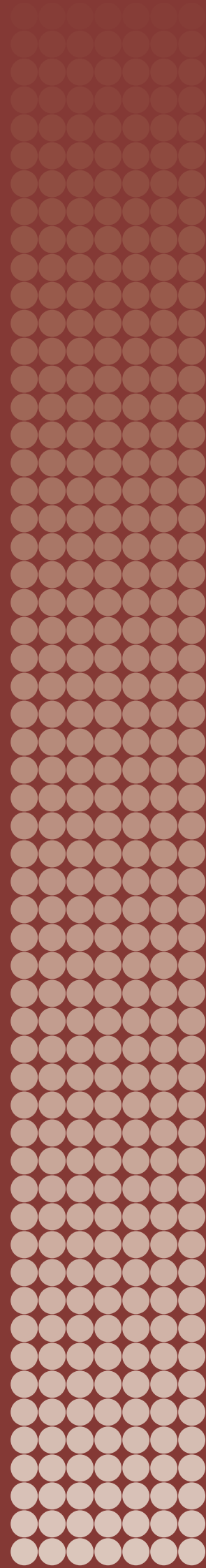


THE MISSILE TECHNOLOGY CONTROL REGIME AT A CROSSROADS

Adapting the Regime for Current and Future Challenges

KOLJA BROCKMANN, MARK BROMLEY
AND LAURIANE HÉAU



**STOCKHOLM INTERNATIONAL
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December 2022



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Abbreviations

| | |
|------|---|
| CBN | Chemical, biological and nuclear (weapons) |
| EU | European Union |
| HCOG | Hague Code of Conduct against Ballistic Missile Proliferation |
| IEM | Information-exchange meeting |
| ITT | Intangible transfers of technology |
| LEEM | Licensing and enforcement experts meeting |
| MTCR | Missile Technology Control Regime |
| POC | Point of contact |
| R&D | Research and development |
| RPOC | Reinforced point of contact |
| SLV | Space launch vehicle |
| TEM | Technical experts meeting |
| TOM | Technical outreach meeting |
| UAV | Uncrewed aerial vehicle |
| UN | United Nations |

Summary

The Missile Technology Control Regime (MTCR) is a cornerstone of states' efforts to prevent the proliferation of missiles and other uncrewed aerial vehicles (UAVs) capable of delivering chemical, biological and nuclear weapons. In the 35 years since its creation in 1987, the MTCR has expanded in scope and membership, developed new procedures and practices, and become more institutionalized in terms of regime bodies and their functions. However, over the same period, missiles of various ranges and payload capacity and dual-use missile and space launch vehicle technology have spread and new proliferation pathways have emerged. Geopolitical developments have upset the fragile consensus among the MTCR partner states on the regime's objectives and direction and made finding agreement on individual decisions increasingly difficult. Russia's invasion of another partner—Ukraine—is the most serious such episode and has made reaching the consensus required for regime decisions even more difficult since February 2022. In this context, normative, membership, operational, political and technical challenges threaten the future effectiveness and role of the MTCR. The MTCR therefore requires reform across a number of areas, and the partners need to agree on and implement a strategic approach to strengthening the effectiveness of the MTCR.

Since its creation, the MTCR's reach, which includes the implementation of the MTCR guidelines and adoption of the equipment, software and technology annex (the MTCR control list), has been extended both through the expansion of membership from 7 to 35 partners and by encouraging unilateral adherence to the regime. However, the growth in MTCR membership has largely stagnated since the early 2000s. The partners have seemingly entered into a stalemate over the admission of new partners, while only three states have used the official adherence procedure established in 2014. Despite regular discussions of the membership issue, there appears to be a lack of agreement on the objectives of membership and adherence and no strategy informing outreach to and engagement with non-partners.

Although it claims to be a transparent regime, MTCR meetings, deliberations and information exchange are strictly confidential. A press release from the annual plenary meeting, limited news items on outreach activities, the use of the MTCR chair's official Twitter account and the chair's engagement in public events organized by third parties allow for only limited insights into the regime's work. In combination with the limited membership, this lack of transparency has often been used to criticize the MTCR. The MTCR guidelines, annex and annex handbook, and any changes to them, are public. However, unlike other multilateral export control regimes, the MTCR does not publish any guidance or good practices documents that could help adherents and non-partners harmonize their implementation of national export controls with the guidelines and annex.

The MTCR guidelines provide for no preferential treatment of partners and any export licensing decisions are sovereign decisions by the exporting state. Nonetheless, the MTCR with its limited membership has long been criticized as an exclusive cartel that prevents economic and technological development in states with emerging economies. Some of the concerns appeared to dissipate during the 2000s, particularly after the United Nations Security Council's adoption in 2004 of Resolution 1540. This created an obligation for all states to have effective export control systems in place and reduced the level of controversy around their use. The guidelines, annex and annex handbook are public goods provided by the MTCR, and they can be used as part of international capacity-building efforts to help states strengthen their export controls

and thus implement Resolution 1540. The issue of legitimacy has re-emerged more recently following a UN General Assembly resolution sponsored by China that asserts the undue impact of export controls on peaceful uses of science and technology. Further controversy has resulted from the United States' unilateral reinterpretation of the restrictiveness of the MTCR guidelines' coverage of UAVs.

One of the most frequent criticisms of the MTCR is the pace at which the annex is updated and the time taken to adopt amendments to address emerging technologies. The maintenance of the annex is a central task of the MTCR and ensures that partners, adherents and non-partners have an up-to-date control list. It can be difficult for all partners to follow technical developments and the small number of meetings limits the opportunities for in-person discussions among the technical experts on such developments. In addition, the speed of development and absence of technical standards for many emerging technologies complicate the design of appropriate control list entries.

