

III. The export control regimes

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There are four multilateral export control regimes—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)—that coordinate trade controls on goods and technologies that have uses in connection with chemical, biological, nuclear and conventional weapons (see table 10.3).¹ These politically binding agreements operate by consensus and are implemented and enforced through national and regional laws.² The regimes also have an important norm-setting function as an ever-increasing number of non-members apply the regimes' control lists and standards.

Government representatives from policy, licensing, enforcement, technical and intelligence backgrounds meet annually in different groupings within the regimes and report to the respective plenary meeting, which decides on changes to control lists and issues guidance and good practice documents. The regime chair rotates among participating states on an annual basis, except for the AG, which has been chaired by Australia since its establishment. The chairs of the various sub-bodies usually serve for a number of years and are agreed by consensus. The WA is the only regime with a standing permanent secretariat with a head and support staff.

Although export control remains the regimes' focus, brokering, transit and trans-shipment are also increasingly being brought within the scope of controls and made the subject of expert group and plenary discussions. Given that many exports are now transmitted rather than transported, this is also true of intangible transfers of technology and emerging technologies such as additive manufacturing (AM, or so-called 3D printing; see section IV). The dominant cross-regime theme in 2017 was adjusting to technological developments, including the potential exploitation of cyberspace. Engagement with non-participating states and membership expansion remains an ongoing topic for all regimes. However, the difficulty of reaching political consensus on admitting new applicants, combined with concerns about the viability of a large membership and about sharing potentially sensitive infor-

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

² Although not all member states of the European Union (EU) participate in all the regimes, they are legally bound by them through the EU Dual-use Regulation. Council Regulation (EC) no. 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items, *Official Journal of the European Union*, L 134, 29 May 2009.

Table 10.3. The four multilateral export control regimes

Regime (Year established)	Scope	No. of participants (as of 31 Dec. 2017)	2017 plenary chair	2017 plenary
Australia Group (1985)	Equipment, materials, technology and software that could contribute to chemical and biological weapons activities	42 ^a	Australia	26–30 June, Paris
Missile Technology Control Regime (1987)	Unmanned aerial vehicles capable of delivering weapons of mass destruction	35	Iceland and Ireland	16–20 Oct., Dublin
Nuclear Suppliers Group (1974)	Nuclear and nuclear-related materials, software and technology	48 ^b	Switzerland	22–23 June, Bern
Wassenaar Arrangement (1995)	Conventional arms and dual-use items and technologies	42	France	6–7 Dec., Vienna

^a In addition, India became the 43rd participant in the Australia Group in Jan. 2018.

^b In addition, the European Commission and the Chair of the Zangger Committee are permanent observers of the Nuclear Suppliers Group.

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

mation, has limited membership to a group of 35–48 countries, depending on the regime.

Nevertheless, there were major developments in regime membership in 2017, particularly concerning India. After agreeing a civil nuclear deal with the United States in 2005, India had sought to join the NSG. This later developed into a more ambitious plan to join all four regimes. After joining the MTCR in 2016, India's efforts to join the WA and the AG succeeded in December 2017 and January 2018, respectively. However, its attempt to join the NSG remained unsuccessful. India's admission to the WA and the AG was welcomed domestically as a major diplomatic success that could support its efforts to join the NSG.³ Admission to these regimes might have been

³ 'Boost for NSG membership, India joins Australia Group', *Economic Times*, 19 Jan. 2018; and Kumar, A., 'Big diplomatic win as India joins Australia Group for controlling chemical & biological weapons', *News18.com*, 19 Jan. 2018.

facilitated both by the fact that China is not a member of these groups and by the resolution of a long-standing diplomatic dispute with Italy.⁴

In addition to the above four regimes, the European Union (EU) has established a common legal basis for controls on the export, brokering, transit and trans-shipment of dual-use items, software and technology and, to a certain degree, also military items. It is the only regional organization to have taken these steps. The EU is making major changes to its dual-use trade controls, and a 'recast' of the EU Dual-use Regulation is under way.⁵ The process started in 2011 and is unlikely to be completed before the end of 2018.⁶

