Chapter 5. National Security

Singaporean preparedness

THE TOTAL DEFENCE CONCEPT, the cornerstone of Singapore's national security policy in 1989, called for the deterrence of aggression through the maintenance of a small but well-trained and well-equipped military backed by a committed population proficient in civil defense. During the late 1960s and early 1970s, the Singapore government under Prime Minister Lee Kuan Yew laid the foundation for a national security system based on total preparedness, which involved more than 10 percent of the adult population in some type of national service. After 1967 all males were required to register at age sixteen for two years of national service. By 1989 almost all males under the age of fifty had received military training in the armed forces, or training in the police force or in a public service related to civil defense.

Singapore's national security perceptions under Lee were influenced by the country's size and geographic location and by changes in the regional military balance. The nation's military planners acknowledged that if it were attacked by a larger power, Singapore could not defend itself with its own resources for more than a few weeks. However, they believed that the total preparedness for war of the country's military and civilian populace would deter potential adversaries from regarding Singapore as an easy target for aggression. Singapore's foreign policies were carefully planned to accommodate national security considerations. In 1989, for example, Lee stated that Singapore would consider normalizing its relations with China only after Indonesia had completed its plan to do the same. This position was consistent with Singapore's national security policy of deferring to the foreign policy concerns of its larger neighbors. After the Republic of Vietnam (South Vietnam) fell to communist forces in 1975, Singapore viewed the growth of communist influence in the region, and the reduced American military presence in Southeast Asia, as a potential threat to its national security. Singapore's leaders feared that a militaristic Vietnam, supported by the Soviet Union, would promote communist movements in Thailand, Malaysia, and Singapore. Throughout the 1980s, the Lee government supported the Association of Southeast Asian Nations (ASEAN—see Glossary) in opposing Vietnam's occupation of Cambodia; the government also promoted the improvement of bilateral military cooperation with its ASEAN partners as part of its national security strategy. In 1989 Singapore was continuing to strengthen its military relations with

its neighbors, although the threat of Soviet and Vietnamese-supported aggression against any one of the six ASEAN members appeared on the decline (see Foreign Policy, ch. 4).

From 1965 to 1989, subversive groups posed no threat to Singapore's political system, and there was no recurrence of the ethnic and communist-inspired riots of the 1950s and early 1960s. British statutes that had allowed the indefinite incarceration of persons accused of advocating the violent overthrow of the government were still in force in 1989 under the Internal Security Act of 1960. Although the government continued to use this statute to discourage radical political movements, by the late 1980s it had established a policy of releasing most persons detained under the Internal Security Act within a few months of their arrest unless they were referred to the court for trial.

In the 1970s, while the numbers for most types of crime remained relatively stable, there was an increase in crime related to the sale and use of illegal drugs. Although drugs continued to be a factor in crime in 1989, the occasional use of capital punishment for drug trafficking and the introduction of new law enforcement and rehabilitation programs for addicts reportedly were proving effective in controlling the problem.

The Civil Defence Act of 1986 defined the mission and responsibilities of the Civil Defence Force, which had been established in 1982. By the early 1980s, the armed services had a surplus of conscripts, and the government decided to expand the national service system to include civil defense organizations. By 1989 Singapore had ten operational civil defense divisions and had organized civil defense programs in each of the country's fifty-five legislative districts.

The Armed Forces

In 1989 Singapore's armed forces comprised the army, navy, and air forces, their reserves, and the People's Defence Force, which was the country's national guard. There were 55,000 personnel in the regular armed services, 182,000 in the reserves, and 30,000 in the national guard. All males were required to register for service at age sixteen and became eligible for conscription when they turned eighteen. Most conscripts served in one unit during their twenty-four to thirty months of active duty, and they continued with the same unit until they completed their duty in the reserves. The 1970 Enlistment Act required enlisted men to remain in the reserves until they turned forty and officers until the age of fifty.

The Constitution was amended in 1972 to prohibit the armed forces from being subordinated to any foreign power without the

approval of the voters in a national referendum. The amendment, Article Six of the Constitution, states that defense treaties and collective security agreements negotiated by the government are to be approved by a two-thirds majority of the electorate. This amendment did not preclude Singapore's participation in the 1971 Five-Powers Defence Agreement (see Glossary), which was primarily intended to provide support by Australia, Britain, and New Zealand for Malaysia and Singapore should either nation be attacked. In 1989 the members of the Five-Powers Defence Agreement maintained an air defense network for the protection of Singapore and Malaysia and organized military exercises to improve the interoperability of their armed forces.

The Armed Forces Act of 1972 defines the organization and mission of the armed forces. The Armed Forces Council in 1989 was chaired by the minister for defence and included as members the commanders of the army, navy, and air force; it was the top military policymaking body, subordinate only to the prime minister. In 1989 the minister for defence was a civilian, as had been his predecessors although military officers were not legally prohibited from holding a ministerial appointment.

Historical Development

Until Singapore's separation from Malaysia in August 1965, responsibility for national security matters had always resided either in London or Kuala Lumpur. In the two decades following the end of World War II (1939–45), Britain spent billions of dollars to rebuild its military bases in Singapore in order to honor its defense commitments to Malaysia and Singapore. Between 1963 and 1966, several thousand British troops were deployed to protect the two countries during the Indonesian Confrontation (Konfrontasi—see Glossary). By 1967 the British Labour and Conservative parties had reached a consensus that Britain could no longer afford to pay the cost of maintaining a military presence in Southeast Asia. In January 1968, London informed the Singapore government that all British forces would be withdrawn by 1971, ending 152 years of responsibility for the defense of Singapore.

After the 1963 merger of Malaya, Singapore, Sabah, and Sarawak to form the Federation of Malaysia, Singapore ceded control over its armed forces to the federal government in Kuala Lumpur. For a time, Malaysian army and air force units were stationed in Singapore, and Lee Kuan Yew's refusal to allow Malaysia to retain control over Singapore's military establishment after separation was one reason political relations between the two nations remained strained well into the 1970s.

British Military Involvement, 1819–1942

In the years preceding the founding of Singapore in 1819, neither the British government nor the British East India Company was eager to risk the establishment of new settlements in Southeast Asia. From 1803 to 1815, London was preoccupied with war with France and, after Napoleon's abdication in October 1815, with establishing a stable peace in Europe. Britain administered the Dutch colonies in Malaya and Indonesia from 1795 to 1815 when the Netherlands was under French occupation. The British government returned control of these territories to the Dutch in 1816 over the objections of a small minority of British East India Company officials, including Sir Thomas Stamford Raffles. Raffles, in London from 1816 to 1818, failed to convince the company's directors to support a plan to challenge Dutch supremacy in the Malay Archipelago and Malaya. Enroute from London to Malaya, however, Raffles stopped in India and gained the support of Lord Hastings, the British East India Company's governor general of India, for a less ambitious plan. They agreed to establish a trading post south of Britain's settlement in Penang, Malaya.

From 1819 to 1867, when Singapore was administered by the British East India Company, Britain relied on its navy to protect its interests there and in Malaya. The Netherlands was the only European country to challenge the establishment of Singapore. In 1824, however, the Dutch ceded Malacca on the Malay Peninsula to Britain and recognized the former's claim to Singapore in exchange for British recognition of Amsterdam's sovereignty over territories south of the Singapore Strait. Two years later, the British East India Company united Singapore with Malacca and Penang to form the Presidency of the Straits Settlements (see Glossary). With no threat to its interests, the British employed the policy of allowing Singapore to assume responsibility for its own defense, although British naval vessels called in Singapore to show the flag and to protect shipping in the Singapore Strait (see fig. 3). By the mid-nineteenth century, London was recognized as the supreme naval power in the region, despite the fact that it deployed only about twenty-four warships to patrol an area extending east from Singapore as far as Hong Kong and west from Singapore as far as India.

Between 1867 and 1914, London contributed little to the establishment of permanent armed forces in Singapore. Units of the British Army's Fifth Light Infantry Regiment, which included infantry units brought from India, were stationed on the island. More often

than not, however, these forces were deployed in the Malay states to protect British citizens there during periods of domestic violence. In 1867 when the strategic value of Singapore influenced London's decision to make the Straits Settlements a crown colony, the local governments were required to pay 90 percent of their own defense expenditures. The issue of collecting taxes from the residents of Singapore for defense remained controversial until 1933, when the Colonial Office finally agreed that the city should not be required to pay more than 20 percent of its revenue for defense costs.

Following World War I (1914–18), London attempted to integrate Singapore into a unified defense plan for all of the Straits Settlements and Malay states under British control. London had replaced the Indian elements of the Fifth Light Infantry Regiment with regular British Army units following the mutiny of Singapore's Indian troops in February 1915 (see Crown Colony, 1867–1918, ch. 1). As late as 1937, London had not deployed more than a few hundred British army regulars in the Straits Settlements and Federated Malay States. As there was no overt threat from neighboring countries or Britain's European rivals, the War Office believed that these units, aided by local militias trained by the British army, could adequately protect British interests on the Malay Peninsula. Singapore's militia, known as the Volunteer Rifle Corps, comprised infantry, artillery, and support units with a total personnel strength of about 1,000. The Volunteer Rifle Corps was integrated into the newly established Straits Settlements Volunteer Force in 1922. London believed that in the unlikely event that the Straits Settlements were attacked, regular and militia forces could hold out until reinforcements arrived from Hong Kong, India, and other British outposts in Asia.

In June 1937, Britain began to prepare for the possibility of war with Japan. Three British army battalions stationed in Singapore, one Indian battalion at Penang, and one Malay regiment at Port Dickson in the Malayan state of Negri Sembilan were the only regular forces available at the time for the defense of Singapore and the Malay Peninsula. Although the British military leaders had warned London in 1937 that the defense of Singapore was tied to the defense of Malaya and that any Japanese attack on the island would likely be made from the Malay Peninsula, their assessment was rejected by the British War Office, which was convinced that the impenetrable rain forests of the peninsula would discourage any landward invasion. Air bases were established in northern Malaya but were never adequately fortified. A new naval base was constructed on the northern coast of the island, but few ships were deployed there. Military strategists in London believed that the

Singapore garrison could defend the island for about two months, or the time it would take for a relief naval force to arrive from Britain.

In December 1941, British and Commonwealth of Nations (see Glossary) forces committed to the defense of the Malay Peninsula and Singapore comprised four army divisions supported by small numbers of aircraft and naval vessels that had been sent from other war zones to provide token support to the ground forces. Lieutenant General Arthur E. Percival, commander of these forces, deployed most units in the northern Malayan states of Kedah, Perak, Kelantan, and Terengganu. Fortified defensive positions were established to protect cities and the main roads leading south to Kuala Lumpur, Malacca, and Singapore. The British had no armor and very little artillery, however, and air bases that had been constructed in the Malayan states of Kelantan, Pahang, and Johore and in Singapore at Tengah, Sembawang, and Seletar were not well fortified. The attention of the War Office was focused on the fighting in Europe, and appeals to London for more aircraft went largely unanswered.

A small fleet, comprising the aircraft carrier *Unsinkable,* the battleship *Prince of Wales,* the battle cruiser *Repulse,* and four destroyers, represented the only naval force deployed to Singapore before the outbreak of war in the Pacific. The *Unsinkable* ran aground in the West Indies enroute to Singapore, leaving the fleet without any air protection.

Japanese Invasion, December 1941–February 1942

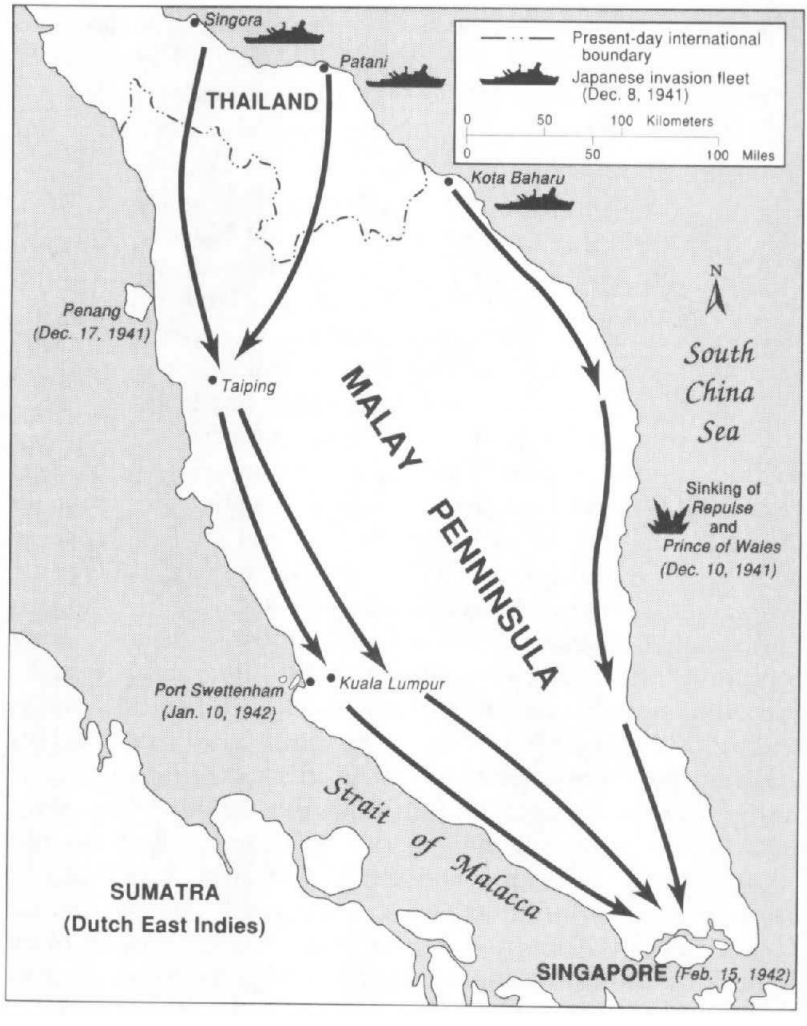
By the summer of 1941, Japan's relations with the Western powers had deteriorated so much that Japanese leaders saw no point in delaying plans for military operations in Southeast Asia and the Pacific. Japan's short-term goal was to secure the necessary supplies to complete its conquest of China by occupying the Southeast Asian territories controlled by France, Britain, the United States, and the Netherlands. Japan's long-term plans called for further expansion south to Australia and north from Manchuria into Mongolia and the Soviet Union.

Japanese air and naval attacks on British and United States bases in Malaya and the Philippines were coordinated with the December 7, 1941, assault on the United States Pacific Fleet Headquarters at Pearl Harbor, Hawaii. Japan's Southern Army, headquartered in Saigon, quickly moved from bases in southern Indochina and Hainan to attack southern Thailand and northern Malaya on December 8 and the Philippines on December 10. The

Japanese easily captured British air bases in northern Malaya and soon controlled the air and sea-lanes in the South China Sea as far south as the Strait of Malacca. Naval landings were made on the Thai coast at Singora (present-day Songkhla) and Patani and on the Malayan coast at Kota Baharu. Also on December 10, the Japanese located and destroyed the *Prince of Wales* and the *Repulse,* thereby eliminating the only naval threat to their Malaya campaign. The Thai government capitulated to a Japanese ultimatum to allow passage of Japanese troops through Thailand in return for Japanese assurances of respect for Thailand's independence. This agreement enabled the Japanese to establish land lines to supply their forces in Burma and Malaya through Thailand.

The prediction that Japan would conquer the Malay Peninsula before attempting an invasion of Singapore proved to be correct. Lieutenant General Yamashita Tomoyuki was placed in command of the Twenty-fifth Army comprising three of the best Japanese divisions. The Japanese used tactics developed specifically for the operation in northern Malaya. Tanks were deployed in frontal assaults while light infantry forces bypassed British defenses using bicycles or boats, thereby interdicting British efforts to deliver badly needed reinforcements, ammunition, food, and medical supplies (see fig. 13). Cut off from their supply bases in southern Malaya and Singapore, demoralized by the effectiveness of Japan's jungle warfare, and with no possibility that additional ground or air units would arrive in time to turn the tide of battle, the British withdrew to Singapore and prepared for the final siege. The Japanese captured Penang on December 18, 1941, and Kuala Lumpur on January 11, 1942. The last British forces reached Singapore on January 31, 1942, and on the same day a fifty-five-meter gap was blown in the causeway linking Singapore and Johore.

