



SINGAPORE (Assisting State)

Disaster Management Reference Handbook

September 2021

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Front Cover

Cover photo by Dr. Alberto “Mo” Morales, Jr. In the foreground is Singapore’s Gardens by the Bay including the Supertree structures on the right, and in the background is the Downtown Core including the Singapore Flyer ferris wheel on the left.

Disclaimer

This handbook has been prepared in good faith based on resources available at the time of publication. Information was gathered from the public domain, from local and government sources, as well as from subject matter experts. Where possible, a link to the original electronic source is provided in the endnote (reference) section at the end of the document. While making every attempt to ensure the information is relevant and accurate, the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) does not guarantee or warrant the accuracy, reliability, completeness, or currency of the information in this publication. Each handbook is a working document and will be updated periodically as new and significant information becomes available. We hope that you find these handbooks informative, relevant, reliable, and useful in understanding disaster management and response. We welcome and appreciate your feedback to improve this document and help fill any gaps to enhance its future utility. For feedback, comments, or to request a printed copy please email cfe.dmha.fct@pacom.mil. Please visit our website to download copies of this publication and other products (<https://www.cfe-dmha.org>). All parts of this publication may be reproduced, stored in retrieval systems, and transmitted by any means without the written permission of the publisher.

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Letter from the Director

When a natural disaster or crisis creates humanitarian need, a constellation of actors will respond. They will represent local, national, and regional groups as well as international aid agencies, and during large-scale disasters, foreign militaries may join the response. To ensure that assistance reaches impacted communities, then, coordination among responding parties is necessary as it will help responders avoid duplication of effort, plug gaps, and, most importantly, save lives and reduce suffering. Regional partners in the Indo-Asia-Pacific region participate in various planning and training efforts to lay the foundations for civilian-civilian, military-military, and civilian-military coordination during emergencies. Singapore, a member-state of the Association of Southeast Asian Nations (ASEAN), plays a crucial role in the region before, during, and after a disaster.

Singapore's geographic location, sitting just outside the Pacific "Ring of Fire," means that it is spared the destruction caused by many of the natural disasters that strike the region. Moreover, the country is well positioned both in location and as a well-developed state with unique expertise in providing emergency assistance to its ASEAN neighbors in the key realms of search and rescue and firefighting. Beyond its availability to send teams to help in the aftermath of a disaster, Singapore is highly proficient in areas of disaster risk reduction and in handling and mitigating disasters in an urban environment, including for addressing industrial accidents and other technological disasters. Most importantly, Singapore has proven adept in sharing knowledge with other countries before a disaster strikes.

This handbook is, thus, presented in the spirit of the fact that the more information we share with others and the more we connect, the better we will be able to manage disaster responses globally with the least amount of human suffering. This guide serves as an initial source of information for those individuals preparing for disaster risk reduction activities or immediate deployment with Singapore partner responders in crisis. Additionally, it highlights the important role Singapore plays in preparing for, mitigating, responding to, and recovering from natural or man-made disasters in the Indo-Asia-Pacific region. Finally, it provides decision makers, planners, responders, and disaster management practitioners greater insight into Singapore Disaster Management capabilities, thereby enhancing regional civil-military response.

Discussion within this handbook includes Singapore's organizational structure for domestic and foreign disaster management, international agreements, regional training programs, and exercise support. A keystone institution within this structure is the Singapore Armed Forces' Changi Regional Humanitarian Assistance and Disaster Relief (HADR) Coordination Centre (RHCC), which provides a locus for ASEAN and its partners to discuss, rehearse, and manage multinational military support to disaster response in the region. The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is proud to have signed, in January 2017, a Memorandum of Understanding with Changi RHCC to build on their respective areas of expertise and to expand regional capacity in a cooperative way. Therefore, this handbook focuses on strengthening partnerships and provides a context for bolstering understanding to improve disaster prevention, mitigation, and response.



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.

Contact Information

Center for Excellence in Disaster Management and Humanitarian Assistance
456 Hornet Ave
JBPHH, HI 96860-3503
Telephone: +1 (808) 472-0518
<https://www.cfe-dmha.org>

EXECUTIVE SUMMARY

Despite its location in a region hard-hit by disasters of varying scale, the Republic of Singapore is somewhat insulated from natural disasters. The country is nominally exposed to earthquake, tsunami, and cyclones, but there is little historic data suggesting large-scale incidents caused by these kinds of hazards. The country is primarily exposed to flooding as a result of monsoon season rains. As part of its development as a society and economy, then, Singapore has steadily moved to reduce its vulnerability by building up coping mechanisms and proactively establishing adaptive frameworks and policies, particularly by addressing infrastructural weaknesses and inculcating a sense of public responsibility to respond to emergencies of all types, from community-wide flooding to individual medical incidents.

The Coronavirus Disease 2019 (COVID-19) pandemic has shown that Singapore's preparedness has not entirely protected the country from all hazards. Epidemics are a key area of concern where policymakers continue to develop plans. Moreover, anthropogenic hazards, such as industrial accidents, loom over this highly industrialized and developed state, and the potential impacts of such an accident – water contamination, air pollution, fires, and explosions – are a key concern.¹

For emergencies in Singapore, the Ministry of Home Affairs (MHA) is the lead agency with its subsidiary Singapore Civil Defence Force (SCDF) the main incident manager. These agencies are joined in a whole-of-government process by health, information, policing, and other experts as required by each event. For responses outside the country, the Ministry of Foreign Affairs plays a key role as it manages bilateral and international organization communications and relationships that bear upon requests for humanitarian assistance and disaster relief (HADR) in affected states.² Most importantly, Singapore is a member-state of the Association

of Southeast Asian Nations (ASEAN), which has its own policies, processes, and structures to respond to a disaster that strikes any member-state. ASEAN member-states' National Disaster Management Organizations (NDMO) liaise via the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). SCDF represents Singapore at the AHA Centre and is also the main agency that will respond to incidents that strike ASEAN neighbors.³

It is not only SCDF that can deploy overseas to support HADR operations. The Singapore Armed Forces (SAF) also participate in United Nations (UN) peacekeeping, peace support, and humanitarian missions.⁴ Of note is the Exercise Coordinated Response (Ex COORES) series that builds upon already expanding cooperation between the United States (U.S.) and regional allies. Ex COORES involves SAF's Changi Regional HADR Coordination Centre (RHCC) and brings in USINDOPACOM's Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) along with other militaries and international groups such as the UN Office for the Coordination of Humanitarian Affairs (OCHA), components of the International Red Cross and Red Crescent movement, World Health Organization (WHO), and others.⁵

The involvement of SCDF and SAF in regional and global HADR operations underscores the importance of government buy-in to coordinate and deconflict humanitarian responses that, in cases of large-scale disaster, involve many civilian and military organizations. UN Humanitarian Civil-Military Coordination (UN-CMCoord) officers and processes facilitate dialogue and interaction between civilian and military actors and regional groupings – including in the Asia-Pacific region – that have formed both to provide input to UN-CMCoord and to rehearse it. Singapore is very active therein.⁶

REGIONAL OVERVIEW

The area surrounding Singapore is the most disaster-prone region in the world. However, Singapore sits just outside the “Ring of Fire” where it is somewhat insulated from the earthquakes, volcanic eruptions, tsunamis, and cyclones that bring frequent harm to Singapore’s neighbors and partners. A combination of Singapore’s favorable geographic situation and its investment in preparedness means that the country and its people face fewer socio-economic and political disruptions from natural or man-made disasters. Thus, based on its own investments in disaster risk reduction (DRR) and emergency response, Singapore has positioned itself to respond rapidly and effectively to international crises not only within Southeast Asia but also more broadly throughout the region and world. Figure 1 shows the Association of Southeast Asian Nations (ASEAN) member-states,⁷ which are Singapore’s immediate neighbors and partners. Of course, the greater Indo-Asia-Pacific region encompasses the land and sea from India to Russia, the U.S., Chile, Australia, and the Pacific Island States.

The Indo-Asia-Pacific region experiences frequent disasters of all types and scopes. The global health and economic costs from the coronavirus disease (COVID-19) pandemic attests to the potential severe impact when hazards cause disasters. The Asian Development Bank (ADB) estimates that the global economy contracted by 3.5% in 2020, with developing Asian economies down by 0.4%. COVID-19 is projected to have pushed 78–162 million people in developing Asia into poverty. Since the 1960s, about one-third of recorded disasters triggered by natural hazards worldwide occurred in developing Asia. In a comparison of statistics taken decade by decade, the region’s share of these disasters has remained steady at 34%–40% of incidents in each decade. However, at least four of

five people affected by natural hazards live in developing Asia; between 1960 and 2020, the region accounted for 85% of affected persons, 65% of those who died, and 27% of the damage cost from global disasters triggered by natural hazards.

Regional deaths from meteorological hazards are large, followed by deaths from geophysical hazards; the latter is high because of the unpredictable nature of events such as earthquakes. Hydrological disasters, meanwhile, have had the most devastating impact in terms of people harmed (for example, through physical injury or temporary displacement) and damage costs. Across various subregions in Asia, disasters during the period 1960–2020 were most frequent in Southeast Asia, followed by South Asia, East Asia, the Pacific, and Central Asia. The least number of disaster occurrences was in Central Asia (although records only began in the 1990s).⁸

As shown in Figure 2, in Central Asia, South Asia, and Southeast Asia, disasters from hydrological events were the most common, accounting for 57%, 50%, and 45%, respectively. In the Pacific and East Asia, meteorological hazards triggered the greatest number of disasters.⁹



Figure 1: Map of ASEAN Member-States

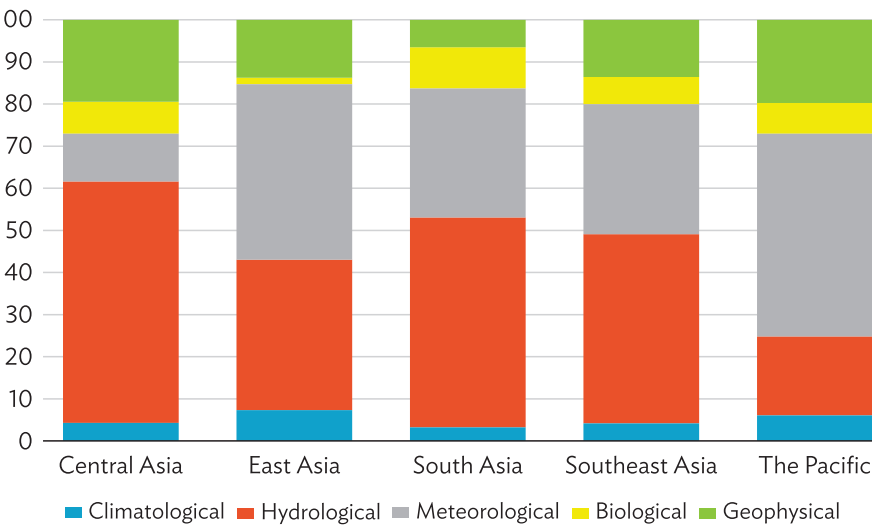


Figure 2: Distribution of Disaster Occurrence by Subregion, 1960-2020 (% of total)

Before the emergence of the Severe acute respiratory syndrome – Coronavirus – 2 (SARS-CoV-2), the virus that causes COVID-19, four of the top ten deadliest disasters in the world between 2000 and 2019 occurred in the Asia-Pacific; they include the 2004 Indian Ocean Tsunami, 2008 Cyclone Nargis (Myanmar), the 2008 Great Sichuan (China) Earthquake, and the 2001 Gujarat (India) Earthquake. The resulting impact on the inhabitants of the region is massive. China and India typically top the list of countries by impact on populations due partly to their large populations. Together, they account for 2.8 billion disaster-affected people between 2000 and 2019. Four other Asian countries are present in the top ten list of affected countries by absolute numbers of people affected (Bangladesh, the Philippines, Thailand, and Vietnam). Concurrently, both Mongolia and the Philippines are among the world’s worst disaster-affected countries by total people affected per 100,000 inhabitants. On top of the human cost, the economic damage done to the region from disasters (2000-2019) tops US\$1.25 trillion; Asia and Oceania together account for 46% of the world’s total economic loss from disasters during the surveyed period.¹⁰

Despite Singapore being located within the world’s most disaster-prone region, the risks to Singapore itself are low as indicated in the WorldRiskReport 2020, which ranked Singapore

164 of 181 countries assessed; this means the country is considered “very low risk.” All sub-categories that lead to Singapore’s score were also in the “very low risk” range; these include exposure, vulnerability, susceptibility, lack of coping capacities, and lack of adaptive capacity.¹¹ There have been no recorded events that have caused a significant number of deaths or damage. Earthquake risks are minuscule. Large-scale tsunami impacts are unlikely as there are no significant impacts found

in historical records. And the latest moderate landslide occurred in 2007 causing no fatalities. However, given the monsoonal climate, the risk of flooding is moderate, and inundation has impaired infrastructure, such as in 2010–2011 flooding when unusually high precipitation damaged malls and underground parking garages. There remains a risk of epidemics as illustrated by the Severe Acute Respiratory Syndrome (SARS) of 2003 and COVID-19. Moreover, anthropogenic hazards, such as industrial accidents, continue to pose threats linked to water contamination, air pollution, fires, and explosion.¹²

Over the past 20 years, Asia has begun to pay increasing attention to disaster management as the frequency of disasters and the magnitude of impacts rise. This period has also seen regional countries work toward integrating DRR into national development plans. Singapore certainly sits in the fore of this movement by institutionalizing DRR, risk assessment, insurance, and community input. Singapore is a party to present global frameworks (Sendai, Paris Agreement, etc.) that build on conversations held since 1994’s first World Conference on Natural Disaster Reduction (Yokohama, Japan). Not only is Singapore continuing to invest in its own climate change resiliency and DRR, but it is a key partner regionally in promoting best practices.¹³

INTERNATIONAL FRAMEWORK

International responses are conducted by diverse actors from the affected state and the international community. Following a large-scale disaster, response personnel converge in the affected area, and the situation can become complex and challenging. The affected state's leaders and people – the qualities of leadership and coping capacities – will influence what type of assistance is requested and accepted and, therefore, the coordination platform appropriate to the situation. This will differ between all civilian responses and responses that involve both civilian and military responders. This reference handbook focuses on civil-military coordination principles, frameworks, and practices in which Singapore has expertise.

Guiding Principles (Civil-Military)

Many countries will deploy their militaries or paramilitary organizations when a natural disaster or crisis occurs and creates humanitarian needs within their own territories. Moreover, in cases where neither the affected state nor humanitarian responders have needed capabilities or assets, bilateral support to disaster-affected states can be provided through international deployment of foreign military actors and assets. United Nations Humanitarian Civil-Military Coordination (UN-CMCoord) officers and processes facilitate dialogue and interaction between civilian and military actors, essential to protect and promote humanitarian principles, avoid competition, minimize inconsistency and, when appropriate, pursue common goals. Regional groupings – including one in the Asia-Pacific region – have formed both to provide input to UN-CMCoord and to rehearse it, and Singapore is very active therein.

UN-CMCoord

UN-CMCoord is a framework for dialogue and interaction among civilian and

military actors; it enhances understanding of humanitarian action and guides political and military actors on how best to support that action in order to protect humanitarian principles (humanity, impartiality, neutrality, and operational independence), avoid competition, minimize inconsistency, and promote common goals, the most important of which is to save human lives and reduce suffering.

The UN Office for the Coordination of Humanitarian Affairs (OCHA) Civil-Military Coordination Section (CMCS) is the designated focal point in the UN system for humanitarian civil-military coordination, supporting relevant field and headquarters level activities and operations. As custodian of UN-CMCoord guidelines, CMCS helps humanitarian actors develop context-specific guidance and runs a training program to equip humanitarian and military actors with the skills and knowledge necessary to effectively interact with each other. CMCS also prepares and deploys dedicated UN-CMCoord experts to the field. UN-CMCoord capacity takes two forms:

- Deployment in response to sudden onset humanitarian emergencies or to complex emergencies and protracted crises; and
- Support to UN-CMCoord Officers or Focal Points in an OCHA office.

UN-CMCoord is particularly appropriate in complex emergencies and high-risk environments to facilitate humanitarian access, protect civilians, and secure humanitarian aid workers. When all other sources have proven insufficient, exhausted, or not readily available, a UN agency, through the Humanitarian Coordinator or the Government of an affected state, can make a request for foreign military and civil defense assets (MCDA). CMCS channels such requests through its network of Government asset providers. Once requested and deployed, those military personnel and capabilities must be coordinated with the

myriad civilian actors also participating in the emergency response.¹⁴

Singapore and the Region

A multi-stakeholder Regional Consultative Group (RCG) on Humanitarian Civil-Military Coordination for Asia and the Pacific formed in 2014 to act as a regional forum that brings together the humanitarian, civilian, and military actors involved in disaster response preparedness planning and disaster response. The chairmanship of the RCG is rotated among member-states on an annual basis. The Government of Singapore, represented by the Ministry of Defence (MINDEF) and the Singapore Armed Forces (SAF) chaired the RCG in 2017, and Singapore hosts meetings and preparedness exercises at SAF's Changi Regional Humanitarian Assistance and Disaster Relief (HADR) Coordination Centre (RHCC).

As outlined in its terms of reference, the RCG formed to:

- Discuss response preparedness planning, with a focus on coordination of operational planning between civilian and military actors
- Facilitate exchange of information and innovative ideas to enable well-coordinated and needs-based effective disaster response to a broad range of humanitarian emergency operations, and
- Strengthen linkages with other relevant platforms with an emphasis on the relationship with regional organizations and the Global Consultative Group on Humanitarian Civil-Military Coordination.¹⁵

The ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) is an intergovernmental organization, established by the ten ASEAN member-states with the aim to facilitate cooperation and coordination in disaster management among ASEAN members. Since 2011, it has worked with the National Disaster Management Organizations (NDMO) of the member-states to operationalize its remit. It also partners with international organizations,

the private sector, and civil society. In the event of large-scale disasters, such as 2013 Typhoon Haiyan in the Philippines, the AHA Centre works closely with the Secretary-General of ASEAN who will perform the role of ASEAN Humanitarian Assistance Coordinator to mobilize more resources and coordinate with partners worldwide. Multilateral cooperation has been established with Australia, China, the European Union, Germany, Japan, New Zealand, Switzerland, and the United States.¹⁶

Key activities undertaken by the AHA Centre include Disaster Information Management whereby ASEAN members jointly monitor and share information about disasters and hazards in the region. The information management and dissemination function of the Centre serves to ease coordination among responding parties.¹⁷ Additionally, the Centre supports NDMOs across ASEAN through capacity building via two assets, the ASEAN-Emergency Response and Assessment Team (ASEAN-ERAT) and the AHA Centre Executive (ACE) Programme. ASEAN-ERAT is a rapidly deployable response team to support an affected ASEAN state during a major sudden or slow on-set disaster. The ACE Programme is designed to prepare future leaders of disaster management.¹⁸ Finally, the AHA Centre develops tools and guidance to accelerate the mobilization of resources among ASEAN member-states and partners in times of disaster. These tools and guidelines include:

- Standby Arrangements (assets and capacities) whereby ASEAN members voluntarily make available a search and rescue directory, military and civilian assets, emergency stockpiles of disaster relief items, and disaster management expertise and technologies.
- The Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP), which provides: guidance and templates to initiate the establishment of the ASEAN Standby Arrangements, the procedures for joint disaster relief and emergency response operations, procedures for the facilitation

and utilization of military and civilian assets and capacities, and the methodology for the periodic conduct of the ASEAN Regional Disaster Emergency Response Simulation Exercise (ARDEX).

- The Disaster Emergency Logistics System for ASEAN (DELSA), launched in 2012, to develop regional emergency stockpiles, institutional capacity building, and communication and awareness.
- During disaster response, AHA Centre Emergency Response Operation (ERO) collects, gathers, and analyzes data, makes strategic decisions, maintains continuity of operations, and disseminates information and data to stakeholders.
- ASEAN Joint Disaster Response Plan (AJDRP) provides a common framework to deliver a timely, at-scale, and joint response through mobilization of required assets and capacities.
- ASEAN Regional Disaster Emergency Exercise (ARDEX), run by the AHA Centre and ASEAN Committee on Disaster Management (ACDM) so that ASEAN members practice, evaluate, and review the ASEAN Standby Arrangements and the SASOP.¹⁹

The ASEAN Agreement on Disaster and Emergency Management (AADMER) entered into force in 2009. Its ongoing workplans emphasize disaster preparedness, response, and mitigation but are not specifically aligned with the Sendai Framework, described below. The new ASEAN agreement on economic cooperation, “ASEAN 2025: Forging Ahead Together,” has a key objective to establish “a resilient community with enhanced capacity and capability to adapt and respond to social and economic vulnerabilities, disasters, climate change as well as emerging threats and challenges.” Meanwhile, ASEAN and the UN developed the ASEAN-United Nations Joint Strategic Plan of Action on Disaster Management 2016–2020. Together, these ASEAN plans take a highly integrated approach to regional development planning and

disaster management. While Sendai Framework implementation is noted in the AADMER Workplan and the Joint Strategic Plan of Action as an area for cooperation in disaster prevention and mitigation, it is not a central part of these plans, which are largely focused on disaster preparedness and response, and economic development.²⁰

Sendai Framework

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*. It is the outcome of 2012 stakeholder consultations and 2014-2015 inter-governmental negotiations, which were supported by the United Nations International Strategy for Disaster Reduction (UNISDR - now the United Nations Office for Disaster Risk Reduction (UNDRR)) upon the request of the UN General Assembly.

The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda. It works hand in hand with the other 2030 Agenda agreements, including the Paris Agreement on Climate Change, the Addis Ababa Action Agenda on Financing for Development, the New Urban Agenda, and ultimately the Sustainable Development Goals. It is laid out in seven targets and four priorities for action.²¹ These targets and priorities are included in Figure 3 along with the scope and purpose, expected outcome, and goals.²²

Partnerships, Agreements, and Memberships

Partnerships are essential for successful DRR. As such, Singapore has created various HADR linkages in the Indo-Pacific region. The country has formed partnerships, agreements, and memberships with various stakeholders in disaster response operations and capacity-building.

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 3: Sendai Framework for Disaster Risk Reduction, 2015-2030

Bilateral Partnerships

Singapore has diplomatic ties with over 150 countries. Information on how the country's diplomatic architecture manages these relationships, often in geographic groupings (as below), can be found on Singapore's Ministry of Foreign Affairs (MFA) webpage (mfa.gov.sg):²³

- Africa
- Americas
- Central Asia
- Europe
- Middle East
- Northeast Asia
- Oceania
- South Asia
- Southeast Asia

Additional details regarding how Singapore engages with the U.S, Australia, Indonesia, Malaysia, and Laos, is explained in the following section.

Singapore and the U.S.

Singapore and the U.S. have a long-standing and multi-faceted bilateral defense relationship. Both countries' Armed Forces train together at several series of bilateral exercises such as PACIFIC GRIFFIN and TIGER BALM as well as at multiple professional and policy exchanges and interactions.²⁴ Exercise TIGER BALM is the longest-running bilateral exercise between the Singapore Armed Forces (SAF) and the U.S. Army. Since 1981, this annual exercise has allowed both armies to collaborate and share tactics, techniques, and procedures.²⁵

One mechanism that strengthens cooperation between the U.S. and Singapore for the benefit of the Asia-Pacific region is the Third Country Training Program (TCTP). The TCTP is aimed at providing technical assistance and training to ASEAN member-states, and it focuses on connectivity, sustainable development, and regional resilience. Since the establishment of the TCTP program, the U.S. and Singapore have jointly organized 30 workshops and trained over 1,000 ASEAN member-state government officials in the areas of trade, environment, health, urban

planning, and disaster management, among other topics.²⁶

Singapore and Australia

Singapore and Australia have a bilateral relationship based on defense, education, politics, trade, and tourism. Trade and investment ties between the two countries are strong. In 2015 they signed a Joint Declaration on the Comprehensive Strategic Partnership (CSP), which includes trade, defense, science, innovation, education, arts, and digital economy. In August 2020, Australian and Singaporean Trade Ministers signed the Australia-Singapore Digital Economy Agreement (DEA), which upgrades the digital trade arrangements between the two countries under the Comprehensive and Progressive Agreement on the Trans-Pacific Partnership and the Singapore-Australia Free Trade Agreement (SAFTA), the latter signed in 2003.²⁷

Singapore and Indonesia

The leaders and government ministers of Singapore and Indonesia work closely together bilaterally, as well as with ASEAN and various international partners, to advance common interests. Both countries engage in the annual Leaders' Retreat and the Six Bilateral Economic Working Groups Ministerial Meeting. These exchanges strengthen Singapore's ties with Indonesia both at the central government and at provincial levels. Singapore and Indonesia have strong economic relations. Bilateral trade between Singapore and Indonesia reached more than \$59 billion in 2019.²⁸

Singapore and Malaysia

Singapore and Malaysia have a long-standing relationship with strong bilateral trade and cross-border investment and tourism. There are regular high-level exchanges such as the Leaders' Retreat, Ministerial level visits, and Joint Ministerial Committee (JMC) meetings on Iskandar Malaysia, the main southern development corridor, formerly known as "Iskandar Development Region."²⁹

Singapore and Laos

Singapore and Laos operate at the bilateral, regional, and multilateral levels. Singapore's investments into Laos have increased over time including via the Singapore Cooperation Programme (SCP). Singapore established the Lao-Singapore Training Centre in Vientiane in 2001 under the Initiative for ASEAN Integration to administer in-country training for Lao officials. In addition, the Lao-Singapore Training Centre was upgraded to a Singapore Cooperation Centre in 2019.³⁰

Multilateral Partnerships and Memberships

Singapore plays an active role in regional and global communities such as the UN, World Trade Organization (WTO), Asia-Pacific Economic Cooperation (APEC), and ASEAN. The country supports many UN initiatives including the implementation of the 2030 Agenda for Sustainable Development and the process spelled out in UN General Assembly Resolution A/RES/72/279 to reform the UN development system. Singapore has worked closely with the UN Department of Political Affairs, UN OCHA, and UN Development Programme (UNDP). The country has worked to strengthen the monitoring function of the WTO including the response to the COVID-19 pandemic. Singapore is supportive of APEC's non-trade agenda including human resource development, food security, health, and the digital economy. Singapore was one of the founding members of ASEAN when it was formed in 1967, along with Indonesia, Malaysia, the Philippines, and Thailand, and it strongly supports ASEAN's goal of building a strong, prosperous, and rules-based ASEAN.³¹ In 2018, Singapore took over as ASEAN Chair and undertook a wide range of initiatives to respond to the shared challenges facing the region, including cyber threats, terrorism, climate change, and other disruptions.³²

Singapore recently joined the multi-national Artificial Intelligence Partnership for Defense in May 2021, which aims to enable multilateral

cooperation and exchange of best practices on responsible artificial intelligence in the defense sector.³³ In addition, the country engages in various multilateral exercises to include Exercise Rim of the Pacific (RIMPAC) and Exercise Red Flag – Nellis.³⁴

UNDRR and Singapore have combined interests in strengthening the disaster risk management capacity of small island developing states and other countries that are on the front line of climate change. A first joint specialized training course in Singapore provided practical support for the implementation of the Sendai Framework for Disaster Risk Reduction in several countries and territories, including Fiji, Mauritius, China, Panama, Pakistan, Seychelles, Solomon Islands, Trinidad and Tobago, India, Sudan, Zimbabwe, and Palestine. Representatives from Singapore and UNDRR shared their expertise on early warning systems, hazard and vulnerability assessment, emergency preparedness plans, resilient public health systems, climate change adaptation and mitigation measures, and sustainable urban planning.³⁵

Singapore also participates in, is a member of, or has a relationship with (as a government or via an NGO) the following international organizations:

Asian Development Bank (ADB), Alliance of Small Island States (AOSIS), ASEAN Regional Forum (ARF), Bank for International Settlements (BIS), Commonwealth (C), Colombo Plan (CP), Food and Agriculture Organization (FAO), Financial Action Task Force (FATF), Group of 77 (G-77), International Atomic Energy Association (IAEA), International Bank of Reconstruction and Development (IBRD), International Civil Aviation Organization (ICAO), International Chamber of Commerce (ICC) (national committees), International Council on Clean Transportation (ICCT), Institute of Catastrophe Risk Management (ICRM), INFOCOMM Development Authority of Singapore (IDA), International Federation of Red Cross and Red Crescent Societies (IFRC), International Hydrographic Organization (IHO), International

Labor Organization (ILO), International Monetary Fund (IMF), International Maritime Organization (IMO), International Mobile Satellite Organization (IMSO), Interpol, International Olympic Committee (IOC), Inter-Parliamentary Union (IPU), International Organization for Standardization (ISO), International Telecommunications Satellite Organization (ITSO), International Trade Union Confederation (ITUC), Multilateral Investment Guarantee Agency (MIGA), Non-Aligned Movement (NAM), Organization for the Prohibition of Chemical Weapons (OPCW), Pacific Alliance (observer), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific, and Cultural Organization (UNESCO), United Nations High Commissioner for Refugees (UNHCR), United Postal Union (UPU), World Customs Organization (WCO), World Health Organization (WHO), World Intellectual Property Organization (WIPO), and the World Meteorological Organization (WMO).³⁶

Agreements and Memberships

2021 agreements on cybersecurity, climate, and economic growth and supply chains

The United States and Singapore finalized three agreements in 2021 to expand cybersecurity cooperation across three sectors. The U.S. Department of Defense and the Singapore Ministry of Defence finalized an MOU on Cyber Cooperation, supporting military-to-military cooperation on cyber issues, including training and information sharing. The U.S. Cybersecurity and Infrastructure Security Agency (CISA) and the Cyber Security Agency of Singapore (CSA) finalized a bilateral MOU that will enhance information exchange on cyber threats and defensive measures. The U.S. Department of the Treasury and the Monetary Authority of Singapore finalized a bilateral MOU on Cybersecurity Cooperation.

