

EMERGING SUPPLIERS IN THE GLOBAL ARMS TRADE

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I. Introduction

The diversification of arms suppliers since the mid-2000s has brought changes to international security that are yet to be fully appreciated. Arms exports by emerging new suppliers—like those of established suppliers—may have a disruptive effect on peace, security and violent conflict. While the volume of major weapons exported by these emerging suppliers is lower than for established suppliers, their potential effects on the onset or duration of armed conflict can be just as significant.

Although arms transfers are often justified as part of security policies that aim to maintain military balances or as support for counterterrorism, they are also associated with multiple risks for peace and security. This is recognized by multilateral agreements on regulation of the arms trade, such as the 2013 Arms Trade Treaty (ATT).¹ Efforts to regulate arms transfers stem from the fact that these weapons can be used to perpetrate crimes against humanity, in attacks that target civilians, or in other violations of international humanitarian law and international human rights law.² Other risks include the use of arms for internal repression and the potential for the equipment transferred to provoke or prolong armed conflicts or to aggravate existing tensions or conflicts in the recipient state. Arms could also be used aggressively against another country or to assert a territorial claim by force.³

The diversification of arms suppliers exacerbates these risks and further complicates arms control regulation and compliance. An increase in supply can facilitate access to weapons at lower costs, hampering efforts to regulate the arms trade. Moreover, the diversification of suppliers in any global market means that competition becomes more intense. In such a buyer's market, arms suppliers may be tempted to be less restrictive in their exports of complete arms and technology, which can lead to further diffusion of arms-production capabilities and a higher probability that there will be destabilizing transfers of arms.

The consequences of diversification of arms suppliers will largely be determined by the policies of the emerging exporters. This paper reviews

SUMMARY

● Even though the volumes of arms exported by emerging suppliers are lower than those of the established exporters, they can nonetheless have a direct impact on international and regional security. The diversification in global arms transfers caused by the emergence of new suppliers therefore deserves scrutiny. Brazil, South Korea, Turkey and the United Arab Emirates are examples of emerging suppliers. Despite a continuous reliance on foreign technologies, they have managed to establish themselves in several niche categories of armaments or, in the case of South Korea, to widen the types of arms that they export. Exports of these emerging suppliers tend to go primarily to Africa, Asia and the Middle East, where most active armed conflicts are located, and also to Latin America. However, the drivers of the four countries' arms exports differ: some have supplied with the intent to gain political influence, while others have primarily focused on the economic benefits.

¹ Arms Trade Treaty (ATT), opened for signature 3 June 2013, entered into force 24 Dec. 2014. See also United Nations, General Assembly, Human Right Council, 'Impact of arms transfers on the enjoyment of human rights', Report of the Office of the United Nations High Commissioner for Human Rights, A/HRC/35/8, 3 May 2017.

² Arms Trade Treaty (note 1), articles 6–7.

³ Council of the European Union, Common Position 2008/944/CFSP of 8 December 2008 defining common rules governing control of exports of military technology and equipment, *Official Journal of the European Union*, L 335, 13 Dec. 2008, pp. 99–103, articles 1–2.



and compares the trajectory of four emerging suppliers—Brazil, the Republic of Korea (South Korea), Turkey and the United Arab Emirates (UAE)—that, while not yet major suppliers, have risen up the ranks of arms exporters, and explores the likely consequences of their rise for international security. As this paper shows, these emerging suppliers tend to export weapons primarily to countries in Africa, Asia, Latin America and the Middle East. As some of these regions are where most of the active armed conflicts occurred in 2019, the risks incurred by arms transfers are all the more present.⁴

This paper aims to contribute to a better understanding of the role of emerging suppliers in transfers of arms around the world, in particular to regions of instability. The term ‘region of instability’ is used here to describe a region with a high number of interconnected armed conflicts (e.g. the Middle East and North Africa and sub-Saharan Africa) or a region without armed conflict but where tensions are high (e.g. the South China Sea). The paper covers transfers of major weapons, but not small arms or light weapons.⁵ In addition, although the link between diffusion of arms-production capabilities and supplier diversification in the arms trade is discussed here, exports of second-hand arms transfers are also analysed, as these also contribute to the risks described above.

The paper first provides a historical overview of supplier concentration in international arms transfers, which leads to the selection of the four case studies: Brazil, South Korea, Turkey and the UAE (section II). It then compares the trajectory of these emerging suppliers from their rising arms-production capabilities to arms exports (section III). This is followed by an assessment of the risks entailed by the emergence of new suppliers, based on the examples of these four states (section IV). This highlights that the patterns of arms exports to regions of instability of the four case studies differ. The conclusions propose avenues for future research and describe ways in which these emerging suppliers may deal with exports to regions of instability (section V).

II. The increase in arms supplier diversification

Supply concentration in arms transfers

Since 1950 supply concentration in the global network of arms suppliers has fluctuated. This can be illustrated by using SIPRI trend indicator values for arms transfers to build a Herfindahl–Hirschman Index (see figure 1 and box 1).⁶ This index shows how supply concentration in global arms exports

⁴In 2019 there were active armed conflicts in at least 32 states: 15 in sub-Saharan Africa, 7 in the Middle East and North Africa, 7 in Asia and Oceania, 2 in the Americas and 1 in Europe. *SIPRI Yearbook 2020: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2020), chapters 2–7.

⁵The coverage is as defined by the SIPRI Arms Transfers Database, ‘Sources and methods’, <<https://www.sipri.org/databases/armstransfers/sources-and-methods>>. Unless another source is given, all information here on volumes of arms transfers, shares of the global trade in major conventional arms and specific transfers is taken from the SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

⁶On the trend-indicator value, SIPRI’s unique system to measure the volume of international transfers of major conventional weapons using a common unit, see SIPRI Arms Transfers Database, ‘Sources and methods’ (note 5).

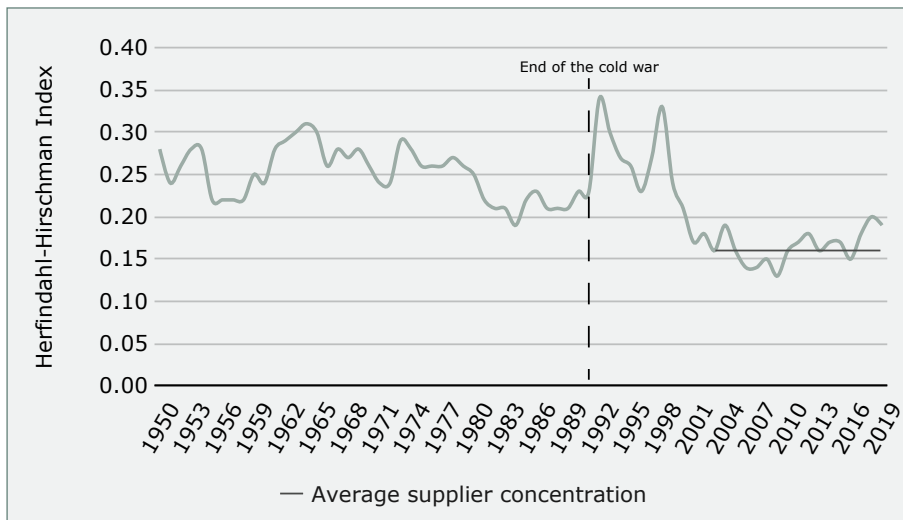


Figure 1. Figure 1. Supplier concentration in global arms transfers (normalized Herfindahl–Hirschman Index), 1950–2019

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

has evolved in terms of the market share of suppliers, which can range from 0 (low concentration) to 1 (high concentration).

Throughout the cold war, the United States and the Soviet Union were by far the world’s main arms exporters. During 1950–59 the USA accounted for 35 per cent of the total volume of arms exports and the USSR for 34 per cent, and in 1960–69 they accounted for 38 per cent and 39 per cent, respectively. Supply concentration then fell considerably between the early 1970s and the mid-1980s; by 1985–89 the USA accounted for 31 per cent and the USSR for 35 per cent at a time when several countries in other regions were increasing their arms-production capabilities.⁷

In the early 1990s supply concentration among arms exporters surged as the USA became by a large margin the world’s largest arms exporter and arms exports by the USSR and its successor state Russia fell drastically. With the dissolution of the USSR and the end of some regional conflicts, global demand for arms fell.⁸ Major arms arms-production companies had to cope with declining military budgets in their domestic and exports markets, as well as increasing production costs. These demand and cost factors were particularly difficult for emerging suppliers with limited markets, to the extent that several suppliers that had emerged in the 1980s could no longer compete with more established suppliers.⁹

The level of concentration in arms exports changed again during the 2000s, and diversification was at its highest in 2009. The average supply concentration between 2003 and 2019 was at its lowest level for the whole

⁷ Brzoska, M. and Ohlson, T. (ed.), SIPRI, *Arms Production in the Third World* (Taylor & Francis: London, 1986).