The Australia Group

The AG seeks to 'minimise the risk of assisting chemical and biological weapon (CBW) proliferation' through 'harmonising participating countries' national export licensing measures'.⁷ Since its establishment in response to the use of chemical weapons in the 1980–88 Iran–Iraq War, its coverage has been expanded to cover biological weapons and the materials, equipment and technology that can be used in connection with them. While the lists annexed to the 1993 Chemical Weapons Convention (CWC) cover only chemicals, the AG's control lists cover also production equipment and technology.⁸ Since 2004 the AG has explicitly referred to trans-shipping countries in addition to exporting countries in its official documents.⁹

The 2017 AG plenary, as in 2016, reflected on the implications of the alleged and actual use of chemical weapons in Iraq and Syria.¹⁰ In particular, the 42 participants took note of the report of a fact-finding mission sent by the Organisation for the Prohibition of Chemical Weapons (OPCW) to Syria, which was released while the plenary meeting took place, and the related statement issued by the OPCW Director-General, which confirmed the use of sarin in an incident on 4 April 2017 at Khan Shaykhun, Syria.¹¹ Specific concern was also reiterated about chemical and biological weapon-related

⁴ Panda, A., 'Wassenaar Arrangement admits India as its 42nd member', *The Diplomat*, 8 Dec. 2017. On the diplomatic dispute with Italy see Bauer, S. and Maletta, G., 'The export control regimes', *SIPRI Yearbook 2017*, pp. 603–606.

⁵ Council Regulation (EC) no. 428/2009 of 5 May 2009 (note 2).

⁶ Bauer, S. and Bromley, M., 'Developments in EU dual-use and arms trade control', *SIPRI Yearbook 2017*, pp. 612–15.

⁷ Australia Group, 'The Australia Group: An introduction'; and Australia Group, 'Objectives of the Group'.

⁸ For a summary and other details of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, CWC) see annex A, section I, in this volume.

⁹ Australia Group, '2004 Australia Group Plenary', June 2004.

¹⁰ On allegations of chemical weapon use in Iraq and Syria see chapter 8, sections I and II, in this volume.

¹¹ OPCW, Technical Secretariat, 'Report of the OPCW fact-finding mission in Syria regarding an alleged incident in Khan Shaykhun, Syrian Arab Republic April 2017', Note by the Technical Secre-

activities in the Democratic People's Republic of Korea (DPRK, or North Korea). This followed the killing of Kim Jong Nam, the half-brother of the North Korean leader Kim Jong Un, apparently using the organophosphorus nerve agent VX in Malaysia on 13 February 2017.¹² These concerns were repeated in a separate statement issued by the AG on 30 June to celebrate the 20th anniversary of the entry into force of the CWC.¹³

As part of the AG's engagement with non-participating states, in particular in Latin America and the Caribbean, the 2016 plenary decided to hold the 2017 intersessional implementation meeting, including a meeting of experts on new and evolving technologies and an AG dialogue with Latin American countries, in Buenos Aires on 14–16 February.¹⁴ The meeting also hosted a session open to industry and pharmaceutical companies representatives, in order to 'encourage inclusive dialogue with the private sector'.¹⁵ The meeting was appraised as 'highly productive' and the 2017 plenary agreed 'to consider more regular Australia Group Dialogues as the model for regionally-based outreach'.¹⁶ The 2018 AG intersessional meeting will be held in London and it will include a dialogue with Africa for the first time.¹⁷

More generally, the plenary agreed to strengthen outreach to relevant international forums and to 'continue an active program of international outreach and engagement in 2017–18'.¹⁸ In addition, the AG made outreach visits to India, Malaysia, Myanmar and Serbia in 2017.¹⁹

To strengthen measures to counter the proliferation of chemical and biological weapons, the plenary agreed on 'increasing awareness of emerging technologies, the potential exploitation of the cyber sphere, and scientific developments', as well as on enhancing efforts to prevent biological and chemical terrorism. Focus continues to be placed on engagement with industry and academia.²⁰

The annual revision of the list of chemical and biological items by technical experts resulted in the addition, among other things, of N,N-Diisopropylaminoethanethiol hydrochloride, a potential VX precursor and potential VX degradation product.

tariat, S/1510/2017, 29 June 2017; and Australia Group, 'Statement by the Chair of the 2017 Australia Group Plenary', 30 June 2017.

