III. 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 14.3). 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 discuss technological developments and emerging technologies to continuously update the control lists defining relevant items that should be subject to controls. Through these functions, the regimes create important forums for exchanges among national policy and licensing officials, technical experts, and enforcement and intelligence officers—including across geopolitical divides. 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. Despite the exclusive and non-binding nature of the regimes, their guidelines and control lists have been adopted by or adapted into the national export control systems of a large and increasing number of non-participating states—effectively creating international standards.[2]

In 2021 the Covid-19 pandemic continued to significantly affect the work of the regimes. Differences in the public health situation and related restrictions in the participating states, and the timing and severity of infection waves, meant that some of the regimes were more affected than others at the scheduled times of their annual plenary meetings and during their intersessional work. Restrictions on international travel and in-person meetings prevented the annual plenaries of the AG and the WA from taking

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

[2] Bauer, S., 'Main developments and discussions in the export control regimes', *Literature Review for the Policy and Operations Evaluations Department of the Dutch Ministry of Foreign Affairs: Final Report* (SIPRI: Stockholm, Aug. 2017), p. 62.

place, while the NSG and MTCR plenaries did go ahead, albeit often with smaller delegations and, in the case of the MTCR, fewer states attending. The pandemic largely prevented the regimes from making progress on possible reform efforts and addressing structural and operational challenges.

In addition to these internal challenges, the effectiveness and legitimacy of the regimes were called into question by a range of external developments and initiatives. The United States and the European Union (EU) continued to identify emerging technologies and specific items that may warrant additional controls, including, so far mainly by the USA, expanded national controls. They also deepened their bilateral engagement on possible export controls outside of the regimes, particularly concerning controls based on national security and human rights reasons (see section IV in this chapter).[3] Nevertheless, the EU and the USA also continued to stress the importance of the regimes and their ongoing commitment to complying with their guidelines and principles. The EU in particular emphasized the primary role of the regimes in agreeing and harmonizing export controls. In the context of rising geopolitical tensions, much of the motivation of the USA behind these initiatives is building support for tighter restrictions on transfers of dual-use items to China. While China continues to comply with NSG principles and claims to adhere to the MTCR guidelines, it has been vocal in opposing EU and US initiatives outside of the regimes.[4] In November 2021 China secured the narrow adoption of a resolution in the United Nations General Assembly First Committee that took aim at the use of national and multilateral export control measures for national security purposes. The resolution noted 'with concern that undue restrictions on exports to developing countries of materials, equipment and technology, for peaceful purposes persist'.[5] In contrast, as part of the reform of its export control law, China also introduced controls based on national security rationales and reciprocal measures.[6]

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-

[3] US Department of Commerce, Bureau of Industry and Security, 'Advance notice of proposed rulemaking: Review of controls for certain emerging technologies', *Federal Register*, vol. 83, no. 223 (19 Nov. 2018); Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (recast), *Official Journal of the European Union*, L206, 11 June 2021; and European Commission, 'EU–US launch Trade and Technology Council to lead values-based global digital transformation', Press release, 15 June 2021.

[4] Xinhua, 'White paper: China's export controls', *Global Times*, 29 Dec. 2021.

[5] UN General Assembly Resolution 76/234, 24 Oct. 2021, Preamble.

[6] Congressional Research Service, 'China issues new export control law and related policies', Insight paper no. 11524, 26 Oct. 2020.

Table 14.3. The four multilateral export control regimes

Regime (year established)	Scope	No. of participants[a]	2021 plenary chair	2021 plenary status
Australia Group (1985)	Equipment, materials, technology and software that could contribute to chemical and biological weapons activities	43	Australia	Cancelled
Missile Technology Control Regime (1987)	Unmanned aerial vehicles capable of delivering weapons of mass destruction	35	Russia	Sochi, 4–8 October 2021
Nuclear Suppliers Group (1974)	Nuclear and nuclear-related materials, software and technology	48[b]	Belgium[c]	Brussels, 22–25 June 2021
Wassenaar Arrangement (1996)	Conventional arms and dual-use items and technologies	42	Hungary	Cancelled

[a] Participant numbers are as of 31 December 2021.

[b] In addition, the European Union and the chair of the Zangger Committee are permanent observers of the Nuclear Suppliers Group.

