴ Website: <https://www.apan.org/>

Joint Typhoon Warning Center

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

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

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

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

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a U.S. DoD organization that was established by U.S. Congress in 1994 and is a direct reporting unit to U.S. Indo-Pacific

Command. CFE-DM provides training and education to help U.S. and foreign military personnel navigate complex issues in disaster management and humanitarian assistance. They produce country focused disaster management reference handbooks, after action reports, best practices, and lessons learned for advancement in response coordination. CFE-DM also works to improve cross-coordination and reduce duplication of efforts and promote U.S. involvement in civ-mil consultations and dialogues with relevant HADR parties such as the AHA Center, OCHA, and Changi RHCC. CFE provides resources and updates at its website, as well as via their Facebook and Twitter accounts (@cfedmha). Website: <https://www.cfe-dmha.org/>

Disaster Management Reference Handbooks are available for download at: <https://www.cfe-dmha.org/DMHA-Resources/Disaster-Management-Reference-Handbooks>

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

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

COVID-19 Information Sharing Sources

Johns Hopkins Coronavirus Resource Center
<https://coronavirus.jhu.edu/>

Cases Database
<https://github.com/CSSEGISandData/COVID-19>

INFORM's COVID-19 Risk Index
<https://data.humdata.org/dataset/inform-covid-19-risk-index-version-0-1-4>

INFRASTRUCTURE

The most recently completed RPJMN (2015-2019) emphasized connectivity and accessibility to boost Indonesia's productivity and competitiveness on a regional and global scale. The overall objectives were to ensure physical mobility among and within all regions and to connect all communities to modern communications networks with a focus on eastern Indonesia because of its relative remoteness and fragmentation over multiple small islands. By 2019, as the country prepared to move toward the RPJMN for 2020-2024, shortfalls remained in the reach of modern infrastructure. The mostly fossil-fuel-based electricity distribution network suffers regular blackouts from overloading and unreliable supply. The coverage of piped and safely managed drinking water and sanitation is low. Thus, the 2020-2024 goal of sustainable development will depend heavily on consolidating infrastructure improvement and promoting economic transformation via human capital development and institutional support to overcome the challenges that the COVID-19 pandemic has introduced into Indonesia's infrastructural modernization program.

Transport

Both urban and long-haul transport are long-term challenges for the country. A combination of minimal investment and outdated institutional structures has contributed to under-utilization of public transport, congestion, and severe bottlenecks at transshipment hubs. This combination is a contributing factor to productivity shortfalls and mortality due to pollution. From 2019, the government planned to spend US\$412 billion on transport infrastructure, but the COVID-19 pandemic is likely to have slowed construction on various projects. The transport planning process falls under BAPPENAS with strategic implementation plans the purview of the Ministries of Transportation and of Public Works.

Airports

There are nearly 300 airports serving various markets across Indonesia. Two national operators manage 35 of the airports while the Ministry of Transportation's Directorate General of Civil Aviation operates another 169 airports. State-owned Enterprises (SOE) Angkasa Pura I and Angkasa Pura II (AP I and II) are the main national operators; AP I is responsible for airports in central and eastern regions, and AP II manages western region airports. SOE AirNav manages air traffic control.¹⁸⁵ Table 4 includes basic specifications for Indonesia's main airports.¹⁸⁶

International passenger air traffic is dominated by arrivals from within Asia at nearly 120 million annually (97% of all arrivals). Europe and the Middle East accounts for another 1.5 million each. The busiest direct routes serving Indonesia are Malaysia, Singapore, Australia, China, and Thailand, although cargo service routes are dominated by Singapore, Hong Kong, Qatar, Japan, and Saudi Arabia. Based on 2017 figures, there is an expectation for a more than 200% expansion in the sector by 2037 with an additional 268 million passenger journeys each year.¹⁸⁷

Although COVID-19 severely reduced the number of arrivals into Indonesia, traffic is expected to pick back up rapidly, and the country's plans to expand several airports continue apace. Soekarno-Hatta International Airport, which serves Jakarta, has been under pressure for many years. It received 112 million passengers in 2018, significantly over its capacity of 70 million. In December 2019 a third runway opened, but more ambitious measures include plans to build a new airport to serve the capital. Discussions regarding this new airport first began in 2011, but the project has faced numerous delays. Nevertheless, AP II was reportedly conducting a feasibility study into this development as of April 2020, with current plans for the project including the reclamation of land

15 km (9.3 miles) north of Soekarno-Hatta. The project will cost an estimated US\$7-10 billion and is likely to be conducted as a public-private partnership (PPP) between AP II and private companies, with an expected completion date of 2024.

Upgrades are planned at other airports around the country, including Kualanamu International Airport, which serves Medan. In early 2020 AP II invited private companies to submit proposals to help transform the airport into a major hub for Southeast and East Asia and the

Middle East. In 2019 operations also began at the New Yogyakarta International Airport, which aims to ease pressure on the city’s Adisucipto International Airport. There are also plans to construct a new airport on Bali to ease pressure on Ngurah Rai Airport in Denpasar. Although a site has been proposed on the north of the island, the island confronts a stark choice between expanding capacity and protecting its already threatened environment due to Bali’s popularity as a tourism destination and the strain it feels on its water and sewage systems.¹⁸⁸

Airport	IATA/ICAO Code	Runway Length (m)
Abdul Rachman Saleh Airport Malang Airport (East Java)	MLG / WARA	2,500 x 40 (8,200 x 130 feet)
Adisumarmo International Airport (Surakarta, Central Java)	SOC / WARQ	2,600 x 45 (8,530 x 150 feet)
Adisutjipto International Airport (Yogyakarta)	JOG / WAHH	2,200 x n/a (7,200 x n/a feet)
Ahmad Yani International Airport (Central Java)	SRG / WAHS	2,560 x 45 (8,400 x 150 feet)
Banyuwangi National Airport (Blimbingsari, East Java)	BWX / WADY	2,250 x 30 (7,380 x 100 feet)
Binaka Gunungsitoli Airport (North Sumatra)	GNS / WIMB	2,250 x 30 (7,380 x 100 feet)
Cut Nyak Dhien Airport (Aceh)	MEQ / WITC	1,800 x 30 (5,900 x 100 feet)
Depati Parbo Airport (Jambi, Kerinci)	KRC / WIPH	2,000 x 30 (6,560 x 100 feet)
Djalaluddin Airport (Gorontalo)	GTO / WAMG	2,500 x 45 (8,200 x 150 feet)
Domine Eduard Osok Airport (Sorong, West Papua)	SOQ / WASS	2,500 x 45 (8,200 x 150 feet)
Fatmawati Soekarno Airport (Bengkulu)	BKS / WIGG	2,250 x 45 (7,380 x 150 feet)
Ferdinand Lumban Tobing Airport (North Sumatra)	FLZ / WIMS	#1: 2,190 x 30 (7,185 x 100 feet) #2: 2,500 x 45 (8,200 x 150 feet)
Halim Perdana Kusuma International Airport (Jakarta)	HLP / WIHH	#06/24: 3,000 x 45 (9,850 x 150 feet)
Juanda International Airport (Surabaya, East Java)	SUB / WARR	3,100 x 45 (10,170 x 150 feet)
Kertajati International Airport (West Java)	KJT / WICA	#1: 2,500 x 60 (8,200 x 200 feet) #2: under construction
Kuabang (Kao) Airport (North Maluku)	KAZ / WAMK	2,400 x 30 (7,875 x 100 feet)
Kualanamu International Airport (Medan, North Sumatra)	KNO / WIMM	3,750 x 60 (12,300 x 200 feet)
Lombok International Airport (Nusa Tenggara Barat)	LOP / WADL	2,750 x 45 (9,000 x 150 feet)
Mentawai Rokot Airport (West Sumatra)	RKI / WBIR	850 x 23 (2,790 x 75 feet)
Minangkabau International Airport (West Sumatra)	PDG / WIEE	2,750 x 45 (9,000 x 150 feet)
Mukomuko Airport (Bengkulu)	MPC / WIPU	1,400 x 30 (4,600 x 100 feet)

Table 4: Codes and Runway Lengths for Indonesia’s Main Airports

Airport	IATA/ICAO Code	Runway Length (m)
Mutiara Sis Al Jufri Airport (Palu, Sumatra)	PLW / WAFF	2,250 x n/a (7,380 x n/a feet)
New Yogyakarta International Airport	YIA / WAHI	3,250 x 45 (10,665 x 150 feet)
Ngurah Rai International Airport (Bali)	DPS / WADD	#1: 3,000 x 45 (9,850 x 150 feet) #2: 3,000 x 45 (9,850 x 150 feet) Helipads x 3
Notohadinegoro Jember Airport (East Java)	JBB / WARE	1,645 x 30 (5,400 x 100 feet)
Pangandaran Nusawiru Airport (West Java)	n/a	1,387 x 29 (4,550 x 95 feet)
Pattimura International Airport (Ambon, Maluku)	AMQ / WAPP	#1: 2,500 x 45 (8,200 x 150 feet) #2: under construction
Pusako Anak Nagari Airport (West Sumatra)	n/a	800 x 18 (2,625 x 60 feet)
Sam Ratulangi International Airport (North Sulawesi)	MDC / WAMM	2,650 x 45 (8,700 x 150 feet)
Sibolga FL Tobing Airport (North Sumatra)	FLZ / WIMS	2,190 x 30 (7,185 x 100 feet)
Soekarno-Hatta International Airport (Jakarta)	CGK / WIII	#07L/25L: 3,600 x 60 (11,800 x 200 feet) #07R/25R: 3,600 x 60 (11,800 x 200 feet) Helipads x 3
Sultan Aji Muhammad Sulaiman International Airport (East Kalimantan)	BPN / WALL	2,500 x 45 (8,200 x 150 feet)
Sultan Babullah Airport (Ternate, North Maluku)	TTE / WAEE	2,300 x 45 (7,550 x 150 feet)
Sultan Iskandar Muda International Airport (Banda Aceh)	BTJ / WITT	3,000 x 45 (9,850 x 150 feet)
Sultan Muhammad Kaharuddin III Airport (West Nusa Tenggara)	SWQ / WADS	1,650 x 30 (5,400 x 100 feet)
Sultan Muhammad Salahuddin Airport (West Nusa Tenggara)	BMU / WADB	1,650 x 30 (5,400 x 100 feet)
Sultan Syarif Kasim II International Airport (Pekanbaru, Riau)	PKU / WIBB	2,240 x 45 (7,350 x 150 feet)
Sumarorong Airport (West Sulawesi)	MSA / WAFS	1,150 x 30 (3,775 x 100 feet)
Tampa Padang Airport (West Sulawesi)	MJU / WAFJ	2,500 x 45 (8,200 x 150 feet)
Teuku Cut Ali Airport (Aceh)	TPK / WITA	1,180 x 30 (3,870 x 100 feet)
Tunggul Wulung Airport (Central Java)	CXP / WAHL	1,400 x 30 (4,600 x 100 feet)

Table 4: Codes and Runway Lengths for Indonesia's Main Airports (cont.)

Seaports

Indonesia has more than 100 commercial ports and more than 700 public ports, and more than 90% of the country's international trade occurs by sea.¹⁸⁹ The Indonesia Port Corporations (PT Pelabuhan Indonesia, Pelindo) are state corporations responsible for the governance, regulation, maintenance, and operation.¹⁹⁰

Of the commercial ports, many cater only to relatively small vessels on domestic routes, and only a few have container facilities. Among its strategic plans, Jakarta expects to upgrade 14 of the country's largest ports to handle international traffic. The country remains heavily dependent

for non-bulk transshipment via Singapore and other regional ports. The Ministry of Transportation's decision No. 414/ 2014 envisages 1,240 ports, with 33 major ports, 217 collector ports, and 990 feeder ports.¹⁹¹ A new terminal is being constructed at Tanjung Priok Port, Indonesia's largest port, which will triple capacity to more than 18 million twenty-foot equivalent units (TEU) upon its expected completion in 2023. The project is being carried out in multiple phases, the first of which is the New Priok Container Terminal 1, which opened in 2016 and increased the port's capacity by 1.5 million TEU. Meanwhile, Patimban Port in Subang, West Java, remains under construction with an initial

phase inaugurated in December 2020. Due to disruptions caused by the COVID-19 pandemic, the next phase – the car and container terminals – were not expected to be completed until December 2021. The port is expected to handle 3.5 million TEU and will play a crucial part in reducing congestion at Tanjung Priok.¹⁹²

Another major development is under way at Kuala Tanjung Port in North Sumatra. To attract investment in the Malacca Strait, the main shipping channel between the Indian and Pacific Oceans, in November 2019 state-owned port operator Pelabuhan Indonesia I signed an agreement to collaborate with the Netherlands’ Port of Rotterdam Authority and China’s Zhejiang Provincial Seaport Investment and Operation Group. The first phase, which involved the construction of the Kuala Tanjung Multipurpose Terminal, was completed in 2018, and the second phase involves the development of a 3,400-hectare industrial port. Later phases will include the construction of a hub port, and upon completion the port is expected to be able to accommodate around 60 million TEU per year.¹⁹³

Tanjung Priok Port
Latitude: 06°6’20” S
Longitude: 106° 51’38” E

Tanjung Priok is the country’s busiest port with a target annual container throughput of 2.1 million TEU.¹⁹⁴ It handles more than 30% of non-oil-and-gas cargo and around 50% of the entire flow of goods into and out of Indonesia. The area operated covers 197 hectares. The Port contains a total of 81 berths with a total length over 12,830m (14,031 yards) with alongside depths ranging 3-14m (10-45 feet). The Port’s 21 warehouses cover 101,972 square meters (m²; 121,957 square yards). Its open storage yards cover total of 1,995,074 m² (2.4 million square yards). The port has a rail connection; trains are loaded in the port and can connect to locations across Java.

The various terminals include the oil handling terminal (berths x 4 of 377m (1,236 feet) total length and 12m (39 feet) depth alongside), the bulk liquid chemical terminal (berth x 1 of 204m (669 feet) length and 8m (25 feet) depth alongside), the general cargo terminal (berths x 42 of 660m (2,165 feet) total length and 5-11m (16-36 feet) depth alongside), the multi-purpose terminal (berths x 5 of 914m (2,998 feet) total length and 8-11m (26-36 feet) depth alongside), the dry bulk terminal (berths x 8 of 1,200m (3,937 feet) total length and 4-10m (13-33 feet) depth alongside), the ro-ro terminal (berths x 2 of 308m (1,010 feet) total length and 10m (33 feet) depth alongside).

The container terminals offer 13 berths with total length of 2,800m (9,186 feet) with alongside depths of 9-14m (30-46 feet). The Port boasts 2 container freight stations: Jakarta International Container Terminal (JICT) and Koja Container Terminal. Tables 5 and 6 detail some of the specifications of the JICT and KOJA container ports.¹⁹⁵

JICT	Terminal I	Terminal II
Berth Length (m)	1,640	510
Berth Width (m)	26.5 – 34.9	16
Berth Maximum Draft (m)	11 – 14	8.6
Container Yard Area (hectares)	45.5	9.24
Container Yard Capacity (TEU)	39,884	7,056
Reefer Plugs	546	78

Table 5: Jakarta International Container Terminal Details

KOJA	
Berth Length (m)	650
Berth Width (m)	40
Draft in Channel (m)	14
Draft at Wharf (m)	13
Container Yard Area (hectares)	25.72
Reefer Plugs	310

Table 6: KOJA Container Terminal Details

Other key ports

Belawan is on the northeast coast of Sumatra. It is Indonesia's busiest port outside of Java and the main gateway for Sumatra. Terminals include the Belawan International Container Terminal (BICT) and Belawan Domestic Container Terminal. There are four general berths outside BICT, which are used for general cargo, bulk cargo, Crude Palm Oil, containers, and passenger. The Port has 25 warehouses with a total area of 61,474 m² (661,700 square feet). It has 23 yards with a total area 64,386 m² (693,045 square feet) and seven container yards with a total area 262,490 m² (2.8 million square feet).¹⁹⁶

Malahayati is in Aceh Besar, 35 km (21 miles) from Banda Aceh. The port is the largest port in Aceh Province and, since 2013, a new container terminal has put through 8,700 TEU annually alongside the nearly 350,000 metric tons of bulk and 700,000 metric tons of break bulk handled each year. There are three berths of 100-140m (328-459 feet) each. The container station has a storage space of 23,991 m² (258,236 square feet) and a yard of 6,980 m² (75,132 square feet).¹⁹⁷

Sorong is the main gateway to West Papua Province. Sorong Port is a conventional port with three berths of 220-250m (721-820 feet) length each and a maximum draft of 12-13m (39-42 feet). There is a container yard with a total area of 27,000 m² (290,625 square feet), which can also be used as open storage.¹⁹⁸

Tanjung Intan is the only general port on Java's southern coast and serves as a gateway for southern and central Java and Yogyakarta, and to southwest Java for export-import and inter-island trade. Located in Cilacap, the port primarily handles dry bulk cargo, such as coal, clinker, fertilizer, soybean, sugar, and wheat, and other commodities such as cement, cattle, and fuel oils. The Port has a total of eight berths with total length of 833m (2,732 feet), five open storage sites with total area of 30,000 m² (322,917 square feet), and three sheds with total area 7,100 m² (76,423 square feet).¹⁹⁹

Tanjung Perak Surabaya is connected to the Surabaya toll way and to railway routes. It is called The Gateway to East Java and Eastern Indonesia and sits at the end of the shipping

channel between Java and Madura. Terminal Petikemas Surabaya has a dedicated container terminal with two berths of a total of 1,450m (4,757 feet) length and 7.5-10.5m (24.5-34.5 feet) depth alongside. Additional berths for general, bulk, liquid, passengers, and ro-ro total 12,000m (39,370 feet) in length and have alongside depths of 2.5-10.5m (8-34.5 feet).²⁰⁰

Yos Sudarso is the main port in Maluku Province, located in Ambon City. The seaport is crucial as goods from outside the province are mainly transported by sea to Yos Sudarso and subsequently distributed to the districts and small islands around the province either by ferries or speed boats. It handles 120,000 TEU of containers and 164,032 metric tons of break-bulk annually. There are two berths, one of 250m (820 feet) and one of 435m (1,427 feet), each with a depth alongside of 10 m; one handles general cargo while the other is solely for container vessels. Yos Sudarso has a storage area that can accommodate up to 7,500 TEU of containers.²⁰¹

Roads

Road transport dominates passenger and freight movement and serves approximately 85% of passenger transport and 90% of freight.²⁰² The 554,000 km (344,239 miles)²⁰³ of the national road network bears the transport burden to support country's rapid economic growth. The network includes national roads (39,900 km; 24,792 miles) and provincial roads (48,122 km; 29,901 miles), comprising 8% and 10% respectively of the network, while county/city/village roads (393,078 km; 244,247 miles) comprise the remainder.²⁰⁴ Figure 11 shows the concentration of national roads within Java while other islands have fewer modernized, national roads.²⁰⁵

As part of its national infrastructure drive, the government aims to develop 1,500 km (932 miles) of toll roads by 2024 and an additional 4,479 km (2,783 miles) of toll roads by 2030, to improve mobility. The islands earmarked for road developments include Java, Sumatra, Kalimantan, Sulawesi, and Bali. Another major component of this expansion is the 1,150-km (714-mile) Trans-Java Toll Road, which opened in 2019 and runs



Figure 11: National Road Network of Indonesia

from Merak in Banten to Banyuwangi in East Java, connecting the major cities of the island. In its first major travel-related holiday after opening, traffic on other routes dropped by 75% as people appeared to have chosen the swifter toll route. The success of the Trans-Java Toll Road in easing local traffic congestion inspired planning for similar developments across the country, including the 2,048-km (1,272-mile) Trans-Sumatra Toll Road, which, by the end of 2019, had 501 km (311 miles) operational.²⁰⁶

Bali and the islands of West Nusa Tenggara are minimally served. Outside Bali's Denpasar, coastal areas tend to have better connections. West Nusa Tenggara communities are mostly served by secondary roads. Roads on Lombok are narrow and have sections of relatively steep gradients. In East Nusa Tenggara, roads are narrow and steep, and there are some areas with sharp curves that limit the length of vehicles that can move cargo along them.

In Aceh and North Sumatra, main roads connecting major settlements tend to be in good condition during most seasons. Still, even these roads can be narrow and steep with cliffs alongside that pose a risk of rockfall or landslide. The road connecting Sibolga to Medan is relatively good albeit steep and narrow, and heavy traffic and congestion is common in and around settlements. In West Sumatra, roads connecting Padang-Pasaman-Lubuk Basung and Bukit Tinggi-Solok are in relatively good condition. Other areas have vehicle size limits due to steep grades, extreme turns, and climate conditions that create fog regularly and, therefore, reduce visibility.

Areas of the Malukus and Sulawesi outside Makassar and North Sulawesi are minimally served by modern, asphalt roads although secondary roads do connect major settlements. There is a high probability of washouts, landslides, and liquefaction in emergency events

such as floods, tsunamis, heavy rains, and earthquakes. Within Makassar, heavy traffic is the norm, and overloaded vehicles have, historically, presented a challenge as they damage roads. A toll road to connect the two major cities of North Sulawesi - Manado and Bitung - part of the Trans Sulawesi Toll Road Network is under development and will be the first toll road within the province. The 39 km (24 mile) stretch is expected to reduce the travel time between the two cities from nearly two hours to about 30 minutes.²⁰⁷

There is currently no connecting road network throughout Papua, and the central highlands are particularly bereft. Road access is centered around major towns. Roads are a combination of asphalt and dirt or gravel in more remote locations. There is currently no road that links Jayapura in the North to Merauke in the South of the highlands. The development of the “Trans Papua” road is on-going. The road aims to link all the major towns in the Papua central highlands via an asphalt road. This network would connect seven regions: Nabire-Waghete-Enarotali sepanjang (262 km; 162 miles), Timika-Mapurujaya-Pomako (42 km; 26 miles), Serui-Menawi-Saubeba (49 km; 30 miles), Jayapura-Wamena-Mulia (733 km; 455 miles), Jayapura-Sarmi (364 km; 226 miles), Jayapura-Hamidi-Holtekam-Skow-border (53 km; 32 miles), and Merauke-Waropko (557 km; 346 miles). There is currently no date for completion as funding remains unreliable. However, parts of this road have been completed, e.g., in the Merauke district with asphalt up to the district border. In other sections of the road, it is classified as “jungle” and can only be traversed with a four-wheel drive vehicle and if there have been no rains or other issues for several weeks. Wamena is not accessible by road from any direction, and air travel is the only option for the movement of passengers and cargo.²⁰⁸

Railways

The Indonesian public rail system’s 4,800km (2,982 miles) of usable rail is concentrated on Java (3,600km; 2,236 miles) and Sumatra. The Indonesian Railway Company (PT Kereta Api

Indonesia) system carries over 200 million passengers and more than 20 million tons of cargo annually.²⁰⁹ Additional small industrial railways are used in other parts of the country, primarily to transport sugar cane and palm oil. Thus, the total rail network extends 8,357km (5,192 miles).²¹⁰ A lack of system maintenance causes delays, passenger dissatisfaction, and accidents. Nonetheless, surveys suggest an unmet demand that, with improvements, could see the network carry 900 million people annually by 2030.²¹¹ Plans for double tracking and new railways are components of current infrastructure plans, e.g., the 715 km (444 mile) medium-speed train project connecting Jakarta and Surabaya, Java’s two largest cities.

One of Indonesia’s major achievements is Jakarta’s mass rapid transit (MRT) system, the first underground rail network in Indonesia, which is a step towards the government’s goal of having 60% of travelers use public transport in Jakarta by 2030. The first phase of the project, a 15.7 km (9.7 mile) north-south line, officially opened in March 2019. Future extensions of the MRT network include an additional 7.8 km (4.8 miles) of the north-south line, as well as a 31.7 km (19.6 mile) east-west line. Additional proposed expansions to the rail-based public transportation network in Jakarta would see a total of 10 lines added by 2035.²¹²

Waterways

With upwards of 10,000 km (6,213 miles) of inland water ways and hundreds of small river terminals, small-scale, local use of rivers for passenger and cargo transport remain important. However, Indonesian river transport is relatively neglected with minimal investment in either river-going vessels or in river ports. Nonetheless, it is a lifeline for some remote, rural, and impoverished communities.²¹³

Schools

Bahasa Indonesia is the official language of instruction across all public schools although children in the first years of education may be taught in their local language as well. Use

of Bahasa is standard in higher education with English as a common language for some programs and textbooks that funnel students into internationally- or technically-oriented fields. Public schools dominate in the elementary ages (6-12 years of age) with 80% of students in public institutions, but as students age, they are funneled toward private schools with 57% of junior secondary and 70% of upper secondary schools being private.

The first nine years of education (six primary years and three years of junior secondary) are compulsory and free with children generally starting formal school at 6-7 years of age. The three years of upper secondary school are not free. Junior secondary education ends with a certificate of completion. Upper secondary schools are either general academic (*sekolah menengah atas*), or vocational (*sekolah menengah kejuruan*). Both tracks can also be completed at Islamic senior secondary schools. An estimated 80% of students go on to upper secondary, but there are significant disparities among regions, with technical upper secondary schools clustered on Java or Sumatra.²¹⁴

For 75 years, since independence, Indonesia has sought ways to institute an egalitarian and inclusive education model. As of 2019, the formal education system employed 3.3 million teachers educating 53.1 million children in grades 1 through 12 under both the Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA). An additional 231,000 early childhood educators support the early learning of 7.4 million children.²¹⁵ Although the government is beginning to emphasize early childhood education, most preschool is private and not compulsory, and remote island groups like Papua, Kalimantan, and Maluku see preschool attendance of well below 50%, leading to learning inequality later in school when comparing students by geography.

