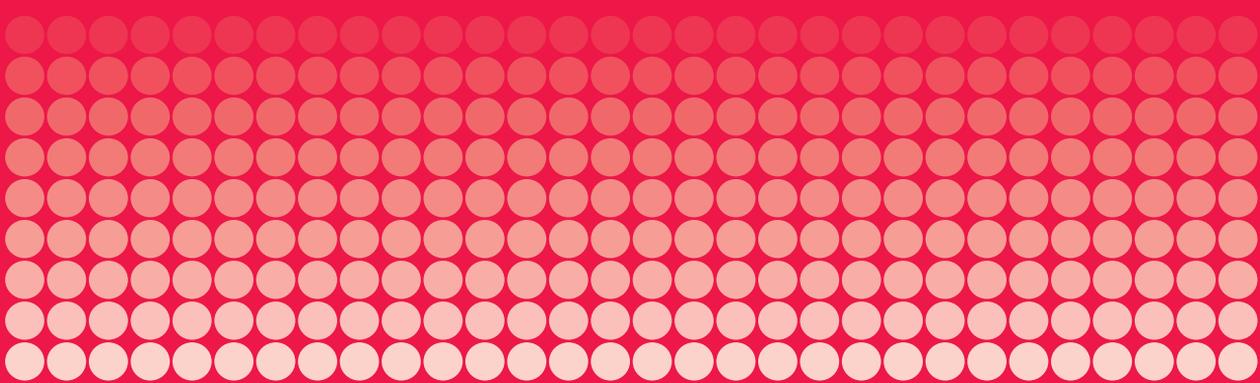


# **SIPRI YEARBOOK 2022**

**Armaments,  
Disarmament and  
International  
Security**

**Summary**



# STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

## THE SIPRI YEARBOOK

*SIPRI Yearbook 2022* presents a combination of original data in areas such as world military expenditure, international arms transfers, arms production, nuclear forces, armed conflicts and multilateral peace operations with state-of-the-art analysis of important aspects of arms control, peace and international security.

This booklet summarizes the contents of *SIPRI Yearbook 2022* and provides samples of the data and analysis that it contains.

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Map, p. 9. Credit: Hugo Ahlenius, Norpil.



# 1. INTRODUCTION: INTERNATIONAL STABILITY AND HUMAN SECURITY IN 2021

DAN SMITH

## The war in Ukraine

The international security horizon at the end of 2021 was dominated by intensifying confrontations between Russia and Ukraine, and between China and the United States. Although neither confrontation exploded into warfare during 2021, Russia's invasion of Ukraine on 24 February 2022 administered a shock to the international system that far outreaches the reverberations of other crises of 2021. This is underlined by repeated Russian warnings that the use of nuclear weapons was not ruled out. The Western response has focused on supplying military aid to Ukraine and applying economic sanctions against Russia.

The consequences of the war will be far-reaching, including a severe impact on global food security since both Russia and Ukraine are major food producers. European security arrangements are in flux and global political alignments and strategic preferences will also be affected. Opposition to Russian actions in Ukraine was widespread but not universal, with 35 states abstaining from a United Nations General Assembly resolution in March 2022 that criticized Russia. Several states challenged the West's assumption of the moral high ground in the crisis. Notably, China, which had reaffirmed its close friendship with Russia in early February 2022, was among those that abstained.

## The broader security horizon in 2021

After several years of significant deterioration, international security overall neither deteriorated further nor improved in 2021. Nonetheless, the evidence of persistent insecurity was pervasive. The number of armed conflicts was little changed and by the end of 2021 no significant new peace process had been launched. In August the 20-year Western intervention in Afghanistan ended in failure. Armed conflict in Ethiopia also continued with no effective international initiative to curtail the violence. Global military spending continued to rise, as it has done every year since 2015, and passed the US\$2 trillion milestone. The nine states that possess nuclear weapons were all engaged in upgrading their nuclear arsenals. The long-term pressure of climate change and the global Covid-19 pandemic both continued in 2021.

## New pathways to international cooperation

The joint US–Chinese statement on enhancing climate action issued at the 26th UN Climate Change Conference (COP26) in November 2021 was a welcome sign that cooperation between great powers is still possible on some global issues. Overall, however, the international system is not managing to cope, and the great powers are not focused on responding to the major challenges to human security. A way forward may lie in the UN secretary-general's 2021 report, 'Our Common Agenda', which maps out an approach to the full range of current dilemmas and crises. But to be implemented, it needs support from a large, diverse and sufficiently effective coalition of states, the UN system and regional multilateral organizations, as well as civil society organizations. ●



## 2. GLOBAL DEVELOPMENTS IN ARMED CONFLICTS, PEACE PROCESSES AND PEACE OPERATIONS

Active armed conflicts occurred in at least 46 states in 2021 (one fewer than in 2020): 8 were in the Americas, 9 in Asia and Oceania, 3 in Europe, 8 in the Middle East and North Africa (MENA) and 18 in sub-Saharan Africa. As in preceding years, most took place within a single country (intra-state), between government forces and one or more armed non-state group(s). Three were major armed conflicts (with more than 10 000 conflict-related deaths in the year): Afghanistan, Yemen and Myanmar. A total of 19 were high-intensity armed conflicts (with 1000–9999 conflict-related deaths): Nigeria, Ethiopia, Mexico, Syria, the Democratic Republic of the Congo, Brazil, Somalia, Iraq, Burkina Faso, South Sudan, Mali, Sudan, the Central African Republic, Niger, Cameroon, Pakistan, Colombia, Mozambique and the Philippines. Only three armed conflicts

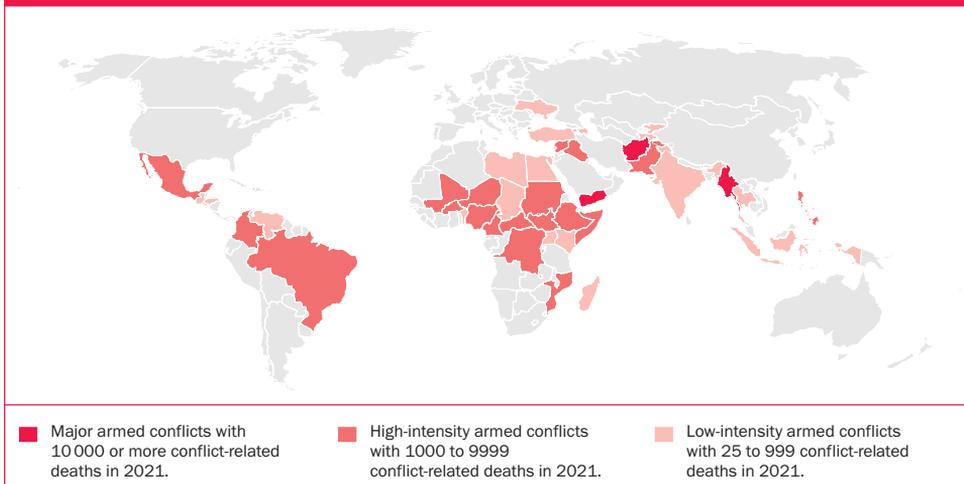
were fought between states: the low-level border clashes between India and Pakistan; Armenia and Azerbaijan; and Kyrgyzstan and Tajikistan. Two other armed conflicts were fought between state forces and armed groups aspiring to statehood (between Israel and the Palestinians and between Turkey and the Kurds).

### Consequences of armed conflict

The total estimated number of conflict-related fatalities increased to about 150 000 in 2021, which was 13 per cent higher than in 2020. The rise was driven by significant increases in fatalities in Asia and Oceania (up by 59 per cent from 2020)—mostly due to increases in Afghanistan, Myanmar and Pakistan—and sub-Saharan Africa (up by 19 per cent). Estimated conflict-related fatalities fell for the third consecutive year in MENA.

While conflict-related fatalities have generally shown a downward trend in recent years, other impacts of armed conflict (sometimes in combination with additional factors) appear to have increased

### ARMED CONFLICTS IN 2021



Note: The boundaries used in this map do not imply any endorsement or acceptance by SIPRI.



## FOOD INSECURITY

Armed conflict continued to be one of the main drivers of food insecurity in 2021. Due to the triple impact of conflict, climate shocks and the socio-economic consequences of the Covid-19 pandemic, a record high of up to 283 million people across 80 countries were likely to have been food insecure or at high risk in 2021 (up from 270 million across 79 countries in 2020).

in severity, including population displacement, food insecurity, humanitarian needs and violations of international humanitarian law.