In January 1942, London had provided an additional infantry division and delivered the promised Hurricane fighter aircraft, although the latter arrived in crates and without the personnel to assemble them. In the battle for Singapore, the British had the larger ground force, with 70,000 Commonwealth forces in Singapore facing 30,000 Japanese. The Japanese controlled the air, however, and intense bombing of military and civilian targets hampered British efforts to establish defensive positions and created chaos in a city whose population had been swollen by more than a million refugees from the Malay Peninsula. Yamashita began the attack on February 8. Units of the Fifth and Eighteenth Japanese Divisions used collapsible boats to cross the Johore Strait, undetected by the British, to Singapore's northwest coast. By February



Source: Based on information from Colin Jack-Hinton, *A Sketch Map History of Malaya, Sarawak, Sabah, and Singapore,* London, 1966, 62; and N.J. Ryan, *The Making of Modern Malaysia and Singapore,* Kuala Lumpur, 1969, 221.

Figure 13. Japanese Campaign on Malay Peninsula, 1941-42

13, the Japanese controlled all of the island except the heavily populated southeastern sector. General Percival cabled Field Marshal Sir Archibald Wavell, British Supreme Commander in the Far East, informed him that the situation was hopeless, and received London's permission to surrender. On February 15, one week after the first Japanese troops had crossed the Johore Strait and landed in Singapore, Percival surrendered to Yamashita.

Decline of British Military Influence, 1945–75

British military influence in Singapore was reestablished at the end of World War II and declined at a slower pace than London's political influence. Singapore was made the headquarters for British forces stationed in the East Asia. The local population's resentment of British rule was tempered by the magnitude of the social and economic problems remaining after the Japanese occupation. Britain's military expenditures provided jobs and promoted support for its political objectives in the region. From 1948 to 1960, Malaya and Singapore were under Emergency rule as a result of the threat posed by the Communist Party of Malaya (CPM—see Glossary). Throughout this period, the majority of Singapore's political and business leaders were strong supporters of the British military presence. As Singapore moved from being a crown colony, to becoming a state in the Federation of Malaysia, and finally to independence in 1965, the British armed forces continued to be viewed as the protector of Singapore's democratic system of government and an integral part of the island's economy.

By 1962 the British were questioning the strategic necessity and political wisdom of stationing forces in Singapore and Malaya. At that time London was spending about US$450 million annually to maintain four infantry battalions, several squadrons of fighter aircraft, and the largest British naval base outside the British Isles, even though Southeast Asia accounted for less than 5 percent of Britain's foreign commerce.

In January 1968, the British government informed Prime Minister Lee that all British forces would be withdrawn from the country within three years. By then Singapore already had begun to organize its army and to plan for the establishment of an air force and navy. The British left behind a large military infrastructure and trained personnel of the newly formed Air Defence and Maritime commands. London formally ended all responsibility for Singapore's defense in 1972 when it turned over control of the Bukit Gombak radar station to Singapore.

Growth of the Armed Forces

Singapore's separation from Malaysia in August 1965 forced government leaders to begin thinking about the new nation's defense strategy and what armed forces would be needed to make that strategy a viable deterrent to potential adversaries. The task was made all the more difficult because of Singapore's strained relations with Malaysia and Indonesia (see Two Decades of Independence, 1965–85, ch. 1). Lee appointed Goh Keng Swee to

head the newly established Ministry of the Interior and Defence. By June 1966, the government had decided that instituting compulsory conscription was the best way to build up the armed forces. Government leaders were impressed with Israel's successful use of a small regular army supported by a large citizen reserve and believed that the development of this type of armed forces would encourage national pride and self-reliance.

Between 1967 and 1970, the army was expanded from two infantry battalions to two brigades comprising one tank regiment, six infantry battalions, and one artillery battalion. The first classes of officers and noncommissioned officers (NCOs) graduated from the Armed Forces Training Institute in June 1967. This group of about 500 men was trained by Israeli instructors and provided the army with a core of leaders for both regular and reserve battalions. Under the system developed by the army's general staff, officers and NCOs were assigned to stay with newly formed national service battalions for the two-and-a-half years the conscripts remained on active duty. During this period, qualified enlisted men were selected for training as section and platoon leaders so that when a battalion was transferred to the reserves, a stable leadership would remain with the unit until its demobilization. In 1970 the government divided the Ministry of Interior and Defence into two separate ministries responsible for home affairs and defense, respectively. By December of that year, the army's reserve brigade comprised three infantry battalions.

The evolution of the air force and navy occurred at a slower pace than was the case with the army. In 1968 British air force commanders and pilots began assisting the newly formed Air Defence Command to establish its own air units. The British helped to establish an air force pilot training program at the Flying Training School located at Tengah Air Base. The first class of pilots received basic military training and general flying instruction in Singapore and then was sent to Britain for fighter aircraft training. These pilots returned to Singapore in 1971 and were assigned to the Air Defence Command's two fighter squadrons comprising one ground attack squadron with sixteen Strikemaster and four Hawker Hunter jet aircraft, and one interceptor squadron with sixteen Hawker Hunters. In 1969 the Maritime Command established temporary headquarters on Sentosa Island where it remained until a permanent base was completed on Pulau Brani (*pulau* means island). The government had negotiated agreements with two private companies—Lürssen Werft of the Federal Republic of Germany (West Germany) and Vosper Thornycroft of Britain—for the joint production of the navy's first naval vessels. Two gunboats produced

Japanese officer handing over maps to British officers and discussing troop positions, 1945
Courtesy National Archives

in Britain were delivered to Singapore in 1969 and were followed by Singapore-produced models of the same design, which entered service in 1970.

In the 1970s, the army, air force, and navy were expanded, new weapon systems were acquired from abroad, local defense industries were established, and military logistical systems were improved. In 1970 the army had 14,000 personnel on active duty and 6,000 in the reserves. Infantry training and equipment were considered adequate. However, the army's newly formed armored regiment was not yet operational, and the single artillery battalion was underequipped. The engineer and signal branches also were in the early stages of development. In 1967 the government had established the Sheng-Li Holding Company under the Ministry of Defence to promote state-owned-and-operated defense industries. By the mid-1970s, Singapore was producing ammunition, small arms, mortars, and artillery for the army and for export. In most cases, a Singapore manufacturer purchased the design and marketing rights for a weapon from European and American firms and then built the necessary plant for assembling the weapon. Tanks, armored vehicles, aircraft, and some surplus United States Navy amphibious craft and minesweepers were purchased to fill critical

equipment shortages. Military logistical organizations established in the 1960s evolved into an efficient network of supply and maintenance facilities. These concerns included both interservice ordnance and transportation supply bases and intraservice facilities responsible for the procurement and repair of weapons and equipment used by only one of the service.

By 1980, the armed forces had 42,000 personnel on active-duty, and the reserves had expanded to 50,000. The army had become a well-balanced force with regular units organized into one armored and three infantry divisions under the operational control of a single division commander. The navy's twelve patrol craft, which were equipped with guns and missiles, gave Singapore a coastal defense force, and its six landing ships provided a limited capability to support the army in an amphibious operation. The air force, with 131 fighter aircraft and 2 surface-to-air missile battalions, was now large enough to fulfill both its air defense and ground support missions. Additionally, the air force had one transport squadron capable of airlifting a fully equipped infantry battalion anywhere in Southeast Asia and one helicopter squadron available for counterinsurgency or search-and-rescue operations.

In the 1980s, the number of army reservists more than tripled, although expansion of the regular armed services was constrained for budgetary reasons. By 1989 there were 170,000 army reservists. Only about 70,000 reservists, however, served in combat or combat support units subject to immediate mobilization. These units comprised one armored brigade equipped with AMX-13 tanks and M-113 armored personnel carriers, six infantry brigades, ten artillery battalions, one commando battalion, and an unknown number of combat support battalions. Most of the remaining 100,000 reservists probably either were assigned to units that would be used as fillers during wartime or served in the People's Defence and Civil Defence Forces. In the army, the number of engineer and signal battalions were increased by five and two, respectively, but the number of combat units remained basically the same throughout the decade. The air force added one squadron of F-5E interceptors, one early warning and reconnaissance squadron with four E-2Cs, and one transport helicopter squadron. Most growth in the navy occurred in combat support organizations. In 1989 the navy was in the process of establishing a new unit that would eventually comprise six missile-equipped corvettes.

Organization and Mission of the Armed Forces

In 1989 Prime Minister Lee continued to make most policy decisions concerning defense strategy and to approve the military

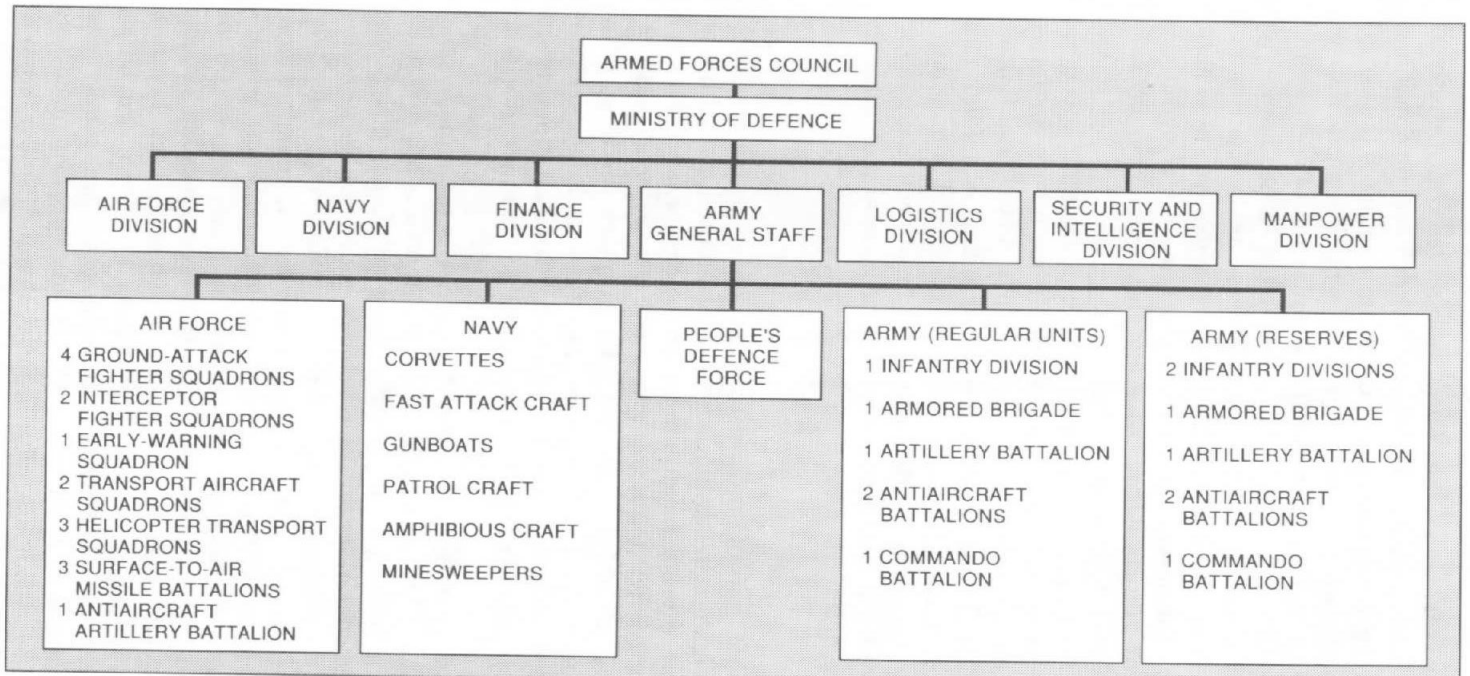
budget. However, Goh Chok Tong, who served concurrently as first deputy prime minister and minister for defence, no doubt had the authority to decide most policy questions relating to the armed forces. He was assisted by two deputy defence ministers, one responsible for policy and the other for the organization of combat and combat support organizations. According to the Armed Forces Act of 1972, the minister for defence was to serve as the chairman of the Armed Forces Council and, in this capacity, was to assume responsibility for organizing and administering the armed forces and those government agencies having jurisdiction over military installations and defense industries.

In 1989, the Ministry of Defence was organized into a general staff for the army and six divisions responsible for the air force, navy, security and intelligence, logistics, manpower, and finance (see figure 14). The air force and navy were largely autonomous and were commanded by a brigadier general and commodore, respectively. In wartime, the air force and navy would come under the operational control of the chief of the general staff, an army lieutenant general.

Army

The combat units of the army were organized into infantry and armored brigades and antiaircraft artillery battalions. Although there was one division headquarters for the regular army and two division headquarters for the reserves, these arrangements undoubtedly were established for administrative purposes. Because of the scarcity of open land in Singapore, most unit training was conducted at the battalion and lower levels. Combat support was provided by engineer, signal, transportation, maintenance, and medical units.

In 1989 there were three infantry brigades in the regular army and six infantry brigades in the reserves comprising approximately thirty infantry battalions. Three of these battalions were trained in airmobile operations for rapid deployment to trouble spots and two others for commando operations. The primary offensive mission assigned to the infantry included moving into populated and rural areas occupied by an enemy force and retaking territory. Defensive missions included deployment to strategic points on the main island and surrounding islands to protect areas inaccessible to armored and artillery units; protection of tank and artillery units during enemy assaults; and movement behind enemy lines to harass combat units, interdict lines of communication and supply, and collect intelligence. Each infantry battalion was organized into a headquarters company, four rifle companies, and a support



Source: Based on information from International Institute for Strategic Studies, *The Military Balance 1988–89*, London, 1989, 176; and Singapore, Ministry of Defence, *The Singapore Armed Forces*, Singapore, 1985.

Figure 14. Organization of the Armed Forces, 1989

company. Most rifle companies were equipped with indigenously produced SAR-80 assault rifles and Ultimax-100 machine guns. The support company included a reconnaissance platoon, 81mm mortar platoon, 106mm recoilless gun platoon, engineer platoon, and a sniper section. Unit training emphasized conventional and unconventional tactics for urban and jungle warfare, marksmanship, marching, concealment, and survival techniques. The three airmobile battalions and two commando battalions were given airborne and ranger training in addition to their infantry training.

The army had one active-duty armored brigade and an additional armored brigade in the reserves. Each brigade comprised one tank battalion and two mechanized infantry battalions. The French-produced AMX-13 light tank was used by both tank brigades. Mechanized infantry units used either M-113, V-150, or V-200 armored personnel carriers. In wartime, armored units would have the mission of assaulting and defending against heavily armed enemy units. Unit training focused on combined arms operations, assaults on fortified and soft targets, and tactics for countering enemy antitank guns and missiles.

There were seventeen field artillery, mortar, and antiaircraft artillery battalions in the army. Two battalions were equipped with American-produced and Israeli-produced 155mm howitzers. Each howitzer was operated by a twelve-man crew and could be used in wartime for long-range (ten to twenty kilometers) artillery support for infantry and armored units. The equivalent of twelve battalions of mortar-equipped troops provided direct support to infantry units during assaults on enemy positions. Most of these units were equipped with indigenously produced 120mm mortars that could be towed into combat on a light two-wheeled trailer attached to a jeep. Some mortar units also had M-113 armored personnel carriers that were modified to serve as the firing platform for 120mm mortars. In offensive operations, these units would follow closely behind armored forces to provide counterfire against enemy artillery and tanks. There were also the equivalent of three battalions of antiaircraft artillery in the army. Most of these units were equipped with either the Swedish-produced single-barrelled 40mm automatic gun or the Swiss-produced Oerlikon twin-barrelled 35mm automatic gun.