In addition to expansion via building schools and training teachers, the country has worked toward uniformity of curriculum despite environmental and cultural differences across the population. This has been achieved by

mandating free, compulsory basic education and requiring spending levels overseen by MoEC. Although recent years have seen a stronger push to decentralize various powers, MoEC remains responsible for curriculum development, hiring teachers, and national school examinations. This helps to encourage local authorities to ensure that their schools adhere to national standards. In concert with but separate from MoEC, MoRA oversees some 300,000 private, Islamic schools that teach both the secular curriculum and religious studies. And private, Islamic institutions appear to be gaining ground at the expense of public ones. Indonesia's children increasingly attend pesantren, madrasah, or sekolah Islam, either alongside or instead of public school.

In addition, the Ministry of Research, Technology, and Higher Education (MRTHE), created in 2015, oversees more than 4,500 public and private tertiary institutions that enroll some 8 million students every year. MRTHE's oversight over tertiary institutions is very centralized despite the variety of institutional types – universities, polytechnics, community academies, etc.

Investment in education – much like investment in infrastructure and health care – have lagged. Although Indonesia has seen a steady increase in the mean number of years completed by its citizens and gross enrollment in school has risen from 16% in 2004 to 36% in 2017, the quality of schooling is highly variable, and some studies have found that 55% of Indonesians who complete school are functionally illiterate. Meanwhile, estimates suggest that 70% of the population will be working-age adults (15-64 years of age) by 2030. In combination with the country's on-going economic transition away from agriculture and toward industries and services, this massive labor force will require skills training and education to match the emerging jobs.²¹⁶

Disaster Risk Reduction in the Education Sector

MoEC reports that, between 2009 and 2018, 62,687 schools in Indonesia were exposed to

natural disaster risks as approximately 75% of schools are in areas prone to hazards. According to Law No. 24 of 2007 concerning disaster management, “mitigation education” produces risk reduction through awareness and capacity building. Specifically, the national action plan contained in MoEC Circular No. 70a/MPN/SE/2010 on Mainstreaming DRR at Schools laid out a vision of building a culture of safety and preparedness across the school system and of ensuring that the system is capable of reducing vulnerability.²¹⁷ Through this circular, MoEC established the National Secretariat for Safe Schools (*Sekretariat Nasional Sekolah Aman*, SEKNAS) and created a Special Allocation Fund for safe school rehabilitation. In 2012, the government issued Guidelines for the Implementation of Safe Schools and Madrasahs (SMAB).²¹⁸ In line with its commitment to “One million safe schools and hospitals,” the government, via BNPB issued BNPB Head Regulation No. 4 of 2012 on the Guidelines for the Implementation of SMAB. In this regulation, implementation addresses structural and non-structural components.²¹⁹

SMAB has three pillars:

- Pillar 1 - Safe School Facilities: school administrators, staff, students, and the community consider the location of the school building, the types of disaster threats in the area, the condition of the building from a safety perspective, and whether the buildings are accessible and supportive of self-evacuation by persons using them;
 - Pillar 2 - School Disaster Management: school leaders institute a management structure and designate personnel to ensure that school community members are protected, and they ensure that the processes for school disaster management were developed inclusively, particularly including special needs advocates;
 - Pillar 3 - Risk Reduction and Resilience Education: integrate DRR education into school lessons and extracurricular activities.²²⁰
- In 2013, management of SEKNAS was transferred to BNPB under the Deputy of Disaster Preparedness and Response, who more recently has become an integral part of MoEC’s General Secretariat’s Disaster Safe Education Unit (*Satuan Pendidikan Aman Bencana*, SPAB).²²¹ SPAB publishes road maps for SMAB implementation along with other modules, guidelines, and technical guidance. They continue to develop local secretariats and scale up programs.²²² The current Roadmap (2020–2024) operationalizes the concept and arrangement of the SPAB as well as targets to be achieved. The main reference for the roadmap is MoEC Regulation No. 33 of 2019 concerning implementation of the SPAB program. The Regulation requires SPAB to serve as a capacity building and planning body in cooperation with BNPB:
- During the pre-disaster phase – establishing local/regional SPABs, mapping disaster-prone zones, prioritizing areas to receive immediate SPAB support (particularly areas recently hit by disasters and that need to rebuild), and developing DRR curricula. Moreover, SPAB is expected to help set up “disaster preparedness teams” that include educators, school staff, students, and local school committee members who are responsible for periodic up-dating of maps, plans, and procedures;
 - During an emergency – the Ministry, in coordination with BNPB and local authorities, ensures availability and affordability of emergency education infrastructure and supporting facilities; facilitates safe, inclusive, and child-friendly learning processes; meets the needs of educators and staff; and increases community participation; SPAB and other education units are expected to work with NGOs to fulfill the minimum education and protection needs of children during disasters;
 - Post-disaster education recovery – MoEC and SPAB coordinate, monitor, and manage information regarding the restart of normal educational activity, including the delivery of trauma treatment services to students

and staff; planning and budgeting for the structural rehabilitation of damaged school buildings also falls under MoEC.²²³

Each phase requires coordination with BNPB, NGOs, and UN agencies.²²⁴ Since 2014, with funding support from the Government of Australia, the ASEAN Safe Schools Initiative has promoted school safety in Indonesia where it is implemented by Plan International, Save the Children, and World Vision. Among the Initiative's objectives is development of a school safety facilitation handbook, child-friendly monitoring and evaluation tools, and training for school safety facilitators in collaboration with SEKNAS and UNICEF.²²⁵ In 2019, BNPB organized wide-spread disaster mitigation education that included classes at 250,000 schools. The learning module focused on what to do in the event of a disaster and was accompanied by a technical exercise to evaluate emergency facilities at disaster-prone schools, including emergency routes and the nearest exits for each classroom. BNPB incorporated a nationwide disaster drill, Disaster Alertness Day, at schools on 26 April 2019.²²⁶

Communications

Telephones

Fixed lines: 9,662,135 (3.57 subscriptions per 100 inhabitants)

Mobile Subscriptions: 341,277,549 (126.15 subscriptions per 100 inhabitants)

Indonesia's telecom sector is massively weighted toward mobile in a reflection of the inadequacy of fixed-line capacity. Indeed, there are upwards of 200,000 telephone kiosks, including in remote areas of the country, that expand access to mobile subscriptions, a type of outreach unavailable to the incumbent fixed-line provider.²²⁷ The Indonesian telecommunications market is made up of five large mobile network operators and an incumbent fixed-line provider with a near-monopoly.²²⁸ About 97% of subscriptions are for pre-paid services.²²⁹

Indonesian mobile subscribers, as of late 2020, were experiencing increasing reliability and speed with all five providers – Indosat, XL, Smartfren, Telkomsel, and 3 – ensuring that users spent more than 90% of their time connected to 4G rather than 2/3G. Upload and download speeds vary widely. Telkomsel has the fastest download speeds at 12.7 megabits per second (Mbps). Indosat, 3, and XL have begun to catch up with XL and Indosat surpassing 10 Mbps while 3 is inching up with 9.4 Mbps in late 2020. All but one of the companies provides upload speeds of greater than 5 Mbps; only Smartfren lagged with an average upload speed of 1.1 Mbps.²³⁰ Indosat and Telkomsel launched 5G in 2021, and uptake is expected to reach 12.5 million by the end of the year. Analysts see the potential for 5G to gain more than one-third of market share in the next five years, trailing 4G, which will continue to account for more than half of all connections; 2G and 3G will continue to decline and could be shut down by 2026.²³¹

Industry analysts are monitoring a potential merger between PT Indosat Tbk (Indosat) and Hutchison 3 Indonesia (3). The ongoing discussions highlight pursuit of scale by telecommunications providers in what has become an overcrowded national telecom sector. Given current market forces, it will be challenging for smaller telcos to absorb 5G investment costs, and the knock-on impact of insufficient access to 5G spectrum will see delays in widespread 5G access. PT Telekomunikasi Indonesia Tbk (Telkom) recently received additional spectrum, which it plans to utilize for its extant 4G network and an eventual 5G rollout. The company, through PT Telekomunikasi Selular (Telkomsel), captures more than half of Indonesia's mobile revenue.²³²

The Ministry of Communication and Information Technology (MCIT) is responsible for administering telecom laws and regulations.²³³ MCIT established the Indonesian Telecommunications Regulatory Body in 2003 to administer the sector, using the MCIT delegated authorities to regulate, supervise, and control provision of networks and services. However,

as of October 2021, MICT was expected to re-assume all regulatory responsibilities.²³⁴

The Telco Law (Law No. 36 of 1999) obliges operators to contribute toward universal services. The universal services obligation (USO) requires network and service operators to contribute either facilities (fixed-line operators), infrastructure, or to contribute through compensation. Contributions are managed by the Telecommunication and Information Accessibility Agency, which is tasked with using the fund to establish networks or services in underdeveloped regions.²³⁵ An example of the USO at work came in September 2021 when XL said that it has started operating a 4G network in 14 districts in Maluku and 10 districts in Papua and West Papua.²³⁶

Internet Access

As of 30 June 2021, Indonesia had some 212,354,070 internet users, making up about 77% of the population. Internet penetration has steadily increased driven largely by rapid growth in the number of mobile subscriptions. Indeed, fixed broadband connections lag well behind mobile users with 10.2 million fixed lines versus more than 200 million users who access the internet via mobile.²³⁷

To a great extent, geography and cost shut out Indonesians in more remote areas. Connectivity remains highly concentrated in the western part of the archipelago with the country's five eastern provinces receiving the lowest rankings in an ICT development index. MCIT has committed to allocating resources from the USO Fund to build internet infrastructure in rural and other underserved areas and subsidize internet access in eastern Indonesia. Although the main Palapa Ring project – a three-part network of broadband backbone infrastructure extending thousands of kilometers across the country – was completed in October 2019, funding constraints have limited the development of further base transceiver stations necessary to support the project.

Disparities in access also result from high cost. Affordable prepaid packages are less available in underserved areas, such as Papua,

Nusa Tenggara, and the Maluku Islands, due to Telkomsel's dominance of the market in the eastern provinces compared to more populous areas like Java, where consumers have more choices in terms of service provider. People in Indonesia were severely impacted by low internet penetration rates and poor infrastructure during the COVID-19 pandemic. The limited availability of electricity and connectivity in more than 21,000 villages hindered online home learning activities for students in rural areas.²³⁸

Surveys of Indonesian internet users find that 98% watch videos on-line, 74% watch vlogs, 84% stream music, 52% listen to radio, and 58% listen to or watch podcasts. Entertainment, chats, and social media outpace all other types of internet use. Only about 11% of Indonesians shop on-line, and only 3% have a mobile money account. The top ten websites accessed by Indonesian users are:

- Google.com
- Detik.com (Indonesian news portal)
- YouTube.com
- Kompas.com (Indonesian news portal)
- Tribunnews.com (Indonesian news portal)
- Facebook.com
- Brainly.co.id (Education)
- Wikipedia.com
- Google.co.id
- CNBCIndonesia.com (news portal)

As of early 2021, there were at least 170 million active social media users in the country, and 99% of them access social media via mobile phone. Surveys have found that typical Indonesian internet users spend nearly nine hours each day on-line; more than five of these hours are spent accessing the internet via mobile phone. Moreover, the average Indonesian internet user spends upwards of three hours per day on social media sites, and the average number of social media accounts used by each Indonesian social media user is more than 10. A reported 60% of these users use social media for work, and nearly 95% of them report interacting with or creating social media content. YouTube is the most popular social media outlets with 93%

of users, followed by WhatsApp, Instagram, and Facebook, all with more than 85% of Indonesian social media users using these sites; Twitter is used by only about 63% of Indonesian social media users.²³⁹

Mass Media

Indonesia's mass media sector is vibrant and diversified albeit with some legal and regulatory restrictions. Since the 1998 reformasi, the media industry has flourished on the basis of capital investment. By 2017, the Press Council estimated that there were 47,000 individual outlets, dominated by 43,000 on-line outlets. There are more than 500 TV stations, 1,100 radio stations, and some 2,000 print titles, of which only 172 are daily newspapers. These numbers belie the small size of most outlets. Only a very few outlets of any type (on-line included) are commercially viable, pay their journalists, and have consistently verifiable content.²⁴⁰

Post-reform investment led to a concentration of mass media under several massive conglomerates; the largest are MNC Group and Kompas Gramedia Group although Jawa Pos Group has a dominant share of the print market. Each of the conglomerates has at least one major TV station and several radio outlets and print/digital titles, and most have made the leap into Internet Protocol television (IPTV) and digital broadcasting along with over-the-air. The challenge to journalists and consumers has been that many of the wealthy owners are also either politicians or politically influential. While this concentration initially drove a move toward community media, particularly radio, it has more recently been circumvented by content producers and consumers via social media. Moreover, the extension of the infrastructure and education necessary to cultivate media consumption is uneven across the country; Java, Bali, and Sumatra have the most extensive infrastructure, greatest choice in sources, and, therefore, the largest mass media markets.²⁴¹

Television is the most popular medium with major national commercial networks competing with state-owned Televisi Republik Indonesia (TVRI) for viewers. Surveys consistently

find that 90% of Indonesians regularly watch television either via traditional means or on-line/via mobile phone.²⁴² Terrestrial, cable, and satellite systems are all available with cable the leading choice of customers as it beats terrestrial on content and satellite on price. The market has shown massive growth with eager customers once infrastructure reaches them; thus, the scope for growth remains significant as infrastructure continues to expand.²⁴³ Nonetheless, more traditional content providers and cable systems likely will confront competition from on-line streaming services and IPTV as younger, would-be viewers are increasingly used to getting their information and entertainment via their mobile devices and the cost of broadband (fixed or mobile) is expected to fall.²⁴⁴

Radio remains popular as it reaches areas of the country not served by other mass media. For example, in major urban areas, listenership is only about 50% because of the amount of choice consumers have for other types of media whereas in more remote areas without other options for entertainment and information, some 80% of the population listens to radio. Radio has adapted to the digital realm, and 40% of listeners listen to their favorite (and local/national) stations via mobile phone.²⁴⁵

Press

The Jakarta Post – daily, English-language, privately-owned (<https://www.thejakartapost.com/>)

Kompas – daily, Bahasa-language, privately-owned (<https://www.kompas.com/>)

Pos Kota – daily, Bahasa-language, privately-owned (<https://poskota.co.id/>)

Indo Pos – daily, Bahasa-language (<https://mediaindopos.com/>)

Republika – daily, Bahasa-language, privately-owned (<https://republika.co.id/>)

Bisnis Indonesia – daily, Bahasa-language, business/financial, privately-owned (<https://www.bisnis.com/>)

Tempo – weekly, Bahasa-language newsmagazine, privately-owned (<https://www.tempo.co/>)

Broadcast

Radio Republik Indonesia (RRI) - state-owned, operates national, regional, and local stations (<https://rri.co.id/>)

Televisi Republik Indonesia (TVRI) - state-owned, operates three national and one regional networks (<https://tvri.go.id/>)

Surya Citra Televisi Indonesia (SCTV) – private, free-to-air and on-line (<https://www.sctv.co.id/>)

Rajawali Citra TV Indonesia (RCTI) – private, free-to-air (<https://www.rcti.tv/>)

Indosiar – private, over the air and streaming (<https://www.indosiar.com/>)

MNCTV – private, via cable, satellite, and streaming (<https://mnctv.com/>)

On-line

Jakarta Globe – private, daily news website, English-language (<https://jakartaglobe.id/>)

Detikcom – private, news website and portal, Bahasa-language (<https://www.detik.com/>)²⁴⁶

The 2008 Law on Electronic Information and Transactions extended libel to online media and criminalized the distribution or accessing of information or documents that are “contrary to the moral norms of Indonesia” or that involve gambling, blackmail, or defamation. This law is occasionally used to silence dissent, particularly when a journalist’s work targets politically powerful people. The Alliance of Independent Journalists, a local group, reports that violence against journalists reached an all-time high in 2020, with 84 reports of violent incidents over the course of the year. The group cited cases of police action against journalists, including intimidation, physical violence, and detention, targeting those covering October 2020’s mass demonstrations against the 2020 omnibus law on job creation. Internet blackouts during protests in Jakarta and Papua as well as self-censorship have inhibited press activity. Journalists covering sensitive subjects face harassment and threats.²⁴⁷

Post

Pos Indonesia is the national postal service. It provides regular mail services, courier services, and logistics support. In addition, via mobile or

digital services, it handles various banking and financial services, including insurance. There are nearly 60,000 postal service centers nationwide, yet only about half of villages have direct door-to-door service or even a post office within their confines.²⁴⁸

International courier services – DHL, FedEx, UPS, etc. – serve Indonesia with standard door-to-door service.

Utilities

The challenges of extending electric power and water and sewerage provision across the Indonesian archipelago are not only geographic but also financial, regulatory, political, and technological. The country remains a major coal producer and exporter as well as a heavy coal user for electricity production, and it confronts challenges in funding new renewable energy generation despite an acknowledged need to do so to stave off the impacts of climate change. Among these impacts is sea level rise and saltwater intrusion that threaten the already overused fresh water supplies the country relies upon for residential, agricultural, and industrial use.

Power

Indonesia is rich in resources that it exports to the world and uses at home for energy production. The country is the world’s fifth largest producer of coal and is home to the world’s 10th largest coal reserves. In 2019, the country produced 559 million metric tons (616 million U.S. tons) of coal, 79,000 cubic meters (2.8 million cubic feet) of natural gas, and 272 million barrels of oil.²⁴⁹ Around 80% of Indonesia’s coal is exported, but about 58% of Indonesia’s domestic electricity generation is coal-based. The country ranks 10th in the world for total coal capacity (29,307 megawatts (MW)).²⁵⁰ Figure 12 shows Indonesia’s primary energy supply mix in 2019 with oil, coal, gas, and new and renewable energies (NRE), including hydropower (2.5%), geothermal (1.7%), biofuel (3%), and biogas, solar, wind, and others (2%).²⁵¹

In 2020, Indonesia’s petroleum and other

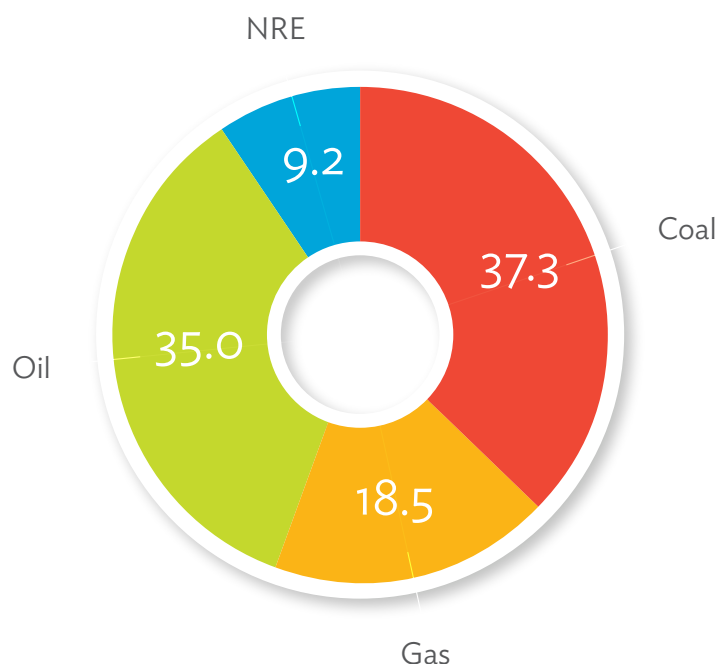


Figure 12: Indonesia's Primary Energy Supply (2019)

liquids production averaged 887,000 barrels per day (b/d). Declining oil production and rising domestic demand are an increasing challenge. Most of the oil reserves that are in areas operated by the state-owned oil and natural gas company, Pertamina, equating to 47% of Indonesia's production, are in mature fields and require techniques that are currently beyond the technological scope of domestic firms. Alongside this declining domestic oil production, Indonesia's total refinery capacity stands at an estimated 1.1 million b/d at six major refineries and a few smaller facilities, most of which is owned by Pertamina. Current refining capacity is insufficient to meet domestic demand, and Indonesia uses imports to meet about half of its domestic petroleum product demand. Without any international oil pipelines and few domestic pipelines, most oil and oil products move via sea.

Indonesia produced an estimated 2.2 trillion cubic feet (Tcf) of dry natural gas in 2020, mostly from offshore fields not associated with crude oil production. The country uses slightly less than two-thirds of its total gas production for domestic markets. State-owned Perusahaan Gas Negara (PGN) controls 93% of all national downstream infrastructure and operates more than 10,167km (6,318 miles) of natural gas

transmission and distribution pipelines. Liquefied Natural Gas (LNG) does play a not inconsiderable role in Indonesia's energy mix. The country's share of the global market is just over 4% with exports nearing 600 billion cubic feet (Bcf). Indonesia has three liquefaction plants with a combined liquefaction capacity of 1 Tcf per year and over 400 Bcf in regasification capacity.

Indonesia's government, in its 2014 National Energy Policy (*Kebijakan Energi Nasional*, or KEN), set a target of providing every household in the country access to electricity by 2020. Although that target was narrowly missed, the percentage of the population with access to electricity rose from approximately 67% in 2010 to over 99% in 2020. Eastern Indonesia does not

have the high electrification rates the western area enjoys; for example, Papua and West Papua are the only provinces with electrification rates below 60% (Papua at 22.7% and West Papua at 44.2%). From 2017 to 2019, the State Electricity Corporation (*Perusahaan Listrik Negara*, Persero or PLN) initiated a program that installed solar powered lights in villages that were not expected to be connected to the grid within two to three years from the program's completion in 2019.

In 2020, Indonesia had an estimated 63.3 gigawatts (GW) of installed generation capacity and generated 275 terawatt hours (TWh), according to the Ministry of Energy and Mineral Resources (ESDM) and PLN. About 82% of the generation came from fossil fuels (62% coal, 18% natural gas, and 2% oil), 6% from hydroelectric, 6% from non-hydro renewables, and 4% from other sources. Geothermal accounts for the majority (96%) of non-hydro renewable energy. Most of Indonesia's electricity is used by residential customers (46%), followed by industrial (30%) and commercial (18%) users. The country's electricity generation input mix is depicted in Figure 13.²⁵²

In 2015, the President unveiled an ambitious plan to develop 35,000 MW of new power by 2019 – in part to address the “electrification gap” between the country's wealthy islands, such as

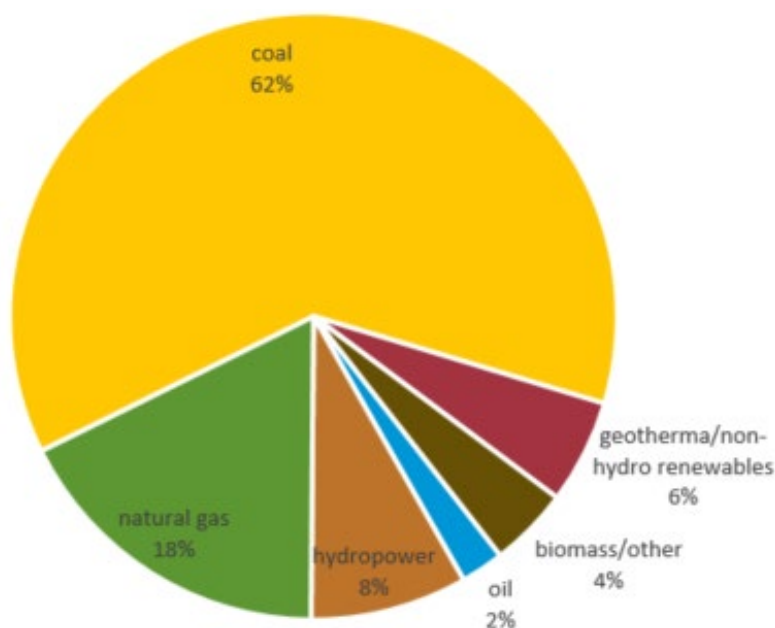


Figure 13: Indonesia's Net Electricity Generation, by Fuel (2020)

Bali, Java, and Sumatra, and its smaller, more isolated islands. The target was later pushed back to 2024.²⁵³ In terms of electricity, the islands of Bali, Java, and Madura together had an estimated demand for 181 TWh in 2019, followed by Sumatra, which forecast 38 TWh of electricity demand for 2019. The 2019 estimated demand for Kalimantan, Sulawesi, Maluku, and Papua was 24 TWh. Electricity demand is expected to increase particularly from the industrial and household sectors.²⁵⁴

The RPJMN 2020-2024 includes targets for the electricity sector with a goal of renewable power capacity reaching 37.3 GW in 2024.²⁵⁵ The government estimates that the country has the largest global potential for geothermal energy at 23.9 GW and potential for hydropower of more than 94 GW. The country also has a biomass potential of more than 32.6 GW and a biogas potential of 200,000 b/d. Projections for renewable energies are estimated at 60.6 GW for wind energy, 208 GW for solar energy, and 17.9 GW for ocean and tidal energy.²⁵⁶ Nonetheless, as of 2017, just 5% of Indonesia's electricity came from renewables – the vast majority from geothermal. The government has pledged to source 23% of its energy from renewables by 2025 and 31% by 2050. The country opened its first wind power farm in July 2018, the Sidrap

Wind Farm, which produces 75 MW of electricity and supplies power to Sulawesi. The country currently has just 16 MW of solar power, according to the International Renewable Energy Agency. However, the government aims to have 6,400 MW of solar and 1,800 MW of wind by 2025.²⁵⁷

Water and Sanitation

As of 2017, a reported 90.8% of the population had access to clean water although only 83.7% of rural populations did. Meanwhile, a reported 85.4% of the population had access to improved sanitation facilities, and – as with water access – rural communities are less served

than urban ones (76.8% versus 92.5%).²⁵⁸

In Indonesia, water and sanitation services for urban areas are the responsibility of local governments, provided mostly through public utilities called Perusahaan Daerah Air Minum (PDAM). Policy and regulatory responsibilities related to water issues are shared at the national level with the Ministry of Public Works, which is the most instrumental agency in the physical development of water services. At the regional and local levels, PDAMs are influenced and controlled by their owners (the mayor or chief of district), provincial governor, and regional regulatory bodies. Many PDAMs face considerable financial challenges, which make them dependent on funds from either local or provincial governments and, particularly for infrastructure development, on funds from the Ministry of Public Works.²⁵⁹

Despite having over 20% of the freshwater reserves of Asia, Indonesia has great difficulty in providing potable water or fresh water to meet demand. Of note is the doubling of the urban population between 1990 and 2010, an explosion that sorely tested public utilities. Stress on water resources in urban areas of Java and Sumatra, where over 80% of the current population lives, is now especially high.