The crisis over Russia's renewed invasion of Ukraine has created additional obstacles for the MTCR, far surpassing the impact of previous episodes of conflict between partners. Despite the many limitations on the functioning of the MTCR in the absence of consensus, there are opportunities to focus on the technical work of the regime subgroups, prepare future inter-regime dialogue and promote the value of multilateral cooperation through the MTCR. The partners should also explore if they could potentially move from a consensus requirement for all decisions to a limited use of qualified majority voting for a subset of non-binding MTCR decisions.

The partners should strengthen the MTCR and reform certain organizational and operational rules and practices to improve the regime's ability to address current and future challenges. This includes developing a clear strategy for the future of MTCR membership and adherence, improving the transparency of its work, strengthening its legitimacy, improving its ability to deal with emerging technologies and managing the impact of geopolitics on the functioning of the MTCR. The partners should focus on increasing the uptake of the adherence procedure through outreach and by expanding and promoting the benefits offered to adherents. They should improve the MTCR's outward communication, increase the consistency and depth of information shared, and provide guidance materials that benefit partners, adherents and non-partners alike. Maintaining and strengthening the less political efforts of technical collaboration and the sharing of expertise through the technical, licensing and enforcement, and information-exchange meetings will be particularly important in the absence of consensus decisions.

1. Introduction

The Missile Technology Control Regime (MTCR) is a cornerstone of states' efforts to prevent the proliferation of missiles and other uncrewed aerial vehicles (UAVs) capable of delivering chemical, biological or nuclear (CBN) weapons. In the 35 years since its creation in 1987, the MTCR has expanded in scope and membership, developed new procedures and practices, and become more institutionalized in terms of regime bodies and their functions. The MTCR chair engages in outreach activities with prospective partners (the MTCR's term for its member states) and makes key resources—including the MTCR control list—available to non-partners. However, over the same period, missiles of various ranges, dual-use missile technologies and the technology for space launch vehicles (SLVs) have spread to a wider group of states and to non-state actors, while new pathways for further proliferation have emerged. Geopolitical developments have upset the fragile consensus among the partners, stalling new accessions. In addition, access to good practices and guidance materials remains limited to the partners. A range of challenges—normative, membership related, operational, political and technical—thus threaten the future effectiveness and role of the MTCR. Against this backdrop, there have been increasing calls for reform, consolidation, reinvention or replacement of the MTCR and other multilateral export control regimes. Today the MTCR is at a crossroads where key decisions are needed in order to determine if and how it can continue to support non-proliferation efforts.

The MTCR is the main multilateral supply-side instrument that seeks to prevent the proliferation of missiles, albeit only those missiles and UAVs capable of delivering CBN weapons, and establishes controls on exports of dual-use missile technologies—that is, technologies that can have both military and civilian applications. It was originally created by the Group of Seven (G7) large industrialized states—Canada, France, (West) Germany, Italy, Japan, the United Kingdom and the United States—following secret negotiations from 1983.¹ The MTCR has since expanded to include 35 partners, but new admissions have largely stagnated since the 2000s, with the notable exception of India, which joined in 2016.

The establishment of the MTCR reflected a widespread recognition that the uncontrolled proliferation of missiles and other uncrewed delivery systems—particularly those capable of delivering CBN payloads—represents a grave threat to international peace and security. The precise form that governance mechanisms in this area should take was and is a matter of debate and contention. Unlike for CBN weapons, there is no international non-proliferation or prohibition treaty or multilateral instrument that establishes a missile non-proliferation norm and creates a mandate for or legitimizes the MTCR's activities.² Nonetheless, the MTCR represents the most developed set of multilateral supply-side restraints on transfers of missiles and missile technologies. Together with the Hague Code of Conduct against Ballistic Missile Proliferation (HCOB) and United Nations Security Council Resolution 1540, it makes an essential contribution to limiting their proliferation and furthering the objectives of the established disarmament and non-proliferation treaties.³

The renewed invasion of Ukraine by the Russian Federation—both MTCR partners—that started in February 2022 has led to a near total breakdown in relations between Russia and the West and has exacerbated many of the existing geopolitical tensions in

¹ MTCR, 'MTCR partners', [n.d.].

² United Nations, General Assembly, 'The issue of missiles in all its aspects', Report of the Secretary-General, A/63/176, 28 July 2008.

³ Hague Code of Conduct against Ballistic Missile Proliferation (HCOB), 'Description of HCoC', Oct. 2020; and UN Security Council Resolution 1540, 28 Apr. 2004. See also United Nations, Security Council, 1540 Committee, '1540 fact sheet', [n.d.].

the MTCR. Certain aspects of engagement and coordination between Russia and the Western partners ostensibly broke down completely during Russia's period as MTCR chair, which lasted until October 2022, while other activities continued and were only partially affected.⁴ The impact of the war initiated by Russia exceeds that of any other previous episode of direct confrontation between MTCR partners and has renewed fundamental questions over the MTCR's ability to reach its objectives.

There is a clear need to explore if and how the MTCR can be strengthened and key aspects can be reformed in order to enable it to overcome the short-, medium- and long-term challenges that it is facing. The impasse over the future of MTCR membership, the limited transparency around the work of the MTCR, questions around the regime's legitimacy, the rapid development of emerging technologies and the impact of geopolitics on the functioning of the MTCR all require short-, medium- and long-term solutions. This report provides a detailed discussion of each of these issues, outlines key developments, identifies specific challenges and proposes incremental reform steps that could help the partners maintain the functions of the MTCR in the short term and strengthen the regime and set its course for the medium and long terms.