### Peace agreements

Most peace processes either stalled or suffered serious setbacks during 2021. Nonetheless, some of the greatest decreases in armed violence in 2021 took place in contexts where ceasefires and power-sharing agreements had been reached in 2020 (e.g. in Libya, Nagorno-Karabakh and Syria). The Covid-19 pandemic had minimal impact on armed conflicts in 2021—in most cases, armed conflict levels persisted or even increased.

### Trends in multilateral peace operations

There were 63 active operations in 2021, one more than the previous year. Three operations ended in 2021: the North Atlantic Treaty Organization-led Resolute Support Mission (RSM) in Afghanistan; the African Union (AU) Human Rights Observers and Military Experts Mission in Burundi; and the Organization for Security and Co-operation in Europe Observer Mission at the Russian Checkpoints Gukovo and Donetsk. Four operations started: the United Nations Integrated Transition Assistance Mission in Sudan; the Russian–Turkish Joint Monitoring

Centre in Azerbaijan; the Southern Africa Development Community Mission in Mozambique; and the European Union Military Training Mission in Mozambique.

The number of personnel deployed in multilateral peace operations decreased by 12 per cent during 2021, to reach 111 858 on 31 December 2021. This reduction was mainly driven by the closing of two multilateral peace operations, namely the RSM and the UN–AU Hybrid Operation in Darfur, which completed its mandate on 31 December 2020. The UN remained the leading organization in the field, with responsibility for about one third of all multilateral peace operations and more than two thirds of all personnel.

In 2021 the AU Mission in Somalia continued to be the largest multilateral peace operation. Ethiopia remained the top troop contributor, followed by Uganda and Bangladesh. In 2021 the annual fatality rate for hostile deaths of international personnel in UN peace operations increased again after having fallen in 2020. The UN Multi-dimensional Integrated Stabilization Mission in Mali continued to be the deadliest UN peace operation in terms of both hostile deaths and overall fatalities.

The number of operations that are not ‘multilateral peace operations’ (as defined by SIPRI) continued to increase in 2021, with the deployment of the joint international ‘peacekeeping mission’ to the Solomon Islands. Another trend in 2021 was the intensification of geopolitical rivalries between Western countries and Russia, China or both, which affected mission mandates, closures and restructuring. ●



### 3. ARMED CONFLICT AND PEACE PROCESSES IN THE AMERICAS

Several armed conflicts meeting the non-international armed conflict (NIAC) threshold under international law were active in Colombia and Mexico. Six additional countries in the Americas—Brazil, El Salvador, Guatemala, Haiti, Honduras and Venezuela—experienced high levels of armed violence in 2021 and were also defined by SIPRI as having armed conflicts on the basis of the number of battle-related fatalities involved. There were three multilateral peace operations active in the Americas in 2021: two in Colombia and one in Haiti.

#### North America and the Caribbean

Three NIACs existed in Mexico: between the government and the Sinaloa Cartel; between the government and the Jalisco Cartel New Generation (Cártel Jalisco Nueva Generación, CJNG); and between the two rival cartels. In addition, hundreds of smaller gangs and factions were involved in crime and violence, and there were widespread human rights violations by state forces.

In Haiti the assassination of the president deepened political instability. Mass displacement surged, driven by the compounding effects of extreme poverty, corruption, pervasive gang violence and natural disasters.

#### Central America

Armed conflicts in El Salvador, Guatemala and Honduras in 2021 were all related to gang violence. Two of the most infamous street gangs in the Americas—rivals Mara Salvatrucha (MS13) and the 18th Street Gang (Barrio 18)—have an especially strong influence in all three countries. El Salvador

and Guatemala saw growing violence, authoritarianism and corruption in 2021, while the year closed on a more hopeful note in Honduras, with the election of Xiomara Castro, the only female leader in Central America, as president. Even so, the country remains beset by high levels of poverty, violent crime and corruption.

#### South America

In Colombia at least three parallel and overlapping conflicts continued in 2021: between the government and the National Liberation Army (Ejército de Liberación Nacional, ELN); between the government and dissident armed groups of the Revolutionary Armed Forces of Colombia—People's Army (Fuerzas Armadas Revolucionarias de Colombia-Ejército del Pueblo, FARC-EP); and between the ELN and the Gaitanista Self-Defence Forces of Colombia (Autodefensas Gaitanistas de Colombia, AGC).

Brazil saw a rise in estimated battle- and other conflict-related deaths in 2021, and violence against civilians caused as many deaths as battles. The nature of armed conflict in Brazil is complex and difficult to define. Approximately 57 per cent of the 2620 battle-related deaths were attributable to violence between state forces and unidentified armed groups, or violence between police and political militias, while 42 per cent involved inter-political militia violence.

In Venezuela government forces committed acts of violence as the state challenged its loss of control over swathes of territory to gangs and armed groups. ●



## 4. ARMED CONFLICT AND PEACE PROCESSES IN ASIA AND OCEANIA

Nine countries in Asia and Oceania experienced active armed conflicts in 2021, two more than in 2020. Three were in South Asia—Afghanistan (major internationalized civil war), India (low-intensity, combined interstate border and subnational armed conflicts) and Pakistan (high-intensity, combined interstate border and subnational armed conflicts); four were in South East Asia—a major armed conflict in Myanmar and low-intensity, subnational armed conflicts in Indonesia, the Philippines and Thailand; and there was a new low-intensity interstate conflict in Central Asia between Kyrgyzstan and Tajikistan. Total conflict-related fatalities in Asia and Oceania increased by 59 per cent in 2021 (having fallen by nearly 50 per cent in 2020).

Three trends remained a cause for concern in 2021: (a) the growing Chinese–United States rivalry, combined with an increasingly assertive Chinese foreign policy; (b) the various threats and conflicts falling within the broad terrorism/counterterrorism rubric, involving both states and non-state actors; and (c) the ongoing impact of weather and climate hazards.

### Peace processes

Only a few of the armed conflicts were being addressed by ongoing or new peace processes in 2021. The Republic of Korea (South Korea) and the Democratic People's Republic of Korea (DPRK, or North Korea), China and the USA agreed 'in principle' to declare a formal end to the Korean War. There was a new ceasefire between India

## AFGHANISTAN

In Afghanistan the war effectively came to an end after the Taliban took control of the country following the final withdrawal of United States and North Atlantic Treaty Organization (NATO) forces. The rapid collapse of the Afghan Government and the Taliban's triumphant return to power left several lingering questions concerning the Taliban's ability to govern and unify the country, the future of human rights and the role of women in society, and the likely response by regional powers and the rest of the international community.

and Pakistan regarding their ongoing interstate armed conflict over Kashmir, as well as a slight thawing in China–India relations. There were five multilateral peace operations active in the region in 2021—the same number as in 2020.

### Myanmar

In Myanmar a military coup at the beginning of February 2021 ended the recent short period of civilian rule and led to escalating protests and violence throughout the country. The armed conflict was transformed from a low-intensity to a major armed conflict, with over 11 000 conflict-related deaths in 2021. At the end of the year, government forces and resistance forces—a loose coalition of ethnic armed groups and civilian militias—were locked in a violent stalemate, which regional diplomacy seemed unlikely to break. In addition to armed violence and regime oppression, Myanmar faced a growing humanitarian crisis characterized by deepening economic recession, rising internal displacement, collapsing healthcare, and surging poverty and food insecurity. ●



## 5. ARMED CONFLICT AND PEACE PROCESSES IN EUROPE

Two armed conflicts were active in Europe in 2021: the interstate border conflict between Armenia and Azerbaijan for control of Nagorno-Karabakh, and the ongoing, low-intensity, internationalized, subnational armed conflict in Ukraine. In late 2021 a second large-scale Russian military build-up near Ukraine's borders raised fears of the conflict in Ukraine escalating into a major interstate armed conflict—this happened in February 2022.

### Ukraine

Ukraine has been the focus of Europe's main territorial conflict since the annexation of Crimea by Russia in March 2014 and the ensuing outbreak of armed conflict in eastern Ukraine in an area often referred to as Donbas. After simmering at a low level for months, the armed conflict in Donbas escalated again in March and April 2021 as Russian-backed rebels and Ukrainian Government forces clashed in violation of the July 2020 ceasefire agreement.

Tensions further increased as Russia deployed tens of thousands of additional troops along the border with Ukraine in late March–early April 2021. In November, with peace talks stalled, Russia once again deployed thousands of troops near its border with Ukraine, having only partially pulled back its forces from the April build-up. Although Russia's motives and objectives appeared deliberately ambiguous, President Vladimir Putin seemed at that time to be using the threat of invasion to secure both a more acquiescent Ukraine and extensive changes to the European security order, as well as to project strength to the Russian populace.