The U.S. and Singapore will launch a U.S.-Singapore Climate Partnership to develop high-quality climate standards, collaborate on

financial sector climate and environmental risk management, support climate technology research and clean energy infrastructure development, improve sustainability of ports and shipping, and mobilize private climate capital for climate mitigation and adaptation. Experts from the U.S. Departments of Commerce, Energy, Transportation, and Treasury will consult with their counterparts in Singapore to develop standards and a program of work.

The U.S. Department of Commerce and Singapore Ministry of Trade and Industry are creating a new U.S.-Singapore Partnership for Growth and Innovation, in order to strengthen trade and investment collaboration focusing on the digital economy, energy and environmental technologies, advanced manufacturing, and healthcare. The two countries also committed to a high-level dialogue on supply chains, including a bilateral panel discussion with industry leaders and government-to-government discussions on enhancing cooperative efforts to promote greater supply chain resilience.³⁷

2019 renewal of the 1990 Memorandum of Understanding Regarding U.S. Use of Facilities in Singapore (1990 MoU)

Singapore has recently reinforced its defense ties with the U.S. by signing an important agreement – the 2019 renewal of the 1990 Memorandum of Understanding Regarding United States Use of Facilities in Singapore (1990 MoU).³⁸ The 2019 Protocol of Amendment renewed the 1990 MoU regarding U.S. use of facilities in Singapore and the signing of the MoU concerning the establishment of a Republic of Singapore Air Force (RSAF) Fighter Training Detachment in Guam. Singapore provides logistical support to U.S. military aircraft and vessels, including regular rotational deployment of U.S. Littoral Combat Ships and P-8 Poseidon aircraft.³⁹ These deployments have facilitated patrols in the South China Sea, participation in multilateral naval exercises, and responses to natural disasters.⁴⁰

The Memorandum of Understanding Concerning the Republic of Singapore Air Force Training Detachment at Andersen Air Force Base, Guam (Guam MoU)

In addition to the 2019 renewal of the 1990 MoU, Singapore has also strengthened its defense ties with the U.S. by signing another important agreement referred to as the MoU Concerning the Republic of Singapore Air Force (RSAF) Training Detachment at Andersen Air Force Base (AAFB), Guam (Guam MoU).⁴¹ This non-binding agreement lays out the framework for establishing the RSAF's detachment in Guam by 2029 and covers the deployment of the RSAF's aircraft and assets to AAFB for training in the interim.⁴²

Defense Cooperation Agreement Signing-December 2015

Singapore and the U.S. signed the enhanced defense cooperation agreement (DCA) in 2015 providing a new framework for an expanded defense relationship between the two countries. Singapore and the U.S. have a 2005 Strategic Framework Agreement (SFA), which is founded on the shared belief that a strong U.S. presence in the Asia-Pacific is vital for peace, prosperity, and stability.⁴³

Singapore is party to multilateral agreements including the Five Power Defence Arrangements.

Five Power Defence Arrangements

Following the withdrawal of the United Kingdom (UK) from Malaysia and Singapore, a multilateral agreement was established among Australia, New Zealand, Malaysia, Singapore, and the UK in 1971 to provide security for the newly formed states. The purpose of the Five Power Defence Arrangements is to cultivate cooperation and interoperability between and among member armed forces through combined training exercises, which aim to develop a joint operational capability. Through the conduct of multilateral military exercises, the five countries are able to practice their ability to inter-operate with other militaries through desk-based and field training activities in order to respond to

security issues, and jointly provide assistance and relief to humanitarian and disaster events in the region.⁴⁴

Singapore Government Departments Involved in Crisis Response

At home, Singapore has some experience in addressing large-scale public emergencies, such as the response to the 2003 SARS outbreak. During that emergency, there was some difficulty managing agency jurisdictions and capacities. To ensure the country's crisis management capabilities were comprehensive, in 2004, the government formed the Homefront Crisis Executive Group (HCEG). HCEG comprises senior representatives from all ministries, reporting ultimately to the elected leadership for political direction. Under HCEG's oversight were taskforce-like Crisis Management Groups (CMG) which can muster different clusters of relevant agencies to deal with different types of incidents. The HCEG approach is illustrated in Figure 4.⁴⁵

The Homefront Crisis Ministerial Committee (HCMC), chaired by the Ministry of Home Affairs (MHA), is the focal point for the whole-of-government response structure. MHA and its subsidiary bodies lead incident management through the Homefront Crisis Management System (HCMS).⁴⁶ The HCMC gives strategic and political guidance for crisis management, but it is within HCEG that response measures are coordinated across ministries and agencies involved in any particular response. Under HCEG fall the various CMGs, which may specialize in health, diplomatic support, transport, public communications, or other areas of expertise.⁴⁷

An example of the HCMS in action is the country's response to the COVID-19 pandemic. MHA, as chair of the HCEG, activated plans to address the crisis. It established a Safe Travels Office to oversee, operationalize, and streamline processes for safe international travel as Singapore gradually re-opens while reporting to the Multi-Ministry Task Force on COVID-19.⁴⁸

Homefront Crisis Management Systems (HCMS) Structure

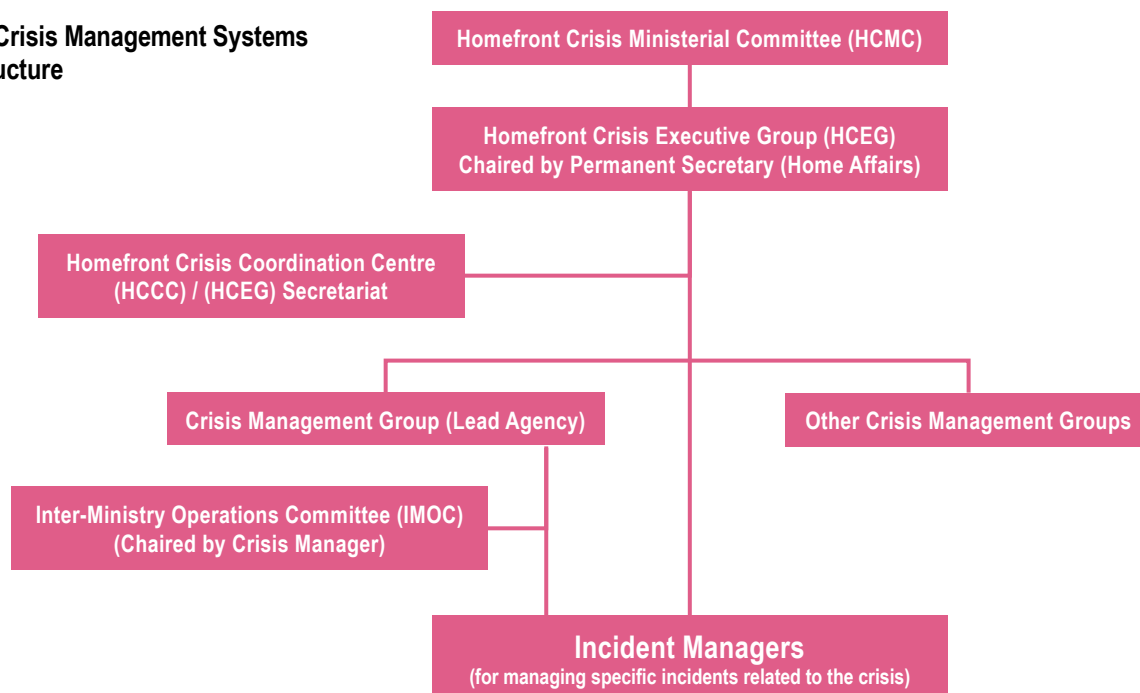


Figure 4: Structure of Singapore's Homefront Crisis Management System

In cases of international climate change mitigation or disaster response, the Ministry of Foreign Affairs (MFA) has a key role, not least via the Singapore Cooperation Programme (SCP) for strategic planning and capacity building and as laid out in ASEAN agreements and work plans for emergencies. MFA then works through the whole-of-government system to ensure that the appropriate Singapore disaster response agencies are involved. Beyond emergency response, the country contributes to global efforts to combat climate change through providing capacity-building to fellow developing countries to help them meet their climate pledges and take effective action. The Climate Action Package (CAP) under SCP launched in 2018 to help develop capacity in climate science, flood management, and DRR. Alongside fellow ASEAN member-states, Singapore is working on capacity-building to effectively implement the Paris Agreement. Finally, the country has implemented technical, bilateral assistance programs.⁴⁹

Ministry of Defence (MINDEF) and Singapore Armed Forces (SAF)

The mission of MINDEF and SAF is to enhance Singapore's peace and security through deterrence and diplomacy. Since 1970, SAF has participated in several peace support operations and humanitarian assistance and disaster relief (HADR) missions at both regional and international levels. Although SAF did deploy a 47-person team in 1970 to respond to a cyclone in East Pakistan (now Bangladesh), participation in more widespread disaster response operations came after 1990 when SAF sent a team to the Philippines in response to an earthquake. Since that 1990 deployment, SAF has continued to develop skills and boost capabilities for modern, technologically complex, operating environments. It has deployed multiple medical teams across the region while Republic of Singapore Air Force (RSAF) teams have deployed as far afield as the U.S. to participate in hurricane relief in 2005 and 2017.

MINDEF supports Singapore's overall regional diplomacy via the country's offers of Haze

Assistance Packages to Indonesia and Malaysia since 2005. Following Indonesia's acceptance of offers in 2005 and 2015, SAF deployed assets and personnel to Sumatra for periods ranging from one to two weeks. These missions included C-130 aircraft for cloud seeding and logistics ferry operations, and CH-47SD helicopters for aerial fire-fighting operations. Additional military diplomacy is supported by Changi RHCC. Singapore's contribution to the 2015 Nepal earthquake response included not only 38 SAF personnel, including staff from Changi RHCC, but also seven personnel from MOH.

Beyond MINDEF/SAF capacity to deploy experts in coordination and multi-national teams, the most common types of SAF assistance revolve around logistics, search and rescue, and evacuation. Two major events in the region showcase the types of capabilities SAF brings to HADR missions. In the wake of the 2004 Indian Ocean Tsunami, more than 1,500 SAF personnel deployed to Indonesia and Thailand. SAF deployed three landing ships, eight CH-47 Chinook and four Super Puma helicopters, six C-130 transport aircraft, and two F-50 utility aircraft for the relief effort. Then, during the 2011 Christchurch (New Zealand) earthquake, 116 SAF personnel deployed along with a C-130 transport aircraft and a KC-135 tanker aircraft to provide disaster relief and to support the evacuation of civilians and emergency workers.⁵⁰ Photo 1 shows RSAF personnel and their Indonesian counterparts delivering relief supplies after a 7.5-magnitude earthquake in Sulawesi in January 2018.⁵¹



Photo 1: RSAF and Indonesian Personnel Deliver Relief in Palu, Sulawesi, Indonesia (2018)

Changi Regional HADR Coordination Centre

Changi RHCC is located at the Changi Command and Control Centre (CC2C) at the Changi Naval Station, Singapore. Its core purpose is to facilitate military-to-military coordination in HADR, supporting the military of a disaster affected state in coordinating assistance provided by foreign militaries. In addition, it will support and complement other existing mechanisms such as those run by UN OCHA and the AHA Centre, which focus on supporting a disaster-affected state's NDMO.

Changi RHCC's operations are three-fold:

1. Day-to-Day Monitoring and Assessment. Changi RHCC regularly monitors and shares information on regional disasters. Prior to predictable events such as a typhoon, or at the onset of non-predictable events such as earthquakes, Changi RHCC will:
 - Fuse information from various sources, including the disaster-affected state's NDMO, and regional disaster and early warning centers;
 - Distribute the situation picture to partner militaries through its OPERA Computer

- Information System (CIS) web-portal, to allow partner militaries to prepare their response mechanisms; and
- Depending on the likely severity and impact of the disaster, Changi RHCC will also concurrently conduct initial planning and scale up for a possible multinational military HADR operation.
2. Disaster Response Operations. If the affected state requests or accepts an offer of assistance, Changi RHCC can support the coordination of a multinational military response through various means:
 - Changi RHCC will continue to broadcast the updated situation picture, including contributions of international aid, to partner militaries to facilitate decision-making and minimize duplication and gaps in the provision of foreign military assistance. This can be done via OPERA CIS as well as Changi RHCC's network of international liaison officers and linkages with operations centers of regional militaries.
 - Changi RHCC will also coordinate and facilitate the deployment of foreign military assistance into theatre.
 - If required and with the consent of the affected state, Changi RHCC can also:
 - Deploy an advance team to conduct assessments on the disaster impact and likely requirements for military assistance; and
 - Forward deploy a mobile coordination unit to support the affected state's military to coordinate efforts on the ground, typically working within the Multinational Coordination Centre (MNCC) or other structure established by the affected state's military.
 - Once the disaster relief efforts reach a steady state and the affected state's military can coordinate the foreign military assistance without external support, Changi RHCC will draw down operations.
 3. Capacity-Building Efforts. In addition to disaster response operations, Changi RHCC builds regional HADR capacity by deepening networks and linkages with partner militaries and by researching and developing the HADR knowledge base. It also participates in and hosts workshops, forums, training/education, exercises, and other activities to promote mutual understanding, interoperability, and the sharing of best practices in disaster response.⁵²

Changi RHCC maintains robust regional partnerships not only with regional militaries but also with organizations specializing in HADR. In January 2017, the Changi RHCC Director and Director of USINDOPACOM's Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) signed a Memorandum of Understanding (MoU) to establish a framework for cooperation in a demonstration of the shared U.S.-Singapore intent to foster a strategic partnership and build regional capacity in HADR. Then, in June 2018, Changi RHCC and the Pacific Disaster Center (PDC) signed an MoU to partner on future disaster management initiatives. This agreement will promote exchanges of information and potentially lead to interoperability of tools to support disaster response coordination in the region.⁵³ Most recently, in August 2020, Changi RHCC and India's Integrated Defence Staff signed the Humanitarian Assistance and Disaster Relief (HADR) Implementing Arrangements, which will explore closer operational collaboration in response to disasters and capacity-building activities.⁵⁴

Photo 2 shows the team inside Changi RHCC as they monitor and coordinate the response to the 2015 Nepal earthquake.⁵⁵

The Changi RHCC has hosted two iterations of the multinational HADR Exercise Coordinated Response (Ex COORES), most recently in April 2019, as seen in Photo 3.⁵⁶

The first Exercise Coordinated Response (Ex COORES) ran from 23 to 25 January 2017 at CC2C. It was co-organized by the Armed Forces



Photo 2: Changi RHCC Coordinates Nepal Earthquake Disaster Relief Efforts



Photo 3: Ex COORES 19 Participants Train on Changi RHCC's OPERA CIS

of the Philippines, the CFE-DM, and Changi RHCC. The inaugural iteration aimed to establish military linkages, enhance mutual understanding and interoperability, and strengthen military cooperation in HADR operations. The regional role of Changi RHCC was evident during execution based around a scenario simulating two major disasters striking the Philippines in succession. Changi RHCC sent an advance team to support the Philippine military's establishment

of an MNCC to coordinate incoming foreign assistance, which allowed militaries as well as civilian agencies to familiarize themselves with its concept of operations in anticipation of future HADR operations.⁵⁷

Then, in 2019, from 2 to 4 April, the Multinational Operations and Exercise Centre at CC2C hosted Ex COORES 19. The exercise involved more than 200 participants from over 25 militaries as well as UN OCHA, International

Federation of Red Cross and Red Crescent Societies, WHO, and World Food Programme. The Table Top Exercise (TTX) portion of the exercise was co-organized by Changi RHCC, Bangladesh Ministry of Disaster Management and Relief and Armed Forces Division, and CFE-DM. Ex COORES 19 tested the MNCC's response in an exercise scenario where a 7.8 magnitude earthquake struck north-northwest of Dhaka, Bangladesh. During the TTX, participants utilized Changi RHCC's OPERA CIS. OPERA collates critical information such as casualty numbers, type of aid required, and type of aid contributed by different organizations to prevent duplication and facilitate prioritization.⁵⁸

Singapore Civil Defence Force (SCDF)

The primary responsibility of Singapore Civil Defence Force (SCDF) is to ensure the safety of the population of the economy. Its main roles are firefighting, rescue, and emergency medical services. It performs these roles via four systems: Warning, Protection, Rescue, and Command, Control, and Communications (C3).

SCDF has installed an island-wide Public Warning System (PWS) used to warn the public of threats (natural or man-made). In case of a serious industrial mishap or natural disaster, PWS can sound in specified areas to allow the public to seek protection.

Among the types of protection available to the public is an SCDF-managed shelter system initially launched in 1987 to address the vulnerabilities of high-rise public housing; since 1997, it has encompassed all new public and private residential buildings, and mass transit stations are hardened to serve as civil defense shelters. During emergencies, SCDF volunteers and national service units will jointly manage the shelters.

During peacetime, SCDF can undertake multiple rescue operations at once through its fire stations.

SCDF has an integrated, computerized system that ensures the effective control of scarce C3 resources; it can deploy C3 forces to parts of the island most in need during an emergency.⁵⁹

For civil security and emergency incidents,

SCDF is the lead operational authority – the Incident Manager (IM). It is responsible for leading and coordinating the multi-agency response under HCMC. SCDF operates a three-tier command structure, with Headquarters (HQ) SCDF at the apex commanding four land divisions, which are supported by a network of Fire Stations and Fire Posts around the island. SCDF developed the Operations Civil Emergency (Ops CE) Plan – a national contingency plan. When Ops CE is activated, SCDF is vested with the authority to direct all response forces under a unified command structure, enabling all required resources to be pooled.⁶⁰

Under the Civil Defence Act that is the legal foundation for SCDF, the Minister of Home Affairs may send the Force outside Singapore upon bilateral request by or with the consent of a foreign government, at the request of a UN agency, or in connection with an agreement or arrangement between Singapore and another government.⁶¹ Consistent with this law, SCDF has on-going exchanges with several Asia-Pacific and European countries. It has United Nations Disaster Assessment and Coordination (UNDAC)-trained officers on stand-by for deployment under the auspices of UN OCHA to disaster-hit countries for assessment and coordination. These members have participated in international rescue missions in Indonesia, Pakistan, the Philippines, Myanmar, and Papua New Guinea.⁶²

SCDF has built its global qualifications in part by obtaining the International Search and Rescue Advisory Group (INSARAG) External Classification of its Disaster Assistance and Rescue Team (DART) and Operation Lionheart Contingent, the latter as a Heavy Urban Search and Rescue (USAR) Team.⁶³ This classification allows the global community to better understand the capabilities and experience that the Contingent brings during an emergency. This shared knowledge has proven crucial since 2005 as disasters around the world have affected high population density urban areas built up with concrete and reinforced concrete single and multi-story structures.⁶⁴ Given Singapore's

own built environment, this level of expertise and experience is helpful at home as much as on the international stage, and the country takes a deep interest in the global development of USAR guidelines and practices. Indeed, it expanded its global leadership in this realm by chairing INSARAG's Asia-Pacific Regional Group during 2020.⁶⁵ During that year, the Regional Group laid out the foundations of the regional plan to support INSARAG's Global Strategy (2021-2026) and, thus, the regional strategy for the same period.⁶⁶ Moreover, the country was a key partner in up-dating the INSARAG Guidelines, the main document guiding USAR response, which went through review between 2018 and 2020 and was adopted in 2020.⁶⁷

SCDF's Singapore Operation Lionheart Contingent is a dedicated standby contingent whose core function is to provide USAR and/or humanitarian relief assistance to countries afflicted by major disasters. The Operation Lionheart contingent comprises 60-79 rescuers from SCDF's DART and from frontline units including Operationally Ready National Service (ORNS). The nominal structure of the Contingent is: Contingent HQ (15 people); Search & Rescue Component (two teams of 22 members each) that also includes four search dogs and their handlers; Medical Component (eight people); and Services Component (four people).⁶⁸ Photo 4 shows Operation Lionheart Contingent's arrival at Pakse airport where they unloaded equipment and supplies from two RSAF C-130s ahead of their journey to Attapeu Province, Laos, in August 2018.⁶⁹

The DART is itself a highly trained outfit that specializes in USAR, height rescue, medical trauma incidents, water search and rescue, and heli-bucket operations. Besides rescuers, the contingent also consists of search dogs and



Photo 4: Operation Lionheart Contingent Arrives at Pakse Airport, Laos

technical experts such as civil engineers and doctors who specialize in trauma and emergency medicine.⁷⁰

Operation Lionheart has deployed throughout the Asia-Pacific region to render humanitarian assistance to countries hit by major disasters since 1990. Missions from 1990 through 2021 have included:

- Baguio City earthquake, Philippines (July 1990)
- Highland Towers collapse, Kuala Lumpur, Malaysia (December 1993)
- Tai Chung County earthquake, Taiwan (September 1999)
- Indian Ocean Tsunami - Aceh, Indonesia, and Khao Lak, Thailand (December 2004)
- Sumatra earthquake, Nias Island, Indonesia (March 2005)
- Rokan Hilir bush fires, Sumatra, Indonesia (August 2005)
- Kashmir earthquake, Muzaffarabad, Pakistan (October 2005)
- Central Java earthquake, Indonesia (May 2006)
- Sichuan earthquake, China (May 2008)
- Padang City earthquake, Sumatra, Indonesia (October 2009)
- Christchurch earthquake, New Zealand (February 2011)
- Tohoku earthquake and tsunami, Japan

- (March 2011)
- Kelantan flooding, Malaysia (December 2014)
- Chiang Mai forest fire, Thailand (March 2015)
- Nepal Earthquake (May 2015)
- Palembang forest fire, Indonesia (October 2015)
- Attapeu Province flooding due to dam collapse, Laos (August 2018)⁷¹

SCDF's Civil Defence Academy (CDA) has trained rescue/firefighting units from Australia, Bhutan, Brunei, Cape Verde, China, Cyprus, Ghana, India, Malta, Malaysia, Qatar, and the United Arab Emirates. It has also established collaboration with regional organizations such as the Japan International Cooperation Agency (JICA) in conjunction with the MFA, the Asian Disaster Reduction Centre (ADRC), and the Asian Network of Major Cities 21 (ANMC 21) to conduct courses for other countries at CDA. Finally, SCDF maintains an active role in regional organizations such as the ASEAN Committee on Disaster Management (ACDM), sectoral forums of ASEAN Regional Forum (ARF), and Asia Pacific Economic Cooperation (APEC). These forums allow SCDF to contribute to the international civil defense community by sharing best practices.⁷²

Internationally Focused Organizations in Singapore

Hundreds of internationally focused non-profit organizations have a presence in Singapore. After Singapore's rapid industrialization and transformation into a high-income country, many large international organizations that initially established a presence focused on local development shifted to a management base with operations extending beyond Singapore's borders. Many locally based non-governmental organizations (NGO) that focus on the situation in Singapore also share an international focus due to their work with migrant and refugee populations. The following list highlights some

prominent internationally focused organizations in Singapore; this list is not exhaustive.⁷³

Advocates for Refugees – Advocates for Refugees is a Singapore-based NGO that advocates and campaigns for the rights of refugees and raises awareness on issues related to refugees and forced migration in Singapore. The organization conducts research to better understand issues involving refugees to inform the public and give recommendations on Singapore government policies that affect refugees. It also supports legal aid organizations, runs campaigns to raise public awareness on refugee-related issues, and partners with local and regional organization that support displaced communities.⁷⁴

Asian Venture Philanthropy Network – The Asian Venture Philanthropy Network (AVPN) was set up in Singapore in 2011. Following the success of the European Venture Philanthropy Network, which has more than 140 members in 20 countries in Europe, AVPN aims to grow and develop venture philanthropy in the Asia-Pacific region. AVPN is building a coalition of individuals and organizations who want to help non-profits achieve impact and scalability in the region. It provides a range of services to address the needs of its members using Singapore as its regional base.⁷⁵

Hagar Singapore – Hagar is an international organization focused on the recovery of women and children who have endured extreme abuses, and it works to mitigate the effects of and reduce human trafficking, slavery, and abuse. The NGO was founded in 1994 in response to prevalent domestic and community violence affecting women and children in post-civil war Cambodia. It has since expanded operations to provide direct recovery services to victims, particularly women and children experiencing gender-based violence and human trafficking, in Cambodia, Vietnam, Afghanistan, Singapore, and other countries in the Asian region. This work includes partnering with organizations in Myanmar to increase their capacity to provide trauma-informed care. Hagar additionally has support offices in Singapore, Hong Kong, Australia,

New Zealand, the United States, and the United Kingdom. Within the Hagar organization, Singapore is uniquely situated as a hybrid office. Hagar was originally established in Singapore as a support office, but after identifying an urgent need for comprehensive recovery services, the NGO expanded to provide support to survivors who had been trafficked into Singapore. Hagar Singapore's core mandate encompasses not only raising awareness, advocacy, and fundraising, but also providing restorative care to trafficking survivors in Singapore, which is a transit point and destination country for victims of human trafficking.⁷⁶

Humanitarian Organization for Migration Economics (HOME) – HOME is a Singapore-based NGO established in 2004 that aims to empower and support migrant workers who have experienced human rights violations, exploitation, and abuse. HOME implements a variety of outreach projects and public education on issues affecting migrant workers. Its work is guided through three pillars: welfare, empowerment, and advocacy. The organization's goal is to increase awareness of the situation of migrant workers in Singapore through campaigns and public education. Through its advocacy work it strives for changes to improve the lives of migrant workers in Singapore.⁷⁷

International Air Transport Association – The International Air Transport Association (IATA), founded in April 1945, aims to represent, lead, and serve the airline industry. IATA has over 230 members from 118 countries and is the prime vehicle for inter-airline cooperation. After establishing its Asia-Pacific headquarters in Singapore in 1994, IATA made the decision to significantly ramp up its regional headquarters in 2005 to increase the number of courses available in the IATA Training and Development Institute (ITDI) and to consolidate more regional functions within the Singapore office as well as increase its geographical coverage responsibilities. With about 100 staff, IATA recently signed an updated MoU with the Singapore Government and held its inaugural aviation human capital summit in Singapore in

2011.⁷⁸

MARUAH – MARUAH, which means “dignity” in Malay, is a Singapore human rights NGO that advocates for respect of human rights in accordance with both national and international norms. The NGO is a focal point for the Working Group for an ASEAN Human Rights Mechanism. MARUAH raises awareness and understanding of human rights issues at the national, regional, and international levels in Singapore and ASEAN. It also facilitates engagement, participation, and education of the public and of organizations in Singapore on human rights issues.⁷⁹

Save the Children – Save the Children is the leading independent organization creating lasting change in the lives of children in need around the world. It operates in over 120 countries with more than 15,000 employees and raises US\$1.3 billion annually. In 2010, Save the Children's work reached 100 million children. Also in 2010, Save the Children initiated a global restructuring to consolidate 34 regional offices into seven regional headquarters (RHQ). Two of its seven RHQs are now co-located in Singapore to form the Asia Regional Office, which oversees 40% of its global programs and covers core management of its operations in 15 countries across South and Central Asia and Southeast and East Asia. Save the Children's Asia Regional office in Singapore leads strategy for Asia, including regional implementation and resource allocation of global campaign strategies, human resource management and training, IT systems management and training, emergency response management, and security and safety management.

Transient Workers Count Two (TWC2) – TWC2 is an NGO that works on the promotion of fair treatment of migrant workers in Singapore. It envisions a society that recognizes and values the important contribution these workers make to households, the economy, and the country. TWC2 conducts research and engages with policy makers and employers to advocate for an enlightened policy framework for migrant labor in Singapore. The organization

also assists migrant workers to achieve fair resolutions in their cases, access medical care, protect their autonomy, and to have dignity in work and living conditions. TWC2 conducts public education to teach about the social conditions in which exploitation, abuse, and injustice occur.⁸⁰

United Nations – Singapore joined the UN as a member-state on 21 September 1965, after the country gained independence on 9 August 1965.⁸¹ The Malaysia-based UN Multi-country Office covers Malaysia, Singapore, and Brunei Darussalam.⁸²

Office of the United Nations Resident Coordinator (UN RCO) – The UN RCO engages with the Government of Singapore on various matters and is mapping the work of UN development system agencies in Singapore towards a more coordinated approach. While Singapore is a high-income industrialized country, it is also a small city-state with limited land and no natural resources, and it, thus, appreciates the challenges of sustainable development. Singapore supports the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDG), and it presented its first Voluntary National Review (VNR) report to the 2018 High-Level Political Forum on Sustainable Development. The VNR process, co-led by the Ministry of Foreign Affairs (MFA) and the Ministry of Sustainability and the Environment (MSE), evaluates the country's progress on sustainable development and reflects domestic and international efforts to implement the 2030 Agenda, particularly in water and sanitation and sustainable cities.⁸³

United Nations Development Programme (UNDP) – The UNDP's most visible activity in Singapore is the Global Centre for Technology, Innovation, and Sustainable Development (GC-TISD), a joint initiative with the Government of Singapore that was repositioned from the former Global Policy Centre.⁸⁴ The GC-TISD assists developing countries in achieving the SDGs using Singapore's experience as a living lab for global sustainability solutions.⁸⁵

World Meteorological Organization (WMO)

– In 2017, the WMO opened a new office in Singapore for the Asia-Pacific region. The Meteorological Service Singapore (MSS) hosts the WMO Regional Office, which serves as the focal point for WMO programs across the Asia-Pacific, works to improve regional coordination on hazards, and strengthens meteorological services for rapidly evolving economic sectors, such as air and marine transport. Many countries in the region are already experiencing the impacts of climate change, including more frequent heatwaves, more intense tropical storms, and coastal inundation from sea level rise that threatens food, health, and water security. Regional cooperation is key to effectively adapting to climate change from human activities.⁸⁶ As a specialized agency of the UN, WMO is dedicated to international cooperation and coordination on the state and behavior of the Earth's atmosphere, its interaction with the land and oceans, the weather and climate it produces, and the resulting distribution of water resources.⁸⁷

World Bank Group – The World Bank Group's agreement with Singapore is intended to focus on solutions to address urban development challenges, infrastructure financing, information communications technology (ICT), and accounting and auditing services.⁸⁸

World Vision International – As one of the world's largest humanitarian organizations, World Vision International (WVI) works to serve the well-being of children in poverty across the world. WVI is a Christian faith-based organization, and was one of the first international non-profit organizations to set up Asia-Pacific HQ operations in Singapore. It recently expanded its Asia-Pacific Office in Singapore to include South Asia and the Pacific. The Singapore office manages many of its global programs. In particular, WVI has located its Asia-Pacific Humanitarian and Emergency Affairs unit in Singapore; the unit deploys supplies, volunteers, and funds during emergency response. WVI also works with industry associations and logistics companies to leverage Singapore's status as a hub for humanitarian

response efforts.⁸⁹

Worldwide Fund for Nature – The Worldwide Fund for Nature (WWF) is one of the world’s largest environmental conservation NGOs. In March 2006, it opened its Asia-Pacific office in Singapore. In Singapore, WWF currently employs over 20 staff, who oversee and develop all of WWF’s conservation projects in this region, including events and programs, and educational and outreach initiatives. It also conducts training workshops for corporate partners in the region (e.g., The One Planet Leaders Asia Pacific Executive Program).⁹⁰

Foreign Disaster Management Activities

Singapore’s involvement in disaster management tends to fall into the categories of “Cooperation and Training” and “Overseas Rescue Assistance.” These activities are described below.

