

Background: Taiwan's Military and Arms Industry

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Taiwan is a state recognised only by a few countries across the globe. It came into being in 1949 after the island of Taiwan, previously under Japanese colonial rule, was granted to China at the end of World War II. When the Chinese Nationalist Party or Kuomintang (KMT) under Chiang Kai-shek was defeated on mainland China in the Chinese civil war, it retreated to Taiwan and founded the Republic of China while the communists proclaimed the People's Republic of China on the mainland. In Taiwan, the military remained an integral part of the KMT's power structure (Kuehn, 2008, p. 873), which maintained one-party rule until the 1990s. This alliance between the KMT and the military was consolidated by the common goal of reconquering mainland China pursued until the 1970s (Project National Glory) and later by the increasing threat from mainland China (Karalekas, 2018, p. 1). Given this close relationship, Taiwan's military grew into a massive organisation between 1949 and 2000, at times taking up to 60 per cent of the state budget and comprising 500,000 soldiers in a population of under 15 million (Setzekorn, 2014, p 8). Moreover, in the 1970s, mainland China proclaimed the One China Policy, according to which states could only establish relations with China if they recognised its claim to Macau, Taiwan and Hong Kong. This led to UN Resolution 2758 in 1971, which recognised mainland China as the only legitimate representative at the United Nations. When the majority of the international community, as well as Taiwan's closest ally from 1979 onwards—the United States—thus withdrew their recognition of the country, this initially led to a further manifestation of the threat posed to Taiwan by mainland China and to louder demands for the expansion of its national defence industry (Karalekas, 2018, p. 3). Economic development, changing values and, not least, corruption scandals in the military (Setzekorn, 2014) also led to demands for liberalisation and democratisation. In 1987, martial law ended after 38 years, and the island state began a rapid economic, political and social transformation. Nevertheless, despite civilian leadership, civilian control and little political influence, the military remains a central social body—also due to the ongoing threat by mainland China (Kuehn, 2008).

Taiwan is generally considered a highly militarised country by global standards. BICC's Global Militarisation Index (GMI) does not usually include Taiwan, as commonly used sources (such as the World Bank or WHO) do not provide statistical data for Taiwan due to its status. Nevertheless, we have calculated an estimate for 2022 (Bayer & Rohleder, 2022): With all the necessary caveats regarding the uncertainty of the data, the country finds itself on position 21 of the global ranking. In this fact sheet, we provide some additional background information on Taiwan's armed forces, the country's defence sector and arms exports.

1 of 6

Structure of the Armed Forces

Taiwan's armed forces are divided into land-, air- and naval forces. With 169,000 active and a reserve of 1,657,000 soldiers, the country has a high ratio of around 7.2 soldiers per 1,000 inhabitants for a population of 23.38 million (data from 2021). With 94,000 soldiers, the **army** is the largest branch of the armed forces, while the **navy** and **air force** comprise 40,000 and 35,000 soldiers respectively. The naval aviation forces are under the control of the navy; the air defence and missile command is part of the air force. Taiwan also has a **coast guard** with 11,800 paramilitary units. The country's first female president, Tsai Ing-wen, has been commander-in-chief since 2016.

In recent years, Taiwan's military has become more of a volunteer army; for example, military service has been cut from 12 to 4 months, shifting the ratio of conscripts to professional soldiers in favour of the latter. Conscripted service is compulsory for men aged 19 to 40, with the option of alternative service. At the time of writing, given rising tensions with China and the Russian attack on Ukraine, there are discussions about extending compulsory service and extending it to women.

Equipment of the Armed Forces

According to the International Institute for Strategic Studies (IISS), the **army** is quite well equipped with 750 main battle tanks, 100 light tanks, 257 infantry fighting vehicles and 1,318 armoured personnel carriers. In addition, there are other special vehicles, such as 48 NBC armoured vehicles, 18 armoured engineer vehicles, 22 armoured vehicle-launched bridges (AVLB) and at least 37 armoured recovery vehicles. Besides 2,093 mobile artillery systems and 54 more for coastal defence, the army also has 211 helicopters at its disposal (96 attack, 38 multi-purpose, 38 transport and 39 training helicopters) as well as an unknown number of light reconnaissance drones and air defence systems. While the active heavy battle tanks consist of M60A3 (200 units) and 450 CM-11 *Brave Tigers*, another 100 CM-12s are currently in storage. The latter were manufactured under US licence in Taiwan between 1985 and 1995, while the M60A3 were imported used (partly upgraded) from the United States between 1995 and 2002. The light tanks (M41 A3/D) also originate from the United States (imported used at the end of the 1960s, modernised at the end of the 1990s), whereas the infantry fighting vehicles (225 CM-25 and 32 CM-34) were built entirely in Taiwan. The armoured personnel carriers (650 M113, 368 CM-32 *Clouded Leopard* and 300 LAV-150) are of Taiwanese and US production.