⁸ Coulomb, F., ‘La production de défense dans les pays émergents : Vers un renouveau?’ [Defence production in emerging countries: Towards renewal?], *Géoeconomie*, no. 57 (2011), pp. 71–82, p. 73; and Bitzinger, R. A., *Towards a Brave New Arms Industry*, Adelphi Papers no. 356 (Oxford University Press: Oxford, 2003), chapter 1, p. 32.

⁹ Klare, M., ‘The arms trade in the 1990s: Changing patterns, rising dangers’, *Third World Quarterly*, vol. 17, no. 5 (Dec. 1996), pp. 857–74.

**Box 1. Calculating supply concentration**

Supply concentration is measured by the Herfindahl–Hirschman Index (HHI).^a The HHI is calculated by squaring the market share of each supplier competing in a market and then summing the resulting numbers:

$$HHI = s_1^2 + s_2^2 + s_3^2 + \dots + s_n^2,$$

where n is the number of suppliers in the market and s_i is the market share of a given supplier. The index is then normalized:

$$\text{Normalized HHI} = \frac{(HHI - 1/n)}{1 - 1/n}$$

The value of the normalized index ranges between 0 and 1; values closer to 0 represent a highly competitive market and values closer to 1 indicate a monopolistic structure (i.e. a single supplier dominates the entire market). In the case of international arms transfers, the market shares used for calculating the HHI are based on SIPRI's measure of the volume of transfers of major conventional weapons, the trend-indicator value (TIV).^b

^a Hayes, A., 'Herfindahl–Hirschman Index (HHI)', Investopedia, 11 Feb. 2020.

^b On the TIV see SIPRI Arms Transfers Database, 'Sources and methods', <<https://www.sipri.org/databases/armstransfers/sources-and-methods>>.

period. This indicates that the arms export market has never been more diffused. Two main factors drove this abrupt increase in diversification. While the USA remained the largest arms supplier, its share of arms exports declined from 42 per cent over the period 1998–2002 to approximately one-third of global arms transfers in subsequent years. The decline in the US share allowed for a growing share for other exporters—this is clearly reflected in figure 1. At the same time, Russia began to rebuild relationships with former recipients of Soviet equipment and also made headway into new markets, in particular China but also, for example, Venezuela.

The emergence of new suppliers contributed to further dilution of supply concentration. Moreover, some of the countries that had developed their arms industries in the 1970s and 1980s only to experience setbacks in the 1990s re-entered the scene from the 2000s onwards.¹⁰ Offsets—compensatory trade agreements whereby the recipient can recoup part of the cost of its purchase—led to a rise in licensed production and technology transfer that ultimately facilitated the emergence of new suppliers.¹¹ The drop in global demand for arms in the early 1990s meant that arms import-dependent states could bargain for offsets from arms suppliers looking for continued arms exports. A buyer could thus exploit the more intense competition among suppliers to make a seller agree to invest in its local arms industry as part of an arms import contract, thereby helping the buyer to jump-start its arms-production ambitions.

¹⁰ Devore, M. R., 'Arms production in the global village: Options for adapting to defense-industrial globalization', *Security Studies*, vol. 22, no. 3 (2013), pp. 532–72.

¹¹ On offsets see Udis, B. and Maskus, K. E., 'Offsets as industrial policy: Lessons from aerospace', *Defence Economics*, vol. 2, no. 2 (1991), pp. 151–64.

**Table 1.** Progression among arms suppliers with fastest growth, by average rank, 2000–19

Country	Average rank				Progression, 2000–2004 to 2015–19
	2000–2004	2005–2009	2010–14	2015–19	
United Arab Emirates	42	39	26	19	+23
Turkey	29	22	19	13	+16
South Korea	25	17	15	11	+14
India	35	31	37	24	+11
Indonesia	35	42	42	26	+9
Australia	28	29	22	20	+8
Denmark	38	39	32	31	+7
Singapore	33	32	34	26	+7
Iran	41	29	28	37	+5
Brazil	29	28	25	24	+4
New Zealand	46	45	34	42	+4
South Africa	25	19	20	21	+3
Czechia	23	27	33	20	+3
Norway	21	26	17	19	+2
Bulgaria	30	37	37	30	–
Belarus	20	26	20	20	–

– = no progression.

Notes: Rank is determined by states' relative shares of the total volume of arms exports over 5-year periods. States that have ranked among the 10 largest exporters for 10 or more years during the 20-year period are excluded. Also excluded are states that have been below rank 50 for 10 or more years.

Source: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

Selection of case studies: The United Arab Emirates, Turkey, South Korea and Brazil

Analysis of SIPRI's rankings of the world's largest arms exporters allows identification of the states that can be considered as emerging suppliers. The focus here is on the second period of low supply concentration, 2003–19 (see figure 1). Using the average rank of a country among the world's largest arms suppliers over five-year periods between 2000 and 2019, it is possible to trace patterns of rising or decreasing ranking (see table 1).

The distribution of changes in a country's average rank is not uniform. For example, moving from rank 42 to rank 41 is not equivalent to rising from average rank 10 to 9. This is because the volume of exports required to move up is larger at higher ranks. Despite this caveat, table 1 still reflects the upward trajectory of the fastest-growing suppliers by rank.

The three fastest rising states were the UAE, Turkey and South Korea. These exporters made a consistent progression during the entire period. Further down, Brazil is the only other state in the list with a consistent upward trajectory over time. Brazil is also an example of an emerging supplier of the prior period of supplier diversification, in the late 1980s.



Including Brazil among the case studies allows for a historical comparison between the first and second waves of emerging suppliers.

Despite their ascent up the ranks of the world's largest suppliers, these four exporters accounted for only a small share of the volume of global arms transfers between 2010 and 2019: 0.3 per cent for the UAE, 0.6 per cent for Turkey, 1.5 per cent for South Korea and 0.2 per cent for Brazil. Nonetheless, even small volumes of arms can have consequences for the recipients' capabilities and can have an impact on regional tensions. In addition, Brazil, South Korea and Turkey have some of the world's fastest growing arms-producing companies.¹² Moreover, 2019 was the first year in which an Emirati company appeared among the 25 companies with the highest arms sales.¹³ As these states' arms-producing capabilities grew, so did their arms exports.

III. From arms industry development to arms exports

Case study analyses

The United Arab Emirates

The UAE has invested heavily in arms imports since 2000, becoming one of the top 10 largest global arms importers.¹⁴ At around the same time, the UAE began to develop its arms-industrial base.¹⁵ To do this, from the 1990s the country adopted offset requirements as part of its arms imports policy.¹⁶ Among the offset obligations are requirements for foreign companies that supply arms to the UAE to contribute to developing co-production capabilities, transfer technology and invest in Emirati arms-producing firms.¹⁷ Partly as a result of that policy, the UAE received foreign military technologies, for example from Brazil, Canada, South Africa the USA and

¹² Fleurant, A. et al., 'The SIPRI Top 100 arms-producing and military services companies, 2018', SIPRI Fact Sheet, Dec. 2019, and earlier editions of the fact sheet. See also Kinsella, D., 'Arms production in the third tier: An analysis of opportunity and willingness', *International Interactions*, vol. 26, no. 3 (2000), pp. 253–86; Bitzinger (note 8); Coulomb (note 8); Gouvea, R., 'Brazil's defense industry: Challenges and opportunities', *Comparative Strategy*, vol. 37, no. 4 (2018), pp. 346–59; Kurç, Ç. and Neuman, S. G., 'Defence industries in the 21st century: a comparative analysis', *Defence Studies*, vol. 17, no. 3 (2017), pp. 219–27; Kurç, Ç. and Bitzinger, R. A., 'Defense industries in the 21st century: A comparative analysis—The second e-workshop', *Comparative Strategy*, vol. 37, no. 4 (2018), pp. 255–59; Brzoska, M. and Ohlson, T., SIPRI, *Arms Transfers to the Third World 1971–85* (Oxford University Press: Oxford, 1987); and DeVore, M. R., 'Armaments after autonomy: Military adaptation and the drive for domestic defence industries', *Journal of Strategic Studies*, 30 May 2019.

¹³ Béraud-Sudreau, L. et. al., 'Mapping the international presence of the world's largest arms companies', SIPRI Insights on Peace and Security no. 2020/12, Dec. 2020.

¹⁴ Wezeman, P. D. and Kuimova, A., 'Military spending and arms imports by Iran, Saudi Arabia, Qatar and the UAE', SIPRI Fact Sheet, May 2019; Borchert, H., 'The Arab Gulf defense pivot: Defense industrial policy in a changing geostrategic context', *Comparative Strategy*, vol. 37, no. 4 (2018), pp. 299–315; and Soubrier, E., 'The weaponized Gulf riyal politik(s) and shifting dynamics of the global arms trade', *Economics of Peace and Security Journal*, vol. 15, no. 1 (2020), pp. 49–57.