Cooperation and Training

Singapore has an on-going exchange program with a number of countries from the Asia-Pacific and Europe. The various emergency authorities in Singapore, especially MHA, SCDF, and SPF meet their respective foreign counterparts from time to time to exchange views and experiences on emergency preparedness and disaster management.⁹¹

Singapore and the United States work together in holding an annual Strategic Partnership Dialogue to strengthen bilateral cooperation, including the Third Country Training Program (TCTP), a mechanism that bolsters U.S.-Singapore cooperation for the benefit of the Asia-Pacific region. Aimed at providing technical assistance and training to ASEAN member states, TCTP focuses on connectivity, sustainable development, and regional resilience. Since the TCTP program was established, Singapore and the United States have jointly organized 30 workshops and trained over 1,000 ASEAN member-state government officials in the areas of disaster management, urban planning, trade,

environment, health, and other topics.⁹²

Singapore conducts another Third Country Training Programme (TCTP) with the Commonwealth of Nations, under the Singapore International Cooperation Programme. In 1994, Singapore and the Commonwealth signed an agreement to jointly provide technical assistance to Commonwealth member countries. Approximately 10 joint courses are conducted each year in public administration and governance, disaster management, information technology, productivity management, trade facilitation, and development of small and medium enterprises. To date, there have been over 170 training programs for the benefit of more than 3,000 participants.⁹³ One such course provided by the Singapore-Commonwealth Third Country Training Programme is a Disaster Management course, co-sponsored by Singapore’s MFA and the Commonwealth Fund for Technical Co-operation (CFTC), and conducted at Singapore’s Civil Defence Academy.⁹⁴

Singapore established the Singapore Cooperation Programme (SCP) in 1992 as a way to contribute to the international community after having benefited from technical assistance in the country’s early years. Singapore has worked with more than 30 international and local partners to share their development experiences with over 126,000 government officials from 170 countries and territories.⁹⁵ A wide range of topics have been covered, including disaster management, sustainability, and urban planning, with a recent offering of pandemic management that relied on Singapore’s COVID-19 lessons learned.⁹⁶ The SCP is managed by the Technical Cooperation Directorate of the Singapore MFA.⁹⁷ Under the Singapore-UNDRR Joint Training Programme, the SCP partnered with the UN Office for Disaster Risk Reduction (UNDRR) and the Civil Service College to conduct the “Introduction to Disaster Risk Reduction” course in April and May 2021.

The Initiative for ASEAN Integration (IAI) was launched during Singapore’s ASEAN Chairmanship in 2000. IAI aimed to enhance regional integration and narrow the gap

in development among ASEAN countries. Singapore is the biggest contributor to the IAI among ASEAN member-states, and it organizes capacity building courses for over 43,000 officials from Cambodia, Laos, Myanmar, and Vietnam at the Singapore Cooperation Centres as well as in these countries and through online platforms during the COVID-19 pandemic.⁹⁸ The current IAI Work Plan (2021-2025) states a focus on increasing public health systems' capacity and comprehensive pandemic recovery, as well as on education and economic sectors.⁹⁹

Singapore has played an important role in ASEAN regional disaster management efforts. SCDF is Singapore's focal point for the ASEAN Committee on Disaster Management (ACDM) and is a member of the Governing Board of the AHA Centre. Together with Indonesia, the Philippines, and the ASEAN Secretariat, Singapore was a member of the Task Force set up in 2009 for the establishment of the AHA Centre and played a key role in the operationalization of the Centre, particularly in the setup of its ICT infrastructure and systems. Through the SCDF, Singapore co-chairs two of the ACDM Working Groups – Preparedness and Response with Malaysia; and Knowledge and Innovation Management with Indonesia and Vietnam. Singapore has been a driving force in the development of the ASEAN Standby Arrangements and Standard Operating Procedures (SASOP), ASEAN Joint Disaster Response Plan, ASEAN-ERAT, Disaster Emergency Logistics Systems for ASEAN, the annual Strategic Policy Dialogue in Disaster Management, and the Senior Executive Programme in Disaster Management.¹⁰⁰

Overseas Rescue Assistance

SCDF was the first organization in the Asia-Pacific region to be classified as a Heavy Urban Search and Rescue (USAR) Team – the highest level – by the International Search and Rescue Advisory Group (INSARAG) in 2008. Its main role is firefighting, rescue, emergency medical services, mitigating hazardous materials incidents, and formulating, implementing, and

enforcing regulations on fire safety and civil defense shelter matters. The SCDF maintains a standby contingent of 79 personnel at all hours.

One of the SCDF's core function is to provide USAR services or humanitarian relief assistance to countries affected by major disasters. In accordance with the Civil Defence Act, the Minister of Home Affairs may deploy the SCDF in support of other countries:

- on request by or with the consent of a government of a territory outside Singapore;
- on request by a United Nations agency; or
- in connection with any agreement or arrangement with a government of a territory outside Singapore.

The Minister may order such number of members of the Force as seems expedient to proceed outside Singapore to carry out duties to respond to and deal with a civil defense emergency taking place in such territory.¹⁰¹

SCDF has provided assistance to some ASEAN neighbors in rescue and firefighting. Some examples include the training attachments for the Brunei fire services and training for the Special Malaysia Disaster Assistance and Rescue Teams (SMART). A number of SCDF personnel were attached to the fire services of Japan and Hong Kong for training to benefit from the experiences of these countries. SCDF also offers its training courses on Urban Search and Rescue and Emergency Behavior Management to its ASEAN neighbors. These trainings are conducted with realism in the Civil Defence Academy, home to modern training simulators and facilities.

Singapore values the exchange of ideas and sharing of expert knowledge and technology in disaster prevention and management. The country has on-going programs with countries in the Asia-Pacific and Europe, and with the United States. Singapore has been learning and adopting suitable ideas for use in the local context and has been able to develop proficiency in some areas of disaster preparedness response, particularly in disaster prevention and education, and in handling and mitigating disasters in urban environments.

Procedures to Request Support for International Humanitarian Assistance

Singapore's government lead for managing other countries' requests for international disaster response and humanitarian assistance is the Ministry of Foreign Affairs (MFA). Such requests for assistance can be made to the international community or bilaterally, directly to Singapore through its embassies or missions in the Affected States. At the operational level, such requests can also be made directly to the National Disaster Management Organization (NDMO) or National Focal Point (NFP) of Singapore, which is the Singapore Civil Defence Force (SCDF). MFA will forward any requests made to Singapore for specific assets or capabilities, such as the military, to the respective agencies to support.¹⁰²

Military Cooperation (Training and Exercises)

The below is an overview of international military training, exercises, and significant engagements that Singapore has undertaken in recent years, including exercises with a disaster response and humanitarian assistance component. Specific exercise iterations that involve Singapore and the U.S. are discussed in the section, "U.S. DOD DMHA Recent Engagements with Singapore."

U.S.-Singapore Bilateral Defense Visit 2021

On 27 July 2021, U.S. Secretary of Defense Lloyd J. Austin III and Singapore Minister for Defence Dr. Ng Eng Hen met at the Ministry of Defence during Secretary Austin's introductory visit to Singapore. They reaffirmed both countries' long-standing bilateral defense relationship and emphasized the strong U.S.-Singapore bilateral training relationship. They expressed hope for further cooperation, including in areas such as cyber defense, strategic communications, and HADR.¹⁰³

Exercise PACIFIC GRIFFIN

In 2021, the Republic of Singapore Navy (RSN), Republic of Singapore Air Force (RSAF), and U.S. Navy conducted the third iteration of Exercise Pacific Griffin, in Guam. The addition of the RSAF made this the first joint iteration. For this annual bilateral maritime exercise is designed to enhance capabilities across a broad spectrum of naval operations, including maritime security skills. The exercise is comprised of events on-shore and at sea, including maritime special operations and maritime counter-terrorism training as well as anti-air defense exercises.¹⁰⁴

Exercise TIGER BALM

In 2021, the Singapore Armed Forces (SAF) and the U.S. Army virtually conducted the 40th iteration of Exercise TIGER BALM. TIGER BALM has been conducted since 1981 to enhance regional security, interoperability, and country-to-country military relationships. It is the longest-running bilateral exercise the Singapore Army has with any defense partner.¹⁰⁵ Due to the COVID-19 pandemic, the exercise was cancelled in 2020 resulting in a shift in the bilateral rotation, with exercises during odd-numbered years now located or hosted in the U.S. and exercises during even-numbered years located or hosted in Singapore.¹⁰⁶

Exercise COBRA GOLD

In 2020, SAF participated in Exercise COBRA GOLD for the 21st time. The exercise, co-hosted by the Royal Thai Armed Forces and USINDOPACOM, was focused on coordination of multinational HADR operations. During the 2020 iteration, SAF's Changi RHCC and the USINDOPACOM CFE-DM jointly facilitated discussions on the regional HADR architecture and mechanisms for coordination of disaster response. The event included a command post exercise, a field training exercise, and a cyber exercise. SAF has been a full participant of COBRA GOLD since 2000. The annual exercise is one of the largest multinational exercises in the Asia-Pacific region and works to promote

interoperability and mutual understanding amongst the participating armed forces.¹⁰⁷

Cooperation Afloat Readiness and Training (CARAT)

In 2020, the RSN, U.S. Navy, and U.S. Marine Corps participated in a Cooperation Afloat Readiness and Training (CARAT) maritime exercise in the South China Sea and on Changi Naval Base, Singapore. CARAT is a multinational exercise designed to enhance U.S. and partner navies' abilities to operate together in response to traditional and non-traditional maritime security challenges in the Indo-Pacific region.¹⁰⁸

Exercise Maju Bersama 2020

The 24th iteration of Maju Bersama was conducted 30 January – 9 February 2020 at Penanjong Garrison in Brunei. It simulated a counter-terrorist mission including urban raids.¹⁰⁹ SAF and the Royal Brunei Land Forces (RBLF) have regularly held the battalion maneuver exercise, which began in 1992. Singapore and Brunei have a close defense relationship, reflected in SAF conducting training in Brunei, as it does with several other countries, including the United States and Australia.¹¹⁰

Exercise Coordinated Response (COORES)

Exercise Coordinated Response (Ex COORES) has been held twice, in January 2017 and April 2019, at SAF's Changi RHCC and the Multinational Operations and Exercise Centre at Changi Command and Control Centre in Changi Naval Base, Singapore. Hundreds of participants representing dozens of militaries and international civilian organizations, have participated.¹¹¹ Ex COORES was designed to strengthen cooperation in HADR. In 2017, in a sign of growing cooperation between the United States and Singapore, on the sidelines of Ex COORES, the director of Changi RHCC, Colonel Lee Kuan Chung, and the director of CFE-DM, Joseph D. Martin, inked a memorandum of understanding to establish a framework for cooperation between the two bodies.¹¹²

Exercise VALIANT MARK

SAF and the United States Marine Corps (USMC) conducted Exercise VALIANT MARK from 11 to 29 April 2019. This 23rd edition of the annual bilateral exercise included live-firing, jungle training, urban operations training, and a battalion heli-borne mission. Exercise VALIANT MARK was first launched in 1991.¹¹³

Humanitarian Assistance Response Training (HART) 2019

SAF and the U.S. Navy Logistics Group Western Pacific/Task Force 73 co-hosted a CFE-DM Humanitarian Assistance Response Training (HART) course at SAF headquarters, 4-5 December 2019. Conducted by CFE-DM and civilian partner organization subject matter experts, the two-day HART course prepared U.S. and partner military personnel to respond more effectively during civilian-led international disaster response and humanitarian assistance missions.¹¹⁴

Exercise COMMANDO SLING

U.S. Air Force (USAF) and RSAF personnel train together during the annual, bilateral exercise, COMMANDO SLING, at Paya Lebar Air Base, Singapore. The exercise aims to enhance and evaluate coordination of air tactics, techniques, and procedures between U.S. and RSAF aviation units, improve procedures for sustained operations at a non-U.S. base, and provide an opportunity to promote closer relations between U.S. and Singaporean service members. The exercise began in 1990 to provide combined air combat training for USAF and RSAF units, with COVID-19 putting the 30th Anniversary on hold until at least 2022.¹¹⁵

Exercise COPE TIGER

In 2019, the U.S., Thailand, and Singapore conducted the 25th iteration of Exercise COPE Tiger. The trilateral air force exercise includes a flying training phase and command post exercise. Participants engage in large-scale air defense and strike missions in a challenging environment to improve operational competency

and compatibility.¹¹⁶ Exercise COPE TIGER has been conducted annually since 1994.¹¹⁷

Exercise Pitch Black 2018

Exercise Pitch Black 2018 was hosted by the Royal Australian Air Force from 27 July to 17 August 2018. The 2018 edition of the biennial multinational large force employment exercise was the largest since its inception, involving 16 nations, 140 aircraft and more than 4,000 personnel. The exercise involved day and night flying, with participants operating out of Royal Australian Air Force bases Darwin and Tindal. Pitch Black began in 1990 as an exercise between Singapore and Australia, but it has expanded significantly. The 2018 exercise included participation from Canada, France, Germany, India, Indonesia, Japan, Malaysia, the Philippines, Singapore, South Korea, Sweden, Thailand, and the U.S.¹¹⁸

Exercise Safkar Indopura

The Singapore and Indonesian armies conduct an annual, bilateral, combined battalion field exercise. It is held alternately in each of the two countries. The exercise includes professional exchanges, cross training on urban operations, live firing, a map training exercise, and a combined field training exercise.¹¹⁹

Operations

Since 1970, the SAF has participated in a number of peace support operations and HADR missions at both regional and international levels.¹²⁰

Indonesia Earthquake and Tsunami (Sep 2018)

On 28 September 2018, a magnitude 7.5 earthquake struck Indonesia's Central Sulawesi province and caused a tsunami and landslides resulting in more than 2,000 deaths and 4,400 serious injuries. Singapore supported the Indonesian Government's disaster relief efforts with humanitarian supplies delivered by two RSAF C-130 transport aircraft. The relief package was handed over to Lieutenant Colonel (LTC) Ali Sudibyo from the Indonesian Armed

Forces (TNI) by SAF Mission Commander, LTC Oh Chun Keong. Relief supplies worth approximately S\$240,000 included tents, meal rations, bottled water, and medical supplies donated by the SAF. Following delivery, the two RSAF C-130 aircraft remained in Indonesia to support the Indonesian Government in evacuating people from disaster-hit areas as needed.¹²¹

Laos Dam Collapse and Flooding (July 2018)

On 23 July 2018, the Xe Pian-Xe Namnoy dam in southern Laos' Attapeu province collapsed due to substandard construction. The resulting flash flooding killed dozens and affected thousands of people across multiple villages.¹²² An RSAF C-130 transport aircraft airlifted humanitarian supplies to Laos on 26 July to provide relief to displaced civilians. A second RSAF C-130 departed on 27 July. The relief package worth approximately S\$280,000 included tents, meal rations, bottled water, medical supplies, and five rubber dinghies with outboard motors donated by the SAF. Officers from the SCDF also delivered 11 large modular field tents to aid relief efforts with the second C-130 flight. The aid supplies were handed over to Laos Vice Minister of Labour and Social Welfare H.E. Baykham Khattiya by Singapore Ambassador in Vientiane Dominic Goh and the SAF Mission Commander and Colonel Mohd Fahmi Bin Aliman, Director (Designate) of the Changi RHCC.¹²³

Taiwan Earthquake (Feb 2018)

On 6 February 2018, a 6.4 magnitude earthquake struck Taiwan's east coast, particularly affecting Hualien, killing at least 17 people and injuring more than 280.¹²⁴ An RSAF C-130 transport aircraft airlifted humanitarian supplies worth S\$135,000 to Taiwan on 9 February to provide relief to earthquake survivors. The relief package included tents, blankets, medical supplies, food items, and dynamo lights donated by SAF. The aid supplies were handed over to Taiwanese Colonel Hu Chung-Hua, Director of Operations, 5th Wing Command, by the SAF Mission Commander, COL Zakir Hamid, Commander Transport Group, Air Combat Command.¹²⁵

Rohingya Refugees in Bangladesh (Oct 2017)

A Myanmar military crackdown starting in August 2017 in Myanmar's Rakhine State included widespread killings and sexual assaults that targeted the Rohingya population, and approximately 700,000 Rohingya fled across the border to Bangladesh over several months. An RSAF KC-135R aircraft airlifted humanitarian supplies to Bangladesh on 10 and 11 October. The relief package worth approximately S\$270,000 included tents, blankets, food, medical supplies, and lamps donated by both SAF and Mercy Relief. The first delivery of supplies was handed over to Chittagong Divisional Commissioner Md Abdul Mannan by the SAF Mission Commander, Senior Lieutenant Colonel Lim Lit Lam, from Changi RHCC, and this was witnessed by Senior Minister of State for Defence Dr Mohamad Maliki Bin Osman. The SAF conveyed the Singapore Government's offers of humanitarian assistance to the Governments of Bangladesh and Myanmar on 29 September 2017 and worked closely with the Singapore MFA, Mercy Relief, and the Government of Bangladesh to coordinate the delivery of aid.¹²⁶

Hurricane Harvey, U.S. (Aug 2017)

Hurricane Harvey, a Category 4 hurricane, made landfall on 25 August. It struck Texas and Louisiana in the U.S. and caused major flooding and more than 100 deaths. The SAF supported hurricane relief efforts in the U.S. by delivering supplies to Brenham, Texas, on 30 August 2017, in support of Joint Task Force Harvey. Thirty-four airmen with the RSAF Peace Prairie Detachment used CH-47 Chinook helicopters to resupply Joint Task Force Harvey personnel with food and water in coordination with the Texas Army National Guard's 372nd Combat Sustainment Support Battalion. Following their 9-day deployment, the RSAF personnel returned to their training detachment at Grand Prairie, Texas.¹²⁷ Texas has hosted the Singaporean detachment at the Grand Prairie Army Aviation Support Facility in Dallas since the detachment's inauguration in May 1996.¹²⁸

Displacement from Marawi Crisis, Philippines (August 2017)

Fighting began on 23 May 2017 in Marawi City between government forces and the Islamic State-linked Maute Group and the Abu Sayyaf Group. Over several months, the fighting displaced 300,000-400,000 people, 90% of whom stayed with friends and relatives, but the remaining displaced persons found shelter in 75 evacuation centers.¹²⁹ On 7 August, an RSAF C-130 transport aircraft airlifted humanitarian supplies to the Philippines to provide relief to civilians displaced by the security situation in the southern Philippines. The relief package worth S\$100,000 included tents, blankets, medical supplies, food items, and water filtration devices donated by the SAF and the Singapore Red Cross (SRC). These efforts followed Philippine President Rodrigo Duterte's in principle acceptance of the SAF's offer of assistance to the Philippines during Minister for Defence Dr Ng Eng Hen's visit to the Philippines in July 2017. Dr Ng also offered the use of the SAF's urban training villages for Philippines troops, and a detachment of Unmanned Aerial Vehicles to enhance the Philippine forces' intelligence, surveillance, and reconnaissance capabilities.¹³⁰

Forest Fires in Sumatra, Indonesia (Oct 2015)

Following Indonesia's acceptance of the Singapore Government's offer of haze assistance, SAF deployed personnel and assets from the Singapore Army, and RSAF to assist in fighting forest fires in Sumatra, Indonesia. They were accompanied by a six-man Disaster Assistance and Rescue Team (DART), and equipment from SCDF.

Earthquake in Nepal (Apr 2015)

A 7.8 magnitude earthquake struck Nepal on 25 Apr 2015. It killed thousands of people, collapsed buildings, and triggered an avalanche on Mount Everest. The SAF deployed 38 personnel, including a medical team and staff from the Changi RHCC for relief efforts in Nepal. Seven personnel from the Ministry of Health and eight personnel from the Royal

Brunei Armed Forces worked together with the SAF medical team. Relief personnel also included officers from the SCDF Operation Lionheart team.¹³¹ The RSAF deployed C-130 aircraft to airlift the Singapore relief contingent and their equipment to assist in the affected area (Photo 5).¹³² The RSAF C-130 aircraft made a total of eleven flights into Nepal after 26 April 2015 to transport personnel, equipment, and relief supplies, as well as to evacuate 71 Singaporeans, along with 24 other nationals, from Nepal.¹³³

Forest Fires in Chiang Mai, Thailand (Mar 2015)

Thailand was hit by fierce forest fires in March 2015 and the SAF was called upon to assist. Equipped with a 5,000-liter water bucket from SCDF, the SAF's helicopters were mobilized to help. After almost two weeks, with fewer hotspots and the haze in Chiang Mai lifted, the SAF and SCDF concluded their firefighting operations in northern Thailand.

Flood in Kelantan, Malaysia (Dec 2014)

Malaysia was hit by one of the worst floods in decades in December 2014. From December

2014 to January 2015, the SAF deployed a taskforce comprising 34 SAF personnel, 4 SCDF DART members and 1 PUB chemist (both tasked under SAF) to Malaysia during the flood crisis. The taskforce was split into two locations at Kuala Krai and Machang. They operated seven Water Purification Units; a total of 136,400 liters of purified water was generated over 12 days.

Air Disaster - AirAsia Flight QZ8501 (Dec 2014)

The SAF joined international search and recovery efforts for AirAsia flight QZ8501, which crashed en route from Surabaya, Indonesia, to Singapore on 28 Dec 2014.

Air Disaster - MAS Flight MH370 (Mar 2014)

The SAF supported the Search and Locate operation in the South China Sea for the missing MAS flight MH370 with C-130 aircraft, a Formidable-class frigate (RSS Steadfast) with a Sikorsky S-70B naval helicopter on board, a Victory-class missile corvette (RSS Vigour), and a submarine support and rescue vessel with divers on board.¹³⁴

Older SAF international HADR efforts and



Photo 5: SAF Loading Relief Supplies for Nepal Earthquake Assistance

peace support operations include:¹³⁵

- During the New Zealand earthquake in February 2011, 116 SAF personnel, a C-130 transport aircraft and a KC-135 tanker aircraft were deployed to Christchurch to provide disaster relief and to support the evacuation of civilians and emergency workers.
- Since 2009, more than 700 sailors, soldiers, and airmen have operated under the ambit of the multinational CTF 151 as part of the counter-piracy effort in the Gulf of Aden. In 2015, a task group comprising a Singapore Navy frigate and naval helicopter was deployed to the Gulf of Aden for the same mission under CTF 151.
- Since 2007, more than 350 SAF personnel have been deployed to Afghanistan to participate in the International Security Assistance Force (ISAF), led by the North Atlantic Treaty Organization (NATO). SAF took part in peace support operations and reconstruction efforts in Afghanistan.
- After the Indian Ocean tsunami (26 December 2004), more than 1,500 SAF personnel were deployed to Indonesia and Thailand to provide HADR assistance in the largest SAF overseas operation to date. The SAF deployed three Landing Ship Tanks, eight CH-47 Chinook and four Super Puma helicopters, six C-130 transport aircraft, and two F-50 utility aircraft for the relief effort.
- Between 2003 and 2008, more than 990 SAF personnel participated in the multinational effort to assist in the reconstruction of Iraq.
- In Timor-Leste, the SAF, in support of the UN peacekeeping mission in Timor-Leste, contributed over 1,000 personnel and equipment like Landing Ship Tanks and UH-1H helicopters in the international effort to restore peace and security between 1999 and 2003, and between 2008 and 2012.
- In 1993, four Super Puma helicopters and 65 SAF personnel were dispatched to Cambodia to assist the UN Transitional Authority in Cambodia (UNTAC) (the UN mission overseeing the electoral process in

Cambodia).

- SAF participated in the UN Iraq Kuwait Observer Mission (UNIKOM) in 1991 to monitor the demilitarized zone along the Iraq-Kuwait border after the first Gulf war. The SAF had deployed a total of nine teams by the time the mission ended in 2003.
- A 14-member team was deployed to Namibia, in southwest Africa, to assist the UN Transition Assistance Group (UNTAG) during the country's elections in 1989.
- A 47-member team was deployed in 1970 to provide humanitarian assistance to East Pakistan (now Bangladesh) when the country was hit by a deadly cyclone.

Women, Peace, and Security

In October 2000, the United Nations Security Council passed Resolution 1325 (UNSCR 1325), which affirmed the important role women play in the prevention and resolution of conflicts, peace negotiations, peace building, peacekeeping, humanitarian response, and in post-conflict reconstruction, maintenance, and promotion of peace and security in their countries and communities.¹³⁶ The Security Council subsequently adopted a range of resolutions addressing women and conflict, including the need to stop sexual violence and to promote women's roles in conflict resolution, recovery, and peacebuilding. Together, these 10 resolutions are referred to as the Women, Peace, and Security (WPS) agenda: UNSCR 1325 (2000); 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019).¹³⁷

The WPS agenda has broadened to include applying a gendered perspective to disaster management and humanitarian aid, for more equitable participation, and addressing needs, which benefits society as a whole. Humanitarian crises do not impact everyone equally. Women are frequently among the most affected in crises, especially when they are poor. Natural disasters have a disproportionate effect on women. For

example, females often lose their shelter and face a reduction in economic opportunities in the aftermath of a disaster. Women in crises can also be victims of violence.¹³⁸ Experiences and needs of women and girls differ from those of men and boys in conflict and post-conflict situations, particularly in relation to human rights violations such as sexual and gender-based violence.¹³⁹ Singapore is not one of the 98 countries that have adopted a National Action Plan on WPS as of July 2021.¹⁴⁰

UN Women, officially the United Nations Entity for Gender Equality and the Empowerment of Women, no longer has a presence in Singapore. Per a February 2020 report, UN headquarters in New York made the decision to cease operations in Singapore; thus, the entity no longer has official representation in the country. The main reason apparently related to Singapore's rules for overseas and charitable fundraising.¹⁴¹ However, there are many organizations within Singapore that work in support of the rights of women and gender equity, including:

Aidha – Aidha is a registered non-profit organization in Singapore that is dedicated to helping lower income and migrant women create sustainable futures through financial education. Aidha offers a micro-business education program for foreign domestic workers in Singapore. Aidha prepares migrant women to start small successful businesses in their home countries to support their families. Impact data shows that monthly savings increase by nearly 80% among Aidha alumni. These women also double the number of productive assets they own, and business ownership increases from 6% to over 40% amongst alumni. Arguably the biggest impact is the multiplier effect when students share their knowledge with family and friends at home. Aidha's research shows that when one woman is educated, it changes nine other lives.¹⁴²

Association of Women for Action and Research (AWARE) – AWARE is a Singapore-based women's rights NGO that works on advocacy and promotion of the rights of both women and men so that they have equal access

to education, marriage, and employment. More particularly, AWARE advocates for the rights of women to control their own bodies and fully enjoy their sexual and reproductive rights. AWARE's mission is to "remove all gender-based barriers so as to allow all individuals in Singapore to develop their potential to the fullest and realize their personal visions and hopes." It achieves this through research and advocacy, education and training, and support services. It advocates against policies, laws, and mindsets that discriminate against women and contributes to strengthening laws related to domestic violence.¹⁴³

Project X – Project X is an NGO that works to protect the rights of sex workers in Singapore, dispel misconceptions and stigma related to their work, and encourage their acceptance. The organization campaigns for better health services and against violence against sex workers, and it works on educating sex workers about their basic human rights, thereby increasing reports of violence and abuse. It also advocates for universal access to sexual health services and speaks out against violence committed against sex workers by law enforcement personnel, clients, and the public. It also empowers sex workers to take charge of their lives through self-determination and educates them about health issues.¹⁴⁴

Sayoni – Sayoni is an NGO that advocates for equality in dignity and well-being of women regardless of their sexual orientation, gender identity and expression, and sexual characteristics. Comprised of queer women, including lesbian, bisexual, and transgender women, Sayoni was established in 2006 and advocates for equality on all levels with a vision of "empowering queer women towards greater involvement and presence in the community." Its activities include reporting to the UN, engaging and advocating on both national and regional levels with local groups and governments, campaigning, and publishing, with a mission "to provide resources and communication channels that would contribute to self-confidence, participation and a voice."¹⁴⁵

The Singapore Council of Women's Organisations (SCWO) -- SCWO was established in 1980 as the National Coordinating body of women's organizations in Singapore. SCWO has more than 50 member organizations, which represent over 500,000 women. It works to unite them toward ideals of 'Equal Space, Equal Voice and Equal Worth' for women in Singapore. SCWO is represented on various government and inter-ministry committees. It has had Organisation in Special Consultative Status with the UN Economic and Social Council (ECOSOC) since 2014. It has also been an Organisation in Consultative Relationship with the ASEAN Intergovernmental Commission on Human Rights (AICHR) since 2016.¹⁴⁶

Photo 6 shows the SCWO-hosted 2019 International Women's Day Dinner, featuring the first woman president of Singapore, Halimah Yacob, and the 2019 inductees into the Singapore Women's Hall of Fame.¹⁴⁷



Photo 6: 2019 Singapore Women's Hall of Fame Inductees, with Singapore President Halimah Yacob

United Women Singapore (UWS) – UWS is a Singapore-based non-profit organization that advances women's empowerment and gender equality and builds a pipeline of women leaders and influencers in Singapore. The organization's mission is to "create opportunities through programs and partnerships that help women and girls maximize their full potential and empower them to become future leaders." UWS works to narrow the gender equality gap through education, awareness raising, and advocacy on issues such as women's empowerment and

stopping violence against women. UWS has the support of key stakeholders, including corporate partners, government agencies, academia, the diplomatic community, non-profits and community groups, and the wider community. UWS programs in Singapore include:¹⁴⁸

- **Girls2Pioneers**: A long-term program to encourage more girls to enter careers in Science, Technology, Engineering, and Mathematics through fun and innovative day camps, field trips, and mentorship to spark and sustain their interests.
- **GenSafe Workplaces**: The program advocates for personnel policies that provide a safe and supportive world for everyone, regardless of gender, for the community. It supports a multi-faceted approach to prevent domestic violence and abuse through working with government agencies, the private sector, and community partners in changing cultural norms along with public education in schools for the younger generation.
- **UWS Boys Empowered**: The program aims to build a new generation of male leaders who will model strength without violence, serve as positive change-makers in society, and take their communities from awareness to action on gender equality issues. Encourages boys to break from harmful stereotypes of masculinity and become empowered bystanders in the prevention of violence in the community.