As a result of political and regulatory obstacles, water supply and sanitation are in poor technical and financial condition. Less than one-fifth of the total population is connected to piped water supply from PDAMs of which there are more than 380. Even in urban areas, only 31% of people receive piped water. This percentage has been declining as service coverage has failed to keep pace with the increasing urban population. The remaining population depends on individual wells, small-scale providers, or water vendors, often at high cost. In rural areas, less than 15% of households get drinking water from piped supplies, with PDAMs accounting for about two-thirds of this delivery. Most rural households rely on shallow groundwater extraction, rainwater collection, or surface water from nearby rivers or springs. Non-piped or self-supply systems are abundant and form the major source of domestic water supply. Piped water supply systems are mainly managed by PDAMs.²⁶⁰

Water shortages are especially acute during the dry season, particularly in urban areas, and total economic losses attributable to limited access to safe water and sanitation may reach 2% of GDP annually. Poor water quality can cause outbreaks of major diseases, posing an additional stressor to already vulnerable populations. Moreover, agricultural run-off, inadequate storage capacity, and fertilizer and pesticide use for agricultural production serve to exacerbate existing problems of water scarcity and pollution. While shallow groundwater supplies may meet demand for household consumption, water quality and quantity fluctuate widely, especially in the dry season. Industries, on the other hand, resort to deep groundwater resources to meet their larger-scale needs; this can consequently cause land subsidence, leaving large areas vulnerable to flood and salt-water intrusion.²⁶¹

Areas such as Java, Bali, East Nusa Tenggara, and parts of Sulawesi experience water deficits, heightened in part by water pollution. Indonesia's Nationally Defined Contributions under the Paris Agreement outline how total water demand to support irrigation, domestic consumption,

and municipal and industrial uses can exceed water availability in years of low climate-driven supply. Modelling, for example, from Nusa Tenggara Barat Province highlights potential future agricultural water deficits in the first rice growing season (November–March) that could also impact high value cash crops in the second season (March–June).

Climate modelling points to increased water scarcity in Indonesia over the next decades. Indonesia reported in its Second National Communication to the UN Framework Convention on Climate Change (UNFCCC) in 2010 that 14% of its 453 districts record no months of surplus water. By 2025, this is projected to increase to 20%, and by 2050 to 31%. In addition to water scarcity, saltwater intrusion is an issue impacting Indonesia's water resources. This is currently experienced along Indonesia's coastline and is exacerbated by factors including land subsidence, sea level rise, and groundwater exploitation.²⁶²

In the sanitation sector, the limited sewerage systems are managed by either the local PDAM, specially constituted public enterprise, or public service agency. Wastewater treatment and disposal are almost entirely managed in on-site systems. Indonesia has one of the lowest rates of conventional off-site sewerage coverage in Asia. Only 11 cities have some form of sewerage network, and in each of these only about 5% of the city population has coverage. In part, this stems from cost considerations, and many households opt out of the more expensive sewerage link and instead build a septic tank. Nationally, the coverage of formal sewerage systems is less than 1% of the total urban population. Over 70% of urban households have on-site sanitation, mostly in the form of septic tanks, which do not function effectively. Less than 25% of human waste delivered to on-site systems is dealt with properly. About 80% of bathroom, kitchen, and laundry wastes are passed direct to surface water drains. In rural areas, less than 30% of households have toilet facilities, and only about 20% have septic tanks.²⁶³

HEALTH

Significant improvements have been made in public health in Indonesia over the past several decades. Infant mortality has steadily dropped from 118 deaths per 1,000 births in 1970, to 41 in 2000, 35 in 2003, and 21 in 2018.²⁶⁴ Over the same period, life expectancy increased from 48 years to 66 years. Such positive developments can be attributed to the expansion of public health provision in the 1970s and 1980s and increased development in programs for family planning.²⁶⁵ Figure 14 shows the increase in life expectancy in Indonesia over the past several decades.²⁶⁶ The anomalous dip can be attributed to the 26 December 2004 earthquake and tsunami, which led to more than 200,000 deaths in Indonesia.

In 2014, the government started implementing universal health care to address the gap in healthcare access and outcomes, which is exacerbated by the country's wealth gap. Jaminan Kesehatan Nasional (JKN) is the health insurance system that aims to provide healthcare to every citizen in the country. As of 2019, JKN covered 83% of the population, or 221 million people, making it one of the largest single-payer

systems in the world. The program has come under scrutiny for annual deficits as it is still working toward ensuring financial sustainability. Nonetheless, it is a marked improvement from 2010, when only 56% of Indonesians had any kind of health insurance under various schemes as there was no unified system.²⁶⁷ However, an ongoing challenge for the health insurance system is minimizing the health gap between Indonesia's richer and poorer populations, particularly because people in rural areas have limited access to healthcare.²⁶⁸

In September 2021, USAID launched a five-year, US\$35 million program aimed to reduce maternal and newborn mortality in Indonesia. The program, USAID MOMENTUM, will work with the Government of Indonesia and other partners from both the public and private sectors to make healthcare more accessible and practical. The new program will invest in improving access to care in health facilities, improve the quality of hospital services, and promote stronger policies for maternal and newborn health.²⁶⁹

How long do people live, and how will that change?

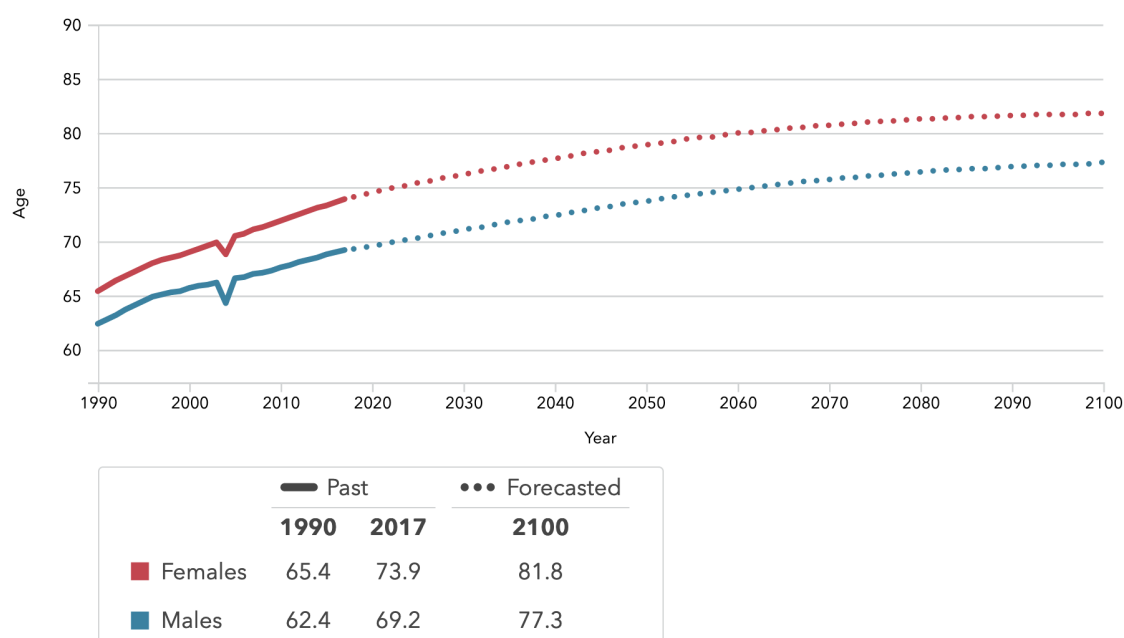


Figure 14: Life Expectancy at Birth in Indonesia (1990-2100)

Health Care System Structure

The development of Indonesia's healthcare system since the end of World War II has seen a shift from a curative focus to a broader one that offers preventive care as well as treatment programs. The Ministry of Health has central oversight of Indonesia's healthcare system and delivers national guidelines and regulations to provide directions for health offices at provincial or district levels. In 2001, the country institutionalized government decentralization, which included healthcare management, a change that led to a greater degree of authority and regulation accruing at the provincial or district level. The current healthcare system has seen the development of two major facilities, the hospital and the community health center (puskesmas).

Community-based health service is the key to healthcare in the country. Across Indonesia, there are more than 9,700 community health centers, or puskesmas (short for Pusat Kesehatan Masyarakat). They provide healthcare at the sub-district level and are overseen by the Ministry of Health. There are two kinds of puskesmas, inpatient facilities with beds and outpatient facilities without beds. Clinics without beds operate in the daytime only, with the capability to treat public outpatient concerns. They provide non-urgent, prevention-focused care, including antenatal appointments and family program services. These puskesmas without beds are usually staffed by a general practitioner and a bidan (nurse), and they often operate at maximum capacity. Puskesmas with beds are usually in rural areas. One of their responsibilities is to provide basic emergency obstetric care, and UNICEF funding supports specialized training to help staff meet this responsibility. Puskesmas with beds have limited or varied abilities with emergencies, although they are often looked to as a de facto 24-hour emergency center.²⁷⁰

The puskesmas coordinate preventive and curative programs including antenatal and

postnatal care, immunization, family planning services, nutrition and sanitation consultations, and dental service. The puskesmas work in conjunction with healthcare units below them. The subcommunity health center, or puskesmas pembantu (pustu), increases the quality and outreach of a puskesmas' function at the village level. The village delivery center, or Pondok Bersalin Desa (Polindes), is a village health center that is staffed with midwives and used mainly for childbirth and delivery services. The integrated health post, or Pos Pelayanan Terpadu (Posyandu), provides basic healthcare services for mothers, infants, and toddlers at the village level. The village health post or Pos Kesehatan Desa (Poskesdes), is similar to Polindes but has broader activities not only for maternal and infant services, but also for health services in general, including health surveillance for nutrition, environment, emergency, and disasters. Figure 15 shows the organization of puskesmas in Indonesia.²⁷¹

There are different types of hospitals, based on service and management style. Based on service, general hospitals provide health services for all types of diseases. Specialty hospitals provide health services for a particular disease or specific field based on branch of science or other specialties. Based on management, public hospitals are managed by a government entity or other body for non-profit purposes. Private hospitals are managed by a corporate body for profit. As of 2020, there were approximately 2,000 hospitals in the country, half private and half public.²⁷²

A major issue of healthcare in Indonesia is emergency care. In-hospital emergency care mostly occurs in the emergency department. Prehospital emergency care is developing. In 2000, the Ministry of Health initiated the integrated emergency management system (*Sistem Penanggulangan Gawat Darurat Terpadu*, SPGDT) to promote prehospital emergency care, in-hospital emergency care, and interhospital referral. As part of this program, the 119 Emergency Call Centre was launched in 2013 in the Jakarta region. In 2016, Emergency Service

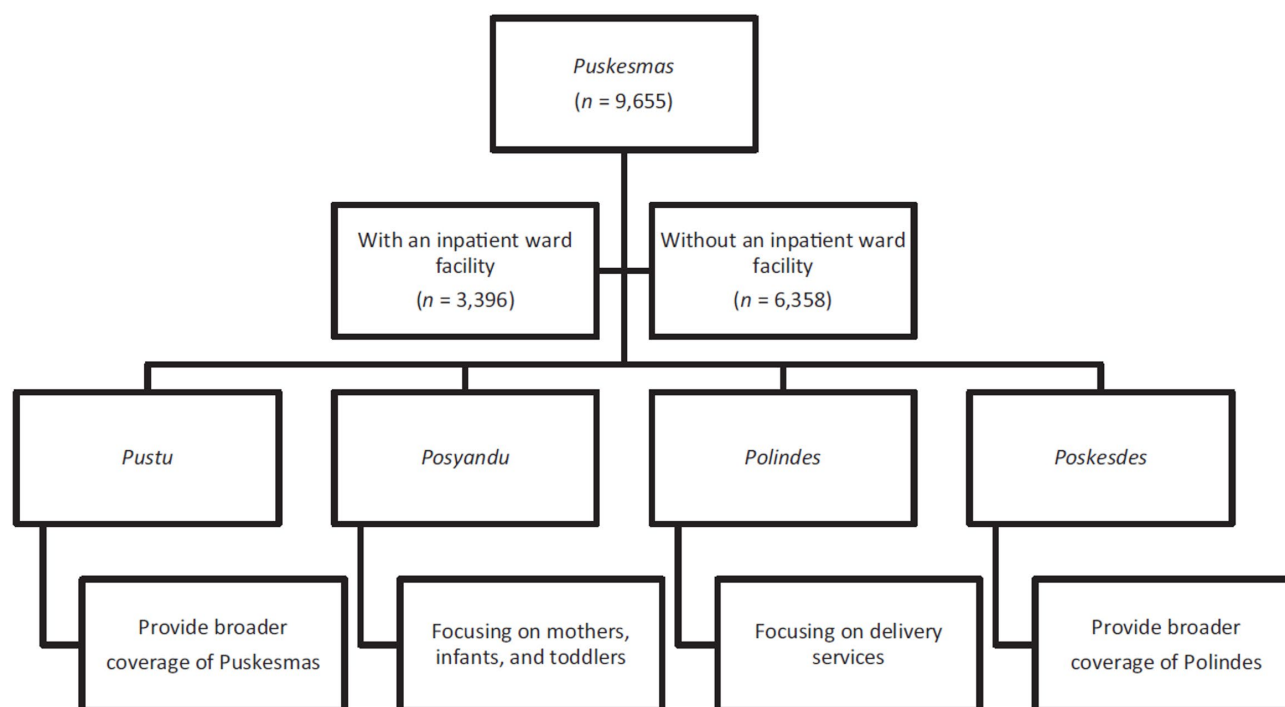


Figure 15: Organization of Puskesmas, Community Health Centers, in Indonesia

119 was launched at a national scale, and it is now established in at least 27 cities.²⁷³

Telecommunication in healthcare (telehealth or telemedicine) is a developing area of healthcare service in Indonesia. The government launched a US\$27 billion program for enhancing information and communications technology, which could facilitate delivering health services to remote areas. The Indonesia Broadband Plan aimed to provide broadband access to 80% of all rural institutions, including hospitals, schools, and government offices. Telehealth received a boost during the COVID-19 pandemic. In July 2021, Health Minister Budi Gunadi Sadikin announced that Indonesia would provide free telemedicine to patients with mild symptoms to reduce pressure on the healthcare system inundated with COVID-19 cases. Remote services, provided by telehealth firms such as Alodokter and Halodoc, include free consultations and medication delivery.²⁷⁴

Health Strategies and Surveillance

Indonesia, like all countries with a WHO office, has a Country Cooperation Strategy

(CCS). WHO CCSs are flexible to align with the national health planning cycle and generally run 4-5 years. The five strategic health priorities for Indonesia, as outlined in its WHO CCS, address communicable diseases, noncommunicable diseases (NCD), reproductive, maternal, and child health, strengthening the health system, and disaster preparedness and response for public health emergencies. The strategic priorities and their accompanying focus areas are detailed in Table 7.²⁷⁵

Indonesia has also developed its Health Strategy document, 2005-2025, in line with the national development plan. Additionally, it has put in place a national strategic planning document on human resources for health planning and management, 2011-2025.

The two largest bilateral grant providers in support of health development in Indonesia are USAID and AusAID (now Australia's Department of Foreign Affairs and Trade), who account for nearly two-thirds of all grants given. The Global Fund to fight Aids, Tuberculosis and Malaria (GFATM) started supporting Indonesia in 2003. Previous support from the GAVI Alliance (formerly the Global Alliance for Vaccines and Immunisation) introduced vaccines

WHO Country Cooperation Strategic Agenda	
Strategic Priorities	Main Focus Areas for WHO Cooperation
STRATEGIC PRIORITY 1: Address the challenges of communicable diseases and reach the national Sustainable Development Goal (SDG) targets	1.1 The SDG 3 HIV targets and control of hepatitis and sexually transmitted infections (STI) 1.2 Implementation of the End Tuberculosis Strategy 1.3 A decentralized and effective system for elimination/eradication of malaria and neglected tropical diseases (NTD) 1.4 Strengthened immunization systems enabling highly equitable vaccination coverage by reaching everyone, everywhere and the timely introduction of new, life-saving vaccines
STRATEGIC PRIORITY 2: Address the challenge of NCDs, their modifiable risk factors and mental health disorders in line with global commitments under UN General Assembly (UNGA) resolutions and SDG	2.1 Support to develop appropriate multisectoral policy frameworks for the prevention and control of major NCDs, mainly cardiovascular, respiratory diseases, diabetes, and cancers. 2.2 Support effective population-based interventions to address the behavioral (e.g., physical inactivity, unhealthy diet, tobacco use, and alcohol use), dietary, biological, and environmental risk factors associated with NCDs 2.3 Health system capacity to respond more effectively to prevent and manage NCDs and risk factors, and mental health and substance use disorders 2.4 Determine trends in four major NCDs and their risk factors, mental health, and substance use disorders, as well as the effectiveness and impact of interventions
STRATEGIC PRIORITY 3: Improve reproductive, maternal, newborn, child, and adolescent health (RMNCAH) through increasing access to quality services	3.1 Quality of RMNCAH care with special attention to under-served and remote areas 3.2 Human resources development and deployment for RMNCAH especially in under-served and remote areas 3.3 Effective evidence-based interventions on adolescent and reproductive health, with special attention to pre-conception care
STRATEGIC PRIORITY 4: Strengthen the health system to enable Indonesia to achieve Universal Health Coverage (UHC) in 2019	4.1 Quality and coverage of health services with an emphasis on prevention and promotion using the family-based approach 4.2 Comprehensive national health policies, strategies, and plans 4.3 Public sector health information systems at district, provincial, and national levels for measurement of SDGs
STRATEGIC PRIORITY 5: Enabling capacity for preparedness and response to public health emergencies and disasters	5.1 Capacity to prevent, detect, verify, assess, inform, and respond to public health events 5.2 Laboratory capacities for disease surveillance to promote evidence-based decision-making 5.3 All-hazard approach in improving preparedness plan for emergencies and disaster risk reduction activity 5.4 Emergency preparedness and post disaster response

Table 7: Strategic Health Priorities of the Indonesia-WHO Country Cooperation Strategy, 2014–2019

against diphtheria, pertussis, tetanus, hepatitis B, haemophilus influenzae type B (through the 5-in-1 pentavalent vaccine), measles, rubella, and polio. Indonesia graduated from GAVI support in 2016. In 2021, Indonesia introduced the pneumococcal conjugate vaccine nationwide, procured through GAVI, and in collaboration with GAVI and UNICEF.²⁷⁶

Communicable Diseases

The communicable diseases that most burden Indonesia include:

Dengue fever

Dengue is a vector-borne disease transmitted through the bite of infected *Aedes aegypti* and *Aedes albopictus* female mosquitoes. Dengue fever can be caused by any of four dengue virus (DENV) serotypes – DENV-1, DENV-2, DENV-3, DENV-4, all belonging to the Flaviviridae family. The dengue-transmitting mosquitoes feed both indoors and outdoors in the daytime, and thrive in areas that have standing water, such as puddles, water tanks, containers, and old tires.²⁷⁷

Dengue occurs year-round in Indonesia, with peak transmission in the rainy season, from November through April. Cases are frequently reported in East Java, Jakarta, and on Bali. Provinces reporting the most cases include West Java, Bali, East Nusa Tenggara, East Java, Lampung, West Nusa Tenggara, Jakarta, Central Java, Yogyakarta, Riau, and South Sulawesi. The most severe form of the illness is dengue hemorrhagic fever, incidence of which has increased rapidly over the past 45 years in Indonesia, with peak incidence shifting from young children to older age groups.²⁷⁸

Researchers in Indonesia are breeding a mosquito species that carries the *Wolbachia* bacteria, which prevents viruses like dengue from growing inside them. Results indicate that deploying mosquitoes with *Wolbachia* reduce dengue cases up to 77% and hospitalizations by up to 86%. *Wolbachia* is a common bacterium that occurs naturally in 60% of insect species – including some mosquitoes, fruit flies, moths,

dragonflies, and butterflies – but is not found in *Aedes aegypti*. The research was initiated by the non-profit World Mosquito Program (WMP) and is designed for *Wolbachia*-carrying mosquitoes to mate with dengue-carrying *Aedes aegypti* mosquitoes, producing *Wolbachia* mosquitoes who will not transmit dengue if they bite people. Since 2017, a joint study conducted by WMP at Australia's Monash University and Indonesia's Gadjah Mada University has been releasing lab bred *Wolbachia* mosquitoes across a few dengue fever 'red zones' in the Indonesian city of Yogyakarta.²⁷⁹

On 30 July 2021, the Ministry of Health in collaboration with the WHO Country Office in Indonesia launched the 2021-2025 National Strategic Plan for the dengue control program. The plan was developed after an extensive consultative process with relevant ministries and agencies at the national level and diverse stakeholders across the country. National targets are for at least 90% of districts to achieve an incidence rate below 49/100,000 population and 0.5% case fatality rate by 2025,²⁸⁰ in line with the global road map for neglected tropical diseases 2021–2030.²⁸¹

Malaria

Malaria is transmitted by the night-time biting female *Anopheles* mosquito. Of the five species of human malaria parasites, the most dangerous is *Plasmodium falciparum*, which accounts for 57% of the malaria incidence in Indonesia. The remaining malaria infections are caused by *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium malariae*, and *Plasmodium knowlesi*.

Despite significant progress against malaria, Indonesia is one of nine malaria-endemic countries in the Southeast Asia region and accounts for 21% of the region's reported cases and 16% of its malaria deaths. As of 2020, over 55% of districts in Indonesia are free from local transmission with 75% of the Indonesian population living in these areas. However, 91% of malaria cases in the country are reported from only three provinces – Papua, West Papua, and East Nusa Tenggara.²⁸²

Malaria risk is present below the altitude of 2,000 m (6,562 feet). While malaria risk is present throughout most of the country, many large urban areas are risk free, including Jakarta, Surabaya, Denpasar (Bali), other large cities, and inclusive of the beach resorts in southern Bali. Irian Jaya reports a high incidence of malaria in all regions. *P. knowlesi* has been reported from the province of Kalimantan. Multidrug resistant *P. falciparum* malaria is present in all malarious areas of Indonesia. Chloroquine resistant *P. vivax* malaria has also been reported in the country.²⁸³

While Jakarta, Surabaya, Bali, and other large cities are relatively free from the risk of malaria, rural areas are vulnerable to the disease. According to data from the Ministry of Health, malaria is still rampant in the provinces of Papua, East Nusa Tenggara, Maluku, North Maluku, and West Papua. An Indonesian health official from Maluku province, where the local health department has been taking steps to eradicate the disease, stated that eliminating malaria would require maintaining a healthy environment, killing mosquito larva through fogging, regular blood tests, and the use of mosquito nets.²⁸⁴

Malaria control is one of the longest running health programs at the Indonesian Ministry of Health. More than 27 million long lasting insecticide-treated nets have been distributed since 2004, as part of an extensive campaign to reduce malaria in high and moderate endemic areas such as Sumatera, Kalimantan, and Sulawesi. WHO technical and financial support towards Indonesia's anti-malaria efforts have facilitated efforts and policies to mitigate malaria. The contemporary malaria program is incorporated into the health system, and it is no longer viewed as a stand-alone initiative.

Tuberculosis

Tuberculosis (TB) is highly endemic in Indonesia. TB is a bacterial infection caused by *Mycobacterium tuberculosis*. It can be acquired by breathing contaminated air droplets coughed or sneezed out by a person nearby who has active TB. The most common form of the infection is pulmonary TB, which affects the lungs. Most

people with the illness, 90-95%, have latent TB infection and do not exhibit any symptoms. The bacteria can remain inactive for many years, and the chance of developing active TB diminishes over time.²⁸⁵

Indonesia had an estimated incidence of 845,000 TB cases and estimated mortality of 93,000 TB cases in 2018. TB is the number one cause of death by a communicable disease. Among the top 30 high TB burden countries, Indonesia ranked third; and among the high multidrug-resistant TB (MDR-TB) countries, Indonesia ranked fifth.

