

IV. The multilateral export control regimes

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The Australia Group (AG), 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 (Wassenaar Arrangement, WA) are the four main multilateral export control regimes.¹ The regimes are informal groups of participating states which agree on guidelines for the implementation of export controls on goods and technologies in the areas of chemical and biological weapons, missiles and other weapon of mass destruction (WMD) delivery systems, nuclear fuel cycle technologies and nuclear weapons, and conventional arms and dual-use goods and technologies (table 12.3). Within each regime the participating states coordinate trade controls and related policies, share good practices on their implementation, and exchange information on proliferation cases, illicit acquisition attempts and licence denials, and in some cases licences granted.

The participating states continuously update the regimes' control lists and discuss relevant technological developments. The regimes create important forums for exchanges among national policy and licensing officials, technical experts, and enforcement and intelligence officers. Notably, the participating states take all decisions in the regimes by consensus, and the resulting guidelines, control lists and good practice documents are politically rather than legally binding. Each participating state implements regime-prescribed trade controls and policies through national laws and their respective national export control systems—as do an increasing number of non-participating states.

While the Covid-19 pandemic continued in 2022, all multilateral export control regimes were able to return to in-person plenary meetings. However, rather than all regimes being able to resume normal operations, Russia's invasion of Ukraine in February 2022 severely impacted the MTCR, NSG and WA, where both Russia and Ukraine are members. As was the case with other multilateral bodies whose members included Russia and Western powers, accusations connected to the conflict were exchanged. The invasion also sparked debates about the long-term viability of both the regimes and Russia's continued membership. The AG is the only regime in which Russia is not a member, and it adopted language strongly condemning Russia's actions. An additional layer of complexity arose when the United States, the European Union (EU) and other like-minded states supporting Ukraine

¹ For brief descriptions and lists of the participating states in each of these regimes see annex B, section III, in this volume.

Table 12.3. The four multilateral export control regimes

Regime (year established)	Scope	No. of participants ^a	2022 plenary chair	2022 plenary
Australia Group (1985)	Equipment, materials, technology and software that could contribute to chemical and biological weapon activities	43	Australia	Paris, 4–8 July 2022
Missile Technology Control Regime (1987)	Unmanned aerial vehicles capable of delivering weapons of mass destruction	35	Switzerland	Montreux, 17–21 Oct. 2022
Nuclear Suppliers Group (1974)	Nuclear and nuclear-related materials, software and technology	48 ^b	Poland ^c	Warsaw, 20–24 June 2022
Wassenaar Arrangement (1996)	Conventional arms and dual-use items and technologies	42	Ireland	Vienna, 30 Nov.– 1 Dec. 2022

^aParticipant numbers are as of 31 December 2022. For lists of participants see annex B, section III, in this volume.

^bIn addition, the European Union and the chair of the Zangger Committee are permanent observers of the Nuclear Suppliers Group (NSG).

^cThe NSG changed its procedures so that participating states host a plenary at the end of their period as chair. At the 2022 NSG plenary, Poland handed the chair over to Argentina for the 2022–23 period.

Sources: Australia Group; Missile Technology Control Regime; Nuclear Suppliers Group; and Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-use Goods and Technologies.

adopted a series of trade restrictions against Russia which used the control lists of the regimes as part of the basis for the lists of restricted dual-use goods and technologies (see section III in this chapter).

The Australia Group

The AG provides a forum for participating states to coordinate and harmonize export controls on chemical and biological weapons and related dual-use goods and technologies. The AG participating states seek to reduce the risk of contributing to the proliferation of chemical and biological weapons.² An initiative by Australia in 1985 led to the creation of the AG. A United Nations investigation had found that chemical weapons used in the 1980–88 Iran–Iraq War had been produced using precursor chemicals, equipment and materials procured from several Western states.³ This created significant momentum

² Australia Group, ‘The Australia Group: An introduction’; and Australia Group, ‘Objectives of the Group’.

³ Australia Group, ‘The origins of the Australia Group’.

for strengthening trade control measures for the non-proliferation of chemical weapons. While the initial focus of the AG was on chemical weapons and precursors, its coverage has since significantly expanded to include biological weapons and a wider range of equipment, materials and technology relevant to the development, production and use of chemical and biological weapons.⁴ The AG is permanently chaired by Australia, which also runs an informal secretariat situated within the Australian Department of Foreign Affairs and Trade.