Responsibility for various types of combat support was delegated to several army commands, which were responsible for providing engineer, signal, transportation, and other services. The army had the equivalent of eleven battalions of combat engineers, five in the regular army and six reserve units. Engineer companies and platoons were attached to the combat units and during wartime

would be responsible for clearing minefields, breaching obstacles, building bridges, supporting amphibious operations, and preparing defensive positions. There were the equivalent of four signal battalions. Signal units also were attached to the combat units, probably down to company level. Most transportation units were deployed to army bases located throughout the country and supported both regular and reserve units assigned to that base. In wartime, the army's Transportation Headquarters would quickly acquire civilian vehicles through its civil resources mobilization center. Weapons and military matériel that required maintenance usually were delivered to designated stations where they were exchanged or repaired. Each army base had a hospital and medical units that were deployed with combat units during military exercises. During wartime, the medical units would establish field hospitals to accommodate personnel wounded in battle until they could be transported to military or civilian hospitals.

Air Force

Fighter aircraft were organized into intercept and ground-attack squadrons. There were additional aircraft squadrons for long-distance troop and equipment transport and early warning; surface-to-air missile and antiaircraft gun units for air defense; and helicopter squadrons for transporting airmobile infantry into battle or search-and-rescue operations.

Air defense missions were controlled from the ground by the Air Defence Command at Bukit Gombak and from the air by Grumman E-2C early warning and control aircraft. Ground control included a number of radar stations strategically deployed throughout the country. The first of the air force's four Grumman E-2Cs were acquired by Singapore in 1987. Sophisticated long-range radar and tracking equipment aboard these aircraft enabled air defense controllers to detect possible enemy aircraft long before they entered the range of Singapore's ground-based defense radar system. Together the two systems provided an effective air defense warning system.

Two squadrons with thirty-five Northrop F-5E and F-5F interceptors based at Tengah Air Base provided the nation's first line of air defense. The first squadron of F-5s was formed in 1979 and the second in 1985. The F-5, equipped with AIM-9J air-to-air missiles, would perform well in combat against most other types of fighter and bomber aircraft. If necessary, aircraft assigned to the ground-attack squadrons could be used for air intercept missions.

The air force operated four surface-to-air missile systems and deployed antiaircraft guns to protect air bases and radar stations.

One unit equipped with British-produced Bloodhound 2 missiles provided long-range and high-altitude protection within an eighty-kilometer range. Another unit equipped with United States-produced improved HAWK missiles provided defense against medium- to high-flying aircraft at distances up to forty kilometers. Two missile systems were intended for close-range air defense: the British-produced Rapier, with radar and optical tracking modes, had a twelve-kilometer range; and the Swedish-produced RBS-70, which usually was transported on domestically modified V-200 armored personnel carriers, had a five-kilometer range. The air force was equipped with the same types of antiaircraft guns as the army.

Two models of fighter aircraft were imported by the air force for ground-attack missions in the 1970s and continued to be utilized for that role in 1989. Three squadrons with sixty-three McDonnell Douglas A-4S/S1 Skyhawks comprised the largest component of the ground-attack force. The Skyhawks could be used for bombing missions and close air support. Some of these aircraft were modified by Singapore Aircraft Industries for antishipping and antisubmarine warfare. In 1989 one squadron of thirty British-produced Hawker Hunter fighter aircraft was still flying. However, these aircraft were scheduled to be replaced by twenty F-16 fighter-bombers in the early 1990s.

Two models of helicopters were used by the air force for joint service operations with the army and for search-and-rescue missions. Two squadrons of Bell UH-1H helicopters, each having a complement of twenty helicopters, were formed in the late 1970s to enable the air force to transport specially trained infantry anywhere on the island during combat. If both squadrons were used, the air force could airlift a lightly armed battalion into battle within hours of receiving its orders. In 1986 the air force began to import French-produced AS-332B helicopters to augment its force of UH-1H helicopters for troop transport and to provide an improved search-and-rescue capability. The AS-332B had the advantage of a larger troop capacity and a greater combat radius. In 1989 the air force had taken delivery of six AS-332Bs and deployed them for search-and-rescue operations. An additional sixteen AS-332Bs were scheduled to be delivered to the air force in the early 1990s and would be used primarily for troop transport.

Navy

The navy had one missile gunboat squadron, one patrol craft squadron, one amphibious transport squadron, and additional ships for minesweeping and support operations. The West German Lürssen Werft model and the indigenously produced missile gunboats

provided the navy with a limited, but effective, capability to patrol Singapore's international boundaries with Indonesia and Malaysia as well as the seaplane approaches to the island, which were vital to the nation's shipping interests. The six Lürssen-designed Sea Wolf fast-attack craft could, if necessary, conduct operations several hundred kilometers out to sea, and their Gabriel and Harpoon surface-to-surface missiles would be effective against enemy naval craft within a ninety kilometer range. They also were equipped with 57mm and 40mm guns. The six British Vosper Thornycroft, which were indigenously produced patrol craft, were effective for patrolling coastline and inlets. These vessels were equipped with 40mm and 20mm guns. The six landing ships that comprised the amphibious transport squadron could transport up to two fully equipped army battalions to landing areas in Singapore and neighboring countries. The age and slowness of these craft, however, would make them easy targets for hostile aircraft and naval vessels during wartime. Similarly, Singapore's two obsolescent minesweepers would be inadequate to clear all of the sea-lanes around Singapore should a hostile foreign power attempt to control the Strait of Malacca and other strategic channels in the area.

People's Defence Force and National Cadet Corps

In the late 1980s, the People's Defence Force, with 30,000 members organized under two commands, and the National Cadet Corps, with an enrollment of 20,000 high school and university students, were Singapore's only paramilitary organizations. The People's Defence Force was established in 1965 to absorb former members of several paramilitary organizations that, prior to independence, had been part of the Singapore Volunteer Corps. By 1980, however, fewer than 200 volunteers remained in the volunteer force, and most of its personnel were national servicemen who had completed their twenty-four to thirty months of active duty. These personnel were assigned to units of the People's Defence Force to complete their reserve obligation. The ministries of defence and education were jointly responsible for the administration of the voluntary National Cadet Corps, which had army, air force, and naval components. Approximately 10 percent of the nation's high school students participated in this extracurricular program. The legal framework for the People's Defence Force and National Cadet Corps was provided by parliamentary acts passed in 1965 and 1971, respectively.

The Army General Staff had operational responsibility for the People's Defence Force. The specific organization and missions of units of the two People's Defence Force commands undoubtedly

Jungle warfare military training
Courtesy Singapore Ministry of Communications and Information

were similar to those found in the army reserves. Guarding coastal areas and local administrative jurisdictions against possible sabotage and other military actions during wartime or a national emergency were the most likely assignments for battalions. Unit training was said to have been limited to physical fitness, weapons familiarization, and infrequent mobilization exercises.

Military Establishment

The military system was designed to provide an effective fighting force that could be partially or fully mobilized in emergencies and yet would maintain a low profile during peacetime. Because the reserves were viewed as the backbone of the armed forces, particular emphasis was placed on mobilization training. In a 1985 mobilization exercise that involved four army reserve brigades, 97 percent of 7,000 reservists reported to their assigned bases within a six-hour period. Selected units were equipped and deployed only twelve hours after the initial order to mobilize. By 1989 more than two decades of effective planning had promoted a well-trained and well-equipped military establishment that was adequately prepared for its defense mission.

The armed forces occasionally were asked to provide assistance to disaster relief efforts in Singapore and abroad. In 1986 several hundred reservists belonging to sixteen army and air force units assisted efforts to rescue 100 persons trapped when a six-story hotel collapsed in one of Singapore's commercial districts. In 1987 the Ministry of Defence had army reserve logistics units assemble food, clothing, and medical supplies from storage depots for Philippine typhoon victims. An air force transport unit delivered the supplies to the Philippines less than sixteen hours after the relief effort was organized.

Defense Spending

Defense expenditures, which accounted for between 25 and 38 percent of the national budget in the 1960s and 1970s, gradually decreased to less than 10 percent in the 1980s. One of the reasons government leaders chose to establish a citizen's army in the 1960s was to enable the growth of the armed forces to keep pace with the growth of the economy. The pay-as-you-go principle worked well for Singapore. In the 1960s and early 1970s, the government raised taxes in order to pay for purchases of foreign military equipment. The largest increases occurred between 1968 and 1972. Defense budgets increased from US$100 million to US$249 million during this period, with the largest part of the budget allocated for the acquisition of tanks and naval vessels.

In 1971 defense was the largest component of the budget. Defense would have been a still larger portion of the budget if Britain had not provided US$94 million in grants and US$281 million in loans as part of a compensation package for the withdrawal of its armed forces. Singapore's takeover of British military installations enabled the government to focus most of its spending on matériel, operations, and training. By 1973 when defense spending peaked at 38.9 percent of the national budget, the army was adequately equipped, and military planners began to focus more attention on the long-term needs of the armed forces, particularly the air force. In that year, military expenditures were less than 17 percent of the budget. In 1988 an estimated US$1 billion was spent on defense, which amounted to 7.5 percent of that year's total budget.

In response to the economic recession of 1985, the government instituted a five-year freeze on the size of the armed forces but continued to acquire new types of weapons and training equipment that were part of its ongoing modernization program. In 1986 the defense budget was reduced by US$175 million from the record high US$1.2 billion figure spent in 1985, with the cuts being apportioned throughout the armed forces. The five-year freeze did

not affect national service. As new army units were formed and began their active service, other units were transferred to the reserves, and the longest serving reserve units were deactivated. The remainder of the cuts was absorbed through reduced spending on nonessential military supplies and certain types of training (see table 13, Appendix).

In the 1970s, the government established a number of education programs and increased military pay to encourage officers and NCOs to remain in the service. Officers were required to serve three years on active duty, after which most left to pursue more lucrative professions. In 1971 the government began to offer scholarships to promising officers who agreed to reenlist for at least one additional tour of duty. The Overseas Training Awards, the first such program to be implemented, enabled qualified officers to earn undergraduate and postgraduate degrees in management and other disciplines needed by the armed forces at prestigious universities and colleges in Western Europe and the United States. Many of the officers trained through this program accepted managerial and technical positions in the civil service after they completed their military obligation. Other officers were given scholarships to the National University of Singapore, Singapore Polytechnic Institute, and other local schools. In the early 1980s, more officers and NCOs opted for longer service because of pay increases and the tighter labor market resulting from the economic downturn in the civil sector. In 1982 the salaries of 19,000 NCOs were raised an average of 26 percent at a cost to the government of US$25 million annually. Officer salaries no doubt were increased proportionally, and the government continued to increase military pay, albeit at lower levels, in subsequent years.

In 1987 the ruling People's Action Party agreed to the establishment of a parliamentary committee to review military spending and provide a forum for public debate on defense issues. Prior to that, the government had closely monitored the press and discouraged the publication of articles critical of the government's defense policies on the pretext that national security was the prerogative of the small number of government officials responsible for policy-making and budget decisions. In 1989 the committee's primary function was to review the decisions of the executive branch on defense issues and to advise the government concerning public opinion about military spending. However, the committee lacked the power to change the government's defense policy or to amend the defense budget.

Role in Society

Government efforts to enhance the status of the military profession,

particularly in the Chinese community, were only partially successful. During the colonial period, the Confucian tradition that valued scholarship over military service and parental influence discouraged young Singaporeans of Chinese descent from choosing a career in the military. In the 1960s and 1970s, the government attempted to overcome opposition to the conscription system through a media campaign that emphasized the important role of the armed forces. By the late 1970s, the draft and compulsory service no longer were controversial, but soldiers still were not held in high esteem by the general population. Although military service was generally viewed as acceptable within the Malay community, government concerns about ethnic and religious loyalties of Malays in the armed forces made it difficult for them to become officers or to be assigned to sensitive positions.

Uniforms and Insignia

In 1989 there were four categories of uniforms worn by all three services of the armed forces. The ceremonial uniform for officers consisted of a cap, white tunic, white shirt, trousers with service braids and color, black boots for the army and air force, and white shoes for the navy. The mess kit uniform was worn by sergeants and higher ranking NCOs for ceremonies. The basic work and parade uniform was a white shirt worn with the appropriate trousers: olive drab for the army, light blue for the air force, and dark blue for the navy. Air Force, navy, and army personnel assigned to armored units were issued a one-piece jump suit as a second work uniform. The combat uniform for army officers and enlisted personnel included camouflage fatigues with a helmet and black boots. Uniforms for women included skirts for ceremonies and work but otherwise were similar to those provided for male personnel.

Rank insignia were standardized for all three services, except that the air force used silver whereas the army and navy used gold. Generals in the army and air force and commodores in the navy wore one, two, or three stars. Field grade officers wore the appropriate number of crests on shoulder tabs. Enlisted personnel wore chevrons, in their service color, on both sleeves (see fig. 15).

Recruitment and Training of Personnel

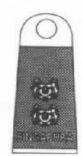
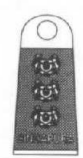
All male citizens were eligible for the draft on their eighteenth birthday. Prospective draftees reported to the central manpower base operated by the Ministry of Defence with their birth certificate, identity card, educational record, and medical records. In the 1970s, the Ministry of Defence computerized the registration process. The Integrated Manpower Information System maintained

at the central manpower base enabled the government to match more efficiently the skills and educational capabilities of draftees to the staffing needs of the services. Exemptions were granted only if a person was medically unfit for service, had a criminal record, or could prove that his enlistment was a hardship for his family. Deferments were granted to students who were enrolled or had been accepted for admission at an accredited college or other education institution.

Singapore's declining rate of population was partially responsible for government efforts to recruit more women for noncombatant duties. In 1980 about 50 percent of all women in the armed forces served in clerical positions in which promotion and career opportunities were limited. By 1989, however, military regulations had been changed to allow women to be considered for assignment to a number of military occupation specialties previously reserved for men. Women with high school diplomas and those with specialized skills, such as computer programming or office management, were offered professional and technical positions in support units. Many women found the medical and fringe benefits that came with a military career to be equivalent or better than those in the civilian job market. The recruitment of women for noncombatant duties enabled the Ministry of Defence to maintain manpower levels in combat units without changing length of service requirements or extending the length of reserve duty.

Because of the scarcity of open land on the main island, Singapore established training bases and firing ranges on offshore islands and sometimes sent army units abroad for training that could not be provided in the country. The Military Maneuvers Act—passed in 1963 while Singapore was a part of Malaysia, and amended in 1983—strengthened restrictions on civilian access to several islands located northwest and south of the main island of Singapore. Each of the services conducted live firing exercises in the restricted areas, and the army used some of the islands for basic military training and various types of field training. Operational exercises, such as amphibious landings and training conducted with Brunei and other countries, took place on these islands. The use of unpopulated islands for military training enabled the armed forces to avoid endangering the city and other heavily populated areas on the main island. Large scale exercises involving several battalions, however, were considered too dangerous even on the deserted islands. After 1975 the army used bases in Taiwan for military training that included combined arms exercises involving infantry, artillery, and armored units. These exercises, engaging as many as 10,000 troops at one time, provided officers a chance to simulate wartime

COMMISSIONED OFFICERS

SINGAPORE RANK		SECOND LIEUTENANT	LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER	MAJOR GENERAL	LIEUTENANT GENERAL
								COMMODORE[4]	REAR ADMIRAL[4]	VICE ADMIRAL[4]
ARMY, AIR FORCE, AND NAVY										
U.S. RANK TITLES	1, 2	SECOND LIEUTENANT	LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL
	3	ENSIGN	LIEUTENANT JUNIOR GRADE	LIEUTENANT	LIEUTENANT COMMANDER	COMMANDER	CAPTAIN	COMMODORE ADMIRAL	REAR ADMIRAL	VICE ADMIRAL

WARRANT OFFICERS AND ENLISTED PERSONNEL

SINGAPORE RANK		PRIVATE	NO RANK	LANCE CORPORAL	CORPORAL	CORPORAL 1ST CLASS	SERGEANT	STAFF SERGEANT	WARRANT OFFICER CLASS II	WARRANT OFFICER CLASS I
ARMY, AIR FORCE, AND NAVY		NO INSIGNIA								
U.S. RANK TITLES	1	BASIC PRIVATE	PRIVATE	PRIVATE 1ST CLASS	CORPORAL	SERGEANT	STAFF SERGEANT	SERGEANT 1ST CLASS	SERGEANT MAJOR	COMMAND SERGEANT MAJOR
	2	AIRMAN BASIC	AIRMAN	AIRMAN 1ST CLASS	SERGEANT	STAFF SERGEANT	TECHNICAL SERGEANT	MASTER SERGEANT	SENIOR MASTER SERGEANT	CHIEF MASTER SERGEANT
	3	SEAMAN RECRUIT	SEAMAN APPRENTICE	SEAMAN	PETTY OFFICER 3D CLASS	PETTY OFFICER 2D CLASS	PETTY OFFICER 1ST CLASS	CHIEF PETTY OFFICER	MASTER CHIEF PETTY OFFICER	FLEET FORCE MASTER CHIEF PETTY OFFICER

NOTES- [1]Army. [2]Air Force. [3]Navy. [4]Navy.