In 2018, only 568,865 (67%) of the 845,000 estimated TB cases were notified. Thus, more than one-third of TB patients remain either undiagnosed or diagnosed but not notified to the National TB Program. Of the new cases diagnosed and started on care, 85% were successfully treated. In 2018, an estimated 24,000 patients developed drug-resistant TB; however, only 9,038 cases were diagnosed and only 46% of those cases were initiated on treatment. TB treatment involves taking antibiotics for at least six months.

The current National Strategy of TB Care and Prevention in Indonesia 2020-2024 aims to accelerate the TB elimination efforts by 2030 and to end TB in Indonesia by 2050.²⁸⁶

Coronavirus Disease (COVID-19)

As of 10 November 2021, Indonesia reported 4,249,323 confirmed Coronavirus Disease 2019 (COVID-19) infections. There have been a reported 143,592 deaths related to COVID-19, and 4,096,194 patients have recovered from the disease.²⁸⁷

The number of new COVID-19 cases confirmed daily has spiked a couple of times. Numbers rose slowly throughout 2021, coming to a peak on 1 February 2021 at 12,864 new daily cases. The number of new cases declined slightly for the following several months but spiked precipitously toward a record-high on 18 July 2021 with 50,039 daily new confirmed cases. During the July 2021 spike, Indonesia surpassed India in daily cases and temporarily became the

epicenter for the pandemic in Asia.²⁸⁸ As of 17 November 2021, numbers have declined back down to 374 daily new confirmed cases, among the lowest levels in Indonesia since April or May 2020. Figure 16 is a chart of daily new confirmed COVID-19 cases in Indonesia from 7 March 2020 to 17 November 2021.²⁸⁹

There is a complex mix of factors driving how hard the pandemic hit Indonesia and that led to record highs in mid-2021. Early in the pandemic, top leaders promoted untested natural remedies or were hesitant to take tougher actions to curtail viral transmission. The Eid al-Fitr holiday, known locally as Lebaran to mark the end of Ramadan, typically sees a massive amount of travel. Leading up to the holiday in May 2020, President Joko Widodo vacillated on a holiday travel ban, but authorities did curtail some movement with restrictions on air and sea travel and with checkpoints.²⁹⁰ In 2021, the president enacted stricter measures that

were scientifically backed. But Indonesia still grapples with factors harder to control or that are external to the country. The country has a large informal employment sector and densely populated central islands, a combination that poses challenges to viral containment. Nearby countries being overwhelmed by the more transmissible Delta strain of COVID-19 may also exacerbate spread throughout the region. Also significant is that, unlike wealthier countries, Indonesia did not have early widespread access to vaccines.²⁹¹

Since the July 2021 peak, progress has been made, with infection rates dramatically dropping to hundreds of daily new confirmed COVID-19 cases in November 2021. Stricter measures have been taken, and vaccination rates have been slowly increasing. Indonesia has amassed vaccines from China and received donations from New Zealand and other countries. As of 17 November 2021, 31.2% of the population is fully

Daily new confirmed COVID-19 cases

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.



Source: Johns Hopkins University CSSE COVID-19 Data

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Figure 16: Daily New Confirmed COVID-19 Cases in Indonesia, March 2020–November 2021

vaccinated, and 47.8% received at least one dose of COVID-19 vaccine.²⁹²

The National COVID-19 Task Force (*Satuan Tugas, Satgas*) was created on 13 March 2020, chaired by the Head of BNPB, Doni Monardo. Regional Task Forces were created in 34 provinces and 249 districts/cities.²⁹³ On 20 April 2020, the national response plan for COVID-19 was finalized, and two days later the Ministry of Health shared the plan with the National Board for Disaster Management, the COVID-19 Task Force, and with Provincial Health Offices to facilitate development of provincial response plans.²⁹⁴ Indonesia's Finance Minister Sri Mulyani Indrawati said the country's poverty eradication efforts have been set back by at least a decade due to the pandemic and that 2 million people have lost their jobs.²⁹⁵ The government on 11 May 2020 launched the National Economic Recovery Program (*Pemulihan Ekonomi Nasional*, PEN), with to protect, maintain, and enhance the economic capabilities of businesses from further deterioration, minimize lay-offs, and eventually accelerate economic recovery.²⁹⁶

Regarding social movement restrictions, as of November 2021 Jakarta and a number of regencies/cities in Java were implementing Restrictions Towards Community Activities (PPKM) Level 1 (with the strictest measures applied at Level 4). The Minister of Home Affairs Instruction number 57 of 2021 describes detailed regulations of PPKM at level 3, level 2, and level 1 in the Java and Bali regions. Currently, there is no region in Indonesia that implements PPKM level 4. The Ministry of Education, Culture, Research, and Technology announced that around 72% of schools in PPKM Level 1 to 3 areas have conducted limited in-person learning as of 26 October 2021. Every week, the Government continues to evaluate the implementation and impact of PPKM in each region.²⁹⁷

On 6 November 2021, the Minister of Communications and Informatics stated that the government was reviewing policies to mitigate an anticipated increase of cases during year-end holidays, including continued limits on operational capacity at tourism sites, and strengthening monitoring and implementation

of health protocols at public places, especially places of worship during holiday celebrations. From mid-September through early November 2021, the nationwide test positivity proportion remained below 2%.²⁹⁸

The Humanitarian Country Team (HCT) in Indonesia has coordinated assistance to the country's COVID-19 response, as reflected in the Indonesia Multi-Sectoral Response Plan to COVID-19, which includes coverage across health, mitigating socioeconomic impact, protection of vulnerable groups, risk communications and community engagement, food security and agriculture, and logistics.²⁹⁹ Updated plans from the Indonesia HCT include the Action Plan on COVID-19 and Natural Disaster Responses, January – June 2021, which targets 30.6 million people across all provinces for assistance. Technical support is provided to 18 Indonesia government national institutions, inclusive of offices and networks at sub-national levels. The 25 agencies participating in the HCT plan are: Adventist Development and Relief Agency (ADRA), CARE, the Food and Agriculture Organization (FAO), Human Initiative, Humanitarian Forum Indonesia, IFRC and PMI – Indonesian Red Cross, IOM, Islamic Relief, Mercy Corps Indonesia, Masyarakat Penanggulangan Bencana Indonesia, Muhammadiyah, Nahdlatul Ulama, National Platform for DRR, Oxfam, Save the Children Indonesia, UNDP, United Nations Population Fund (UNFPA), United Nations High Commission on Refugees (UNHCR), UNICEF, United Nations Office on Drugs and Crime (UNODC), UN Women, WFP, WHO, and Wahana Visi Indonesia.³⁰⁰

Non-Communicable Diseases

The mortality rate in Indonesia is overwhelmingly dominated by non-communicable diseases (NCD), which are estimated to account for 73% of all deaths.³⁰¹ Changes in environment, technology, and lifestyle have altered disease patterns, so that Indonesia now experiences a greater prevalence

of diabetes, heart disease, dyslipidemia, obesity, kidney disease, lung disease, and malignancy. NCDs are chronic and often asymptomatic and progressive; thus, patients often do not realize they have the disease until the symptoms of complications occur. This highlights the need for early screening for high-risk population, early treatment, and periodic monitoring.³⁰²

NCDs now comprise the top four causes of death in Indonesia, and seven of the top 10. All NCDs in the top 10 causes of death have increased in incidence over the last decade. The most dramatic increases were seen in the top three causes of death. Stroke, the top cause of death in 2019, increased 25.9% from 2009, when it was also the leading cause of death. Ischemic heart disease, the second top cause of death in 2019, increased 28.3% from 2009, when it was also ranked second. Diabetes, the third most common cause of death in 2019, increased 49.9% from 2009, when it ranked sixth. Figure 17 shows Indonesia's top 10 causes of death as of 2019, and changes from 2009-2019.³⁰³

In March 2021, Minister of Health Budi Gunadi Sadikin stated tobacco control was key to fighting NCDs, as well as other diseases including COVID-19 and tuberculosis, for which smoking is a risk factor for higher morbidity. Indonesia has a 63% smoking prevalence among

men. The health ministry is pursuing several avenues to reduce tobacco use, including stricter tobacco control regulation, increasing the pictorial health warning on tobacco products to 90%, prohibiting the sale of single cigarettes, regulating electronic cigarettes and heated tobacco products, prohibiting online and outdoor tobacco advertising, and increasing educating the public through social media.³⁰⁴

Training for Health Professionals

Modern medical training in Indonesia has roots in the colonial Dutch era, with Indonesian students accessing training in a military hospital in Jakarta in 1849. Indonesia made the shift to an American curriculum around 1956. However, lacking faculty and facilities to thoroughly implement it, medical schools returned to a Dutch curriculum in 1970. Indonesia adopted its own curriculum in 1984, a community-oriented one dubbed KIPDI I (*kurikulum inti pendidikan dokter Indonesia*). This was followed in 1995 by KIPDI II, a content- and discipline-based curriculum. In 2005, shifting from a structure- and process-based curriculum to a competency-based one, Indonesia introduced the competency-based curriculum, in line

What causes the most deaths?

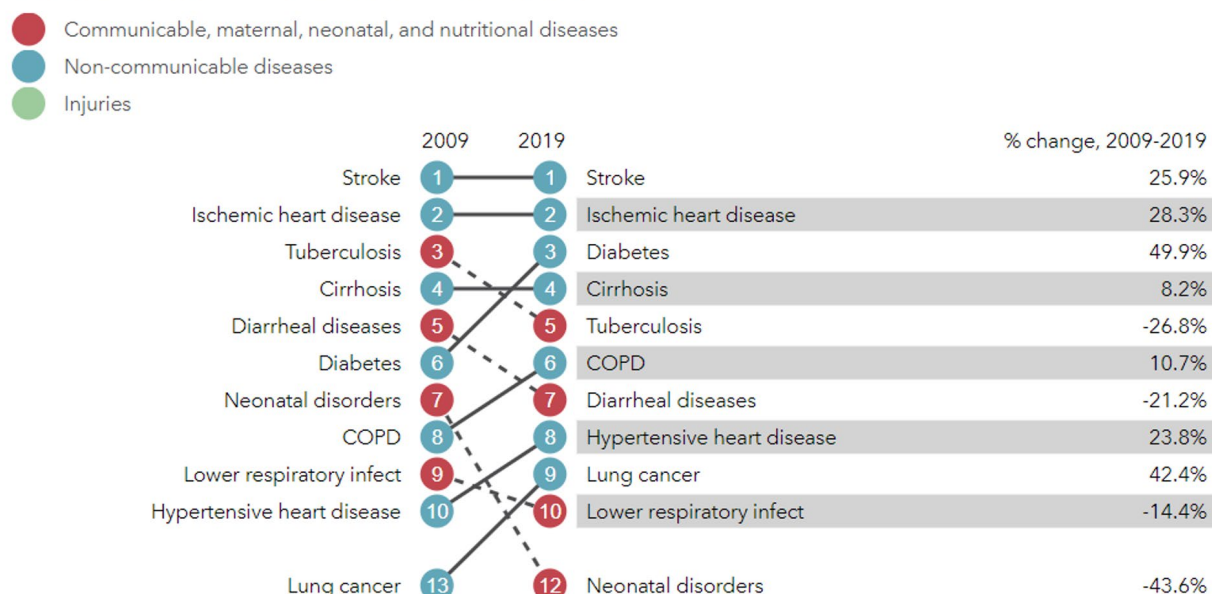


Figure 17: Top 10 Causes of Death in Indonesia, Percent Change (2009-2019)

with changes in medical education globally. At that time, the Indonesia Medical Council was also established to manage the registration of medical doctors and dentists, authorize medical education standards, and maintain quality of medical practice.

Currently, there are 83 medical schools, public and private, which graduate approximately 8,000 people per year. Since 2010, graduates have been required to complete a one-year medical internship before working independently. The number of medical schools in Indonesia has rapidly increased, an expansion which poses a challenge to quality of education, with several curriculum changes having been instituted to improve quality. Challenges that medical schools continue to face include lack of staff and facilities, different learning cultures, and limited availability of experts. Accordingly, many efforts have been made, including enactment of law on medical education and national accreditation. In the future, support from international organizations in terms of financial, consultation, faculty development, and accreditation should be optimized. In addition, collaboration with medical education community elsewhere would be beneficial to overcome challenges and promote the quality of medical education.³⁰⁵

Other health care training in Indonesia has included the Health Professional Education Quality Project, funded by the World Bank from 2009-2014. The project aimed to improve the quality of education of doctors, dentists, nurses, and midwives, by strengthening accreditation and certification institutions. Its three components covered: 1) Strengthening policies and procedures for school accreditation; 2) Certification of graduates using a national competency-based examination; and 3) Results based financial assistance package for medical schools.³⁰⁶

The U.S. Centers for Disease Control and Prevention (CDC) has contributed to professional development and training. The CDC supports strengthening Indonesia's capacity to investigate and respond to disease

outbreaks through the establishment of a Field Epidemiology Training Program (FETP). The program trains a workforce of field epidemiologists, or disease detectives, to identify and contain outbreaks before they become epidemics. The FETP evolved into a graduate degree program at the Universities of Indonesia, Gadjah Mada, Airlangga, Udayana, and Hasanuddin. The CDC has also worked with the Ministry of Health and other partners to provide expertise and support across the 11 technical areas of the Global Health Security Agenda (GHSA), a global partnership launched in 2014 to help make the world safer and more secure from infectious disease threats. This support helps Indonesia build core public health capacities in disease surveillance, laboratory systems, workforce development, emergency management, and other critical areas. The CDC has collaborated with Indonesia's Ministry of Health for more than 50 years to strengthen laboratory networks, routine surveillance, workforce development, and emergency response.³⁰⁷

International and other organizations have also provided support to Indonesia in strengthening its health workforce. Notably, the NGO Project HOPE trains health center staff, midwives, and volunteers on basic and essential maternal and newborn care. In 2013, Project HOPE began working with the Serang District Health Office to train health center staff on emergency and obstetric neonatal care and to train community midwives on the package of Minimum Activities for Mothers and Newborns, with the current program supported by Johnson & Johnson through Give2Asia. In partnership with Brown University's Center for Human Rights and Humanitarian Studies, Project HOPE is also facilitating live remote training for doctors and nurses to become Master Trainers in infection prevention and control, who then train other health workers to recognize and treat COVID-19. Training materials have been translated to Bahasa and adapted to align with Ministry of Health guidelines.³⁰⁸

WOMEN, PEACE, AND SECURITY

Indonesia adopted a National Action Plan (NAP) on Women, Peace, and Security (WPS) in 2014, to guide the implementation of United Nations Security Council Resolution (UNSCR) 1325.³⁰⁹ The Security Council adopted that landmark WPS resolution in October 2000; it affirms the important role women play in the prevention and resolution of conflicts, peace negotiations, peace building, peacekeeping, and humanitarian response, and in post-conflict reconstruction, maintenance, and promotion of peace and security in their countries and communities. Over the next two decades the Security Council adopted nine additional resolutions addressing women and conflict, including the need to stop disproportional gender-based violence and to promote women's roles in conflict resolution, recovery, and peacebuilding. These 10 resolutions comprise the Women, Peace, and Security agenda: UNSCRs 1325 (2000); 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019). The WPS agenda has broadened to include applying a gendered perspective to disaster management and humanitarian aid for more equitable participation, which will not only address humanitarian needs but also benefit society as a whole. Humanitarian crises do not impact everyone equally but exacerbate existing social inequalities, thus natural disasters and other crises disproportionately impact women.

The first reliable nationwide survey of gendered violence in Indonesia was commissioned by the Indonesian Ministry of Women and Child Protection and carried out in 2017 by the Central Statistics Agency, assisted by the UN Population Fund. It covered about 9,000 households across 24 provinces and looked at four types of violence: physical, sexual, emotional (including threats and intimidation), and economic (including confiscating money

or not allowing someone to work). It found that 41% of Indonesian women experienced at least one of these types of violence in her lifetime, with 16% experiencing it in the last year. Among women aged 15 to 64 years old, over 33% had experienced physical or sexual violence in her lifetime, consistent with global figures. More than 42% of women reported experiencing limitations on their freedom, such as being prevented from seeing friends, communicating with family, performing religious practices, or seeking health care without permission.³¹⁰

The last several decades have seen the passage of laws aimed at reducing inequality between men and women. Indonesia ratified the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1984. In the year 2000, Presidential Instruction No. 9 was issued on gender mainstreaming in national development, and a national action plan on eliminating violence against women was adopted. In 2003, a law was passed that each political party participating in a general election should consider having at least 30% women representation in the nomination of its members for national, provincial, and local representative councils.³¹¹ A domestic violence law was enacted in 2004, two years after it was submitted as a bill to parliament. Civil society activists played a key role in garnering widespread support for the legislation against domestic violence by framing the issue in ways that appealed to different groups' interests, including gaining support from religious groups by linking it conceptually with Islamic principles of family harmony.³¹² Since 2014, women's movements, civil society, and academics have advocated that the House of Representatives pass a bill against sexual violence (Rancangan Undang Undang Penghapusan Kekerasan Seksual). The bill met with resistance, remained stalled at stage one (discussion phase) for five years in the national legislature, restarted

in 2019, and as of November 2021 was still in the bill drafting stage.³¹³

On 10 August 2021, Army Chief of Staff General Andika Perkasa announced the Indonesian army had stopped the long-running practice of “virginity tests,” which had been administered to women cadets only. The previous month, General Perkasa had said the required medical examination for recruitment of female cadets should be similar to that for male cadets, and that applicants should only be tested on their physical abilities.³¹⁴ The WHO and other UN agencies had stated there was no scientific validity to the test and in 2018 called for the practice to be stopped. The “virginity test” procedure among Indonesian security forces came to global attention following a 2014 Human Rights Watch Report based on interviews with Indonesian female police and applicants. While applicants who “failed” were not necessarily expelled from the force, all women described the test as painful, humiliating, and traumatic.³¹⁵ The national police stopped the practice in 2018.³¹⁶

The World Economic Forum’s 2021 Global Gender Gap Report (GGGR), which tracks progress in closing gender gaps, ranked Indonesia 101 overall out of 156 countries. Indonesia’s absolute overall score was 0.688 on a scale of 0 to 1 (where 1.0 is a perfect score), indicating 68.8% of the gender gap has been closed. No country scored 1.0, which would indicate gender parity, with the top score being 0.892 (Iceland). The report further provided a breakdown of Indonesia’s gender gap across four dimensions with ranks and scores: Economic participation and opportunity – ranked 99 out of 156, score of 0.647 (64.7%); Educational attainment – 107 out of 156, score of 0.970 (97%); Health and survival – 76 out of 156, score of 0.971 (97.1%); and Political empowerment – 92 out of 156, score of 0.164 (16.4%). Indonesia hews close to the global averages with near gender parity in education and health, and with a greater gender gap to close in economics and politics. Figure 18 shows Indonesia’s country score card with further details within the four dimensions, as well as a visual graph comparing

it with the global average.³¹⁷

A separate index is the Women, Peace, and Security (WPS) Index, which has issued three editions since 2017. Contrasted with the GGGR’s four dimensions, the WPS Index has a heavier emphasis on women’s security and justice, and it categorizes women’s well-being across three dimensions (as opposed to four). The three dimensions the WPS index is structured around are: Inclusion (economic, social, political); Justice (formal laws and informal discrimination); and Security (at the individual, community, and societal levels). In the 2021 WPS Index, Indonesia ranked 100 out of 170 countries, scoring 0.707 on a scale of 0 to 1. No country scored a perfect 1, with first-ranked Norway scoring 0.922. The WPS Index Report notes previous research that highlights the importance of women’s roles as agents of change, including for climate resilience. In line with that connection, Indonesia was positively mentioned for greater women’s representation in decision-making roles in forest management, associated with more effective and equitable forestry interventions. It also noted that while the increase in intimate partner violence was unfortunately a widespread trend globally during the COVID-19 pandemic and lockdowns, data from Indonesia showed that a woman’s access to jobs protected against such violence.³¹⁸

Gender in society is complicated and nuanced in Indonesia. The country, which was recently ranked the second-most dangerous for women in the Asia Pacific region,³¹⁹ has nonetheless attained the sixth highest proportion of women senior managers in the world.³²⁰ Indonesia also has a range of past and emerging women leaders. One of the highest profile leaders was Megawati Sukarnoputri, who served as the country’s first woman president (2001-2004), after having served as vice president (1999-2001). Sri Mulyani Indrawati is an economist who has been Minister of Finance of Indonesia since 2016. At the World Government Summit in Dubai in 2018, she received the Best Minister Award, which is given to one government official annually in recognition of his or her efforts in implementing

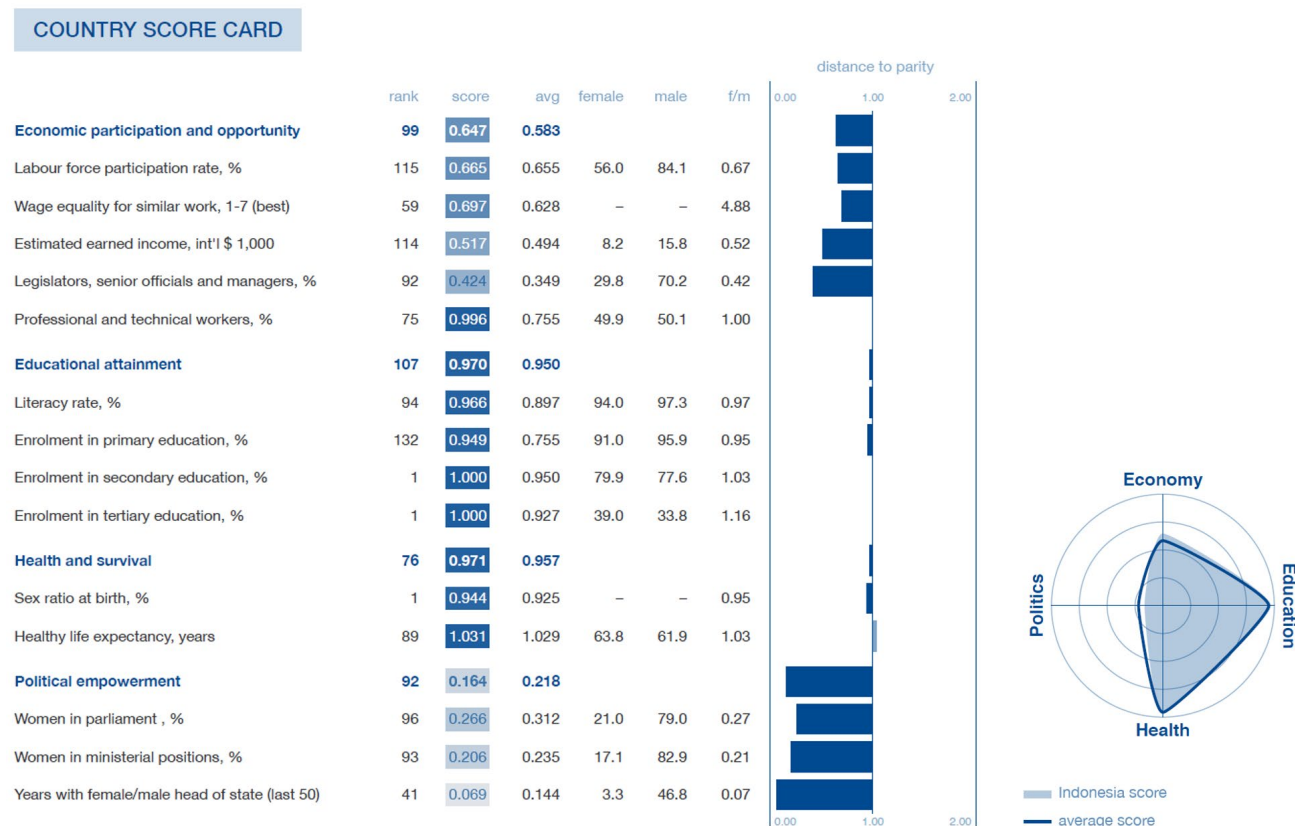


Figure 18: Indonesia Gender Equality Data, Global Gender Gap Index 2021

successful reforms in their home countries.³²¹ Susi Putjiasturi served as Minister of Maritime Affairs and Fisheries from 2014 through 2019. Known for her tough stance on illegal fishing, she was awarded the Leaders for a Living Planet award in 2016 by the World Wide Fund for Nature (WWF, formerly the World Wildlife Fund, which remains its official name in the U.S. and Canada).³²²

Women activists and civil society organizations play a critical role in pushing for greater gender equality.³²³ Indonesian women's organizations, with international assistance, notably from the Australia–Indonesia Partnership for Gender Equality and Women's Empowerment, reached about 900 villages across

27 provinces as of 2018, in which approximately 1,300 women's groups with 32,000 members benefitted directly or indirectly.³²⁴ The second annual Indonesia Accelerator for Grassroots Women Environmental Leaders was conducted in 2020 by the Women's Earth Alliance (WEA). The Accelerator program supports 60 initiatives across 28 regions of Indonesia, and it provides resources and training for women leaders to support the environment and their communities through grassroots programs. As women are especially affected by global warming, WEA focuses on empowering women leaders in Indonesia who are both the most affected by and the most determined to fix environmental and societal issues.³²⁵

CONCLUSION

Indonesia has expanded its disaster management capabilities, boosted its relevance in the climate change crisis, and built its portfolio as a strategic partner for the U.S. in pursuing a free and open Indo-Pacific region.