The report continues in chapter 2 with a description of the institutional, procedural and operational set-up of the MTCR, with a focus on the plenary and the regime's subgroups. Chapter 3 contains discussions on membership and adherence and on the MTCR's outreach activities. Chapter 4 explores the issue of transparency as it relates to public communication of MTCR activities and provision of guidance materials. The legitimacy of the MTCR, challenges to the system of multilateral export control regimes and variations in interpretation of the MTCR guidelines are considered in chapter 5. Emerging technologies and the challenges they pose to the MTCR are then discussed in chapter 6, along with limitations and opportunities to overcoming them. Chapter 7 assesses the impact of geopolitics on the MTCR and how it can work most effectively despite these constraints. The report concludes in chapter 8 with recommendations on strengthening the MTCR to make it fit for current and future challenges.

⁴ National delegate to the MTCR, Interview with authors, 8 Sep. 2022.

2. The institutional, procedural and operational structure of the MTCR

The objectives and scope of the MTCR

The objective of the MTCR today is ‘to restrict the proliferation of missiles, complete rocket systems, unmanned air vehicles, and related technology for those systems capable of carrying a 500 kilogram payload at least 300 kilometres, as well as systems intended for the delivery of weapons of mass destruction (WMD)’.⁵ The controls provided by the MTCR apply to ‘certain complete rocket systems’ (i.e. ballistic missiles, SLVs and sounding rockets), UAVs (i.e. drones, remotely piloted vehicles and, notably, cruise missiles), and transfers of missile-related equipment and technology. The scope of the MTCR has expanded several times, from only missiles capable of carrying nuclear weapons, to missiles capable of delivering all types of CBN weapon, to now include cruise missiles and all UAVs capable of delivering CBN weapons. It has also expanded from seeking to prevent proliferation to additional states to include preventing proliferation to non-state actors, including terrorists.

The guidelines for sensitive missile-relevant transfers

The key principles that guide the MTCR’s approach to the non-proliferation of missiles and other UAVs capable of delivering CBN weapons are laid down in the guidelines for sensitive missile-relevant transfers.⁶ The guidelines commit the partners to adopt and apply national legislation that controls, on a case-by-case basis, transfers of all items listed in an annex to the guidelines.

The guidelines divide the listed items into two categories.⁷ Category I includes the most sensitive items, and the partners commit to exercising a ‘strong presumption of denial’ to any transfers of these items and to transfers of any other item, whether listed or not, intended to be used for the delivery of CBN weapons.⁸ The guidelines only allow for transfers of category I items on rare occasions and require binding government-to-government assurances and necessary steps to ensure the stated end use. Category II includes missiles and UAVs with lower payload capabilities and a detailed list of relevant dual-use equipment, materials and technologies that are subject to controls, but for which partners have greater flexibility in their licensing decisions.

The guidelines are politically, rather than legally, binding and all transfer decisions remain ‘the sole and sovereign judgement’ of each partner’s government.⁹ The guidelines further establish a set of factors that must be taken account of in the evaluation of transfer applications; extend scrutiny to design and production technology; outline the main provisions of government-to-government assurances; commit the partners to engage in information exchange with other partners; establish catch-all controls for unlisted items; and welcome the voluntary adherence to the guidelines by all states, including non-partners.¹⁰ The factors that should be taken into account when assessing exports of category II items include the recipient states’ willingness to commit to not re-export the items or use them for the delivery of CBN weapons.

⁵ MTCR, ‘Objectives of the MTCR’, [n.d.].

⁶ MTCR, ‘Guidelines for sensitive missile-relevant transfers’, [n.d.].

⁷ MTCR, ‘Equipment, software and technology annex’, MTCR/TEM/2022/Annex, 21 Oct. 2022.

⁸ MTCR, ‘Frequently asked questions (FAQs)’, [n.d.].

⁹ MTCR, ‘Guidelines’ (note 6).

¹⁰ MTCR, ‘Guidelines’ (note 6).

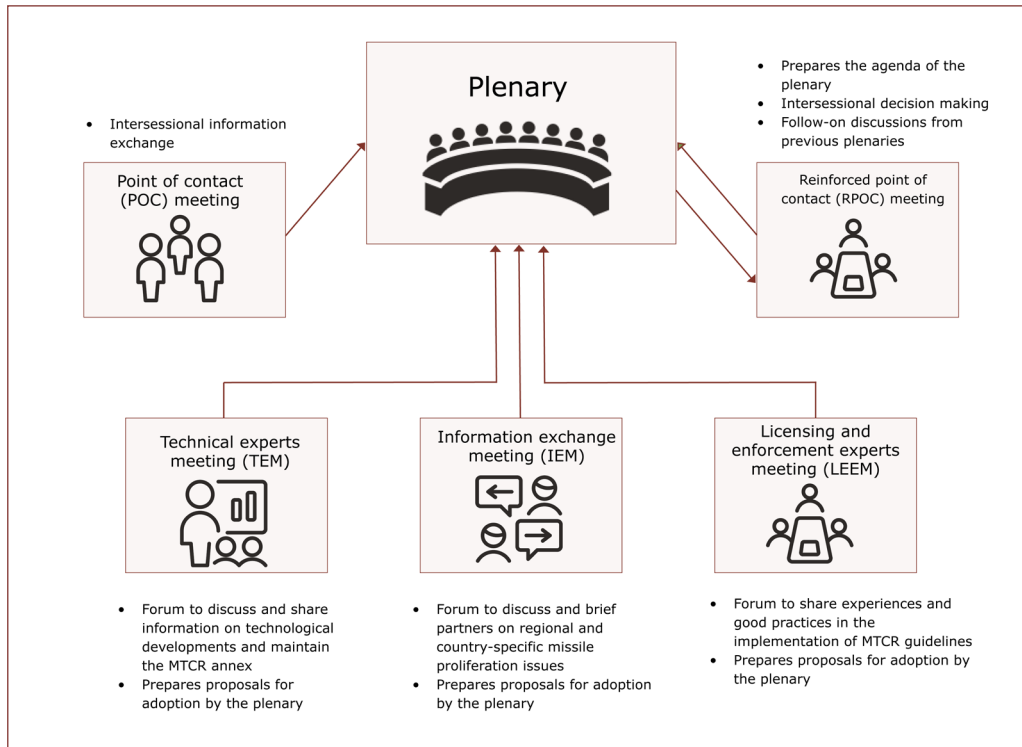


Figure 2.1. The institutional structure of the Missile Technology Control Regime

The equipment, software and technology annex

The MTCR control list, termed the equipment, software and technology annex, is divided into the two categories prescribed by the guidelines.