Figure 15. Military Rank Insignia, 1989

conditions more closely and gain experience in the command and control of operations involving several battalions.

In each of the three services, male inductees were given three months and female inductees three weeks of basic military training at the basic military training camp on Pulau Tekong. For the men, the program included daily physical exercise to build stamina, classroom and field instruction in handling small arms, and day and night combat operations. Particular emphasis was placed on learning to function as members of a combat team. Infantry personnel usually remained with their basic training company throughout their military careers. In this way the army hoped to strengthen the efficiency of units during combat by encouraging the loyalty of the individual soldier to his unit. Basic training for female military personnel emphasized military discipline, physical training, and an introduction to military skills, including handling small arms, marching, and survival techniques.

Following basic training, conscripts selected for the army's combat units were given additional training that familiarized them with military procedures, weapons and equipment, tactics, and a unit's offensive and defensive missions during wartime. Infantry unit members were assigned specific duties. Those assigned to rifle platoons learned assault tactics at their home base, while those selected for the weapons platoon were sent to the School of Infantry Weapons at Pasir Laba Camp where they received instruction in how to fire and care for mortars and recoilless rifles. Artillery training was provided first at the Artillery School at Khatib Camp, where recruits learned to locate and fire accurately at targets, and then at their home base, where the emphasis was on weapons deployment in battle. The courses at the Artillery School lasted from eight to thirteen weeks. In the eight-week gunner course, artillery personnel were trained to fire 155mm howitzers. There were additional courses for those assigned to heavy mortar units and for artillery specialists such as the technical assistants responsible for computing target engagement data. Base training was conducted in two phases. During the first phase, field artillery and mortar units practiced what they had learned at the Artillery School and participated in cross-training, through which personnel were trained to perform the duties of other members of their unit. The second phase involved field deployment drills and battalion or brigade exercises. Tank crews were given an eight-week course at the Armor School located at Sungai Gedong Camp. A three-man crew comprised a commander, driver, and gunner. Training included familiarization with the tank, cross-training, and the use of computers and visual aids to simulate combat conditions. Most field

exercises involving tanks were limited to small units, usually at the company or platoon level, again because of the limited space available for such training.

Outstanding army recruits were selected for training as NCOs and sent to Pasir Laba Camp to attend the School of Infantry Section Leaders. This program emphasized toughness and endurance during combat. Trainees were taken to various parts of the main island and Pulau Tekong and given extensive instruction in leading a small group and taking responsibility for its survival in combat. Additional training included conventional and unconventional unit tactics, discipline, and communication with the platoon and company headquarters.

The Armed Forces Training Institute located at Jurong Camp provided officer training and instruction for army personnel enrolled in advanced programs designed to improve leadership and military skills. Officer candidates, including university graduates and other recruits considered to have the aptitude and physical capabilities to command a platoon, took a nine-month course at the Officer Cadet School of the Armed Forces Training Institute. Classroom instruction included lectures on unit administration, tactics, planning operations, command and communications, and assessing unit capabilities in combat. During field exercises, cadets were presented with both urban and rural battle scenarios in which they took turns performing the duties of officers and enlisted men in order to improve their understanding of the role of subordinates. Graduates of the course were commissioned as second lieutenants and assigned to command active-duty or reserve units. The army's Advanced Training School and Command and Staff College also were located at the Armed Forces Training Institute.

The air force provided pilot training at the Flying Training School at Paya Lebar Air Base. Pilot trainees were required to complete the army's basic training and nine-month officer cadet courses before being accepted into the flight training program. The introduction to flying began with a one-month orientation course in advanced aerodynamics and aircraft instruments. This course was followed by sixteen weeks of training in Italian-produced SF-260 turboprop and S-211 jet trainer aircraft. Following this basic flying course, cadets were assigned to fighter aircraft squadrons for forty weeks of advanced training that included sight and instrument control of flight, air-to-air and air-to-ground combat tactics, flying in formation, night flying, and other subjects. Those who failed to qualify were reassigned to transport or rotary aircraft units, or given ground assignments.

Urban warfare military training
Courtesy Singapore Ministry of Communications and Information

The air force also operated schools to train air traffic controllers, air defense controllers, and aircraft maintenance personnel. Air traffic controllers, trained at the Air Traffic Control School at Seletar Air Base, were taught how to distinguish commercial and military aircraft, to regulate military air traffic, and to provide emergency services. Air defense controllers learned to identify enemy aircraft on radar screens, to guide fighter aircraft to the enemy, and to operate surface-to-air missiles. The Air Engineering Training Institute offered a wide range of courses to train mechanics and technicians in the maintenance of the various types of aircraft, engines, radar, and communications equipment used by the air force.

Naval officer training was provided in the Midshipman School at Sembawang. This school had separate eighteen-month courses to train navigation, gunnery, communications, and logistics officers. Advanced officer training was not available, but most ship commanders received additional training in Australia, Britain, or the United States. The navy also operated a Technical Training School for ship maintenance personnel at Pulau Brani and a school to train seamen for duties as gunners, radar operators, and communications specialists.

Training for army reserves included weekend duty at army bases, field and mobilization exercises, and occasional assignments to schools and training bases. Reserve military personnel were required to spend a minimum of forty days a year with their military unit or in an individual training program. Regularly scheduled weekend duty usually included physical fitness exercises, instruction in individual and unit military skills, and occasional travel for shooting practice to one of the army's indoor firing ranges or to a training area for field exercises. Every few years, reserve units were sent to the Basic Combat Training Center at Pasir Laba Camp for a ten-day refresher course in unit tactics. During mobilization exercises, selected units were required to assemble at their home base and deploy to their assigned field positions to test the readiness of personnel to respond to an alert. Most branch schools had some on-site and correspondence courses that reservists could take in order to fulfill part of their annual service requirement. The Armed Forces Training Institute offered courses for reservists chosen for officer training.

Defense Industries

Singapore's defense industries were established in the late 1960s because the government believed that the country should not become too dependent on foreign countries to resupply the armed forces during wartime. By 1975 three government-owned corporations were involved in assembling, rebuilding, overhauling, and designing small arms, artillery, armor, military aircraft, and naval vessels. In 1979 the government started a defense marketing effort to promote the sale of Singapore-designed weapons to foreign countries. In addition to government-owned defense industries, a number of foreign-owned producers of military equipment operated in Singapore. These firms were attracted by government incentives designed to promote employment in high technology industries, to lower production costs, and to explore the possibility of using Singapore as a base for promoting the sale of their products in Asia.

In 1989 three divisions of the state-owned and -operated Singapore Technology Corporation were producing various types of ammunition, weapons, and vehicles used by the army. In addition, the divisions were responsible for rebuilding or adapting some types of foreign military matériel to army specifications. The first division, commonly known as Chartered Industries, was established in 1967 and produced various types of ammunition and small arms. Ammunition manufactured included 5.56-, 7.62- and 12.7-caliber shells used in pistols, rifles, and machine guns; 60-, 81- and 120mm

mortars; 75mm armor-piercing rounds for the main gun of the AMX-13 tank; and 155mm high-explosive artillery ammunition. In 1970 Chartered Industries began licensed production of the M16 assault rifle. More than 80,000 M16s were manufactured for the army between 1970 and 1979. In 1976 Chartered Industries purchased the rights to the SAR-80 assault rifle from Britain's Sterling Armament Company. Engineers at Chartered Industries worked with a team of weapons experts at the Armed Forces Training Institute to improve the Sterling design. An estimated 100,000 indigenously designed SAR-80s were produced between 1980 and 1989 for domestic use and for export. The second division of Singapore Technology Corporation—Ordnance Development and Engineering—was established in 1973 to design and produce mortars and 155mm howitzers for the army. Three indigenously designed mortars based on designs provided to the division by a Finnish manufacturer were still in production in 1989 and fired 60-, 81- and 120mm ammunition. The indigenously designed FH-88 155mm howitzer was based on the Israeli-produced M-68 that was exported to Singapore in the 1970s. Soltam Limited of Israel no doubt assisted Ordnance Development and Engineering in the development and initial assembly of the FM-88. Automotive Engineering, the third division of Singapore Technology Corporation involved in military production, was established in 1971. The division received a number of foreign-produced vehicles, including three-ton Mercedes transport trucks and the AMX-13 tank, and modified them to army specifications. Additionally, the division modified V-150, V-200, and M-113 armored personnel carriers to serve as platforms for weapons such as the Bofors RBS-70 surface-to-air missile system and indigenously produced 120mm mortars.

Singapore Aerospace Corporation, established in 1981, comprised four state-owned divisions that were involved in the assembly of foreign-produced trainer aircraft for the air force and the overhaul and maintenance of various types of military aircraft, aircraft engines, and avionics equipment. Between 1984 and 1987, the Maintenance Division assembled at least twenty-six Italian-produced SIAI-Marchetti S-211 trainer aircraft for the air force. The Maintenance Division also overhauled and refurbished A-4S Skyhawk fighter aircraft and performed depot-level maintenance on C-130 transport aircraft for both the Singapore and United States air forces. Singapore Aerospace Corporation could manufacture spare parts for the Skyhawks, handle routine maintenance on 6,000 types of civil and military aircraft components, and overhaul various types of jet engines.

The state-owned Singapore Shipbuilding and Engineering Company produced naval vessels under technology transfer agreements negotiated with Lürssen Werft of West Germany. In 1974 and 1975, the company constructed four TNC-45 missile-equipped gunboats for the navy based on Lürssen-designed Zobel-class torpedo gunboats. The West German design was modified to allow for the installation of Israeli-produced Gabriel missiles and a larger gun. The agreement with Lürssen Werft included marketing rights, and Singapore Shipbuilding and Engineering constructed lightly armed gunboats for at least two Asian countries. In 1976 and 1977, the company built three TNC-45s for the Thai navy. These vessels had the same armament as the TNC-45s produced for the Singapore navy. In 1986 Singapore Shipbuilding and Engineering negotiated an agreement with the Indian government that provided for joint construction of six TNC-45s for the Indian Coast Guard. Two of these craft were to be built in Singapore and four in India. In 1989 Singapore Shipbuilding and Engineering constructed the first of five corvettes for the navy. Again, Lürssen Werft provided the design and one prototype vessel, and Singapore Shipbuilding and Engineering modified the design to navy specifications. The modification involved replacing surface-to-surface missiles with American-produced Harpoon ship-to-ship missiles. Both the Singapore and West German models of this craft were equipped with one 76mm gun (see table 14, Appendix).

Between 1983 and 1987, Singapore exported US$311 million worth of weapons and military equipment to other countries. According to the Stockholm International Peace Research Institute, Singapore was the fifteenth largest exporter of military hardware to Third World nations during the period. These weapons and equipment sales increased from only US$1 million in 1983 to US$125 million in 1987 and were believed to have been limited to the same types of ammunition, small arms, and mortars that were produced for the army. The government marketed its military equipment through its own brokerage firm, Unicorn International.

Strategic Perspective

From 1959 to 1989, Singapore developed a defensive security outlook that emphasized the maintenance of strong military and civil defense organizations, cooperative military relations with other members of ASEAN, the Five-Powers Defence Agreement; and other noncommunist states. In 1989 more than 90 percent of Singapore's population was under the age of fifty and could not recall the Japanese invasion and occupation. Although Singapore had

not had to combat an insurgency or defend itself against a hostile neighbor since the Indonesian Confrontation ended in 1966, the government frequently addressed such issues as Vietnam's 1978 invasion of Cambodia in order to highlight the vulnerability of small countries. Public opinion polls taken in the 1980s indicated that, although most citizens supported having some form of national service, many questioned the need for their leaders' "siege mentality." By 1989, as Lee Kuan Yew prepared for what he hoped would be a smooth transfer of power to a younger generation, Singapore's strategic perspective appeared to place increasing emphasis on regional developments that augured well for improved regional security rather than on any threat to the country posed by communist expansion in Southeast Asia (see Foreign Policy, ch. 4).

Total Defence Concept

Singapore's leaders defined Total Defence (see Glossary) as the capability of the nation to deter or overcome aggression by maintaining small, well-equipped regular armed forces backed up by a large, well-trained military reserve and a civil sector that could be quickly mobilized to provide support to the armed forces. By 1989 Singapore had each of these components in place. The air force was recognized as one of the best in the region, and the army continued to make steady progress in improving its capability to react, albeit on a limited scale, to repel an invasion. The addition of six corvettes strengthened the navy's ability to defend territorial waters and conduct limited operations farther out to sea. More than 50 percent of Singapore males had received formal military training, and more than 10 percent of them belonged to a reserve unit. The Ministry of Defence monitored the combat capabilities of reserve units through frequent training and mobilization exercises. The country was believed to have adequate stockpiles of fuel and ammunition. Its military logistics and maintenance capabilities were excellent. Finally, the national Civil Defence Force, established in 1982, had gradually been expanded to coordinate military, police, and civilian organizations involved in efforts to maintain internal security and to restore vital services quickly during wartime and other emergencies.

In 1989 the most apparent weakness in Singapore's Total Defence system was the friction between the government and business community over the financial and social costs of sustaining the defense sector. As the birth rate declined after 1967, the percentage of males drafted for service increased each year. Concurrently, the number of persons available to Singapore's expanding export industries also decreased. Thus, some business leaders were critical of

government policies that perpetuated the national service system and argued that the armed forces had grown too large and that new weapons, increased army pay, and other military programs were unnecessary. The same business leaders were reluctant to grant workers leave for reserve training. Government-sponsored public opinion polls confirmed that a large segment of the general population questioned the need for national service. A poll taken in 1983 indicated that 40 percent of Singaporeans thought that national service was a waste of time and money. Government officials defended the system by arguing that even small countries must maintain credible defenses or risk disaster. They also noted that a large percentage of personnel trained by the armed forces in various technical and professional fields were well prepared to compete for skilled jobs in the private sector when they completed the active-duty portion of their national service. In the mid-1980s, the government began a variety of public relations programs to overcome opposition to its defense policies and, as of 1989, had no intention of reducing manpower levels or proposing cuts in military spending.

Military Relations with Other Countries

After Singapore separated from Malaysia in 1965, the government actively sought to establish a broad-based international network of military contacts as part of its overall strategic plan to strengthen recognition of its existence as a sovereign state. In the 1960s, Britain, Israel, New Zealand, and France were among the nations that were approached for assistance as Singapore's military planners began to formulate doctrine and evaluate which aircraft, artillery, naval vessels, and tanks would be affordable and appropriate for the country's armed forces. In the 1970s, hundreds of officers, pilots, and technical specialists were sent to Australia, Britain, Japan, the United States, West Germany and other countries for advanced training that could not be provided in Singapore. Programs in the United States included flight training and live-firing exercises for air force personnel selected to pilot F-5E and F-5F interceptors, special forces training for infantrymen from the army's commando battalions, and command training for officers who earned government scholarships offered through the Overseas Training Awards fund.