¹² Australia Group (note 11). See also chapter 8, section II, in this volume.

¹³ Australia Group, 'Statement by Australia Group participants on the 20th anniversary of the entry into force of the Chemical Weapons Convention', 30 June 2017.

¹⁴ Argentinian Ministry of Foreign Affairs and Worship, 'Intersessional meeting of the Australia Group', Press Release No. 036/17, 14 Feb. 2017; and Australia Group (note 11).

¹⁵ Argentinian Ministry of Foreign Affairs and Worship (note 14).

¹⁶ Australia Group (note 11).

¹⁷ Lambert, J., 'Preventing chemical and biological weapons proliferation: The Australia Group', Presentation, 25th Asian Export Control Seminar, Tokyo, 27 Feb.–1 Mar. 2018.

¹⁸ Australia Group (note 11).

¹⁹ Representative of an AG participating state, Correspondence with author, 19 Nov. 2017.

²⁰ Australia Group (note 11).

Although ‘strong support’ was shown during the plenary for admitting India to the AG, the plenary concluded with no new state joining. However, consensus was reached intersessionally, and on 19 January 2018 India formally became the 43rd participant in the group.²¹

The Missile Technology Control Regime

The MTCR, which celebrated its 30th anniversary in 2017, was created in 1987 to prevent the proliferation of unmanned delivery systems for nuclear weapons by controlling the export of related goods and technologies.²² In those 30 years, its membership grew from 7 to 35 states and its scope extended from missiles only to include all types of unmanned aerial vehicle (UAV, drone) capable of delivering nuclear, biological or chemical weapons. At its 31st plenary meeting, held in Dublin in October 2017, Ireland and Iceland jointly assumed the rotating chair for 2017–18.²³ It is the second time that this model has been used to enable smaller states to jointly assume the chairing role.²⁴

During the plenary week in Dublin, the delegations of the 35 partner states discussed and exchanged information on existing and potential missile proliferation developments since the previous plenary, in Busan, Republic of Korea (South Korea), in October 2016.²⁵ The North Korean nuclear weapon and missile programmes was discussed ‘in response to the drastic escalation of ballistic missile launches and significant missile technology development’ in the past year.²⁶ The member states expressed their continued commitment ‘to exercise extreme vigilance when controlling transfers’ that could contribute to the North Korean missile programme, explicitly recalling their commitment to the related United Nations Security Council resolutions.²⁷

The US delegation reportedly proposed moving UAVs with maximum speeds below 650 kilometres/hour from category I (which includes items for whose export there is a ‘strong presumption of denial’) to category II, which would loosen restrictions on UAV exports by the MTCR partner states.²⁸ The USA perceives itself at a disadvantage, compared to the main competitors on the military UAV market, China and Israel, which are not members of the

²¹ Australia Group, ‘India joins the Australia Group’, Press release, 19 Jan. 2018.

²² For further detail see the Missile Technology Control Regime (MTCR) website.

²³ Missile Technology Control Regime, ‘Public statement from the plenary meeting of the Missile Technology Control Regime’, Dublin, 20 Oct. 2017.

²⁴ The Netherlands and Luxemburg co-chaired the MTCR in 2015–16.

²⁵ Missile Technology Control Regime (note 23).

²⁶ Missile Technology Control Regime (note 23). See also chapter 7, section IV, in this volume.

²⁷ Missile Technology Control Regime (note 23).

²⁸ Insinna, V. and Mehta, A., ‘Here’s how the Trump administration could make it easier to sell military drones’, *Defense News*, 19 Dec. 2017.

MTCR.²⁹ Introducing speed as a parameter to differentiate military UAVs from other category I systems would, however, represent a major change to the MTCR control list and it is unclear if the USA will be able to garner enough support for a unanimous decision to this effect.