The AG has 43 participants, including the EU which is a member with full voting rights. While the number of participants has increased from 18 in 1985, membership growth has largely stagnated since the 2010s. The only new participating states in the last 10 years were Mexico (2013) and India (2018).⁵ The AG encourages states not participating in the regime to become AG adherents by notifying the chair of their 'political commitment to adhere' to the guidelines and common control lists. It offers adherents access to additional information and assistance from AG participating states. Kazakhstan is the only state that has submitted the required notification, but in 2022 Chile announced its intention to become an adherent.⁶

On 4–8 July 2022, in Paris, the AG held its first in-person annual plenary meeting since 2019, at which it continued discussing technical issues. The licensing and enforcement experts meeting (LEEM) discussed good practices in preventing the proliferation of dual-use items, with a particular focus on preventing unauthorized intangible technology transfers (ITT) and informing industry and academia about ITT risks. Technical experts discussed emerging technologies, including synthetic biology and novel delivery systems.⁷ The participants added new items to, and removed items from, the AG's control lists, with changes including adjustments to certain pathogens according to their taxonomy, addition of four marine toxins, and the deletion of cholera toxin from the lists.⁸ The AG also continued its practice of inviting several guest speakers to address the plenary, including on dual-use risks of drug discovery using artificial intelligence and the use of blockchain technology to track and trace dual-use chemicals.⁹

The Australia Group chair and head of secretariat resumed outreach efforts, in particular by way of participation in international meetings, including the Asian Export Control Seminar on 15–17 February and the European Union

⁴ Australia Group, 'The origins of the Australia Group' (note 3).

⁵ Australia Group, 'Australia Group participants'.

⁶ Australia Group, 'Australia Group adherents'; and Australia Group, Statement by the chair of the 2022 Australia Group Plenary, 8 July 2022, para. 23.

⁷ Australia Group, Statement by the chair of the 2022 Australia Group Plenary (note 6), paras 15–17.

⁸ Australia Group, 'Australia Group Common Control Lists'.

⁹ For the work the subject of these presentations see, respectively, Urbina, F. et al., 'Dual use of artificial-intelligence-powered drug discovery', *Nature Machine Intelligence*, no. 4 (Mar. 2022); and Stimson Center, 'MATCH prototype'.

Partner-to-Partner (EUP2P) programmes' third dialogue on export control governance in October 2022.¹⁰

The Missile Technology Control Regime

The MTCR seeks to prevent the proliferation of missiles and other uncrewed delivery systems capable of delivering chemical, biological or nuclear (CBN) weapons. It was created in 1987 by the Group of Seven (G7) largest industrialized states with the objective of contributing to preventing the proliferation of nuclear weapons by creating harmonized export controls on goods and technologies related to missiles capable of carrying such weapons.¹¹ Since then, the scope of the MTCR has expanded to include ballistic and cruise missiles, and all uncrewed aerial vehicles (UAVs) capable of delivering CBN weapons.¹² Category I of the MTCR control list covers missiles and UAVs 'capable of delivering a payload of at least 500 kg to a range of at least 300 km', or destined to be used to deliver CBN weapons. The MTCR participating states—referred to as 'the partners'—should exercise an 'unconditional strong presumption of denial' for transfers of items covered by Category I and should only diverge from this on 'rare occasions'.¹³ Category II covers missiles and UAVs with a maximum range of at least 300 km and a wide range of less-sensitive and dual-use goods, materials and technologies for missile, UAV and space-launch applications.¹⁴ Transfers of these items are subject to case-by-case licensing decisions by partner governments and to a strong presumption of denial if they are 'intended for use in WMD delivery'.¹⁵

The membership of the MTCR has grown from 7 to 35 participating states, but has not increased since the 2016 admission of India. Several applications are pending.¹⁶ In 2014 the MTCR introduced a formalized system for non-partner states to be recognized as 'adherents' to the MTCR guidelines and control lists. The MTCR encourages all states to submit declarations of adherence to the MTCR point of contact, run by France. The regime also provides incentives for becoming an adherent, including invitations to technical outreach meetings, briefings on control list changes, meetings with the MTCR chair and access to some presentations from the MTCR LEEM.¹⁷

¹⁰ Government of Japan, The 28th Asian Export Control Seminar; and the author participated as a keynote speaker in the EUP2P Third Dialogue on Export Control Governance in Brussels on 25–26 Oct. 2022.

¹¹ Missile Technology Control Regime, 'Frequently asked questions (FAQs)'. The G7 states are Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

¹² Missile Technology Control Regime, 'Frequently asked questions (FAQs)' (note 11).

¹³ Missile Technology Control Regime, 'Frequently asked questions (FAQs)' (note 11).

¹⁴ Missile Technology Control Regime, 'MTCR Guidelines and the Equipment, Software and Technology Annex'.