According to the World Economic Forum's 2021 Global Gender Gap Report, Singapore ranked 54 out of 144 countries. The top three countries were Iceland, Finland, and Norway. In addition to the relative ranking, the report also provides absolute scores measuring progress in closing the gender gap. Singapore has an absolute overall score of 0.727 on a scale of 0 to 1, indicating 72.7% of the average gender gap has been closed. No country has yet achieved a perfect score of 1, which would indicate gender parity. The report provides further evaluations of the gender gap across four dimensions. Singapore's scores in these areas

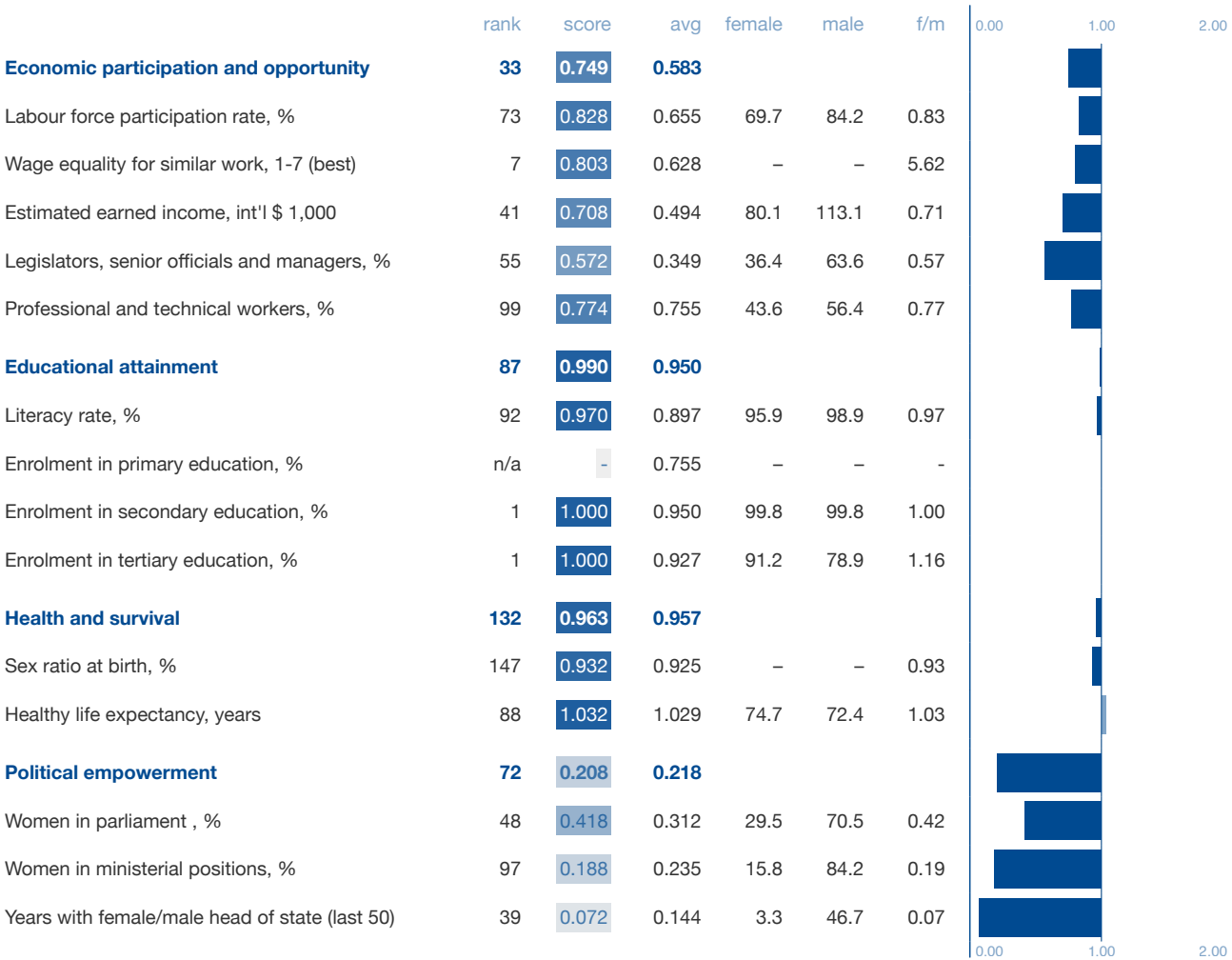


Figure 5: Singapore’s Global Gender Gap Report for 2021

are: Economic participation and opportunity (0.749), Educational attainment (0.990), Health and survival (0.963), and Political empowerment (0.208). Figure 5 shows Singapore’s country score card from the Global Gender Gap report, with further details and scores on indicators within the four dimensions.¹⁴⁹

Singapore is well-known for civil order, and a high proportion of women in Singapore, 94%, report feeling safe in their neighborhoods. Singapore has relatively low rates of domestic violence, but recent data indicates the incidence of violence rose during the COVID-19 pandemic, which is unfortunately in line with global patterns. The 2019-2020 Women, Peace, and Security (WPS) Index reports that Singapore (and Switzerland) have the lowest rates of intimate partner violence in the world, with

less than 1% of women reportedly experiencing intimate partner violence within the past year.¹⁵⁰ The WPS Index was published in 2019, before the onset of the COVID-19 pandemic, and it looks at intimate partner violence, not the larger category of domestic or family violence. News reports during 2021 indicate an increase in family violence cases as reported by the police. Police said there were 476 reports of family violence filed between 7 April and 6 May 2020. This reflected a 22% increase from the monthly average of 389 before the “circuit breaker period,” during which time stay-at-home orders were given to break the transmission of COVID-19. Additionally, between the months of April and December 2020, there was a 10% increase in family violence cases, per Minister of State for Home Affairs Muhammad Faishal Ibrahim.¹⁵¹

NATIONAL FRAMEWORK

Singapore approaches disaster risk management with a whole-of-government integrated risk management (WOG-IRM) policy framework.¹⁵² Crisis management in Singapore can be traced to the Laju incident. In 1974, four foreign terrorists hijacked the Laju ferry as part of their escape attempt after setting off bombs at the Dutch Shell oil refinery. The terrorists' grievances were not directed at Singapore but at the Netherlands' foreign policy in the Middle East. The perpetrators took the Laju's crew hostage, an act that resulted in an eight-day standoff. The hijackers agreed to release the hostages in exchange for safe passage out of Singapore, and no lives were lost. However, the incident prompted significant reflection on capacity building to better handle such crises, and this would lead to the establishment of the Executive Group to handle future incidents in a coordinated manner. Three decades later, the whole-of-government concept increasingly appeared in Singapore public service discourse. This influenced the reorganization in 2004 of the Executive Group into the Homefront Crisis Executive Group (HCEG), which comprised senior representatives from all ministries ultimately reporting to the elected leadership for political direction in order to bolster the government's interagency crisis management capabilities.¹⁵³

SCDF provides the main capacity for ready response to crises at all levels. The Civil Defence Act, updated in 2011, provides the legal framework for declaring a state of emergency and mobilizing and deploying the SCDF. The SCDF has responsibility at all levels, is well-resourced, and remains ready to respond to crises. Engaging at the regional level, the SCDF is Singapore's national focal point for the AHA Centre and a member of the ASEAN Committee on Disaster Management (ACDM), which functions as the Governing Board of AHA Centre.¹⁵⁴ Across the national level, the SCDF has adopted a multi-pronged approach aimed

at different target groups, such as the residential sector, the commercial and industrial workplace community, and the school population. The SCDF also partners with the National Fire Prevention Council (NFPC) and Civil Defence Executive Committee (CDEC) to promote greater safety and prevention awareness among the public.¹⁵⁵ At lower, localized levels, Town Councils also have the responsibility, under the Town Council Act, to work cooperatively with other government agencies and authorities in securing public safety, ensuring public order, and preventing disease or injury.¹⁵⁶

Country Overview

The Republic of Singapore is an island city state with a total land area of approximately 600 square kilometers (232 square miles). The main port is the largest in Southeast Asia and one of the busiest in the world, due to its key location at the southern tip of the Malay Peninsula along the Strait of Malacca, which connects the Indian Ocean and the South China Sea.¹⁵⁷

Singapore's population is comprised of approximately 5,685,800 people, according to 2020 government statistics. It is the third-most densely populated country in the world, following the Chinese territory of Macau and Monaco.¹⁵⁸ Singapore has a large number of foreign migrant workers, who comprise more than 1.6 million people. Official Singapore residents number 4,044,000 and hold a status of Singapore citizen or permanent resident.¹⁵⁹ The multiethnic population is comprised largely of Chinese (76.0%), followed by Malay (15.0%), then Indian (7.5%), and others (1.5%), per 2019 government data. The ethnic proportions have remained very stable, with each ethnic category varying less than 1% from the proportions of two decades ago.¹⁶⁰ This can be partially attributed to the government approach of managing the population's multiracial dynamics with the aim of social stability, particularly given the role that

racial tensions played in the creation of an independent Singapore in 1965 after the short-lived merger with Malaysia. The four official languages of Singapore are English, Chinese, Malay, and Tamil. Malay (Bahasa Melayu) is also the national language, though it is not widely spoken by many Singaporeans.¹⁶¹ English serves as the main working language.¹⁶²

The majority of the Singaporean populace (nearly 80%) dwells in urban areas, which house approximately 4,700 high-rise apartments and public housing estates. The republic also has a business district made up of hundreds of high-rise commercial buildings, with some exceeding a height of 280 meters (919 feet), mostly in its central business district.¹⁶³ The business district is visible in Photo 7.¹⁶⁴ Singapore is one of the world’s leading financial centers.¹⁶⁵



Photo 7: Singapore Business District

Approximately 30% of the island is less than 5 meters (m) (16 feet) above the Singapore Height Datum – the reference used for height measurement in engineering and mapping, based on the mean sea level measured at the Victoria Dock tide gauge from 1935-1937. Singapore was ranked as one of the most water-stressed countries in the world in 2015 by the Water Resources Institute. The institute anticipates that by 2040 Singapore may be one of eight countries in the world most vulnerable to disruptions in water supply. Demand for water is expected to double by 2061, when Singapore’s water agreement with Malaysia will end.¹⁶⁷ Water resources are further impacted by flooding during heavy rainfall and even dry spells. In 2021, Singapore’s Minister for Sustainability and the Environment, Grace Fu, identified two large challenges linked to climate change: “Our twin challenges are coastal floods ... (and) extreme rainstorms that could cause more intense inland flooding. So, we need a system that can help us manage both.”¹⁶⁸ Singapore imports more than 90% of its food and is, thus, vulnerable to changes in the global food supply; climate change will exacerbate this vulnerability through intense storms, flooding, and prolonged droughts.

Figure 6 shows observed and projected impacts of climate change on Singapore.¹⁶⁹

Disaster Overview

Geographically, Singapore lies outside the boundaries of the “Pacific Rim of Fire” and is not generally threatened by most natural disasters that cause mass destruction in the region, such as earthquakes and volcanic eruptions. However, the country has been affected by significant incidents, including disasters from technological hazards such as industrial or transport accidents and collapsed buildings.¹⁶⁶

Singapore is quite susceptible to the effects of climate change. The annual mean temperature increased from 26.9°C to 28.0°C, between 1980 and 2020. The mean sea level in the Straits of Singapore increased at the rate of 1.2 millimeters (mm) to 1.7mm per year from 1975 to 2009. Annual rainfall has increased at an average rate of 67 mm per decade from 1980 to 2019. Sea level rise is a significant concern for the low-lying, densely populated, coastal city state.

CLIMATE CHANGE IN SINGAPORE

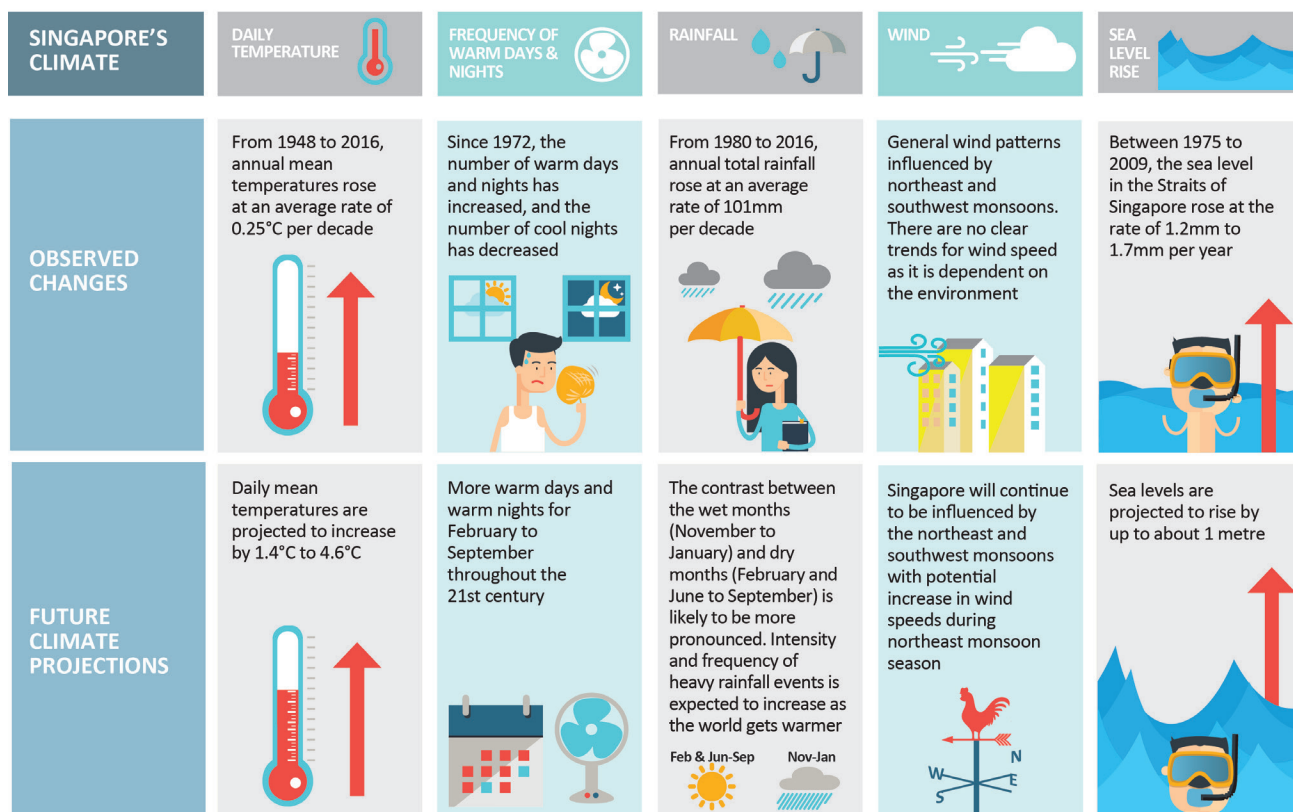


Figure 6: Observed and Projected Impacts of Climate Change on Singapore (2015 Study)

Singapore believes in being prepared for major disasters, and national preparedness plans are in place to ensure minimum disruption by any disaster to the community, environment, and infrastructure. Singapore welcomes all efforts to promote and institutionalize emergency preparedness among its people, while developing and exercising contingency plans for a range of probable disasters to be implemented by a variety of emergency agencies in close coordination. Where appropriate, Singapore serves as an international actor in humanitarian and disaster response through sharing their experiences and rescue resources with nearby countries in need of assistance.¹⁷⁰

Hazards

Singapore has very low exposure to natural hazards. In the international disaster database maintained by the Centre for Research on the Epidemiology of Disasters – which only lists disasters resulting in 10 or more deaths, affecting

100 or more people, or a declared state of emergency¹⁷¹ – the main disasters from natural hazards listed for Singapore are outbreaks of viral disease. The remaining large disasters listed are technological, including industrial or transportation accidents and building collapse.¹⁷² The worst technological disaster in terms of lives lost was the 1978 explosion of the Greek oil tanker *S.T. Spyros* that killed 76 people at Jurong Shipyard and that spurred development of improved safety measures.¹⁷³ While disasters causing mass casualties are scarce, Singapore does experience natural hazards with significant or frequent impact, particularly flooding and haze.

Flooding – Singapore commonly experiences flooding due to heavy rainfall, high tides, and drainage challenges in low-lying areas. Historically, 1954, 1969, 1978, 1980, 1984, and 1985 were years with major flooding. Two major floods in 1978 were particularly severe and resulted in at least seven reported

deaths.¹⁷⁴ From 2000-2015, flooding in Singapore damaged approximately 550 homes and resulted in economic damages of more than US\$23.8 million, but no lives were lost. Major flooding occurred in 2009 when the Bukit Timah Canal overflowed following heavy rains and caused major traffic congestion. In 2010 and 2011, flash floods in Orchard Road caused much damage to property, with floodwaters reaching up to 30 centimeters (cm) (1 foot) deep. From September to November 2013, three separate flash flood incidents affected Central and Southern areas. Floodwaters reached up to 50 cm (1.6 feet) deep.¹⁷⁵ Parts of the Ayer Rajah Expressway had to be closed to traffic following the 5 September 2013 flood that followed a thunderstorm.

Most recently, in April 2021, flash floods occurred during heavy rain. About 90% of Singapore's average monthly rainfall for the month fell during three hours in the western part of the country on 17 April. National water agency PUB said it issued flood risk warnings for more than 20 locations, including Sime Darby Centre, Bukit Timah Canal (Leng Kwang Baptist Church), Ulu Pandan Canal, and Sungei Pandan Kechil (NUS and AYE), though traffic remained passable, per PUB. The national water agency further stated that "prolonged heavy rain" fell over many areas of Singapore that afternoon, with water levels exceeding 90% capacity in several drains and canals. The heaviest rainfall of 161.4mm (6.35 inches) was recorded in western Singapore from 12:25pm to 3:25pm. "This amount corresponds to 91% of Singapore's average monthly rainfall in April and lies within the top 0.5% of maximum daily rainfall records since 1981," PUB added.¹⁷⁶

Haze / Transboundary pollution – Prolonged spells of haze and air pollution sometimes affect Singapore, often blowing in from Indonesia or Malaysia, with major events in 1972, 1997, and 2015. An early incident of significant haze started in the beginning of October 1972 and worsened daily until all of Singapore was "fog-bound" on 13 October 1972. Visibility was reduced such that motorists drove with full headlights on. The haze was attributed to local land cultivation

habits around Indonesia's Palembang area. On 20 February 1975, a red haze was reported over a large area of Singapore. It was attributed to smoke and ash particles from a fire in Johor Baru, Malaysia, and was reportedly caused by jungle clearing work for land development. On 27 October 1977, Singapore was blanketed in a smoky haze that was reportedly 366 m (1,200 feet) high and was blown in from forest fires in Sumatra, Indonesia. Poor visibility resulted in skyscrapers being invisible from short distances.¹⁷⁷ On 25 April 1983, haze and mist reduced visibility to less than 1 km (3,281 feet), with the cause believed to be forest fires in Kalimantan and central Sumatra, Indonesia. On 19 September 1987, haze reduced visibility to 2-3 km (1.5 miles) down from the usual 10-15 km (6-9 miles); this was, again, attributed to forest fires in Kalimantan. Haze was commonly experienced in the 2000s. On 18 September 1997, the Pollutant Standards Index (PSI) hit 226, an all-time high at that time, with visibility plummeting to a few hundred meters in western Singapore, the worst-affected area. On 21 June 2013, the three-hour Pollutant Standards Index (PSI) reached a high of 401, firmly in the hazardous range, and spurred a run on N95 and other respiratory masks. On 25 September 2015, hazardous levels of haze prompted the Ministry of Education for the first time to close all primary and secondary schools. Outdoor sports activities were also suspended, and major fast-food delivery halted.¹⁷⁸ Two significant regional summits on transboundary pollution were held in the 1990s, resulting in the 1995 ASEAN Cooperation Plan on Transboundary Pollution and the 1997 Regional Haze Action Plan.¹⁷⁹

Country Risk Profile

The Index for Risk Management (INFORM) Risk Index measures the risk of humanitarian crises across 191 countries. It provides a global, transparent tool for understanding the risk of humanitarian crises, in order to support proactive crisis management frameworks. It aims to aid decision making in service of an objective allocation of resources for disaster management

and coordinated actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.

INFORM is based on risk concepts published in scientific literature and envisages three dimensions of risk: 1) Hazards & Exposure, 2) Vulnerability, and 3) 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 situation, and the lack of coping capacity dimension considers factors of institutional strength.¹⁸⁰

Singapore is an island city-state with extremely low exposure to natural hazards. The mid-2021 INFORM relative ranking for Singapore's risk is 191 out of 191 countries, marking Singapore as the lowest risk of all countries surveyed. Singapore's overall INFORM risk score was 0.5, on a scale of 1 (low risk) to 10 (high risk), falling in the “very low” risk category. INFORM breaks down the overall risk score, each on the same scale of 1-10, by evaluating risk across three dimensions:

1. In the first dimension, Hazards & Exposure, Singapore received a score of 0.5/10, indicating very low risk. The indicator Singapore received the highest risk score for in this dimension was Epidemics, at 4.4/10.
2. In the second dimension, Vulnerability, Singapore received a score of 0.3/10, indicating very low risk. The indicator Singapore received the highest risk score for in this dimension was Food Security, at 2.0/10.
3. In the third dimension, Lack of Coping Capacity, Singapore received a score of 1.1, indicating very low risk. The indicator Singapore received the highest risk score for in this dimension was Access to Health Care, at 1.6/10.¹⁸¹

INFORM also has a new COVID-19 Risk Index, which aims to identify “countries at

risk from health and humanitarian impacts of COVID-19 that could overwhelm current national response capacity.” Singapore is assessed as being in the Low COVID risk class, based on a COVID risk of 2.5 on a scale of 1 (low risk) to 10 (high risk).¹⁸²

Pandemics (COVID-19)

As the world became aware of COVID-19 throughout January 2020, Singapore set up a Multi-Ministry Task Force (MTF) on 22 January 2020 to manage the national response. After China reported the first cases in Wuhan on 31 December 2019 to the WHO, Singapore's Ministry of Health (MOH) was screening travelers from Wuhan by 3 January 2020 and had started isolating travelers with pneumonia and recent travel to China by 20 January. The establishment of the task force in the following days was fortuitously timed, as the MTF was in place for Singapore's first COVID-19 case, confirmed on 23 January in a tourist from Wuhan.¹⁸³ In line with Singapore's whole-of-government approach to disaster risk and crisis management, the MTF directed the national-level, whole-of-government response to the outbreak to coordinate the community response and work together with the international community. MTF co-chairs came from MOH and the Ministry of National Development. Seven other ministries were represented among the task force members, and the Deputy Prime Minister served as advisor.¹⁸⁴

The MTF was also supported by the Homefront Crisis Executive Group (HCEG), chaired by the Permanent Secretary of the Ministry of Home Affairs (MHA), and comprised of senior representatives from all ministries. The HCEG is the body that coordinates responses during national emergencies, and it oversaw the whole-of-government response to the 1986 collapse of Hotel New World, the 1991 hijacking of a Singapore Airlines plane, after the 11 September 2001 terrorist attacks, and during the 2003 SARS outbreak.¹⁸⁵ The HCEG reports to the elected leadership for political direction, and it carries out the decisions of the

pandemic task force. While MTF provides a multi-ministry institutional structure, a whole-of-government response is also facilitated by a shared organizational culture and language across the public service. Singapore also benefited from its experience responding to the SARS outbreak in 2003, when the government developed a Disease Outbreak Response System Condition (DORSCON) framework.¹⁸⁶ The same DORSCON framework is used to coordinate all agencies in managing COVID-19.¹⁸⁷

Key COVID-19 response decisions included:¹⁸⁸

- 18 Feb 2020 – Rolling out the first of four Unity Budgets to support families, companies, the self-employed, and lower income people during the crisis.
- 20 Mar 2020 – Launching the Trace Together contact tracing app.
- 7 Apr 2020 – Instituting the first “circuit-breaker” measures, which closed workplaces and schools in a drastic lockdown in order to break the virus transmission.
- 13 Apr 2020 – All foreign worker dormitories put under lockdown, in response to the worsening COVID-19 situation in foreign worker dormitories. New dormitory cases peaked at 1,369 on 20 April. Approximately 28% of Singapore’s population are foreign workers.
- 14 Apr 2020 – Mask-wearing made mandatory. Three mask distributions done in the following months.
- 2 Jun 2020 – Phase One of reopening, as the “circuit breaker” lockdown was eased.
- 19 Jun 2020 – Phase Two of reopening. Throughout the summer, travel agreements formed with Malaysia, Brunei, New Zealand, and Hong Kong; all were dependent on controlled COVID-19 spread in those countries.
- 14 Sep 2020 – Distribution of Trace Together tokens begin to encourage people to check in only with the Trace Together app or token within several months at all popular venues (e.g., malls, restaurants, schools, workplaces, etc.).

- 21 Dec 2020 – The first vaccines arrive, and Singapore initiates vaccination drive with health workers.
- 28 Dec 2020 – Phase Three of reopening. More than 70% of local residents use the Trace Together app.
- 19 Jan 2021 – Pause instituted on reopening nightlife establishments, as COVID-19 cases increase and the first local cluster in months emerges.