In the 1980s, as the ASEAN countries became increasingly concerned about Vietnam's occupation of Cambodia and the possibility of war between Vietnam and Thailand, Singapore began to participate in annual military exercises with Brunei, Indonesia, and Malaysia. In 1979 the Singapore and Brunei navies conducted the

first in a series of annual naval exercises (code-named Pelican), and in 1983 the two countries initiated annual infantry maneuvers (code-named Termite) involving selected battalions from both armies. Singapore infantry units were frequently deployed to Brunei for commando and helicopter-borne training. In 1980 the Singapore and Indonesian air forces began annual exercises (code-named Indopura) that were gradually expanded to include joint air maneuvers. Between 1987 and 1989, the two nations shared the costs of constructing the Siabu Air Weapons Range in northern Sumatra. Singapore's use of this range reduced the need for costly deployment of interceptor and ground-attack squadrons to Taiwan or the United State for live-firing exercises. In 1989 Indonesia also agreed to allow the Singapore army to use its Baturaja training base in southern Sumatra. In 1984 the Singapore and Malaysian navies began annual joint exercises (code-named Malapura). These exercises usually were held in the Strait of Malacca to improve the cooperation between the two nations in patrolling that important sea-lane. In 1989 Singapore and Malaysia also initiated joint training for army units: the first exercise was held in Singapore in May; the second exercise was held in Malaysia in October. Although there were no indications that Singapore, Malaysia, and Indonesia were interested in negotiating a multilateral defense agreement, each country viewed increased bilateral cooperation as beneficial to its national security and to regional stability.

Singapore has maintained good military relations with the United States and has supported the stationing of United States forces in Asia as necessary to counter both Vietnamese military expansion in the region and the establishment of the Soviet military presence in Indochina. The 1975 communist victory in Vietnam and the subsequent reevaluation of the United States' role in Asia and the Pacific worried Singapore's military leaders. In 1979 Prime Minister Lee expressed concern that Vietnam would become a Soviet proxy for the proliferation of a new wave of communist guerrilla movements in Thailand, Malaysia, Indonesia, and Singapore. Lee admitted that American reluctance to become involved in another Southeast Asian war was understandable, but he observed that the ASEAN states lacked the military capability to reverse the trend alone. By 1988, however, the scenario of a domino-like progression of communism south through Thailand and Malaysia and into Singapore had lost much of its credibility. Singapore viewed the Soviet Union's decision to withdraw its forces from Afghanistan and Vietnam's promise to follow Moscow's lead and withdraw its troops from Cambodia as actions that would enhance the security of ASEAN states, particularly Thailand. Although further

Vietnamese and Soviet-sponsored military incursions in the region were considered unlikely for the foreseeable future, Singapore viewed the stationing of United States forces in Asia and the Pacific as advantageous to ASEAN.

By 1988 improved relations between Singapore and Malaysia had facilitated a revitalization of the Five-Powers Defence Agreement. Britain also began to demonstrate renewed interest in the pact. In 1970 approximately 12,000 British troops were sent to Malaysia for a joint military exercise that included contingents from the members of the Five-Powers Defence Agreement. Throughout the rest of the 1970s, however, the British limited their participation in military exercises conducted to promote the agreement. In 1971 Australia assumed primary responsibility for managing the Integrated Air Defence System, which was the only functional organization maintained under the pact for the protection of Singapore and Malaysia. Air defense exercises were conducted annually after 1971. During the 1970s and 1980s, New Zealand and Australia also deployed some army and air force units to Malaysia and Singapore. In 1981 the five states party to the agreement began to hold annual ground and naval exercises, which gradually grew in size and importance. The 1988 joint naval maneuvers (codenamed Lima Bersatu) were the largest and most complex military exercise organized by the five nations since 1970. They involved 20 naval vessels, including a British aircraft carrier and a British submarine, and more than 100 fighter and reconnaissance aircraft. Fighter aircraft from the five countries were assigned to multinational flight teams, and Singapore's E-2C reconnaissance aircraft were used along with P-3C maritime reconnaissance aircraft belonging to the Australian and New Zealand air forces. Singapore air and naval units gained valuable combat experience from their participation in exercises with other members of the agreement. Britain, Australia, and New Zealand displayed their readiness to respond to any military contingency affecting Malaysia and Singapore. Thus, in 1989 the Five-Powers Defence Agreement continued to contribute to Singapore's security and the overall stability of Southeast Asia.

Public Order and Internal Security

Between 1819 and 1867, the British East India Company worked closely with citizens' councils that represented the European, Chinese, Malay, and Indian communities to maintain law and order in Singapore. The British civil service comprised a small and overworked staff that often tried unsuccessfully to enforce British laws in the Straits Settlements. The resident councillor for Singapore

was responsible for adjudicating most criminal and civil cases. More serious cases were referred to the governor of the Straits Settlements in Penang, or, on rare occasions, to the governor general in India. Chinese secret societies flourished, and violent crime was a fact of life. Thomas Dunman, Singapore's first superintendent of police, was a young British merchant who was respected by leaders of the European community and supported by influential Malays and Indians, who felt powerless to prevent Chinese gangs from roving into their districts, assaulting people, and robbing homes and businesses. In 1843 Dunman recruited a small group of itinerant workers and single-handedly trained and organized them into an effective police force. By 1856 gang robberies no longer were a major problem, but the secret societies continued to control lucrative gambling, drug, and prostitution operations.

From 1867 to 1942, the Straits Settlements had unified law enforcement and criminal justice systems. However, colonial authorities in Singapore continued to respect religious and cultural customs in the Chinese and Malay communities as long as local practices were peaceful and residents respected British authority. In 1868 Governor Sir Harry Ord established a circuit court, and its jurisdiction over criminal and civil matters gradually expanded in Singapore during the period up to World War II. Leaders of the Chinese community appreciated the cooperative nature of British government officials and helped to promote respect for the law. By the 1880s, government efforts to reduce the criminal elements of the Chinese secret societies had succeeded in making the city a safer place to live. Europeans and Indians dominated the police force. Colonial authorities rarely hired Chinese for police work for fear the secret societies would infiltrate the force. After World War I, an increase in political violence was attributed to the growth of communist influence within the Chinese community. In 1919 a special branch was established in the police force to combat the communist-inspired anticolonial activities, which were increasing in Chinese schools and businesses. In 1931 a special branch operation resulted in the arrest and deportation of leaders of the newly formed Communist Party of Malaya (CPM). By the end of the decade, however, communist influence and political subversion were once again a problem for law enforcement officials.

During the period that Singapore was a crown colony, militia groups trained by the British army occasionally assisted the police force in maintaining civil order and promoted citizen involvement in protecting the city from foreign invasion. Even before Singapore became a crown colony, concerned citizens in the European community had formed a citizens' militia. In 1854 about sixty

European expatriates established the Volunteer Rifle Corps to protect citizens from violent riots. Although most riots occurred because of factional fighting between Chinese secret societies, some disturbances also disrupted the commercial activities of the city. By 1910 there were 700 volunteers in six organizations that were collectively called the Singapore Volunteer Corps. Europeans comprised four groups, including two infantry companies, one artillery company and one engineer company. The Chinese and Malay communities each contributed one company. In February 1915, the Volunteer Corps was mobilized to help restore order following a rebellion by Singapore's Indian troops (see Crown Colony, 1867–1918, ch. 1). Approximately 800 Punjabi Muslim soldiers, who comprised most of the British garrison in Singapore at that time, were deceived by German prisoners of war into believing that they were about to be redeployed to the front lines in Europe. The Punjabis killed their officers and went on a rampage through the city before dispersing in small groups to the northern section of the island. For a two-week period, the Singapore Volunteer Corps, along with the police and the crews from British, French, Japanese, and Russian warships, rounded up the Punjabis and protected the city while the colonial government restored order. In 1922 the Straits Settlements Volunteer Force was established, and the British army became more active in training the volunteers. Mobilized on December 1, 1941, six days before the Japanese Malayan campaign began, Singapore's volunteers manned bunkers and artillery positions along the south coast to defend the city from an invasion from the sea that never came.

In response to communal riots in December 1950, the British reorganized the Singapore Police Force and established links between the police and the British army that effectively prevented subsequent civil disturbances from getting out of hand. The 1950 riots occurred when Malay police officers, who comprised 90 percent of the police force, failed to control a demonstration outside Singapore's Supreme Court. The demonstration occurred following a decision by the court to return to her natural parents a Dutch Eurasian girl who had been raised in a Malay foster home during the Japanese occupation. Incensed by the court's decision, large groups of Malays randomly attacked Europeans and Eurasians killing 18 and wounding 173. The British army had to be called in to restore order.

The British reorganization of the police force included the hiring of large numbers of Europeans, Chinese, and Indians to improve the ethnic balance; the establishment of riot control teams; and the modernization of police command and communication

Victory parade and demonstration, September 1945
Courtesy National Archives

channels. The riot control teams belonged to a new organization known as the Police Reserve Unit. Members of the unit had to be politically reliable and had to pass a rigorous training course. The first riot control teams were deployed in December 1952. In May 1955, these units were effective in containing communist-inspired rioters during a transportation workers' strike, although four people were killed and thirty-one injured over a three-day period.

In July 1956 the Singapore government under Chief Minister Lim Yew Hock's administration prepared an internal security plan that simplified arrangements for cooperation between the police and the British army during serious civil disturbances. The new plan provided for a joint command post to be set up as quickly as possible after the police recognized the possibility of a riot. The Police Reserve Unit was to assume responsibility for riot control operations within clearly defined sectors while army units were deployed to control the movement of civilians in the immediate area. The plan was tested and proved effective during communist-inspired riots in October 1956, when five army battalions supported the police and five helicopters were used for aerial surveillance of the demonstrators. Police and army cooperation succeeded in

breaking up large groups of rioters into smaller groups and preventing the spread of the violence to neighboring communities. Police and army restraint kept deaths and injuries to a minimum and improved the confidence of the public in the government's capability in handling incidents of domestic violence. The British role was a stabilizing factor that facilitated the demise of the CPM in Singapore and a smooth transition of power to the People's Action Party (PAP).

Subversive Threats

Communist-inspired subversion and violence was a serious problem in Malaya and Singapore in the post-World War II period. In June 1948, the British colonial government declared a state of emergency in Malaya and Singapore and passed tough security laws to cope with the threat. After Lee Kuan Yew led the PAP to victory in the 1959 election, the influence of the communists quickly declined and citizens known or alleged to have contacts with the CPM or other groups that advocated the overthrow of the government were closely monitored by the police.

The Communist Threat, 1945–63

The CPM was legal in Singapore during the first thirty months of post-war British colonial rule. The communist-controlled Malayan People's Anti-Japanese Army, formed during the Japanese occupation, had several hundred Chinese members, including the commander, Chin Peng. In 1945 and 1946, many poorly educated Chinese Singaporeans sympathized with the communists because they seemed to offer a program of labor reforms that would benefit the common person. Additionally, most of the better educated Chinese resented British policies that limited participation in politics to Straits-born British subjects who were literate in English. A large segment of the Chinese community also supported the Chinese Communist Party as it moved closer to gaining control in China. Chin Peng was elected secretary general of the CPM in March 1947. At that time, the communists had an estimated 300 members in Singapore who were committed to the party's goal of destabilizing the British regime by promoting civil unrest in the trade unions. In 1947 communist fronts were influential in organizing over 300 strikes involving more than 70,000 workers. Economic concessions by the colonial government and business community reduced but did not destroy communist influence, and communist leaders gradually became more militant. They recruited former guerrillas of the Malayan People's Anti-Japanese Army and members of various secret society gangs to form the underground

Workers' Protection Corps. When the communists were unsuccessful in penetrating targeted trade unions, small groups belonging to the Workers' Protection Corps used various methods of intimidation in an effort to have moderate leaders replaced by communists or communist sympathizers.

The party's chance to take over Singapore from the British through legal means ended in 1948 when the communist leaders decided to adopt a strategy of insurrection and terrorism in Malaya and Singapore, which led to the period known as the Emergency (see Glossary). The CPM was declared illegal and was subjected to countermeasures by the government; its membership in Singapore dropped precipitously, and all of the members of the Singapore Town Committee, which was the CPM's central committee for Singapore, were arrested in December 1950. The communist effort was crippled until the mid-1950s, when a new strategy of collaboration with legal political organizations was adopted by the government. The communist movement survived in Singapore largely in the Chinese-language middle schools, whose students were particularly susceptible to propaganda because their employment and political opportunities were much more limited than those of English-speaking Chinese. After 1949 the success of the communists in China also attracted students to the party. The organizing force behind student activity was the Singapore Chinese Middle School Students Union. Because of the unpopularity of the 1954 National Service Ordinance, which required males between the ages of eighteen and twenty to register for conscription or face jail or a fine, the communists had little difficulty in organizing violent student demonstrations. No popular uprising in support of the communists ever materialized, however.

In 1956 when it had become clear that the British were going to leave Singapore, the communists moved to obtain control of an independent government by legal means while continuing to foster disorders. In October 1956, after more rioting by students and laborers, Singapore's police raided labor unions and schools and rounded up large numbers of communists and communist supporters. The concurrent effort by the communists to find a legal route to power focused on the party's alliance with the PAP. Organizers of the PAP had deliberately collaborated with the communists in order to broaden the PAP's organizational base among the Chinese majority, and the communists saw in the leftist orientation of the PAP an ideologically acceptable basis for an alliance. When the communists attempted to seize control of the PAP Central Executive Committee in 1957, however, they were defeated by supporters of Lee Kuan Yew. Lee went on to lead the PAP to victory in

the 1959 election. As prime minister, Lee gradually eliminated communists from influential positions within the party and government and later used provisions of the Internal Security Act to prevent alleged communists from participating in politics.

In February 1963, the Singapore and Malaysian police forces organized a joint operation that resulted in the arrest of 111 suspected communists in the two countries. This large-scale police action targeted suspected CPM members in Singapore and successfully destroyed the party's underground political organization in Singapore. In 1989 there were no reports of the CPM's having reestablished a base of operations in the country.

Indonesia's Destabilization Attempts, 1963–66

Indonesia's opposition to the 1963 establishment of the Federation of Malaysia presented the only known external threat to Singapore since Japanese occupation. The opposition of Indonesian President Sukarno to the incorporation of Sabah and Sarawak on the island of Borneo into the Federation of Malaysia set up the early stages of a low-intensity conflict called Confrontation, which lasted three years and contributed to Sukarno's political demise. In August 1963, Indonesia deployed several thousand army units to the Indonesian-Malaysian border on Borneo. Throughout the latter part of 1963 and all of 1964 the Indonesian army dispatched units, usually comprising no more than 100 troops, to conduct acts of sabotage and to incite disaffected groups to participate in an insurrection that Djakarta hoped would lead to the dissolution of the Federation. In June and July 1964, Indonesian army units infiltrated Singapore with instructions to destroy transportation and other links between the island and the state of Johor on the Malay Peninsula. Indonesia's Kalimantan Army Command also may have been involved in the September 1964 communal riots in Singapore. These riots occurred at the same time Indonesian army units were deployed to areas in Johor in an attempt to locate and encourage inactive communists in the Chinese communities to reestablish guerrilla bases destroyed by British and Malaysian military units during the Emergency. After September 1964, Indonesia discontinued military operations targeting Singapore. In March 1965, however, a Singapore infantry battalion deployed on the southern coast of Johor was involved in fighting against a small Indonesian force that was conducting guerrilla operations in the vicinity of Kota Tinggi. Indonesia supported Singapore's separation from Malaysia in 1965 and used diplomatic and economic incentives in an unsuccessful effort to encourage the Lee administration to sever its defense ties with Malaysia and Britain. In March 1966, General Soeharto,

Collecting water during Civil Defence Force exercises
Courtesy Singapore Ministry of Communications and Information

who until October 1965 was deputy chief of the Kalimantan Army Command, supplanted President Sukarno as Indonesia's de facto political leader. Soeharto quickly moved to end the Confrontation and to reestablish normal relations with Malaysia and Singapore.