### Persistent tensions between Russia and the rest of Europe

The Ukraine conflict was the focal point for persistent tensions between Russia and the rest of Europe over several issues, including cyberattacks, the treatment of Russian opposition leader Alexei Navalny, the political crisis in Belarus, and the strengthening of bilateral security cooperation between China and Russia. In December 2021 these tensions culminated with Russia tabling security demands in two draft treaties that were due to be discussed in a series of early January 2022 meetings with the United States and the North Atlantic Treaty Organization (NATO). Russia stressed that failure to endorse the documents would lead to an unspecified but serious military response, although there was very little in the texts that was likely to be accepted by either the USA or NATO.

### Unresolved conflicts

Elsewhere in Europe, tensions persisted in largely quiescent but unresolved conflicts in the post-Soviet space, the Western Balkans and Cyprus. The November 2020 ceasefire between Armenia and Azerbaijan largely held in areas where Russian peacekeepers were deployed, but in other areas battle-related deaths from sporadic clashes and ceasefire violations remained above the threshold for an armed conflict. There were also serious and complex security challenges in Europe's southern neighbourhood and beyond, especially in the eastern Mediterranean.

There were 19 multilateral peace operations active in Europe in 2021, one more than in the previous year. ●



## 6. ARMED CONFLICT AND PEACE PROCESSES IN THE MIDDLE EAST AND NORTH AFRICA

There were eight states with active armed conflicts in the Middle East and North Africa (MENA) in 2021 (the same number as in 2020): Egypt, Iraq, Israel (Palestine), Lebanon, Libya, Syria, Turkey and Yemen. The total conflict-related fatalities in the region fell for the fourth consecutive year, down about 75 per cent since 2017. Yemen was the region's only major armed conflict, with annual fatalities greater than 10 000, and, aside from Iraq and Syria (high-intensity armed conflicts), the remaining armed conflicts were low intensity. Many of the conflicts were interconnected, involving regional and international powers, as well as numerous non-state actors. There were 14 multilateral peace operations in MENA in 2021, the same number as in the previous year.

### Complex and interlinked armed conflicts in Iraq, Syria and Turkey

The situation in Syria remained volatile in 2021. Turkey and its aligned Syrian militias intensified their attacks in the Kurdish-controlled territory in the north-east of Syria. The Idlib ceasefire brokered by Russia and Turkey in 2020 remained in force. Iraq continued to be a fragile state, with weak institutions and a growing rift between the government and some militias. Turkey continued its military operations in northern Iraq, while the protracted conflict with Kurdish rebels in the south-east of Turkey also persisted.

### North Africa

Egypt's low-level Sinai insurgency continued in 2021, while the 40-year territorial dispute over Western Sahara

### THE ISRAELI–PALESTINIAN CONFLICT

The underlying dynamics of the Israeli–Palestinian conflict continued into 2021. In May 2021 the conflict in Gaza escalated again, with Israel and Hamas fighting an 11-day war, their fourth in 14 years. The conflict in Gaza also sparked unrest in the West Bank, as well as an unprecedented general strike among Palestinians across Israel, Gaza and the West Bank, and large-scale street protests and mob violence within Israel's mixed cities and towns.

between Morocco and the Popular Front for the Liberation of Saguia el Hamra and Río de Oro (Polisario Front) began to re-escalate and contributed to a rise in Algeria–Morocco tensions. In Libya an internationally backed ceasefire agreed in October 2020 largely held during 2021. However, despite the establishment of a new interim unity government for the first time since 2014, postponement of the December 2021 elections provoked heightened levels of uncertainty in the peacebuilding road map.

### Yemen

The civil war in Yemen continued throughout the year, further exacerbating one of the world's worst humanitarian crises, with over half a million people on the brink of famine. At the end of 2021, following seven years of territorial fragmentation and proliferating armed groups and sub-conflicts, the conflict was escalating again, and the prospects of a political settlement remained remote. ●



## 7. ARMED CONFLICT AND PEACE PROCESSES IN SUB-SAHARAN AFRICA

There were at least 18 states (out of a total of 49) in sub-Saharan Africa with active armed conflicts in 2021. High-intensity armed conflicts occurred in 12 states: Burkina Faso, Cameroon, the Central African Republic (CAR), the Democratic Republic of the Congo (DRC), Ethiopia, Mali, Mozambique, Niger, Nigeria, Somalia, South Sudan and Sudan. Low-intensity, subnational armed conflicts occurred in 6 states: Benin, Burundi, Chad, Kenya, Madagascar and Uganda. Eleven of these 18 states suffered higher estimated conflict-related fatalities in 2021 than in 2020, with the total increase for the region standing at about 19 per cent.

Almost all the armed conflicts were internationalized due to the involvement of external state actors and/or the transnational activities of armed groups and criminal networks. Conflict dynamics and ethnic and religious tensions were often rooted in a combination of state weakness, corruption, ineffective delivery of basic services, competition over natural resources, inequality and a sense of marginalization. Security dilemmas in sub-Saharan Africa in 2021 were also shaped by the presence of armed groups and criminal networks, election-related violence, and water insecurity and the growing impact of climate change. There were four successful military coups (in Chad, Guinea, Mali and Sudan) and three failed coups (in CAR, Niger and Sudan), compared with just one coup in the region in 2020 (in Mali). There was no substantive progress in any of the region's peace processes in 2021, although sub-Saharan African states continued to

### THE TIGRAY CONFLICT

The armed conflict in the Tigray region of northern Ethiopia between federal government forces and the Tigray People's Liberation Front worsened during 2021, with the expansion of the conflict to the neighbouring regions of Amhara and Afar causing a deepening humanitarian crisis. The intensity of the war fluctuated wildly over the course of 2021, reaching a stalemate at the end of the year.

host more multilateral peace operations (22) than any other region of the world.

### West Africa

Burkina Faso, Mali, Niger and Nigeria were West Africa's hotspots of insecurity in 2021, mainly due to attacks by armed groups, with some operating across national borders. Security forces countering these armed groups included national, regional and international forces, as well as local self-defence groups. In June 2021 France announced a drawdown of the 5000 Operation Barkhane troops in Mali, to be replaced by the European multinational Task Force Takuba, which was established in 2020. The security situation in Nigeria worsened in 2021, with a 27 per cent increase in conflict-related fatalities compared with 2020, due largely to the high number of conflicts between farmers and herders in central areas of the country, a sharp rise in banditry in the north-west, and intensifying uprisings by separatists in the south-east.

### Central Africa

Large-scale violence continued in the eastern DRC as external and Congolese armed groups engaged in multiple armed conflicts with the government, alongside a



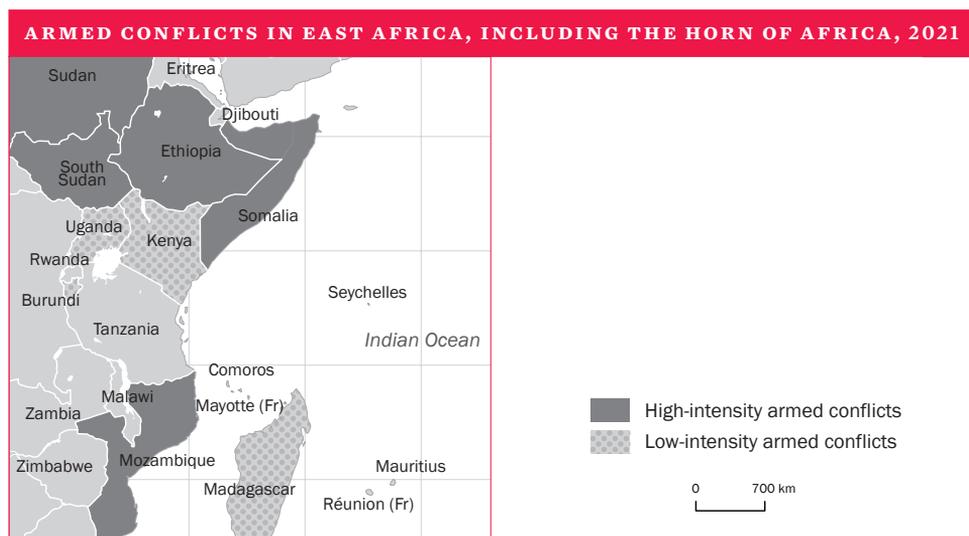
resurgence of intercommunal violence. In Cameroon the anglophone separatist insurgency in the south-west and north-west of the country, as well as the insurgency in the north, continued. In CAR the security situation became even more volatile as government forces, backed by Russian private military companies (PMCs) and Rwandan troops, fought to recapture territory from armed groups. Due to the growing influence of the Russian PMCs, France suspended aid and military cooperation to CAR in June 2021, and the European Union suspended its military training activities in December.