Category I items include complete rocket systems and UAVs capable of delivering a payload of at least 500 kg to a range of at least 300 km, production facilities for such systems, and major subsystems including rocket stages, re-entry vehicles, rocket engines, guidance systems and warhead mechanisms.¹¹

Category II includes an extensive list of dual-use equipment and technology in the areas of propulsion, propellants, structural elements, instrumentation and navigation, flight control, avionics, launch support, computers, analogue-to-digital converters, test facilities, modelling and design, stealth, and nuclear effect protection, and other complete delivery systems and their subsystems.¹²

The annex includes specific technical parameters for each listed item to serve as a threshold for when specific products are subject to a licensing requirement or a presumption of denial.

Rules of procedure

The MTCR partners take all regime decisions by consensus.¹³ This includes decisions on the admission of new partners; any changes to the guidelines, the annex or the enforcement handbook; the appointment of the chair and subgroup chairs and co-chairs; the mandate for the chair's outreach activities; and the composition of any MTCR delegation to inter-regime dialogue meetings. This means that even one partner's objection is effectively a veto and can block any decision.

The MTCR does not have a public set of rules of procedure or a similar constituting document. Instead, the terms of reference for the MTCR point of contact (POC)—a

¹¹ MTCR, 'Annex' (note 7), category I.

¹² MTCR, 'Annex' (note 7), pp. 3–6.

¹³ MTCR, 'Frequently asked questions' (note 8).

position held permanently by France—specify that one of the responsibilities of the POC is to maintain and circulate a compendium of consensus decisions taken at any of the MTCR annual plenary meetings, POC meetings and reinforced point of contact (RPOC) meetings, as well as up-to-date versions of the MTCR guidelines and annex. Any intersessional decision making is also administered by the POC and requires unanimous agreement. The compendium of consensus decisions effectively serves as the reference for rules of procedure in the MTCR, but it is not available to the public.¹⁴

The MTCR plenary and subgroups

The institutional set-up of the MTCR is composed of the plenary and several subgroups, also referred to as experts meetings, through which the partners implement the different regime functions (see figure 2.1). Notably, the composition of national delegations varies for each of the subgroups in line with the required experience and expertise.

The MTCR plenary

The plenary is the central decision-making body of the MTCR. It provides the forum through which the partners can engage in high-level policy discussions on the MTCR and take formal consensus decisions. The plenary meets annually and is hosted on a rotational basis by the incoming chair of the MTCR. The plenary week, which includes the plenary meeting and various meetings of the MTCR's subgroups, usually takes place every year in or around October.¹⁵ The plenary is normally attended by the entire delegation of each of the partners, including the head of delegation, high-level policy officials, intelligence officers, technical experts, licensing officials, enforcement officers and other national delegates.

The plenary usually debates major developments and trends in missile proliferation, membership applications, the implementation of the guidelines, and proposals prepared by the subgroups for decisions about changes to the MTCR annex and any other official MTCR documents. It also discusses the chair's planned programme of work and their mandate for conducting outreach activities and representing the MTCR during their period as chair. A volunteer partner is appointed as the MTCR chair to chair the plenary and undertake associated responsibilities for a period of one year.

The technical experts meeting

The main responsibility of the technical experts meeting (TEM) is to maintain the MTCR annex. It does this by discussing and sharing information on relevant technological developments and, if necessary, by preparing amendments or additions to the annex to be adopted by the plenary. The partners' delegations to the TEM are usually composed mainly of technical experts (e.g. aerospace engineers) and experts on the technical aspects of export control policy. The TEM is a unique forum in that it brings together significant technical expertise from all the partners. The TEM is led jointly by a chair and a co-chair, who usually volunteer for a four-year term but swap posts after two years. They have the main responsibility for leading technical discussions in the TEM (primarily the chair) and supporting outreach missions (primarily the co-chair).¹⁶

The technical experts discuss developments in the technology of missiles, UAVs and other uncrewed delivery systems and relevant dual-use technologies and emerging technologies to identify any need for amendments to the annex or for the addition of

¹⁴ Leenman, K., Background briefing provided to the authors, July 2022.

¹⁵ For the dates of previous plenaries see MTCR, 'Press releases', [n.d.].

¹⁶ Leenman (note 14).

any new items to the control list. Delegations prepare working papers (or non-papers) and, eventually, proposals for amendments or additions to the annex and share them with the other partners between sessions. These are then discussed at the annual TEM during the plenary week. Depending on the number of proposals and working papers up for discussion, the TEM chair can also organize intersessional meetings on an ad hoc basis.¹⁷

In recent years, in order to discuss technologies covered by more than one multilateral export control regime and to harmonize—where possible—technical parameters, the TEM has established a procedure for arranging informal meetings with technical experts from other regimes, including the Nuclear Suppliers Group (NSG) and the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-use Goods and Technologies.¹⁸

The licensing and enforcement experts meeting

The licensing and enforcement experts meeting (LEEM) provides a forum for the partners to share experiences and good practices in the implementation of MTCR guidelines, with a particular focus on national licensing processes, enforcement measures and efforts to counter illicit procurement activities. For this purpose, the LEEM assembles national delegations of licensing officials, customs officers, investigators, prosecutors, and other experts and practitioners from the licensing and law enforcement communities.