In the plenary's opening speech, the Irish Foreign Minister, Simon Coveney, called on Iran to show its commitment to the Joint Comprehensive Plan of Action (JCPOA)—which it concluded in July 2015 with China, France, Germany, Russia, the United Kingdom, the USA and the EU to curtail its nuclear programme—'by ceasing all activities related to ballistic missiles which are not in keeping with the spirit of the agreement' and called on the US Congress to maintain its commitment to the agreement.³⁰ As in 2016, the public statement at the end of the plenary also mentioned the JCPOA. It confirmed the continued commitment of the partner states to the implementation of the missile-related provisions in UN Security Council Resolution 2231, which endorses the JCPOA.³¹ This came only one week after the US President elected not to certify that the continued lifting of sanctions was proportional to Iran's actions under the JCPOA on 13 October and after repeated claims by members of the US administration that Iran's missile testing activities were in violation of Resolution 2231 and of the 'spirit' of the JCPOA.³² As in previous years, the MTCR partner states reiterated concerns regarding 'ongoing missile programmes in the Middle East, Northeast Asia, and South Asia'.³³

The plenary discussed membership issues but did not decide on any pending applications.³⁴ The outgoing MTCR chair, South Korea, conducted several outreach missions in 2017, including missions to Pakistan (January), Singapore (February), Kazakhstan (March), Myanmar (May) and Kuwait (July). In 2017 Kazakhstan joined Estonia and Latvia as the third state to unilaterally declare adherence to the guidelines and control lists of the MTCR.³⁵ This approach to universalization was only formalized by the 2014 plenary in Oslo: a state that wishes to unilaterally adhere is now asked to formally notify France, which acts as the MTCR point of contact.³⁶

France hosted the annual reinforced point of contact meeting—the MTCR's intersessional policy-level meeting—in Paris in April 2017. At the meeting

²⁹ Ewers, E. C. et al., *Drone Proliferation: Policy Choices for the Trump Administration*, Papers for the President (Center for a New American Security: Washington, DC, June 2017).

³⁰ Coveney, S., Irish Minister for Foreign Affairs and Trade, Speech at the 31st meeting of Missile Technology Control Regime, Dublin, 18 Oct. 2017; and Joint Comprehensive Plan of Action (JCPOA), Vienna, 14 July 2015, reproduced as Annex A of UN Security Council Resolution 2231, 20 July 2015. On implementation of the JCPOA in 2017 see chapter 7, section V, in this volume.

³¹ Missile Technology Control Regime (note 23).

³² See chapter 7, section V, in this volume.

³³ Missile Technology Control Regime (note 23).

³⁴ Missile Technology Control Regime (note 23).

³⁵ Missile Technology Control Regime, 'MTCR partners'.

³⁶ Missile Technology Control Regime, 'Adherence policy'.

states exchanged experiences on curbing illicit procurement efforts and missile programmes of concern, especially those by states that are currently subject to UN sanctions.³⁷ This included discussions of the North Korean nuclear weapon and missile programmes and related UN sanctions.³⁸

The annual expert meetings, held prior to the plenary, discussed proliferation trends, procurement activities, brokering, transit and trans-shipment issues, catch-all controls, and key technology trends, including ‘serious risks and challenges posed by intangible technology transfers’.³⁹ In addition, the chair of the Hague Code of Conduct against Ballistic Missile Proliferation (HCOG) addressed the plenary.

The Hague Code of Conduct against Ballistic Missile Proliferation

The MTCR is complemented by the Hague Code of Conduct, which celebrated its 15th anniversary in 2017. The HCOG was established within the MTCR in 2002 and subsequently developed into a separate initiative for confidence building and as an instrument for transparency in ballistic missile proliferation.

The 16th annual meeting on the HCOG took place in Vienna on 6–7 June 2017, with delegations from 64 of the 138 subscribing states attending.⁴⁰ Poland assumed the chair of the HCOG for 2017–18, taking over from Kazakhstan. The new chair declared its objectives to be ‘the full and comprehensive implementation of the Code in all its aspects and strengthening outreach activities for advancing the process of HCoC universalization’.⁴¹ The countries subscribing to the HCOG lauded the subscription by India in 2016 as an important step towards universalization, especially because of its ballistic missile and space programmes. They called on more countries to join the initiative as no new countries signed on in 2017 and states with major missile programmes, such as China, Iran, North Korea and Pakistan, remain outside of the initiative.