As of 27 July 2021, 4,267,577 people had received at least the first dose of COVID-19 vaccination; out of these 4.2 million, 3,158,737 people had completed the full vaccination regimen.¹⁸⁹

As of 29 July 2021, Singapore reported 2,006 active cases of COVID-19. Up to that date, there had been a total of 64,706 cumulative cases, including 37 deaths.¹⁹⁰ After new cases peaked dramatically over the summer of 2020 then declined and held steady, new COVID-19 cases started increasing again somewhat at the beginning of July 2021. See Figure 7 for a graph depicting numbers of daily new confirmed COVID-19 cases in Singapore over most of the pandemic, from 1 March 2020 to 28 July 2021.¹⁹¹

National Policies, Plans, Frameworks, and Agreements

Operational DM Frameworks

Whole-of-Government Integrated Risk Management (WOG-IRM) Policy Framework

The Singapore government implements a cross-ministerial policy framework through a Whole-of-Government Integrated Risk Management (WOG-IRM) process for DRR and disaster management. Developed in 2004, in the wake of the SARS crisis, WOG-IRM is intended to identify risks that may impact strategic outcomes and to implement a process to analyze and manage those risks. The WOG-IRM now sits within the country’s overall WOG planning process to ensure that DRR and disaster

Daily new confirmed COVID-19 cases

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Our World
in Data



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

Figure 7: Daily New COVID-19 Cases in Singapore, 1 Mar 2020 - 28 Jul 2021

management are appropriately resourced and communicated.¹⁹²

The WOG-IRM approach seeks to improve risk awareness at multiple levels, not solely within the government but also among the general public. It incorporates medical response systems during emergencies, mass fatality management, risk reduction legislation for fire safety and hazardous materials, police operations, information and media management during crises, and public-private partnerships in emergency preparedness.¹⁹³ As such, top level oversight of the processes sits within a specialized body under the Prime Minister's Office (PMO). The PMO's Strategy Group, launched in 2015 to focus on and incubate all WOG planning and capabilities, houses the Centre for Strategic Futures (CSF), a think tank of sorts that has the freedom to act within and outside traditional bureaucratic structures to address perceived strategic risks. CSF is tasked with promoting WOG, developing and promoting risk management tools, cultivating the WOG network

and extending that network into academe and civil society, and considering "wildcard" strategic issues such as pandemics, cyber-attacks, and economic crises that have a disaster-like impact on Singapore's – and the region's – stability and security.¹⁹⁴

The WOG-IRM policy framework in Singapore operates in peacetime and in times of emergency. During peacetime operations, the "home team" consists of four fundamental agencies at the central government level. These four agencies are Strategic Planning Office (SPO), HCMC, the National Security Coordination Secretariat (NSCS), and the Ministry of Finance at the policy layer. SPO provides management and direction as the principal platform to direct and evaluate the overall development of the WOG-IRM framework. During peacetime, SPO assembles meetings four times a year for the permanent secretaries from the various ministries across government. In a crisis, the HCMS provides a ministerial committee accountable for all crisis

situations in Singapore.¹⁹⁵

In the WOG-IRM framework, HCMC is headed by MHA. In peacetime, MHA is the primary policy-making governmental body for safety and security. In case of a national disaster, MHA leads at the strategic level of incident management via the HCMS under which SCDF is appointed Incident Manager (IM). HCMC oversight includes the administrative HCEG, chaired by the Permanent Secretary for MHA; HCEG is in charge of planning and managing all categories of disasters. Operationally, there are various functional inter-agency crisis management groups with detailed duties, unified by the various governmental crisis management units. At the tactical layer, there are the IMs who oversee service delivery and coordination.¹⁹⁶ Figure 8 details the WOG-IRM framework by layers, with tactical-level agencies identified.¹⁹⁷

Singapore’s emergency preparedness program and disaster management initiatives are supported by various laws that tend to address a single threat or hazard, such as fire or pollution, or prescribe agencies and roles for emergencies, such as the Civil Defence Act. MHA is the supervisory authority for most instances¹⁹⁸

although MOH gains authorities in case of a public health emergency.¹⁹⁹ The main legislation supporting emergency preparedness and disaster management activities in Singapore includes:

Civil Defence Act 1986– This Act lays out the constitution, organization, and administration of SCDF. It defines a civil emergency and provides the legal framework for the declaration of a state of emergency and the deployment of operationally ready national service personnel to support SCDF.

Fire Safety Act 1993– This Act provides the legal framework to impose fire safety requirements on commercial and industrial premises and prescribes the involvement of the management and owners of such premises in emergency preparedness against fires.

Civil Defence Shelter Act 1997– This Act provides a legal framework to require all new houses and flats and suitable buildings owned by statutory boards to be provided with civil defense shelters and to designate any part of any building as civil defense shelters for use by persons needing to take refuge therein during a state of emergency, and to regulate the use of civil defense shelters.²⁰⁰

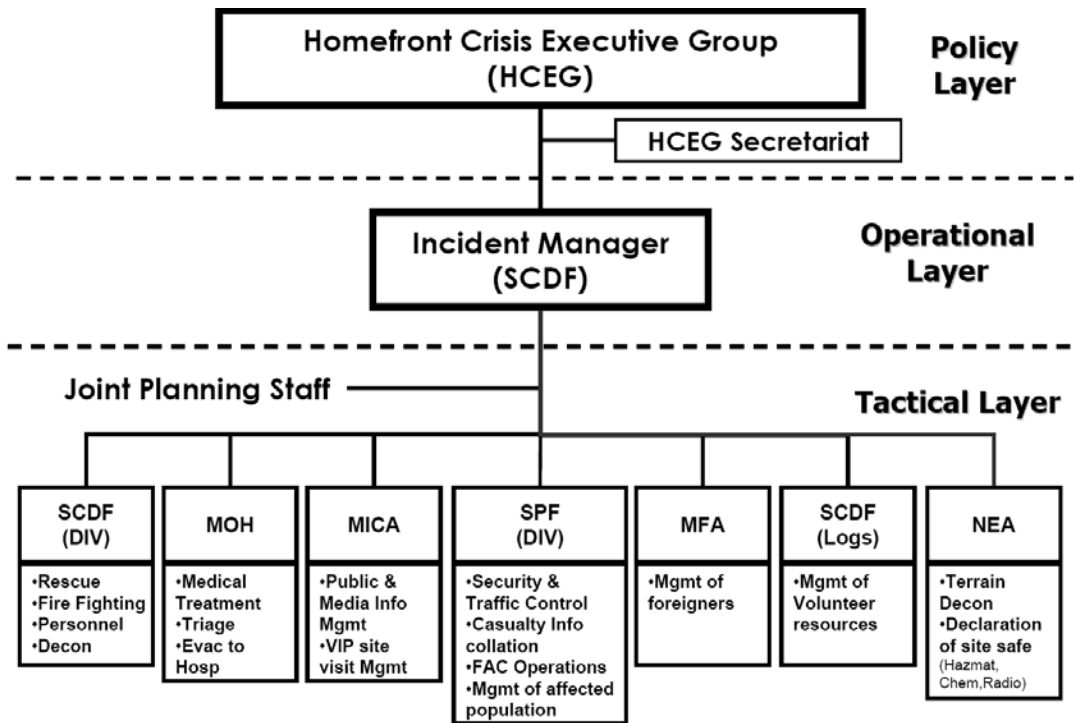


Figure 8: Singapore Whole-of-Government Framework for Incident Management

Infectious Disease Act – This act provides provisions for and deals with the prevention and control of infectious diseases. It provides for the notification of specified diseases, empowers the Director of Medical Services to order medical examination or treatment and to prohibit public meetings likely to spread disease. The Act also allows the Minister of Health to order vaccinations and to declare areas to be “infected” as necessary.²⁰¹

There is an overarching national contingency plan that is augmented by a national tsunami response plan. Both are under the supervisory authority of MHA and SCDF.²⁰² These two key plans include:

Operations Civil Emergency (Ops CE) Plan – This plan is the national contingency plan for managing large scale civil and natural disasters. It lays out the roles and functions for agencies involved in emergency response, and it organizes them into a joint planning staff to address structural collapse, aircraft incidents, hazardous materials incidents, terrorism, major fires, and acts involving Chemical, Biological, Radiological, and Explosive (CBRE) agents. SCDF is the agency in charge of managing and activating this plan.²⁰³

National Tsunami Response Plan - The National Tsunami Response plan serves as a multi-agency government effort comprising an early warning system, tsunami mitigation and emergency response plans, and public education.²⁰⁴

National Disaster Management Agency

Ministry of Home Affairs (MHA)

MHA is the primary policy and governing authority responsible for civil defense emergency preparedness and disaster management in Singapore.²⁰⁵ MHA oversees two emergency agencies, SCDF²⁰⁶ and the Singapore Police Force (SPF),²⁰⁷ which are responsible for planning, coordination, and implementation of DRR programs and activities in addition to other public safety roles.²⁰⁸

For civil emergencies, SCDF is the primary agency for the implementation of disaster management activities.

Primary responsibilities of the SCDF include:

- Emergency response (fire, rescue, and medical)
- Fire safety enforcement
- Civil defense shelter management
- Operate the public warning system²⁰⁹

SCDF has an elite rescue team, the DART, to carry out complex rescue operations, including tunneling, Mass Rapid Transport rescue, and high-rise rescue. DART is outfitted with state-of-the-art equipment and has teams using rescue dogs.²¹⁰

SPF is responsible for security, investigation, and traffic management as well as coordination matters. In case of emergency, SPF supports SCDF by undertaking:

- General security
- Traffic management
- Casualty information management
- Maintaining critical infrastructure security²¹¹

For public health emergencies, MOH is the primary agency for the implementation of disaster management activities. Its powers include:

- Ordering diagnosis and treatment during epidemics
- Epidemiological surveys
- Treatment and closure of premises
- Ordering closure of ports of entry
- Ordering vaccinations²¹²

During the management of disasters, additional government agencies will act in support. They include:

- Ministry of Communication and Information [MCI; formerly the Ministry of Information, Communications, and the Arts (MICA)]
- Ministry of Foreign Affairs (MFA)
- The Ministry of Community Development (MCCY)
- The Ministry of Sustainability and the Environment (MSE)

- National Environment Agency (NEA)
- Meteorological Service Singapore (MSS)
- Public utilities agencies, specifically “PUB, the national water agency” and the Energy Market Authority

Humanitarian Action Policy

The initial responders in any emergency are the disaster-affected people and their local governments. When the scope of the emergency overwhelms local and national capacity to respond, central governments may request international humanitarian support either from other states or from the international humanitarian community. Even when external players join a response, the national legal system of the affected state is the main regulatory framework to ensure the protection of disaster-affected people. This framework is undergirded by UN resolutions, binding and non-binding international humanitarian and human rights law, and the humanitarian principles of humanity, neutrality, impartiality, and independence.

Regulation of international humanitarian action in the Asia-Pacific region can be categorized as:

- Binding regulatory agreements between or among states
- Non-binding regulatory agreements between or among states; and
- Voluntary guidelines governing humanitarian action of state and non-state actors (addressed in the following section)

Binding Agreements

There are two binding agreements that regulate disaster preparedness and response action in the region:

- ASEAN Agreement on Disaster Management and Emergency Response
- South Asian Association for Regional Cooperation (SAARC) Agreement on Rapid Response to Natural Disasters

Singapore is not a member of SAARC and, thus, is not a party to SAARC’s Agreement on

Rapid Response to Natural Disasters. Singapore may interact with SAARC member-states who are party to the Agreement, but this will not impact Singapore’s own operations.

ASEAN Agreement on Disaster Management and Emergency Response (AADMER)

AADMER is a legally-binding, regional, multi-hazard policy framework for cooperation, coordination, technical assistance, and resource mobilization in all aspects of disaster management in the 10 ASEAN member-states. AADMER was signed by the ASEAN member-states in 2005 and entered into force in December 2009. The objective is to provide an effective mechanism to achieve substantial reduction of disaster losses in terms of lives and in social, economic, and environmental assets, and to jointly respond to emergencies through combined national efforts and strengthened regional and international cooperation.²¹³ The first two AADMER Work Programmes (2010-2015 and 2016-2020) translated the intent of AADMER into a comprehensive action plan that built the ASEAN-ERAT, DELSA, and SASOP initiatives. Based on this work, the region made significant progress on risk assessment, disaster prevention and mitigation, disaster preparedness and emergency response, disaster recovery, and knowledge and innovation.

The AADMER Work Programme 2021-2025 lays out a plan to build capacity, drive innovation, mobilize resources, expand partnerships, and strengthen coordination among ASEAN member-states. It incorporates provisions of ASEAN Vision 2025 on Disaster Management, ASEAN Declaration on One ASEAN One Response, the ASEAN Information and Communications Technology (ICT) Roadmap on Disaster Management for 2025, and other regional agreements. It aligns with the Sendai Framework for Disaster Risk Reduction 2015-2030, the Paris Agreement on Climate Change, and 2030 Agenda on Sustainable Development. By 2025, AADMER will address five priorities:

- Risk Assessment and Monitoring
- Prevention and Mitigation

- Preparedness and Response
- Resilient Recovery
- Global Leadership

The AADMER Work Programme 2021-2025 also adopts a web-based Monitoring and Evaluation system that will allow the ASEAN Committee on Disaster Management (ACDM) to systematically monitor implementation progress and facilitate data collection.²¹⁴

Through its Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP), AADMER enables ASEAN Member States to mobilize and deploy resources for emergency response throughout the region. The SASOP lays out the guidelines for the operation of the ASEAN Coordinating Centre for Humanitarian Assistance (AHA Centre), regulates regional standby arrangements for disaster and emergency response, and provides for use of military and civilian personnel, transportation and communication equipment, facilities, goods, and services, and for the coordination of joint disaster relief and emergency response operations.

Non-Binding Regulations

Several non-binding regulatory agreements that impact disaster response in the Asia-Pacific are:

- UN General Assembly resolution 46/1821
- International Federation of the Red Cross Red Crescent Societies (IFRC) Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance
- World Customs Organization Resolution on the Role of Customs in Natural Disaster Relief

UN General Assembly Resolution 46/182, unanimously adopted in 1991, defines the role of the UN in coordinating international humanitarian assistance when the government of an affected state requests external support.

The resolution establishes a number of UN mechanisms to strengthen the effectiveness of international humanitarian action; these include the Central Emergency Response Fund (CERF), the Emergency Relief Coordinator (ERC), the Inter-Agency Standing Committee (IASC), and coordinated appeals for international assistance.

International Federation of Red Cross and Red Crescent Societies (IFRC) Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance (also known as the IDRL guidelines) were adopted in 2007. They are a set of recommendations on how governments can best prepare national laws and plans so that they coordinate with and facilitate international disaster law. The Guidelines touch upon requesting and receiving international assistance, issuing visas and work permits to international humanitarian personnel, customs clearance of relief items, taxation, and obtaining domestic legal personality or legal status.

World Customs Organization Resolution on the Role of Customs in Natural Disaster Relief, adopted in 2011, highlights the need for disaster preparedness in customs administrations. It encourages states to implement measures expediting and facilitating the customs clearance of relief consignments.²¹⁵

Protection in Humanitarian Action Framework

A body of voluntary guidelines governs relations among humanitarian actors and between humanitarian actors and disaster-affected people. These guidelines apply to a variety of stakeholders within the international humanitarian community. The below list focuses on some of the most important humanitarian guidelines but is not exhaustive.

- Inter-Agency Standing Committee (IASC) Transformative Agenda Protocols
- Code of Conduct for the Red Cross/Red Crescent (RCRC) Movement and non-governmental organizations (NGO) in

Disaster Relief

- Sphere Humanitarian Charter and Minimum Standards in Humanitarian Response (Sphere Handbook)
- IASC Operational Guidelines on the Protection of Persons in Situations of Natural Disasters
- Guiding Principles on Internal Displacement
- Oslo Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief
- Guidelines on the Use of Foreign Military and Civil Defence Assets to Support United Nations Humanitarian Activities in Complex Emergencies (MCDA Guidelines)
- Recommended Practices for Effective Humanitarian Civil-Military Coordination of Foreign Military Assets (FMA) in Natural and Man-Made Disasters
- Asia-Pacific Regional Guidelines for the Use of Foreign Military Assets in Natural Disaster Response Operations
- Environmental Emergencies Guidelines
- IASC Gender Handbook in Humanitarian Action
- IASC Guidelines for Gender-Based Violence Interventions in Humanitarian Settings

The IASC Transformative Agenda Protocols are intended to strengthen humanitarian action through greater predictability, accountability, responsibility, and partnership. One of the major adaptations of the Humanitarian Reform process was the adoption of the Cluster Approach to humanitarian coordination. The IASC Guidance Note on “Using the Cluster Approach to strengthen humanitarian response” (2006) spells out the responsibilities of global and country-level sector/cluster leads, provides guidance on application of the Cluster Approach in new emergencies, and reinforces partnerships and complementarity. Additional protocols under the Transformative Agenda address leadership (2014), activation of the humanitarian system (2012), coordination of clusters at a country level (2015), and additional guidance on accountability, preparedness, and assessment.

The Code of Conduct for the Red Cross and Red Crescent (RCRC) Movement and Non-Governmental Organizations (NGO) in Disaster Relief is a voluntary code adhered to by the RCRC Movement and participating NGOs. It establishes 10 principles that signatory agencies commit to follow in their disaster response work and describes the relationships that agencies should seek with affected communities, donors, host governments, and the UN system.

The Sphere Humanitarian Charter and Minimum Standards in Humanitarian Response (Sphere Handbook) is a set of common principles and universal minimum standards for the delivery of humanitarian assistance. It improves both the quality of assistance provided to people affected by disasters and the accountability of humanitarian actors to affected people, donors, and partners. Sphere standards guide humanitarian action across four primary areas: water supply, sanitation, and hygiene promotion; food security and nutrition; shelter, settlement, and non-food items; and health action. There is also a series of Sphere companion standards that include: education in emergencies, child protection, livestock, and other economic issues. The current edition of the Sphere Handbook is dated 2018. For more information: <https://spherestandards.org/>

The IASC Operational Guidelines on the Protection of Persons in Situations of Natural Disasters promote and facilitate a rights-based approach to disaster relief. The Operational Guidelines, published in 2011, are based on existing human rights law and humanitarian accountability standards.

The Guiding Principles on Internal Displacement, established by the UN in 1998, identify the rights and guarantees of the forcibly displaced, including their protection and assistance during displacement, as well as during return or resettlement and reintegration.

The “Oslo Guidelines” on the Use of Foreign Military and Civil Defence Assets in Disaster Relief establish the basic framework for improving the effectiveness and efficiency in the use of foreign Military and Civil Defence

Assets (MCDA) in international disaster relief operations. MCDA should be requested only where there is no comparable civilian alternative and only when MCDA meets a critical humanitarian need. If MCDA are required, the Oslo Guidelines outline the procedures for requesting and coordinating MCDA. The Guidelines were released in 1994 and revised in 2007.²¹⁶

The “MCDA Guidelines” of March 2003 (revised in January 2006) is a complimentary guide to the Oslo Guidelines in that it examines the use of foreign military assets in less than permissive operating environments. The Guidelines focus on when international military and civil defense personnel, equipment, supplies, and services can be used, how they should be used, and how UN agencies should interface, organize, and coordinate with MCDA in complex or other large-scale emergencies.²¹⁷

The Recommended Practices for Effective Humanitarian Civil-Military Coordination of Foreign Military Assets (FMA) in Natural and Man-Made Disasters of September 2018 supplements existing UN-CMCoord guidelines. It captures the maturation of civil-military coordination and the relationship between civilian and military actors during disaster relief and other humanitarian emergencies. The intent is to enumerate and encourage principled humanitarian action through effective civil-military interaction and improve the deployment, employment, and transition of foreign military support.²¹⁸

The Asia-Pacific Regional Guidelines for the Use of Foreign Military Assets in Natural Disaster Response Operations reinforce the principles of the Oslo Guidelines and tailor them to the unique civil-military coordination context of Asia and the Pacific. They were established in 2011 and are the outcome of the Asia-Pacific Conferences on Military Assistance to Disaster Relief Operations (APC-MADRO). Sixteen countries from across the Asia-Pacific region participated in their drafting.

Environmental Emergencies Guidelines focus on the roles and responsibilities of regional

and international institutions and frameworks when responding to the environmental impacts of large scale, sudden-onset disasters, complex emergencies, and industrial accidents. They were jointly developed by United Nations Environment and OCHA and originally issued in 2009, revised in 2017.

The IASC Gender Handbook in Humanitarian Action (2006) establishes standards for the integration of gender issues from the outset of an emergency so that humanitarian services reach their target audience and have maximum impact. The IASC Guidelines for Gender-Based Violence in Humanitarian Settings (2005) enable governments, humanitarian organizations, and communities to establish and coordinate a set of minimum multi-sectoral interventions to prevent and respond to gender-based violence during the early phase of an emergency.²¹⁹

Aid Policy

Singapore is an ASEAN member-state and therefore adheres to the established ASEAN Aid Policy. The AHA Centre is the first point of contact for ASEAN member-states in the event of a disaster. The AHA Centre’s Executive Director will establish a coordination line with the Secretary-General of ASEAN when his/her role as the ASEAN Humanitarian Assistance Coordinator (AHAC) is activated in the event of large-scale disasters or pandemics.²²⁰

The AHA Centre is governed by NDMO representatives from all 10 ASEAN member-states in their capacity as the ASEAN Committee on Disaster Management (ACDM) representatives and ASEAN National Focal Points. The “One ASEAN, One Response” declaration of February 2018 reaffirms AADMER as the main regional policy foundation for ASEAN member-states’ actions on disaster response. Thus, under AADMER and ASEAN-ERAT, Singapore participates in regional mobilization and earmarking of civilian and military assets and capabilities for HADR. Eventually, “One ASEAN, One Response” will form the basis of member-states’ extra-regional disaster response policy.²²¹

Established in 2011, the AHA Centre is responsible for the operational coordination of all activities envisaged under AADMER. The AHA Centre facilitates cooperation and coordination among the ASEAN member-states and with relevant UN and international organizations to promote regional collaboration. AHA Centre offers a range of tools and services, including trainings and capacity building of ASEAN NDMO and deployment of emergency response teams. ASEAN Disaster Monitoring and Response System (DMRS) and the ASEAN Disaster Information Network (ADInet) provide monitoring services and disaster information to NDMOs through web-based facilities. The AHA Centre also manages an inter-agency partnership framework between ASEAN and seven major international NGOs, called the AADMER Partnership Group (APG) to promote a civil-society approach to the implementation of AADMER. The Secretariat of AHA Centre is in Jakarta, Indonesia.²²² Figure 8 shows the homepage dashboard of ADInet.²²³

ASEAN Vision 2025 on Disaster Management is the regional organization’s policy document to move ASEAN forward on transforming disaster management in the region and globally. Moreover, its components are intended to help

make progress toward the Sendai Framework Goals for 2030 by reducing regional disaster risk and losses within the work prescribed under AADMER. The Vision 2025 program includes a call for member-states to implement political, social, and economic structures that increase funding contributions to the AHA Centre by both public entities and private stakeholders. To a very great extent, this will require Singaporean businesses to participate in business continuity planning and to contribute to regional disaster risk reduction projects.²²⁴

Government Disaster Response Plan

In Singapore, the lead agency for disaster response is SCDF, under MHA. SCDF has a workforce of about 2,000 regular officers, 3,300 National Service personnel, and 9,800 Operationally Ready National Service (ORNS) personnel;²²⁵ the 5,300 regular and National Service personnel are grouped under Operations and Resilience, Future Technology and Public Safety, Strategy and Corporate Services, and the four operational divisions as shown in the organigram in Figure 9.²²⁶ Operational frontline personnel generally are specialists in fire-fighting, rescue, hazardous materials, and

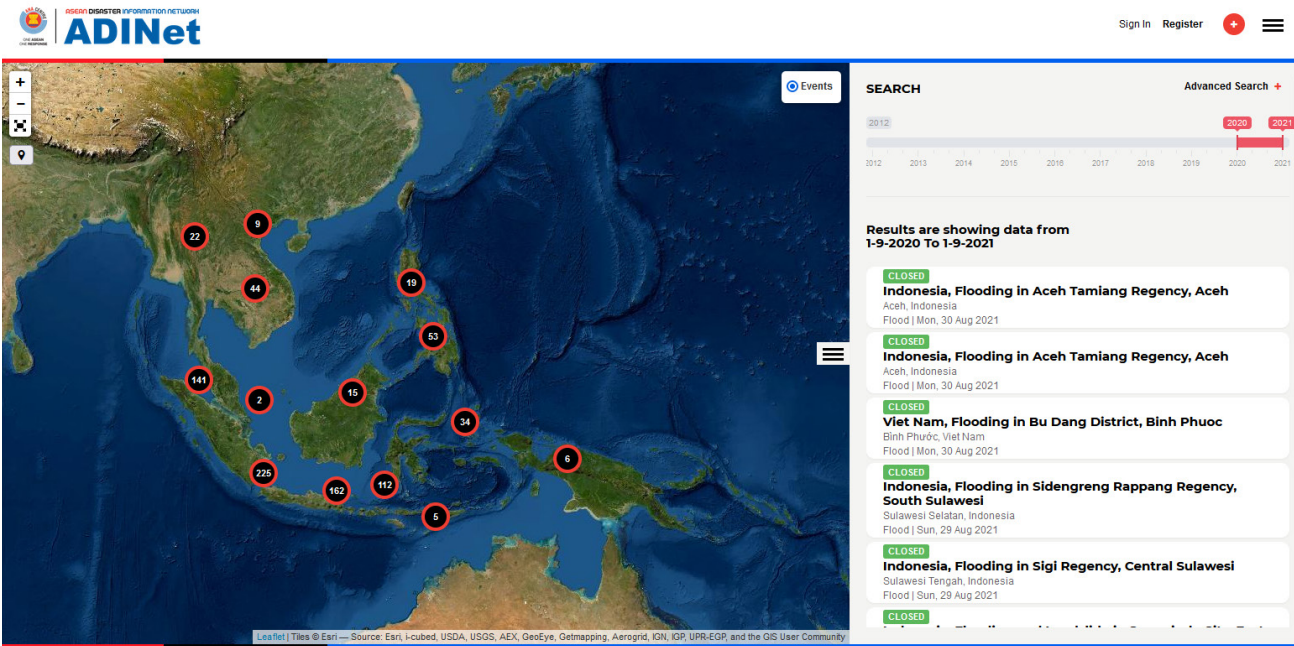


Figure 9: ADInet Homepage Displays Disaster Information

paramedical skills. While the HQ SCDF plans and controls all civil defense activities, the execution of operations is undertaken by the Division Commander and frontline personnel. Each of the four Civil Defence Division (CDD) HQs is commanded by a Division Commander. SCDF's 14 fire stations provide the resources for incident management on the ground. Satellite Fire Posts (SFP) have also been established for firefighting and emergency response enabling faster response to incident sites. Finally, SCDF took over marine firefighting and rescue from the Maritime Port Authority in 2012, and the Marine Division is a separate HQ from other CDDs.

SCDF has 3 training establishments:

- Civil Defence Academy (CDA)
- National Training Service Institute (NSTI)
- Home Team Tactical Centre (HTTC)

CDA houses high-tech training facilities such as computer-controlled simulators, and a nine-story firefighting and rescue training tower. These provide indoor and outdoor training in firefighting, rescue, paramedical, and other emergency functions to trainees ranging from full-time civil defense national service personnel

and regular staff to members of the public and foreign trainees. Advanced courses address firefighting, USAR techniques, and hazmat mitigation at the international level. NSTI provides basic training to all newly enlisted full-time Civil Defence National Service personnel before they are sent to CDA and then deployed in various CDDs. HTTC was jointly developed by SCDF and SPF to provide training simulations and scenarios customized for the individual officer, firefighter, and rescuer, or for inter-agency operations in major disasters and terrorist attacks. The center also allows greater SCDF-SPF coordination.²²⁷

SCDF has a well-developed disaster response framework. In the event of any major disaster, SCDF will activate the national response plan, the Ops CE Plan, which outlines the work of SCDF and supporting agencies in the management of an incident. Under this plan, the SCDF Commissioner is the Incident Manager (IM) and is in overall charge of multi-agency response.

Under the Ops CE Concept of Operations:

- IM will command, control, and coordinate the entire operations through the Tactical HQ
- Agencies from various government bodies

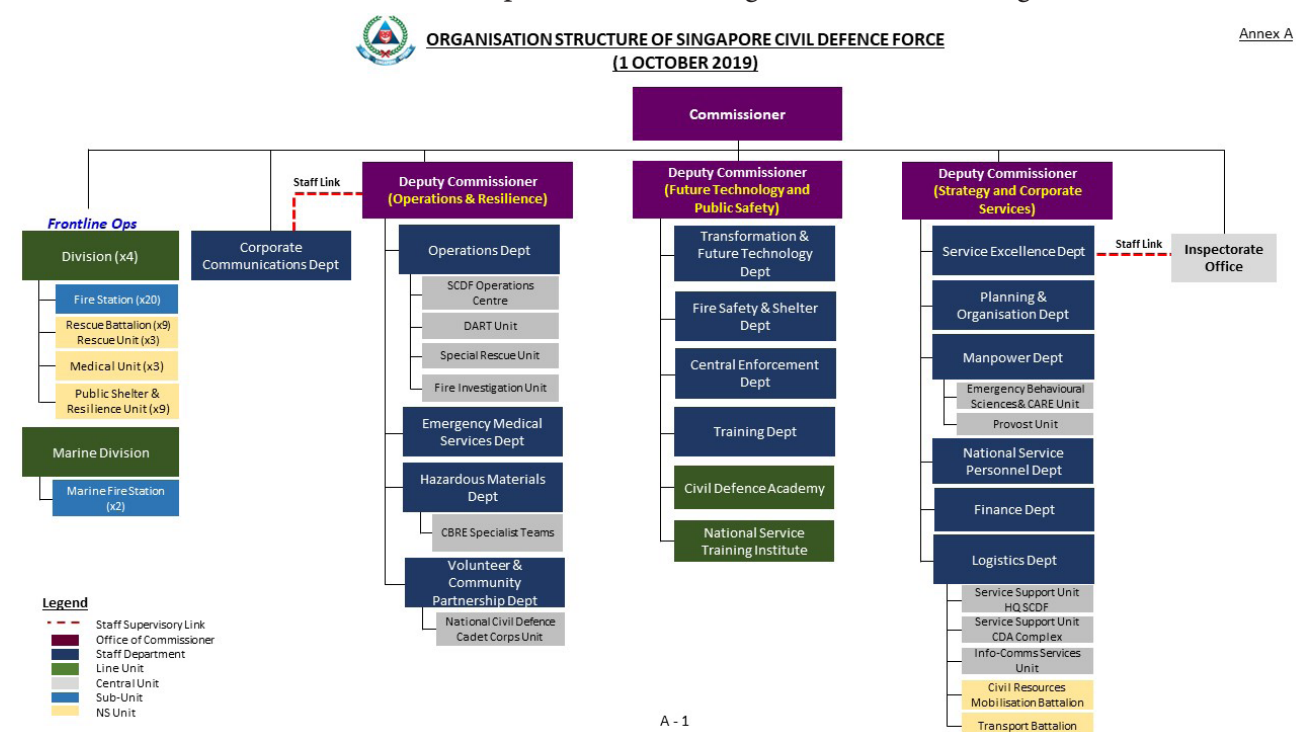


Figure 10: SCDF Organization Structure

- will adopt a multi-agency approach around SCDF, which is assisted by a group of specialists from various government agencies known as the Joint Planning Staff
- Agencies’ ground forces are under Operational Command of the IM
 - IM will be guided by HCEG at MHA; HECG will provide policy guidance to the IM.²²⁸

Singapore also has a response plan for international disasters. Under this plan, SCDF maintains the Operation Lionheart standby contingent ready 24/7/365. This contingent is prepared to provide USAR or humanitarian relief assistance overseas.²²⁹ To maintain its readiness, the contingent goes through periodic recertification by INSARAG as a heavy USAR team. The contingent comprises officers from SCDF’s DART, fire and rescue specialists and paramedics, a Hazardous Materials assessment team, officers specializing in logistics and service support, and other National Service personnel as appropriate.²³⁰

Singapore’s emergency preparedness, DRR, and disaster management activities are undertaken based on the following principles:

- Man-made disasters can be prevented and their consequences minimized through a set of comprehensive regulations on fire

and building safety, coupled with strict enforcement

- Emergency and contingency plans should be developed to deal with disaster should they occur; such plans should also be tested and honed through regular exercises and drills
- The community should be educated on the need for and importance of emergency preparedness; where possible, they should also be involved in exercises, training, and physical preparations
- Emergency response and management of disasters should be a coordinated multi-agency effort; all available expertise and resources should be coordinated and swiftly channeled to the disaster site to maximize the chances of survival of the injured and to minimize damage to infrastructure
- Restoration work and the rehabilitation of the injured should be an integral part of the total disaster management program.²³¹

Government Agencies

Table 1 is a list of contact information for Singapore’s government agencies and their potential roles in emergency response. Unless otherwise noted, all information is from the Singapore Government Directory.²³²

Agency	Resource
Ministry of Communications and Information (MCI) 140 Hill Street 4 th -6 th Story Old Hill Street Police Station Singapore 179369 Tel : 1800-837-9655 (toll-free) Fax: +65 6837 9480 http://www.mci.gov.sg Email: MCI_Connects@mci.gov.sg	MCI oversees information technology, cyber, media, and design sector development as well as the government’s information and public communication policies. The Public Communications Division (PCD) provides ministries with customised support, analyses and addresses public communications from a whole-of-government perspective, and provides strategic communications support in times of crisis. PCD roles include engaging the arts and media clusters during crises and supporting ministries and agencies in crisis information management and timely dissemination of information.
Ministry of Culture, Community, and Youth (MCCY) 140 Hill Street, #02-00/#03-00 Old Hill Street Police Station Singapore 179369 Tel: +65 6338 3632 Fax: +65 6837 9459 http://www.mccy.gov.sg	MCCY seeks to inspire Singaporeans through the arts and sports, deepen a sense of identity and belonging to the nation, strengthen community bonds, engage youths, and promote volunteerism and philanthropy, and to build a caring society. It oversees registration and cooperation among civil society organizations.