¹⁵ Missile Technology Control Regime, 'Frequently asked questions (FAQs)' (note 11).

¹⁶ Missile Technology Control Regime, 'Partners'.

¹⁷ Missile Technology Control Regime, 'Adherence policy'.

However, since the creation of the adherent status, only three states have unilaterally declared their adherence: Estonia, Kazakhstan and Latvia.

The 2022 plenary of the MTCR took place according to the normal schedule, and with full participation from all partners, on 17–21 October 2022 in Montreux, hosted by Switzerland. The work of the MTCR was particularly affected by Russia's actions in Ukraine since Russia held the annually rotating chair when it began its invasion in February 2022. Most partners, including the chairs and co-chairs of the regime sub-groups, ceased their collaboration with the Russian chair, for example on outreach activities. Nevertheless, exchanges among the experts continued on the technical level both intersessionally and at the plenary where Switzerland assumed the role as chair for the 2022–23 period.

One topic of particular focus at the plenary was NewSpace and the missile non-proliferation and export control challenges associated with the commercial space industry.¹⁸ The technical experts meeting (TEM), the LEEM and the information exchange meeting (IEM) discussed the topic in a joint meeting and SIPRI presented relevant research during a side-event co-organized with Switzerland and Germany.¹⁹ The partners agreed on a small number of editorial changes and clarifications for items in the Equipment, Software and Technology Annex.²⁰ However, the partners failed to agree on a public statement. Instead, the Swiss chair first issued a short statement to mark the occasion of the 35th anniversary of the MTCR, and later, in December, the chair's report on the plenary.²¹

The Russian chair conducted a series of official MTCR outreach missions during 2022, even after Russia's invasion of Ukraine—albeit largely without the participation of sub-group chairs and very limited participation from Western MTCR partners. The Russian chair conducted outreach visits to Belarus on 2–3 March, the United Arab Emirates on 24 May, Viet Nam on 26–27 May, Mexico on 24 August and Pakistan in September 2022.²² The MTCR chair and sub-group chairs also participated in conferences, workshops and other activities upon invitation by international organizations, states and think

¹⁸ See e.g. Brockmann, K. and Raju, N., *NewSpace and the Commercialization of the Space Industry: Challenges for the Missile Technology Control Regime* (SIPRI: Stockholm, Oct. 2022).

¹⁹ Missile Technology Control Regime, Report by the MTCR chair: Plenary meeting in Montreux, Switzerland, October 2022, 21 Dec. 2022.

²⁰ Missile Technology Control Regime, 'Equipment, Software and Technology Annex' [Current version, showing changes from previous version], 21 Oct. 2022.

²¹ Missile Technology Control Regime, Message on the occasion of the 35th anniversary of the MTCR, 8 Nov. 2022 (Updated on 21 Dec. 2022); and Missile Technology Control Regime, Report by the MTCR Chair: Plenary meeting in Montreux, Switzerland, October 2022 (note 19).

²² MTCR (@MTCR_Chair), Twitter, 3 Mar. 2022, <https://twitter.com/MTCR_Chair/status/1499449199422849037>; MTCR (@MTCR_Chair), Twitter, 30 May 2022, <https://twitter.com/MTCR_Chair/status/1531167003150540800>; MTCR (@MTCR_Chair), Twitter, 1 Sep. 2022, <https://twitter.com/MTCR_Chair/status/1565218373163704325>; and MTCR (@MTCR_Chair), Twitter, 8 Sep. 2022, <https://twitter.com/MTCR_Chair/status/1567733418615619586>.

tanks as part of their outreach work. The Russian chair also participated in a workshop organized by the International Institute for Strategic Studies in Berlin in early February—prior to the invasion.²³

The Nuclear Suppliers Group

The NSG seeks to contribute to the non-proliferation of nuclear weapons by implementing guidelines for export controls on transfers of nuclear and nuclear-related material, equipment, software and technology. It was established as the ‘London Club’ of seven major nuclear supplier states in reaction to India’s first nuclear test in 1974, the first explosion of a nuclear weapon by a state not recognized as a nuclear-weapon state by the Treaty on the Non-proliferation of Nuclear Weapons (NPT).²⁴ Initially, the NSG participants created a set of guidelines incorporating a list of items triggering International Atomic Energy Agency safeguards with a slightly different scope than the list previously created by the Zangger Committee. Between 1978 and 1991, the NSG was largely inactive. However, following recommendations adopted at the 1990 NPT review conference, the 1992 NSG plenary established guidelines for transfers of nuclear-related dual-use equipment, material and technology, an information exchange, an exchange of denial notifications, and a requirement for a full-scale safeguards agreement to trigger list item recipients.²⁵ The NSG currently has 48 participating governments and the European Commission and the chair of the Zangger Committee have permanent observer status. No state has joined the group since 2013.²⁶