The **navy** has four submarines: two of the *Hai Lung* class and two of the *Hai Shih* class, the latter of which are in poor condition and can only be used for exercises. They are considered the oldest submarines in service in the world and were delivered by the United States in 1973, having already been upgraded in the early 1960s. They were upgraded again in 2017 and are scheduled for decommissioning in 2026. The *Hai Lung* submarines,

on the other hand, were redelivered by Dutch shipyard RDM between 1987 and 1988. In 2017, the domestic CSBC Corporation was contracted to build eight diesel-electric submarines worth around US \$16 billion. These submarines will enhance the navy's capabilities, and their very construction will vastly expand the country's industrial capacity (see [national arms industry](#)). There are also four *Keelung* destroyers, 22 frigates and 44 patrol and littoral combat ships, seven minesweepers, one command- and one amphibious ship and 50 landing craft. Furthermore, nine logistics and support ships are in direct service with the navy. The **naval infantry** under the control of the navy is also equipped with 100 main battle tanks (M60A3 TTS) and 202 amphibious assault ships, two amphibious armoured recovery vehicles and an unknown number of 106mm recoilless guns and towed artillery (105-155mm). **Naval aviation** forces also maintain about 28 reconnaissance drones (*Chung Shyang II*), 20 S-70C *Seahawk* anti-submarine helicopters and ten MD-500 *Defender* multi-purpose helicopters. Since 1967, 32 used destroyers (mainly *Gearing FRAM 1 and 2*) have been exported from the United States to Taiwan, but only four of the *Kidd* class (delivered 2005-2006) are in service. The rest were on loan, leased or used as a source of spare parts. Of the frigates in service, eight *Knox* frigates were delivered used or built under licence from the United States between 1992 and 1999 and ten *Perry* frigates between 1993 and 2017. France delivered six new *La Fayette* frigates (*Kang Ding*) between 1996 and 1998. Most of the other systems originate from the United States or from national production.

The **air force** has 474 combat-capable aircraft, 33 transport aircraft, 42 training aircraft and 14 aircraft for electronic warfare, early warning and reconnaissance. It only has 17 medium-weight UH-60M *Black Hawk* helicopters in its inventory. The aircraft in service are either Taiwanese developments (such as 127 F-CK-1C/D *Ching Kuo* or 55 AT-3A/B *Tzu-Chung* training aircraft) or were imported between 1997 and 1999. The air force also uses 55 *Mirage 2000-5D/E* from France and 140 F-16 *Fighting Falcon* from the United States. A large number, such as 84 F-5E/F *Tiger II* (Taiwanese designation *Chung-Cheng*) in service, were also built under licence. However, both the *Mirage* and the F-5 aircraft are slowly approaching the end of their service life and will have to be replaced in the medium term. There is also the equipment of the **air defence and missile command** (e.g. about 12 land-launched cruise missiles *Hsiung Feng IIE*, surface-to-air missiles of various types, smaller guns and anti-ballistic missiles).

The **coast guard**, which is organised as a paramilitary, is mainly equipped with very modern, domestically produced coastal and patrol boats (168 units). A modernisation programme is underway at the time of writing. Since 2016, two *Yilan*, four *Maioli*, three *Anping*, one *Chiayi* and other boats have been commissioned—others are to be replaced in the near future. A fleet of drones is also currently being established.

National Arms Industry

As the threat to Taiwan increased significantly in the 1950s and 1960s, and the commitment of the United States as a protecting power in Southeast Asia began to wane due to the Vietnam War, efforts grew in Taiwan to create an independent defence industry. To become more independent in this respect, Taiwan—similar to the Republic of Korea—began to build up this industry in the 1970s (Nolan, 1986, p. 2) and, early on, relied on technology transfers and international cooperation (e.g. with Northrop or Lockheed, later also Boeing, General Electric, Airbus, etc.).