The Nuclear Suppliers Group

The NSG aims to prevent the proliferation of nuclear weapons by controlling transfers of nuclear and nuclear-related material, equipment, software and technology.

³⁷ Missile Technology Control Regime, ‘Joint statement agreed by consensus during the Reinforced Points of Contact 2017 to celebrate the 30th anniversary of the MTCR’, Paris, 13 Apr. 2017.

³⁸ On North Korea’s missile programme see chapter 6, section IX, and chapter 7, section IV, in this volume.

³⁹ Missile Technology Control Regime (note 23).

⁴⁰ Hague Code of Conduct, ‘16th regular meeting of the subscribing states to the Hague Code of Conduct against Ballistic Missile Proliferation’, Press release by HCOG subscribing states, [n.d.].

⁴¹ Hague Code of Conduct (note 40).

In 2017 Switzerland took over as chair of the NSG and will hand over to Latvia in 2018–19.⁴² The chairs of the NSG consultative group and the information exchange meeting (previously held by US officials) were handed over to Mexico and Switzerland, respectively. The technical experts group will continue to be chaired by Sweden.⁴³

The 2017 plenary statement highlighted proliferation concerns about North Korea and restated the NSG's support for the UN Security Council resolutions, including Resolution 2356 of 2 June 2017, strongly condemning North Korea's nuclear tests.⁴⁴

The NSG plenary restated its interest in being briefed by the coordinator of the working group on the procurement channel under the JCPOA.⁴⁵ The agreement established a procurement working group to review proposals by states that want to provide nuclear-relevant dual-use items to Iran. It makes a recommendation to the UN Security Council, which can refuse or approve any proposed transfer.⁴⁶

The plenary continued its discussions on enhanced outreach and 'took note of a report on outreach to non-NSG participants' while considering options for enhancing these activities.⁴⁷ It also approved revised guidance for its outreach efforts.

India and Pakistan

The current NSG rules require that participating states are party to the 1968 Non-Proliferation Treaty (NPT). Despite this, two states that are not NPT parties—India and Pakistan—have applied to join the NSG. India applied in May 2016, but this was strongly opposed by a group of countries led by China during the 2016 plenary a few weeks later.⁴⁸ However, the 'Technical, Legal and Political Aspects' of participation by non-NPT states were discussed, and the NSG demonstrated a new willingness to seek an agreement on participation criteria for non-NPT states. In particular, the chair of the 2016 plenary mandated Ambassador Rafael Mariano Grossi of Argentina (who had chaired the 2015 plenary) to consult with participants on a possible solution. The outcome of these consultations was a draft document outlining a set of criteria to be met by non-NPT applicants.⁴⁹ The document, further discussed

⁴² Nuclear Suppliers Group, 'Public statement: Plenary meeting of the Nuclear Suppliers Group Bern, 22–23 June 2017', 23 June 2017.

⁴³ Nuclear Suppliers Group, 'Organisation'; and Nuclear Suppliers Group (note 42).

⁴⁴ Nuclear Suppliers Group (note 42), and UN Security Council Resolution 2356, 2 June 2017. See also chapter 7, section IV, in this volume.

⁴⁵ Nuclear Suppliers Group (note 42); and Joint Comprehensive Plan of Action (note 30).

⁴⁶ Delegation of the European Union to the International Organisations in Vienna, 'JCPOA procurement channel', 24 Aug. 2016.

⁴⁷ Nuclear Suppliers Group (note 42).

⁴⁸ Bauer and Maletta (note 4), pp. 607–609.

⁴⁹ Bauer and Maletta (note 4), pp. 607–608.

at the end of 2016, disappointed Pakistan, which termed it ‘clearly discriminatory’ since it would permit India’s application but not that of Pakistan.⁵⁰

The 2017 NSG plenary resumed its discussions on engagement with states that do not participate in the NSG and the plenary statement explicitly referred to a discussion on the NSG’s relationship with India.⁵¹ Notwithstanding the support expressed by the Swiss chair for India’s participation in the NSG, the 2017 plenary did not register any development on the issue.⁵² It again discussed the ‘Technical, Legal and Political Aspects’ of participation by non-NPT states and took note of the intention of the chair to organize an informal meeting on the issue. This informal meeting was held on 16 November in Vienna and gave new momentum to the discussions.⁵³ However, different opinions persisted on what participation criteria should include.