¹⁵ Barany, Z., 'Indigenous defense industries in the Gulf', Center for Strategic and International Studies (CSIS), 24 Apr. 2020.

¹⁶ Des Roches, D. B., 'IDEX 2019 highlights Gulf states' move to develop domestic defense industries', Arab Gulf State Institute in Washington, 11 Mar. 2019.

¹⁷ Gaub, F. and Stanley-Lockman, Z., *Defence Industries in Arab States: Players and Strategies*, Chaillot Paper no. 141 (European Union Institute for Strategic Studies: Paris, Mar. 2017); and Des Roches (note 16).

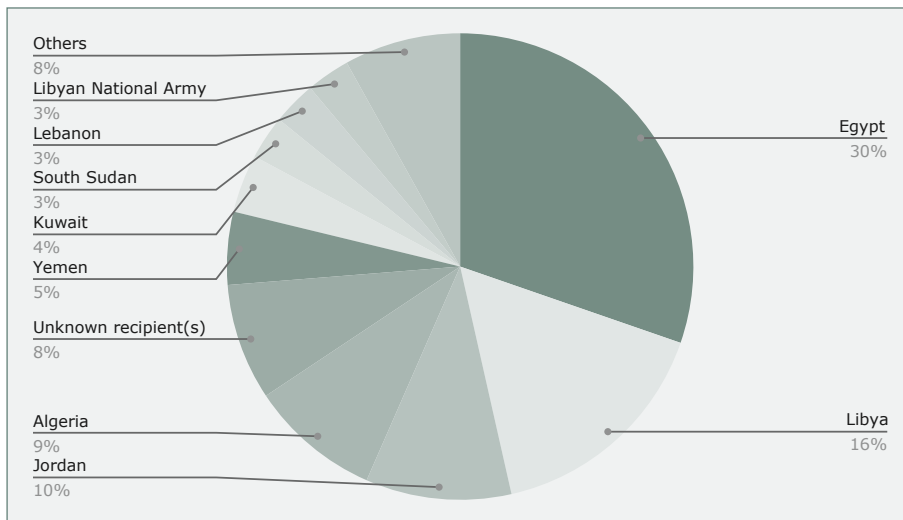


Figure 2. The 10 largest recipients of arms from the United Arab Emirates, 2010–19

Notes: ‘Libyan National Army’ refers to transfers to one of the factions in the Libyan Civil War. ‘Libya’ refers to the United Nations-recognized government

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

West European countries, allowing it to progressively produce major arms and components domestically.¹⁸

A significant development was the formation of an arms-producing conglomerate, the Emirates Defence Industries Company (EDIC), in 2014. Together with some other smaller companies, EDIC was absorbed in 2019 into a new state-owned company called EDGE.¹⁹ EDGE’s total sales reached US\$4.75 billion in 2019, 95 per cent of which is estimated to be arms sales, presumably derived to a large extent from domestic procurement.²⁰

The Emirati arms industry is based on imported technology and components, for example for use in the assembly of armoured vehicles and missiles from South Africa, corvettes from France, and ammunition and components for a number of weapons produced elsewhere.²¹ The UAE has become a regional arms supplier producing a limited spectrum of major weapons.²² The most significant products by this industry that have been exported so far include armoured vehicles, unmanned aerial vehicles (UAVs) and small transport ships.

The UAE became one of the 20 largest arms exporters in 2015–19, having increased the volume of its exports by 86 per cent since 2010–14. The exact numbers of the UAE’s actual exports are particularly uncertain. During the decade 2010–19, the largest recipients of arms from the UAE were Egypt,

¹⁸ Slijper, F., *Under the Radar: The United Arab Emirates, Arms Transfers and Regional Conflict* (Pax: Utrecht, Sep. 2017); and Saab, B. Y., *The Gulf Rising: Defense Industrialization in Saudi Arabia and the UAE* (Atlantic Council: Washington, DC, May 2014).

¹⁹ Lye, H., ‘Can EDGE help the UAE build a new market?’, *Army Technology*, 23 Jan. 2020.

²⁰ Béraud-Sudreau et al. (note 13).

²¹ Wezeman, P. D., ‘Military spending and arms transfers to the Middle East and North Africa’, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2017), pp. 105–15, p. 109.

²² Saaman, J.-L., ‘The rise of the Emirati defense industry’, Sada, Carnegie Endowment for International Peace, 14 May 2019.

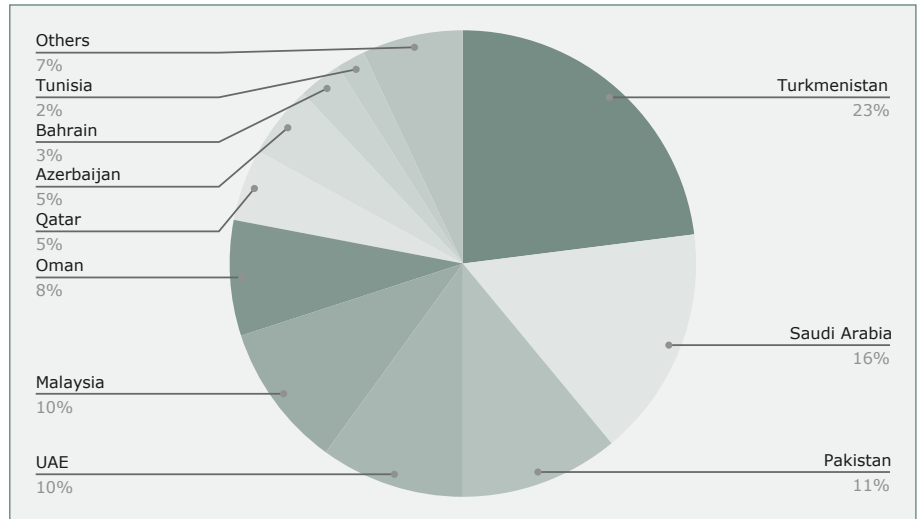


Figure 3. The 10 largest recipients of arms from Turkey, 2010–19

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

Libya and Jordan (see figure 2). Overall, the UAE exported its weapons mainly to countries in the Middle East (55 per cent of the total volume) and Africa (35 per cent).

Two-thirds of the UAE’s exports between 2010 and 2019 were armoured vehicles. These included Panthera T6 armoured vehicles for Egypt (including production under licence) and Cameroon. In addition, the UAE delivered Cougar armoured vehicles to Nigeria, South Sudan, Yemen and possibly Egypt, and Nimr armoured vehicle to Algeria, Turkmenistan and Yemen. Around a quarter (27 per cent) of the UAE’s exports were aircraft. Some were locally produced (e.g. the Yabhon UAVs exported to Algeria), but others were second-hand (e.g. helicopters for Lebanon and ground-attack aircraft for Jordan and Egypt). Indeed, 19 per cent of the overall volume of the UAE’s arms exports were of second-hand equipment.

Turkey

Turkey had a small arms industry when the USA, its main arms supplier, imposed an arms embargo in 1975–78. Following this embargo, Turkey introduced policies to develop its arms industries rapidly.²³ Over the past decade, by far the main reason for the rapid expansion of the Turkish arms industry and its increasing technological capabilities has been an increase in internal demand for military equipment.²⁴ This is well illustrated by the steep increase in reported sales of the Turkish defence and aviation industry, from \$3.71 billion in 2010 (including \$0.85 billion in exports) to \$6.69 billion

²³ See e.g. Mevlutoglu, A., ‘Commentary on assessing the Turkish defense industry: Structural issues and major challenges’, *Defence Studies*, vol. 17, no. 3 (2017), pp. 282–94; and Kurç, Ç., ‘Between defence autarky and dependency: The dynamics of Turkish defence industrialization’, *Defence Studies*, vol. 17, no. 3 (2017), pp. 260–81.

²⁴ Tian, N. et al., ‘Regional developments in military expenditure, 2019’, *SIPRI Yearbook 2020* (note 4), pp. 233–53, p. 252; and North Atlantic Treaty Organization (NATO), ‘Defence expenditure of NATO countries (2013–2019)’, Press Release no. PR/CP(2019)123, 29 Nov. 2019, p. 13. See also Wezeman, S. T. and Kuimova, A., ‘Turkey and Black Sea security’, SIPRI Background Paper, Dec. 2018.



in 2017 (including \$2.04 billion in exports).²⁵ These sales figures include civilian aviation sales, but they form only a small share of the total (10 per cent in 2016).²⁶

The Turkish arms industry produces a wide array of weapons that have been partly or completely developed in Turkey, including most types of armoured vehicle; ships up to the size of frigates; all main types of artillery; ammunition and an increasing array of missiles; trainer aircraft and UAVs; and a variety of radars, sensors, electronic warfare systems and communication equipment.²⁷

However, the Turkish arms industry remains dependent on foreign technology. For example, it is developing a new tank, the Altay, and a combat aircraft, the TF-X, but both projects depend on Turkey being able to import key components (e.g. the engines) or the technology to produce them.²⁸ The development of UAVs has been described as an indication of the development of the Turkish arms industry and even as a 'military breakthrough' for Turkey.²⁹ However, these UAVs also depend on foreign components, such as their sensors and engines.³⁰ A major obstacle to achieving true independence in military supplies is that Turkey is not able to produce more complex weapon systems, such as combat aircraft and submarines, without foreign assistance.