[c] The Nuclear Suppliers Group changed its procedures so that participating states host a plenary at the end of their period as chair. At the 2021 NSG plenary Belgium handed the chair over to Poland for the 2021–22 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.

use goods and technologies. In doing so, the AG seeks to reduce the risk of contributing to the proliferation of chemical and biological weapons.[7] The AG was created in 1985 upon an initiative by Australia. At the time there was significant momentum for strengthening trade control measures for the non-proliferation of chemical weapons after a UN investigation 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.[8] While the initial focus of the AG was consequently 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.[9] 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 considerably

[7] Australia Group, 'The Australia Group: An introduction', [n.d.]; and Australia Group, 'Objectives of the Group', [n.d.].

[8] Australia Group, 'The origins of the Australia Group', [n.d.].

[9] Australia Group (note 8).

from the original 18 in 1985, membership growth has largely stagnated, with the AG only admitting 2 new participating states in the last 10 years—Mexico (2013) and India (2018).[10] 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. The AG offers adherents access to additional information and assistance from AG participating states. Kazakhstan is the only state which has submitted the required notification.[11]

During 2021, the AG did not hold its regular annual plenary meeting in Paris, marking the second year in a row during which the regime did not convene its main decision-making body. In contrast to the other multilateral export control regimes, the AG did not issue any public statements or updates in any form on the continued implementation of its work in 2021. Despite consensus reached among the AG participating states in 2020 on resuming some of its official meetings in a virtual format, there was no reporting on any such meetings in 2021. The AG adopted one minor change to the Control List of Dual-use Biological Equipment and Related Technology and Software by adding a control on 'software designed for' already controlled nucleic acid assemblers and synthesizers.[12]

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 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.[13] 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.[14] The MTCR's restrictive Category I 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'.[15] Category II covers missiles and UAVs with a maximum range

[10] Australia Group, 'Australia Group participants', [n.d.].
[11] Australia Group, 'Australia Group adherents', [n.d.].
[12] Australia Group, 'Control list of dual-use biological equipment and related technology and software', 16 Aug. 2021.
[13] Missile Technology Control Regime, 'Frequently asked questions (FAQs)', [n.d.]. The G7 states are Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.
[14] Missile Technology Control Regime (note 13).
[15] Missile Technology Control Regime (note 13).

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.[16] Partner governments should make transfers of such items subject to case-by-case licensing decisions and to a strong presumption of denial if they are 'intended for use in WMD delivery'.[17]

The membership of the MTCR has grown from the Group of Seven (G7) largest industrialized states to 35 participating states. Although several pending applications have been acknowledged in MTCR public statements—albeit without identifying the applying states—the regime's membership has not increased since the 2016 admission of India.[18]

Since 2014 the MTCR has had a formalized system for non-partner states to be recognized as 'adherents' to the MTCR guidelines and control lists. The MTCR invites all states to submit declarations of adherence and incentivizes becoming an adherent with invitations to technical outreach meetings, briefings on control list changes, meetings with the MTCR chair and access to some presentations from the MTCR Licencing and Enforcement Experts Meeting (LEEM).[19] However, since the creation of the adherent status, only three states have unilaterally declared their adherence: Estonia, Kazakhstan and Latvia. In 2021 no additional states declared their adherence.

The 2020 MTCR plenary meeting was set to take place in Innsbruck and had originally been postponed to March 2021, but the continued impact of the Covid-19 pandemic meant it had to be cancelled again. The partners did not find consensus on further postponing the 2020 plenary, with concerns including those from the incoming Russian chair that it would mean moving two plenaries too close together. As a result, Austria was unable to host a plenary during its chairship although informal consultations among some of the partners continued. The 2021 MTCR plenary took place according to the regular plenary schedule, from 4–8 October in Sochi, Russia, where Austria handed over the chair to Russia. However, officially due to national travel restrictions affecting many partners and concerns over the public health situation in Russia, several partners were unable or chose not to send a delegation, while many others only sent smaller delegations.[20] This also meant that discussions of a US proposal to change the parameters based on which UAVs are covered by Category I—and the USA's unilateral adoption of this change at the national level in 2020—were postponed again.[21]

[16] Missile Technology Control Regime, 'MTCR Guidelines and the Equipment, Software and Technology annex', [n.d.].

[17] Missile Technology Control Regime (note 13).