Subversive Political Groups, 1965 to the Present

From 1965 to 1989, the government occasionally reported police actions targeting small subversive organizations. However, at no time were any of these groups considered a significant threat to the Lee government. From 1968 to 1974, a group known as the Malayan National Liberation Front carried out occasional acts of terrorism in Singapore. In 1974 the Singapore Police Force's Internal Security Department arrested fifty persons thought to be the leading members of the organization. After police interrogation, twenty-three of the fifty persons arrested were released, ten were turned over to Malaysia's police for suspected involvement in terrorist activities there, and seventeen were detained without trial under the Internal Security Act. One leader subsequently was executed in 1983 for soliciting a foreign government for weapons and financial support. The government alleged the Malayan National Liberation Front had been a front organization of the CPM, which

in the late 1980s was still operating in the border area of northern Malaysia and southern Thailand.

In 1982 a former Worker' Party candidate for Parliament and fourteen of his associates were arrested for forming the Singapore People's Liberation Organization. Zinul Abiddin Mohammed Shah, who had run unsuccessfully for Parliament in the 1972, 1976, and 1980 elections, was accused of distributing subversive literature calling for the overthrow of the government. Shah was tried and convicted on this charge in 1983 and was sentenced to two years in jail. His associates were not prosecuted.

In 1987 twenty-two English-educated professionals were arrested under the Internal Security Act for their alleged involvement in a Marxist group organized to subvert the government from within and promote the establishment of a communist government. For reasons unknown, the Marxist group had no name or organizational structure. The government accused those arrested of joining student, religious, and political organizations in order to disseminate Marxist literature and promote antigovernment activities. Although twenty-one of the twenty-two persons arrested were released later that year after agreeing to refrain from political activities, eight were rearrested in 1988 for failing to keep this pledge. According to a 1989 Amnesty International report, two persons were being detained in prison without trial under Section 8 of the 1960 Internal Security Act. This number represented a significant reduction from the estimated fifty political prisoners held in 1980 (see Political Opposition, Ch. 4).

In January 1974, four terrorists belonging to the Japanese Red Army detonated a bomb at a Shell Oil Refinery on Singapore's Pulau Bukum and held the five-man crew of one of the company's ferry boats hostage for one week. The incident tested Singapore's capability to react to a terrorist attack by a group based outside the country and one having no direct connection with antigovernment activities. The counterterrorist force mobilized by the government after the bombing and hijacking comprised army commando and bomb disposal units and selected air force, navy, and marine police units. Negotiations with the terrorists focused on the release of the hostages in return for safe passage out of the country. Apparently the government's primary consideration was to end the incident without bloodshed if at all possible. The Japanese government became involved when five other members of the Japanese Red Army attacked the Japanese embassy in Kuwait and threatened to murder the embassy's staff unless they and the four terrorists in Singapore were allowed to travel to Aden in the People's Democratic Republic of Yemen (South Yemen). Singapore refused

A neighborhood police post
Courtesy Singapore Ministry of Communications and Information

to provide transportation for the terrorists but allowed a Japanese commercial airliner to land in Singapore, pick them up, and fly from Singapore to Kuwait. The hostages were released unharmed, and no deaths or serious injuries resulted from the incident.

Crime and Law Enforcement

In 1984, the most recent year for which complete statistics were available on crime in Singapore, the country reported 35,728 arrests. The incidence of serious violent crime in that year was considered low and included 69 murders, 677 assaults, and 1,620 armed robberies. In comparison to the eighty-two other countries that reported criminal statistics to the International Criminal Police Organization (Interpol) in 1984, Singapore had a low rate of assaults and was close to the median for three other types of crime: murder, sexual offenses, and thefts. Although Singapore did not report figures on drug arrests to Interpol, the sale and use of illegal drugs was known to be one of the country's most serious criminal problems.

In the 1980s, police instituted several new schemes designed to reduce the time required to dispatch officers to the scene of a crime and to improve the investigation capabilities of the force. In 1983

the Neighborhood Police Force System was introduced as an experimental project in one of Singapore's police divisions. This system, based on a successful Japanese program, placed small police substations in residential neighborhoods. The police officers assigned to those stations instituted crime prevention programs through their association with community organizations, and they assisted the criminal investigation department by soliciting residents of the neighborhood for information on specific cases. By 1989 the experimental project's success led to the establishment of neighborhood police posts in all ten police divisions.

A new crime report computer network was completed in 1987 enabling officers in their patrol cars to be notified minutes after a crime had been reported. The computer network maintained a record of the call and the status of the police units dispatched to the scene of the incident. During the 1980s, police routinely took blood and urine samples from all criminal suspects to determine if there was a possible link between the use of drugs and the suspect's behavior at the time of his arrest. This program enabled police and the courts to improve procedures for dealing with drug addicts who resorted to crime to support their habit.

Any citizen indicted for a crime had the right to obtain legal counsel and to be brought to trial expeditiously, unless the government determined that the person was involved in subversion, drug trafficking, or was a member of a criminal organization. Trials were conducted by magistrates or judges without a jury, and in most cases defendants could appeal their verdicts to a higher court. The death penalty could be imposed for individuals convicted of murder, kidnapping, trafficking in arms, or importing and selling drugs; between 1975 and 1989, twenty-four prisoners were executed for various drug offenses. Mandatory beating with a cane and imprisonment were required for most serious crimes, including rape, robbery, and theft. Government interference in the judicial process was prohibited by the Constitution. The chief justice of the Supreme Court and the attorney general were responsible for guaranteeing the impartiality of the courts and the protection of the rights of the accused, respectively (see Major Governmental Bodies, ch. 4).

Trends in Criminal Activities

Singapore's criminal code included seven classes of offenses. Class one covered serious crimes against persons, including murder, rape, and assault with a deadly weapon. Classes two through four were concerned with arson, robbery, theft, and abuse of another's property. Class five crimes included forgery, counterfeiting, and fraud. Classes six and seven covered violations of the penal code

in matters of public safety and violations of special criminal ordinances, particularly those related to drugs, firearms, gambling, vagrancy, vandalism, and petty crime.

A high percentage of murder cases were solved each year by police. In 1988 only ten of fifty-four murders had not been solved by police at the end of the year. The percentage of murder cases solved had steadily increased since the 1960s. In 1969 police solved 44 percent of seventy-eight murders. This number improved to 68 percent of fifty-seven murders in 1983, and in 1988 to 81 percent of the total.

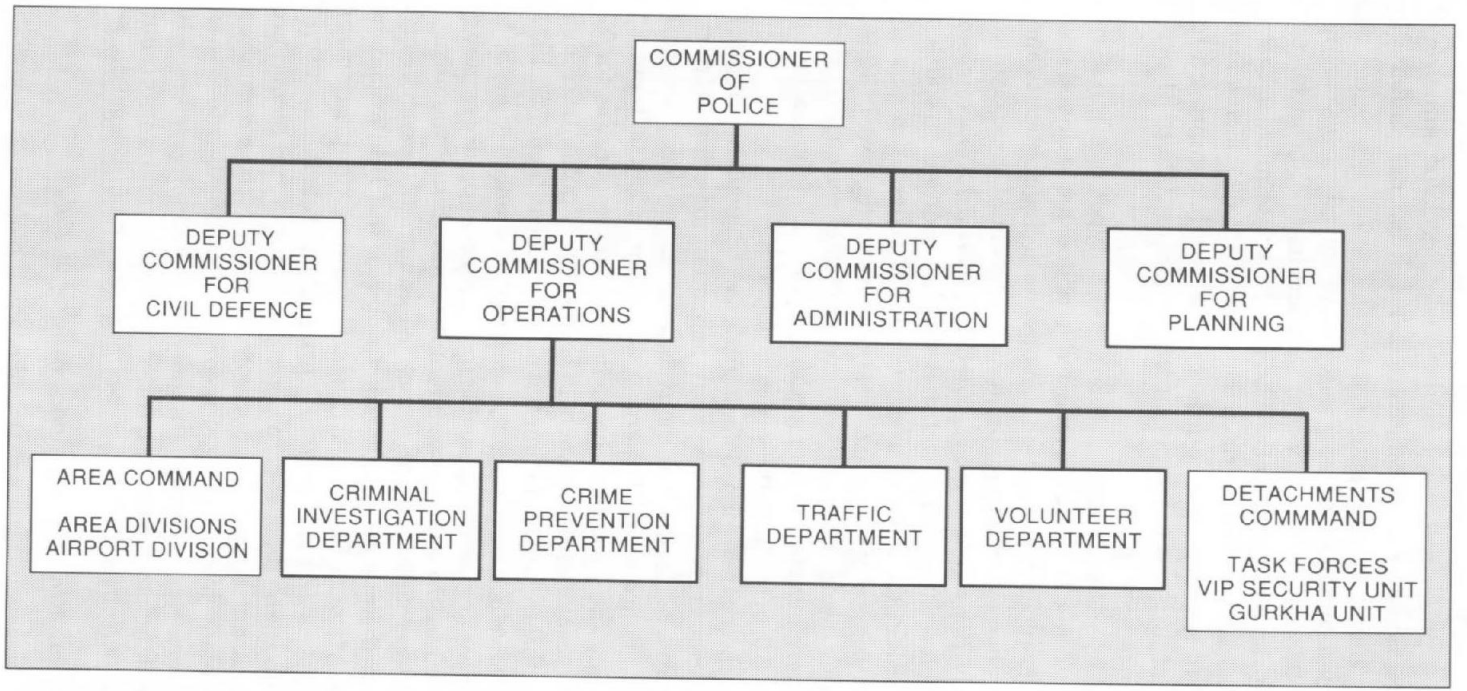
Police were less successful in solving other types of crimes. In 1984, there were 677 incidents reported to police that included sexual and other types of assaults on persons, including robberies and beatings. Police solved approximately 50 percent of these crimes. In 1984 only 20 percent of the reported 1,620 armed robbery cases had been solved at the time statistics for that year were reported to the INTERPOL. Persons under the age of sixteen were classified as juveniles and given special treatment under the law. In 1984, few juveniles were charged with committing serious crimes. Juveniles were involved in no murders, 8 percent of the sexual assaults, and 10 percent of the armed robberies.

Most of the crimes for which statistics were available in 1984 involved various types of theft. Sixty percent of the crimes reported that year were classified as thefts that did not involve a dangerous weapon. Police solved 18 percent of the almost 23,000 reported cases of theft, and juveniles were believed to be responsible for 12 percent of these crimes. Between 1971 and 1983, police were successful in substantially reducing the number of car thefts. In 1971 almost 9,000 vehicles were stolen, compared with only 470 in 1984. In 1983, juveniles were responsible for 77 percent of all car thefts.

In the early 1970s, the government determined that the misuse of illegal drugs, particularly heroin, cannabis, and such psychotropic tablets as methaqualone, was a major problem. In 1973 Parliament passed the Misuse of Drugs Act, which mandated imprisonment for drug dealers and instituted new programs to rehabilitate users. The act also enabled the government to monitor the problem more accurately because most of the persons arrested each year on drug charges already had a criminal record. In the 1980s, more than 5,000 persons were arrested annually on drug charges. Only 10 percent of those arrested were newly identified users, however, and another 10 percent were found to be involved in selling illegal drugs.

Organization, Recruitment, and Training of Police

In 1989 Singapore's police force had 7,000 constables and inspectors,



Source: Based on information from John Drysdale, *In the Service of the Nation,* Singapore, 1985, 44–45.

Figure 16. Organization of the Police Force, 1989

3,000 national service conscripts, and 2,000 volunteers. The commissioner of police was responsible for law enforcement in all civil jurisdictions of the country. He was assisted by deputy commissioners for administration, civil defense, operations, and planning (see fig. 16). Two auxiliary police organizations employed an additional 2,300 persons trained to provide security for the Port of Singapore and private businesses. The Port of Singapore police, with 300 personnel in 1989, was delegated responsibility for maintaining law and order on the docks, checking cargo manifests, and inspecting vessels that were suspected of having contraband. The other auxiliary police force was the Commercial and Industrial Security Corporation, which was operated as a public service under the control of the minister for home affairs. The corporation was established in 1972 to relieve regular police from routine security and escort duties for private businesses. The 2,000 security personnel employed by the corporation were delegated the same powers and immunities as police officers in the course of their duties. The Commercial and Industrial Security Corporation was the only civilian security organization whose personnel were authorized to carry firearms.

The deputy commissioner for operations of the police force was responsible for overseeing two commands and four departments. The main island was divided into ten police divisions, which, along with the airport police division, came under the Area Command. The one other command, known as the Detachments Command, comprised police units responsible for counterterrorism, crowd management, protection of government officials, and the marine police. Two police task forces, with probably fewer than 200 specially trained officers, had replaced the police reserve units of the 1960s. Counterterrorist operations most likely would be conducted by elite units belonging to one of the task forces in coordination with army commandos and other units taken from the police and armed forces. A 700-member Gurkha unit was responsible for prison security and for supporting the police task force in the event that a civil disturbance got out of control. The British-trained Gurkhas, recruited in Nepal, had been employed by the police since 1949. The four departments under the control of the deputy commissioner for operations had jurisdiction over crime prevention, criminal investigation, traffic control, and the special constabulary, which included an estimated 2,000 volunteer constables who were trained to assist the regular police in patrolling residential neighborhoods.

The three other deputy commissioners were responsible for administration, planning, and civil defense. The deputy commissioner

for administration managed recruitment, training, and logistics and was responsible for the National Police Cadet Corps, a student organization that in the late 1980s had more than 20,000 members and units in 129 secondary schools located throughout Singapore. The deputy commissioner for planning was responsible for research and force development and proposed plans for the purchase of state-of-the-art equipment and the introduction of new law enforcement tactics to improve the efficiency of the police force. The deputy commissioner for civil defense was in charge of civil defense planning and civil defense organizations (see Civil Defense, this ch.).

Police personnel primarily were recruited from among high school graduates who were interested in law enforcement as a career. The professional force was augmented, as necessary, with national service conscripts and volunteers. In 1989 women comprised 15 percent of the force and were employed in all occupational fields. The high number of students interested in belonging to the National Police Cadet Corps provided the police with a large pool of potential recruits. Police recruits were required to be high school graduates without a criminal record and to be in excellent physical condition. Officers selected for promotion to senior grades had to be approved by the Public Service Commission. There were ten senior-grade levels: inspector, four grades of superintendents, and five grades of commissioners.

Basic and advanced training for recruits and national service conscripts was provided at the Police Academy. Selected officers were awarded scholarships to attend local universities and to take courses in other countries. The six-month basic course for recruits emphasized legal procedures, police station and field operations, use of weapons, dealing with the public, and physical fitness. National service conscripts were given a three-month basic course, but with less emphasis on legal procedures. Most divisions of the areas and detachments commands selected from within to fill vacant billets for corporals, sergeants, and higher level positions. Officers were encouraged to enroll in career development courses that were devoted to such subjects as crisis management, community relations, crime investigation, and interrogation techniques. Exceptional junior officers received merit scholarships to the National University of Singapore to study management and other disciplines needed by the force. Senior officers were required to travel overseas for training to broaden their understanding of law enforcement practices in other countries. Some of the foreign schools attended were the Police Staff College in Britain, the Federal Bureau of Investigation Academy in the United States, and the Police Academy in Japan.