The licensing and enforcement experts discuss and provide presentations on a wide variety of topics such as transit and trans-shipment, intangible transfers of technology (ITT), second-hand equipment, and the use of open-source intelligence.¹⁹ A particularly valuable aspect of LEEMs is the presentation of detection, enforcement and prosecution case studies concerning illicit procurement activities.²⁰

The LEEM has a regular meeting during the annual plenary week and usually a brief meeting in conjunction with the RPOC meeting. Other intersessional meetings of the LEEM are organized on an ad hoc basis.

The information-exchange meeting

The information-exchange meeting (IEM) provides a forum for the MTCR partners to discuss and brief each other on regional and country-specific issues. These include national missile, UAV and space launch programmes, the impact of emerging technologies, the application of the guidelines to cruise missiles and UAVs, and controls on brokering and illicit procurement, as well as enforcement case studies.²¹ The IEM is the largest of the three MTCR subgroups as it is attended by a wide range of delegates, often including the heads of delegations, policy-level officials, intelligence officers, technical experts, licensing officials and enforcement officers.

The presentations provided in the IEM usually concern partners' assessments of specific developments and proliferation trends of concern. Notably, many different partners take advantage of the opportunity to provide presentations in the IEM. Discussions and presentations often include a high level of detail and may include highly classified intelligence, reflecting 'the willingness of partners to cooperate, exchange views and share sensitive national information'.²²

¹⁷ Leenman (note 14).

¹⁸ Brockmann, K., *Challenges to Multilateral Export Controls: The Case for Inter-regime Dialogue and Coordination* (SIPRI: Stockholm, Dec. 2019).

¹⁹ Leenman (note 14).

²⁰ Bauer, S. and Bromley, M., *Detecting, Investigating and Prosecuting Export Control Violations: European Perspectives on Key Challenges and Good Practices* (SIPRI, Stockholm: Dec. 2019).

²¹ Leenman (note 14).

²² Leenman (note 14).

The IEM holds a regular meeting during the annual plenary week and usually has a brief meeting in conjunction with the RPOC meeting. Other intersessional meetings of the IEM are organized on an ad hoc basis.

The point of contact

The MTCR's activities have become increasingly formalized over the years, both in terms of the regularity of meetings of the different regime bodies and in terms of the application of the guidelines, annex, handbooks and various good practices. However, the MTCR does not have a formal secretariat or a comparable body with a permanent staff that administrates the implementation of the MTCR's various functions.²³ Instead, the partners agreed at their 1990 plenary in Ottawa that France would be designated the MTCR point of contact. The POC would facilitate through the French Ministry for Foreign Affairs in Paris the MTCR's official communication between partners and with adherents and non-partners, information exchange between partners, and intersessional activities.²⁴

Prior to the Covid-19 pandemic, the POC hosted monthly POC meetings—the most frequent type of meeting of the partners— in Paris. Since the outbreak of the pandemic, POC meetings only take place on an ad hoc basis. The POC meetings are generally attended by staff from the embassies of the partners in Paris and are only occasionally attended by national officials from relevant authorities with specific expertise. The POC also frequently participates in outreach activities (see chapter 3) and helps to organize and hosts other intersessional meetings.

One of the most important functions that is run and administrated by the POC is the MTCR's information exchange, through which the partners share information, including on licence denials, countries or missile programmes of concern, and illicit acquisition attempts. Initially, all information was submitted to the POC and shared in paper form with all partners by the POC. Since 2006/2007, the MTCR has used the ePOC, a protected electronic system and database managed by the POC that facilitates the sharing with all partners of information, working documents and notifications.²⁵

The reinforced point of contact meeting

The RPOC meeting is the only intersessional policy-level meeting of the MTCR. The RPOC meeting is organized, hosted and chaired by the POC in Paris, usually in April or May.²⁶ The RPOC meeting is commonly used for follow-up discussions on topics from previous plenaries, topics of ongoing discussion, and the preparation of and planning for the next MTCR plenary meeting.

As noted above, short meetings of the IEM and the LEEM also take place back-to-back with the RPOC meeting. These are used to start preparations for these subgroups' main meetings during the plenary week, including by initiating the drafting of their agendas.²⁷

Institutional and operational challenges of the MTCR's bodies

A key operational issue experienced by the MTCR is finding partners that are willing to volunteer for the role as MTCR chair. On several occasions, most recently 2010/11 and 2018/19, none of the partners volunteered and the MTCR was left without a

²³ MTCR, 'Frequently asked questions' (note 8).

²⁴ Greene, O., 'Missile proliferation and control', eds E. Clegg, P. Eavis and J. Thurlow, *Proliferation and Export Controls: An Analysis of Sensitive Technologies and Countries of Concern* (Deltac/Saferworld: Chertsey, 1995), p. 69.

²⁵ Anthony, I., Bauer, S. and Wetter, A., 'Controls on security-related international transfers', *SIPRI Yearbook 2008: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2008), p. 500.

²⁶ MTCR, 'Frequently asked questions' (note 8).

²⁷ Leenman (note 14).

chair for a year. During these periods, the MTCR does not have a partner that can act as its representative, move forward its agenda, implement an effective outreach programme, engage with other international instruments, or—most importantly—host a plenary meeting. When a partner has assumed the chair on short notice it has usually resulted in less preparation, fewer available resources and planned initiatives, and a reduced outreach programme. Two states shared the responsibility as chair in 2015/16 (Luxembourg and the Netherlands) and in 2017/18 (Iceland and Ireland). While this has helped partners with limited resources to make the commitment and share responsibilities, it has not solved the problems associated with a completely voluntary system for selecting future MTCR chairs. Seeking states to volunteer as chair several years in advance can be helpful, but it does not guarantee the sustainability of this process.