[18] Missile Technology Control Regime, 'Partners', [n.d.]; and Missile Technology Control Regime, 'Public statement from the plenary meeting of the Missile Technology Control Regime, Sochi, 8 October 2021', 26 Oct. 2021.

[19] Missile Technology Control Regime, 'Adherence policy', [n.d.].

[20] Regime delegate, Interview with the author, 27 Aug. 2021.

[21] Kimball, D. G., 'US reinterprets MTCR Rules', Arms Control Association, Sep. 2020.

As in the previous year, the Information Exchange Meeting (IEM) and the LEEM discussed 'ballistic missile developments and tests', 'proliferation trends and procurement activities', acquisition strategies, 'risks and challenges posed by intangible technology transfers', 'catch-all controls', 'transit and trans-shipment issues', 'outreach to industry' and 'national experiences to strengthen export control enforcement'.[22]

The MTCR plenary in Sochi adopted only minimal changes to the MTCR's Equipment, Software and Technology Annex, adding 'algorithms' and 'tables' to the list of examples provided of what can constitute controlled 'technical data' according to the Annex, and implementing several editorial changes.[23]

In the final days of the Austrian chairship, in September 2021 the Austrian chair conducted the MTCR's first outreach visit to Mexico.[24] The visit included a customs demonstration at Mexico City's airport. Following the handover of the MTCR chair to Russia, the Russian chair carried out the MTCR's eighth outreach mission to Kazakhstan in November 2021.[25]

The Hague Code of Conduct against Ballistic Missile Proliferation

The Hague Code of Conduct against Ballistic Missile Proliferation (HCOC) is a multilateral transparency and confidence-building measure covering ballistic missile and space-launch vehicle policies and activities.[26] It originated from discussions within the framework of the MTCR in 2002 but was created as an independent politically binding instrument that complements the MTCR in its goal of missile non-proliferation.[27] The HCOC is open for subscription by all states and currently counts 143 subscribing states. In 2021, no additional states subscribed to the HCOC.[28]

The HCOC is a political commitment by subscribing states to implement a set of transparency and confidence-building measures. Subscribing states commit to providing annual declarations on their national ballistic missile and space-launch vehicle programmes and policies. They also exchange pre-launch notifications on launches and test flights of ballistic missiles and

[22] Missile Technology Control Regime, 'Public statement from the plenary meeting of the Missile Technology Control Regime, Sochi, 8 October 2021' (note 18).

[23] Missile Technology Control Regime, 'Equipment, Software and Technology annex' [Current version, showing changes from previous version], 8 Oct. 2021.

[24] MTCR, @MTCR Chair, 'My gratitude goes to our Mexican colleagues for warmly welcoming us to the first outreach Meeting with @Mexico. Their excellent presentations and engaging questions manifested Mexico's high commitment and capacity. Looking forward to remain in contact with #Mexico. #MTCR', Twitter, 29 Sep. 2021.

[25] MTCR, @MTCR Chair, 'The MTCR carried out its eighth "outreach" mission to Kazakhstan on November 24, 2021. The MTCR delegation received a warm welcome and held fruitful discussions with the country's government agencies, which displayed Nur-Sultan's strong commitment to non-proliferation.', Twitter, 22 Dec. 2021.

[26] Hague Code of Conduct, 'What is HCoC?', Feb. 2020.

[27] Brockmann, K., *Controlling Ballistic Missile Proliferation: Assessing Complementarity Between the HCoC, MTCR and UNSCR 1540*, HCOC Research Paper no. 7 (June 2020).

[28] Hague Code of Conduct, 'List of HCoC subscribing states', Feb. 2020.

space launch vehicles.[29] The HCOC does not have a verification mechanism for subscribing states' declarations and notifications.

The 20th annual regular meeting of the HCOC was held in Vienna on 7–8 July 2021 under the chairship of Argentina. Delegations from 77 of the 143 subscribing states registered to attend, the highest number of participating delegations since these numbers have been reported in the meeting press releases. On assuming the HCOC chair, Argentina outlined its key objectives for the period 2021–22 as continuing to work towards universalization and full implementation, and preparing activities to mark the occasion of the 20-year anniversary of the Code.[30]