As early as 1969, the National Chung-Shan Institute of Science and Technology (NCSIST) was founded, which still plays a leading role in Taiwan's defence industry today. In the same year, the air force established the Aerospace Industrial Development Corporation (AIDC). The China Shipbuilding Corporation (CSBC) followed in 1973. The combined service forces (or as of 2002 "combined logistics command"—CLC), as a department of the Ministry of Defence, was also an important early player within the sector. After the initial production of spare parts and maintenance and overhaul activities, the industry soon moved on to also manufacture major weapons systems under licence and eventually develop its own systems. Thus, NCSIST at first began manufacturing missile and radar systems, simulators and satellite communication equipment. Notable examples include the *Hsiung-Feng* Anti Ship Missile program from the early 1970s (used as standard within the armed forces since 1983) and the HF-2, HF-2E and HF3 systems based on it, some of which were built under Israeli licence and are based on the *Gabriel 2* missile (An et al., 2018, p. 13). The *Tien-Kung* Anti-Tactical Ballistic Missile program is also significant, as its third generation remains the main missile defence system of the armed forces today. In the early 1980s, cooperation with AIDC began, from which complete combat aircraft were later developed. For example, the F-CK-1 *Ching-Kuo*, a fighter aircraft developed and produced entirely in Taiwan, entered service as early as 1994. In the following decade, 130 of these were built and still serve the air force today as interceptors. The AIDC also produced the UH-1H helicopter and the F5E/5F (*Tiger II*) combat aircraft under licence. Of the latter, 300 were built from 1974 to 1986.

Initially, the CLC was only responsible for the logistical monitoring of production processes and maintenance, but soon it also accompanied production and development. Thus, in cooperation with the NCSIST, not only night-vision devices, bullet-proof vests and ammunition types (e.g. TC-850) were developed, but also tanks and armoured vehicles (such as the CM family) or artillery systems such as the RT-2000 Multiple Launch Rocket Systems (the latter two of which are currently still in use by the armed forces). The product range also includes tank guns (e.g. M32K1) as well as small arms and light weapons (e.g. the 40mm T-85 grenade launcher, which is part of the armed forces' standard equipment).

Shipbuilding is a particularly important pillar of the industry: Since 2018, CSBC has been manufacturing the *Chiayi* vessel, for example, one of which is currently used by the coast guard, and more are to follow. In 2016, CSBC also set up a development centre for the eight diesel-electric submarines mentioned earlier and opened the corresponding construction facility in Kaohsiung in 2020—a corresponding technology transfer was signed by then US President Donald Trump in 2018. Support for this will be provided by the state-owned Ship and Ocean Industries R&D Center (SOIC), which has been carrying out integration work since 1976 and has already overseen projects such as the *Panshi* support vessel or the *Wu Yi* supply vessel. In addition to the CSBC mentioned earlier, the Jong Shyn Shipbuilding Company (JSSC) should also be noted here; some of the patrol and littoral combat ships used by the coast guard have been built there.

The focus of Taiwan's defence industry is thus on aviation, shipbuilding and missiles. However, unmanned aerial vehicles, such as the *Chung Shyang II* reconnaissance drone, the first loitering munitions (*Flyingfish*) and other armed drones (*Albatross II*, *Tengyun*), are now just as much part of the repertoire as hypersonic missiles (*Sky Sword II*), stealth corvettes, frigates and various land systems. At the time of writing, besides those mentioned above large state-owned (or at least partially state-controlled) companies, the defence industry also includes more than 200 smaller private companies, which together, however, only generate less than 0.5 per cent of sales (Fu-Kuo, 2020, p. 19). In 2018, however, these already generated over US \$2.3 billion (An et al., 2018, p. 5). Since 2016, around US \$1.5 billion have been invested annually, and the industry's further expansion was declared official policy in a defence-industrial policy scheme in 2019. Most recently, plans were published in 2022 to increase defence spending for the coming year to US \$19.4 billion (i.e. by around 14 per cent)—research, development and production are to be funded with an additional US \$9 billion by 2026. To this day, however, the industry remains dependent on technology transfers and imports and has only been able to achieve independence in certain areas (Bitzinger, 2015, p. 466).

Arms Exports

Even though Taiwan's defence industry is fairly modern and builds a large number of platforms independently, the country has so far been more of an importer than an exporter: According to SIPRI data, the country ranked 45th out of 70 exporting nations worldwide between 2017 and 2021. Looking at exports, however, it is clear that these primarily consisted of military aid or donations. For example, Taiwan supplied used Bell-205/UH-1H helicopters to Burkina Faso, Guatemala, Honduras and Paraguay. Other exports consisted of T65 and T91 assault rifles or multi-purpose attack crafts from Lung Teh Shipbuilding (to the Philippines). In 2022, Ukraine is also reported to have been provided with 800 armed drones of the *Revolver* 860 type by the Taiwanese company DronesVision.

However, in terms of the tremendous industrial development in recent years and the development of new weapons programs, Taiwan's role may change in the medium to long-term future.

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