### East Africa

In East Africa 9 of the 22 states or territories were involved in active armed conflict in 2021, with 5 in particular—Ethiopia, Mozambique, Somalia, South Sudan and Sudan—experiencing ongoing or sharp escalations in large-scale armed violence. This violence has led to more than 9.6 million people being internally displaced

and more than 4.7 million people becoming refugees. Grave human rights violations against civilians continued to be committed in the region, while at least 33.8 million people were severely food insecure.

The insurgency in Cabo Delgado province in the north of Mozambique continued in 2021, leading to a regional military intervention in July 2021. However, the conflict's root causes, including the need for a more equitable distribution of the province's mineral and hydrocarbon resources, remained unaddressed. In Somalia al-Shabab continued to be a major threat despite the presence of an African Union-led peace operation. There was some progress in South Sudan towards implementation of the 2018 peace agreement, but violence continued to affect communities across the country. In Sudan, despite the October 2020 Juba Peace Agreement, the situation deteriorated in 2021: there was a military coup in October and a near doubling of the estimated conflict-related fatalities during the year. ●



Note: The boundaries used in this map do not imply any endorsement or acceptance by SIPRI.



## 8. MILITARY EXPENDITURE AND DEVELOPMENTS IN ARMS PRODUCTION

Global military expenditure rose for the seventh consecutive year in 2021 to reach US\$2113 billion, exceeding \$2 trillion for the first time. It accounted for 2.2 per cent of global gross domestic product (GDP), equivalent to \$268 per person. World military spending was 0.7 per cent higher than in 2020 and 12 per cent higher than in 2012. This upward trajectory remained unchanged despite Covid-19 pandemic-induced economic fluctuations.

While the world allocated more to the military in absolute terms, overall government budgets grew faster than military budgets. In 2021, countries allocated an average of 6.0 per cent of their total government spending to their militaries. This was down from 6.1 per cent in 2020 and from 6.6 per cent in 2012. Thus, it seems that governments are investing more funds in the military while also allocating even more to non-military expenditure.

### Opportunity costs

Nonetheless, the \$2 trillion spent on the military represents a lost opportunity to meet the Sustainable Development Goals (SDGs) of Agenda 2030 and the targets of the 2015 Paris Agreement on climate change. Diverting a small fraction of this sum to these goals could improve security in the broader sense and contribute towards achieving the SDGs. During 2021, various United Nations initiatives to reverse the upward trend of military expenditure were reaffirmed, including a call by the UN secretary-general for the urgent reduction of excessive military spending and greater investment in social infrastructure and human security.

## WORLD MILITARY SPENDING, 2021

Region	Spending (US\$ b.)	Change (%)
Africa	(39.7)	1.2
North Africa	(19.6)	-1.7
Sub-Saharan Africa	20.1	4.1
Americas	883	-1.2
Central America and the Caribbean	11.0	-2.5
North America	827	-1.2
South America	45.3	-0.6
Asia and Oceania	586	3.5
Central Asia	1.8	-0.8
East Asia	411	4.9
Oceania	35.3	3.5
South Asia	95.1	0.8
South East Asia	43.1	-2.3
Europe	418	3.0
Central and Western Europe	342	3.1
Eastern Europe	76.3	2.3
Middle East	(186)	-3.3
<b>World total</b>	<b>2 113</b>	<b>0.7</b>

( ) = uncertain estimate.

Note: Spending figures are in US dollars, at current prices and exchange rates. Changes are in real terms, based on constant (2020) US dollars.

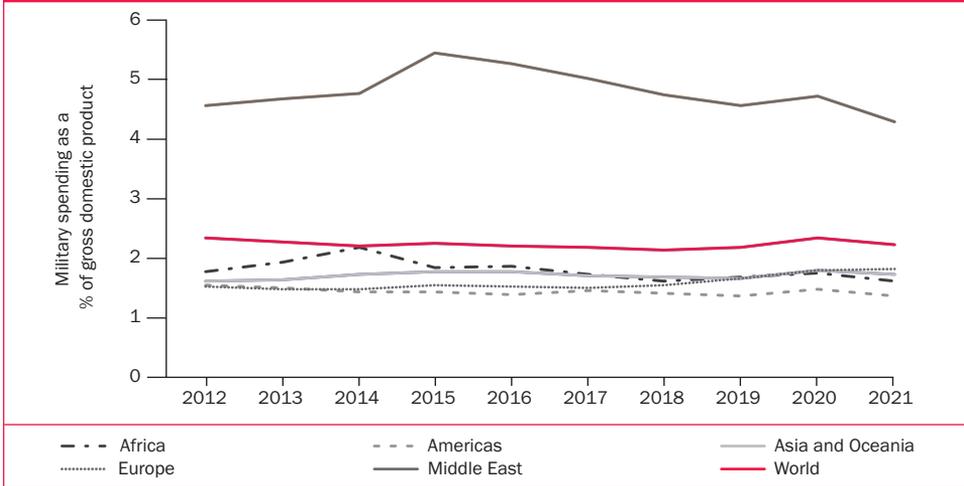
### Regional spending patterns

The 1.2 per cent increase in African military spending was the third consecutive year of growth. The 56 per cent increase in Nigeria, to \$4.5 billion, was its highest annual increase since 1975 and heavily influenced the overall regional trend.

Military spending in the Americas fell by 1.2 per cent. Trends in the region are driven chiefly by the spending of the United States, the largest military spender in the world. US spending reached \$801 billion in 2021, equivalent to 38 per cent of the global total. This was a nominal increase of 2.9 per cent but a real-terms decrease of 1.4 per cent (due to the highest rate of inflation since



## MILITARY BURDEN, BY REGION, 2012–21



1982). In 2021 the USA ended its nearly two-decade-long military presence in Afghanistan. Between 2001 and 2021, the US Government spent more than \$2.3 trillion on the war there, including investing \$85 billion to bolster the Afghan security forces.

The 3.5 per cent increase in military spending in Asia and Oceania continued an uninterrupted upward trend dating back to at least 1989. China’s estimated military spending of \$293 billion, the second largest in the world in 2021, was a 4.7 per cent increase from 2020. Spending also rose among other major regional powers: by 0.9 per cent in India, 7.3 per cent in Japan and 4.7 per cent in South Korea.

Heightened geopolitical tensions were a significant factor in the increase of 3.0 per cent in military spending in Europe. Russia’s military spending grew for the third consecutive year in 2021 and was up by 2.9 per cent, to reach \$65.9 billion. The military budget was revised upwards over the year, probably reflecting the build-up of Russian forces on the border with Ukraine.

Military spending in the Middle East fell by 3.3 per cent in 2021, largely due to the 17 per cent fall in the spending of Saudi Arabia, which accounted for 30 per cent of the regional total. Part of the regional decrease was offset by an 11 per cent increase in Iranian military expenditure, making Iran the 14th largest military spender in 2021.

### Arms production and military services

The arms sales of the 100 largest arms and military services companies (the SIPRI Top 100) totalled \$531 billion in 2020—the most recent year for which data is available. Arms production around the world was largely resilient to the economic downturn caused by the Covid-19 pandemic: while the global economy contracted by 3.1 per cent in 2020, the aggregated arms sales of the Top 100 increased. There were 41 US arms companies in the Top 100, with combined arms sales of \$285 billion, and 5 Chinese companies, with aggregated arms sales of \$66.8 billion. ●



## 9. INTERNATIONAL ARMS TRANSFERS

The volume of international transfers of major arms in the five-year period 2017–21 was 4.6 per cent lower than in 2012–16 and 3.9 per cent higher than in 2007–11. The volume of transfers in 2017–21 was among the highest since the end of the cold war, but was still around 35 per cent lower than the totals for 1977–81 and 1982–86, when arms transfers peaked. States' arms acquisitions, often from foreign suppliers, are largely driven by violent armed conflict and political tensions. There are strong indications that tensions are increasing in most regions and it seems likely that there will be more demand for major arms in the coming years, much of which will be fulfilled by international transfers.