Turkey's arms exports have rapidly increased since the early 2000s. Between 2010–14 and 2015–19 the volume of arms exported by Turkey increased by 86 per cent. Between 2015 and 2019 it ranked on average as the world's 13th largest arms exporter, up from 19th between 2010 and 2014 (see table 1), and it accounted for 0.8 per cent of global arms exports. In 2010–19 it exported major arms to 28 countries, as well as Syrian rebels. Turkey's largest customers are almost all in Africa, Central and South Asia and the Middle East (see figure 3). By the end of 2019 none of Turkey's partners in the North Atlantic Treaty Organization (NATO) and no other advanced economy had been identified as having imported major arms from Turkey.

Armoured vehicles accounted for 52 per cent of the volume of Turkish arms exports in 2010–19. This included relatively basic light armoured vehicles and rebuilt tracked armoured personnel carriers. It also included wheeled infantry fighting vehicles, which are the most advanced armoured vehicles that Turkey has exported to date. Ships accounted for 30 per cent of Turkish arms exports in 2010–19, including 14 smaller vessels for Turkmenistan and a large replenishment tanker for Pakistan.

²⁵ Turkish Presidency of Defence Industries (SSB), *Turkish Defence Industry Product Catalogue* (SSB: Ankara, [n.d.]), p. 10.

²⁶ Invest in Turkey, 'Turkish defense & aerospace industry', Jan. 2018.

²⁷ Turkish Presidency of Defence Industries (note 25), p. 10.

²⁸ Bekdil, B. E., 'Turkey's "chronic engine problem" is harming defense projects, warn officials', *Defense News*, 26 June 2020; and Bekdil, B. E., 'Turkey's multibillion-dollar Altay tank program faces delay', *Defense News*, 14 Nov. 2019.

²⁹ Kasapoğlu, C. and Kirdemir, B., *The Rising Drone Power: Turkey on the Eve of Its Military Breakthrough*, Foreign Policy & Security no. 2018/4 (Centre for Economics and Foreign Policy Studies (EDAM): Istanbul, June 2018).

³⁰ Sevunts, L., 'Canada suspends exports of military drone technology to Turkey', CBC, 5 Oct. 2020; Bekdil, B. E., 'Canadian block on drone parts shows Turkey's defense industry still not independent', *Defense News*, 13 Oct. 2020; and 'Bayraktar Tactical', *Aviation Week*.

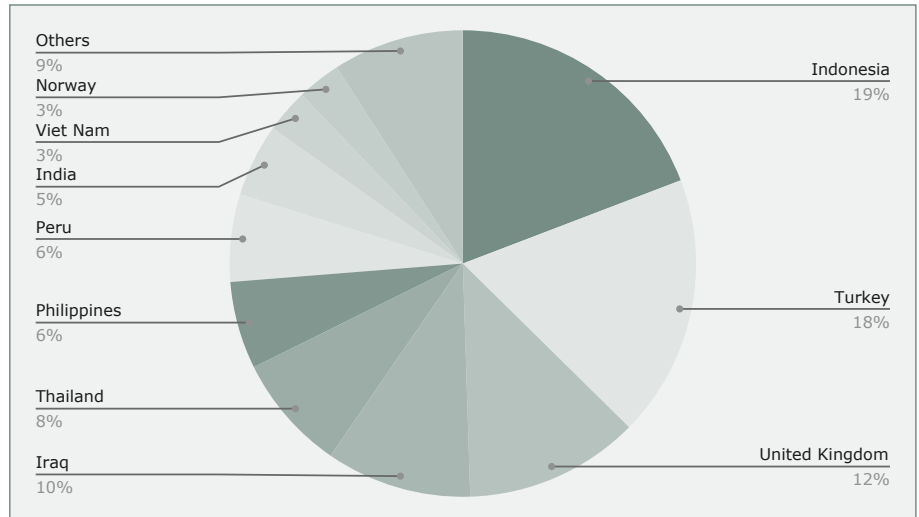


Figure 4. The 10 largest recipients of arms from South Korea, 2010–19

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

South Korea

South Korea’s domestic arms industrial strategy developed in the 1970s, following a peak in military activities by the Democratic People’s Republic of Korea (DPRK, or North Korea) and a change in policy by the USA to request its Asian allies to contribute more to their own defence.³¹ As part of this strategy, South Korea launched an offset policy in the early 1980s. Another significant event in the development of the South Korean arms industry was a reform of the acquisition process, with the creation in 2006 of the Defense Acquisition Program Administration (DAPA), a government agency that regrouped previously scattered arms acquisition structures.³² These reforms were combined with tax reductions for industrial conglomerates involved in arms manufacturing and increases in arms procurement and spending on military research and development.³³ The government’s support for a domestic arms-industrial base further intensified after 2015, when the USA denied certain technology transfers.³⁴ The USA reportedly feared leaks of technologies to third parties, as well as the emergence of South Korean competition on the arms market.³⁵

³¹ Bitzinger, R. A., ‘Asian arms industries and impact on military capabilities’, *Defense Studies*, vol. 17, no. 3 (2017), pp. 295–311, p. 302; Chinworth, M. W., ‘Offset policies and trends in Japan, South Korea, and Taiwan’, eds J. Brauer and J. P. Dunne, *Arms Trade and Economic Development. Theory, Policy, and Cases in Arms Trade Offsets* (Routledge: London, 2005), pp. 228–48, p. 235; Bitzinger, R. A. and Kim, M., ‘Why do small states produce arms? The case of South Korea’, *Korean Journal of Defense Analysis*, vol. 17, no. 2 (2005), pp. 183–205; and Moon, C., ‘Military self-reliance, the big push, and the growth of the defense industry: Lessons and implications’, eds M. Moon et al., *Korea and the World: Contemporary History and Its Implications* (National Museum of Korean Contemporary History: Seoul, 2015).

³² South Korean Defense Acquisition Program Administration (DAPA), ‘About DAPA’.

³³ Korkmaz, K. and Rydqvist, J., *The Republic of Korea: A Defence and Security Primer*, Swedish Defence Research Agency (FOI) Report no. FOI-R--3427--SE (FOI: Stockholm, Apr. 2012), pp. 70–93.

³⁴ Grevatt, J., ‘Made in Korea: South Korea defence industry briefing’, *Jane’s Defence Weekly*, 1 Aug. 2018.

³⁵ Jacqmin, D., ‘Corée du Sud: L’émergence d’un nouvel exportateur majeur d’armements’ [South Korea: The emergence of a new major arms exporter], Note d’Analyse, Groupe de recherche et d’information sur la paix et la sécurité (GRIP), 28 Dec. 2016, p. 6 ; Korkmaz and Rydqvist (note 33),



The South Korean arms industry today manufactures advanced weapons of most categories, from light armoured vehicles to tanks, submarines and large frigates, light combat aircraft, advanced precision guided missiles (ballistic and cruise) and air defence systems. However, most major weapons still rely on foreign transfers and technologies for key subsystems and components. For example, the USA provides engines, avionics and flight control software for the T-50 trainer aircraft and its combat variant, the FA-50.³⁶ Although South Korea is developing the combat system for its newest warships, these currently remain dependent on imported gas turbines and diesel engines.³⁷

South Korea rose from an average rank of 25 among the largest arms exporters between 2000 and 2004 to 11 between 2015 and 2019 (see table 1). While the largest share of South Korean arms exports goes to other states in Asia and Oceania, the global spread of recipients is increasing. Between 2010 and 2019, 46 per cent of the volume of South Korea's transfers of major conventional arms went to Asia and Oceania, 29 per cent to the Middle East, 17 per cent to Europe and 8 per cent to South America. Almost none went to Africa, and none went to North America. South Korea's key customers over the period were Indonesia, Turkey, the United Kingdom, Iraq and Thailand (see figure 4).

South Korea's exports over the decade consisted primarily of ships (47 per cent of the total volume), aircraft (27 per cent) and artillery (24 per cent). In the naval domain, the largest deals consisted of one frigate exported to Thailand, two submarines to Indonesia and two replenishment ship to the UK. In the aerospace sector, South Korea exported principally the T-50 and FA-50 aircraft. Regarding artillery, South Korea's 'bestseller' was the K-9 Thunder 155-millimetre self-propelled gun, of which it delivered several hundred in 2010–19.