China’s position on participation by non-NPT states in the NSG remained unchanged, as stressed by a Chinese Foreign Ministry spokesperson in May and June 2017, ahead of the plenary.⁵⁴ China remains in favour of a ‘two-step approach’: the NSG would first elaborate a ‘non-discriminatory resolution’ that would be applied to all non-NPT states and only then it would discuss applications submitted by these countries.⁵⁵ This position is based on the assumption that the NPT represents a ‘political and legal foundation for the international non-proliferation regime’.⁵⁶

The USA—which supports India’s application, but not Pakistan’s—maintained its position that consensus is achievable ‘if pursued’.⁵⁷ Ahead of the plenary in June, India gained public support from Russia and invited other countries to follow Russia’s example.⁵⁸ Remarkably, in October during an official visit to India, the Italian Prime Minister, Paolo Gentiloni, also expressed support for India’s ‘intensified engagement’ with the WA, the AG

⁵⁰ Davenport, K., ‘Export group mulls membership terms’, *Arms Control Today*, vol. 47, no. 1 (Jan./Feb. 2017); and Pakistani Ministry of Foreign Affairs, ‘Record of the press briefing by spokesperson on 29 December 2016’, 29 Dec. 2016.

⁵¹ Nuclear Suppliers Group (note 42).

⁵² Chandrasekhar, A., ‘Swiss want inclusive membership of Nuclear Suppliers Group’, *swissinfo.ch*, 8 June 2017.

⁵³ Kimball, D. G., ‘NSG renews membership debate’, *Arms Control Today*, 1 Dec. 2017.

⁵⁴ Press Trust of India, ‘On India’s NSG bid, China remains roadblock, says no change in stand’, *New Delhi Television (NDTV)*, 22 May 2017; and Chinese Ministry of Foreign Affairs, ‘Foreign Ministry spokesperson Hua Chunying’s regular press conference on June 6, 2017’, 6 June 2017.

⁵⁵ Chaudhury, D. R., ‘India to keep outreach to NSG members low key’, *Economic Times*, 17 June 2017; and Chinese Ministry of Foreign Affairs (note 54).

⁵⁶ Chinese Ministry of Foreign Affairs, ‘Foreign Ministry spokesperson Hua Chunying’s regular press conference on May 23, 2016’, 23 May 2016; and Chinese Ministry of Foreign Affairs, ‘Foreign Ministry spokesperson Hong Lei’s remarks on issues related to enlargement of NSG’, 12 June 2016.

⁵⁷ Kimball (note 53).

⁵⁸ Press Trust of India, ‘Russia extends support for India’s NSG membership, permanent seat in UNSC’, *Hindustan Times*, 1 June 2017; and ‘India asks countries friendly with China to convince it on NSG issue’, *Hindustan Times*, 6 June 2017.

and the NSG, arguing that it ‘strengthens global non-proliferation efforts’.⁵⁹ Prior to India joining the MTCR in 2016, Italy had been one of the strongest opponents, although this was on the grounds of an unrelated bilateral issue.⁶⁰ India did not formalize any additional civil nuclear cooperation agreement with an NSG member during 2017. However, it reportedly resumed talks with the EU on such an agreement in October.⁶¹ In addition, the 2016 India–Japan Agreement for Cooperation in the Peaceful Uses of Nuclear Energy came into force in July 2017.⁶²

Following India’s admission to the WA in December 2017 and the AG in January 2018, a spokesperson of the Indian Ministry of External Affairs stated that the country remains focused on its efforts to gain support from other countries for its NSG application and that there is now hope that the country’s ‘credentials’ for joining the NSG had been established.⁶³ However, China’s perspective on NSG membership seemed not be affected by India’s inclusion in the WA as ‘different multilateral mechanisms have different roles and different criteria for accepting new members’ according to a Chinese Foreign Ministry spokesman.⁶⁴