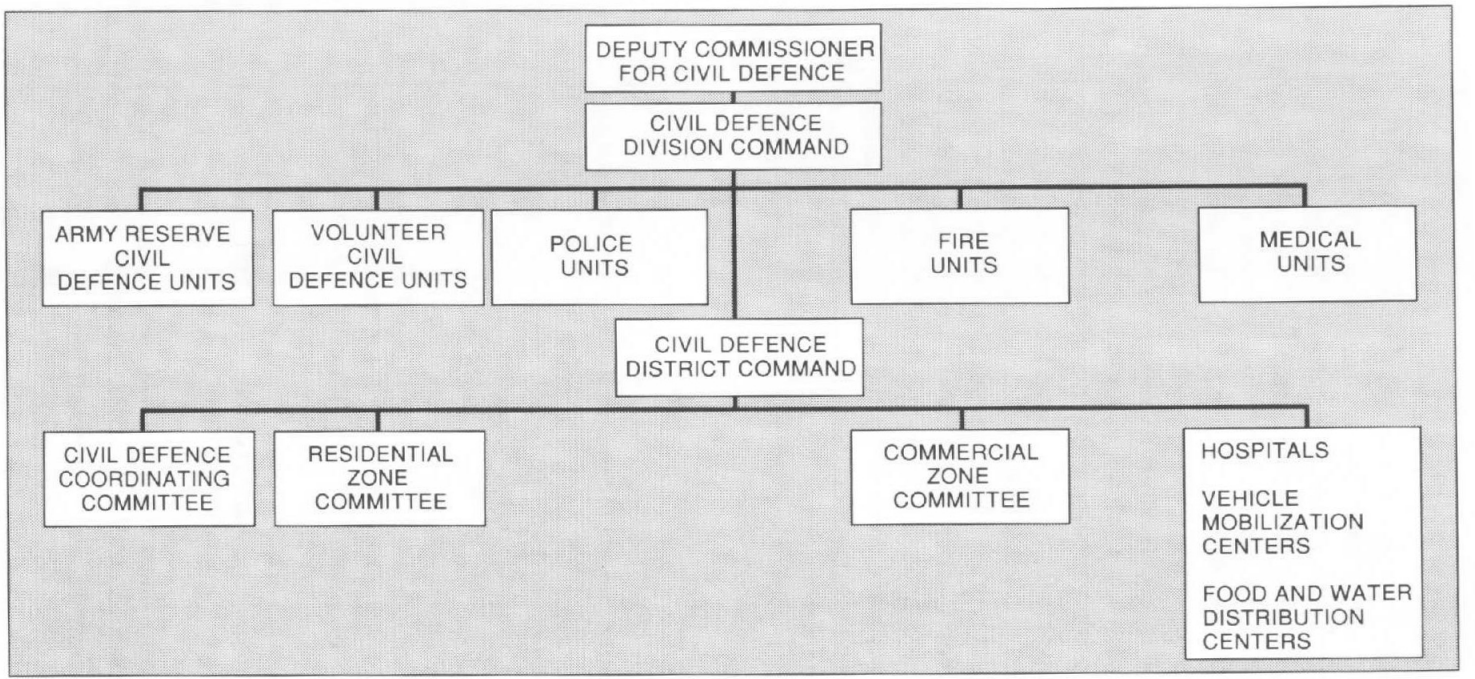
Judicial System

Prosecution of criminal cases was the responsibility of the Office of the Attorney General. The attorney general was appointed by the president on the advice of the prime minister. Public prosecutors were attorneys appointed by the Public Service Commission to advise police on the law in criminal matters and to present the government's case against the defendant. Criminal cases in which the maximum sentence did not exceed three years were referred to magistrates' courts, while more serious offenses were assigned to the district courts. There also was one Juvenile Court, which handled cases that involved children under the age of sixteen. Criminal cases appealed to the Supreme Court went through a three-stage process. Judges known as judicial commissioners eliminated cases that did not meet legal criteria for appeal. The High Court of the Supreme Court heard all cases appealed from a district court in which the convicted criminal received the death sentence and also selected cases approved by the judicial commissioners. The High Court also had unlimited original jurisdiction for cases deemed important to the state. The Court of Criminal Appeal was the final arbiter in criminal cases where the interpretation of law was subject to question.

Prisons and Rehabilitation Centers

In 1989 there were six types of correctional institutions: two maximum security prisons for males; three medium security prisons for males; one prison for females; four day-release camps; one reformative training center for persons between the ages of sixteen and twenty-one; and seven drug treatment centers. Queenstown Remand Prison, a short-term, maximum-security facility, served two basic functions: receiving and classifying newly convicted male offenders and holding persons awaiting trial or sentence. Changi Prison, a maximum security prison for males, was used for hardened criminals considered to be unlikely candidates for rehabilitation. Political prisoners detained under the Internal Security Act usually were also placed in the Moon Crescent Center within the Changi complex. Females convicted of crimes are thought to have been sent to separate maximum and medium security complexes.

All adult prisoners spent the last six months of their sentence in day-release centers. These prisoners were allowed to spend days at work and to visit their families without supervision. The purpose of the reformative training center for young adults was to provide rehabilitation. Sentences to this facility usually were for not



Source: Based on information from Singapore, Civil Defence Force, *Civil Defence in Singapore, 1939-1984,* Singapore, 1985, 98.

Figure 17. Organization of the Civil Defence Force, 1989

less than eighteen months and not more than three years. Juveniles fifteen years old and under convicted of crimes were sent either to reform homes for girls or to reform schools for boys. Whereas persons convicted of importing and selling drugs were prosecuted as criminals and served time in prison, drug abusers usually did not go to jail. Singapore's Central Narcotics Bureau operated six rehabilitation centers and one anti-inhalant abuse center. Individuals who tested positive for drugs were required to spend up to six months in a rehabilitation center and possible additional time in halfway houses operated by the Central Narcotics Bureau.

In 1989 two privately operated programs attempted to assist prisoners and drug abusers find jobs and stay out of the correctional system. The Singapore Corporation of Rehabilitative Enterprises operated job training programs in the prisons and managed day-release programs for the prisons. The Singapore Anti-Narcotics Association provided counseling for drug abusers after their release from rehabilitation centers. Although it did not have job training or placement programs, the association worked closely with the Singapore Corporation of Rehabilitative Enterprises to find employment for drug abusers and monitored their progress after placement.

Civil Defense

In 1964, as a response to Confrontation, the government established the Vigilante Corps to assist police by patrolling communities and reporting suspicious activities. The Corps gradually evolved into the nation's first civil defense force. Initially comprised entirely of volunteers, members were given some weapons training and instruction in general police procedures. The Police National Service Command was established in 1967 to train and organize conscripts assigned to perform police duties in either the Special Constabulary or the Vigilante Corps. At that time, the Corps had approximately 12,500 volunteers. In the 1970s, most new members of the Vigilante Corps were conscripts who assisted police in their home communities at nighttime, on weekends, and during emergencies.

In 1981 the Vigilante Corps was disbanded, and its members were assigned to units of the newly established Civil Defence Force (see fig. 17). The force's division headquarters were set up in each of the police divisions under the Area Command. Numerous local civil defense units were organized and were assigned responsibility for such specialized duties as blood collection, food and water distribution, and providing shelter to the homeless. In 1989 about 40,000 national service reservists and 18,000 civilian volunteers served in the Civil Defence Force.

The deputy commissioner of police for civil defense was the government official responsible for all military and civilian civil defense units. In 1989 he controlled ten division-level organizations, which were subdivided into districts and zones. Each division headquarters was assigned a small staff of regular army officers who were responsible for coordinating civilian and military cooperation within the district during an emergency and for training national servicemen for civil defense assignments. Between 1981 and 1989, more than 7,000 conscripts were trained in various construction skills and assigned to construction brigades subordinate to the civil defense division headquarters. In emergencies, construction brigades would be deployed to damaged and destroyed buildings to clear debris and to construct temporary shelters for residents. Reservists also were assigned to rescue battalions, shelter battalions, and medical units subordinate to each division headquarters.

In 1989 civil defense organizations below the division level were in various stages of development. Each of Singapore's fifty-five electoral districts had a Civil Defence Coordinating Committee. The government enlisted members of Parliament and other community leaders to serve on these committees in order to promote civil defense programs. Local civil defense units were established in residential neighborhoods and at some businesses. Nine underground Mass Rapid Transit (MRT) stations also served as blastproof shelters for up to 100,000 people. The government frequently organized civil defense exercises in selected jurisdictions, and in 1989 the installation of a sophisticated electronic blackout and civil defense warning system was under study.

* * *

Three books provide in-depth coverage of the evolution of the armed, police, and civil defense forces since 1965. *The Singapore Armed Forces,* published by the Ministry of Defence, covers all aspects of military life and includes useful information on the types of military equipment used by the army, navy, and air force. *In the Service of the Nation* by John Drysdale is a good reference on police organization and training. *Civil Defence in Singapore,* published by the Civil Defence Force, presents an overview of civil defense organizations past and present and explains how military and civil defense units would function during wartime or a national emergency. Two books on the development of armed forces and defense spending in Asian countries include discussions on Singapore. *The Armed Forces in Contemporary Asian Societies,* edited by Edward A. Olsen and Stephen Jurika, Jr., includes a chapter by Patrick M.

Mayerchak on the evolution of the armed forces and strategic planning, and Chih Kin Wah's *Defence Spending in Southeast Asia* discusses how changing perceptions of potential adversaries and domestic economic considerations affect the amount of money the government budgets for defense. A number of articles on Singapore's armed forces have been published in recent years in military journals, and Singapore also publishes its own defense magazine. *Asian Defence Journal* probably provides the best overall reporting on current developments in the armed forces and Singapore's military relations with other countries. *Pacific Defence Reporter* and *Far Eastern Economic Review* are also good sources for current information on military subjects. *Pioneer,* a monthly news magazine on the armed forces, published by the Ministry of Defence, has useful articles on military organization, weapons, logistics, mobilization policies, civil defense, and other subjects. Human rights and internal security issues are covered yearly in reports to the United States Congress by the Department of State titled *Country Reports on Human Rights Practices* and in *Amnesty International Report,* which is also published annually. Statistics on crime can be found in *International Crime Statistics,* which includes coverage of Singapore. Occasional articles on crime and the criminal justice system in Singapore can be found in *Far Eastern Economic Review* and *Asiaweek.* (For further information and complete citations, see Bibliography.)

Appendix

Table

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Table 1. Metric Conversion Coefficients and Factors

When you know	Multiply by	To find
Millimeters	0.04	inches
Centimeters	0.39	inches
Meters	3.3	feet
Kilometers	0.62	miles
Hectares (10,000 m²)	2.47	acres
Square kilometers	0.39	square miles
Cubic meters	35.3	cubic feet
Liters	0.26	gallons
Kilograms	2.2	pounds
Metric tons	0.98	long tons
	1.1	short tons
	2,204	pounds
Degrees Celsius (Centigrade)	9 divide by 5 and add 32	degrees Fahrenheit

Table 2. Population Growth, Selected Years, 1824–1988

Year	Chinese	Malays	Indians	Others	Total * Population
	(as percentage of total population)				
1824	31	60	7	2	10,683
1840	50	37	10	3	35,389
1860	61	20	16	3	81,734
1891	67	20	9	4	181,602
1911	72	14	9	5	303,321
1931	75	12	10	4	557,745
1947	78	12	8	2	938,144
1957	75	14	7	2	1,445,929
1970	76	15	7	2	2,074,507
1980	77	15	6	2	2,413,945
1987	76	15	7	2	2,612,800
1988	76	15	6	2	2,670,000

* Figures may not add to total because of rounding.

Source: Based on information from Cheng Lim-Keak, *Social Change and the Chinese in Singapore,* Singapore, 1985, 7; *Singapore Facts and Pictures, 1988.* Singapore, 1988, 3; and *Singapore Bulletin* [Singapore], April 1989, 15.

Table 3. Population by Ethnic Group and Language, 1980

Ethnic Group and Language	Number	Percentage of Ethnic Group	Percentage of Total Population
Chinese			
Hokkien	799,202	43	33.0
Teochiu	409,269	22	17.0
Cantonese	305,956	16	13.0
Hainanese	137,438	8	6.0
Hakka	131,975	7	6.0
Other Chinese	72,397	4	3.0
Total	1,856,237	100	78.0
Malays			
Malays	312,889	89	13.0
Javanese	21,230	6	0.9
Boyanese	14,292	4	0.6
Other Malays	3,097	1	0.1
Total	351,508	100	14.6
Indians			
Tamil	98,772	64	4.0
Malayali	12,451	8	0.5
Punjabi	12,025	8	0.5
Gujarati	1,619	1	0.1
Other Indians	29,767	19	1.0
Total	154,634	100	6.1
Miscellaneous			
European	23,169	45	1.0
Eurasian	10,172	20	0.4
Japanese	7,590	15	0.3
Arab	2,491	5	0.1
Others	8,164	16	0.3
Total	51,586	100	2.1
TOTAL *	2,413,965		

* Figures may not add to total because of rounding.

Source: Based on information from Eddie C.Y. Kuo and Seen-kong Chiew, *Ethnicity and Fertility in Singapore,* Singapore, 1984, 9.

Table 4. Singapore Chinese Speech Groups and Their Alternate Names

Singapore Group	Alternate Names
Hokkien	Fujian, Fukien, Amoy, Xiamen, Hsia-men
Teochiu	Chaozhou, Chao-chou, Swatow, Shantou, Teochew, Chaochou
Cantonese	Guangzhou, Kuang-chou
Hainanese	Hailam, Qiongzhou, Ch'iung-chou
Hakka	Kejia, K'e-chia
Hokchiu	Fuzhou, Foochow
Hokchia	Fuqing, Fu-ch'ing
Henghua	Xinghua, Hsing-hua
Sam Kiang	Sanjiang, San-chiang, Shanghai

Source: Based on information from Cheng Lim-Keak, *Social Change and the Chinese in Singapore,* Singapore, 1985, 15-23.

Table 5. School Enrollment, Selected Years, 1972-88

School	*1972*	*1980*	*1985*	*1988*
Primary schools	354,748	299,252	278,060	259,270
Secondary schools	161,371	173,693	190,328	201,755
Technical and vocational institutes	5,841	12,542	18,894	26,911
Universities and colleges	15,206	22,511	39,693	46,904
TOTAL	537,166	507,998	526,975	534,840

Source: Based on information from Singapore, Ministry of Communications and Information, *Singapore Facts and Pictures, 1989,* Singapore, 1989, 73.

Table 6. Employed Persons Aged Fifteen Years and Over by Sector, 1984–88

Occupational Group	1984		1985		1986		1987		1988	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Manufacturing	322,200	27.4	293,800	25.5	290,100	25.2	318,900	26.7	352,600	28.5
Construction	99,800	8.5	102,800	8.9	99,500	8.7	91,500	7.7	83,300	6.7
Commerce	264,600	22.5	271,100	23.5	265,700	23.1	279,400	23.4	283,600	22.9
Transport, storage, and communications	122,400	10.4	117,000	10.1	114,100	9.9	120,900	10.1	120,200	9.7
Finance, insurance, real estate, and business services	100,900	8.6	100,700	8.7	99,900	8.7	105,700	8.9	111,400	9.0
Community, social, and personal services	242,200	20.6	248,300	21.5	259,200	22.6	256,700	21.5	271,600	21.9
Others [1]	22,700	1.9	20,600	1.8	20,500	1.8	19,800	1.7	15,800	1.3
TOTAL [2]	1,174,800	100.0	1,154,300	100.0	1,149,000	100.0	1,192,900	100.0	1,238,500	100.0

[1] Includes agriculture, fishing, mining, quarrying, and utilities.

[2] Figures may not add to total because of rounding.

Source: Based on information from Singapore, Ministry of Communications and Information, *Singapore, 1989,* Singapore, 1989, 292.