Brazil

Brazil's trajectory differs somewhat from the other case studies, as exports drove the development of its arms industry, rather than the other way around. The growth of the Brazilian arms industry between the mid-1970s and the late 1980s was largely dependent on external factors. Of particular significance for the emergence of Brazil as an arms producer and exporter were large contracts for the export of armoured vehicles and trainer aircraft to Iraq and armoured vehicles to Libya, facilitated by oil income and driven by the internal and external conflicts that those countries were involved in.³⁸ In addition to a rapid growth in international demand for Brazilian arms, the military dictatorship of 1964–85 also invested in the domestic arms industry.

p. 101; and Jeong, J., 'Tech transfer hobbles South Korea's fighter program', *Defense News*, 27 Sep. 2015.

³⁶ Chinworth (note 31), p. 237 and Jacqmin (note 35), p. 12.

³⁷ Yonhap, 'S. Korea approves plan to develop new combat system for "mini-Aegis" destroyers', *Korea Herald*, 28 Apr. 2020; Archus, D., 'Hanwha Systems to develop combat system and multifunctional radar for KDDX destroyer', *Naval News*, 21 Sep. 2020; Rolls-Royce, 'Rolls-Royce to supply MT30 gas turbines to next three Korean Daegu-class frigates', Press release, 16 May 2017; and General Electric, 'GE & Hanwha Aerospace sign MOU to bring full electric propulsion to Republic of Korea's KDDX destroyer program', 28 Feb. 2020.

³⁸ Anthony, I., 'The trade in major conventional weapons', *SIPRI Yearbook 1989: World Armaments and Disarmament* (Oxford University Press: Oxford, 1989), pp. 195–225, p. 197.

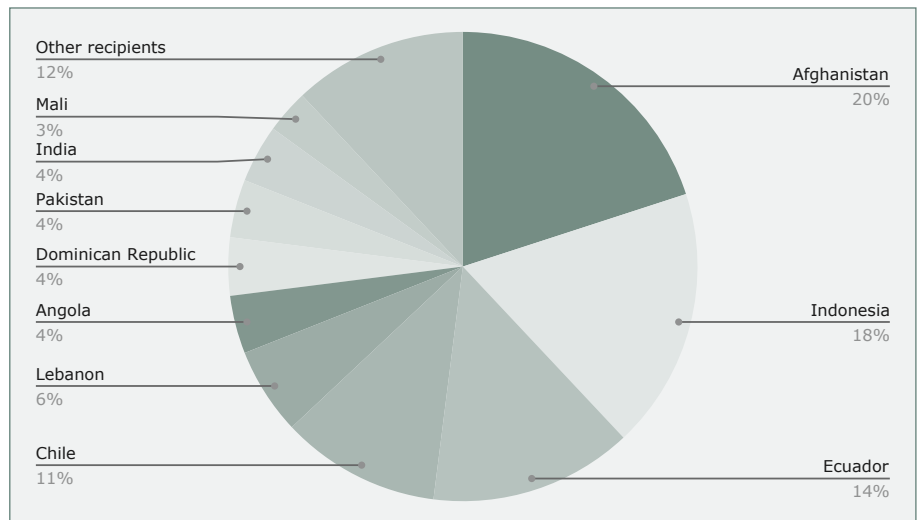


Figure 5. The 10 largest recipients of arms from Brazil, 2010–19

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

In the 1970s Brazil's exports of arms consisted overwhelmingly of armoured vehicles—around 86 per cent of the total volume. Libya was the main recipient due to its procurement of a large number of EE-9 Cascavel armoured vehicles. The Libyan market was then crucial for Brazil, accounting for over 61 per cent of its arms exports between 1970 and 1979. Deliveries to Libya came to a halt in 1983 after diplomatic relations became strained.³⁹

Iraq imported armoured vehicles, trainer aircraft and rocket artillery from Brazil over the course of its war with Iran. During the 1980s over 30 per cent of Brazil's arms exports went to Iraq. When the Iran–Iraq War ended in 1988, Brazil was able to neither find other export customers for some of its arms production nor absorb it domestically. The abrupt fall in external demand combined with lower domestic military procurement spending following democratization led Brazil's arms industry into a crisis.⁴⁰

While Brazil's overall arms exports fell substantially in the 1990s, the fall in demand affected sectors differently. Exports of rocket launchers and armoured vehicles dropped to a low level. Brazil's main armoured vehicle producer, Engesa, went bankrupt due to shrinking exports.⁴¹ As these sectors declined, aerospace became the most important sector. The aircraft manufacturer Embraer continued to export the EMB-312 Tucano trainer aircraft to European and South American states. It managed to offset losses from military sales by shifting its focus to civil production.

³⁹ Cruz, A. J., 'Nicaragua's imperilled revolution', *Foreign Affairs*, vol. 1, no. 5 (summer 1983), pp. 1031–47.

⁴⁰ Lopes da Silva, D., 'Reassessing Brazil's arms industry', eds K. Hartley J. and Belin, *The Economics of the Global Defence Industry* (Routledge: New York, 2019); Gouvea (note 12); and Quéau, Y., 'Moteurs et limites du développement de l'industrie de défense en Amérique du Sud' [Drivers of and limits to the development of the defence industry in South America], eds Y. Bélanger et al., *Les mutations de l'industrie de défense: Regards croisés sur trois continents* [Changes in the defence industry: Comparative perspectives on three continents] (Institut de Recherche Stratégique de l'École Militaire (IRSEM): Paris, 2012), pp. 115–57.

⁴¹ Zulkarnaen, I., 'Brazil's defence industry: Restructuring and revival', *Asian Defence Journal*, May 2005, p. 55.



In the mid-2000s the Brazilian Government adopted a set of policies intended to restore Brazil's arms-production capabilities. Over the following decade, numerous tax exemptions and other sorts of incentive were offered to companies involved in military production.⁴² The recovery strategy also relied extensively on partnerships with foreign companies as a means to assimilate technology. This is the case with the H-XBR programme, whereby Helibrás, a Brazilian subsidiary of Airbus, manufactures EC-725 helicopters for the Brazilian Army, Navy and Air Force. Brazil has also partnered with smaller arms producers. For example, the A-Darter air-to-air missile is a joint Brazilian–South African programme, albeit built to a South African design.

Brazil rose from an average rank of 29th largest arms exporter between 2000 and 2004 to an average of 24th between 2015 and 2019 (see table 1). In 2010–19 aircraft accounted for 84 per cent of the total volume of Brazil's arms exports. Noteworthy deliveries included the export of EMB-314 trainer/combat aircraft to Afghanistan and Indonesia; the latter also imported ASTROS-2 multiple rocket launchers (MRLs). While these two countries only recently started to receive Brazilian arms, together they accounted for nearly 40 per cent of Brazilian arms exports in 2010–19 (see figure 5).

Comparison of the case studies: A continued reliance on foreign technologies and regional markets

In all four countries, the arms industry still relies on imports of key components for the development and production of domestic weapon systems. Engines are a typical example of a major technological bottleneck for achieving independent arms-production capabilities. This is the case even for South Korea and Turkey, which have the most advanced arms industries of the four states. This continued reliance on foreign technology means that their exports can be restricted by the suppliers of that technology. For example, the USA has been reluctant to permit South Korea to transfer technology to Indonesia for the KF-X combat aircraft programme due to fears that some US technology could fall into Russian hands.⁴³ Similarly, Germany withheld the engine for the Altay tank programme following Turkey's military intervention in Syria.⁴⁴

Nonetheless, two of the four have now managed to carve niche areas for themselves: trainer and light combat aircraft for Brazil, and light armoured vehicles for the UAE. Turkey's arms industry is expanding the range of products on offer but has so far exported mainly light armoured vehicles and small patrol vessels. In contrast, South Korea has diversified the portfolio of arms that it exports. Over the decade 2010–19, combat aircraft and artillery systems each accounted for around a quarter of its arms supplies, while nearly half were ships (see figure 6).

⁴² Lopes da Silva (note 40).

⁴³ Grevatt, J., 'KF-X project on track but concerns grow about Indonesian involvement', *Jane's Defence Weekly*, 16 July 2020.

⁴⁴ Wolf, F., 'Western sanctions threaten several Turkish defense programs', *Meta-Defense*, 9 Jan. 2020; and Bekdil, B.E., 'Future of Turkey's indigenous Altay tank in question over foreign involvement', *Defense News*, 13 Nov. 2018.