As the previous HCOC chair, Switzerland had organized and participated in a range of outreach meetings in the 2020–21 period, notably a series of HCOC outreach activities funded by the EU and implemented by the Foundation for Strategic Research (FRS). In March 2021 the Swiss chair and the Geneva Centre for Security Policy conducted a regional outreach seminar for the Middle East and North Africa region.[31] The FRS organized an expert mission to South Sudan and a regional outreach seminar for francophone countries in March 2021, a regional outreach seminar for Latin America in April 2021, and a virtual outreach seminar for CARICOM countries in June 2021.[32] Since taking over as chair in July, Argentina also participated in outreach activities and public meetings on behalf of the HCOC, including a virtual outreach meeting with the Democratic Republic of Congo in November 2021.[33]

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 in 1974 as a reaction to India's first nuclear test, the first explosion of a nuclear weapon by a state not recognized as a nuclear-weapon state by

[29] Hague Code of Conduct, 'How to join HCoC', Nov. 2018.

[30] Hague Code of Conduct, '20th regular meeting of the subscribing states to the Hague Code of Conduct against Ballistic Missile Proliferation (HCOC)', Press release, July 2021.

[31] Swiss Security Policy (Swiss Federal Department for Foreign Affairs International Security Division), @SecurityPolCH, 'Today, following up on [Swiss flag] efforts to increase universalisation of #HCoC, we held an event with @TheGCSP discussing the Code and ballistic missile activities with states from the MENA region. Thanks to @SIPRIorg, @FRS_org and @MFA_Austria for the valuable insights!', Twitter, 11 Mar. 2021.

[32] Foundation for Strategic Research (FRS), 'Virtual seminar dedicated to CARICOM countries', 8 June 2021; FRS, 'Expert missions', [n.d.]; FRS, 'Virtual seminar dedicated to French-speaking countries', 31 Mar. 2021; and FRS, 'Virtual seminar dedicated to Latin American countries', 27 Apr. 2021.

[33] FRS, @FRS_org, 'La FRS a organisé dans le cadre du projet européen qu'elle met en œuvre sur le #HCoC un atelier de travail hybride consacré au Code et à la #prolifération balistique avec la République démocratique du Congo – avec @MJvanDeelenEU @gustavoainchil @gwg2k @odaunrec', Twitter, 23 Nov. 2021.

the Treaty on the Non-proliferation of Nuclear Weapons (NPT).[34] The NSG currently has 48 participating governments. In addition, the European Commission and the chair of the Zangger Committee have permanent observer status. The membership of the NSG has grown from an initial seven participating governments, but no new states have been admitted to the group since 2013.[35] The possible admission of additional states into the NSG, including several pending requests from states, is an ongoing subject of discussion among participating governments, but in 2021 there was again no consensus for new admissions.[36] The long-standing question on the possible participation of states not party to the NPT continued to be discussed at the NSG plenary regarding its 'technical, legal and political aspects'.[37]

In 2021 the NSG convened for its annual plenary, after the 2020 plenary was postponed because of the Covid-19 pandemic.[38] The plenary was hosted in Brussels on 24–25 June 2021 by the outgoing Belgian chair, with consultative group meetings taking place on 22–23 June. This marks a change to the NSG's chairing system where from now on each NSG plenary chair will host a plenary at the end of their term in office rather than at its beginning, as was previously the case.[39] The participating governments also 'underscored their strong resolve to protect continuity and enhance the vitality of the NSG' despite the challenges arising from the 'restricted working conditions imposed by' the Covid-19 pandemic.[40] Poland assumed the NSG chair for the period 2021–22 and the chair of the Technical Experts Group was handed over from a Swedish expert to a US expert.[41]

The NSG plenary exchanged information on global proliferation challenges, reiterating its support for the NPT, and further discussed plans to promote the NSG guidelines at the rescheduled NPT review conference.[42] The participating governments also reaffirmed their commitment to and support for the relevant UN Security Council resolutions concerning the Democratic People's Republic of Korea, Iran and the Joint Comprehensive Plan of Action (JCPOA).[43] They also received a briefing on the work of the JCPOA Procurement Channel. The NSG continued its discussions of technical issues and proposals to update and clarify the NSG controls lists, and participating governments exchanged information and best practices on