### Suppliers of major arms

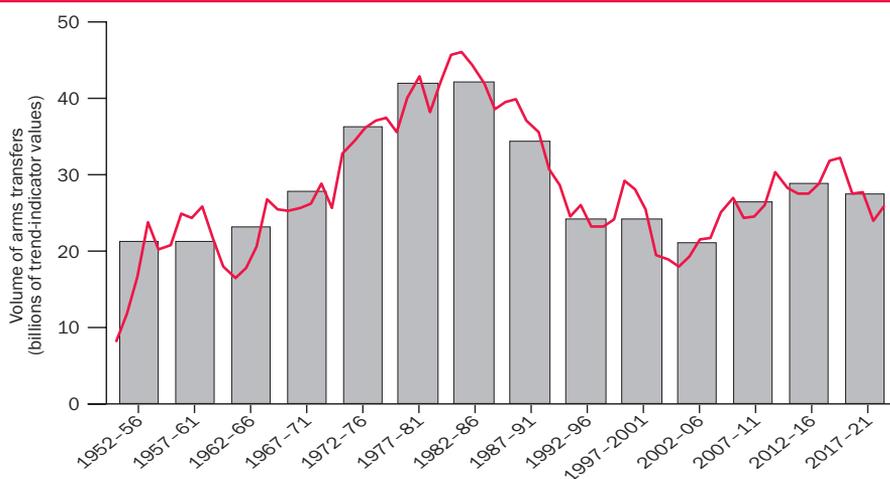
SIPRI has identified 60 states as exporters of major arms in 2017–21, but most are minor exporters. The 25 largest suppliers

accounted for 99 per cent of the total volume of exports, and the 5 largest suppliers in the period—the United States, Russia, France, China and Germany—accounted for 77 per cent of the total volume of exports.

Since 1950, the USA and Russia (or the Soviet Union before 1992) have consistently been by far the largest suppliers. However, the USA's arms exports were 108 per cent higher than Russia's in 2017–21, compared with 34 per cent higher in 2012–16, and the gap is likely to increase. In 2017–21 the USA's arms exports accounted for 39 per cent of the global total and were 14 per cent higher than in 2012–16. In contrast, Russia's arms exports decreased by 26 per cent and its share of the global total dropped from 24 per cent in 2012–16 to 19 per cent in 2017–21.

Exports by France, the third largest supplier, grew by 59 per cent between 2012–16 and 2017–21, while China's and Germany's exports decreased by 31 per cent and 19 per cent respectively.

THE TREND IN TRANSFERS OF MAJOR ARMS, 1952–2021



Note: The bar graph shows the average annual volume of arms transfers for five-year periods and the line graph shows the annual totals.



**THE MAIN EXPORTERS AND IMPORTERS OF MAJOR ARMS, 2017–21**

Exporter	Global share (%)	Importer	Global share (%)
1 USA	39	1 India	11
2 Russia	19	2 Saudi Arabia	11
3 France	11	3 Egypt	5.7
4 China	4.6	4 Australia	5.4
5 Germany	4.5	5 China	4.8
6 Italy	3.1	6 Qatar	4.6
7 UK	2.9	7 South Korea	4.1
8 South Korea	2.8	8 Pakistan	3.0
9 Spain	2.5	9 UAE	2.8
10 Israel	2.4	10 Japan	2.6

UAE = United Arab Emirates.

**Importers of major arms**

SIPRI has identified 163 states as importers of major arms in 2017–21. The five largest arms importers were India, Saudi Arabia, Egypt, Australia and China, which together accounted for 38 per cent of total arms imports. The region that received the largest volume of major arms supplies in 2017–21 was Asia and Oceania, accounting for 43 per cent of the total, followed by the Middle East, which received 32 per cent, Europe (13 per cent), Africa (5.8 per cent) and the Americas (5.5 per cent). Between 2012–16 and 2017–21, the flow of arms to Europe (19 per cent) and the Middle East (2.8 per cent) increased, while flows to Africa (–34 per cent), the Americas (–36 per cent) and Asia and Oceania (–4.7 per cent) decreased.

Most of the 163 importers are directly involved in violent armed conflict or in tensions with other states in which the imported major arms play an important role. For example, at least 5 of the top 10 importers of major arms (India, Saudi Arabia, Egypt, Pakistan and the

**IMPORTS OF MAJOR ARMS, BY REGION**

Recipient region	Global share (%), 2017–21	Change (%) in volume of imports from 2012–16 to 2017–21
Africa	5.8	–34
Americas	5.5	–36
Asia and Oceania	43	–4.7
Europe	13	19
Middle East	32	2.8

United Arab Emirates) for the period 2017–21 were engaged in armed conflicts in 2021, while three others (China, South Korea and Japan) were embroiled in major intrastate tensions. Many of the exporters are direct stakeholders or participants in at least some of the conflicts and tensions, which partly explains why they are willing to supply arms, even when the supply may seem to contradict their stated arms export policies.

**The financial value of states’ arms exports**

While SIPRI data on arms transfers does not represent their financial value, many arms-exporting states do publish figures on the financial value of their arms exports. Based on this data, SIPRI estimates that the total value of the global arms trade was at least \$112 billion in 2020 (the most recent year for which financial data is available), compared with \$87 billion (in constant 2020 US dollars) in 2011. The total value of the arms trade in 2020 was about 0.5 per cent of the total value of global international trade in 2020. ●



## 10. WORLD NUCLEAR FORCES

At the start of 2022, nine states—the United States, Russia, the United Kingdom, France, China, India, Pakistan, Israel and the Democratic People’s Republic of Korea (DPRK, or North Korea)—possessed approximately 12 705 nuclear weapons, of which 9440 were estimated to be in military stockpiles for potential use. About 3732 of these warheads were estimated to be deployed with operational forces, and around 2000 of these were kept in a state of high operational alert.

### Nuclear arsenals

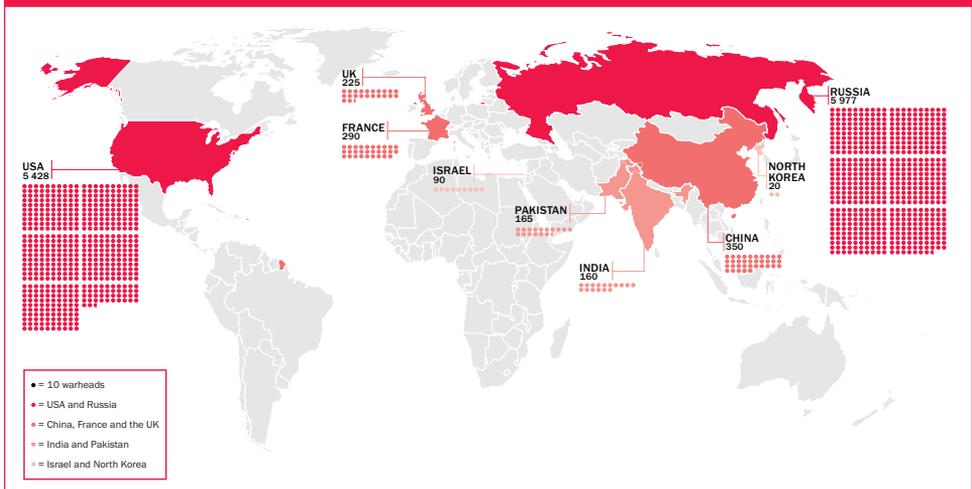
Overall, the number of nuclear warheads in the world continues to decline, but this is primarily due to Russia and the USA dismantling retired warheads. Global reductions of operational warheads appear to have stalled, and their numbers may be rising again. At the same time, both Russia and the USA have extensive and expensive programmes under way to replace and modernize their nuclear warheads, missile

and aircraft delivery systems, and nuclear weapon production facilities.

The nuclear arsenals of the other nuclear-armed states are considerably smaller, but all are either developing or deploying new weapon systems or have announced their intention to do so. China is in the middle of a significant modernization and expansion of its nuclear arsenal, which appears to include the construction of over 300 new missile silos. India and Pakistan also seem to be increasing the size of their nuclear weapon inventories, while in 2021 the UK announced its intention to increase its nuclear stockpile.

North Korea’s military nuclear programme remains central to its national security strategy, although in 2021 it did not conduct any tests of nuclear weapons or long-range ballistic missile delivery systems. SIPRI estimates that North Korea has assembled up to 20 warheads, but that it probably possessed sufficient fissile material for approximately 45–55 nuclear devices.

### GLOBAL NUCLEAR WEAPON INVENTORIES, JANUARY 2022



Note: The boundaries used in this map do not imply any endorsement or acceptance by SIPRI.



## GLOBAL STOCKS OF FISSILE MATERIALS, 2021

The raw material for nuclear weapons is fissile material, either highly enriched uranium (HEU) or separated plutonium. China, France, Russia, the UK and the USA have produced both HEU and plutonium for use in their nuclear weapons; India and Israel have produced mainly plutonium; and Pakistan has produced mainly HEU but is increasing its ability to produce plutonium. North Korea has produced plutonium for use in nuclear weapons but is believed to be producing HEU for nuclear weapons as well. All states with a civilian nuclear industry are capable of producing fissile materials.