Table 1: Government Ministries in Singapore

Agency	Resource
Ministry of Defence (MINDEF) 303 Gombak Drive off Upper Bukit Timah Road MINDEF Building Singapore 669645 Tel: 1800-367-6767 http://www.mindef.gov.sg/ Email: MINDEF_Feedback_Unit@defence.gov.sg	The mission of MINDEF and SAF is to enhance Singapore's peace and security through deterrence and diplomacy, and security response, when necessary. SAF participates in peace support and HADR missions at both regional and international levels.
Ministry of Education (MOE) 1, North Buona Vista Drive Singapore 138675 Tel: +65 68722220 Fax: +65 67755826 http://www.moe.gov.sg	MOE formulates and implements education policies on education structure, curriculum, pedagogy, and assessment. It oversees the management and development of government-funded schools, and the Institute of Technical Education, polytechnics, and universities. The Safety, Security, and Emergency Branch's Security and Emergency Plans Section sits under MOE's Infrastructure and Facility Services Division.
Ministry of Finance (MOF) 100 High Street #10-1 and #06-03 The Treasury Singapore 179434 Tel: 1800-226-0806 Fax: +65 6332-7435 http://www.mof.gov.sg	MOF's goal is to collaborate with industry experts to make Singapore a world-class financial and business hub. Given the rapid rate of technological development and a fast-moving environment, regulatory policies and statutes are under active review to ensure they remain relevant to the business and financial environment. The Security and Resilience Programmes Directorate oversees the program budgets of security ministries (MHA, MINDEF, and MFA) as well as agencies whose programs contribute to strengthening national resilience.
Ministry of Foreign Affairs (MFA) 1 Sherwood Road Tanglin Singapore 248163 Tel: +65 6379 8000 Duty Office: +65 6379 8000 <u>OR</u> 6379 8855 Fax: +65 6474 7885 http://www.mfa.gov.sg/ Email: mfa@mfa.sg	MFA Directorates deal with political, consular, and economic matters. The International, Social, and Humanitarian Issues Branch of the International Organisations Directorate oversees relationships with UN agencies and other organizations involved in global humanitarian and disaster response. During an emergency in Singapore, MFA will work with foreign diplomatic missions in Singapore to address the needs of foreigners within Singapore.
Ministry of Health (MOH) College of Medicine Building 16 College Rd Singapore 169854 Tel: +65 6325 9220 Fax: +65 6224 1677 http://www.moh.gov.sg Email: moh_info@moh.gov.sg	Through MOH, the government manages the public healthcare system. The Emergency Preparedness and Response (EPR) Division of the Crisis Strategy and Operations Group sits under MOH HQ's Policy and Corporate Group. EPR is tasked with developing contingency plans, building capabilities, maintaining readiness, and coordinating operations in response to communicable disease outbreak, or civil or national emergencies.
Ministry of Home Affairs (MHA) New Phoenix Park 28 Irrawaddy Road Singapore 329560 Tel: 64787010 Fax: 62546250 http://www.mha.gov.sg Email: mha_feedback@mha.gov.sg	MHA is the overarching lead agency for policy and international cooperation for disaster response. SCDF is the implementing agency or incident manager. SCDF is a uniformed organization whose main roles are firefighting, rescue and emergency medical services, mitigating hazardous materials incidents, and formulating, implementing, and enforcing regulations on fire safety and civil defense shelter matters. ²³³

Table 1: Government Ministries in Singapore (cont)

Agency	Resource
Ministry of Law (MINLAW) 100 High Street #08-02 The Treasury Singapore 179434 Tel: 1800-CALL-LAW (1800 2255 529) Fax: +65 6332 8842 http://www.mlaw.gov.sg/	The Ministry of Law plays the following key roles: • To formulate and review legal, intellectual property, land, insolvency, public trustee, moneylending, pawn broking, legal aid, and community mediation policies, as well as legislation and strategies under MINLAW’s purview; • To provide legal and policy input for other Ministries’ proposed Bills and programmes; • To develop the legal services, alternative dispute resolution and intellectual property sectors; and • To regulate and license all law practice entities and register foreign-qualified lawyers in Singapore.
Ministry of Manpower (MOM) 18 Havelock Road #07-01 Singapore 059764 Hotline: 6438 5122 http://www.mom.gov.sg	The MOM mission is to develop a productive workforce and progressive workplaces, for Singaporeans to have better jobs and a secure retirement. MOM also addresses the issue of workplaces’ employment practices and organizational cultures. The Occupational Safety and Health Division incorporates not only a department for workplace health and safety but also the Major Hazards Department whose purview is the assess and investigate safety, health, and environment issues related to workplaces dealing with hazardous materials or posing a potential risk to the public.
Ministry of Manpower (MOM) 18 Havelock Road #07-01 Singapore 059764 Hotline: 6438 5122 http://www.mom.gov.sg	The MOM mission is to develop a productive workforce and progressive workplaces, for Singaporeans to have better jobs and a secure retirement. MOM also addresses the issue of workplaces’ employment practices and organizational cultures. The Occupational Safety and Health Division incorporates not only a department for workplace health and safety but also the Major Hazards Department whose purview is the assess and investigate safety, health, and environment issues related to workplaces dealing with hazardous materials or posing a potential risk to the public.
Ministry of National Development (MND) 5 Maxwell Road #21-00 & #22-00 Tower Block MND Complex Singapore 069110 Tel: 62221211 Fax: 63257254 http://www.mnd.gov.sg Email: mnd_hq@mnd.gov.sg	MND is the key government ministry responsible for national land use planning and development. Its trifold mission is: • Develop world-class infrastructure • Create a vibrant and sustainable living environment • Build rooted and cohesive communities. MND guides Singapore’s land use planning and urban development, and it works with the construction industry to ensure a safe, sustainable built environment. In addition, it oversees industries involved in maintaining standards for food safety and animal and plant health.
Ministry of Social and Family Development (MSF) MSF Building 512 Thomson Road Singapore 298136 Tel: 63555000 Fax: 63536695 http://www.msf.gov.sg	MSF develops the “heart-ware” for Singapore through policies, community infrastructure, programs, and services. Its mission is to nurture a resilient and caring society that can overcome challenges together.

Table 1: Government Ministries in Singapore (cont)

Agency	Resource
Ministry of Sustainability and the Environment (MSE) 40 Scotts Road #24-00 Environment Building Singapore 228231 Tel: 67319000 Fax: 67319456 https://www.mse.gov.sg Email: mse_feedback@mse.gov.sg	MSE's mission is to ensure a clean, sustainable environment, and supply of water and safe food. The long-term goal is environmental sustainability and climate resilience among both corporations/businesses and society at large. Two of its statutory boards are the National Environment Agency (NEA) and PUB, the national water agency; both are the regulatory bodies that oversee utilities and their ecological impacts. MSE maintains Singapore's global partnerships to plan for and mitigate the impacts of climate change
Ministry of Trade and Industry (MTI) 100 High Street #09-01 The Treasury Singapore 179434 Tel: 62259911 Fax: 63327260 http://www.mti.gov.sg Email: mti_email@mti.gov.sg	MTI promotes economic growth and seeks to create good jobs, to enable Singaporeans to improve their lives. The strategies are derived from Singapore's general philosophy of economic management, adherence to a free market economic system, and active pursuit of outward-oriented economic policies.
Ministry of Transport (MOT) 460 Alexandra Road #39-00 & #33-00 Storeys mTower Singapore 119963 Tel: 62707988 Fax: 63757734 http://www.mot.gov.sg Email: mot@mot.gov.sg	MOT's mission is to strengthen Singapore's transportation connectivity and develop the transport sector's potential to advance economic competitiveness and quality of life. MOT objectives include responsive to changes in the environment, both domestically and internationally. Under the International Relations and Security Division are the Security Policy and Emergency Preparedness, Climate Change, and International Relations sections.
Prime Minister's Office (PMO) Orchard Road Istana Singapore 238823 Tel: 62358577 Fax: 68356621 https://www.pmo.gov.sg Email: pmo_hq@pmo.gov.sg	PMO comprises 13 departments and three statutory boards that support and advise the Prime Minister. The agencies operate independently, and each reports to its own Accounting Officer. The Strategy Group under PMO oversees several divisions, notably the National Climate Change Secretariat (NCCS), which leads the whole-of-nation effort to address the challenges and opportunities of climate change.

Table 1: Government Ministries in Singapore (cont)

Organizations (Domestically Focused)

There are more than 2,000 charitable and voluntary organizations operating in Singapore and registered with the Commissioner of Charities under MCCY as either charities or Institutions of a Public Character (IPC). Organizations may register to work in various areas, including Education, Health, Poverty Relief, Community Development, Sport, Arts, Animal Welfare, Environmental Protection, and Religion. Those involved in a sector overseen by a specific Ministry will submit to some oversight by that Ministry (Education, Health, Social and Family Development, etc.). Others are overseen

directly by the Commissioner of Charities (Charities Unit).²³⁴ Despite the size of the sector in total, only about 200 charities and IPCs are large, and even these are dominated by tertiary education institutions. Those dealing directly with DRR, health, or welfare are few.²³⁵

Beyond local and national voluntary organizations, Singapore hosts international organizations and branches of major multi-national humanitarian organizations. Of note is the Singapore Red Cross Society, chartered under a specific domestic law. Like other organizations in Table 2, Singapore Red Cross may work regionally or internationally but also has a remit for humanitarian action within Singapore.

Organization	Resource
Community Development Councils (CDC) CDC Planning & Development People's Association 9 King George's Avenue Singapore 208581 https://www.cdc.gov.sg	The People's Association Act (1997) triggered the founding of CDCs. There are five: Central, Northeast, Northwest, Southeast, and Southwest. Each CDC is headed by the mayor of their respective district. Their primary activity is aggregating the needs and resources of the communities they encompass although they also build partner capacity and connect communities. They are hubs for grassroots organizations, government and social service agencies, and corporations to work together. Among the common flagship programs undertaken by the five CDCs were two COVID-19 relief funds that targeted persons whose jobs wholly or partly ended due to the pandemic. ²³⁶
Global Compact Network Singapore (GCNS) 160 Robinson Road, #06-01 SBF Center Singapore 068914 Tel: +65 6386 9330 Email: info@unglobalcompact.sg	GCNS drives multi-stakeholder action to forge a more sustainable future, founded on the Ten Principles of the UN Global Compact and the Sustainable Development Goals. GCNS advances the stewardship of sustainable business practices and Singapore's national agenda of becoming a regional sustainable business hub. GCNS nurtures the next generation of responsible business leaders through its youth initiatives. GCNS is a Collaboration Partner for Global Reporting Initiative (GRI) ASEAN Regional Hub and supports the Singapore chapter of the World Bank Group's Carbon Pricing Leadership Coalition. ²³⁷
HOME (Humanitarian Organization for Migration Economics) Various helpdesks exist across the city 495 Geylang Road, #02-01 Singapore 389453 Tel: +65 6241 5525 Email: contact@home.org.sg	HOME supports migrant workers. It works with corporations, government agencies, and community partners to provide: direct assistance, shelter, and food for domestic workers who experience abuse and exploitation; employment advice and legal aid for migrant workers in Singapore, and when they have returned to their countries of origin; skills training such as English language, computer, baking, cooking, and caregiving courses for domestic workers; and advocacy and public education on issues affecting migrant workers. HOME has been a key partner in legislation and policies that provide safer and more equitable working conditions (mandated days off, protection from trafficking, etc.) to Singapore's hundreds of thousands of migrant workers. ²³⁸
Mercy Relief 160 Lorong 1 Toa Payoh, #01-1568 Singapore 310160 Tel: +65 6332 6320 Fax: +65 6333 9800 Email: intouch@mercyrelief.org	Mercy Relief was established in Singapore in 2003 to respond to human tragedies and disasters in the Asia-Pacific region. It is an independent disaster relief agency with capacity building expertise and an affiliate network operating across the entire disaster management cycle. It both provides emergency aid within 72 hours of an appeal in the aftermath of a disaster and establishes sustainable development programs in water and sanitation, shelter, sustainable livelihoods, healthcare, and education. Mercy Relief conducts public events within Singapore to build its volunteer network at home and to build the community of people able and ready to respond when disaster strikes. ²³⁹

Table 2: Domestically Focused Organizations in Singapore

Organization	Resource
RSG – Relief Singapore #03-14, 19 Tanglin Road Singapore 247909 Email: contact@relief.sg	RSG is an NGO that provides HADR for communities affected by conflicts, calamities, and climate change. Their main expertise is in Indonesia, Myanmar, the Philippines, Bangladesh, and Nepal although they have some experience in Oceania and the Middle East. The sectors in which they work are healthcare, water and sanitation, psychosocial support, and education. In addition, RSG manages SGAid, which is a multi-organization, multi-sectoral portal to allow Singaporean humanitarian and aid organizations to partner on resources and planning. ²⁴⁰
Singapore Red Cross Society (SRCS) 15 Penang Lane Singapore 238486 Tel: +65 6664 0500 Fax: +65 6337 4360 https://www.redcross.sg/	Incorporated under the Singapore Red Cross Society Incorporation Act, (Chapter 304) on 6 April 1973, SRCS was first established as the Singapore Branch of the British Red Cross on 30 September 1949. SRCS is governed by a 19-member Council headed by a Chairman who is appointed by the President of the Republic. General management is overseen by the Management Committee, headed by the Secretary General/Chief Executive Officer (CEO). Implementation of policies and directives laid down by the Council is done by the Secretariat, headed by the Secretary General / CEO. The Secretariat is organized into three divisions: Operations, Administration, and Red Cross Youth. Volunteers and staff work closely together in planning, organizing, and implementing the activities and programs of the SRCS. SRCS is a preparedness and resilience partner as an auxiliary to support government action during crises. Regionally, it can operate as a recovery partner, including by helping trace survivors. At home, various SRCS services include: employment assistance, First Aid, elder care, disabled day services, and the blood donor program. ²⁴¹ Under its Operational Plan 2021, the IFRC Asia-Pacific Regional Office foresees supporting SRCS to operationalize the Southeast Asia Pandemic Preparedness Hub to share best practices and other pandemic-related information, not only during the COVID-19 pandemic but in the future. ²⁴²
Social Health Growth (SHG) 200 Jalan Sultan, #03-17 Textile Centre Singapore 199018 Tel: +65 9751 6906 Fax: +65 6338 2892 Email: shgsupport@socialhealthgrowth.org	SHG is a local organization that undertakes elder care, child malnutrition, and empowering women via skills training. It includes approximately 5,000 volunteers throughout Singapore who teach financial and computer literacy, languages, and various leadership skills to marginalized communities. ²⁴³
World Vision Singapore 6 Woodlands Square #03-01 Tower 2 Singapore 737737 Tel: +65 6922-0100 Email: enquiries@worldvision.org.sg	World Vision executes development work to tackle the roots of global poverty. Since 1984, the office in Singapore has been the organization's key hub in the Asia-Pacific region. It conducts child protection, education, livelihoods, health and nutrition, food security, water and sanitation, and disaster response programs. The office is active in addressing disease outbreaks, migration crises, and natural disasters in Africa, Asia, and South America. ²⁴⁴

Table 2: Domestically Focused Organizations in Singapore (cont)

Domestic Disaster Management Activities

Roles and Responsibilities of the State, Territory and Local Governments

In Singapore, the lead agency for disaster response is SCDF under MHA. The underlying theory to the country's disaster management is preparedness. As the implementing agency, SCDF not only conducts its own readiness and training activities but also provides public preparedness training and coordinates with civil society organizations.

MHA and SCDF sit atop the national response framework that also includes, among others, the MOH and subsidiary health care facilities and institutions, the Ministry of Communications and Information, SPF, MFA, and National Environmental Agency.²⁴⁵ SCDF has a well-developed disaster response framework. In the event of any major disaster, SCDF will activate the Ops CE Plan, which outlines the work of SCDF and supporting agencies in the management of an incident. Under this plan, the SCDF Commissioner is the Incident Manager (IM) and is in overall charge of multi-agency response. Under the Ops CE Concept of Operations:

- IM will command, control, and coordinate the entire operations through the Tactical Headquarters
- Agencies from various government bodies will adopt a multi-agency approach around SCDF, which is assisted by a group of specialists from various government agencies known as the Joint Planning Staff
- Agencies' ground forces are under Operational Command of the IM
- IM will be guided by HCEG at MHA; HECG will provide policy guidance to the IM.²⁴⁶

Below the central government level, the People's Association Community Development Councils (CDC) and mayors of each district play a role in planning and implementing grassroots climate change mitigation and ecological

improvement projects that entrench community involvement in identifying risk and responding to emergencies.²⁴⁷

The country's DRR and disaster management policies are based on the following principles:

- Man-made disasters can be prevented and their consequences minimized through a set of comprehensive regulation on fire and building safety, coupled with strict enforcement.
- Emergency and contingency plans should be developed to deal with disaster should they occur. Such plans should also be tested and hone through regular exercises and drills.
- The community should be educated on the need for and importance of emergency preparedness. Where possible, they should also be involved in exercises, training, and physical preparations.
- Emergency response and management of disasters should be a coordinated multi-agency effort. All available expertise and resources should be coordinated and swiftly channeled to the disaster site to maximize the chances of survival of the injured and to minimize damage to infrastructure.
- Restoration work and the rehabilitation of the injured should be an integral part of the total disaster management program.²⁴⁸

There are a wide range of programs that SCDF conducts to educate and support the general public in civil defense skills and knowledge. These include mass participation in exercises, visits to households, distribution of educational materials, training tools, and community events. SCDF's four Division HQs conduct 48 Community Exercises annually. Emergency Preparedness Days serve as a platform to practice with volunteers and residents how to mobilize resources and deal with large scale emergencies on a neighborhood-by-neighborhood basis. Although fires and floods are the most common events for which SCDF and residents rehearse, exercises have also been designed to incorporate anti-terrorism and chemical incidents.²⁴⁹

Given the importance of immediate response

in many emergencies, SCDF support Community Safety and Security Programmes (CSSP) drawn up by Community Emergency and Engagement (C2E) members, Community Emergency Response Teams (CERT), grassroots leaders, residents, and the rest of the “Home Team” (MHA agencies) to tackle problems affecting safety and security in neighborhoods. The main purpose of having joint community-“Home Team” projects is to draw the community into looking after its own safety and security matters. Through CSSP, residents have the opportunity to take an active lead in implementing programs and activities to improve the safety and security of their neighborhood. CSSP is formulated in three stages:

- Stage 1: Describing Your Community - Describing the main characteristics of a community, identifying its concerns and needs, and setting priorities.
- Stage 2: Who can Offer Help - Involves grassroots organizations, residents, the “Home Team,” and other related agencies (e.g., National Fire and Civil Emergency Preparedness Council (NFEC), Hawkers and Merchants Association, Red Cross, etc.).
- Stage 3: Action Plan - Co-create a set of actions to tackle your concerns and create a document for action.

Civil Defence (CD) CSSP is an additional SCDF program that enhances the safety and emergency preparedness level of the population. The scope of CD CSSP entails: public education on fire prevention, ambulance abuse, and home safety; and care and support for victims and their next of kin.²⁵⁰

Finally, SCDF and the People’s Association have formed CERTs that welcome

community members who gain life-saving skills and dedicate themselves to be part of a team. Introduced in 2004, CERTs are formed at the community level to enhance community emergency preparedness and response of the people.²⁵¹

Photo 8 depicts a practical training component for a CERT.²⁵²

Civil Defence Emergency Handbook

The Civil Defence Emergency Handbook is SCDF’s key outreach mechanism. It aims to equip readers with essential life-saving skills and information such as what to do in the event of gas leaks, when encountering an unruly crowd, when caught in a fire in a super high-rise residential building, and how to prevent a vehicle fire. It underscores that the public can play an important role as Community First Responders by gaining lifesaving skills like cardio-pulmonary resuscitation (CPR) and automated external defibrillator (AED) procedures, basic First Aid, and basic firefighting techniques. Each handbook edition also provides up-dated shelter management information.²⁵³



Photo 8: A Company Emergency Response Team Participates in a Practical Drill

U.S. DOD DMHA RECENT ENGAGEMENTS WITH SINGAPORE

Defense relations between Singapore and the U.S. are strong. The list below describes the engagements that the U.S. has had with Singapore in the last five years and that touch upon HADR.

COBRA GOLD 2021

The HADR FTX of Exercise COBRA GOLD 2021 kicked off on 30 July. Due to the pandemic, dozens of troops from nine countries, including the U.S., Thailand, China, Japan, Korea, Malaysia, Singapore, Indonesia, and India took part in the joint exercise by video call. The total exercise ran through 3 August. Participants received intensified training on the standard procedures for multinational forces, ASEAN disaster emergency response, and Thailand's disaster prevention and reduction system. In addition, eight experts from UN OCHA, the International Federation of Red Cross and Red Crescent Societies (IFRC), AHA Centre, and other professional institutions provided expertise on "Civilian-Military Coordination in Humanitarian Rescue Operation," "ASEAN Disaster Response," "Civilian Protection," and other topics in the context of coping with flood and earthquake relief.²⁵⁴

PACIFIC GRIFFIN 2021

The U.S. and Singapore navies joined together in Guam for exercise PACIFIC GRIFFIN 2021 from 21 June through 7 July 2021, to conduct advanced maritime training. The third iteration of the bilateral PACIFIC GRIFFIN series aimed at enhancing combined proficiency while strengthening relationships between the two navies. For the first time, in 2021, RSAF fighters, airborne early warning, and tanker aircraft joined RSN and the U.S. Navy to make this a joint air-sea event. The event benefited

the two navies by allowing each to home in on shared knowledge, emphasize cooperation, and build competencies in a complex and technologically advanced training environment. The two navies consistently work together in bilateral and multilateral exercises, and in combined operations such as multi-national counter-piracy. PACIFIC GRIFFIN 2021 included events both ashore and at sea, such as maritime special operations and maritime counter-terrorism training, anti-air defense exercises, anti-submarine warfare operations, and replenishments at sea serials.²⁵⁵

TIGER BALM 2021

Exercise TIGER BALM is the longest running bilateral exercise between the U.S. Army and SAF; the latest – and 40th – iteration occurred virtually on Singapore and Oahu, Hawaii, during 6-13 May 2021. Exercise TIGER BALM is a U.S. Army Pacific (USARPAC) sponsored exercise conducted annually with SAF to enhance regional security, interoperability, and country-to-country military relationships. Soldiers from U.S. Army 25th Infantry Division, Hawaii Army National Guard, California Army National Guard, and SAF participated. Since 1981, this exercise has provided opportunities to soldiers from the U.S. and Singapore to work cohesively, to exchange tactical skills, techniques, training, and equipment, and to build on lessons learned. This year's closing ceremonies concluded after eight-days of virtual brigade-level command post exercise scenarios.²⁵⁶ Photo 9 depicts the closing ceremony of Exercise Tiger Balm on 18 July 2019, with participants from the 5th Battalion Singapore Infantry Regiment, U.S. Army 1-23 Infantry Battalion, 1-2 Striker Brigade Combat Team, Hawaii Army National Guard, and Illinois Army National Guard.²⁵⁷



Photo 9: The Singapore Army and the US Army participate together in Exercise Tiger Balm 2019

Cooperation Afloat Readiness and Training (CARAT) 2020

The U.S. Navy, U.S. Marine Corps, and RSN partnered in the 26th annual Cooperation Afloat Readiness and Training (CARAT) maritime exercise, in international waters in the South China Sea and on Changi Naval Base, Singapore, during 9-14 December 2020. CARAT Singapore 2020 underscored a shared commitment toward regional maritime security and stability. During the virtual commander's conference, U.S. and Singapore leaders emphasized the success of this year's CARAT, focusing on the diverse training value of integrating small amphibious landing crafts in addition to the traditional large deck operations. CARAT 2020 included drills that required close coordination between the ships. Using both integrated technology and in-person meetings on Changi Naval Base, a roundtable featuring amphibious interoperability included subject matter experts exchanging capabilities and organizational structure of U.S. and Republic

of Singapore Navies amphibious operations. Additional events included search and rescue exercise, divisional tactics and maneuvering, communication drills, and a coordinated farewell sail past marking the conclusion of the sea phase.²⁵⁸

COBRA GOLD 2020

Held from 24 February to 6 March 2020 in Phitsanulok, Thailand, this iteration of Exercise COBRA GOLD comprised a Command Post Exercise, Engineer Civic Assistance Program, cyber exercise and HADR component. Co-hosted by Thailand and the U.S., participating militaries included Singapore, Malaysia, Indonesia, Republic of Korea, and Japan. As part of the Command Post Exercise, a multinational force was created under which Singapore held several key appointments, including director of the Logistics Cell.²⁵⁹ The HADR portion of the exercise brought together Indonesia, Japan, Malaysia, Singapore, Thailand, and the U.S, with

limited participation from China and India. This operation highlighted each country's response techniques and their ability to appropriately and timely respond to any natural disaster situation.²⁶⁰

Humanitarian Assistance Response Training (HART) 2019

The U.S. Navy's Logistics Group Western Pacific/Task Force 73 hosted a Humanitarian Assistance Response Training (HART) course with partner nation military at their headquarters in Singapore, on 4 and 5 December 2019. The two-day HART course, designed by the U.S. Indo-Pacific Command's CFE-DM, prepares military commanders and their staffs to respond more effectively during civilian-led humanitarian assistance and foreign disaster response missions. More than a dozen U.S., Singaporean, and Canadian military members participated in the training, which involved sharing their perspectives, applying the military planning and decision-making process during case studies, and role-playing exercises. The program draws from several resources, including U.S. DoD joint doctrine, guidance from the U.S. Agency for International Development (USAID) Bureau for Humanitarian Assistance, and generally accepted international norms on humanitarian assistance and civil-military coordination. Civilian and military subject matter experts presented lectures on a variety of topics such as foreign military assets, affected populations and protection considerations, response logistics, U.S. foreign humanitarian assistance architecture, international response communities, and many more.²⁶¹

PACIFIC GRIFFIN 2019

The U.S. and Republic of Singapore navies came together in Guam from 27 September through 11 October 2019 for PACIFIC GRIFFIN 2019. PACIFIC GRIFFIN is conducted in the waters near Guam and aimed at enhancing combined proficiency at sea while strengthening relationships between the two navies. The exercise is an extension of the longstanding

Cooperation Afloat Readiness and Training (CARAT), which the two navies have exercised annually since 1995. This biennial exercise iteration allows the two navies to advance the complexity of maritime training utilizing diverse naval platforms and operating areas. PACIFIC GRIFFIN 2019 had events both ashore and at-sea, such as amphibious planning operations, anti-submarine warfare demonstrations, and replenishment at sea.²⁶²