Another challenge that the MTCR has faced is ensuring that partner states send experienced and appropriate officials to attend its various meetings and working groups. Some partners cite a lack of resources and the cost of sending larger delegations that include licensing and enforcement experts. To ensure the most valuable outcomes from the subgroups, the partners need to send delegates who have the relevant expertise or would at least benefit from the knowledge they would acquire by participating in the meetings.

LEEM chairs have previously encouraged all partners to send licensing and enforcement officers to participate in the LEEM. However, not all partners consistently do this, or only send policy officers without relevant experience. Following this recommendation could also help increase the range of states that take the opportunity to provide presentations, as currently these are usually given by only a limited number of states.²⁸

In the IEM, another limiting factor has been that discussions have focused on the missile programmes of a limited numbers of states. Expanding these discussions to include a focus on a wider range of states engaging in missile programmes could help develop a more global view of missile proliferation and the MTCR's role in preventing illicit procurement. Improving expert and practitioner participation and diversifying the presentations provided in the different subgroups could help facilitate this.

²⁸ Leenman (note 14).

3. Membership, adherence and outreach

Membership

Membership admission procedure and criteria

When a country wants to join the MTCR, it sends its membership application to the MTCR point of contact. Assessments of membership applications are made individually by each partner, which then informs the other partners about its position in plenary meetings. Decisions on accepting new partners are taken on a confidential, case-by-case basis and by consensus, meaning that any one partner can veto a membership application.²⁹

While there is no formal list of criteria, it is understood that partners consider membership applications based on the applicant's ability to strengthen non-proliferation efforts, its sustained and sustainable commitment to non-proliferation, the effectiveness of its national export control system, including unilateral application of the MTCR guidelines, and its enforcement of such controls.³⁰ However, a partner's assessment also reflects political positions and criteria that relate to the partner's national interests, including security interests.³¹ Broader political considerations—such as bilateral disputes or *quid pro quos* concerning issues not related to the work of the MTCR—have also clearly played a role in decisions on the admission of new partners.³²

Membership development

The MTCR's initial focus was naturally on states that were suppliers of missiles and related technologies, as well as states that could potentially be transit and trans-shipment hubs for the supply of missile technology.³³ Revelations about how Argentina's Condor II missile programme procured technology from several Western states and growing concerns about an increasing number of missile programmes led to a significant expansion of the MTCR in the early 1990s.³⁴ While the first wave of additional partners had been largely Western states, the joining of Russia and South Africa in 1995 signified support for the MTCR expanding to states from the former Eastern Bloc and the Non-Aligned Movement (NAM) that had previously opposed it. However, following the rapid admission of states in the 1990s and up to the early 2000s, the membership has largely stagnated. With the exception of India's accession in 2016—the first since 2004—there appears to be a continued lack of consensus within the MTCR on accepting any new partners.

The growth in membership reflects the ability of the partners to extend membership to the relevant technology suppliers, and it is also a sign of the attractiveness of the MTCR for prospective candidates. With membership of the MTCR comes a range of benefits, such as an ability to shape the regime from within, with regards to both new membership applications and technology controls. Partners also gain access to privileged information, such as intelligence on proliferation threats and cases, and to good practice on enforcement. Although becoming a partner does not provide an entitlement to obtain technology from another partner supplier states do take the recipient state's membership status into account when assessing export licence

²⁹ Ozga, D. A., 'A chronology of the Missile Technology Control Regime', *Nonproliferation Review*, vol. 1, no. 2 (winter 1994).

³⁰ MTCR, 'Partners' (note 1).

³¹ US Secretary of State, 'Missile Technology Control Regime (MTCR)—Guidance for the April 10–11, 2008 RPOC meeting', Confidential cable, 4 Apr. 2008, via WikiLeaks.

³² Davenport, K., 'India's bid to join missile regime fails', *Arms Control Today*, vol. 45, no. 9 (Nov. 2015).

³³ Ozga (note 29).

³⁴ Bowen, W. Q., *The Politics of Ballistic Missile Nonproliferation* (Palgrave Macmillan: London, 2000), p. 37.

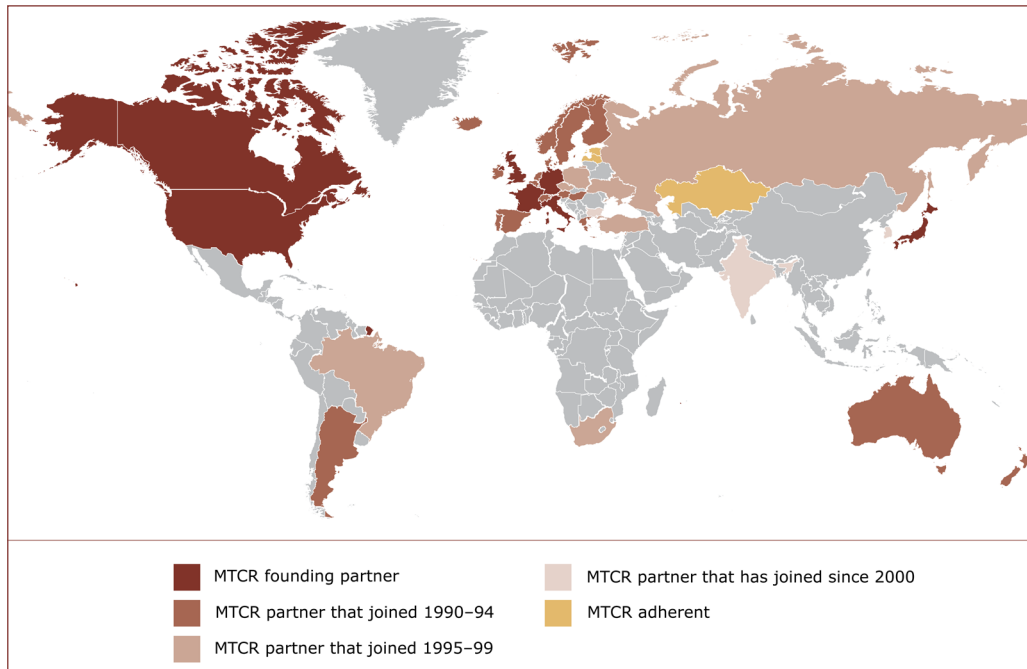


Figure 3.1. Map of Missile Technology Control Regime partners, by year joined, and adherents, 2022