The International Panel on Fissile Materials compiles information on global stocks of fissile materials.

### Global stocks, 2021

<i>Highly enriched uranium</i>	~1 250 tonnes
In/available for weapons	1 100 tonnes
Not directly available <sup>a</sup>	145 tonnes
Not available (safeguarded)	10 tonnes
<i>Separated plutonium</i>	~545 tonnes
In/available for weapons	~140 tonnes
Not directly available <sup>a</sup>	~260 tonnes
Not available (safeguarded)	~145 tonnes

*Notes:* Totals are rounded to the nearest 5 tonnes.

<sup>a</sup> This material is not directly available for weapons but is unsafeguarded.

## Low levels of transparency

The availability of reliable information on the status of the nuclear arsenals and capabilities of the nuclear-armed states varies considerably. The USA, the UK and France have declared some information. Russia refuses to publicly disclose the detailed breakdown of its strategic nuclear forces, even though it shares the information with the USA. China releases little information about force numbers or future development plans. The governments of

## WORLD NUCLEAR FORCES, JANUARY 2022

State	Deployed warheads	Total stockpile	Total inventory
USA	1 744	3 708	5 428
Russia	1 588	4 477	5 977
UK	120	180	225
France	280	290	290
China	–	350	350
India	–	160	160
Pakistan	–	165	165
Israel	–	90	90
North Korea	–	20	20
<b>Total</b>	<b>3 732</b>	<b>9 440</b>	<b>12 705</b>

– = nil or negligible value.

*Notes:* All estimates are approximate. SIPRI revises its world nuclear forces data each year based on new information and updates to earlier assessments.

‘Deployed warheads’ are those placed on missiles or located on bases with operational forces. The deployed figures for Russia and the USA do not necessarily correspond to those in their 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START) declarations because of the treaty’s counting rules. ‘Total stockpile’ refers to all deployed warheads as well as warheads in central storage that could potentially be deployed after some preparation. ‘Total inventory’ includes stockpiled warheads plus retired warheads awaiting dismantlement. Some of the UK’s retired warheads will probably be reconstituted to become part of its increased stockpile over the coming years.

India and Pakistan make statements about some of their missile tests but provide no information about the status or size of their arsenals. North Korea has acknowledged conducting nuclear weapon and missile tests but provides no information about the size of its nuclear arsenal. Israel has a long-standing policy of not commenting on its nuclear arsenal. ●



## 11. NUCLEAR DISARMAMENT, ARMS CONTROL AND NON-PROLIFERATION

It was another difficult year for nuclear arms control and non-proliferation efforts. There was some positive news at the start of 2021, when Russia and the United States agreed to extend the 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START) for another five years. However, questions remained as to whether the five-year extension of New START would yield a replacement agreement before 2026, and the extent to which both old and new weapon systems would be covered in a follow-on treaty.

### Strategic security dialogues

Following a meeting between US President Joe Biden and Russian President Vladimir Putin, a joint statement proclaimed that ‘a nuclear war cannot be won and must never be fought’. This repeated a 1985 declaration by then leaders Ronald Reagan and Mikhail Gorbachev, and preceded a similar joint statement by China and Russia. After the US–Russian declaration, a bilateral strategic stability dialogue held in July and September came to play a central role in maintaining communication channels between the two countries.

While Russia and the USA agreed to discuss future arms control options as part of that dialogue, the bipartisan view in the USA is that, for nuclear arms control to be effective, China must be engaged. Following a November 2021 meeting between Chinese President Xi Jinping and US President Biden, the US national security advisor stated that China is willing to carry forward discussions on strategic stability. However, China’s official statements have

been more muted, reflecting some of the challenges to China’s participation in bilateral talks with the USA, much less trilateral talks with the USA and Russia.

### North Korea

The breakdown of the short-lived bilateral nuclear diplomacy between the Democratic People’s Republic of Korea (DPRK, or North Korea) and the USA since 2019 continued into 2021. Despite having announced in January 2020 that it would no longer observe its unilateral moratoriums on nuclear test explosions and test flights of long-range ballistic missiles that it had declared in 2018, North Korea conducted no such tests during 2021. However, it continued development of its shorter-range ballistic missiles.

### Iran and the Joint Comprehensive Plan of Action

The previously slow unravelling of the 2015 Joint Comprehensive Plan of Action (JCPOA) on Iran’s nuclear programme sped up in 2021. US sanctions remained in place and Iran stepped up its nuclear activities, notably by increasing the enrichment of uranium up to 60 per cent of the isotope uranium-235. Iran also began restricting International Atomic Energy Agency inspections authorized under the JCPOA for the first time. Despite the stated intent of both the USA and Iran to restore the JCPOA, the parties failed to reach an agreement in the seven rounds of negotiations that were held in 2021. Whether the JCPOA could still be revived remained an open question at the end of 2021.

### Treaty on the Prohibition of Nuclear Weapons enters into force

The 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) entered into



**AGGREGATE NUMBERS OF RUSSIAN AND US STRATEGIC OFFENSIVE ARMS UNDER NEW START, AS OF 5 FEB. 2011 AND 1 SEP. 2021**

Category	Treaty limit <sup>a</sup>	Russia			United States		
		Feb. 2011	Sep. 2021	Change	Feb. 2011	Sep. 2021	Change
Deployed ICBMs, SLBMs and heavy bombers	700	521	527	+6	882	665	-217
Nuclear warheads on deployed ICBMs, SLBMs and heavy bombers <sup>b</sup>	1 550	1 537	1 458	-79	1 800	1 389	-411
Deployed and non-deployed launchers of ICBMs, SLBMs and heavy bombers	800	865	742	-123	1 124	800	-324

ICBM = intercontinental ballistic missile; SLBM = submarine-launched ballistic missile.

<sup>a</sup> The treaty entered into force on 5 Feb. 2011. The treaty limits had to be reached by 5 Feb. 2018.

<sup>b</sup> Each heavy bomber, whether equipped with cruise missiles or gravity bombs, is counted as carrying only one warhead, even though the aircraft can carry larger weapon payloads.

force on 22 January 2021. It was described by the United Nations secretary-general as ‘an important step towards a world free of nuclear weapons’. The TPNW is the first treaty to establish a comprehensive ban on nuclear weapons, including their development, deployment, possession, use and threat of use. This prohibition has brought to the fore the tension between nuclear disarmament and nuclear deterrence: while civil society and many non-nuclear weapon states have welcomed the treaty, the nuclear weapon states and their allies view it as undermining the existing nuclear order based on the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT) and have not joined it.

The 10th Review Conference of the NPT was postponed due to the Covid-19 pandemic for a second year. The review conference, which is now scheduled to take place in August 2022, would have marked the 50th anniversary of the NPT’s entry into force and a quarter of a century since the treaty was indefinitely extended. The annual UN Conference on the Establish-

ment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction held its second annual session in November–December 2021, albeit without the participation of Israel.

**The Comprehensive Nuclear-Test-Ban Treaty**

Another milestone in 2021 was the 25th anniversary of the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT)—the international treaty that would ban all nuclear test explosions in all environments. While it has not yet entered into force, over the past quarter of a century the CTBT has established an international norm against nuclear testing, helped to slow down the development of nuclear weapon capabilities, and curbed significant radioactive contamination. Its unique international global monitoring network of stations and laboratories for treaty verification has strengthened the nuclear non-proliferation and disarmament regime and become an unmatched source of data and technical expertise. ●



## 12. CHEMICAL, BIOLOGICAL AND HEALTH SECURITY THREATS

### The continuing Covid-19 pandemic

By the end of 2021, the World Health Organization (WHO) reported over 286 million cases of Covid-19 worldwide and over 5.4 million recorded deaths. The actual numbers were likely to be considerably higher. The origins of the pandemic continued to be a politically divisive subject. A joint WHO–China report in March 2021 concluded that of four origin hypotheses the ‘most likely’ pathway was that the virus jumped from one animal species to another before infecting people. However, the report was heavily criticized and the WHO concluded that all theories remained open. A new WHO advisory group was established and is expected to play a vital role in the next phase of origin studies.

The impacts of the Covid-19 pandemic have shown that the international community needs to be much better prepared in responding to possible future pandemics. In December 2021 the World Health Assembly agreed to start a global process on a new international treaty to strengthen pandemic prevention, preparedness and response.

### Biological arms control

Meetings of experts and states parties under the 1972 Biological and Toxin Weapons Convention (BWC) that had been postponed due to the pandemic in 2020 were held in 2021. While these meetings revealed areas of broad agreement among states on how best to strengthen the BWC, they also demonstrated significant areas of disagreement, with broader geopolitical tensions among China, Russia and the

United States affecting the discussions. Finding sufficient common ground to successfully negotiate substantive outcomes at the Ninth Review Conference in 2022 will be challenging, but with each of the three states articulating plans that address issues of compliance, transparency and accountability there is potential for a workable compromise solution.