Meanwhile, controversy continued over China’s supply of nuclear technology to Pakistan, which is neither an NPT member nor under full-scope safeguards by the International Atomic Energy Agency (IAEA).⁶⁵ In July 2017 the two countries agreed to cooperate in the field of uranium exploitation and mining and Pakistan placed further orders for China to build nuclear power plants.⁶⁶ The civil nuclear cooperation between China and Pakistan long precedes recent discussions over possible NSG admission criteria for non-NPT states and it has been traditionally defended by China as being in accordance with the NSG principles and under IAEA supervision.

⁵⁹ India–Italy joint statement during the visit of Prime Minister of Italy to India, Indian Ministry of External Affairs, 30 Oct. 2017.

⁶⁰ Bauer and Maletta (note 4), pp. 603–604.

⁶¹ Bagchil, I., ‘India, European Union restart talks on civil nuclear agreement’, *Times of India*, 19 Oct. 2017.

⁶² Umeda, S., ‘Japan/India: Diet approves civil nuclear cooperation agreement’, US Library of Congress, Global Legal Monitor, 14 June 2017.

⁶³ ‘India enters Australia Group, inches closer to joining Nuclear Suppliers Group’, *The Wire* (New Delhi), 19 Jan. 2018.

⁶⁴ Press Trust of India, ‘China downplays India’s entry into Wassenaar Arrangement’, *Economic Times*, 13 Dec. 2017.

⁶⁵ On this issue see also *SIPRI Yearbook 2011*, pp. 432–34; *SIPRI Yearbook 2012*, pp. 384–85; *SIPRI Yearbook 2013*, pp. 453–55; *SIPRI Yearbook 2014*, pp. 466–69; *SIPRI Yearbook 2015*, pp. 635–36; *SIPRI Yearbook 2015*, pp. 764–65; and *SIPRI Yearbook 2017*, pp. 607–609.

⁶⁶ ‘China, Pakistan agree to uranium cooperation’, *World Nuclear News*, 31 July 2017; and ‘Pakistan places orders with China to build nuclear power plants’, *The Nation*, 4 July 2017.

The Wassenaar Arrangement

The WA promotes ‘transparency and greater responsibility’ regarding transfers of conventional arms and related dual-use items. More specifically, it seeks to prevent ‘destabilising accumulations’ of such items and their acquisition by terrorists.⁶⁷

The usual working groups met during 2017 to prepare for the annual plenary. The plenary itself was held on 6–7 December 2017 in Vienna, where it is usually held, with France holding the rotating chair.⁶⁸

A key outcome of the 2017 plenary was the admission of India as the 42nd WA participating state, the first new admission since Mexico in 2011. This marked a key success in India’s long-running campaign to gain admission to all of the export control regimes, and followed its admission to the MTCR in 2016.⁶⁹ Earlier in 2017 India had updated its national control lists for military goods and dual-use items in order to align them with the WA list, thereby clearing another hurdle to admission.⁷⁰

The 2017 plenary made a wide range of amendments to different parts of the WA control lists. These included clarifications of the controls on ‘ground stations for spacecraft, submarine diesel engines, technology related to intrusion software, software for testing gas turbine engines, analogue-to-digital converters, non-volatile memories and information security’ as well as a relaxing of controls on ‘mechanical high-speed cameras and digital computers’.⁷¹ The wide range of items covered reflects the breadth in the coverage of the WA control lists for conventional arms and, in particular, dual-use items, the pace at which the capabilities of these items covered are evolving, and the speed with which high-performance items are becoming more widely available.

Controls on intrusion software have been a key focus of discussion and attention since they were first introduced in 2013. The controls were initially adopted in order to control systems that are used by law enforcement agencies and intelligence agencies to remotely monitor and, in certain cases, control computers and mobile phones without detection (see also section IV). However, companies and researchers quickly began to express concerns that the language used in the control lists also includes systems and processes

⁶⁷ Wassenaar Arrangement, ‘Introduction’.