Source: MTCR, 'MTCR partners', [n.d.].

applications.³⁵ In addition, being part of an exclusive group of supplier states has also inevitably made regime membership attractive to prospective partners.³⁶

Today, the majority of MTCR partners are Western states, but key emerging suppliers are also partners (see figure 3.1). As a result, the current MTCR membership gathers a majority of the main possessors and suppliers of missile, UAV and SLV technology. Eight of the 13 states that exported newly produced complete missiles and missile systems with a range greater than 280 km during 1987–2021 are MTCR partners.³⁷ However, a number of states with significant missile programmes (and, for some, with a history of proliferation), states with advanced technological capabilities in the field, and states that are key transit and trans-shipment hubs remain outside the regime. Past and current suppliers of missiles and missile systems that remain outside the MTCR include China, Iran, Israel, Libya and the Democratic People's Republic of Korea (DPRK, or North Korea). Some of these states, such as Iran and North Korea, have no interest in joining. In several cases, applicants have so far failed to obtain consensus from the partners. Russia has refused to give its approval for applications by members of the European Union (EU) or the North Atlantic Treaty Organization (NATO) since Bulgaria's admission in 2004, even though at least nine further EU member states have applied.³⁸ In 2008 Russia stressed that 'the Partners should open up the MTCR to countries that possess significant missile technology' and indicated that it supported membership for China and Kazakhstan.³⁹ China applied for MTCR membership in 2004 but its admission, like that of Kazakhstan, has been opposed by a

³⁵ E.g. Council of the European Union, 'User's guide to Council Common Position 2008/944/CFSP (as amended by Council Decision (CFSP) 2019/1560) defining common rules governing the control of exports of military technology and equipment', 16 Sep. 2019, p. 114. See also chapter 5 in this volume.

³⁶ Beck, M., 'Reforming the multilateral export control regimes', *Nonproliferation Review*, vol. 7, no. 2 (summer 2000); and Ozga (note 29).

³⁷ SIPRI Arms Transfers Database, Mar. 2022, <<https://www.sipri.org/databases/armstransfers>>.

³⁸ US Secretary of State, 'Missile Technology Control Regime (MTCR): Results of the November 5–9, 2007 Athens plenary', Confidential cable, 8 Jan. 2008, via WikiLeaks.

³⁹ US Secretary of State (note 38). See also US Embassy in Astana, 'Kazakhstan: Inter-agency delegation to visit Washington to discuss Kazakhstan's request to join the MTCR', Confidential cable, 20 Apr. 2009, via WikiLeaks.

number of partners.⁴⁰ Opponents include the United States, which cites weaknesses in their missile-related export controls.⁴¹ Türkiye has also unilaterally blocked Cyprus's application for many years.⁴²

The ongoing stalemate and current geopolitical tensions make the accession of these applicants appear highly unlikely in the near future. The diverging priorities of partners also reflect a lack of clarity on the objectives that MTCR membership should serve. While some appear to seek expanded membership, others aim to limit membership to the key suppliers of relevant technology.

Adherence

Adherence procedure and criteria

Since the creation of the MTCR, the partners have encouraged unilateral adherence to the regime, including through their outreach activities. Several states, including China, Israel, Russia and South Africa, pledged their adherence to the guidelines as early as the beginning of the 1990s.⁴³ To formalize the commitment of states that had declared their unilateral adherence to the MTCR, and to provide an incentive for additional states to do so, at the 2014 plenary the partners agreed to set up an official adherence procedure.⁴⁴ To become an adherent, a state formally notifies the MTCR point of contact in writing of their 'political commitment to control all of the items on the MTCR Annex according to the MTCR Guidelines'.⁴⁵ States must also commit to implementing any subsequent changes to the guidelines and annex.

Adherence to the MTCR is voluntary and does not require the approval of the partners, and the guidelines stress that the partners welcome adherence by any and all states.⁴⁶ Official adherents are listed on the MTCR website and in the annual public statements from the plenary. While declaring adherence has no relationship with MTCR membership, and application to be admitted to the MTCR is an independent process, declaring a political commitment to adhere to the MTCR represents a step through which a state can demonstrate the seriousness of its commitment to the MTCR.

Adherence development and incentives

To date, three states have become adherents to the MTCR since the formal adherence procedure was established in 2014. Estonia and Latvia declared their adherence in 2014/15 and Kazakhstan did so in 2018/19.⁴⁷ Several of the states that declared prior to 2014 that they would unilaterally adhere to the MTCR guidelines and adopt the annex have not submitted the political declaration required by the adherence procedure. These include China, Cyprus, Iraq, Israel, North Macedonia, Romania and Slovakia.⁴⁸

The partners have set up a number of incentives to encourage states to become adherents. Adherents, applicants, and those interested in becoming adherents or partners receive a briefing about changes made to the annex during technical outreach

⁴⁰ US Secretary of State (note 31).

⁴¹ US Secretary of State (note 31); and US Embassy in Astana (note 39).

⁴² Cypriot Embassy in Doha, 'Turkey's persistent vetoing of Cyprus' membership in international organizations, arrangements and treaties', Dec. 2006.

⁴³ Ozga (note 29).

⁴⁴ MTCR, Plenary meeting, Public statement, Oslo, 3 Oct. 2014.

⁴⁵ MTCR, 2014 plenary (note 44).