Southeast Asia Cooperation and Training (SEACAT) 2019

The U.S. Navy and maritime forces from 10 Indo-Pacific partner nations completed the 18th iteration of Southeast Asia Cooperation and Training (SEACAT) in Singapore, in August 2019. The goal of the SEACAT exercise is to bring together regional partner nations to engage in "real world, real time" training designed to enhance partner nation ability to communicate, coordinate, and counter illegal smuggling and piracy. The exercise emphasizes realistic training scenarios wherein exercise participants will practice identifying, tracking, and boarding of vessels participating in the exercise. SEACAT promotes shared commitments to maritime partnerships, and security and stability in Southeast Asia. Participating nations included Bangladesh, Brunei, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Sri Lanka, Thailand, the United States, and Vietnam. Throughout the exercise, maritime forces from the Indo-Pacific region operated together, executing a variety of realistic scenarios designed to reinforce interoperability. In this iteration, a maritime operations center in Singapore served as a centralized hub for crisis coordination and information sharing in the tracking of vessels of interests throughout the exercise.²⁶³

Pacific Partnership 2019

On 28 May 2019, Pacific Partnership 2019 (PP19) participants marked the conclusion of the 14th iteration of the exercise series; the exercise kicked off on 6 March. This was the first year to feature two expeditionary fast

transport ships. Teams attached to two U.S. Navy ships made stops in the Federated States of Micronesia, the Philippines, Malaysia, the Republic of the Marshall Islands, Timor-Leste, Vietnam, and Thailand. Pacific Partnership is the largest annual, multilateral disaster response preparedness mission in the Indo-Pacific region. PP19's mission focus continued to evolve from direct assistance to furthering regional resiliency and security through DRR opportunities to assist nations in preparing for and responding to crises. In addition to participants from the U.S. and each host nation, personnel from PP19 partner nations including Australia, Canada, Japan, Malaysia, Peru, the Philippines, South Korea, Thailand, and the United Kingdom came together to increase disaster preparedness and capacity in the Indo-Pacific region. This is the second year that Pacific Partnership incorporated a multinational command and control structure, including a director of mission from the United Kingdom and mission chief of staff from Australia. Over three months, PP19 participants conducted over 60 HADR preparedness subject matter expert exchanges that included workshops, symposiums, and relevant scenario-based exercises. PP19 partner and host nation participants completed 21 engineering civic-action projects, including additions to schools that will function as shelters in the event of a natural disaster.²⁶⁴

Exercise Coordinated Response (COORES) 2019

From 2 to 4 Apr 2019, Singapore hosted Exercise Coordinated Response (Ex COORES) at the Multinational Operations and Exercise Centre at CC2C at Changi Naval Base. The exercise involved more than 200 participants from over 25 militaries and 19 non-military organizations. The exercise started off with academic presentations on key topics such as the Multinational Coordination Centre (MNCC) standard operating procedures and concept of operations. This was followed by focus group discussions before transiting to the TTX. The TTX was co-organized by the SAF Changi

RHCC, the Bangladesh Ministry of Disaster Management and Relief as well as Armed Forces Division, and U.S. INDOPACOM's CFE-DM. Ex COORES tested the MNCC's response in an exercise scenario where a 7.8 magnitude earthquake struck along the Madhupur fault line about 60 km (37 miles) north-northwest of Dhaka, Bangladesh in Tangail town. During the TTX, participants harnessed the technological capabilities of Changi RHCC's OPERA CIS. OPERA collates critical information such as casualty numbers, type of aid required as well as type of aid contributed by different organizations to prevent duplication and to facilitate prioritization of aid.²⁶⁵

COBRA GOLD 2019

SAF participated in Exercise COBRA GOLD 2019 from 12 to 22 February 2019 in Phitsanulok, Thailand. Co-hosted by the Royal Thai Armed Forces and USINDOPACOM, the exercise also sees participation from the Indonesian National Defence Forces, Japan Self-Defense Forces, Malaysian Armed Forces, and Republic of Korea Armed Forces. The 2019 iteration was the SAF's 20th year of participation in Exercise COBRA GOLD. It focused on combined joint-operations to deal with traditional and non-traditional threats, as well as planning and coordination for HADR operations. The SAF contingent undertook the role of staff planners within the Multinational Combined Task Force set-up alongside their counterparts from the participating nations and participated in the HADR table-top exercise and field training exercise. As part of the SAF delegation, a team of combat engineers from the Singapore Army participated in a multinational Engineer Civic Action Program to build a single-story community hall and activity center for the students of Ban Koh-i-Duan School, situated in Tak Province, Thailand.²⁶⁶

Pacific Partnership 2018

From 23 February through June 2018, the annual U.S.-led Pacific Partnership exercise, the largest annual multilateral HADR preparedness

mission in the Asia-Pacific, occurred in Southeast Asia. The exercise put the spotlight on the evolution of U.S. drills in the region as part of its broader defense engagement. Pacific Partnership began in 2006 following the December 2004 tsunami that devastated parts of Southeast Asia. Led by the U.S. Navy in partnership with other like-minded countries and NGOs, it sees the combined force visiting several host nations every year and engaging in a variety of local outreach efforts to improve boost capabilities, build relationships, and bolster collective ability to respond to natural disasters. The list of participants in PP18 featured military and civilian personnel from the United States as well as Canada, the United Kingdom, Australia, France, Peru, and Japan, with mission stops including Micronesia, Sri Lanka, Japan, and a few Southeast Asian countries such as Indonesia, Malaysia, Thailand, and Vietnam through June. Distinguishing features of the series include the utilization of a multinational command-and-control structure and the highlighting of the role of women in HADR efforts in line with the Women Peace and Security Program initiative.²⁶⁷

COBRA GOLD 2018

The commander of the Royal Thai Armed Forces was joined by the U.S. Ambassador to Thailand, the commander of III Marine Expeditionary Force, and other dignitaries at the opening ceremony for Exercise COBRA GOLD at U-Tapao International Airport, on 13 February 2018. Exercise COBRA GOLD is the one of the largest military exercises in the Indo-Pacific region. In its 37th iteration in 2018, the exercise is co-sponsored by the Royal Thai Armed Forces and the U.S. Armed Forces. The objective of the exercise is to advance regional security and ensure effective responses to regional crises by bringing together a robust multinational force to address shared goals and security commitments in the Indo-Pacific region. Exercise COBRA GOLD 18 included seven full participants: Thailand, the U.S., Indonesia, Japan, Malaysia, Republic of Korea, and Singapore, and it ran 13-23 February. The focus was on three

major components: a Command Post Exercise, (FTX), and Humanitarian Civic Assistance exercise. COBRA GOLD seeks to improve the capabilities of participating nations to plan and conduct combined and joint operations; build relationships among participating nations across the region; and improve interoperability over a range of activities, including enhancing maritime security and responding to large-scale natural disasters.²⁶⁸

COMMANDO SLING 2018

U.S. Air Force and RSAF personnel trained together during the annual, bilateral exercise COMMANDO SLING 18 at Paya Lebar Air Base, Singapore, from 15 January through 2 February 2018. COMMANDO SLING 18 focused on enhancing and evaluating tactical coordination of air tactics, techniques, and procedures between U.S. and RSAF aviation units, improves procedures for sustained operations at a non-U.S. base, and provides an opportunity to promote closer relations between U.S. and Singaporean service members. The annual COMMANDO SLING exercise began in 1990 to provide combined air combat training for USAF and RSAF fighter units.²⁶⁹

Pacific Partnership 2017

The 2017 iteration of Pacific Partnership (PP) ran March through June and is the 12th in the series. PP17 was led by Deputy Commander, Riverine Group 1, embarked on the Spearhead-class expeditionary fast transport ship USNS Fall River (T-EPF-4), and included more than 200 military and civilian personnel from the U.S., the United Kingdom, Australia, Japan, Chile, Singapore, and South Korea. PP capitalizes on multilateral cooperation and partnerships between government and non-government organizations to increase capabilities in HADR and preparedness for natural and man-made disasters.²⁷⁰

COBRA GOLD 2017

More than a dozen countries participated in COBRA GOLD 2017 from 14 to 24 February

2017 in Thailand. Co-sponsored by Thailand and the U.S., COBRA GOLD is the largest theater security cooperation exercise in the Indo-Asia-Pacific and shows the U.S. commitment to strengthen engagement in the region. COBRA GOLD 17 was planned to emphasize coordination on civic action, including HADR, and to expand regional cooperation and collaboration in these areas. The exercise series is the largest multinational exercise in Asia. It has taken place annually for more than 30 years. About 3,600 U.S. forces participated in COBRA GOLD 2017 alongside forces from Thailand, Indonesia, Japan, Malaysia, Republic of Korea, and Singapore. The field exercise this year included an amphibious exercise at Hat Yao Beach and a noncombatant evacuation operation. China and India were set to participate, working alongside Thai and U.S. forces to complete engineering civic action projects and in the multinational medical symposium.²⁷¹

Exercise Coordinated Response (Ex COORES) 2017

The Changi RHCC hosted its first multinational HADR exercise, Exercise Coordinated Response (Ex COORES), from 23 through 25 January 2017. Ex COORES 2017 took place at the CC2C at Changi Naval Base in Singapore; it was co-organized by the Armed Forces of the Philippines, the U.S. CFE-DM, and SAF's Changi RHCC. Ex COORES aims to enhance mutual understanding and interoperability, establish military linkages, and strengthen military cooperation in HADR operations. The exercise had approximately 150 participants from 18 militaries from across the Asia-Pacific region and Europe, and observers from 12 international organizations, governmental agencies, and NGOs. The exercise created a scenario simulating two major disasters striking the Philippines in succession: a volcanic eruption at Mount Mayon followed by a Category 5 typhoon in the city of Legazpi. The regional role of Changi RHCC was evident during the scenario, as the Centre sent an advance team to support the Philippine military's establishment

of an MNCC to coordinate incoming foreign assistance, which allowed militaries as well as civilian agencies to familiarize themselves with its concept of operations in anticipation of future HADR operations.²⁷² The scenario provided valuable opportunities to test and exercise the working process in the coordination of a multinational military HADR efforts, from the perspective of both the assisting militaries and affecting states. Participants were able to familiarize with both the MNCC and the Changi RHCC's concept of operations, in anticipation of cooperation in future HADR operations. CFE-DM contributed to Ex COORES 2017 by providing its expertise in the development of the exercise scenario and in exercise control, as well as facilitating large-group discussions on the best practices in conducting HADR operations. During the exercise, UN OCHA also demonstrated the operations of its Humanitarian Country Team, thereby enhancing civil-military understanding.²⁷³

Helicopter Operations from Ships other Than Aircraft Carriers (HOSTAC) 2016

Navy and Coast Guard representatives from 11 countries came together for dialogue and information sharing during a Helicopter Operations from Ships other Than Aircraft Carriers (HOSTAC) conference in Singapore, from 29 August to 2 September 2016. Conference participants represented the United Kingdom, Canada, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, and the United States. HOSTAC is an international military standardization program that provides a venue to align standards and streamline information to safely conduct cross-deck helicopter operations with more than 50 navies and coast guards around the world. From HADR missions, maritime domain awareness operations, and anti-submarine warfare, to moving personnel or supplies, aircrews must work closely with other operators and those from various partner forces.²⁷⁴

Southeast Asia Cooperation and Training (SEACAT) 2016

The 15th annual Southeast Asia Cooperation and Training (SEACAT) exercise commenced at RSN's Multinational Operations and Exercises Centre on 22 August 2016. SEACAT focuses on regional cooperation to address shared maritime security challenges like smuggling, piracy, and other illicit activities at sea by bringing together liaison officers from Singapore, Brunei, Indonesia, Malaysia, the Philippines, Thailand, Bangladesh, Cambodia, and the United States to collaborate and execute practical maritime responses to multiple realistic scenarios. SEACAT enables nations to work through complex maritime security challenges in a cooperative and inclusive environment. During the five-day command post exercise, liaison officers received simulated reports of suspect vessels in the Straits of Singapore and Malacca, the Andaman Sea, or the South China Sea. After sharing information from all available sources, the liaison officers develop and implement response plans during a concurrent field training exercise. SEACAT, which began in 2002 under the name "Southeast Asia Cooperation Against Terrorism," was renamed in 2012 to expand the scope of training among regional navies and coast guards.²⁷⁵

Exercise Rim of the Pacific (RIMPAC) 2016

Hosted by the U.S. Navy, Exercise Rim of the Pacific (RIMPAC) is the world's largest international maritime exercise and is held biennially off the coast of Hawaii. The RSN Formidable-class stealth frigate RSS Steadfast, with an embarked S-70B Seahawk naval helicopter, participated in the exercise from 1 July to 5 August 2016. Twenty-five other countries sent 45 ships, five submarines, and more than 200 aircraft and 25,000 personnel. RSN has participated in Exercise RIMPAC since 2008.²⁷⁶

Cooperation Afloat Readiness and Training (CARAT) 2016

The 22nd annual Cooperation Afloat Readiness and Training (CARAT) exercise

between the U.S. Navy and SAF at Changi Naval Base ran from 19 to 28 July 2016. CARAT Singapore 2016 focused on addressing shared maritime security concerns, building relationships, and enhancing interoperability among participating forces. The nearly two-week-long exercise consisted of shore-based and at-sea training engagements in multiple warfare areas and marked the first time a "ship anti-submarine warfare readiness effectiveness measuring" event had been incorporated into CARAT. During the six-day sea phase, the two navies trained together in air defense exercises, gunnery exercises, cross-deck helicopter operations, anti-submarine warfare exercises, and complex surface warfare tactics. New to the exercise in 2016, the two navies engaged in an extended tactical free-play scenario where training in multiple warfare areas occurred simultaneously. Ashore, sailors from the two navies participated in two community service events and held professional exchanges and training in anti-submarine warfare, military law, aviation, damage control, and medical operations. After more than two decades of annual CARAT training engagements between U.S. and SAF, the exercise remains a model for cooperation which has evolved in complexity and enables both nations to refine maritime operations and tactics.²⁷⁷ Photo 10 shows the at-sea phase of the 26th annual CARAT exercise in international waters on 11 December 2020.²⁷⁸



Photo 10: RSS Endurance (207) and USS Somerset (LPD 25) in Exercise CARAT, 11 December 2020

CONCLUSION

Singapore's geographic location confers upon it both vulnerabilities and strengths. Lying just outside the Indo-Asia-Pacific's "Ring of Fire" and just beyond major cyclone tracks, the country is nominally exposed to hazards but rarely experiences incidents that pose a threat to a large section of the populace.²⁷⁹ Based on the understanding that neighbors do not enjoy such security and that the prosperity of Singapore's people and businesses is interconnected with neighbors' and partners' well-being, then, Singapore has developed the policies, frameworks, and partnerships necessary to allow it to respond to international crises rapidly and effectively.

Strong international collaboration is a key element in preventing, preparing, responding to, and recovering from disaster threats that the Indo-Asia Pacific region confronts. In addition to its strong, rehearsed domestic response mechanisms, Singapore's government agencies have built cross-border and multi-lateral partnerships to deploy Singaporean response personnel overseas as needed. The Ministries of Home Affairs and Foreign Affairs are the key players at the top level as they manage the internal and external relationships necessary to permit Singapore's Civil Defence Force (SCDF) and Armed Forces (SAF) to undertake external humanitarian assistance and disaster relief (HADR) missions. Indeed, SCDF is Singapore's lead agency liaising with the key regional HADR mechanism – the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre).²⁸⁰

To build its capacity to respond and to ensure that Singapore retains a voice in global HADR and disaster management policy development, the country is a leader and regular participant

in regional training programs and exercise support. On the military-to-military front, Singapore routinely runs bi- and multi-lateral exercises, particularly with ASEAN partners and the U.S. SAF's Changi Regional HADR Coordination Centre (RHCC), supporting the military of a disaster affected state in coordinating assistance provided by foreign militaries. Alongside USINDOPACOM's Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM), Changi RHCC is a regional leader not only in military-to-military coordination but also in engaging regional players in civil-military coordination during disaster response via the biennial Exercise Coordinated Response (Ex COORES) that includes both military and civilian humanitarians such as UN and International Red Cross and Red Crescent Movement personnel.²⁸¹

Singapore is poised to continue playing a key role in disaster management efforts in the region. The greater Indo-Asia-Pacific region confronts increasingly unpredictable and severe tsunamis, earthquakes, flooding, tropical cyclones, drought, and volcanic eruptions as the effects of climate change play out. Singapore itself is bolstering its domestic emergency preparedness in the face of climate change as it entrenches risk assessment and mitigation within the business community and the public writ large.²⁸² As many disaster-affected states in the region rely on external assistance for aid in times of disasters, increasingly frequent and more severe incidents will exacerbate this need. Singapore's experience and progress suggest the country will build upon mechanisms to share best practices and support partners' climate change resilience projects as part of overall readiness work.

APPENDICES

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 HADR resources are will assist Joint Task Force leaders and staff during mission planning.²⁸³ Sharing information is critical since no single responding entity, non-government organization (NGO), International Governmental Organization (IGO), assisting country government, or the host government can be the source of all the required information.²⁸⁴

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.

Singapore Information Sources

Singapore Civil Defence Force (SCDF)

SCDF is Singapore's lead agency in local and international disaster responses. Although it operates the Public Warning System (PWS),

it does not maintain a public-facing system of information management or disaster information during the course of an emergency. Rather, messages from SCDF will be broadcast by Singapore's mass media outlets as well as via official social media channels.

<https://www.scdf.gov.sg/>

Meteorological Service Singapore (MSS)

MSS is Singapore's national authority on the weather and climate. MSS' Weather Services Division delivers national weather assessments, forecasts, warnings, and hazard monitoring services for civil aviation, military, maritime, government agencies, businesses, and the general public. MSS hosts the ASEAN Specialised Meteorological Centre (ASMC), initiated as a regional collaboration program to enhance the capacity of meteorological services in ASEAN member countries.

The MSS homepage carries weather-related warnings and forecasts: <http://www.weather.gov.sg/home/>

For specific hazards, visitors can click on the "Warnings & Advisories" tab at the top of the home page.

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

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 UNDRR (formerly UNISDR) to consolidate DRR 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 Singapore Red Cross Society, 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.²⁸⁵

Website: <https://media.ifrc.org/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.²⁸⁶

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 USAR teams, national authorities, and regional and international organizations.

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>

Consider other information resources, such as:

Think Hazard

Think Hazard is a website that provides detailed information on a country. Hazard information is provided on risk, planning needs, technical specifications, and contact information for each country, including Singapore and her neighbors.

Website: <http://thinkhazard.org>

Humanitarian Country Teams (HCT)

HCT is a strategic and operational decision-making and oversight forum established and led by the Humanitarian Coordinator in each country. It is generally comprised of representatives from UN agencies including the 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 AHA Centre is an intergovernmental organization, established by the ASEAN member-states to facilitate cooperation and coordination of disaster management. It aims to reduce loss of life and damage to property from natural disasters through the identification of hazards and risks prior to impacts and by increasing warning time. The AHA Centre works closely with the NDMOs of all ten ASEAN member-states in monitoring and sharing information about hazards and disasters in the region. It closely monitors hazards and earth

observation as well as early warning releases by hydro-meteorological and geological agencies of ASEAN member-states. It regularly monitors and updates the situation through various platforms and tools. Among AHA Centre tools are the Disaster Monitoring & Response System (DMRS), designed in partnership with the Pacific Disaster Center (PDC). DMRS receives constant information feeds from the PDC system, and it shows real time information of the hazards in the region.

The AHA Centre's key tool is the ASEAN Disaster Information Network (ADInet), which is a repository of information concerning hazards and disasters that have happened in the region. The platform is open, and the public can submit information that the AHA Centre will verify and validate.

ADINET: <https://adinet.ahacentre.org/>

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, Instagram, Twitter, and YouTube.

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 fulfills its mandate of saving lives, alleviating human suffering, and the reduction of the social and economic impact of disasters worldwide in partnership with USAID functional and regional bureaus and other U.S. government agencies. BHA works with the international population to assist countries prepare for, respond to, and recover from humanitarian crises.²⁸⁷

USAID/BHA products include situation reports and maps, which are available via email mailing lists as well as Reliefweb.org. Information 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.²⁸⁸

PDC also provides a public version, Disaster Alert, which offers open access to a world map documenting 18 hazard types.²⁸⁹ 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.²⁹⁰

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 (UISS) 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.²⁹¹ 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.²⁹²

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

Joint Typhoon Warning Center

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

<https://www.metoc.navy.mil/jtwc/jtwc.html>

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

DKI-APCSS is a U.S. DoD institute that addresses regional and global security issues, 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-DM provides resources and updates at its website, as well as via their Facebook and Twitter accounts (@cfedmha).

Web: <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>

Country Profile

The information in the Country Profile section is sourced directly from the CIA World Factbook.²⁹³

Background

A Malay trading port known as Temasek existed on the island of Singapore by the 14th century. The settlement changed hands several times in the ensuing centuries and was eventually burned in the 17th century and fell into obscurity. The British founded modern Singapore as a trading colony on the site in 1819. It joined the Malaysian Federation in 1963 but was ousted two years later and became independent. Singapore subsequently became one of the world's most prosperous countries with strong international trading links (its port is one of the world's busiest in terms of tonnage handled) and with per capita gross domestic product (GDP) equal to that of the leading nations of Western Europe.

Geography

Location

Southeastern Asia, islands between Malaysia and Indonesia

Geographic coordinates

1 22 N, 103 48 E

Area

total: 719 sq km

land: 709.2 sq km

water: 10 sq km

country comparison to the world: 190

Area - comparative

slightly more than 3.5 times the size of Washington, DC

Land boundaries

total: 0 km

Coastline

193 km

Maritime claims

territorial sea: 3 nm (exclusive fishing zone: within and beyond territorial sea, as defined in treaties and practice)

Climate

tropical; hot, humid, rainy; two distinct monsoon seasons - northeastern monsoon (December to March) and southwestern monsoon (June to September); inter-monsoon - frequent afternoon and early evening thunderstorms

Terrain

low lying, gently undulating central plateau

Elevation

highest point: Bukit Timah 166 m

lowest point: Singapore Strait 0 m

Natural resources

fish, deepwater ports

Land use

agricultural land: 1% (2018 est.)

arable land: 0.9% (2018 est.)

permanent crops: 0.1% (2018 est.)

permanent pasture: 0% (2018 est.)

forest: 3.3% (2018 est.)

other: 95.7% (2018 est.)

Irrigated land

0 sq km (2012)

Total renewable water resources

600 million cubic meters (2017 est.)

Population distribution

most of the urbanization is along the southern coast, with relatively dense population clusters found in the central areas

Natural hazards

flash floods

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

Geography - note
focal point for Southeast Asian sea routes; consists of about 60 islands, by far the largest of which is Pulau Ujong; land reclamation has removed many former islands and created a number of new ones

People and Society

Population
5,866,139 (July 2021 est.)
country comparison to the world: 114

Nationality
noun: Singaporean(s)
adjective: Singapore

Ethnic groups
Chinese 74.3%, Malay 13.4%, Indian 9%, other 3.2% (2018 est.); note: data represent population by self-identification; the population is divided into four categories: Chinese, Malay (includes indigenous Malays and Indonesians), Indian

(includes Indian, Pakistani, Bangladeshi, or Sri Lankan), and other ethnic groups (includes Eurasians, Caucasians, Japanese, Filipino, Vietnamese)

Languages
English (official) 36.9%, Mandarin (official) 34.9%, other Chinese dialects (includes Hokkien, Cantonese, Teochew, Hakka) 12.2%, Malay (official) 10.7%, Tamil (official) 3.3%, other 2%; note - data represent language most frequently spoken at home (2015 est.)

Religions
Buddhist 33.2%, Christian 18.8%, Muslim 14%, Taoist 10%, Hindu 5%, other 0.6%, none 18.5% (2015 est.)

Age structure
0-14 years: 12.8% (male 406,983/female 387,665)
15-24 years: 15.01% (male 457,190/female 474,676)
25-54 years: 50.73% (male 1,531,088/female 1,618,844)
55-64 years: 10.58% (male 328,024/female 328,808)
65 years and over: 10.89% (male 310,123/female 366,259) (2020 est.)
Figure 11 is a graphic display of the above Age Structure for Singapore.²⁹⁴

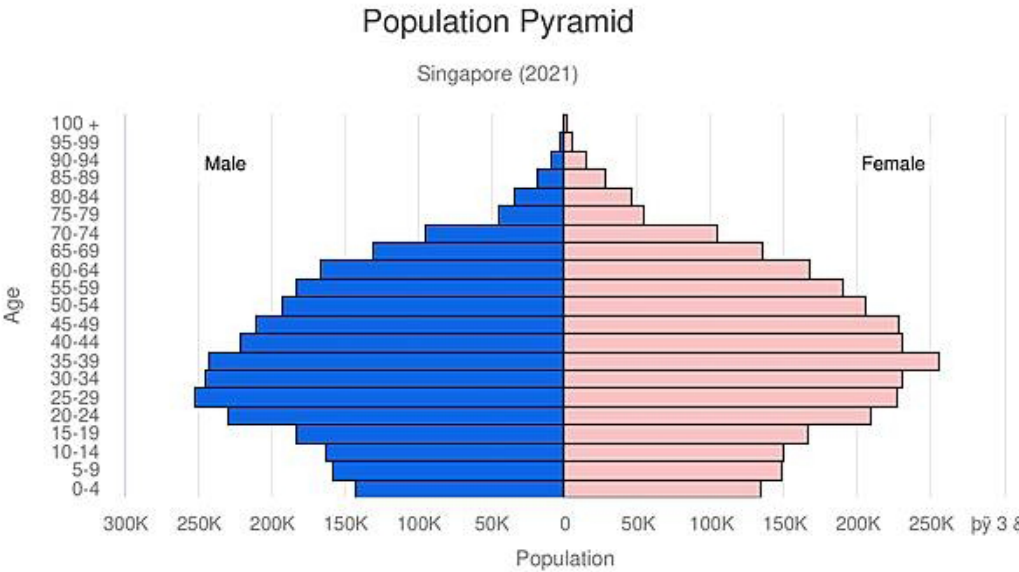


Figure 11: Population Pyramid - Singapore (2021)

Dependency ratios

total dependency ratio: 34.5
 youth dependency ratio: 16.5
 elderly dependency ratio: 18
 potential support ratio: 5.6 (2020 est.)

Median age

total: 35.6 years
 male: 35.4 years
 female: 35.7 years (2020 est.)
 country comparison to the world: 82

Population growth rate

0.95% (2021 est.)
 country comparison to the world: 106

Birth rate

9.13 births/1,000 population (2021 est.)
 country comparison to the world: 202

Death rate

3.93 deaths/1,000 population (2021 est.)
 country comparison to the world: 216

Net migration rate

4.26 migrant(s)/1,000 population (2021 est.)
 country comparison to the world: 28

Population distribution

most of the urbanization is along the southern coast, with relatively dense population clusters found in the central areas

Urbanization

urban population: 100% of total population (2021)
 rate of urbanization: 0.74% annual rate of change (2020-25 est.)
 total population growth rate v. urban population growth rate, 2000-2030

Major urban areas - population

5.992 million SINGAPORE (capital) (2021)

Sex ratio

at birth: 1.07 male(s)/female
 0-14 years: 1.05 male(s)/female
 15-24 years: 0.96 male(s)/female
 25-54 years: 0.95 male(s)/female
 55-64 years: 1 male(s)/female
 65 years and over: 0.85 male(s)/female
 total population: 0.96 male(s)/female (2020 est.)

Mother's mean age at first birth

30.5 years (2015 est.)

Maternal mortality rate

8 deaths/100,000 live births (2017 est.)
 country comparison to the world: 153

Infant mortality rate

total: 1.56 deaths/1,000 live births
 male: 1.72 deaths/1,000 live births
 female: 1.4 deaths/1,000 live births (2021 est.)
 country comparison to the world: 226

Life expectancy at birth

total population: 86.19 years
 male: 83.48 years
 female: 89.05 years (2021 est.)
 country comparison to the world: 2

Total fertility rate

1.15 children born/woman (2021 est.)
 country comparison to the world: 225

Drinking water source

improved: urban: 100% of population
 total: 100% of population
 unimproved: urban: 0% of population
 total: 0% of population (2017 est.)

Current Health Expenditure

4.5% (2018)

Physician density

2.29 physicians/1,000 population (2016)

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

Sanitation facility access
improved: urban: 100% of population
total: 100% of population
unimproved: urban: 0% of population
total: 0% of population (2017 est.)

HIV/AIDS - adult prevalence rate
0.2% (2019 est.)
country comparison to the world: 109

HIV/AIDS - people living with HIV/AIDS
7,900 (2019 est.)
country comparison to the world: 111

HIV/AIDS - deaths
<100 (2019 est.)

Obesity - adult prevalence rate
6.1% (2016)
country comparison to the world: 171

Education expenditures
2.9% of GDP (2013)
country comparison to the world: 138

Literacy
definition: age 15 and over can read and write
total population: 97.3%
male: 98.9%
female: 95.9% (2018)

School life expectancy (primary to tertiary education)
total: 17 years
male: 16 years
female: 17 years (2018)

Unemployment, youth ages 15-24
total: 9.1%
male: 6.2%
female: 12.5% (2016 est.)
country comparison to the world: 135

Environment

Environment - current issues
water pollution; industrial pollution; limited natural freshwater resources; limited land availability presents waste disposal problems; air pollution; deforestation; seasonal smoke/haze resulting from forest fires in Indonesia

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

Air pollutants
particulate matter emissions: 18.26 micrograms per cubic meter (2016 est.)
carbon dioxide emissions: 37.54 megatons (2016 est.)
methane emissions: 4.4 megatons (2020 est.)