In 2022 the NSG held its annual plenary in Warsaw on 20–24 June, hosted by the outgoing Polish chair. The plenary marked the 30th anniversary of the first regular plenary meeting of the NSG, also held in Warsaw in 1992. As with the other regimes where Russia and Ukraine are participating governments, the NSG plenary could not find consensus on a public statement to be adopted. However, despite the inability to agree on a consensus statement, the participating governments completed the three-yearly fundamental review of Information Circular 539 on the NSG’s guidelines, origins, structure and role, adding to the record decisions on an explanatory video about the NSG and on the new timing of NSG plenaries at the end of a chair’s term.²⁷

²³ MTCR (@MTCR_Chair), Twitter, 22 Feb. 2022, <https://twitter.com/MTCR_Chair/status/1496077979151220738>.

²⁴ Nuclear Suppliers Group, ‘About the NSG’.

²⁵ International Atomic Energy Agency, Communication received from the Permanent Mission of the Argentine Republic to the International Atomic Energy Agency on behalf of the participating governments of the Nuclear Suppliers Group, Information Circular 539 (revised), INFCIRC/539/Rev.8, 28 July 2022.

²⁶ Nuclear Suppliers Group, ‘Participants’.

²⁷ International Atomic Energy Agency, INFCIRC/539/Rev.8 (note 25), paras 34–35.

The participating governments also agreed on two small technical changes to the control list in the annex to NSG Guidelines Part 2, aligning the coverage of flow-forming machines that can be used to produce gas centrifuge rotors and the dimensions of such rotors with the controlled parameters of gas centrifuges.²⁸ The incoming Argentinian chair outlined the objectives for the 2022–23 period as continuing ‘the valuable technical work of the NSG in the spirit of a constructive multilateral approach’ and a specific interest in ‘transit and transshipment issues’.²⁹ The Argentinian chair, together with Denmark and the UK, organized a side event at the 10th review conference of the Treaty on the Non-proliferation of Nuclear Weapons (see chapter 8 section II) on 18 August 2022, highlighting the important linkage between the two instruments.³⁰

The Wassenaar Arrangement

The Wassenaar Arrangement is the main multilateral export control regime concerned with conventional weapons and a wide range of dual-use goods and technologies. It was created in 1996 as the successor to the cold war-era Coordinating Committee for Multilateral Export Controls (COCOM) through which Western states imposed restrictions on transfers of military equipment and dual-use items to the Eastern bloc. The creation of the WA marked a move away from the COCOM’s approach of using export controls to target a specific group of adversarial states. Rather, the WA participating states aim to prevent transfers that contribute to ‘destabilising accumulations’ of conventional weapons and dual-use goods and technologies that could threaten international and regional security and stability. The scope of the WA was later expanded to preventing transfers to terrorists. Through the WA the participating states also aim to promote ‘transparency and greater responsibility’ in the transfers of conventional arms and dual-use goods and technologies. As of the end of 2022, 42 states were participating in the WA, which has not expanded since the admission of India in 2017.³¹

The WA returned to convening a regular annual plenary in 2022, which took place on 30 November and 1 December in Vienna. The work of the WA was also affected by Russia’s invasion of Ukraine. However, because the WA issues a ‘chair’s statement’ rather than a consensus statement at the end of its regular annual plenary, in contrast to the MTCR and the NSG, it was able to

²⁸ International Atomic Energy Agency, Communication received from the Permanent Mission of the Argentine Republic to the International Atomic Energy Agency regarding certain member states’ guidelines for transfers of nuclear-related dual-use equipment, materials, software and related technology, Information Circular 245 (revised), INFCIRC/254/Rev.12/Part 2a, 29 July 2022.

²⁹ Nuclear Suppliers Group, ‘Chair’s corner’.

³⁰ United Nations, ‘Tenth Non-Proliferation of Nuclear Weapons (NPT) review conference side events organized by states parties’.