Indonesia was the single hardest-hit nation by the 2004 Indian Ocean Earthquake and Tsunami that killed 200,000-300,000 people in Indonesia alone. That cataclysmic event led to steady capability building in Indonesia's disaster preparedness and response activities. Meanwhile, the U.S. increased foreign disaster relief and HADR activities with partners in the region. At the same time ASEAN, hosted in Jakarta, adopted AADMER in 2005. ASEAN, then established the AHA Centre in 2011, and Indonesia played a strong role in the AHA Centre during a critical time during which it increased robust regional disaster response capabilities. Progress in DRR paid off in 2018 when, in August, the Lombok Island earthquake killed over 300 people, and in September the Sulawesi earthquake and tsunami killed more than 4,000 people.³²⁶ The Indonesian Government took a firm hand in managing international offers of assistance,³²⁷ partly to prioritize having locals or nationals provide direct assistance on the ground in affected areas, and partly to mitigate second and third order negative effects stemming from well-intentioned responders unfamiliar with local languages, religions, cultures, customs, markets, resources, and capabilities. Though the international humanitarian sector gave this response mixed reviews,³²⁸ the localization of HADR is a dominant trend long advocated for by many in humanitarian aid.³²⁹ Given the budding role the AHA Centre has played in disaster responses in Indonesia, the country's disaster response approach may be leaning in a direction that is both localized and multilateral.

As climate change has become widely acknowledged as a pressing global issue, disaster

management professionals in Asia and the Pacific have increasingly pointed out the heavy overlap between climate change adaptation and disaster risk reduction. Indonesia's resources and location are pertinent to these issues given its biodiversity. Indonesia has the third largest tropical rainforest in the world. It is also at the center of the Coral Triangle, defined by marine zones containing at least 500 species of reef-building coral. The geographical region possessing the world's highest levels of marine biodiversity also encompasses the Philippines, Malaysia, Timor-Leste, Papua New Guinea, and the Solomon Islands.³³⁰ Decades of development linked to resource extraction and illegal land clearance have not only damaged unique ecosystems but are also closely intertwined with the range of natural hazards that Indonesia faces on a more frequent basis.

Indonesia has also become an increasingly important partner in pursuing a free and open Indo-Pacific and enhancing maritime security in its region. Illegal, unreported, and unregulated fishing poses a triple threat to the environment, economy, and rule of law. The practice depletes sustainable fish stocks and disrupts marine ecosystems; it also results in US\$3-5 billion in economic losses for Indonesia, harming local livelihoods and threatening global food security. Repeated incursions into maritime boundaries and Exclusive Economic Zones (EEZ) recognized by the United Nations Convention on the Law of the Sea (UNCLOS) constitute a threat to the stability of that widely recognized rules-based order.

Indonesia is an increasingly capable disaster management actor and important strategic partner for the U.S. in the Indo-Pacific. Relations strengthened through bilateral exercises and visits will serve well for navigating future currents.

APPENDICES

DoD DMHA Engagements in the Past Five Years (FY 2016-2021)

The list below describes the DMHA Engagements that the U.S. has had with Indonesia in the last five years.

CARAT Indonesia – November 2021

On 1 November 2021, U.S. and Indonesian military personnel commenced Cooperation Afloat Readiness and Training (CARAT) in the waters and airspace of the Java Sea as well as virtually in Surabaya, Indonesia. The 11-day bilateral exercise is aimed at the full spectrum of naval capabilities and highlights the U.S.-Indonesia cooperative ability to work together operationally for the common goal of a free and open Indo-Pacific maritime environment. In the Java Sea, ships and aircraft from both the U.S. Navy and the Indonesian Navy (*Tentera Nasional Indonesia - Angkatan Laut*, TNI-AL) joined together for partnered training to build interoperability and strengthen relationships. Subject matter experts virtually exchanged knowledge and experiences on dive/salvage training, aviation, information sharing, force protection, maritime domain awareness, medical best practices, and legal issues. Personnel from UNODC and the European Union's Critical Maritime Routes Indo-Pacific (EU-CRIMARIO) initiative also provided expertise to facilitate understanding of the maritime operational environment, in an approach the U.S. 7th Fleet desires to continue in the future. CARAT Indonesia resumed in 2021 with safety mitigation measures after being cancelled in 2020 due to the COVID-19 pandemic. Indonesia has been part of the CARAT exercise series since it began in 1995. The U.S. and Indonesian armed forces have strengthened their relationship through 27 years of annual training events.³³¹

GEMA BHAKTI 2021 – September 2021

Exercise GEMA BHAKTI 2021 ran 21-28 September 2021 in Jakarta, Indonesia. The armed forces of the U.S. and Indonesia conducted the Joint Chiefs of Staff (CJCS) exercise, between U.S. Indo Pacific Command (USINDOPACOM) and TNI. Indonesian for “Echo of Good Deeds,” GEMA BHAKTI aims to improve joint and operational-level staff planning and processes during crisis response. It also promotes positive military relations, assuring security and stability in the region, increased cultural awareness, and enhanced command and control proficiency. The 2021 staff exercise focused on planning and coordination related to peacekeeping and peace enforcement operations, including HADR, countering transnational threats, and marine security. The exercise used real world historical variables in a scenario involving a fictional country experiencing instability at its borders that destabilizes surrounding nations. This was the ninth iteration of GEMA BHAKTI, in which USINDOPACOM and TNI conducted planning for a scenario involving forces from the U.S. military (Army, Navy, Air Force, and Marines) and their TNI counterparts, as well as humanitarian and government civilian actors, such as from the WFP, USAID's BHA, and components of the International Red Cross and Red Crescent Movement. “The experience gained during the table-top exercise that keyed on transferring from peace-enforcing to peace-keeping was immeasurable, said Brig. Gen. Stephen F. Logan, Hawaii National Guard Deputy Adjutant General. “In the past nine years, Exercise GEMA BHAKTI has evolved and increased in complexity. The first year involved just a tabletop discussion focused mostly on future exercise design...GEMA BHAKTI now incorporates a staff exercise with multiple scenarios.” Approximately 40 USINDOPACOM and inter-agency personnel, 30 TNI personnel, and additional representatives from humanitarian and non-military organizations

took part. Approximately 20 Hawaii National Guard personnel supported this iteration, collaborating with the TNI on the precursor operational design workshop.³³²

Counselor Chollet Visits Indonesia – October 2021

On 21 October 2021, Counselor of the U.S. Department of State Derek Chollet traveled to Indonesia for high-level meetings, following visits to Thailand and Singapore. His trip strengthened cooperation with Indonesia as a key ally and partner in Southeast Asia, reinforced ASEAN centrality and the role ASEAN plays in regional stability, and addressed the crisis in Myanmar. “The U.S. and Indonesia have increased cooperation in a variety of important areas, including cybersecurity, counterterrorism, maritime security, and humanitarian assistance and disaster response,” said Counselor Chollet. Officials he met included Indonesian Minister of Foreign Affairs Retno Marsudi and ASEAN leadership with whom he discussed opportunities for the U.S. to work closely with Indonesia and ASEAN to tackle pressing challenges facing the region, including a strong post-COVID economic recovery and climate change. Counselor Chollet was accompanied by Kin Moy, Department of State East Asia Pacific Bureau Principal Deputy Assistant Secretary, and Craig Hart, USAID Deputy Assistant Administrator.³³³

GARUDA SHIELD 2021 - August 2021

GARUDA SHIELD was conducted 4-14 August 2021 with approximately 1,000 U.S. and 850 Indonesian Army soldiers participating at Baturaja Training Area, Amborawang, and Makalisung. The U.S. Army Pacific- (USARPAC) sponsored exercise enhanced combined interoperability capabilities through training and cultural exchange, and it strengthened the U.S.-Indonesia Major Defense Partnership. GARUDA SHIELD training included expert academic exchanges and professional development workshops focused on the corps-level and below; combat against conventional, unconventional, and hybrid threats; and HADR. A command

post exercise (CPX) focuses on UN peacekeeping operation staff tasks in a combined military setting, while a concurrently run field training exercise (FTX) combined company-strength elements from each nation participating, fundamental war-fighting skills to enhance interoperability, and combined operational capacity.³³⁴

GEMA BHAKTI 2020 - August 2020

Exercise GEMA BHAKTI 2020 was conducted during the last week in August 2020 by videoconference, due to the COVID-19 pandemic. The military planning exercise involving U.S. and Indonesian militaries under the National Guard State Partnership Program (SPP) usually gathers in one location. However, the 2020 iteration saw briefings and breakout sessions held in the continental United States, Hawaii, and Indonesia, with participants sharing presentations and materials securely and using videoconference to plan how to respond to a simulated humanitarian disaster during a global pandemic. One of the challenges was gaining proficiency in the online platform. Travel to either country was not an option due to a travel moratorium and quarantine restrictions.³³⁵

GARUDA SHIELD 2019 – August 2019

The 13th iteration of GARUDA SHIELD closed on 30 August 2019 in Dodiklatpur, Indonesia. It was the third exercise in the Pacific Pathways 19-03 rotation. The exercise featured a combined AH-64 Apache live fire range between U.S. forces and TNI aviation, a jointly conducted javelin missile range, and a platoon live fire range. TNI forces took the lead in conducting the combined Apache live fire range and fostered interoperability. This was the first ever joint U.S.-TNI live fire with Apache helicopters. More than 700 U.S. Army personnel from 25th Infantry Division, Hawaii; USARPAC, Hawaii; 10th Support Group, Japan; I Corps, Washington; and U.S. Army National Guard from Michigan participated in the exercise, one of the largest bilateral training exercises in the Indo-Pacific region. GARUDA SHIELD is an annual, bilateral

military partnership sponsored by USARPAC and hosted annually by TNI.³³⁶

GEMA BHAKTI 2019 – September 2019

GEMA BHAKTI 2019 was an eight-day exercise held in Jakarta, Indonesia, 16-23 September 2019. The exercise is a CJCS Staff Exercise (STAFFEX) between USINDOPACOM (and U.S. Military Service Components) and TNI Service Components. The exercise aims to improve Joint Operational-level staff planning and processes, promotes positive military relations, assure security and stability in the region, and increase cultural awareness. The Hawaii National Guard SPP brought a year of multinational professional military development engagements to a close during the STAFFEX. This iteration of GEMA BHAKTI served as a culminating event for the SPP, which had facilitated 22 international engagements with the TNI in 2019. Those engagements included Search and Extraction, Joint Fires Subject Matter Expert Exchanges (SMEE), a Cyber Range Exercise, an air defense SMEE, a Pandemic Table Top Exercise (TTX), and an operational design seminar. Representatives from all branches of the U.S. and Indonesian militaries participated in the Hawaii National Guard SPP-led exercise. In the STAFFEX, combined staffs from C1 (Personnel) to C9 (Civil Affairs) were given the training task of transitioning the scenario from the exercise's previous iteration into a phase of stability and peacekeeping operations. The exercise scenario included a fictional country experiencing instability at its borders and destabilizing neighboring nations, with variables that the staff must plan a response to taken from real-world events. A key aspect to the last few iterations of the exercise was the implementation of the Multi-National Force Standard Operating Procedures (MNF SOP), a planning framework to improve joint/combined capabilities integration and operational-level planning of maritime security operations, HADR, and countering transnational threats. The Hawaii National Guard has been partners with Indonesia since 2006. This exercise iteration was the seventh of the exercise, and

2019 marked the 70th anniversary of relations between the U.S. and Indonesia. GEMA BHAKTI, Indonesian for “Echo of Good Deeds,” developed through iterations from a simple TTX to a full combined STAFFEX.³³⁷

CARAT Indonesia – August 2019

The Indonesian Navy and Marine Corps and the U.S. Navy, Marine Corps, and Coast Guard began CARAT Indonesia 2019 on 1 August at the opening ceremony at the TNI-AL 2nd Fleet Training Command in Surabaya. The exercise was comprised of both on shore and at-sea training, including visit, board, search, and seizure drills; mobile dive and salvage training; gunnery exercises; explosive ordnance disposal (EOD) drills; jungle warfare training; and SMEEs in maritime domain awareness, medicine, aviation, law, and EOD. Community outreach events included engineering civic action projects, a sports day, and joint public performances by the U.S. Navy 7th Fleet Band and the TNI-AL Eastern Fleet Band. CARAT is the U.S. Navy's longest running regional exercise in South and Southeast Asia and strengthens partnerships between regional navies and enhances maritime security cooperation throughout the Indo-Pacific. The Indonesian Navy has been a part of the annual CARAT series since the exercise began in 1995.³³⁸

GEMA BHAKTI 2018 – September 2018

GEMA BAHKTI was conducted in Jakarta, Indonesia, as a nine-day exercise, with the first full day of planning on 19 September 2018.³³⁹ The TNI, U.S. Army, Navy, Marines, Air Force, and Coast Guard, and Hawaii's Army and Air National Guards, worked together in all areas of operational planning. The exercise consisted of four distinct phases of academic lecture, mission analysis, and course of action development finishing with scenario role play. In this joint force multi-national staff exercise, military staff from USINDOPACOM and Indonesia work through the military decision-making process, which involves the commander's staff working higher and lower commands to define the

mission, its variables, the situation, and how to determine mission effectiveness before a plan or order is written.³⁴⁰

Respond to Sulawesi Earthquake and Tsunami – September 2018

The U.S. military was part of the USAID-led response from the U.S. government in support of Indonesia following the September 2018 earthquake and tsunami. On 28 September 2018, a magnitude 7.5 earthquake struck Sulawesi and was followed by more than 500 aftershocks. The initial earthquake also triggered a deadly tsunami. More than 2,010 people were killed in the earthquake and resulting tsunami, approximately 10,680 were severely injured, and nearly 82,780 people were displaced as thousands of homes were destroyed. USAID deployed a Disaster Assistance Response Team (DART) to coordinate U.S. response efforts, conduct damage assessments, identify priority needs, and work closely with local and national authorities as well as humanitarian organizations. USAID requested support from the U.S. military in providing transportation and logistics assistance. In line with best practices for militaries responding internationally to disasters, the U.S. military provided capabilities unique from civilian responders and acted in a supporting role to USAID, the U.S. lead federal agency for foreign disaster relief. USINDOPACOM deployed three C-130 Hercules cargo aircraft that delivered at least 63 metric tons of relief supplies to Central Sulawesi Province and transported USAID's disaster team and almost 80 aid workers. The 36th Contingency Response Group, based out of Anderson Air Force Base in Guam, worked at airfields in Palu and Balikpapan to expedite the flow of humanitarian aid cargo. The U.S. military and U.S. partners helped distribute 2,210 rolls of heavy-duty plastic sheeting that USAID provided from their emergency warehouses in Dubai and Malaysia, which was enough to provide emergency shelter for 110,500 people. The U.S. worked alongside eight other countries' agencies and militaries in support of Indonesia.³⁴¹ Photo 4 shows an Indonesian military member in Palu

on 6 October 2018 greeting the 36th Mobility Response Squadron (MRS) commander and the 36th MRS operations officer, during a visit to establish an initial baseline of how the U.S. military should best support their Indonesian counterparts.³⁴²



Photo 4: U.S. and Indonesian Military Respond to Earthquake, Tsunami (2018)

GARUDA SHIELD 2018 – July 2018

GARUDA SHIELD 2018 opened on 30 July in Puslatpur, Indonesia, in a joint ceremony with the Indonesian Army and Indiana Army National Guard Soldiers from the 76th Infantry Brigade Combat Team. This marked the 12th iteration of GARUDA SHIELD, a bilateral exercise sponsored by USARPAC. GARUDA SHIELD 18 was also the third exercise in USARPAC's second iteration of Pacific Pathways, a series of multinational engagements with ally and partner militaries in the Indo-Pacific region. Exercises like GARUDA SHIELD contribute to regional peacekeeping capability in the Indo-Pacific region, which in turn fosters interoperability and competency with partner nations that strengthen the U.S. Army's capabilities to respond to a crisis.³⁴³

Pacific Partnership 2018 – April 2018

Pacific Partnership 2018 (PP18) officially started on 2 April 2018 in Bengkulu, Indonesia, with a two-part opening ceremony in the provincial governor's office courtyard and aboard the Military Sealift Command hospital ship USNS Mercy (T-AH 19). Pacific Partnership is the largest annual multinational HADR

preparedness mission conducted in the Indo-Pacific. The objective was to enhance regional coordination in areas such as medical readiness and preparedness for human-made and natural disasters. PP18 consisted of more than 800 U.S. military personnel, working side-by-side with host nation counterparts to be better prepared for potential HADR situations.³⁴⁴ Over several months, PP18 personnel visited and exchanged ideas with professionals in Indonesia, Malaysia, Sri Lanka, Vietnam, and Japan.³⁴⁵

Pacific Partnership 2016 – August 2016

Pacific Partnership 2016 (PP16), embarked aboard hospital ship USNS Mercy, made its final mission stop in Padang, Indonesia, departing 30 August 2016. Personnel completed two weeks of HADR collaboration and training, medical and engineering SMEEs, cooperative health engagements, and community relation events. This year marks the fifth time the mission has visited Indonesia in the past 11 years. Pacific Partnership personnel worked alongside the Indonesian military, civilian leadership, and government officials from the Padang community to improve interoperability and enhance relationships. One of the main lines of effort was an HADR FTX involving more than 200 multinational civilian and military participants. The FTX took place in three different locations in and around Padang, where participants worked together to coordinate and execute a disaster response plan to two simulated earthquakes. The first two phases of the exercise took place at Imam Bonjol soccer field in Padang, which represented a collection point for casualties. Phase three occurred in Bungus Port, where Indonesian coast guard, Mercy boats, and helicopters assigned to Helicopter Sea Combat (HSC) Squadron 21 made multiple water rescues. Phases four and five took place at a cement factory on the outskirts of Padang, where a simulated explosion created a chemical contamination situation. The exercise displayed interoperability when a Mercy rescue boat transferred a simulated casualty to Indonesian ship KRI Makassar landing platform dock

and the Indonesian coast guard transferred a simulated casualty to the Mercy. Pacific Partnership co-hosted Women, Peace, and Security seminars and a disaster management symposium for knowledge exchange and discussion, and PP16 personnel worked side-by-side with their Indonesian counterparts during medical SMEEs, community health outreach events, and a beach clean-up. PP16 included six mission stops in Timor Leste, Philippines, Vietnam, Palau, Malaysia, and Indonesia, following which the USNS Mercy transited back to homeport San Diego.³⁴⁶

Exercise Komodo – April 2016

Exercise Komodo 2016, a multilateral naval exercise, kicked off in Padang, Indonesia, on 12 April 2016 with an opening ceremony and navy ships from 35 nations arriving in the city's harbor for an international fleet review. Komodo emphasized readiness and cooperation among navies in the waters of the Indian Ocean. Komodo 2016 featured a harbor phase and a sea phase. The harbor phase included an international fleet review and a training scenario where participating navies worked together to enhance information sharing and maritime cooperation. The sea phase featured divisional tactics, small boat operations, flight operations with helicopters and maritime patrol aircraft, and communication drills, and was participated in by about 48 ships and aircraft from 35 navies, including 18 member states of ASEAN Plus. Komodo 2016 is the second iteration of the exercise, which began in 2014 in Batam, Indonesia.³⁴⁷

International/Foreign Relations

Indonesia is a vital partner in the Indo-Pacific Region and U.S.-Indonesia relations have become increasingly important.³⁴⁸ Indonesia is the world's third largest democracy, largest Muslim-majority country, the seventh-largest economy by purchasing power, and a leader in ASEAN. USAID works with Indonesian

national and local authorities, civil society, and the private sector with the aims of strengthening a just and accountable democracy, expanding basic services, and enhancing mutual security and prosperity. The U.S. and Indonesia initiated a Comprehensive Partnership in 2010 to foster consistent high-level engagement on a wide range of areas including democracy, civil society, education, security, maritime, energy, and trade.³⁴⁹ This was followed in 2015 with the U.S.-Indonesia Strategic Partnership, which extended cooperation to maritime, defense, energy, economic growth, and global issues including climate change. Indonesia is the largest economy in Southeast Asia and has experienced steady economic growth over the past decade until the COVID-19 pandemic. Indonesia is an important potential market for U.S. products and investment due to the growing middle class, strong domestic demand, large youthful population, and need for new infrastructure. In 2018, U.S. bilateral goods trade with Indonesia totaled more than US\$29 billion, while bilateral trade in services totaled about US\$3.9 billion. U.S. exports to Indonesia include soybeans, aircraft, mineral fuels, machinery, and cotton.³⁵⁰

In 2014, when President Joko “Jokowi” Widodo first came into office, he pledged to turn Indonesia into a Global Maritime Fulcrum, which was announced at the 2014 East Asia Summit and formally introduced by Indonesia’s Sea Policy presidential regulation in 2017. It envisions Indonesia as a force between the Indian and Pacific Oceans. This vision rests on five pillars: 1) maritime culture, 2) maritime infrastructure and connectivity, 3) protection of maritime resources, 4) maritime diplomacy, and 5) maritime defense; as well as two auxiliary pillars of maritime governance and maritime environment. Domestically, it is hoped to enhance inter-island connectivity through infrastructure development and protecting maritime resources to boost the economy. Internationally, it envisions using Indonesia’s location as a fulcrum between different regional initiatives, including China’s Belt and Road Initiative, the Indian Ocean Rim Association

(IORA), the Regional Comprehensive Economic Partnership (RCEP), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. The vision includes developing Indonesia’s maritime defense capability, navigational safety, maritime security, and maritime diplomacy.³⁵¹

Participation in ASEAN is an important part of Indonesia’s contemporary foreign policy. Indonesia was a founding member of ASEAN along with Thailand, Malaysia, Singapore, and the Philippines in 1967, after which ASEAN was also joined by Brunei (1984), Vietnam (1995), Laos (1997), Myanmar (1997), and Cambodia (1999). ASEAN operates on the principle of non-interference in other member states.³⁵²

Indonesia was also a founder in 1961 of the Non-Aligned Movement (NAM), which aimed to create an independent path for countries that did not want to align with the major powers, which at the time were the U.S. and the Union of Soviet Socialist Republics (USSR, now 15 separate countries, the biggest of which is Russia). As NAM Chair (1992-1995), Indonesia steered the organization toward moderate rhetoric, away from North-South confrontation and advocating broader North-South cooperation in development.

Indonesia’s relations with the international community deteriorated in 1975 when it invaded neighboring Timor-Leste (East Timor). Timor-Leste voted for independence in a 1998 referendum, but the Indonesian military opposed independence, and, upon retreat, it destroyed a large proportion of the new country’s infrastructure and displaced hundreds of thousands of people. A UN peacekeeping force established stability, and following Timorese independence in 2002, Indonesia and Timor-Leste established diplomatic relations. The two countries have increased ties over trade relations, as Indonesia is the largest source for Timor-Leste imports.³⁵³ Indonesia has also supported Timor-Leste’s bid to join ASEAN, though it has not yet been successful.³⁵⁴

Nonetheless, there remain territorial issues Indonesia has yet to resolve with Timor-

Leste; these include portions of their shared land border, especially around the Oecussi exclave, and the lack of agreed maritime or EEZ boundaries. Indonesia has a stated foreign policy objective to establish land and maritime boundaries with all neighbors. This would include unresolved maritime boundaries or ongoing negotiations with Australia, Malaysia, Singapore, Palau, and Vietnam.³⁵⁵

China's aggressive maritime behavior has been a cause for concern in Indonesia. Indonesia is not party to the dispute over the South China Sea involving China and regional neighbors, including the Philippines, Vietnam, Malaysia, Brunei, and Taiwan. However, Indonesia has spoken out against what it views as Chinese incursion into its waters. In 2019, Indonesia filed diplomatic notes opposing the encroachment of Chinese fishing vessels into the Natuna Sea, which Indonesia claims as part of its EEZ, but parts of which China claims to have historic fishing rights over.³⁵⁶ Incursions into Indonesia's EEZ occurred again when a Chinese survey vessel spent seven weeks in the North Natuna Sea from September through October 2021, though Indonesia reactions thus far have been to vigilantly monitor.³⁵⁷

Participation in International Organizations

Indonesia participates in the following international organizations:

Asian Development Bank (ADB), Asia-Pacific Economic Cooperation (APEC), ASEAN Regional Forum (ARF), Association of Southeast Asian Nations (ASEAN), Bank for International Settlements (BIS), Conference on Disarmament, Conference on Interaction and Confidence Building Measures in Asia (CICA) (observer), Colombo Plan, Developing-8 / D-8 Organization for Economic Cooperation, East Asia Summit (EAS), Extractive Industries Transparency Initiative (EITI) (compliant country), Food and Agriculture Organization of the United Nations (FAO), Group of Eleven

(G11), Group of 15 (G-15), Group of Twenty (G20), Group of 77 (G-77), International Atomic Energy Agency (IAEA), International Bank for Reconstruction and Development (IBRD), International Civil Aviation Organization (ICAO), International Chamber of Commerce (ICC-national committees), Institute of Catastrophe Risk Management (ICRM), International Development Association (IDA), International Fund for Agricultural Development (IFAD), International Finance Corporation (IFC), International Federation of Red Cross and Red Crescent Societies (IFRC), International Hydrographic Organization (IHO), International Labour Organization (ILO), International Monetary Fund (IMF), International Maritime Organization (IMO), International Mobile Satellite Organization (IMSO), International Criminal Police Organisation (INTERPOL), International Olympic Committee (IOC), UN International Organization for Migration (IOM) (observer), Indian Ocean Rim Association (IORA), Inter-Parliamentary Union (IPU), International Organization for Standardization (ISO), International Telecommunications Satellite Organization (ITSO), International Telecommunications Union (ITU), International Trade Union Confederation (ITUC-NGOs), Multilateral Investment Guarantee Agency (MIGA), Melanesian Spearhead Group (MSG) (associate member), Non-Aligned Movement (NAM), Organisation for Economic Co-operation and Development (OECD) (enhanced engagement), Organisation of Islamic Cooperation (OIC), Organisation for the Prohibition of Chemical Weapons (OPCW), Pacific Islands Forum (PIF) (partner), United Nations (UN), United Nations Conference on Trade and Development (UNCTAD), UN Educational, Scientific, and Cultural Organization (UNESCO), UN Industrial Development Organization (UNIDO), World Tourism Organization (UNWTO), Universal Postal Union (UPU), World Customs Organization (WCO), The World Federation of Trade Unions (WFTU NGOs), World Health Organization (WHO), World Intellectual

Property Organization (WIPO), World Meteorological Organization (WMO), World Trade Organization (WTO).