⁶⁸ Wassenaar Arrangement, Statement issued by the Plenary Chair on 2017 outcomes of the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, Vienna, 7 Dec. 2017.

⁶⁹ ‘India set to become member of export control regime Wassenaar Arrangement’, *The Hindu*, 8 Dec. 2017.

⁷⁰ ‘Updated SCOMET list as per 31/01/2018’, Directorate General for Foreign Trade, Ministry of Commerce and Industry of India; and Notani, S., ‘India’s DGFT overhauls SCOMET’, *WorldECR*, no. 60, June 2017.

⁷¹ Wassenaar Arrangement (note 68).

that are essential to information technology (IT) security, particularly systems used for penetration testing and vulnerability disclosure processes.⁷² In the USA, the strength of opposition from the IT sector led the government to delay national implementation of the controls, despite this being one of the obligations associated with being a WA participating state.⁷³ In 2016 and 2017 the USA proposed amendments to the WA controls on intrusion software.⁷⁴ In 2016 opposition from other participating states meant that only minor changes were agreed.⁷⁵ However, in 2017 more detailed explanatory notes were added to the WA controls to specify that they apply neither to software that was designed to provide software updates nor to vulnerability disclosure and cyber incident response software.⁷⁶ Vulnerability disclosure experts have broadly welcomed the new language, stating that it meets many of the concerns that they had raised.⁷⁷

As in previous years, a key topic of discussion at the WA was ‘advances in technology and market trends’.⁷⁸ The plenary chair noted that ‘further work is needed to address new challenges’. Another key priority that was highlighted was ‘outreach activities to non-member countries and to encouraging voluntary adherence to the WA’s standards’.⁷⁹

During the 2017 plenary, participating states also discussed several proposals for new best practices guidelines and identified other existing guidelines to be update as appropriate in 2018.⁸⁰ The WA best practices guidelines cover a broad range of topics in the field of export control implementation and are a key part of the WA’s work on improving control standards among both WA participating states and non-participating states. A procedure for regularly reviewing and updating guidance documents—some of which

⁷² Bratus, S. et al., ‘Why Wassenaar Arrangement’s definitions of intrusion software and controlled items put security research and defense at risk, and how to fix it’, 9 Oct. 2014. ‘Penetration testing’ tools are used to test the security of a network by simulating attacks against it in order to locate vulnerabilities. ‘Vulnerability disclosure’ is the means through which software vulnerabilities are identified and reported.

⁷³ Wassenaar Arrangement, ‘Initial elements’, *Public Documents*, vol. I, *Founding Documents*, WA-DOC (17) PUB 001 (Wassenaar Arrangement Secretariat: [Vienna], Feb. 2017, section III(1).

⁷⁴ Galperin, E. and Cardozo, N., ‘Victory! State Department will try to fix Wassenaar Arrangement’, *Electronic Frontier Foundation*, 29 Feb. 2016.

⁷⁵ Thomson, I., ‘Wassenaar weapons pact talks collapse leaving software exploit exports in limbo’, *The Register*, 21 Dec. 2016.

⁷⁶ Wassenaar Arrangement, ‘List of dual-use goods and technologies and munitions list’, WA-LIST (17) 1, 7 Dec. 2017.

⁷⁷ Moussouris, K., ‘Serious progress made on the Wassenaar Arrangement for global cybersecurity’, *The Hill*, 17 Dec. 2017.

⁷⁸ Wassenaar Arrangement (note 68).

⁷⁹ Wassenaar Arrangement (note 68).

⁸⁰ Wassenaar Arrangement (note 68).

have not been updated for several years—was agreed as part of the WA's 2016 self-assessment exercise.⁸¹

Finally, WA participating states made improvements to the system for sharing information electronically on approvals and denials of export licences, and 'discussed how to strengthen national export control implementation in areas such as arms trade risk assessment, effective end-use and end-user assurances, re-export and controls on intangible transfers of technology, as well as catch-all provisions'.⁸²

⁸¹ Wassenaar Arrangement, Statement issued by the Plenary Chair on 2016 outcomes of the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, Vienna, 8 Dec. 2016.

⁸² Wassenaar Arrangement (note 68).