³¹ Wassenaar Arrangement, ‘About us’, Updated 17 Dec. 2020.

report on its plenary using the usual channel. Notably, according to the WA secretariat, the WA managed to continue technical discussions during the Covid-19 pandemic during 2020–21, both in person and via videoconferences, and continues to be committed to its core technical work despite the current geopolitical situation.³²

WA participating states submitted 105 national proposals as part of the 2022 review of the WA control lists. The WA agreed on a series of changes to its dual-use goods and technologies and munitions list, including updates on existing controls of high-performance digital computers, certain types of lasers, submunitions and grenades, aircraft ground equipment, navigational satellite jamming equipment and inertial measurement equipment.³³ New entries were created for certain permanent magnet electric propulsion motors for submarine propulsion, including rim-driven motors, and for supersonic flight technology. The WA also removed the validity notes from previously created entries for sub-orbital craft, lawful interception technology and digital investigation tools.³⁴ The WA continues to discuss several proposals for possible future controls on emerging technologies, including quantum technologies, additive manufacturing, communications interception and UAV jamming, and will likely require more time to reach consensus irrespective of the geopolitical situation.³⁵ The WA also continued the process of updating its best practice materials, publishing new versions of the best practices for exercising extreme vigilance regarding Very Sensitive List items and its consolidated indicative list of end-user assurances commonly used.³⁶

At the end of 2022, Ireland handed over the plenary chair to India, marking the first time India has assumed the chair of one of the regimes. Argentina and Mexico assumed the respective chairs of the general working group and the expert group, and Switzerland continued to chair the LEEM. In addition, the WA participating states appointed Ambassador György Molnár of Hungary to succeed Ambassador Philip Griffiths of New Zealand as Head of Secretariat of the WA from January 2023.³⁷

In September 2022, the WA chair and secretariat briefed the UN disarmament fellows during their visit to the WA, and in November the secretariat briefed the participants in the Scholarship for Peace and Security

³² Fleuriot, V., Presentation delivered at the EUP2P Third Dialogue on Export Control Governance, Brussels, 25 Oct. 2022.

³³ Fleuriot (note 32).

³⁴ Wassenaar Arrangement, Statement issued by the plenary chair, Vienna, 1 Dec. 2022.

³⁵ Wassenaar Arrangement, Secretariat, Presentation delivered during the EUP2P Third Dialogue on Export Control Governance, Brussels, 25 Oct. 2022.

³⁶ Wassenaar Arrangement, 'Extreme vigilance: Sub-set of tier 2 (VSL) items "best practices"', 1 Dec. 2022; and Wassenaar Arrangement, 'End-user assurances commonly used: Consolidated indicative list', 1 Dec. 2022.

³⁷ Wassenaar Arrangement, Statement issued by the plenary chair (note 34), p. 2.

programme.³⁸ The WA reported that it had continued expert-level informal technical contacts with the MTCR and the NSG on issues of common interest.³⁹

Conclusions

The impact of the global Covid-19 pandemic on the operation of the multilateral export control regimes progressively subsided in 2022, enabling all regimes to return to in-person plenary meetings at the usual time. However, Russia's invasion of Ukraine further disrupted the fragile political agreement in the regimes and in many cases prevented consensus statements being issued. Limited progress on control list updates were nevertheless made by all regimes, with participating states stressing the importance of the regimes' technical work. Regime membership continues to stagnate and interest in the regime adherence procedures continues to be low, with the notable exception of Chile's move to declare adherence to the AG.

Criticism continues to be levelled against the regimes by commentators, particularly from the United States, claiming that they are outdated and failing to deliver results, particularly when it comes to keeping pace with developments in the field of emerging technologies.⁴⁰ Russia's invasion of Ukraine and the speed and breadth of the trade restrictions imposed by Western states were also highlighted as legitimizing calls for the regimes to be replaced or supplemented by other arrangements.⁴¹ However, these criticisms often mix objectives linked to geopolitical competition and national security with the non-proliferation and international stability objectives of the regimes. All regimes actively work to address relevant emerging technologies, albeit at a slow pace—due not only to lack of agreement, but also the inherent difficulty of creating adequate list-based controls for emerging technologies where the listings do not become obsolete quickly. The standoff between Russia and other participating states will make the work of the regimes more challenging but have clearly not—to date—made their work impossible or prevented additions and changes to the control lists. Whether this continues to be the case will depend both on the course of the conflict and the wider development of multilateral cooperation on non-proliferation and arms control.

³⁸ Wassenaar Arrangement, 'Outreach', Updated 1 Dec. 2022.

³⁹ Wassenaar Arrangement, Statement issued by the plenary chair (note 34), p. 2.

⁴⁰ See e.g. Shivakumar, S., Wessner, C. and Uno, H., 'Toward a new multilateral export control regime', Center for Strategic and International Studies (CSIS), 10 Jan. 2023.

⁴¹ Wolf, K. and Weinstein, E. S., 'COCOM's daughter?', *WorldECR*, no. 109 (May 2022); and Lewis, J. A., 'Notes on creating an export control regime', CSIS, 15 Dec. 2022.