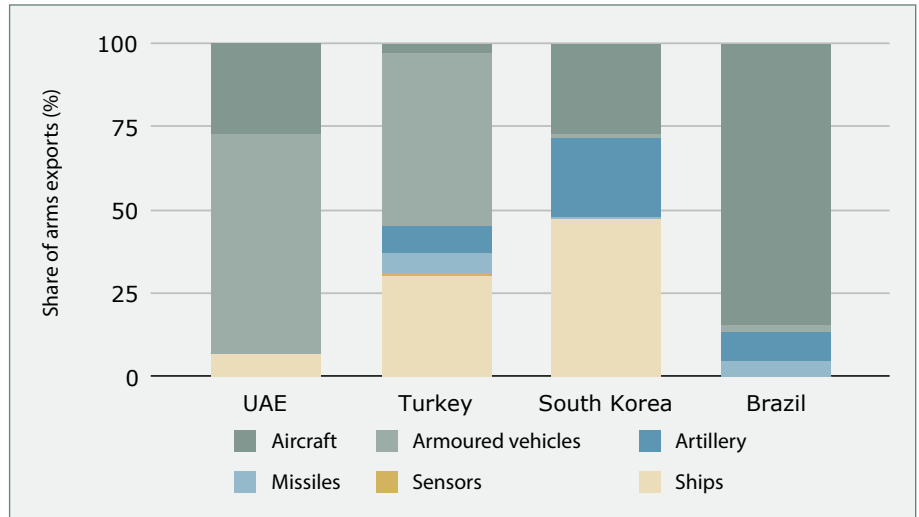


Figure 6. Arms exports of the United Arab Emirates, Turkey, South Korea and Brazil, by weapon category share, 2010–19

UAE = United Arab Emirates.

Notes: The graph shows the share of the total volume of each state’s arms exports represented by each category of major conventional arms. The volume is measure using the SIPRI trend-indicator value. Bear in mind that the absolute volumes of the 4 states’ exports differ substantially. E.g. the volume of South Korea’s exports was approximately 7.5 times that of Brazil.

Sources: SIPRI Arms Transfers Database, Mar. 2020, <<https://www.sipri.org/databases/armstransfers>>.

As in many of the established arms exporters, the government of each of the four countries studied actively promotes arms exports as an integral part of its arms-industrial policy.⁴⁵ In South Korea this was exemplified by the creation in 2018–19 of the Defense Export Promotion Center (DExPro), of a defence business council, and of a fund to help small- and medium-sized defence enterprises increase their exports.⁴⁶ The Turkish Government’s Eleventh Strategic Plan (for 2019–23) includes measures for promoting arms exports.⁴⁷ In a 2017 strategic commercial plan, the Brazilian Ministry of Foreign Affairs advised embassies to intensify arms export promotion.⁴⁸ In the UAE, the importance of arms export support has also been recognized at the highest levels of the state.⁴⁹

The export customers of Turkey, the UAE and Brazil in 2010–19 were mainly or exclusively low- and middle-income countries.⁵⁰ This is largely

⁴⁵ Wezeman, S. T., Béraud-Sudreau, L. and Wezeman, P. D., ‘Developments in arms transfers, 2013’, *SIPRI Yearbook 2014: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2014), pp. 253–74, pp. 253–57.

⁴⁶ Yonhap News Agency, ‘S. Korea launches arms export promotion center’, 19 Nov. 2018; Grevatt, J., ‘South Korea launches defence business council’, *Jane’s Defence Industry*, 4 Apr. 2019; and Grevatt, J., ‘Seoul announces SME funding to boost exports’, *Jane’s Defence Industry*, 25 Sep. 2019.

⁴⁷ Turkish Presidency of Strategy and Budget (SBB), *Eleventh Development Plan (2019–2023)* (SBB: Ankara, 18 July 2019), p. 102.

⁴⁸ Muggah, R. and Thomson N. B., ‘The trouble with Brazil’s expanding arms trade’, *Defense One*, 18 Apr. 2017.

⁴⁹ Emirati Ministry of Economy, ‘Defense industries, a vital tributary for national economy’, *UAE Economy*, no. 22 (July 2016), pp. 8–13, p. 9.

⁵⁰ Low- and middle-income countries as defined by the World Bank are listed in Organisation for Economic Co-operation and Development (OECD), ‘DAC list of ODA recipients’.



due to the fact that states in North America and Western Europe can, to a large extent, rely on their domestic arms industries, which can produce more advanced weapon systems than these three suppliers. In contrast, poorer countries can be attracted by cheaper weapon systems than those available from established suppliers. (This has not always been the case: in the past, exports of trainer aircraft to France and the UK accounted for a significant share of Brazil's arms exports.)

Furthermore, Turkey and the UAE primarily export to neighbouring countries, in particular in the Middle East and North Africa. This may be explained in part by the fact that their exports serve strategic goals of achieving regional influence (see section IV below). South Korea also exports to other Asian countries to a large extent (more than 40 per cent of its total exports in 2010–19), but it is the only case of the four to have exported arms to Western Europe during 2010–19: the UK and Norway were among its top 10 customers (see figure 4). South Korea is thus the only one of the four that has been able to export its major arms to all regions of the world in the past decade.

Exports to low- and middle-income countries deserve all the more attention as they tend to be located in regions of instability. A particularly extreme example of this is exports to countries in the Middle East and North Africa—such as Saudi Arabia, Egypt and Syria—that are the locations of active armed conflict or are participating in those conflicts. However, although there are similarities in the patterns of exports of the four case studies, they do not display similar behaviour when it comes to exports to regions of instability.

IV. Assessing the risks of arms supplier diversification

Exports by the emerging suppliers to regions of instability

The United Arab Emirates

The UAE has exported arms to areas of conflict: second-hand as well as locally produced weapons. It has used both transfers of new equipment and re-transfers of second-hand equipment as a means to gain regional influence. Although these arms were not necessarily advanced weapons, at times they have had disruptive effects in their recipient countries.

For instance, the UAE uses arms transfers to Libya as a tool of its assertive foreign policy goals, as it seeks to play a major role in the Middle East and North Africa.⁵¹ The UAE has supplied Panthera T6 4x4 armoured personnel carriers to the main non-state armed group in Libya, the self-styled Libyan National Army (LNA), in violation of a United Nations arms embargo.⁵²

The UAE had been militarily involved in the conflict in Yemen since 2015, conducting ground, naval and air operations against Houthi forces as part of a coalition of states led by Saudi Arabia.⁵³ In addition to deploying a wide

⁵¹ Wezeman, P. D. et al., 'Trends in international arms transfers, 2019', SIPRI Fact Sheet, Mar. 2020.

⁵² Bromley, M. and Wezeman, P. D., 'Multilateral arms embargoes', *SIPRI Yearbook 2020* (note 4), pp. 533–46, pp. 539–40; and United Nations, Security Council, Final report of the panel of experts on Libya established pursuant to Security Council Resolution 1973 (2011), 29 Nov. 2019, S/2019/914, 9 Dec. 2019, para. 90.

⁵³ Davis, L., 'Armed conflict and peace processes in Yemen', *SIPRI Yearbook 2020* (note 4), pp. 163–70.



range of weapon systems, the UAE supplied three second-hand ground-attack aircraft and 145 new and second-hand armoured vehicles to armed groups supporting the UN-recognized Government of Yemen between 2015 and 2018.⁵⁴ In early 2020 the UN panel of experts on Yemen confirmed that the UAE has provided training and arms to UAE-affiliated armed forces operating in Yemen alongside the coalition.⁵⁵

Weapons supplied by the UAE have also reportedly been used in other areas of conflict, such as Sudan during the repression of demonstrations in 2019.⁵⁶ The UAE has also delivered armoured vehicles to South Sudan and Somalia. These weapons were new equipment manufactured in the UAE.

Turkey

Turkey's arms exports pose potential risks as described above (see section I). This can be illustrated by its arms exports to Qatar, the Government of National Accord (GNA) in Libya and Azerbaijan.

Turkey has used arms sales to cement its relations with Qatar, in particular after Saudi Arabia and the UAE severed diplomatic relations with Qatar in 2017.⁵⁷ Turkey has increased its economic ties with Qatar and has based troops there.⁵⁸ It has also bolstered its arms supply relations with Qatar: Qatar bought several armed UAVs and hundreds of armoured vehicles from Turkey after 2017. Qatar also invested in the Turkish company developing Turkey's Altay tank.⁵⁹ The weapons supplied by Turkey represented only a small share of the large volume of arms imported by Qatar in 2015–19, primarily from France and the USA. Nonetheless, even at a smaller scale, the Turkish weapons contribute to Qatar's attempts to balance its relationships with Saudi Arabia and the UAE, and this could have a knock-on effect on wider regional tensions.

Turkey has provided military aid to support the GNA—the UN-recognized Government of Libya—in its conflict with the LNA. This support for the GNA is at least partly explained by Turkey's broader efforts to gain access to gas reserves in the Mediterranean.⁶⁰ For example, in 2019 Turkey supplied the GNA with an unknown number of armoured vehicles and armed UAVs. An indication of the importance for Turkey of this military aid is that it violated

⁵⁴ Amnesty International, 'Yemen: UAE recklessly supplying militias with windfall of Western arms', 6 Feb. 2019.

⁵⁵ United Nations, Security Council, Final report of the panel of experts on Yemen, 27 Jan. 2020, S/2020/326, 28 Apr. 2020. See also Amnesty International (note 57).