[34] Nuclear Suppliers Group, 'About the NSG', [n.d.].
[35] Nuclear Suppliers Group, 'Participants', [n.d.].
[36] Nuclear Suppliers Group, 'Public statement: Plenary meeting of the Nuclear Suppliers Group', Brussels, 24–25 June 2021, p. 2.
[37] Nuclear Suppliers Group (note 36), p. 2.
[38] Brockmann, K., 'The multilateral export control regimes', *SIPRI Yearbook 2021*, pp. 584–85.
[39] Nuclear Suppliers Group (note 36), p. 1.
[40] Nuclear Suppliers Group (note 36), p. 1.
[41] Nuclear Suppliers Group (note 36), p. 3.
[42] Nuclear Suppliers Group (note 36), p. 1.
[43] For a discussion of developments related to the JCPOA see chapter 11, section II, in this volume.

licensing and enforcement, including concerning transit and trans-shipment issues.[44]

The NSG did not conduct any outreach missions to non-participating states during 2021 due to the pandemic situation. Participating states exchanged views at the plenary on national practices in awareness-raising and engagement with industry and with academic and research institutions.[45]

The Wassenaar Arrangement

The Wassenaar Arrangement was created in 1996 as the successor to the cold war–era Co-ordinating Committee for Multilateral Export Controls (COCOM). Moving away from the COCOM's approach of export controls targeting a specific group of adversarial states, the WA participating states—notably including Russia and the USA—seek 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, as well as transfers to terrorists. Through the WA the participating states also aim to promote 'transparency and greater responsibility' in the transfers of such weapons and technologies. The WA has 42 participating states. Despite some expansion beyond the original 33 participating states, the WA has not admitted any additional state since the admission of India in 2017.[46]

The WA was forced to cancel its annual plenary again in 2021 due to the global pandemic and the local public health situation in Vienna. The WA was able to resume 'some in-person meetings' throughout the year and 'cooperated intersessionally'. The participating states also continued 'the comprehensive and systematic review of the WA Control Lists' and managed to agree on changes to the control lists.[47] The changes include a new control list item covering 'computer-assisted-design software tools for high-end components' and expanded coverage of 'metallic and organic substrates used in highly sophisticated applications'. The participating states also agreed on several decontrols and adjustments relaxing controls on high-performance computers, multi-mode lasers and radars now commonly used in anti-collision systems in automobiles.[48]

At the end of 2021, Hungary handed over the plenary chair of the WA for 2022 to Ireland. South Africa assumed the chair of the general working

[44] Nuclear Suppliers Group (note 36), p. 2.
[45] Nuclear Suppliers Group (note 36), p. 3.
[46] Wassenaar Arrangement, 'About us', Updated 17 Dec. 2020.
[47] Wassenaar Arrangement, Statement issued by the plenary chair, Vienna, 23 Dec. 2021.
[48] Wassenaar Arrangement (note 47).

group, Malta continued to chair the experts group and Switzerland assumed the chair of the WA's licensing and enforcement officers meeting for 2022.[49]

To mark the occasion of its 25-year anniversary, the WA conducted a 'practical workshop' in a virtual format, bringing together 13 WA participating states and more than 100 officials from 24 non-participating states. The workshop included briefings from the WA head of secretariat and the chairs of the WA's experts group and licensing and enforcement officers meeting on recent updates, changes to the WA control lists and 'developments in licensing and enforcement'. Several WA participating states also shared perspectives on control list issues and 'licensing processes, internal compliance programmes, catch-all controls, and strategic risk assessment', and engaged in an informal dialogue with non-participating states. The WA chair and secretariat also hosted a visit by the 2021 UN disarmament fellows in September 2021.[50]

Conclusions

The global Covid-19 pandemic continued to test the resilience of the functions of the multilateral export control regimes and demonstrated the limitations resulting from their reliance on in-person annual plenaries as central decision-making bodies. The focus on continuing intersessional work highlighted the commitment of states to the regimes' work, but it was often less inclusive if conducted by smaller groups of participating states. The pandemic also highlighted the issue of transparency, as most of the regimes' limited communications and publications are usually connected to the plenaries or are statements made during public events and outreach activities, many of which were cancelled in 2021. Rising geopolitical tensions, a growing tendency towards creating mechanisms for adopting national controls outside of the regimes, and criticism towards the legitimacy of the regimes levelled through the UN General Assembly have challenged the unique position of the regimes. This highlights the continued need for the regimes to strengthen their implementation and functions and to explore complementary ways towards more openness.

[49] Wassenaar Arrangement (note 47).
[50] Wassenaar Arrangement, 'Outreach', Updated 23 Dec. 2021.