UN peacekeeping missions that Indonesia is contributing personnel to, as of August 2021:³⁵⁸

- United Nations Mission for the Referendum in Western Sahara (MINURSO): 3 experts
- United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA): 6 experts, 144 police, 11 staff officers, 200, troops
- United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA): 10 staff officers
- United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO): 5 experts, 4 police, 5 staff officers, 1,024 troops
- United Nations–African Union Mission in Darfur (UNAMID): 139 police
- United Nations Interim Force in Lebanon (UNIFIL): 26 staff officers, 1,212 troops
- United Nations Interim Security Force for Abyei (UNISFA): 2 experts, 2 staff officers
- United Nations Mission in South Sudan (UNMISS): 2 experts, 2 police, 1 staff officer

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 Indonesia (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

Passports of arriving travelers must have at least two blank pages and be valid for at least six months beyond the date of arrival in Indonesia. Travelers whose passports do not meet these

requirements will be denied entry into Indonesia. The Government of Indonesia does not recognize the 12-page U.S. emergency passport, issued by U.S. embassies and consulates overseas, as a valid travel document for visa-free travel, and persons traveling on this emergency passport may be refused boarding and/or entry by immigration officials. To use a limited validity passport, such as an emergency passport, travelers must obtain a visa prior to arriving in Indonesia.

With a full-validity passport, there are three ways to enter Indonesia:

- Visa Exemption: This is a no-fee stamp placed in the passport upon arrival for travelers staying less than 30 days; no extensions are allowed and no adjustment to another visa status permitted. Travelers taking this route must enter and exit through an immigration checkpoint at major airports and seaports and must have return or onward tickets to another country. Additionally, these travelers may not have been previously refused entry to Indonesia or blacklisted.
- Visa-on-Arrival: This is a US\$35 visa issued upon arrival valid for up to 30 days for tourism, family visitation, and other purposes. A Visa-on-Arrival may be extended one time for a maximum of 30 additional days, for another US\$35. Diplomatic or official passport holders should not apply for Visa-on-Arrival and should either use visa exemption if staying in Indonesia less than 30 days or obtain a visa in advance if staying longer than 30 days.
- Visa in advance: Travel for more than 30 days or travel for non-tourism purposes, including business, employment, and journalism, requires that the appropriate visa be obtained from an Indonesian embassy or consulate before arrival. Persons traveling on an emergency passport must obtain a visa before arrival in Indonesia.

Entry requirements are subject to change at the discretion of Indonesian immigration authorities. Travelers who overstay a visa are subject to a fine of 1 million Indonesian Rupiahs

(about US\$70; fees may change at any time) per day and may be detained and deported. U.S. citizens have been jailed for visa overstay or entering the country on the wrong visa class for their purpose of travel. Travelers coming to Indonesia for non-tourism purposes are strongly encouraged to consult Indonesian Immigration's website.

While in Indonesia, travelers should always carry their passports, valid visas, and work or resident permits, as applicable. Immigration authorities may request that foreigners present their travel documents during routine inspections of apartment buildings, other residential areas, or offices. Travelers have been detained for questioning for not having their passports with them.

Safety and Security

Since 2002, Indonesian police and security forces have disrupted terrorist cells. Although extremists in Indonesia continue to aspire to carry out violent attacks against Indonesian and Western targets, police have arrested more than 1,700 individuals on terrorism-related charges since 2002 and have greatly reduced the capacity of domestic terrorist organizations. Extremists may target both official and private establishments, including hotels, bars, nightclubs, shopping areas, restaurants, and places of worship. Whether at work, pursuing daily activities, or traveling, be aware of personal safety and security at all times.

Demonstrations are very common in Jakarta, Surabaya, and other large cities, but less common in Bali. Avoid demonstrations and other mass gatherings, since even those intended to be peaceful can become violent. Demonstrations may become more frequent ahead of elections.

Currently, travel by U.S. government personnel to the provinces of Central Sulawesi and Papua is restricted to mission-essential travel that is approved in advance by the Embassy security office.

Pickpocketing, theft, armed car-jacking, and residential break-ins are common. Avoid travelling to isolated areas late at night. Beware of

surroundings, particularly vehicles or individuals that might be following you. Use a reputable taxi company or hire a taxi either at a major hotel or shopping center. Travelers have been robbed in taxis that have been painted to look like legitimate taxis. Credit card fraud is a serious and growing problem. Avoid using credit cards when possible. Criminals have "skimmed" credit/debit cards to access and drain bank accounts. Use an ATM in a secure location and check the machine for evidence of tampering. Monitor your account statements regularly. Tourists and Indonesians have suffered from serious illness and have even died from "drink-spiking" and drink poisoning incidents, particularly in clubs and nightspots in urban and tourist areas.

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. Water sports can be hazardous with operators lightly regulated and hyperbaric chambers available only in Bali and Ambon.

Traffic is hazardous in Indonesia and U.S. citizens are frequently injured while riding rented motorbikes. In the event of an injury, appropriate medical treatment is typically available only in/near major cities and only basic stabilization may be available. Serious injuries require medical evacuation to another country. First responders are generally unable to access areas outside of major cities and to provide urgent medical treatment. U.S. citizens are strongly encouraged to purchase medical evacuation insurance.

Victims of sexual assault should seek prompt medical assistance, contact the Embassy, and call the local police at 112. For a criminal investigation to be initiated by the police, the victim must make a full statement to the local police, in person.

To assist victims of crime, the U.S. Embassy/Consulate can:

- help find appropriate medical care
- assist in reporting a crime to the police

- contact relatives or friends with written consent
- explain the local criminal justice process in general terms
- provide a list of local attorneys
- provide information on victim's compensation programs in the U.S.
- provide an emergency loan for repatriation to the United States and/or limited medical support in cases of destitution
- help find accommodation and arrange flights home
- replace a stolen or lost passport

U.S. citizen victims of domestic violence may contact the Embassy for assistance.

Criminal Penalties: All foreign nationals in Indonesia are subject to local laws. Persons who violate local laws, even unknowingly, may be expelled, arrested, or imprisoned. Criminal cases can take months or even years to resolve, and suspects can be held without charges for up to 60 days, and in many cases longer. Persons convicted of possession, use, or trafficking of illegal drugs in Indonesia may be subject to heavy fines, long jail sentences, and even the death penalty. Indonesian prison conditions are harsh and do not meet Western standards. Furthermore, some laws are also prosecutable in the United States regardless of local law. For examples, see our website on crimes against minors abroad and the Department of Justice website.

Arrest Notification: If arrested or detained, ask police or prison officials to notify the U.S. Embassy immediately.

LGBTI Travelers: LGBTI status or conduct is not formally illegal, but local authorities sometimes take legal action against or tolerate harassment of people engaging in LGBTI relationships or openly expressing LGBTI identity. Some local governments have passed laws criminalizing LGBTI relationships. Foreign same-sex marriages or civil unions are not recognized as legally valid.

Sharia Law: Sharia law is enforced in Aceh and may exist unofficially or through local legislation

in other areas. The law is intended for Muslims and should not apply to non-Muslims or foreign visitors. Be respectful of local traditions, dress modestly, and seek guidance from local police if confronted by Sharia authorities.

Earthquakes and Tsunamis: There are approximately 4,000 earthquakes per year in Indonesia, or more than 10 per day on average. While most earthquakes are mild, some cause significant destruction and can trigger tsunamis. Tsunami warning systems may not be operable, or reports of tremors and tsunamis may be delayed. Local construction standards are lower than in the United States, and many structures including hotels and malls are prone to damage or collapse in an earthquake. Access to disaster-affected areas is often difficult and assistance from the U.S. Embassy may be limited.

Volcanoes: There are 127 active volcanoes in Indonesia. Eruptions frequently cause travel delays, displace local populations, and disrupt economic activities.

Environmental Quality: Air quality in Indonesia's major cities can range from "unhealthy for sensitive groups" to "unhealthy." Current air quality data for Jakarta can be found on the U.S. Embassy's Air Quality page. Tap water is not potable throughout Indonesia.

Papua and Central Sulawesi: All travelers to Papua and West Papua provinces (including Raja Ampat) and Poso in Central Sulawesi province must obtain a travel permit (surat jalan) from the Indonesian government.

Mountain Hiking: When hiking in mountainous areas, obtain current information on local conditions, travel with a reputable guide, have overseas medical insurance, and carry a local mobile phone. Hikers on Puncak Jaya in Papua should have realistic primary and backup plans for climbing down the mountain. Tour operators have abandoned climbers. Taking shortcuts through private property is considered trespassing and is not a safe or legal alternative to a proper plan. If possible, ensure hiking plans are registered and known to local authorities and/or tourism operators, as this helps identify your presence in these areas in the event of an emergency.

Emergency Contact Information

U.S. Embassy Jakarta

Jl. Medan Merdeka Selatan No. 3 - 5
 Jakarta 10110, Indonesia
 Tel: +(62)(21) 5083-1000
 Emergency After-Hours Tel: +(62)(21) 5083-1000 ext. 0 (operator)
 Fax: +(62)(21) 385-7189
 Email: JakartaACS@state.gov
 Web: <https://id.usembassy.gov/>

Consulates

U.S. Consulate General Surabaya

Jl. Citra Raya Niaga No. 2
 Surabaya 60217
 Indonesia
 Tel: +(62)(31) 297-5300
 Emergency After-Hours Tel: +(62) (811) 334-183
 Fax: +(62)(31) 567-4492
 Email: SurabayaACS@state.gov

U.S. Consular Agency Bali

Jalan Hayam Wuruk 310, Denpasar, Bali
 Tel: +(62) (361) 233-605
 Emergency After-Hours Tel: Please contact the
 U.S. Consulate in Surabaya: +(62) (811) 334-183
 Fax: +(62) (361) 222-426
 Email: CABali@state.gov

American Consulate Medan, Sumatra

The U.S. Consulate in Medan provides only emergency assistance to U.S. citizens and does not offer routine consular services.
 Uni Plaza Building
 4th Floor (West Tower)
 Jl. Let. Jend. MT Haryono A-1
 Medan 20231, Indonesia
 Tel: +(62)(61) 451-9000
 Emergency After-Hours Tel: +(62)(61) 451-9000
 Fax: +(62)(61) 455-9033
 Email: Sumatra@state.gov³⁵⁹

Currency Information

Indonesia Rupiah (IDR or Rp)
 Rp1.00 = US\$0.000069900724 or Rp14,306 = US\$1.00 (as of 29 September 2021)³⁶⁰

Travel Health Information

The CDC provides guidance that all travelers to Indonesia should be up to date on routine vaccinations. The following are additional recommendations for travel to Indonesia. The information in Tables 8 and 9 are taken directly from the CDC website under the Travelers Health Section (<https://wwwnc.cdc.gov/travel/>).³⁶¹

Health Alerts for Indonesia: At the time of writing this handbook (29 September 2021), Indonesia is listed as a “Level 3: High” country for risk of COVID-19. The CDC recommends that travelers be fully vaccinated before traveling to Indonesia and that unvaccinated travelers avoid nonessential travel to Indonesia. Because of the current situation, all travelers may be at risk for getting and spreading COVID-19 variants. Travelers should follow recommendations or requirements in Indonesia, including wearing a mask and staying six feet apart from others.

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

Eat and Drink Safely

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

Eat

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

Don’t Eat

- Food served at room temperature
- Food from street vendors
- Raw or soft-cooked (runny) eggs
- Raw or undercooked (rare) meat or fish
- Unwashed or unpeeled raw fruits and vegetables
- Unpasteurized dairy products
- “Bushmeat” (monkeys, bats, or other wild game)

Drink

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

Don't Drink

- Tap or well water
- Ice made with tap or well water
- Drinks made with tap or well water (such as reconstituted juice)
- Unpasteurized milk

Take Medicine

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

Prevent Bug Bites

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

To prevent bug bites:

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

For protection against ticks and mosquitoes:

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

For protection against mosquitoes only:

Products with one of the following active ingredients can also help prevent mosquito bites. Higher percentages of active ingredient provide longer protection.

- DEET
- Picaridin (also known as KBR 3023, Bayrepel, and Icaridin)
- Oil of lemon eucalyptus (OLE) or para-Menthane-3,8-diol (PMD)
- IR3535
- 2-undecanone

If you are bitten by bugs:

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

Safety and Security

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

Routine vaccines`	<p>All travelers should be up-to-date on all routine vaccines before every trip. These vaccines include:</p> <ul style="list-style-type: none"> • Chickenpox (Varicella) • Diphtheria-Tetanus-Pertussis • Flu (influenza) • Measles-Mumps-Rubella (MMR) • Polio • Shingles
COVID-19	Everyone 16 years of age and older should get fully vaccinated for COVID-19 before travel.
Hepatitis A	<p>Recommended for unvaccinated travelers one year old or older going to Indonesia. Infants 6 to 11 months old should also be vaccinated. The dose does not count toward the routine 2-dose series. Travelers allergic to a vaccine component or who are younger than 6 months should receive a single dose of immune globulin, which provides effective protection for up to 2 months depending on dosage given. Unvaccinated travelers who are over 40 years old, immunocompromised, or have chronic medical conditions planning to depart to a risk area in less than 2 weeks should get the initial dose of vaccine and at the same appointment receive immune globulin.</p>
Hepatitis B	Recommended for unvaccinated travelers of all ages to Indonesia.
Japanese Encephalitis	<p>Recommended for travelers who:</p> <ul style="list-style-type: none"> • Are moving to live to an area with Japanese encephalitis • Spend long periods of time, such as a month or more, in areas with Japanese encephalitis • Frequently travel to areas with Japanese encephalitis <p>Consider vaccination for travelers:</p> <ul style="list-style-type: none"> • Spending less than a month in areas with Japanese encephalitis but who 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 <p>Not recommended for travelers planning short-term travel to urban areas or travel to areas with no clear Japanese encephalitis season.</p>
Malaria	CDC recommends that travelers going to certain areas of Indonesia take prescription medicine to prevent malaria. Depending on the medicine, you will need to start taking this medicine multiple days before your trip, as well as during and after your trip. Talk to your doctor about which malaria medication you should take.
Measles	Infants 6 to 11 months old traveling internationally should get 1 dose of measles-mumps-rubella (MMR) vaccine before travel. This dose does not count as part of the routine childhood vaccination series.
Rabies	<p>Rabid dogs are commonly found in Indonesia. If bitten or scratched by a dog or other mammal while in Indonesia, there may be limited or no rabies treatment available. Consider rabies vaccination before your trip if activities mean you will be around dogs or wildlife.</p> <p>Travelers more likely to encounter rabid animals include:</p> <ul style="list-style-type: none"> • Campers, adventure travelers, or cave explorers (spelunkers) • Veterinarians, animal handlers, field biologists, or laboratory workers handling animal specimens • Visitors to rural areas <p>Since children are more likely to be bitten or scratched by a dog or other animals, consider rabies vaccination for children traveling to Indonesia.</p>
Typhoid	Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas.
Yellow Fever	Required if traveling from a country with risk of YF virus transmission and ≥9 months of age.

Table 8: CDC Travel Health Information for Vaccine-/Prophylaxis-Preventable Diseases in Indonesia

Avian/Bird Flu	These forms of influenza can be contracted by being around, touching, or working with infected poultry, such as visiting poultry farms or live-animal markets. To avoid exposure, avoid domestic and wild poultry.
Chikungunya	Chikungunya is passed by the bite of infected mosquitos. Travelers should avoid bug bites.
Dengue	Dengue is passed by the bite of infected mosquitos. Travelers should avoid bug bites.
Hantavirus	Hantavirus can be contracted by breathing in air or accidentally eating food contaminated with the urine, droppings, or saliva of infected rodents, a bite from an infected rodent, or, less commonly, being around someone sick with hantavirus. Avoid rodents and where they live, and avoid sick people.
Leptospirosis	Leptospirosis infection occurs from touching urine or other body fluids from an animal infected with leptospirosis, by swimming or wading in urine-contaminated fresh water, or contact with urine-contaminated mud, or by drinking water or eating food contaminated with animal urine. Avoid contaminated water and soil.
Schistosomiasis	Schistosomiasis is contracted by wading, swimming, bathing, or washing in contaminated freshwater streams, rivers, ponds, lakes, or untreated pools.
Tuberculosis (TB)	TB infection occurs when one breathes in TB bacteria that is in the air from an infected and contagious person coughing, speaking, or singing.
Zika	Zika is transmitted by mosquito bite or from an infected pregnant woman to her unborn baby. To avoid Zika exposure, avoid bug bites.

Table 9: CDC Recommendations to Avoid Non-Vaccine-Preventable Diseases in Indonesia

Sendai Framework

The Sendai Framework is the global blueprint and fifteen-year plan to build the world's resilience to natural disasters.³⁶² The information in this section is sourced directly from the Sendai Framework. The Sendai Framework for Disaster Risk Reduction 2015-2030 outlines seven clear targets and four priorities for action to prevent new and reduce existing disaster risks:

The Seven Global Targets include:

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rates in the decade 2020-2030 compared to the period 2005-2015.
- Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- Reduce direct disaster economic loss in relation to global GDP by 2030.
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.³⁶³

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.

The Sendai 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 over the next 15 years. It was adopted at the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan in 2015.³⁶⁴ The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters.³⁶⁵ Figure 19 shows the Sendai DRR Framework.³⁶⁶

Indonesia Updates

As of the 2020 progress report on the Sendai Framework, Indonesia is one of 24 countries receiving UN support for recovery framework development, is one of 37 countries receiving UN support for recovery framework implementation, and one of 39 countries receiving UN support for recovery framework training. Indonesia had one of the 29 UN Country Teams due for roll-out of new Cooperation Frameworks in 2020 and 2021 that were supported in 2019 under indicator 2.3, measuring the number of UN Country Teams using disaster risk and climate information to support development of Common Country Analyses and UN Sustainable Development Cooperation Frameworks. Indonesia was also one of 20 countries supported by the UN to develop or update local DRR strategies.³⁶⁷

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

Scope and purpose

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

Expected outcome

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

Goal

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

Targets

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100 000 global mortality between 2020-2030 compared to 2005-2015	Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100 000 between 2020-2030 compared to 2005-2015	Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030	Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030
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Figure 19: UN Sendai Framework for Disaster Risk Reduction, 2015-2030

HFA Country Progress Report

The Hyogo Framework for Action (HFA) was adopted as a guideline to reduce vulnerabilities to natural hazards. The HFA assists participating countries to become more resilient and to better manage the hazards that threaten their development. The most recent levels of progress results published from the country are from 2013-2015 and are represented in Figure 20 and Table 10. Table 11 provides an overview of the overall challenges and the future outlook statement

from the HFA report. The 2015 Report is the most recent HFA report available for Indonesia. The information in this section is sourced directly from the HFA Country Progress Report.³⁶⁸

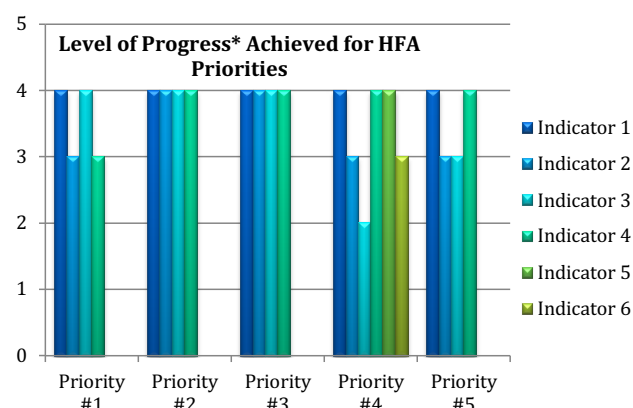


Figure 20: HFA Level of Progress Achieved

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

Table 10: National Progress Report on the Implementation of the HFA

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

Table Notes:

*Level of Progress:

1 – Minor progress with few signs of forward action in plans or policy

2 – Some progress, but without systematic policy and/ or institutional commitment

3 – Institutional commitment attained, but achievements are neither comprehensive nor substantial

4 – Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

5 – Comprehensive achievement with sustained commitment and capacities at all levels

Table 10: National Progress Report on the Implementation of the HFA (cont.)

Future Outlook Area 1: The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.	
Challenges:	In terms of the integration of DRR into development, Indonesia has achieved significant results. The regulatory framework for DRR and institutional arrangements for DM agencies have been enhanced down to the district/city level. Challenges, however, are still abound with the lack of synchronization between DM regulations and rules that regulate other sectors. Rules and policies that regulate investment and economic development often outweigh those regulating DRR. Disharmony in also exists between regulation and policies made at different levels of government. Shared perception of DRR and common understanding of the way to mainstream DRR into development have also not been achieved. Another challenge is that the existing DRR policies have not been implemented well and translated into capacity and institutional development. Many relevant policies have been formulated at the central level, but their implementation at the provinces and districts/cities have not been comprehensive. The existing government administration system still limits allocation for DRR.
Future Outlook Statement:	With the formulation of the new middle-term development plan 2015-2019 the Government of Indonesia will implement DRR programs that are relatively integrated into the sectors. It is expected that the local governments, particularly district/city governments will be also incorporated DRR and environmental concerns into local development plans. Risk assessments will be enhanced and implemented in more and more districts and cities. Better coordination will be established with the line ministries and agencies, and also with NGOs and local government offices.
Future Outlook Area 2: The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.	
Challenges:	Since the 4th AMCDRR in Incheon and reaffirmed in the 5th AMCDRR in Yogyakarta, Indonesia, the Government of Indonesia has always focused on building resilience at the village level. These efforts, however, was challenged by the number of villages in Indonesia that are situated in hazard-prone areas. With a total of more than 75,000 villages, out of which around 60% are situated in hazardous areas, while the resources and budget are limited, the country can only implement resilience programs in a limited number of villages. Another challenge is that the line ministries implement DRR-related activities on their own, with minimum coordination among each other. Hence, it will be difficult to assess the effectiveness of resilience building programs implemented by different government institutions all over the country.
Future Outlook Statement:	The newly elected government of President Joko Widodo has strongly maintained that they will focus the national development at the village level. Greater budget has been allocated to villages, and it is expected that DRR will become one of the priority programs.
Future Outlook Area 3: The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programs in the reconstruction of affected communities.	
Challenges:	Indonesia has integrated DRR approach into emergency preparedness, response, and recovery programs. The challenge, however, lies in the lack of capacity and technical know-how of responsible agencies. Also, the capacity of the human resources needs to be enhanced particularly in incorporating risk reduction approaches into the design and implementation of emergency preparedness, response, and recovery programs.
Future Outlook Statement:	With the new national middle-term development plan 2015-2019, it is expected that systematic integration of DRR into emergency preparedness, response and recovery programs will be further enhanced. This certainly needs to be complemented with efforts to develop the capacity of BPBDs and their staff in planning and managing risk sensitive DRR programs. The presence of strong BPBDs will accelerate the systematic integration of DRR into all development programs. In future BNPB will need to provide strengthened technical and financial support to BPBDs to formulate contingency plans and engage in risk-sensitive post-disaster rehabilitation and reconstruction.