### Chemical arms control and disarmament

Disagreements within the framework of the BWC were largely mirrored in the 2021 discussions under the 1993 Chemical Weapons Convention (CWC). There were continuing efforts by a handful of actors to undermine and contest the authority and work of investigation teams of the Organisation for the Prohibition of Chemical Weapons (OPCW) and the United Nations. The chemical weapons investigations in Syria continued. Although no new instances of chemical weapons use were reported in 2021, from a total of 80 cases investigated so far, chemical weapons use has now been confirmed or is suspected in 20 cases. By the end of 2021, the OPCW said Syria’s declarations continued to contain ‘identified gaps, inconsistencies, and discrepancies’.

The poisoning of Russian citizen Alexei Navalny with a novichok nerve agent in August 2020 had still not been officially investigated or resolved by the end of 2021, and it continued to cause political tensions between Russia and several Western countries.

The USA is the only declared possessor state party to the CWC with chemical weapons yet to be destroyed. It is expected to complete its remaining destruction activities by the end of 2023. ●



### 13. CONVENTIONAL ARMS CONTROL AND REGULATION OF NEW WEAPON TECHNOLOGIES

The main multilateral treaty for regulating inhumane weapons—such as incendiary weapons, explosive weapons in populated areas (EWIPA), cluster munitions, landmines, improvised explosive devices and explosive remnants of war—is the 1981 Certain Conventional Weapons (CCW) Convention, alongside the 1997 Anti-Personnel Mine Convention and the 2008 Convention on Cluster Munitions. While progress in implementing the latter two treaties continued in 2021, a handful of states once again obstructed advances in most of the agenda at the Sixth Review Conference of the CCW Convention.

After many years of slow progress to address the humanitarian harm of EWIPA within the CCW framework, a separate process led by Ireland is aiming to develop a political declaration on their use. After delays related to Covid-19, the consultation process restarted in 2021 and a political declaration is expected to be adopted in 2022.

#### Autonomous weapon systems

Efforts to regulate autonomous weapon systems (AWS) have been led since 2017 by a group of governmental experts (GGE). The GGE's discussions in 2021 followed two tracks: on legal, ethical and military aspects of the development and use of AWS; and on AWS governance options. However, fundamental disagreements prevented the GGE from submitting substantive recommendations to the CCW review conference on these two tracks, as well as on a future GGE mandate. The review conference eventually adopted a less ambitious mandate for the GGE, allowing the dis-

#### THE 1992 TREATY ON OPEN SKIES

In November 2020 the United States withdrew from the 1992 Treaty on Open Skies, and in January 2021 Russia announced that it would do the same. After the Russian withdrawal came into effect in December 2021, most of the remaining parties to the treaty seemed determined to continue to implement it, although the longer-term future of the treaty remained uncertain.

cussions on AWS to continue within the CCW framework in 2022. But the lack of substantive progress may lead some states to seek alternative paths to achieving a legally binding instrument.

#### Governance of cyberspace

International efforts to control the malicious use of information and communications technology continued to be hindered by differing state preferences and ongoing geopolitical tensions. Nonetheless, 2021 was generally a productive year for cyber governance. The main state-driven efforts continued in 2021 within two parallel United Nations processes: a GGE and an open-ended working group (OEWG).

#### Developments in space security

Developments in space security in 2021 centred on three issues: continued development of offensive counterspace capabilities (with new reported tests by China and Russia); increased interest in lunar activities, including the development of two distinct international partnerships (one led by the United States and the other by China and Russia); and widespread support for new discussions on responsible behaviour in space in the UN General Assembly, including agreement to convene a consensus-based OEWG to move discussions forward. ●



## 14. DUAL-USE AND ARMS TRADE CONTROLS

During 2021, a range of global, multilateral and regional efforts sought to strengthen controls on the trade in conventional arms and dual-use items connected with conventional, chemical, biological and nuclear weapons and their delivery systems. Membership of the different international and multilateral instruments that seek to establish and promote agreed standards for the trade in arms and dual-use items remained unchanged. Under the administration of President Joe Biden, the United States engaged more fully in international and multilateral export control instruments and processes. However, tensions between the USA and China over US restrictions on transfers of dual-use items may further weaken the increasingly fragile international consensus on the use of multilateral export controls as non-proliferation tools.

### The Arms Trade Treaty

The Seventh Conference of States Parties to the 2013 Arms Trade Treaty (ATT) was held in a hybrid format in 2021. The thematic focus of the conference was strengthening efforts to eradicate the illicit trade in small arms and light weapons (SALW) and ensuring efficient stockpile management. Some problems that the ATT was already experiencing persisted, particularly a shortfall in compliance with mandatory reporting, a decline in the number of publicly available reports and a failure by many states parties to pay their required financial contributions. Additionally, restrictions related to Covid-19 meant that work in the newly established Diversion Information Exchange Forum could not begin.

## MULTILATERAL ARMS EMBARGOES IN FORCE, 2021

### *United Nations (13 embargoes)*

• Afghanistan (NGF, Taliban) • Central African Republic (partial; NGF) • Democratic Republic of the Congo (partial; NGF) • Iran (partial) • Iraq (NGF) • ISIL (Da'esh), al-Qaeda and associated individuals and entities • Korea, North • Lebanon (NGF) • Libya (partial; NGF) • Somalia (partial; NGF) • South Sudan • Sudan (Darfur) (partial) • Yemen (NGF)

### *European Union (21 embargoes)*

Implementations of UN embargoes (10):  
• Afghanistan (NGF, Taliban) • Central African Republic (partial; NGF) • Democratic Republic of the Congo (partial; NGF) • Iraq (NGF) • ISIL (Da'esh), al-Qaeda and associated individuals and entities • Korea, North • Lebanon (NGF) • Libya (partial; NGF) • Somalia (partial; NGF) • Yemen (NGF)

EU arms embargoes with broader coverage than their UN counterparts (3):

• Iran • South Sudan • Sudan

Embargoes with no UN counterpart (8):

• Belarus • China • Egypt • Myanmar • Russia • Syria • Venezuela • Zimbabwe

### *Arab League (1 embargo)*

• Syria

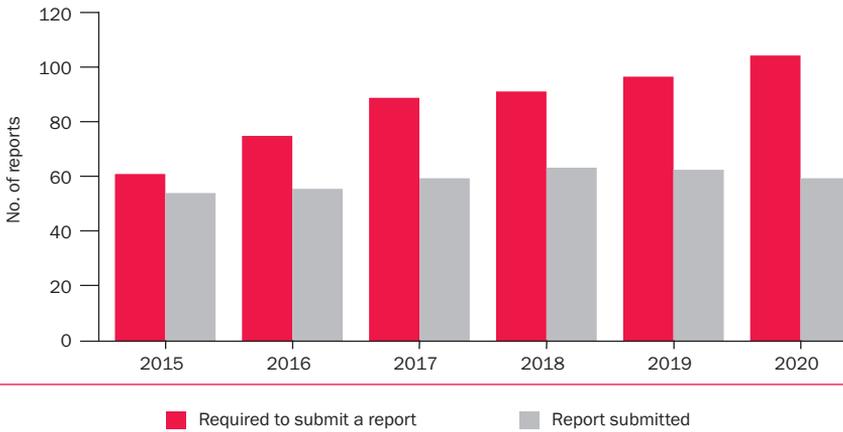
ISIL = Islamic State in Iraq and the Levant; NGF = non-governmental forces; partial = embargo allows transfers of arms to the government of the target state provided that certain conditions have been met.

### Multilateral arms embargoes

During 2021, 13 United Nations embargoes, 21 European Union (EU) embargoes and 1 League of Arab States embargo were in force. No new multilateral arms embargo was imposed. The level of international consensus around decisions about lifting and extending UN arms embargoes was greater in 2021 than in 2020. For example, the USA abandoned its attempt to reimpose



**NUMBER OF ARMS TRADE TREATY STATES PARTIES SUBMITTING ANNUAL REPORTS, 2015–20**



UN sanctions on Iran; and China and Russia voted in favour of the arms embargo on South Sudan, after having previously abstained. However, reports by UN panels and groups of experts continued to document numerous violations and some states—including China and Russia—sought to block the release of certain reports or to influence the work of the panels.