Total water withdrawal
municipal: 296.73 million cubic meters (2017 est.)
industrial: 336.294 million cubic meters (2017 est.)
agricultural: 26.376 million cubic meters (2017 est.)

Total renewable water resources
600 million cubic meters (2017 est.)

Climate
tropical; hot, humid, rainy; two distinct monsoon seasons - northeastern monsoon (December to March) and southwestern monsoon (June to September); inter-monsoon - frequent afternoon and early evening thunderstorms

Land use

agricultural land: 1% (2018 est.)
 arable land: 0.9% (2018 est.)
 permanent crops: 0.1% (2018 est.)
 permanent pasture: 0% (2018 est.)
 forest: 3.3% (2018 est.)
 other: 95.7% (2018 est.)

Revenue from forest resources

forest revenues: 0% of GDP (2018 est.)
 country comparison to the world: 197

Revenue from coal

coal revenues: 0% of GDP (2018 est.)
 country comparison to the world: 166

Urbanization

urban population: 100% of total population (2021)
 rate of urbanization: 0.74% annual rate of change (2020-25 est.)

Waste and recycling

municipal solid waste generated annually: 7,704,300 tons (2017 est.)
 municipal solid waste recycled annually: 4,699,623 tons (2015 est.)
 percent of municipal solid waste recycled: 61% (2015 est.)

GovernmentCountry name

conventional long form: Republic of Singapore
 conventional short form: Singapore
 local long form: Republic of Singapore
 local short form: Singapore
 etymology: name derives from the Sanskrit words “simha” (lion) and “pura” (city) to describe the city-state’s leonine symbol

Government type

parliamentary republic

Capital

name: Singapore
 geographic coordinates: 1 17 N, 103 51 E
 time difference: UTC+8 (13 hours ahead of Washington, DC, during Standard Time)

Administrative divisions

no first order administrative divisions; there are five community development councils: Central Singapore Development Council, North East Development Council, North West Development Council, South East Development Council, South West Development Council (2019)

Independence

9 August 1965 (from Malaysian Federation)

National holiday

National Day, 9 August (1965)

Constitution

history: several previous; latest adopted 22 December 1965
 amendments: proposed by Parliament; passage requires two-thirds majority vote in the second and third readings by the elected Parliament membership and assent of the president of the republic; passage of amendments affecting sovereignty or control of the Police Force or the Armed Forces requires at least two-thirds majority vote in a referendum; amended many times, last in 2020

Legal system

English common law

International law organization participation

has not submitted an International Court of Justice jurisdiction declaration; non-party state to the International Criminal Court (2019)

Citizenship

citizenship by birth: no
 citizenship by descent only: at least one parent must be a citizen of Singapore
 dual citizenship recognized: no
 residency requirement for naturalization: 10 years

Suffrage

21 years of age; universal and compulsory

Executive branch

chief of state: President HALIMAH Yacob (since 14 September 2017); note - President TAN's term ended on 31 August 2017; HALIMAH is Singapore's first female president; the head of the Council of Presidential Advisors, J.Y. PILLAY, served as acting president until HALIMAH was sworn in as president on 14 September 2017

head of government: Prime Minister LEE Hsien Loong (since 12 August 2004, reelected 10 July 2020); Deputy Prime Ministers HENG Swee Keat (since 1 May 2019) (2019)

cabinet: Cabinet appointed by the president on the advice of the prime minister; Cabinet responsible to Parliament

elections/appointments: president directly elected by simple majority popular vote for a fixed term of 6-years (there are no term limits); election last held on 13 September 2017 (next to be held in 2023); following legislative elections, leader of majority party or majority coalition appointed prime minister by president; deputy prime ministers appointed by the president

election results: HALIMAH Yacob was declared president on 13 September 2017, being the only eligible candidate; Tony TAN Keng Yam elected president in the previous contested election on 27 August 2011; percent of vote - Tony TAN Keng Yam (independent) 35.2% , TAN Cheng Bock (independent) 34.9%, TAN Jee Say (independent) 25%, TAN Kin Lian (independent) 4.9%

Legislative branch

description: unicameral Parliament (104 seats; 93 members directly elected by popular vote, up to 9 nominated by a parliamentary selection committee and appointed by the president, and up to 12 non-constituency members from opposition parties to ensure political diversity; members serve 5-year terms); note - the number of nominated members will increase to 12 for the 2020 election for the first time (2020)

elections: last held on 10 July 2020 (next must be held by 2025)

election results: percent of vote by party - PAP 61.2%, WP 11.2%, PSP 10.2%; seats by party - PAP 83, WP 10, PSP 2; composition - men 79, women 25, percent of women 24%

Judicial branch

highest courts: Supreme Court (although the number of judges varies - as of April 2019, the court totaled 20 judges, 7 judicial commissioners, 4 judges of appeal, and 16 international judges); the court is organized into an upper tier Appeal Court and a lower tier High Court

judge selection and term of office: judges appointed by the president from candidates recommended by the prime minister after consultation with the chief justice; judges usually serve until retirement at age 65, but terms can be extended

subordinate courts: district, magistrates', juvenile, family, community, and coroners' courts; small claims tribunals; employment claims tribunals

Political parties and leaders

National Solidarity Party or NSP [Reno FONG]
People's Action Party or PAP [LEE Hsien Loong]
People's Power Party or (PPP) [Goh Meng SENG]
People's Voice or PV [Lim TEAN]
Progress Singapore Party or PSP [Tan Cheng Bock]
Red Dot United or RDU [Ravi PHILEMON]
Reform Party or RP [Kenneth JEYARETNAM]
Singapore Democratic Alliance or SDA [Abu MOHAMED]
Singapore Democratic Party or SDP [Dr. CHEE Soon Juan]
Singapore People's Party or SPP [Steve Chia]
Workers' Party or WP [Pritam SINGH] (2020)

International organization participation

ADB, AOSIS, APEC, Arctic Council (observer), ARF, ASEAN, BIS, C, CP, EAS, FAO, FATE, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICCT, ICRM, IDA, IFC, IFRCs, IHO, ILO, IMF, IMO, IMSO, Interpol, IOC, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, NAM, OPCW, Pacific Alliance (observer), PCA, UN, UNCTAD, UNESCO, UNHCR, UPU, WCO, WHO, WIPO, WMO, WTO

Diplomatic representation in the US

chief of mission: Ambassador Ashok KUMAR Mirpuri (since 30 July 2012)

chancery: 3501 International Place NW, Washington, DC 20008

telephone: [1] (202) 537-3100

FAX: [1] (202) 537-0876

consulate(s) general: San Francisco

consulate(s): New York

Diplomatic representation from the US

chief of mission: Ambassador (vacant); Charge d'Affaires Rafik MANSOUR (since July 2019)

telephone: [65] 6476-9100

embassy: 27 Napier Road, Singapore 258508

mailing address: FPO AP 96507-0001

FAX: [65] 6476-9340

Flag description

two equal horizontal bands of red (top) and white; near the hoist side of the red band, there is a vertical, white crescent (closed portion is toward the hoist side) partially enclosing five white five-pointed stars arranged in a circle; red denotes brotherhood and equality; white signifies purity and virtue; the waxing crescent moon symbolizes a young nation on the ascendancy; the five stars represent the nation's ideals of democracy, peace, progress, justice, and equality

National symbol(s)

lion, merlion (mythical half lion-half fish creature), orchid; national colors: red, white

National anthem

name: "Majulah Singapura" (Onward Singapore)

lyrics/music: ZUBIR Said

note: adopted 1965; first performed in 1958 at the Victoria Theatre, the anthem is sung only in Malay

EconomyReal GDP growth rate

0.73% (2019 est.)

3.48% (2018 est.)

4.34% (2017 est.)

country comparison to the world: 180

Inflation rate (consumer prices)

0.5% (2019 est.)

0.4% (2018 est.)

0.5% (2017 est.)

country comparison to the world: 43

Credit ratings

Fitch rating: AAA (2003)

Moody's rating: Aaa (2002)

Standard & Poor's rating: AAA (1995)

Real GDP (purchasing power parity)

\$555.193 billion (2019 est.)

\$551.152 billion (2018 est.)

\$532.832 billion (2017 est.)

note: data are in 2010 dollars

country comparison to the world: 38

GDP (official exchange rate)

\$372.088 billion (2019 est.)

Real GDP per capita

\$97,341 (2019 est.)

\$97,745 (2018 est.)

\$94,941 (2017 est.)

note: data are in 2010 dollars

country comparison to the world: 5

Gross national saving

42.8% of GDP (2019 est.)
43.9% of GDP (2018 est.)
45.4% of GDP (2017 est.)
country comparison to the world: 10

GDP - composition, by sector of origin

agriculture: 0% (2017 est.)
industry: 24.8% (2017 est.)
services: 75.2% (2017 est.)

GDP - composition, by end use

household consumption: 35.6% (2017 est.)
government consumption: 10.9% (2017 est.)
investment in fixed capital: 24.8% (2017 est.)
investment in inventories: 2.8% (2017 est.)
exports of goods and services: 173.3% (2017 est.)
imports of goods and services: -149.1% (2017 est.)

Ease of Doing Business Index scores

Overall score: 86.2 (2020)
Starting a Business score: 98.2 (2020)
Trading score: 89.6 (2020)
Enforcement score: 84.5 (2020)

Agricultural products

poultry, eggs, vegetables, pork, duck meat,
spinach, pig offals, bird eggs, pig fat, cabbages

Industries

electronics, chemicals, financial services,
oil drilling equipment, petroleum refining,
biomedical products, scientific instruments,
telecommunication equipment, processed food
and beverages, ship repair, offshore platform
construction, entrepot trade

Industrial production growth rate

5.7% (2017 est.)
country comparison to the world: 46

Labor force

3.778 million (2019 est.)
note: excludes non-residents
country comparison to the world: 92

Labor force - by occupation

agriculture: 0.7%
industry: 25.6%
services: 73.7% (2017)
note: excludes non-residents

Unemployment rate

2.25% (2019 est.)
2.1% (2018 est.)
country comparison to the world: 23

Population below poverty line

NA

Gini Index coefficient - distribution of family income

45.9 (2017)
45.8 (2016)
country comparison to the world: 27

Household income or consumption by percentage share

lowest 10%: 1.6%
highest 10%: 27.5% (2017)

Budget

revenues: 50.85 billion (2017 est.)
expenditures: 51.87 billion (2017 est.)
note: expenditures include both operational and
development expenditures

Taxes and other revenues

15.7% (of GDP) (2017 est.)
country comparison to the world: 187

Budget surplus (+) or deficit (-)

-0.3% (of GDP) (2017 est.)
country comparison to the world: 55

Public debt

111.1% of GDP (2017 est.)
106.8% of GDP (2016 est.)
note: Singapore's public debt consists largely of
Singapore Government Securities issued to assist
the Central Provident Fund, which administers
Singapore's defined contribution pension
fund; special issues of Singapore Government

Securities are held by the Central Provident Fund, and are non-tradable; the government has not borrowed to finance deficit expenditures since the 1980s; Singapore has no external public debt

country comparison to the world: 11

Fiscal year

1 April - 31 March

Current account balance

\$63.109 billion (2019 est.)

\$64.042 billion (2018 est.)

country comparison to the world: 8

Exports

\$626.68 billion (2019 est.)

\$636.565 billion (2018 est.)

\$588.576 billion (2017 est.)

country comparison to the world: 10

Exports - partners

China 15%, Hong Kong 13%, Malaysia 9%, United States 8%, Indonesia 7%, India 5% (2019)

Exports - commodities

integrated circuits, refined petroleum, gold, gas turbines, packaged medicines (2019)

Imports

\$533.478 billion (2019 est.)

\$542.802 billion (2018 est.)

\$505.736 billion (2017 est.)

country comparison to the world: 14

Imports - partners

China 16%, Malaysia 11%, United States 9%, Taiwan 7%, Japan 5%, Indonesia 5% (2019)

Imports - commodities

integrated circuits, refined petroleum, crude petroleum, gold, gas turbines (2019)

Reserves of foreign exchange and gold

\$279.9 billion (31 December 2017 est.)

\$271.8 billion (31 December 2016 est.)

country comparison to the world: 11

Debt - external

\$1,557,646,000,000 (2019 est.)

\$1,528,177,000,000 (2018 est.)

country comparison to the world: 16

Exchange rates

Singapore dollars (SGD) per US dollar -

1.33685 (2020 est.)

1.35945 (2019 est.)

1.3699 (2018 est.)

1.3748 (2014 est.)

1.2671 (2013 est.)

Energy

Electricity access

electrification - total population: 100% (2020)

Electricity - production

48.66 billion kWh (2016 est.)

country comparison to the world: 55

Electricity - consumption

47.69 billion kWh (2016 est.)

country comparison to the world: 51

Electricity - exports

0 kWh (2016 est.)

country comparison to the world: 198

Electricity - imports

0 kWh (2016 est.)

country comparison to the world: 200

Electricity - installed generating capacity

13.35 million kW (2016 est.)

country comparison to the world: 53

Electricity - from fossil fuels

98% of total installed capacity (2016 est.)

country comparison to the world: 29

Electricity - from nuclear fuels

0% of total installed capacity (2017 est.)

country comparison to the world: 183

Electricity - from hydroelectric plants
0% of total installed capacity (2017 est.)
country comparison to the world: 200

Electricity - from other renewable sources
2% of total installed capacity (2017 est.)
country comparison to the world: 143

Crude oil - production
0 bbl/day (2018 est.)
country comparison to the world: 200

Crude oil - exports
14,780 bbl/day (2015 est.)
country comparison to the world: 54

Crude oil - imports
783,300 bbl/day (2015 est.)
country comparison to the world: 15

Crude oil - proved reserves
0 bbl (1 January 2018 est.)
country comparison to the world: 195

Refined petroleum products - production
755,000 bbl/day (2015 est.)
country comparison to the world: 24

Refined petroleum products - consumption
1.322 million bbl/day (2016 est.)
country comparison to the world: 17

Refined petroleum products - exports
1.82 million bbl/day (2015 est.)
country comparison to the world: 4

Refined petroleum products - imports
2.335 million bbl/day (2015 est.)
country comparison to the world: 1

Natural gas - production
0 cu m (2017 est.)
country comparison to the world: 196

Natural gas - consumption
12.97 billion cu m (2017 est.)
country comparison to the world: 44

Natural gas - exports
622.9 million cu m (2017 est.)
country comparison to the world: 41

Natural gas - imports
13.48 billion cu m (2017 est.)
country comparison to the world: 23

Natural gas - proved reserves
0 cu m (1 January 2017 est.)
country comparison to the world: 194

Carbon dioxide emissions from consumption of energy
249.5 million Mt (2017 est.)

Communications

Telephones - fixed lines
total subscriptions: 1,911,200
subscriptions per 100 inhabitants: 33.22 (2019 est.)
country comparison to the world: 57

Telephones - mobile cellular
total subscriptions: 9,034,300
subscriptions per 100 inhabitants: 157.02 (2019 est.)
country comparison to the world: 90

Broadcast media
state controls broadcast media; 6 domestic TV stations operated by MediaCorp which is wholly owned by a state investment company; broadcasts from Malaysian and Indonesian stations available; satellite dishes banned; multi-channel cable TV services available; a total of 19 domestic radio stations broadcasting, with MediaCorp operating 11, Singapore Press Holdings, also government-linked, another 5, 2 controlled by the Singapore Armed Forces Reservists Association and one owned by BBC Radio; Malaysian and Indonesian radio stations are available as is BBC; a number of Internet service radio stations are also available (2019)

Internet country code

.sg

Internet users

total: 5,286,665

percent of population: 88.17% (July 2018 est.)

country comparison to the world: 80

Broadband - fixed subscriptions

total: 1.504 million

subscriptions per 100 inhabitants: 26.14 (2019 est.)

country comparison to the world: 64

TransportationNational air transport system

number of registered air carriers: 4 (2020)

inventory of registered aircraft operated by air carriers: 230

annual passenger traffic on registered air carriers: 40,401,515 (2018)

annual freight traffic on registered air carriers: 5,194,900,000 mt-km (2018)

Civil aircraft registration country code prefix

9V

Airports

total: 9 (2013)

country comparison to the world: 158

Airports - with paved runways

total: 9 (2017)

over 3,047 m: 2 (2017)

2,438 to 3,047 m: 2 (2017)

1,524 to 2,437 m: 3 (2017)

914 to 1,523 m: 1 (2017)

under 914 m: 1 (2017)

Pipelines

3220 km domestic gas (2014), 1122 km cross-border pipelines (2017), 8 km refined products (2013)

Roadways

total: 3,500 km (2017)

paved: 3,500 km (includes 164 km of expressways) (2017)

country comparison to the world: 158

Merchant marine

total: 3,420

by type: bulk carrier 570, container ship 497, general cargo 123, oil tanker 748, other 1,482 (2020)

country comparison to the world: 8

Ports and terminals

major seaport(s): Singapore

container port(s) (TEUs): Singapore (33,666,000) (2017)

LNG terminal(s) (import): Singapore

Military and SecurityMilitary and security forces

Singapore Armed Forces (aka Singapore Defense Force): Singapore Army, Republic of Singapore Navy, Republic of Singapore Air Force (includes air defense); Police Coast Guard (subordinate to the Singapore Police Force) (2021)

Military expenditures

3.3% of GDP (2020 est.)

3.2% of GDP (2019)

3.1% of GDP (2018)

3.1% of GDP (2017)

3.2% of GDP (2016)

country comparison to the world: 23

Military and security service personnel strengths

the Singapore Armed Forces (SAF) have approximately 60,000 active duty troops (45,000 Army; 7,000 Navy; 8,000 Air Force) (2020)

Military equipment inventories and acquisitions

the SAF has a diverse and largely modern mix of domestically-produced and imported weapons; Singapore has the most developed arms industry in Southeast Asia and is also the largest importer of weapons; since 2010, the US is the chief supplier of arms to Singapore, followed by a diverse array of countries, including France, Germany, and Spain (2020)

Military deployments

maintains permanent training bases and detachments of military personnel in Australia, France, and the US (2020)

Military service age and obligation

18-21 years of age for male compulsory military service; 16 1/2 years of age for voluntary enlistment (with parental consent); 2-year conscript service obligation, with a reserve obligation to age 40 (enlisted) or age 50 (officers) (2019)

Maritime threats

the International Maritime Bureau reports the territorial and offshore waters in the South China Sea as high risk for piracy and armed robbery against ships; numerous commercial vessels have been attacked and hijacked both at anchor and while underway; hijacked vessels are often disguised and cargo diverted to ports in East Asia; crews have been murdered or cast adrift; the Singapore Straits saw 23 attacks against commercial vessels in 2020, vessels were boarded in 22 of the 23 incidents, one crew was injured, another taken hostage and two threatened during these incidents

Transnational Issues

Refugees and internally displaced persons

stateless persons: 1,303 (2019)

Illicit drugs

drug abuse limited because of aggressive law enforcement efforts, including carrying out death sentences; as a transportation and financial services hub, Singapore is vulnerable, despite strict laws and enforcement, as a venue for money laundering

Acronyms and Abbreviations

°C	Degrees Celsius
AADMER	ASEAN Agreement on Disaster and Emergency Management
AAFB	Andersen Air Force Base
AARND	Agreement on Rapid Response for Natural Disasters (SAARC)
ACDM	ASEAN Committee on Disaster Management
ACE	AHA Centre Executive Programme
ADB	Asian Development Bank
ADInet	ASEAN Disaster Information Network
ADRC	Asian Disaster Reduction Centre
AED	automated external defibrillator
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AHAC	ASEAN Humanitarian Assistance Coordinator
AICHR	ASEAN Intergovernmental Commission on Human Right
AIDRP	ASEAN Joint Disaster Response Plan
ANMC 21	Asian Network of Major Cities 21
AOSIS	Alliance of Small Island States
APAN	All Partners Access Network
APC-MADRO	Asia-Pacific Conferences on Military Assistance to Disaster Relief Operations
APEC	Asia-Pacific Economic Cooperation Forum
APG	AADMER Partnership Group
ARDEX	ASEAN Regional Disaster Emergency Response Simulation Exercise
ARF	ASEAN Regional Forum
ASEAN	Association of Southeast Asian Nations
ASEAN-ERAT	ASEAN-Emergency Response and Assessment Team
ASMC	ASEAN Specialised Meteorological Centre
AVPN	Asian Venture Philanthropy Network
AWARE	Association of Women for Action and Research
bbl/day	barrel per day
BHA	Bureau for Humanitarian Assistance (USAID)
BIS	Bank for International Settlements
C	Commonwealth
C2E	Community Emergency and Engagement
C3	Command, Control, and Communications
CAP	Climate Action Package
CARAT	Cooperation Afloat Readiness and Training
CBRE	Chemical, Biological, Radiological, and Explosive
CC2C	Changi Command and Control Centre
CD	Civil Defence

CDA	Civil Defence Academy
CDC	Community Development Council
CDD	Civil Defence Division
CDEC	Civil Defence Executive Committee
CEO	Chief Executive Officer
CERF	Central Emergency Response Fund
CERT	Community Emergency Response Teams
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
CFTC	Commonwealth Fund for Technical Co-operation
Changi RHCC	Changi Regional Humanitarian Assistance and Disaster Relief Coordination Centre
CIS	Computer Information System
CISA	Cybersecurity and Infrastructure Security (U.S.)
cm	centimeter(s)
CMCS	Civil-Military Coordination Section (UN OCHA)
CMG	Crisis Management Groups
COVID-19	Coronavirus disease 2019
CP	Colombo Plan
CPR	cardio-pulmonary resuscitation
CSA	Cyber Security Agency (Singapore)
CSF	Centre for Strategic Futures
CSP	Comprehensive Strategic Partnership
CSSP	Community Safety and Security Programmes
cu m	cubic meter(s)
DART	Disaster Assistance and Rescue Team
DCA	Defense Cooperation Agreement
DEA	Digital Economy Agreement
DELSA	Disaster Emergency Logistics System for ASEAN
DKI-APCSS	Daniel K. Inouye Asia-Pacific Center for Security Studies
DMHA	Disaster Management and Humanitarian Assistance
DMRS	Disaster Monitoring and Response System (ASEAN)
DoD	Department of Defense (U.S.)
DORSCON	Disease Outbreak Response System Condition
DRR	disaster risk reduction
EAS	East-Asia Summit
ECOSOC	United Nations Economic and Social Council
EMOPS	Emergency Operations
EPR	Emergency Preparedness and Response (MOH)
ERC	Emergency Relief Coordinator
ERO	Emergency Response Operation (AHA Centre)
Ex COORES	Exercise Coordinated Response

FAO	Food and Agriculture Organization (UN)
FATF	Financial Action Task Force
FMA	Foreign Military Assets
G-77	Group of 77
GCNS	Global Compact Network Singapore
GC-TISD	Global Centre for Technology, Innovation and Sustainable Development
GDACS	Global Disaster Alert and Coordination System
GDP	gross domestic product
GRI	Global Reporting Initiative
HADR	humanitarian assistance and disaster relief
HART	Humanitarian Assistance Response Training
HCEG	Homefront Crisis Executive Group
HCMC	Homefront Crisis Ministerial Committee
HCMS	Homefront Crisis Management System
HCT	Humanitarian Country Teams
HDX	Humanitarian Data Exchange
HFA	Hyogo Framework for Action
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
HOME	Humanitarian Organization for Migration Economics
HOSTAC	Helicopter Operations from Ships other Than Aircraft Carriers
HQ	Headquarters
HTTC	Home Team Tactical Centre
IAEA	International Atomic Energy Association
IAI	Initiative for ASEAN Integration
IASC	Inter-Agency Standing Committee
IATA	International Air Transport Association
IBRD	International Bank of Reconstruction and Development
ICAO	International Civil Aviation Organization
ICC	International Chamber of Commerce
ICCT	International Council on Clean Transportation
ICRC	International Committee of the Red Cross
ICRM	Institute of Catastrophe Risk Management
ICT	Information and Communications Technology
IDA	International Development Association (World Bank)
IDRL	Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance
IFC	International Finance Corporation (World Bank)
IFRC(S)	International Federation of Red Cross and Red Crescent (Societies)
IGO	International Governmental Organization
IHO	International Hydrographic Organization

ILO	International Labor Organization
IM	Incident Manager
IMF	International Monetary Fund
IMO	International Maritime Organization
IMSO	International Mobil Satellite Organization
INDOPACOM	U.S. Indo-Pacific Command
INFORM	Index for Risk Management
INSARAG	International Search and Rescue Advisory Group
IOC	International Olympic Committee
IPC	Institution of a Public Character
IPU	Inter-Parliamentary Union
ISAF	International Security Assistance Force
ISO	International Organization for Standardization
ITDI	IATA Training and Development Institute
ITSO	International Telecommunications Satellite Organization
ITU	International Telecommunication Union
ITUC	International Trade Union Confederation
JICA	Japan International Cooperation Agency
JMC	Joint Ministerial Committee
JOPG	Joint Operations Planning Group
JTWC	Joint Typhoon Warning Center
km	kilometer(s)
kW(h)	Kilowatt (hour)
LTC	Lieutenant Colonel
m	meter(s)
mm	millimeter(s)
MAS	Malaysia Airlines
MCCY	Ministry of Community Development
MCDA	foreign military and civil defence assets
MCI	Ministry of Communication and Information
MFA	Ministry of Foreign Affairs
MHA	Ministry of Home Affairs
MIGA	Multilateral Investment Guarantee Agency
MINDEF	Ministry of Defence
MINLAW	Ministry of Law
MNCC	Multinational Coordination Centre
MND	Ministry of National Development
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health

MOM	Ministry of Manpower
MOT	Ministry of Transport
MoU	Memorandum of Understanding
MSE	Ministry of Sustainability and the Environment
MSF	Ministry of Social and Family Development
MSS	Meteorological Service Singapore
Mt	Megatonne
MTF	Multi-Ministry Task Force
MTI	Ministry of Trade and Industry
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organization
NCCS	National Climate Change Secretariat
NDMO	National Disaster Management Organization
NEA	National Environment Agency
NFEC	National Fire and Civil Emergency Preparedness Council
NFP	National Focal Point
NFPC	National Fire Prevention Council
NGO	non-governmental organization
nm	nautical mile(s)
NSCS	National Security Coordination Secretariat
NSTI	National Training Service Institute
OCHA	Office for the Coordination of Humanitarian of Humanitarian Affairs (UN)
OPCW	Organization for the Prohibition of Chemical Weapons
Ops CE	Operations Civil Emergency Plan
ORNS	Operationally Ready National Service
PCA	Permanent Court of Arbitration
PCD	Public Communications Division (MCI)
PDC	Pacific Disaster Centre
PMO	Prime Minister's Office
PP	Pacific Partnership
PSI	Pollutant Standards Index
PWS	Public Warning System
RBLF	Royal Brunei Land Forces
RCG	Regional Consultative Group on Humanitarian Civil-Military Coordination for Asia and the Pacific
RCRC	Red Cross/Red Crescent
RHQ	regional headquarters
RIMPAC	Exercise Rim of the Pacific
ROAP	Regional Office for Asia and the Pacific (UN OCHA)
RSAF	Republic of Singapore Air Force

RSG	Relief Singapore
RSN	Republic of Singapore Navy
SAARC	South Asian Association for Regional Cooperation
SAF	Singapore Armed Forces
SAFTA	Singapore-Australia Free Trade Agreement
SARS & SARS-CoV-2	Severe acute respiratory syndrome – Coronavirus - 2
SASOP	Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations
SCDF	Singapore Civil Defence Force
SCP	Singapore Cooperation Programme
SCWO	Singapore Council of Women's Organisations
SEACAT	Southeast Asia Cooperation and Training
SFA	Strategic Framework Agreement
SFP	Satellite Fire Posts
SGD (\$\$)	Singapore dollar
SHG	Social Health Growth
SMART	Special Malaysia Disaster Assistance and Rescue Team
SPF	Singapore Police Force
SPO	Strategic Planning Office
sq km	square kilometer(s)
SRCS	Singapore Red Cross Society
TCTP	Third Country Training Program
TNI	Indonesian Armed Forces
TTX	Table Top Exercise
TWC2	Transient Workers Count Two
UISS	Unclassified Information Sharing Service
UK	United Kingdom
UN	United Nations
UN RCO	Office of the United Nations Resident Coordinator
UN-CMCoord	United Nations Humanitarian Civil-Military Coordination
UNCTAD	United Nations Conference on Trade and Development
UNDAC	United Nations Disaster Assistance and Coordination
UNDP	United Nations Development Program
UNDRR	United Nations Office for Disaster Risk Reduction (formerly UNISDR)
UNESCO	United Nations Education, Scientific, Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNIKOM	UN Iraq Kuwait Observer Mission
UNISDR	United Nations International Strategy for Disaster Reduction (now UNDRR)
UNSCR	United Nations Security Council Resolution
UNTAC	UN Transitional Authority in Cambodia

UNTAG	UN Transition Assistance Group
UPU	United Postal Union
U.S.	United States
USAID	U.S. Agency for International Development
USAR	Urban Search and Rescue
USARPAC	U.S. Army Pacific
USMC	United States Marine Corps
UTC	Coordinated Universal Time
UWS	United Women Singapore
VNR	Voluntary National Review
WCO	World Customs Organization
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization
WOG-IRM	Whole-of-Government Integrated Risk Management
WPS	Women, Peace, and Security
WTO	World Trade Organization
WVI	World Vision International
WWF	Worldwide Fund for Nature

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Center for Excellence in Disaster Management & Humanitarian Assistance
456 Hornet Avenue, Building 76, Joint Base Pearl Harbor - Hickam, Hawaii 96860-3503
Telephone: 808.472.0518 | DSN: 315.472.0518
<https://www.cfe-dmha.org>

  @cfedmha