Table 11: HFA Country Progress Report Future Outlook Areas, Indonesia

Country Profile

The information in the Country Profile section is sourced directly from the CIA World Fact book for Indonesia. 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.³⁶⁹

Background

The archipelago gradually adopted Islam between the 13th and 16th centuries. The Dutch began to colonize Indonesia in the early 17th century; Japan occupied the islands from 1942 to 1945. Indonesia declared its independence shortly before Japan's surrender, but it required four years of sometimes brutal fighting, intermittent negotiations, and UN mediation before the Netherlands agreed to transfer sovereignty in 1949. A period of sometimes unruly parliamentary democracy ended in 1957 when President SOEKARNO declared martial law and instituted "Guided Democracy." After an abortive coup in 1965 by alleged communist sympathizers, SOEKARNO was gradually eased from power. From 1967 until 1998, President SUHARTO ruled Indonesia with his "New Order" government. After street protests toppled SUHARTO in 1998, free and fair legislative elections took place in 1999. Indonesia is now the world's third most populous democracy, the world's largest archipelagic state, and the world's largest Muslim-majority nation. Current issues include: alleviating poverty, improving education, preventing terrorism, consolidating democracy after four decades of authoritarianism, implementing economic and financial reforms, stemming corruption, reforming the criminal justice system, addressing climate change, and controlling infectious diseases, particularly those of global and regional importance. In 2005, Indonesia reached a historic peace agreement with armed separatists in Aceh, which led to democratic elections in Aceh in December 2006.

Indonesia continues to face low intensity armed resistance in Papua by the separatist Free Papua Movement.

Geography

Location

Southeastern Asia, archipelago between the Indian Ocean and the Pacific Ocean

Geographic coordinates

5 00 S, 120 00 E

Area

total: 1,904,569 sq km

land: 1,811,569 sq km

water: 93,000 sq km

country comparison to the world: 16

Area - comparative

slightly less than three times the size of Texas

Land boundaries

total: 2,958 km

border countries (3): Malaysia 1881 km, Papua New Guinea 824 km, Timor-Leste 253 km

Coastline

54,716 km

Maritime claims

territorial sea: 12 nm

exclusive economic zone: 200 nm

measured from claimed archipelagic straight baselines

Climate

tropical; hot, humid; more moderate in highlands

Terrain

mostly coastal lowlands; larger islands have interior mountains

Elevation

highest point: Puncak Jaya 4,884 m

lowest point: Indian Ocean 0 m

mean elevation: 367 m

Natural resources

petroleum, tin, natural gas, nickel, timber, bauxite, copper, fertile soils, coal, gold, silver

Land use

agricultural land: 31.2% (2018 est.)

arable land: 13% (2018 est.)

permanent crops: 12.1% (2018 est.)

permanent pasture: 6.1% (2018 est.)

forest: 51.7% (2018 est.)

other: 17.1% (2018 est.)

Irrigated land

67,220 sq km (2012)

Total renewable water resources

2,018,700,000,000 cubic meters (2017 est.)

Population distribution

major concentration on the island of Java, which is considered one of the most densely populated places on earth; of the outer islands (those surrounding Java and Bali), Sumatra contains some of the most significant clusters, particularly in the south near the Selat Sunda, and along the northeastern coast near Medan; the cities of Makassar (Sulawesi), Banjarmasin (Kalimantan) are also heavily populated

Natural hazards

occasional floods; severe droughts; tsunamis; earthquakes; volcanoes; forest fires

volcanism: Indonesia contains the most volcanoes of any country in the world - some 76 are historically active; significant volcanic activity occurs on Java, Sumatra, the Sunda Islands, Halmahera Island, Sulawesi Island, Sangihe Island, and in the Banda Sea; Merapi (2,968 m), Indonesia's most active volcano and in eruption since 2010, has been deemed a Decade Volcano by the International Association of Volcanology and Chemistry of the Earth's Interior, worthy of study due to its explosive history and close proximity to human populations; on 22 December 2018, a large explosion and flank collapse destroyed most of the 338 m high island of Anak Krakatau (Child of Krakatau) and generated a deadly tsunami inundating portions of western Java and southern Sumatra leaving more than 400 dead; other notable historically active volcanoes include Agung, Awu, Karangetang, Krakatau (Krakatoa), Makian, Raung, Sinabung, and Tambora; see note 2 under

"Geography - note"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, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 2006, Wetlands

signed, but not ratified: Marine Life Conservation

Geography - note

note 1: according to Indonesia's National Coordinating Agency for Survey and Mapping, the total number of islands in the archipelago is 13,466, of which 922 are permanently inhabited (Indonesia is the world's largest country comprised solely of islands); the country straddles the equator and occupies a strategic location astride or along major sea lanes from the Indian Ocean to the Pacific Ocean

note 2: Indonesia is one of the countries along the Ring of Fire, a belt of active volcanoes and earthquake epicenters bordering the Pacific Ocean; up to 90% of the world's earthquakes and some 75% of the world's volcanoes occur within the Ring of Fire; 80% of tsunamis, caused by volcanic or seismic events, occur within the "Pacific Ring of Fire"

note 3: despite having the fourth largest population in the world, Indonesia is the most heavily forested region on earth after the Amazon

People and SocietyPopulation

275,122,131 (July 2021 est.)

country comparison to the world: 4

Nationality

noun: Indonesian(s)

adjective: Indonesian

Ethnic groups

Javanese 40.1%, Sundanese 15.5%, Malay 3.7%, Batak 3.6%, Madurese 3%, Betawi 2.9%, Minangkabau 2.7%, Buginese 2.7%, Bantenese 2%, Banjarese 1.7%, Balinese 1.7%, Acehese 1.4%, Dayak 1.4%, Sasak 1.3%, Chinese 1.2%, other 15% (2010 est.)

Languages

Bahasa Indonesia (official, modified form of Malay), English, Dutch, local dialects (of which the most widely spoken is Javanese); note - more than 700 languages are used in Indonesia

Religions

Muslim 87.2%, Protestant 7%, Roman Catholic 2.9%, Hindu 1.7%, other 0.9% (includes Buddhist and Confucian), unspecified 0.4% (2010 est.)

Demographic profile

Indonesia has the world's fourth-largest population. It is predominantly Muslim and has the largest Muslim population of any country in the world. The population is projected to increase to as much as 320 million by 2045. A government-supported family planning program. The total fertility rate (TFR) – the average number of births per woman – from 5.6 in the mid-1960s to 2.7 in the mid-1990s. The success of the program was also due to the social acceptance of family planning, which received backing from influential Muslim leaders and organizations.

The fertility decline slowed in the late 1990's when responsibility for family planning programs shifted to the district level, where the programs were not prioritized. Since 2012 the national government revitalized the national family planning program, and Indonesia's TFR has slowly decreased to 2.3 in 2020. The government may reach its goal of achieving replacement level fertility – 2.1 children per woman – but the large number of women of childbearing age ensures significant population growth for many years.

Indonesia is a source country for labor migrants, a transit country for asylum seekers, and a destination mainly for highly skilled migrant workers. International labor migration, both

legal and illegal, from Indonesia to other parts of Asia (most commonly Malaysia) and the Middle East has taken place for decades because of high unemployment and underemployment, poverty, and low wages domestically. Increasing numbers of migrant workers are drawn to Australia, Canada, New Zealand, and the US. Most Indonesian labor migration is temporary and consists predominantly of low-skilled workers, mainly women working as domestics.

Indonesia's strategic location between Asia and Australia and between the Pacific and Indian Oceans – and its relatively easy accessibility via boat – appeal to asylum seekers. It is also an attractive transit location because of its easy entry requirements and the ability to continue on to Australia. Recent asylum seekers have come from Afghanistan, Burma (Rohingyas), Iraq, Somalia, and Sri Lanka. Since 2013, when Australia tightening its immigration policy, thousands of migrants and asylum seekers have been stranded in Indonesia, where they live in precarious conditions and receive only limited support from international organizations. The situation for refugees in Indonesia has also worsened because Australia and the US, which had resettled the majority of refugees in Indonesia, have significantly lowered their intake.

Age structure

0-14 years: 23.87% (male 32,473,246/female 31,264,034)
15-24 years: 16.76% (male 22,786,920/female 21,960,130)
25-54 years: 42.56% (male 58,249,570/female 55,409,579)
55-64 years: 8.99% (male 11,033,838/female 12,968,005)
65 years and over: 7.82% (male 9,099,773/female 11,781,271) (2020 est.)

Dependency ratios

total dependency ratio: 47.5
youth dependency ratio: 38.3
elderly dependency ratio: 9.2
potential support ratio: 10.8 (2020 est.)

Median age

total: 31.1 years
 male: 30.5 years
 female: 31.8 years (2020 est.)
 country comparison to the world: 117

Population growth rate

0.81% (2021 est.)
 country comparison to the world: 120

Birth rate

15.59 births/1,000 population (2021 est.)
 country comparison to the world: 113

Death rate

6.74 deaths/1,000 population (2021 est.)
 country comparison to the world: 130

Net migration rate

-0.72 migrant(s)/1,000 population (2021 est.)
 country comparison to the world: 133

Population distribution

major concentration on the island of Java, which is considered one of the most densely populated places on earth; of the outer islands (those surrounding Java and Bali), Sumatra contains some of the most significant clusters, particularly in the south near the Selat Sunda, and along the northeastern coast near Medan; the cities of Makassar (Sulawesi), Banjarmasin (Kalimantan) are also heavily populated

Urbanization

urban population: 57.3% of total population (2021)
 rate of urbanization: 1.99% annual rate of change (2020-25 est.)
 total population growth rate v. urban population growth rate, 2000-2030

Major urban areas - population

10.915 million JAKARTA (capital), 3.510 million Bekasi, 2.972 million Surabaya, 2.607 million Bandung, 2.397 million Tangerang, 2.368 million Medan (2021)

Sex ratio

at birth: 1.05 male(s)/female
 0-14 years: 1.04 male(s)/female
 15-24 years: 1.04 male(s)/female
 25-54 years: 1.05 male(s)/female
 55-64 years: 0.85 male(s)/female
 65 years and over: 0.77 male(s)/female
 total population: 1 male(s)/female (2020 est.)

Mother's mean age at first birth

22.4 years (2017 est.)
 note: median age at first birth among women 25-49

Maternal mortality rate

177 deaths/100,000 live births (2017 est.)

Infant mortality rate

total: 20.16 deaths/1,000 live births
 male: 22.59 deaths/1,000 live births
 female: 17.6 deaths/1,000 live births (2021 est.)
 country comparison to the world: 84

Life expectancy at birth

total population: 72.82 years
 male: 70.62 years
 female: 75.12 years (2021 est.)
 country comparison to the world: 152

Total fertility rate

2.04 children born/woman (2021 est.)
 country comparison to the world: 106

Contraceptive prevalence rate

55.5% (2018)

Drinking water source

improved: urban: 96.6% of population
 rural: 83.7% of population
 total: 90.8% of population
 unimproved: urban: 3.4% of population
 rural: 16.3% of population
 total: 9.2% of population (2017 est.)

Current Health Expenditure

2.9% (2018)

Physician density

0.43 physicians/1,000 population (2018)

Hospital bed density

1 beds/1,000 population (2017)

Sanitation facility access

improved: urban: 92.5% of population

rural: 76.8% of population

total: 85.4% of population

unimproved: urban: 7.5% of population

rural: 23.2% of population

total: 14.6% of population (2017 est.)

HIV/AIDS - adult prevalence rate

0.4% (2020 est.)

country comparison to the world: 75

HIV/AIDS - people living with HIV/AIDS

540,000 (2020 est.)

country comparison to the world: 14

HIV/AIDS - deaths

24,000 (2020 est.)

country comparison to the world: 7

Major infectious diseases

degree of risk: very high (2020)

food or waterborne diseases: bacterial diarrhea, hepatitis A, and typhoid fever

vectorborne diseases: dengue fever and malaria

Obesity - adult prevalence rate

6.9% (2016)

country comparison to the world: 162

Children under the age of 5 years underweight

17.7% (2018)

country comparison to the world: 29

Education expenditures

3.6% of GDP (2015)

country comparison to the world: 111

Literacy

definition: age 15 and over can read and write

total population: 95.7%

male: 97.3%

female: 94% (2018)

School life expectancy (primary to tertiary education)

total: 14 years

male: 14 years

female: 14 years (2018)

Unemployment, youth ages 15-24

total: 13.5%

male: 13.8%

female: 13.2% (2019 est.)

country comparison to the world: 105

Maternal mortality ratio

177 deaths/100,000 live births (2017 est.)

country comparison to the world: 52

Environment

Environment - current issues

large-scale deforestation (much of it illegal) and related wildfires cause heavy smog; over-exploitation of marine resources; environmental problems associated with rapid urbanization and economic development, including air pollution, traffic congestion, garbage management, and reliable water and wastewater services; water pollution from industrial wastes, sewage

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, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 2006, Wetlands

signed, but not ratified: Marine Life Conservation

Air pollutants

particulate matter emissions: 15.58 micrograms per cubic meter (2016 est.)

carbon dioxide emissions: 563.32 megatons (2016 est.)

methane emissions: 244.5 megatons (2020 est.)

Total water withdrawal

municipal: 23.8 billion cubic meters (2017 est.)

industrial: 9.135 billion cubic meters (2017 est.)

agricultural: 189.7 billion cubic meters (2017 est.)

Total renewable water resources

2,018,700,000,000 cubic meters (2017 est.)

Climate

tropical; hot, humid; more moderate in highlands

Land use

agricultural land: 31.2% (2018 est.)
 arable land: 13% (2018 est.)
 permanent crops: 12.1% (2018 est.)
 permanent pasture: 6.1% (2018 est.)
 forest: 51.7% (2018 est.)
 other: 17.1% (2018 est.)

Revenue from forest resources

forest revenues: 0.39% of GDP (2018 est.)
 country comparison to the world: 71

Revenue from coal

coal revenues: 1.06% of GDP (2018 est.)
 country comparison to the world: 5

Urbanization

urban population: 57.3% of total population (2021)
 rate of urbanization: 1.99% annual rate of change (2020-25 est.)
 total population growth rate v. urban population growth rate, 2000-2030

Major infectious diseases

degree of risk: very high (2020)
 food or waterborne diseases: bacterial diarrhea, hepatitis A, and typhoid fever
 vectorborne diseases: dengue fever and malaria

Waste and recycling

municipal solid waste generated annually: 65.2 million tons (2016 est.)
 municipal solid waste recycled annually: 4.564 million tons (2016 est.)
 percent of municipal solid waste recycled: 7% (2016 est.)

GovernmentCountry name

conventional long form: Republic of Indonesia
 conventional short form: Indonesia
 local long form: Republik Indonesia
 local short form: Indonesia
 former: Netherlands East Indies, Dutch East Indies
 etymology: the name is an 18th-century construct of two Greek words, “Indos” (India) and “nesoi” (islands), meaning “Indian islands”

Government type

presidential republic

Capital

name: Jakarta
 geographic coordinates: 6 10 S, 106 49 E
 time difference: UTC+7 (12 hours ahead of Washington, DC, during Standard Time)
 time zone note: Indonesia has three time zones
 etymology: “Jakarta” derives from the Sanskrit “Jayakarta” meaning “victorious city” and refers to a successful defeat and expulsion of the Portuguese in 1527; previously the port had been named “Sunda Kelapa”

Administrative divisions

31 provinces (provinsi-provinsi, singular - provinsi), 1 autonomous province*, 1 special region** (daerah-daerah istimewa, singular - daerah istimewa), and 1 national capital district*** (daerah khusus ibukota); Aceh*, Bali, Banten, Bengkulu, Gorontalo, Jakarta***, Jambi, Jawa Barat (West Java), Jawa Tengah (Central Java), Jawa Timur (East Java), Kalimantan Barat (West Kalimantan), Kalimantan Selatan (South Kalimantan), Kalimantan Tengah (Central Kalimantan), Kalimantan Timur (East Kalimantan), Kalimantan Utara (North Kalimantan), Kepulauan Bangka Belitung (Bangka Belitung Islands), Kepulauan Riau (Riau Islands), Lampung, Maluku, Maluku Utara (North Maluku), Nusa Tenggara Barat (West Nusa Tenggara), Nusa Tenggara Timur (East Nusa Tenggara), Papua, Papua Barat (West Papua), Riau, Sulawesi Barat (West Sulawesi), Sulawesi Selatan (South Sulawesi), Sulawesi Tengah (Central Sulawesi), Sulawesi Tenggara (Southeast Sulawesi), Sulawesi Utara (North Sulawesi), Sumatera Barat (West Sumatra), Sumatera Selatan (South Sumatra), Sumatera Utara (North Sumatra), Yogyakarta**

note: following the implementation of decentralization beginning on 1 January 2001, regencies and municipalities have become the key administrative units responsible for providing most government services

Independence

17 August 1945 (declared independence from the Netherlands)

National holiday

Independence Day, 17 August (1945)

Constitution

history: drafted July to August 1945, effective 18 August 1945, abrogated by 1949 and 1950 constitutions; 1945 constitution restored 5 July 1959

amendments: proposed by the People's Consultative Assembly, with at least two thirds of its members present; passage requires simple majority vote by the Assembly membership; constitutional articles on the unitary form of the state cannot be amended; amended several times, last in 2002

Legal system

civil law system based on the Roman-Dutch model and influenced by customary law

International law organization participation

has not submitted an ICJ jurisdiction declaration; non-party state to the ICt

Citizenship

citizenship by birth: no
citizenship by descent only: at least one parent must be a citizen of Indonesia
dual citizenship recognized: no
residency requirement for naturalization: 5 continuous years

Suffrage

17 years of age; universal and married persons regardless of age

Executive branch

chief of state: President Joko WIDODO (since 20 October 2014, reelected 17 April 2019, inauguration 19 October 2019); Vice President Ma'ruf AMIN (since 20 October 2019); note - the president is both chief of state and head of government (2019)

head of government: President Joko WIDODO (since 20 October 2014); Vice President Ma'ruf

AMIN (since 20 October 2019) (2019)

cabinet: Cabinet appointed by the president

elections/appointments: president and vice president directly elected by absolute majority popular vote for a 5-year term (eligible for a second term); election last held on 17 April 2019 (next election 2024)

election results: Joko WIDODO elected president; percent of vote - Joko WIDODO (PDI-P) 55.5%, PRABOWO Subianto Djojohadikusumo (GERINDRA) 44.5%

Legislative branch

description: bicameral People's Consultative Assembly or Majelis Permusyawaratan Rakyat consists of:

Regional Representative Council or Dewan Perwakilan Daerah (136 seats; non-partisan members directly elected in multi-seat constituencies - 4 each from the country's 34 electoral districts - by proportional representation vote to serve 5-year terms); note - the Regional Representative Council has no legislative authority

House of Representatives or Dewan Perwakilan Rakyat (575 seats; members directly elected in multi-seat constituencies by single non-transferable vote to serve 5-year terms) (2019)

elections: Regional Representative Council - last held 17 April 2019 (next to be held 2024)

House of Representatives - last held on 17 April 2019 (next to be held 2024) (2019)

election results: Regional Representative Council - all seats elected on a non-partisan basis; composition - NA

House of Representatives - percent of vote by party - PDI-P 19.3%, Gerindra 12.6%, Golkar 12.3%, PKB 9.7%, Nasdem 9.1%, PKS 8.2%, PD 7.8%, PAN 6.8%, PPP 4.5%, other 9.6%; seats by party - PDI-P 128, Golkar 85, Gerindra 78, Nasdem 59, PKB 58, PD 54, PKS 50, PAN 44, PPP 19; composition - men 475, women 100, percent of women 17.9%; total People's

Consultative Assembly percent of women NA (2019)

Judicial branch

highest courts: Supreme Court or Mahkamah Agung (51 judges divided into 8 chambers); Constitutional Court or Mahkamah Konstitusi (consists of 9 judges)

judge selection and term of office: Supreme Court judges nominated by Judicial Commission, appointed by president with concurrence of parliament; judges serve until retirement at age 65; Constitutional Court judges - 3 nominated by president, 3 by Supreme Court, and 3 by parliament; judges appointed by the president; judges serve until mandatory retirement at age 70

subordinate courts: High Courts of Appeal, district courts, religious courts

Political parties and leaders

Democrat Party or PD [Susilo Bambang YUDHOYONO]

Functional Groups Party or GOLKAR [Airlangga HARTARTO]

Great Indonesia Movement Party or GERINDRA [PRABOWO Subianto Djojohadikusumo]

Indonesia Democratic Party-Struggle or PDI-P [MEGAWATI Sukarnoputri]

National Awakening Party or PKB [Muhaiman ISKANDAR]

National Democratic Party or NasDem [Surya PALOH]

National Mandate Party or PAN [Zulkifli HASAN]

Party of the Functional Groups or Golkar [Airlangga HARTARTO]

People's Conscience Party or HANURA [Oesman Sapta ODANG]

Prosperous Justice Party or PKS [Muhammad Sohibil IMAN]

United Development Party or PPP [Muhammad ROMAHRUMUZYI] (2019)

International organization participation

ADB, APEC, ARF, ASEAN, BIS, CD, CICA (observer), CP, D-8, EAS, EITI (compliant country), FAO, G-11, G-15, G-20, G-77, IAEA,

IBRD, ICAO, ICC (national committees), ICRM, IDA, IDB, IFAD, IFC, IFRCs, IHO, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM (observer), IORA, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSTAH, MONUSCO, MSG (associate member), NAM, OECD (enhanced engagement), OIC, OPCW, PIF (partner), UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNIFIL, UNISFA, UNMIL, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO

Diplomatic representation in the US

chief of mission: Ambassador (vacant); Iwan Freddy Hari SUSANTO, Minister (since 1 April 2021)

chancery: 2020 Massachusetts Avenue NW, Washington, DC 20036

telephone: [1] (202) 775-5200

FAX: [1] (202) 775-5365

email address and website:

<http://www.embassyofindonesia.org/>

consulate(s) general: Chicago, Houston, Los Angeles, New York, San Francisco

Diplomatic representation from the US

chief of mission:

Ambassador Sung Y. KIM (since 21 October 2020)

embassy: Jl. Medan Merdeka Selatan No. 3-5, Jakarta 10110

mailing address: 8200 Jakarta Place, Washington DC 8200

telephone: [62] (21) 5083-1000 (2020)

FAX: [62] (21) 385-7189 (2018)

email address and website:

jakartaacs@state.gov

<https://id.usembassy.gov/>

consulate(s) general: Surabaya

consulate(s): Medan

Flag description

two equal horizontal bands of red (top) and white; the colors derive from the banner of the Majapahit Empire of the 13th-15th centuries; red symbolizes courage, white represents purity

note: similar to the flag of Monaco, which is shorter; also similar to the flag of Poland, which is white (top) and red

National symbol(s)

garuda (mythical bird); national colors: red, white

National anthem

name: “Indonesia Raya” (Great Indonesia)
lyrics/music: Wage Rudolf SOEPRATMAN
note: adopted 1945

Economy

Economic overview

Indonesia, the largest economy in Southeast Asia, has seen a slowdown in growth since 2012, mostly due to the end of the commodities export boom. During the global financial crisis, Indonesia outperformed its regional neighbors and joined China and India as the only G20 members posting growth. Indonesia’s annual budget deficit is capped at 3% of GDP, and the Government of Indonesia lowered its debt-to-GDP ratio from a peak of 100% shortly after the Asian financial crisis in 1999 to 34% today. In May 2017 Standard & Poor’s became the last major ratings agency to upgrade Indonesia’s sovereign credit rating to investment grade.

Poverty and unemployment, inadequate infrastructure, corruption, a complex regulatory environment, and unequal resource distribution among its regions are still part of Indonesia’s economic landscape. President Joko WIDODO - elected in July 2014 – seeks to develop Indonesia’s maritime resources and pursue other infrastructure development, including significantly increasing its electrical power generation capacity. Fuel subsidies were significantly reduced in early 2015, a move which has helped the government redirect its spending to development priorities. Indonesia, with the nine other ASEAN members, will continue to move towards participation in the ASEAN Economic Community, though full implementation of economic integration has not yet materialized.

Real GDP growth rate

5.03% (2019 est.)
5.17% (2018 est.)
5.07% (2017 est.)
country comparison to the world: 45

Inflation rate (consumer prices)

2.8% (2019 est.)
3.2% (2018 est.)
3.8% (2017 est.)
country comparison to the world: 142

Credit ratings

Fitch rating: BBB (2017)
Moody’s rating: Baa2 (2018)
Standard & Poor’s rating: BBB (2019)

Real GDP (purchasing power parity)

\$3,196,682,000,000 (2019 est.)
\$3,043,743,000,000 (2018 est.)
\$2,894,125,000,000 (2017 est.)
note: data are in 2010 dollars
country comparison to the world: 7

GDP (official exchange rate)

\$1,119,720,000,000 (2019 est.)

Real GDP per capita

\$11,812 (2019 est.)
\$11,372 (2018 est.)
\$10,936 (2017 est.)
note: data are in 2010 dollars
country comparison to the world: 135

Gross national saving

31% of GDP (2019 est.)
31.8% of GDP (2018 est.)
30.9% of GDP (2017 est.)
country comparison to the world: 34

GDP - composition, by sector of origin

agriculture: 13.7% (2017 est.)
industry: 41% (2017 est.)
services: 45.4% (2017 est.)

GDP - composition, by end use

household consumption: 57.3% (2017 est.)
 government consumption: 9.1% (2017 est.)
 investment in fixed capital: 32.1% (2017 est.)
 investment in inventories: 0.3% (2017 est.)
 exports of goods and services: 20.4% (2017 est.)
 imports of goods and services: -19.2% (2017 est.)