⁵⁶ Kenyette, P., 'UAE-made NIMR Ajban 440A 4x4 light armoured vehicle seen in Sudan', *Military Africa*, 10 June 2019; and Lynch, J. and Gramer, R., 'Arab states foment Sudan chaos while U.S. stands by', *Foreign Policy*, 5 June 2019.

⁵⁷ Baker, A., 'Testing the Turkey–Qatar military partnership', *New Arab*, 25 Feb. 2019; and Altunışık, M. B., *The New Turn in Turkey's Foreign Policy in the Middle East: Regional and Domestic Insecurities*, Istituto Affari Internazionali (IAI) Papers no. 20/17 (IAI: Rome, July 2020).

⁵⁸ Turkish Ministry of Foreign Affairs, 'Turkey–Qatar economic and trade relations'; and Al Jazeera, 'Erdogan: Turkey–Qatar military base serves regional "stability"', 25 Nov. 2019.

⁵⁹ Erşen, E. B. and Varol, Z., 'Turkish, Qatari military, defense cooperation antidote to regional malaise', *Daily Sabah*, 26 Nov. 2019.

⁶⁰ Helal, A., 'For Turkey, the Libyan conflict and the eastern Mediterranean are inextricably linked', MENASource, Atlantic Council, 28 Oct. 2020; and Tanchum, M., 'Libya, energy, and the Mediterranean's new "Great Game"', *Analyses of the Elcano Royal Institute (ARI)* no. 110/2020, 23 Sep. 2020.



the UN arms embargo, which only allows arms supplies to the GNA if advance approval has been given by the UN sanctions committee on Libya.⁶¹

Notably, Turkey was able to supply the UAVs from its own production lines, and these weapons played a significant role in the success of the GNA's military operations against the LNA.⁶² While Turkey could have supplied items from its existing arsenal of older and imported weapons, having its own arms industry facilitates such military aid. Indeed, domestic manufacturing of weapon systems means that a country is less dependent on the re-export regulations of external suppliers.

In the past 10 years, Turkey has supplied Azerbaijan with Cobra armoured vehicles and T-107/122 and T-300 MRLs. In the year running up to the restart of the armed conflict between Armenia and Azerbaijan over Nagorno-Karabakh in October 2020, Turkey's sales to Azerbaijan included UAVs, MRLs and ammunition.⁶³ Turkey's Bayraktar TB2 armed UAV was reportedly seen in use by Azeri forces during the conflict.⁶⁴ Turkey's support for Azerbaijan, including via arms transfers, can be seen as a way for Turkey to extend its regional influence.⁶⁵ This can be further exemplified by arms sales to Turkmenistan since 2010, including patrol craft and armoured vehicles.

South Korea

Unlike Turkey and the UAE, South Korea has not been accused of violating UN arms embargoes and has not deliberately supplied arms to active, long-term armed conflicts. South Korea's arms exports can nonetheless have other potential destabilizing impacts, including by supplying weapons to countries involved in armed conflict.

South Korea exemplifies how an emerging supplier can contribute to the further diffusion of arms-production capabilities to other countries by using licensed production and technology transfers to gain market shares.

A prime example relates to the K-9 self-propelled gun. South Korea agreed in the early 2000s to license the production of this weapon by Turkey. South Korea built a first batch, but more than 300 were then domestically produced in Turkey.⁶⁶ Turkey then used its licence-produced version of the K-9—called

⁶¹ United Nations, Security Council, Final report of the panel of experts on Libya established pursuant to Security Council Resolution 1973 (2011), 29 Nov. 2019, S/2019/914, 9 Dec. 2019, p. 2 and paras 60–62.

⁶² Bobin, F., 'Guerre en Libye: Le maréchal Haftar affaibli par l'implication croissante des Turcs' [War in Libya: Marshal Haftar weakened by the growing involvement of the Turks], *Le Monde*, 17 Apr. 2020; and Gatopoulos, A., "'Largest drone war in the world": How airpower saved Tripoli', *Al Jazeera*, 28 May 2020.

⁶³ Toksabay, E., 'Turkish arms sales to Azerbaijan surged before Nagorno-Karabakh fighting', *Reuters*, 14 Oct. 2020; Foy, H., 'Drones and missiles tilt war with Armenia in Azerbaijan's favour', *Financial Times*, 28 Oct. 2020; and Middle East Eye, 'Azerbaijan bought \$77m worth of arms from Turkey a month before fighting', 14 Oct. 2020.

⁶⁴ Roblin, S., 'Turkish drones over Nagorno-Karabakh—and other updates from a day-old war', *Forbes*, 28 Sep. 2020; Soyulu, R., 'Turkish armed drones used against Armenia, Azerbaijan confirms', *Middle East Eye*, 5 Oct. 2020; Kasapoglu, C., 'Turkey transfers drone warfare capacity to its ally Azerbaijan', *Eurasia Daily Monitor*, Jamestown Foundation, 15 Oct. 2020.

⁶⁵ Phillips, C., 'Armenia-Azerbaijan conflict: Why Turkey is outsourcing its wars', *Middle East Eye*, 12 Oct. 2020; and Gall, C., 'Turkey jumps into another foreign conflict, this time in the Caucasus', *New York Times*, 1 Oct. 2020.

⁶⁶ Akman, E., 'Emerging trade partnership between the South Korea and Turkey: The case of defense industry', *Güvenlik Stratejileri Dergisi—The Journal of Security Strategies*, no. 23 (Apr. 2016), pp. 137–62, p. 154.



the T-155 Fırtına—against Kurdish armed groups in Iraq in 2007–2008 and in Syria in 2012–20—illustrating the long-term consequences of technology transfers.⁶⁷

In the case of Indonesia, the recipient country is not yet able to independently produce under licence the type of weapon system transferred, but the partnership nonetheless contributes to developing local arms-industrial capabilities. One example is the sale of three Type-209 submarines. This type of submarine was first produced by South Korea under a licence from Germany in the late 1980s and early 1990s. The technology transfers agreed in the sales package with Indonesia include sending engineers from PT PAL (the producing company in Indonesia) to South Korea.⁶⁸ The third submarine of this sale was constructed by PT PAL in Indonesia, but 80 per cent of the components were imported.⁶⁹ It therefore appears that, in the short term, Indonesia will not be capable of exporting its own submarines based on the experience gained from its deal with South Korea.⁷⁰

Such arms sales to Indonesia are part of a broader trend whereby South Korea, like other suppliers, contributes through its arms transfers to a destabilizing build-up of arms in a context of tensions—in this case, in relation to the South China Sea.⁷¹ In the past decade, South Korea has also exported ships and aircraft to Malaysia, the Philippines, Thailand and Viet Nam.

South Korea has exported to countries involved in armed conflict such as Turkey and Saudi Arabia, the latter receiving the LIG Nex1 Raybolt man-portable anti-tank guided missile.⁷² Looking further ahead, Hanwa, a South Korean arms manufacturer, and Saudi Arabian Military Industries (SAMI) have agreed to set up a joint venture to produce land systems, munitions and electronics among other types of weapon.⁷³ This joins similar plans for joint ventures in Saudi Arabia by other supplier countries. If implemented, this agreement would contribute to the dissemination of conventional arms-production capabilities in a region where arms races are already under way.⁷⁴

⁶⁷ On the use in Iraq see Roblin, S., 'Bringing the thunder: Why South Korea's K-9 artillery are no joke', *National Interest*, 11 Mar. 2020; and *Hürriyet*, 'Hem karadan hem havadan' [Both by land and by air], 27 Apr. 2008. On the use in Syria see *Hürriyet Daily News*, 'Turkey hit Syria with S. Korean-designed howitzers', 4 Oct. 2012; Roblin, S., 'Turkish drones and artillery are devastating Assad's forces in Idlib province—Here's why', *Forbes*, 2 Mar. 2020; and *Daily Sabah*, 'Domestically produced defense systems deployed in Afrin offensive', 27 Jan. 2018.

⁶⁸ Priamarizki, A., Timur, F. B. and Marzuki, K. I., 'Indonesia's submarines procurement plan: Spearheading Jakarta's maritime ambition', S. Rajaratnam School of International Studies (RSIS) Commentary no. 264, 3 Dec. 2016, p. 2.

⁶⁹ Vavasseur, X., 'Indonesia's PT PAL launched its first locally built submarine for TNI AL', *Naval News*, 12 Apr. 2019.

⁷⁰ De Haan, J., 'Indonesia expanding its submarine-building capacity', *Future Directions International*, 12 June 2019; and Gady, F.-S., 'Indonesia launches third *Nagapasa*-class diesel electric attack submarine', *The Diplomat*, 11 Apr. 2019.

⁷¹ Heiduk, F., *An Arms Race in Southeast Asia? Changing Arms Dynamics, Regional Security and the Role of European Arms Exports*, Stiftung Wissenschaft und Politik (SWP) Research Paper no. 2017/RP 10 (SWP: Berlin, Aug. 2017); and Bitzinger, R. A., 'Southeast Asian military modernization: A new arms race?', Presentation, East-West Center, Feb. 2011.