**Export control regimes**

Restrictions related to Covid-19 continued to affect the work of the four multilateral export control regimes—the Australia Group (AG, on chemical and biological weapons), the Missile Technology Control Regime (MTCR), the Nuclear Suppliers Group (NSG), and the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-use Goods and Technologies (WA). Only the NSG and the MTCR held annual plenary meetings, and the pandemic continued to limit decision making and discussion of political and technical topics, although small amendments were made to the control lists of the

AG, the MTCR and the WA. In November 2021 China secured the narrow adoption of a resolution in the UN General Assembly First Committee that criticized the use of national and multilateral export control measures for national security purposes.

**European Union controls**

To implement the four export control regimes in its single market, the EU has established a common legal basis for controls on exports of dual-use items, software and technology and, to a certain degree, military items. In 2021 the new version of the EU dual-use regulation entered into force and the EU and member states began work on clarifying how it will be implemented. Members of the European Parliament also launched an initiative aimed at increasing the role of EU institutions in arms export controls. The EU and the USA deepened their cooperation on export control issues in 2021, but underlying differences both within the EU and between the EU and the USA may limit the impact of these efforts. ●



### Arms control and disarmament agreements in force, 1 January 2022

- 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925 Geneva Protocol)
- 1948 Convention on the Prevention and Punishment of the Crime of Genocide (Genocide Convention)
- 1949 Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War; and 1977 Protocols I and II Relating to the Protection of Victims of International and Non-International Armed Conflicts
- 1959 Antarctic Treaty
- 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Partial Test-Ban Treaty, PTBT)
- 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty)
- 1967 Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco)
- 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT)
- 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof (Seabed Treaty)
- 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (Biological and Toxin Weapons Convention, BWC)
- 1974 Treaty on the Limitation of Underground Nuclear Weapon Tests (Threshold Test-Ban Treaty, TTBT)
- 1976 Treaty on Underground Nuclear Explosions for Peaceful Purposes (Peaceful Nuclear Explosions Treaty, PNET)
- 1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (Enmod Convention)
- 1980 Convention on the Physical Protection of Nuclear Material and Nuclear Facilities
- 1981 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects (CCW Convention, or 'Inhumane Weapons' Convention)
- 1985 South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga)
- 1990 Treaty on Conventional Armed Forces in Europe (CFE Treaty)
- 1992 Treaty on Open Skies
- 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, CWC)
- 1995 Treaty on the Southeast Asia Nuclear Weapon-Free Zone (Treaty of Bangkok)
- 1996 African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba)
- 1996 Agreement on Sub-Regional Arms Control (Florence Agreement)
- 1997 Inter-American Convention Against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials (CIFTA)
- 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (APM Convention)
- 1999 Inter-American Convention on Transparency in Conventional Weapons Acquisitions
- 2001 Protocol on the Control of Firearms, Ammunition and other related Materials in the Southern African Development Community (SADC) Region



- 2004 Nairobi Protocol for the Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa
- 2006 ECOWAS Convention on Small Arms and Light Weapons, their Ammunition and Other Related Materials
- 2006 Treaty on a Nuclear-Weapon-Free Zone in Central Asia (Treaty of Semipalatinsk)
- 2008 Convention on Cluster Munitions
- 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START)
- 2010 Central African Convention for the Control of Small Arms and Light Weapons, Their Ammunition and All Parts and Components That Can Be Used for Their Manufacture, Repair and Assembly (Kinshasa Convention)
- 2011 Vienna Document 2011 on Confidence- and Security-Building Measures
- 2013 Arms Trade Treaty (ATT)
- 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW)

**Agreements not yet in force,  
1 January 2022**

- 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT)
- 1999 Agreement on Adaptation of the CFE Treaty

**Security cooperation bodies**

Developments in 2021 included the following: Costa Rica became a member of the Organisation for Economic Co-operation and Development; Samoa became a member of the International Atomic Energy Agency; and Guinea, Mali and Sudan were suspended from the African Union, while Guinea and Mali were also suspended from the Economic Community of West African States, following military coups. ●

**CHRONOLOGY 2021, SELECTED  
EVENTS**

- 6 Jan. Supporters of outgoing United States President Donald J. Trump storm the US Capitol forcing the Congress to evacuate.
- 1 Feb. A coup in Myanmar removes Aung San Suu Kyi from power and restores military rule.
- 10 Mar. A unified government is formed in Libya for the first time since 2014.
- 28 Apr. Serious clashes occur over border disputes between Kyrgyzstan and Tajikistan in Central Asia.
- 15 May An Israeli airstrike destroys a high-rise office building in Gaza occupied by several media outlets as fighting between Israeli forces and Palestinians escalates.
- 10 June France announces a drawdown in the 5000 Operation Barkhane troops in Mali.
- 18 July An international investigation reveals that spyware is being used to target heads of state, along with thousands of activists, journalists and dissidents around the world.
- 15 Aug. The capital of Afghanistan, Kabul, is captured by the Taliban.
- 16 Sep. Australia, the United Kingdom and the USA jointly announce a new trilateral security partnership named AUKUS.
- 18 Oct. Russia announces that it will cease diplomatic engagement with the North Atlantic Treaty Organization (NATO).
- 1 Nov. The number of recorded deaths from Covid-19 surpasses 5 million.
- 12 Dec. The Group of Seven (G7) calls on Russia to de-escalate and pursue diplomatic channels as tensions between Russia and Ukraine grow.



## SIPRI DATABASES

### **SIPRI Military Expenditure Database**

Gives the annual military spending of countries since 1949, allowing comparison of countries' military spending in local currency at current prices; in US dollars at current prices; in US dollars at constant prices and exchange rates; and as a share of gross domestic product.

### **SIPRI Arms Industry Database**

Contains annual data on total revenue and revenue from arms sales and military services since 2002 for the 100 companies with the highest arms sales in the world. Data for Chinese companies is included for the years from 2015 onwards.

### **SIPRI Arms Transfers Database**

Shows all international transfers of major conventional arms since 1950. It is the most comprehensive publicly available source of information on international arms transfers.

### **SIPRI Arms Embargoes Database**

Gives information on all arms embargoes that have been implemented by an international organization, such as the European Union or the United Nations, or by a group of nations. All embargoes that are in force, or have been in force since 1998, are included.

### **SIPRI National Reports Database**

Provides links to all publicly accessible national reports on arms exports and is constantly updated to include links to newly published national reports on arms exports.

### **SIPRI Multilateral Peace Operations Database**

Offers information on all UN and non-UN peace operations conducted since 2000, including location, dates of deployment and operation, mandate, participating countries, number of personnel, budgets and fatalities.

The SIPRI databases can be accessed at the SIPRI website. ●



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**STOCKHOLM INTERNATIONAL  
PEACE RESEARCH INSTITUTE**

Signalistgatan 9  
SE-169 72 Solna, Sweden  
Telephone: +46 8 655 97 00  
Email: [sipri@sipri.org](mailto:sipri@sipri.org)  
Internet: [www.sipri.org](http://www.sipri.org)



# SIPRI YEARBOOK 2022

## Armaments, Disarmament and International Security

The SIPRI Yearbook is an authoritative and independent source of data and analysis on armaments, disarmament and international security. It provides an overview of developments in international security, weapons and technology, military expenditure, arms production and the arms trade, and armed conflicts and conflict management, along with efforts to control conventional, nuclear, chemical and biological weapons.

This booklet summarizes the 53rd edition of the SIPRI Yearbook, which covers developments during 2021, including

- *Armed conflict and conflict management*, with an overview of armed conflicts and peace processes across the Americas, Asia and Oceania, Europe, the Middle East and North Africa, and sub-Saharan Africa, as well as a focus on global and regional trends in peace operations
- *Military expenditure, international arms transfers and developments in arms production*
- *World nuclear forces*, with an overview of each of the nine nuclear-armed states and their nuclear modernization programmes
- *Nuclear arms control*, featuring developments in Russian–United States strategic dialogue, Iran’s nuclear deal and the multilateral nuclear arms control and disarmament treaties, including the entry into force of the Treaty on the Prohibition of Nuclear Weapons
- *Chemical and biological security threats*, including the impact of the Covid-19 pandemic, the investigation of allegations of chemical weapons use in Syria and developments in the international legal instruments against chemical and biological warfare
- *Conventional arms control*, with a focus on inhumane weapons and other conventional weapons of humanitarian concern, including efforts to regulate autonomous weapon systems and state behaviour in cyberspace and space, as well as developments in the Open Skies Treaty
- *Dual-use and arms trade controls*, including developments in the Arms Trade Treaty, multilateral arms embargoes and export control regimes, and review processes in the legal framework of the European Union for such controls

as well as annexes listing arms control and disarmament agreements, international security cooperation bodies, and key events in 2021.