Ease of Doing Business Index scores

Overall score: 69.6 (2020)
 Starting a Business score: 81.2 (2020)
 Trading score: 67.5 (2020)
 Enforcement score: 49.1 (2020)

Agricultural products

oil palm fruit, rice, maize, sugar cane, coconuts,
 cassava, bananas, eggs, poultry, rubber

Industries

petroleum and natural gas, textiles, automotive,
 electrical appliances, apparel, footwear, mining,
 cement, medical instruments and appliances,
 handicrafts, chemical fertilizers, plywood, rubber,
 processed food, jewelry, and tourism

Industrial production growth rate

4.1% (2017 est.)
 country comparison to the world: 73

Labor force

129.366 million (2019 est.)
 country comparison to the world: 4

Labor force - by occupation

agriculture: 32%
 industry: 21%
 services: 47% (2016 est.)

Unemployment rate

5.31% (2018 est.)
 5.4% (2017 est.)
 country comparison to the world: 85

Population below poverty line

9.4% (2019 est.)

Gini Index coefficient - distribution of family income

37.8 (2018 est.)
 39.4 (2005)
 country comparison to the world: 76

Household income or consumption by percentage share

lowest 10%: 3.4%
 highest 10%: 28.2% (2010)

Budget

revenues: 131.7 billion (2017 est.)
 expenditures: 159.6 billion (2017 est.)

Taxes and other revenues

13% (of GDP) (2017 est.)
 country comparison to the world: 208

Budget surplus (+) or deficit (-)

-2.7% (of GDP) (2017 est.)
 country comparison to the world: 121

Public debt

28.8% of GDP (2017 est.)
 28.3% of GDP (2016 est.)
 country comparison to the world: 166

Fiscal year

calendar year

Current account balance

-\$30.359 billion (2019 est.)
 -\$30.633 billion (2018 est.)
 country comparison to the world: 200

Exports

\$249.628 billion (2019 est.)
 \$251.827 billion (2018 est.)
 \$236.354 billion (2017 est.)
 country comparison to the world: 30

Exports - partners

China 15%, United States 10%, Japan 9%,
 Singapore 8%, India 7%, Malaysia 5% (2019)

Exports - commodities

coal, palm oil, natural gas, cars, gold (2019)

Imports

\$223.44 billion (2019 est.)
 \$242.046 billion (2018 est.)
 \$216.342 billion (2017 est.)
 country comparison to the world: 32

Imports - partners

China 27%, Singapore 12%, Japan 8%, Thailand 5%, United States 5%, South Korea 5%, Malaysia 5% (2019)

Imports - commodities

refined petroleum, crude petroleum, vehicle parts, telephones, natural gas (2019)

Reserves of foreign exchange and gold

\$130.2 billion (31 December 2017 est.)
country comparison to the world: 20

Debt - external

\$393.252 billion (2019 est.)
\$360.945 billion (2018 est.)
country comparison to the world: 31

Exchange rates

Indonesian rupiah (IDR) per US dollar -
14,110 (2020 est.)
14,015 (2019 est.)
14,470 (2018 est.)
13,389.4 (2014 est.)
11,865.2 (2013 est.)

Energy

Electricity access

electrification - total population: 99% (2019)
electrification - urban areas: 100% (2019)
electrification - rural areas: 99% (2019)

Electricity - production

235.4 billion kWh (2016 est.)
country comparison to the world: 20

Electricity - consumption

213.4 billion kWh (2016 est.)
country comparison to the world: 20

Electricity - exports

0 kWh (2017 est.)
country comparison to the world: 149

Electricity - imports

693 million kWh (2016 est.)
country comparison to the world: 76

Electricity - installed generating capacity

61.43 million kW (2016 est.)
country comparison to the world: 19

Electricity - from fossil fuels

85% of total installed capacity (2016 est.)
country comparison to the world: 71

Electricity - from nuclear fuels

0% of total installed capacity (2017 est.)
country comparison to the world: 110

Electricity - from hydroelectric plants

9% of total installed capacity (2017 est.)
country comparison to the world: 118

Electricity - from other renewable sources

6% of total installed capacity (2017 est.)
country comparison to the world: 98

Crude oil - production

772,000 bbl/day (2018 est.)
country comparison to the world: 24

Crude oil - exports

302,300 bbl/day (2015 est.)
country comparison to the world: 27

Crude oil - imports

498,500 bbl/day (2015 est.)
country comparison to the world: 18

Crude oil - proved reserves

3.31 billion bbl (1 January 2018 est.)
country comparison to the world: 28

Refined petroleum products - production

950,000 bbl/day (2015 est.)
country comparison to the world: 18

Refined petroleum products - consumption

1.601 million bbl/day (2016 est.)
country comparison to the world: 14

Refined petroleum products - exports

79,930 bbl/day (2015 est.)
country comparison to the world: 47

Refined petroleum products - imports

591,500 bbl/day (2015 est.)
country comparison to the world: 15

Natural gas - production

72.09 billion cu m (2017 est.)
country comparison to the world: 12

Natural gas - consumption

42.32 billion cu m (2017 est.)

country comparison to the world: 23

Natural gas - exports

29.78 billion cu m (2017 est.)

country comparison to the world: 12

Natural gas - imports

0 cu m (2017 est.)

country comparison to the world: 141

Natural gas - proved reserves

2.866 trillion cu m (1 January 2018 est.)

country comparison to the world: 12

Carbon dioxide emissions from consumption of energy

540.7 million Mt (2017 est.)

CommunicationsTelephones - fixed lines

total subscriptions: 9,662,135

subscriptions per 100 inhabitants: 3.57 (2019 est.)

country comparison to the world: 18

Telephones - mobile cellular

total subscriptions: 341,277,549

subscriptions per 100 inhabitants: 126.15 (2019 est.)

country comparison to the world: 4

Telecommunication systems

general assessment:

with large population, disbursed island geography, and slow economic growth, Indonesia's telecom sector is based on 3G/LTE mobile infrastructure and inadequate fixed-line capacity; market is attracting foreign investment, especially in data center and cloud-based services; tests of 5G challenged by lack of spectrum; satellite improvements in 2020 (2021)

domestic: fixed-line 4 per 100 and mobile-cellular 127 per 100 persons; coverage provided by existing network has been expanded by use of over 200,000 telephone kiosks many located in remote areas; mobile-cellular subscribership growing rapidly (2019)

international: country code - 62; landing

points for the SEA-ME-WE-3 & 5, DAMAI, JASUKA, BDM, Dumai-Melaka Cable System, IGG, JIBA, Link 1, 3, 4, & 5, PGASCOM, B3J2, Tanjung Pandam-Sungai Kakap Cable System, JAKABARE, JAYABAYA, INDIGO-West, Matrix Cable System, ASC, SJJK, Jaka2LaDeMa, S-U-B Cable System, JBCS, MKCS, BALOK, Palapa Ring East, West and Middle, SMPCS Packet-1 and 2, LTCS, TSCS, SEA-US and Kamal Domestic Submarine Cable System, 35 submarine cable networks that provide links throughout Asia, the Middle East, Australia, Southeast Asia, Africa and Europe; satellite earth stations - 2 Intelsat (1 Indian Ocean and 1 Pacific Ocean) (2019)

note: the COVID-19 pandemic continues to have a significant impact on production and supply chains globally; since 2020, some aspects of the telecom sector have experienced downturn, particularly in mobile device production; many network operators delayed upgrades to infrastructure; progress towards 5G implementation was postponed or slowed in some countries; consumer spending on telecom services and devices was affected by large-scale job losses and the consequent restriction on disposable incomes; the crucial nature of telecom services as a tool for work and school from home became evident, and received some support from governments

Broadcast media

mixture of about a dozen national TV networks - 1 public broadcaster, the remainder private broadcasters - each with multiple transmitters; more than 100 local TV stations; widespread use of satellite and cable TV systems; public radio broadcaster operates 6 national networks, as well as regional and local stations; overall, more than 700 radio stations with more than 650 privately operated (2019)

Internet country code

.id

Internet users

total: 104,563,108

percent of population: 39.79% (July 2018 est.)

country comparison to the world: 7

Broadband - fixed subscriptions

total: 10,284,364
subscriptions per 100 inhabitants: 3.8 (2019 est.)
country comparison to the world: 17

Transportation

National air transport system

number of registered air carriers: 25 (2020)
inventory of registered aircraft operated by air carriers: 611
annual passenger traffic on registered air carriers: 115,154,100 (2018)
annual freight traffic on registered air carriers: 1,131,910,000 mt-km (2018)

Civil aircraft registration country code prefix
PK

Airports

total: 673 (2013)
country comparison to the world: 10

Airports - with paved runways

total: 186 (2017)
over 3,047 m: 5 (2017)
2,438 to 3,047 m: 21 (2017)
1,524 to 2,437 m: 51 (2017)
914 to 1,523 m: 72 (2017)
under 914 m: 37 (2017)

Airports - with unpaved runways

total: 487 (2013)
1,524 to 2,437 m: 4 (2013)
914 to 1,523 m: 23 (2013)
under 914 m: 460 (2013)

Heliports

76 (2013)

Pipelines

1064 km condensate, 150 km condensate/gas, 11702 km gas, 119 km liquid petroleum gas, 7767 km oil, 77 km oil/gas/water, 728 km refined products, 53 km unknown, 44 km water (2013)

Railways

total: 8,159 km (2014)
narrow gauge: 8,159 km 1.067-m gauge (565 km electrified) (2014)
note: 4,816 km operational
country comparison to the world: 27

Roadways

total: 496,607 km (2011)
paved: 283,102 km (2011)
unpaved: 213,505 km (2011)
country comparison to the world: 14

Waterways

21,579 km (2011)
country comparison to the world: 7

Merchant marine

total: 10,137
by type: bulk carrier 129, container ship 226, general cargo 2,213, oil tanker 643, other 6,926 (2020)
country comparison to the world: 1

Ports and terminals

major seaport(s): Banjarmasin, Belawan, Kotabaru, Krueg Geukueh, Palembang, Panjang, Sungai Pakning, Tanjung Perak, Tanjung Priok
container port(s) (TEUs): Tanjung Perak (3,900,000), Tanjung Priok (7,600,000) (2019)
LNG terminal(s) (export): Bontang, Tangguh
LNG terminal(s) (import): Arun, Lampung, West Java

Military and Security

Military and security forces

Indonesian National Armed Forces (Tentara Nasional Indonesia, TNI): Army (TNI-Angkatan Darat (TNI-AD)), Navy (TNI-Angkatan Laut (TNI-AL), includes Marine Corps (Korps Marinir, KorMar), naval air arm), Air Force (TNI-Angkatan Udara (TNI-AU)), National Air Defense Command (Komando Pertahanan Udara Nasional (Kohanudnas)), Armed Forces Special Operations Command (Koopssus), Strategic Reserve Command (Kostrad)

Indonesian Sea and Coast Guard (Kesatuan Penjagaan Laut dan Pantai, KPLP) is under the Ministry of Transportation (2021)

note(s): the Indonesian National Police includes a paramilitary Mobile Brigade Corps (BRIMOB); following the Bali terror bombing in 2002, the National Police formed a special counter-terrorism force called Detachment 88 (Densus or Detasemen Khusus 88 Antiteror)

Military expenditures

0.7% of GDP (2020 est.)

0.7% of GDP (2019)

0.7% of GDP (2018)

0.9% of GDP (2017)

0.8% of GDP (2016)

country comparison to the world: 145

Military and security service personnel strengths

the Indonesian National Armed Forces have approximately, 400,000 active-duty troops (300,000 Army; 65,000 Navy, including about 20,000 marines; 30,000 Air Force) (2021)

Military equipment inventories and acquisitions

the Indonesian military inventory is comprised of equipment from a wide variety of sources; since 2010, the top suppliers are China, Germany, the Netherlands, Russia, South Korea, the UK, and the US; Indonesia has a growing defense industry fueled by technology transfers and cooperation agreements with several countries; in 2019, the Indonesian Government publicly said that growing its domestic defense industry is a national priority over the next 5-10 years (2020)

Military deployments

200 Central African Republic (MINUSCA); 1,025 Democratic Republic of the Congo (MONUSCO); 1,250 Lebanon (UNIFIL) (Jan 2021)

Military service age and obligation

18-45 years of age for voluntary military service, with selective conscription authorized; 2-year service obligation, with reserve obligation to age 45 (officers); Indonesian citizens only (2019)

Maritime threats

the International Maritime Bureau continues to report the territorial and offshore waters in the Strait of Malacca and South China Sea as high risk for piracy and armed robbery against ships; the number of attacks increased slightly from 25 incidents in 2019 to 26 in 2020 due to aggressive maritime patrolling by regional authorities; vessels continue to be boarded while anchored or berthed at Indonesian ports with two crew taken hostage and two threatened in 2020; hijacked

vessels are often disguised and cargo diverted to ports in East Asia

Military - note

Indonesian military and police forces are engaged in counter-insurgency operations in Papua against the West Papua Liberation Army, the military wing of the Free Papua Organization, which has been fighting a low-level insurgency since the 1960s when Indonesia annexed the former Dutch colony; since 2019, there has been an increase in militant activity in Papua and a larger Indonesian military presence; Papua was formally incorporated into Indonesia in 1969 in addition, the Indonesian military has been assisting police in countering the Mujahideen Indonesia Timur (MIT; aka East Indonesia Mujahideen), a local Islamic State (ISIS)-affiliated terrorist group

Indonesia is not a formal claimant in the South China Sea, although some of its waters lie within China's "nine-dash line" maritime claims, resulting in some stand offs in recent years; since 2016, the Indonesian military has bolstered its presence on Great Natuna Island (aka Pulau Natuna Besar), the main island of the Middle Natuna Archipelago, which is part of the Riau Islands province, and held military exercises in surrounding waters

TerrorismTerrorist group(s)

Islamic State of Iraq and ash-Sham (aka Jemaah Anshorut Daulah); Jemaah Islamiyah

note: details about the history, aims, leadership, organization, areas of operation, tactics, targets, weapons, size, and sources of support of the group(s) appear(s) in Appendix-T

Transnational IssuesDisputes - international

Indonesia has a stated foreign policy objective of establishing stable fixed land and maritime boundaries with all of its neighbors; three stretches of land borders with Timor-Leste have yet to be delimited, two of which are in the Oecussi exclave area, and no maritime or Exclusive Economic Zone (EEZ) boundaries

have been established between the countries; all borders between Indonesia and Australia have been agreed upon bilaterally, but a 1997 treaty that would settle the last of their maritime and EEZ boundary has yet to be ratified by Indonesia's legislature; Indonesian groups challenge Australia's claim to Ashmore Reef; Australia has closed parts of the Ashmore and Cartier Reserve to Indonesian traditional fishing and placed restrictions on certain catches; land and maritime negotiations with Malaysia are ongoing, and disputed areas include the controversial Tanjung Datu and Camar Wulan border area in Borneo and the maritime boundary in the Ambalat oil block in the Celebes Sea; Indonesia and Singapore continue to work on finalizing their 1973 maritime boundary agreement by defining unresolved areas north of Indonesia's Batam Island; Indonesian secessionists, squatters, and illegal migrants create repatriation problems for Papua New Guinea; maritime delimitation talks continue with Palau; EEZ negotiations with Vietnam are ongoing, and the two countries in Fall 2011 agreed to work together to reduce illegal fishing along their maritime boundary

Refugees and internally displaced persons

refugees (country of origin): 5,866 (Afghanistan) (2019)

IDPs: 40,000 (inter-communal, inter-faith, and separatist violence between 1998 and 2004 in Aceh and Papua; religious attacks and land conflicts in 2007 and 2013; most IDPs in Aceh, Maluku, East Nusa Tenggara) (2020)

stateless persons: 874 (2020)

Illicit drugs

illicit producer of cannabis largely for domestic use; producer of methamphetamine and ecstasy; President WIDODO's war on drugs has led to an increase in death sentences and executions, particularly of foreign drug traffickers

Acronyms and Abbreviations

° C / ° F	Degrees Celsius / Fahrenheit
° N / E / W / S	Degrees North / East / West / South (latitude and longitude)
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ACDM	ASEAN Committee on Disaster Management
ADB	Asian Development Bank
ADRA	Adventist Development and Relief Agency
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on disaster management
AP I & II	Angkasa Pura I and Angkasa Pura II
APAN	All Partners Access Network
APBD	regional budgets
APBN	Indonesia's state budget
APEC	Asia-Pacific Economic Cooperation
ARF	ASEAN Regional Forum
ASEAN	Association of Southeast Asian Nations
AusAID	Australian Agency for International Development (now the Australian Department of Foreign Affairs and Trade (DFAT))
b/d	barrels per day
BAPPEDA	local agency for planning and development
BAPPENAS	National Development Planning Agency
BASARNAS	National Search and Rescue Agency
Bcf	billion cubic feet
BHA	Bureau for Humanitarian Assistance (of USAID)
BICT	Belawan International Container Terminal
BIG	Indonesian Geospatial Information Agency
BIS	Bank for International Settlements
BKMG	Meteorology, Climatology and Geophysics Agency
BNPB	National Disaster Management Agency
BPBD	Provincial / Local Disaster Management Agency
CARAT	Cooperation Afloat Readiness and Training
CCA	Climate Change Adaptation
CCR	Center of Collaborative Research
CCS	Country Cooperation Strategy (of WHO)
CDC	U.S. Centers for Disease Control and Prevention
CDCS	Country Development Cooperation Strategy
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
CICA	Conference on Interaction and Confidence Building Measures in Asia
CJCS	Joint Chiefs of Staff

cm	centimeter(s)
COP26	2021 United Nations Climate Change Conference
COVID-19	Coronavirus Disease 2019
CPX	command post exercise
DART	Disaster Assistance Response Team
DELSA	Disaster Emergency Logistics System for ASEAN
DENV	dengue virus
DiBi	Indonesia Disaster Database
DKI-APCSS	Daniel K. Inouye Asia-Pacific Center for Security Studies
DM	Disaster Management
DMHA	Disaster Management and Humanitarian Assistance
DMRS	Disaster Monitoring and Response System
DPD	Council of Representatives of the Regions
DPR	People's Representative Council
DO	Development Objective
DRM	disaster risk mitigation
DRR	disaster risk reduction
EAS	East Asia Summit
EEZ	Exclusive Economic Zone
EITI	Extractive Industries Transparency Initiative
EMOPS	Emergency Operations
EOD	explosive ordnance disposal
ERAT	ASEAN Emergency Response and Assessment Team
ESDM	Ministry of Energy and Mineral Resources
EU-CRIMARIO	European Union's Critical Maritime Routes Indo-Pacific
FAO	Food and Agriculture Organization (of the UN)
FDI	foreign direct investment
FETP	Field Epidemiology Training Program
FGM	female genital mutilation
FTX	field training exercise
GAVI	Global Alliance for Vaccines and Immunisation
GDACS	Global Disaster Alert and Coordination System
GDP	gross domestic product
GFATM	Global Fund to fight Aids, Tuberculosis and Malaria
GGGR	Global Gender Gap Report
GHI	Global Hunger Index
GHSA	Global Health Security Agenda
GOI	Government of Indonesia
GPS	Global positioning system
GW	gigawatts

HADR	humanitarian assistance and disaster relief
HCT	Humanitarian Country Team
HDX	Humanitarian Data Exchange
HFA	Hyogo Framework for Action
HSC	Helicopter Sea Combat
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development
ICAO	International Civil Aviation Organization
ICC	International Chamber of Commerce
ICG/IOTWMS	Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System
ICRM	Institute of Catastrophe Risk Management
ICT	information and communications technology
ICRC	International Committee of the Red Cross
IDA	International Development Association
IDP	Internally Displaced Person
IDR or Rp	Indonesia Rupiah
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFRC	International Federation of Red Cross and Red Crescent Societies
IHO	International Hydrographic Organization
ILO	International Labour Organization
IMO	International Monetary Fund
IMO	International Maritime Organization
IMSO	International Mobile Satellite Organization
InaTEWS	Tsunami Early Warning System
INFORM GRI	Index for Risk Management Global Risk Index
INTERPOL	International Criminal Police Organisation
IOC	Intergovernmental Oceanographic Commission OR International Olympic Committee
IOM	International Organization for Migration
IORA	Indian Ocean Rim Association
IPTV	Internet Protocol television
IPV	intimate partner violence
IPU	Inter-Parliamentary Union
IR	Intermediate Result
IRBI	Indonesia Disaster Risk Index
ISPO	Indonesian Sustainable Palm Oil
ISO	International Organization for Standardization
ITSO	International Telecommunications Satellite Organization
ITU	International Telecommunications Union

ITUC	International Trade Union Confederation
JICT	Jakarta International Container Terminal
JKN	Jaminan Kesehatan Nasional (health insurance system)
JTWC	Joint Typhoon Warning Center
KEN	National Energy Policy
KIPDI	Media school curriculum of Indonesia
km	kilometer(s)
km ²	square kilometers
LNG	Liquified Natural Gas
m	meter(s)
m ²	square meter(s)
MAGMA	Multiplatform Application for Geohazard Mitigation and Assessment in Indonesia
Mbps	megabits per second
MCIT	Ministry of Communication and Information Technology
MDR-TB	multidrug-resistant Tuberculosis
MIGA	Multilateral Investment Guarantee Agency
MINURSO	United Nations Mission for the Referendum in Western Sahara
MINUSCA	United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic
MINUSMA	United Nations Multidimensional Integrated Stabilization Mission in Mali
mm	millimeter(s)
MNFSOP	Multi-National Force Standard Operating Procedures
MONUSCO	United Nations Organization Stabilization Mission in the Democratic Republic of the Congo
MPR	People's Consultative Assembly
MoEC	Ministry of Education and Culture
MOOTW	Military Operation Other than War
MoRA	Ministry of Religious Affairs
MOSA	Ministry of Social Affairs
MRS	Mobility Response Squadron
MRT	mass rapid transit
MRTH	Ministry of Research, Technology, and Higher Education
MSG	Melanesian Spearhead Group
MW	megawatts
NAM	Non-Aligned Movement
NAP	National Action Plan
NCD	noncommunicable diseases
NDC	Nationally Determined Contributions (to the Paris Agreement)
NGO	Non-government organization
NRE	new and renewable energies
NTD	neglected tropical diseases

OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
OECD	Organisation for Economic Co-operation and Development
OIC	Organisation of Islamic Cooperation
OPCW	Organisation for the Prohibition of Chemical Weapons
OSOCC	On-Site Operational Coordination Center
PDAM	Perusahaan Daerah Air Minum (local water utilities)
PDC	Pacific Disaster Center
PDT	Tsunami Early Warning Bulletin
PEN	National Economic Recovery Program
PGN	Perusahaan Gas Negara
PIF	Pacific Islands Forum
PMI	Indonesian Red Cross
PLN	State Electricity Corporation
POLRI	National Police
PP	Pacific Partnership
PPKM	Restrictions Towards Community Activities (re: COVID-19)
PPP	public-private partnership
PVMBG	Centre of Volcanology and Geological Hazard Mitigation
RAN-API	National Action Plan for Climate Change Adaptation
RCEP	Regional Comprehensive Economic Partnership
RENAS PB	National Disaster Management Plan
RHCC	Changi Regional HADR Coordination Centre
RIPB	Master Plan for Disaster Management
RMNCAH	reproductive, maternal, newborn, child, and adolescent health
ROAP	Regional Office for Asia and the Pacific (of UN OCHA)
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (5-year National Medium Term Development Plan)
RPJPN	Rencana Pembangunan Jangka Panjang Nasional (20-year development plan)
SASOP	Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations
SDG	Sustainable Development Goal
SEKNAS	National Secretariat for Safe Schools
SMAB	Safe Schools and Madrasahs
SMEE	Subject Matter Expert Exchanges
SOE	state-owned enterprise
SPAB	General Secretariat's Disaster Safe Education Unit
SPGDT	integrated emergency management system
SPP	State Partnership Program (of the National Guard)
SRC PB	Rapid Reaction Force for Disasters
STAFFEX	Staff Exercise
STI	sexually transmitted infections

TB	Tuberculosis
Tcf	trillion cubic feet
TEU	twenty-foot equivalent unit
TNI	Indonesian Armed Forces
TNI-AL	Indonesian Navy
TRC	Rapid Response Team
TTX	Table Top Exercise
TVRI	Televisi Republik Indonesia
TWh	terawatt hours
UHC	Universal Health Coverage
UN	United Nations
UNAMID	United Nations–African Union Mission in Darfur
UNCLOS	United Nations Convention on the Law of the Sea
UNCRPD	UN Convention of Rights for People with Disability
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRR	UN Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNGA	United Nations General Assembly
UNHCR	United Nations High Commission on Refugees
UNICEF	United Nations Children’s Fund
UNIDO	UN Industrial Development Organization
UNIFIL	United Nations Interim Force in Lebanon
UNISFA	United Nations Interim Security Force for Abyei
UNMISS	United Nations Mission in South Sudan
UNODC	United Nations Office on Drugs and Crime
UNPDF	United Nations Partnership for Development Framework
UNSCR	United Nations Security Council Resolution
UNWTO	World Tourism Organization
UPS	uninterrupted power supply
UPU	Universal Postal Union
US	United States
USAID	U.S. Agency for International Development
USARPAC	U.S. Army, Pacific
USINDOPACOM	U.S. Indo Pacific Command
USO	universal services obligation
USSR	Union of Soviet Socialist Republics
WASH	water, sanitation, and hygiene

WCO	World Customs Organization
WEA	Women's Earth Alliance
WFP	World Food Programme
WFTU	World Federation of Trade Unions
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization
WMP	World Mosquito Program
WPS	Women, Peace, and Security
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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