⁷² Binnie, J., 'South Korean Raybolt spotted in Yemen', *Jane's Defence Weekly*, 27 June 2018; and Malyasov, D., 'Saudi troops uses modern Raybolt ATGM in Yemen', 28 Aug. 2018.

⁷³ Grevatt, J., 'SAMI, Hanwha to set up defence JV in Saudi Arabia', *Jane's Defence Weekly*, 1 July 2019.

⁷⁴ Erästö, T. and Wezeman, P. D., 'Addressing missile threats in the Middle East', SIPRI Policy Brief, Nov. 2020.



The Philippines used FA-50 light combat aircraft supplied by South Korea for counterinsurgency operations in Marawi after the city had fallen in the hands of groups affiliated to the Islamic State group in 2017.⁷⁵

Brazil

As for the case of South Korea, recent exports of major arms by Brazil do not exhibit the same immediate risks as those of the UAE and Turkey, with one notable exception: Saudi Arabia received ASTROS MRLs from Brazil in the early 1990s, and there is significant evidence that these systems were used by Saudi Arabia in its military intervention in Yemen in 2015.⁷⁶ These Saudi Arabian military operations have been criticized as violating international humanitarian law. Nevertheless, Brazil exported further ASTROS systems to Saudi Arabia in 2016.

Brazil's main export over the decade 2010–19 was the EMB-314 trainer/combat aircraft. Many of the recipients of the EMB-314 were in sub-Saharan Africa: Angola, Burkina Faso, Mali and Mauritania. With the possible exception of Angola, all these recipients bought the EMB-314 mainly for its combat role. Some have been used in combat; for example, Burkina Faso has used its aircraft in counterinsurgency operations.⁷⁷ These aircraft were also delivered to Chile and Ecuador, where they are used primarily in a training role.⁷⁸

Comparison of the case studies: Different volumes of exports with varying impacts on regions of instability

The four countries do not export similar volumes of major conventional arms: South Korea was far ahead in 2010–19, followed by Turkey, the UAE and Brazil. Brazil can be termed a 're-emerging supplier', although it has not yet reached the levels of the 1980s: at that time, Brazil was among the 15th largest arms exporters. The UAE, Turkey and South Korea did not reach such high levels until the past decade (see table 1).

The UAE presents a distinguishing characteristic: transfers of second-hand arms accounted for 19 per cent of its exports in 2010–19, a much higher proportion than for the other three cases (2 per cent for Turkey, 6 per cent for Brazil and 8 per cent for South Korea). Such transfers do not support its domestic arms industry.

The arms exports of the UAE and Turkey appear to be more clearly linked to their strategic foreign policy goals than those of South Korea and Brazil. Both countries support allies in regional conflicts (e.g. the UAE supporting the LNA in Libya and the Yemeni Government and Turkey supporting

⁷⁵ Nepomuceno, P., 'PAF new jet fighters lauded for role in Marawi victory', Philippine News Agency, 25 May 2018; and Laude, J., 'Duterte wants to buy more South Korea fighter jets', Philippine Star, 8 June 2018.

⁷⁶ Amnesty International, 'Yemen: Brazilian cluster munitions suspected in Saudi Arabia-led coalition attack', 30 Oct. 2015; and Human Rights Watch, 'Yemen: Brazil-made cluster munitions harm civilians', 23 Dec. 2016.

⁷⁷ Lesedi, S., 'Burkina Faso Embraer EMB-314 Super Tucano conducts first counter-terrorist airstrike', Military Africa, 27 Sep. 2018; and Kelly, F., 'Burkina Faso Super Tucano conducts first joint air op with French Mirage 2000 jets', Defense Post, 11 Jan. 2020.

⁷⁸ Defense Industry Daily, 'Chile's Air Force buys Super Tucanos', 18 Aug. 2008; and Jennings, G., 'Embraer firms up Ecuador's Super Tucano contract', *Jane's Defence Weekly*, 1 Apr. 2009.

Azerbaijan and the GNA in Libya) or trying to gain regional influence (e.g. Turkey building relations with Qatar).

In those endeavours the countries have even chosen to violate the UN resolutions that restricts arms transfers to Libya and to stand against significant international criticism. In contrast, South Korean arms exports appear driven by mainly commercial considerations. Nonetheless, its technology transfers contribute to the diffusion of conventional arms production in regions of instability, such as the Middle East in the case of Turkey (which in turn has exported arms that have had a direct impact on a conflict) and the South China Sea in the case of Indonesia. Brazilian arms exports also risk being used in heavily criticized military operations, as exemplified by Saudi Arabia's use of Brazilian weapons in Yemen.

Brazil and South Korea do not seem to use arms exports primarily as a means to gain political influence. Further research would be required to understand why the four case studies exhibit such differences in arms export behaviour, be it because Brazil and South Korea are party to the ATT, because they have more mature export control systems, or indeed because of the different balance between strategic and economic considerations in their arms export policies.

V. Conclusions

The diversification of global arms transfers through the emergence of new suppliers deserves scrutiny. The increased supplier diversity in the global arms trade through the rise of new arms exporters means that the arms market has become increasingly a buyer's market. This may entice suppliers into being less restrictive in their arms sales, in order to enhance their chances of winning arms export deals. This can be seen in part in the rise in technology transfers, which in turn further contributes to the diversification of suppliers. As shown here, even though the volumes of arms exported by emerging suppliers are lower than those of the established exporters, they can nonetheless have a direct impact in regions of instability.

This paper raises further questions whose answers will allow for a better understanding of global arms transfers.

1. A first set of questions concerns technology transfers: What is the significance of technology transfers for the rise of new suppliers? How can they be controlled?
2. A second set relates to the diversification of suppliers from the perspective of the recipients themselves: To what extent do arms importers welcome greater diversity in suppliers? Can shifts be observed from previously established arms transfers partnerships with traditional suppliers to new relationships with emerging ones?
3. A third research avenue is to consider export control policies: What are the characteristics of the export control policies of the emerging suppliers that may explain the variations observed here? To what extent are they constrained by international norms?

The last of these research questions may be further read as a recommendation for the four states studied here. As for established suppliers,



emerging suppliers need to recognize their responsibilities as exporters of major weapons. As the volume of emerging suppliers' arms sales increases, this draws more scrutiny to where and what they export and raises new reputational risks for these states. As their role as arms suppliers increases, it is important that, at the same time, they are recognized as being reliable. For those emerging suppliers who have not already done so, one of the answers is to join international normative efforts to control the arms trade.

Two of the states studied here—Brazil and South Korea—are party to the Arms Trade Treaty. As part of the Treaty provisions, they are required to assess the potential that the conventional arms or items would contribute to or undermine peace and security; could be used to commit or facilitate a serious violation of international humanitarian law, of international human rights law; or commit or facilitate an act constituting an offence under international conventions or protocols relating to terrorism or transnational organized crime.

The other two—Turkey and the UAE—are not ATT parties. Turkey participates in the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, which maintains export control lists of military and dual-use goods and technologies and agrees best practices for export control decision-making. However, as the Wassenaar Arrangement is an informal group of states and not a legally binding treaty, its decisions are implemented at the discretion of each participating state. A further recommendation could be addressed to States who are already party to the ATT. As highlighted in this paper, a portion of the UAE's arms supplies is composed of second-hand transfers. However, the Treaty stipulates that State parties shall take measures to prevent the diversion of conventional arms, which in this case would likely imply a careful assessment of arms transfers to the UAE.⁷⁹

Becoming a state party to a multilateral arms control treaty not only comes with the benefits of information sharing among the parties but also with the obligation to prohibit arms transfers in certain situations. Within the ATT, emerging suppliers can participate in the Diversion Information Exchange Forum, created in 2020, which brings together exporters and importers who are ATT States Parties and signatories.⁸⁰ These regimes also include emerging suppliers in forums where all suppliers can discuss the risks that arms exports are diverted from their intended recipient. Other means to address the risks that arise from diversification of arms exporters include fostering civil society discussions within emerging suppliers on their overall arms export policies and on specific exports to controversial customers, and, for some of these states, strengthening their national export control systems.

⁷⁹ Arms Trade Treaty (note 1), article 11.

⁸⁰ Arms Trade Treaty, Draft Decisions of the 6th Conference of States Parties for Consideration and Adoption via silent procedure, 'Decision 13: Establishment of the Diversion Information Exchange Forum', 29 July 2020.



Abbreviations

ATT	Arms Trade Treaty
EDIC	Emirates Defence Industries Company
GNA	Government of National Accord
LNA	Libyan National Army
MRL	Multiple rocket launcher
UAE	United Arab Emirates
UAV	Unmanned aerial vehicle
UN	United Nations



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EMERGING SUPPLIERS IN THE GLOBAL ARMS TRADE

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