Table 7. Gross Domestic Product (GDP) by Sector, Selected Years, 1978–88
(in millions of Singapore dollars) *

Industry	1978	1980	1982	1984	1986	1988
Agriculture and fishing	237.7	322.0	349.1	339.7	244.5	203.4
Quarrying	37.5	82.2	128.1	132.2	75.6	51.2
Manufacturing	4,575.9	7,312.7	8,153.5	9,863.4	10,185.5	14,509.7
Utilities	351.5	555.0	600.9	773.0	1,056.9	1,135.2
Construction	1,118.8	1,613.2	3,146.1	4,943.7	3,149.1	2,755.9
Commerce	4,283.3	5,435.1	6,387.5	6,885.5	6,516.3	8,826.8
Transport and communications	2,554.7	3,522.2	4,435.8	5,222.3	5,297.0	6,625.0
Financial and business services	3,165.6	4,906.1	7,697.6	9,879.6	10,573.9	13,111.4
Other services	1,867.2	2,326.3	3,399.7	4,321.8	4,594.1	5,221.0
Less imported bank service charge	-737.6	-1,410.9	-2,109.0	2,827.4	-3,869.5	-4,990.0
Import duties	340.2	426.8	481.5	514.1	393.6	596.3
TOTAL	17,794.8	25,090.7	32,670.8	40,047.9	38,217.0	48,045.9

* For value of the Singapore dollar—see Glossary.

Source: Based on information from Singapore, Ministry of Trade and Industry, *Economic Survey of Singapore,* Singapore, Second Quarter 1989, 24.

Table 8. Balance of Payments, 1984–88
(in billions of United States dollars)

	1984	1985	1986	1987	1988
Exports	22.7	21.5	21.3	27.3	39.0
Imports	26.7	24.4	23.4	29.8	41.8
Trade balance	-4.0	-2.9	-2.1	-2.5	-2.8
Services	3.9	3.2	3.0	3.7	4.5
Transfers	-0.2	-0.3	-0.4	-0.6	-0.7
Current account balance *	-0.4	-0.0	0.5	0.5	1.1

* Figures may not add to total because of rounding.

Source: Based on information from WEFA Group, *World Economic Historical Data,* Bala Cynwyd, Pennsylvania, April 1989, 266.

Table 9. Exports by Commodity, 1984-88
(in millions of Singapore dollars) *

Commodity	1984	1985	1986	1987	1988
Food, beverages, and tobacco	3,105	2,434	2,958	3,104	3,838
Crude materials	3,410	2,700	2,459	3,003	4,046
Mineral fuels and bunkers	16,179	16,452	12,361	12,198	12,353
Animal and vegetable oils	1,541	1,535	880	796	885
Chemicals and chemical products	2,464	2,717	2,840	3,762	5,199
Manufactured goods	7,033	6,976	7,675	10,079	7,579
Machinery and transport equipment	16,865	16,567	18,900	26,274	37,939
Miscellaneous	743	798	912	1,050	1,151
TOTAL	51,340	50,179	48,985	60,266	72,990

* For value of the Singapore dollar—see Glossary.

Source: Based on information from Singapore, Ministry of Trade and Industry, *Economic Survey of Singapore,* Singapore, Second Quarter 1989, 32.

Table 10. Imports by Commodity, 1984-88
(in millions of Singapore dollars) *

Commodity	1984	1985	1986	1987	1988
Food, beverages, and tobacco	4,618	4,036	4,407	4,547	5,397
Crude materials	2,510	1,988	1,905	2,267	2,999
Mineral fuels	16,961	17,031	10,994	12,526	12,422
Animal and vegetable oils	1,436	1,380	720	792	941
Chemicals and chemical products	3,096	2,890	3,246	4,082	5,809
Manufactured goods	12,242	11,276	12,501	15,591	20,993
Machinery and transport equipment	19,420	18,317	20,781	27,534	38,299
Miscellaneous	850	898	991	1,078	1,367
TOTAL	61,133	57,816	55,545	68,417	88,227

* For value of the Singapore dollar—see Glossary.

Source: Based on information from Singapore, Ministry of Trade and Industry, *Economic Survey of Singapore,* Singapore, Second Quarter 1989, 31.

Table 11. Trade with Selected Countries, 1984–88
(in millions of Singapore dollars) *

Country	1984	1985	1986	1987	1988
China					
Imports	2,881	4,972	3,110	2,926	3,386
Exports	519	730	1,244	1,547	2,369
Hong Kong					
Imports	1,281	1,082	1,310	1,802	2,432
Exports	3,176	3,197	3,183	3,815	4,944
Japan					
Imports	11,218	9,870	11,052	14,029	19,364
Exports	4,807	4,722	4,204	5,449	6,828
Malaysia					
Imports	9,180	8,301	7,403	9,477	12,929
Exports	8,324	7,787	7,245	8,560	10,721
Taiwan					
Imports	1,998	1,922	2,244	3,144	3,997
Exports	830	855	1,097	1,637	2,235
United States					
Imports	8,923	8,775	8,314	10,057	13,718
Exports	10,292	10,619	11,436	14,674	18,826
European Community					
Imports	6,140	6,546	6,468	8,238	10,613
Exports	4,980	5,312	5,455	7,353	10,253
Total World					
Imports	61,134	57,818	55,545	68,415	88,227
Exports	51,340	50,179	48,986	60,266	79,051

* For value of the Singapore dollar—see Glossary.

Source: Based on information from Singapore, Department of Statistics, *Monthly Digest of Statistics,* Singapore, July 1989, 36, 37.

Table 12. External Trade, 1984-88
(in millions of Singapore dollars) *

	1984	1985	1986	1987	1988
Exports	51,340	50,179	48,985	60,266	79,051
Domestic exports	33,051	32,576	32,062	39,071	49,555
Re-exports	18,289	17,603	16,923	21,195	29,496
Imports	61,134	57,818	55,545	68,415	88,227
TOTAL TRADE	112,474	107,997	104,530	128,681	167,278

* For value of the Singapore dollar—see Glossary.

Source: Based on information from Singapore, Ministry of Trade and Industry, *Economic Survey of Singapore,* Singapore, Second Quarter 1989, 30.

Table 13. Defense Personnel and Expenditures, Selected Years, 1970-88

Year	1970	1975	1980	1985	1988
Personnel					
Army	14,000	25,000	35,000	45,000	45,000
Air force	300	3,000	4,000	6,000	6,000
Navy	500	2,000	3,000	4,500	4,500
Reserves	6,000	12,000	50,000	132,000	182,000
Total personnel	20,800	42,000	92,000	187,500	237,500
Expenditures					
Defense spending (in millions of United States dollars)	106.4	269	574	1,046	1,003
Defense as percentage of gross national product *	7.4	5.0	6.7	6.0	6.0

* Gross national product—see Glossary.

Source: Based on information from *The Military Balance* (annuals 1970-71 through 1988-89), London, 1971-89.

Table 14. Major Equipment of the Singapore Armed Forces, 1988

Type and Description	Origin	In Inventory
Aircraft		
A-4S/S1 (ground-attack fighter)	United States	63 +
TA-4S/S1 (ground-attack fighter)	-do-	13 +
F-74 (ground-attack fighter)	Britain	29
T-75 (ground-attack fighter)	Unknown	4
F-16 (ground-attack fighter)	United States	On order
F-5E (interceptor)	-do-	35
F-5F (interceptor)	-do-	9
E-2C (early warning)	-do-	4
C-130 (transport)	-do-	10
Skyvan 3m (transport)	Britain	6
S-211 (training)	Italy	30
SF-260(training)	-do-	26
Helicopters		
UH-1B	United States	24
UH-1H	-do-	16
AS-332B	France	3
AS-332M	-do-	19
AS-350	-do-	6
AB-205	Italy/United States	4
Air-to-air missiles		
AIM-9J Sidewinder	United States	Unknown
Surface-to-air missiles		
Bloodhound 2	Britain	28
Rapier	-do-	Unknown
HAWK	United States	6
Naval vessels		
Corvette (MCV)	West Germany and Singapore	6
Fast-attack craft (with Gabriel and Harpoon surface-to-surface missiles)	West Germany	6
Patrol craft	Britain and Singapore	6
Landing craft, tank (LCT)	United States	6
Minesweeper (MSC)	-do-	2
Tanks and armored personnel carriers		
AMX-13 (light tank)	France	350
V-150/200 (armored personnel carrier)	United States	250
M-113 (armored personnel carrier)	-do-	750
V-100 (armored personnel carrier)	-do-	30
Towed Artillery		
M-71 (155mm)	Israel	38
M-114A1 (155mm)	Singapore	16
M-68 (155mm)	Israel	Unknown
FH-88 (155mm)	Singapore	Unknown

Table 14.—Continued

Type and Description	Origin	In Inventory
Rocket Launchers		
89mm	Unknown	Unknown
Recoilless, guns		
106mm	Unknown	90
84mm	Sweden	Unknown
Antiaircraft artillery		
20mm	Unknown	30
35mm	Switzerland	34
40mm	Swedish	16
Surface-to-air missiles		
RBS-70	Sweden	Unknown
Mortars		
120mm	Unknown	50
160mm	Unknown	12

Source: Based on information from the International Institute for Strategic Studies, *The Military Balance* (annuals 1970-71 through 1988-89), London, 1971-89.

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Glossary

Asian Development Bank (ADB)—Established in 1967, the bank assists in economic development and promotes growth and cooperation in developing member countries. The bank is owned by its forty-seven member governments, which include both developed and developing countries in Asia and developed countries in the West.

Association of Southeast Asian Nations (ASEAN)—Founded in 1967 for the purpose of promoting regional stability, economic development, and cultural exchange. ASEAN's membership includes Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

Baba Chinese—Descendants of marriages between Chinese men and Malay women, many of whom moved to Singapore from Malacca in the early nineteenth century. Although mixed parentage gradually disappeared through marriage with Chinese immigrants, the Babas usually spoke Malay or English as their first language and identified more closely with Singapore and Malaya than with China. After establishment of Straits Settlements (*q.v.*) in 1826, their descendants also came to be known as Straits Chinese (*q.v.*).

Barisan Sosialis—The Socialist Front, a left-wing political party that was the primary challenger to the People's Action Party (*q.v.*) in the 1960s and early 1970s.

Commonwealth of Nations—Often referred to as the British Commonwealth, the Commonwealth is formally an association of forty-nine sovereign, independent states that acknowledge the British monarch as symbolic head of the association. Commonwealth membership is expressed in cooperation, consultation, mutual assistance, and periodic conferences of national leaders.

Communist International (Comintern)—Founded in Moscow in 1919 to coordinate the world communist movement, the Comintern was officially disbanded in 1943.

Communist Party of Malaya (CPM)—Known as the Malayan Communist Party (MCP) until the 1960s. Founded in Singapore in 1930 with a predominantly Chinese membership, the party carried out armed resistance to the Japanese during World War II. From 1948 to 1960, its military arm, the Malayan Peoples Liberation Army, practiced guerrilla warfare in the rural areas of peninsular Malaya with the support of underground organizations in Malaya and Singapore. In the late 1980s, an

estimated 500 guerrillas and the party leadership maintained themselves in the jungles of the Malaysian-Thai frontier.

Confrontation (Konfrontasi)—Indonesia's 1963-66 effort to disrupt the new state of Malaysia, which Indonesian leaders regarded as a front for a continued British colonial presence in Southeast Asia.

Emergency—The 1948-60 communist insurgency in peninsular Malaya and Singapore; most active between 1948 and 1951.

European Economic Community (EEC)—Originally established by the 1957 Treaty of Rome and sometimes referred to as the Common Market, an association of twelve West European nations with common economic institutions and policies toward trade with non-Community nations. One of three communities; besides the EEC, there are the European Coal and Steel Community and the European Atomic Energy Community, collectively known as the European Community.

fiscal year (FY)—April 1 to March 31.

Five-Powers Defence Agreement—A 1971 agreement (not a treaty) in which Australia, Britain, and New Zealand promised military support for Malaysia and Singapore if they were attacked by a foreign power.

Generalized System of Preferences (GSP)—A policy promoted by the United Nations Conference on Trade and Development under which developed countries grant tariff exemptions to imports from developing countries. The United States GSP program was authorized by the International Trade and Tariff Act of 1974 and was extended by the International Trade and Tariff Act of 1984. Singapore "graduated" from the United States GSP program as of January 1, 1989, as it was no longer considered a developing country.

gross domestic product (GDP)—The value of domestic goods and services produced by an economy in a given period, usually a year. Only output of goods for final consumption and investment is included, as the value added by primary or intermediate processing is assumed to be represented in the final prices.

gross national product (GNP)—Gross domestic product (*q.v.*) plus income from overseas investments and wages minus earnings of foreign investors and foreign workers in the domestic economy.

Group of 77—Founded in 1964 as a forum for developing countries to negotiate with developed countries for economic aid, by the 1980s its membership had expanded from the original 77 nations to include the 127 members of the Nonaligned Movement (*q.v.*).

Her Majesty's Privy Council—As the final court of appeal for certain Commonwealth (*q.v*) countries, the Judicial Committee of

Her Majesty's Privy Council includes privy counsellors who hold or have held high judicial offices in Britain and present or former chief justices of Commonwealth countries.

International Monetary Fund (IMF)—Established along with the World Bank in 1945, the IMF is a specialized agency affiliated with the United Nations and is responsible for stabilizing international exchange loans to its members when they experience balance of payments difficulties.

International Telecommunications Satellite Organization (Intelsat)—Established by two international agreements effective in February 1973, Intelsat promotes the development of the global telecommunications satellite system. In the late 1980s, there were 109 signatory member nations and 30 nonsignatory user nations.

Jawi-Peranakan—Malay term for the descendants of marriages between Indian Muslim men and Malay women.

Malayan Communist Party (MCP)—*See* Communist Party of Malaya.

Nanyang—Chinese term meaning southern ocean and used to refer to Southeast Asia.

newly industrializing economies (NIEs)—A category of economies of nations or other political entities that experienced rapid industrial expansion and concomitant growth in their per capita GNP in the 1980s.

Nonaligned Movement (NAM)—Formed at a conference in Belgrade, Yugoslavia, in 1961, the NAM promotes the sovereignty and territorial integrity of nonaligned nations. By the late 1980s, there were 127 member nations.

Organisation for Economic Co-operation and Development (OECD)—Organized in Paris in 1961, the OECD represents developed nations. Its twenty-four-nation membership, originally confined to Western Europe, includes the United States, Japan, Canada, Australia, and New Zealand.

People's Action Party (PAP)—Singapore's dominant political party, which has controlled the government by winning every general election since 1959.

sharia—Muslim law, based on the Quran and precedents established by early Muslim jurists.

Singapore dollar (S$)—Singapore's monetary unit, which in late 1989 had an exchange rate of US$1 to S$1.94.

Straits Chinese—Chinese born in the Straits Settlements (*q.v.*) in the nineteenth and early twentieth centuries and more oriented to Southeast Asia than to China. They often spoke Malay or English as their first language.

Straits Settlements—Trading ports along the Strait of Malacca that were under direct British rule during the colonial period in contrast to the Malay States, which retained their native rulers. Governed from 1826 as part of British India, the Straits Settlements became a crown colony in 1867. Although the major settlements were Singapore, Penang, and Malacca, the Straits Settlements also included Dindings, south of Penang, and Labuan Island, off the northern coast of Borneo.

Total Defence—Singaporean national defense strategy calling for a small but well-equipped military force backed by trained reserves and an extensive civil defense organization.

World Bank—The informal name used to designate a group of three affiliated international institutions: the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), and the International Finance Corporation (IFC). The IBRD, established in 1945, provides loans to developing countries for productive projects. The IDA, a legally separate loan fund administered by the staff of the IBRD, was established in 1960 to furnish credits to the poorest countries on much easier terms than those of conventional IBRD loans. The IFC, founded in 1956, supplements the activities of the IBRD through loans and assistance intended to encourage the growth of productive private enterprises in developing countries. The three institutions share a common president and senior officers and are owned by the governments of the countries that subscribe their capital. To participate in the World Bank group, member states must first belong to the International Monetary Fund (*q.v.*).

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