⁴⁶ MTCR, 'Guidelines' (note 6), guideline 8. See also MTCR, 'Adherence policy', [n.d.].

⁴⁷ MTCR, Plenary meeting, Public statement, Rotterdam, 9 Oct. 2015; and MTCR, Plenary meeting, Public statement, Auckland, 11 Oct. 2019.

⁴⁸ Alberque, W., *Revitalising Arms Control: The Missile Technology Control Regime (MTCR) and the Hague Code of Conduct against Ballistic Missile Proliferation (HCoC)* (International Institute for Strategic Studies (IISS): London, Nov. 2021). Following its unsuccessful membership application in 2004, in 2008 China restressed its commitment to the goals of the regime. See Nikitin, M. B., Kerr, P. K. and Hildreth, S. A., *Proliferation Control Regimes: Background and Status*, Congressional Research Service (CRS) Report for Congress RL31559 (US Congress, CRS: Washington, DC, 25 Oct. 2012).

Table 3.1. Publicly reported bilateral MTCR outreach visits, 2012/13–21/22

| Period | Chair | No. of visits | Bilateral outreach missions |
|----------------------|---------------------------|---------------|--|
| 2021/22 | Russia | 6 | Belarus, Kazakhstan, Mexico, Pakistan, United Arab Emirates, Viet Nam |
| 2020/21 | Austria | 1 | Mexico |
| 2019/20 | New Zealand | 1 | Israel |
| 2018/19 ^a | – | – | .. |
| 2017/18 | Iceland and Ireland | 3 | Israel, Jordan, Pakistan |
| 2016/17 | South Korea | 5 | Kazakhstan, Kuwait, Myanmar, Pakistan, Singapore |
| 2015/16 | Luxemburg and Netherlands | 7 | Chile, Indonesia, Israel, Kazakhstan, Oman, Pakistan, United Arab Emirates |
| 2014/15 | Norway | 1 | Indonesia |
| 2013/14 ^b | Italy | .. | .. |
| 2012/13 | Germany | 2 | Pakistan, United Arab Emirates |

MTCR = Missile Technology Control Regime

^a No MTCR partner was willing to assume the chair in 2018/19. Consequently, no outreach visits were conducted during this period.

^b No public information is available on outreach visits conducted in 2013/14.

Source: MTCR, Annual plenary statements, 2013–21; SIPRI Yearbook, 2013–22 editions; and MTCR Twitter account (@MTCR_Chair), <https://twitter.com/MTCR_Chair>.

meetings (TOMs).⁴⁹ The first TOM was held in 2009, and subsequent meetings took place in 2014, 2016 and 2018, gathering from 8 to more than 20 non-partners.⁵⁰ Adherents get an opportunity to present their own export control policies during these visits and can even propose possible changes to the annex to the partners.⁵¹ They can also receive presentations made at the LEEM, if the partners agree to share them, and meet bilaterally with the MTCR chair. Such meetings provide an opportunity for adherents to receive information on the outcome of plenary meetings and to further discuss the annex.⁵²

The lack in uptake of the adherence procedure may reflect that it is viewed as ‘second class membership’ and that concerns have been raised that adherents might never be admitted as partners. The establishment of an official adherents category and the associated incentives were not accompanied by a clear strategy or road map to guide the work under different MTCR chairs and to stress the main objectives of creating this new category. As a result, incentives such as organizing TOMs and the sharing of LEEM presentations have largely been implemented in an ad hoc manner, depending on the willingness of individual chairs or partners to engage in these activities. This means that, while there is sporadic engagement with adherents, there is no regular follow-up. Another, related, shortcoming is the lack of clear communication of the benefits associated with MTCR adherence. In the authors’ experience from participating in capacity-building efforts, officials from many non-partners are unaware of the benefits and opportunities of adherence to the MTCR. Eight years after the formalization of the adherence procedure, the number of formal adherent states remains low (see figure 3.1), although an increasing number of states have adopted versions of the EU dual-use control list and voluntarily follow the MTCR guidelines.

⁴⁹ US Secretary of State, ‘Missile Technology Control Regime—US proposals on technical outreach and machine tools’, Confidential cable, 3 Oct. 2008, via WikiLeaks.

⁵⁰ MTCR, 2016 MTCR technical outreach meeting, Report by the MTCR chair, 20 Apr. 2016; MTCR, ‘Frequently asked questions’ (note 8); and MTCR Chair (@MTCR_Chair), ‘We were delighted to welcome colleagues from eight non-Partner countries to the 2018 Technical Outreach Meeting in Reykjavik last week. We hope to continue this successful engagement throughout the rest of our year as Co-Chairs. @DisarmamentIRL @dfatirl @MFAIceland’, Tweet, 29 Mar. 2018.

⁵¹ Leenman (note 14).

⁵² MTCR, ‘Contact with adherent States (Estonia and Latvia)’, Report by the MTCR chair, 6 Apr. 2017.

Outreach missions and engagement with non-partners

Outreach to non-partners serves to promote the MTCR's objectives, adherence to its guidelines and annex, and the regime's transparency. Each year, the partners provide the new chair with a general mandate to conduct outreach. The chair therefore prepares their programme—which may follow suggestions provided by partners—implements it and then reports on outreach conducted at the end of their period in office.⁵³ Outreach can cover a broad range of topics, from missile proliferation to the MTCR's objectives and the guidelines and annex. Membership can be discussed but not offered during an outreach visit.

Outreach has taken several forms, from bilateral contacts between a partner and a non-partner, including on the sidelines of TOMs or other forums and conferences, to formal outreach visits to prospective partners set up by the MTCR chair. At least 26 such formal bilateral outreach visits have been publicly reported since 2012 (see table 3.1). As well as the MTCR chair, these visits can involve the IEM, LEEM and TEM chairs and co-chairs, the POC, or the previous and incoming MTCR chairs.⁵⁴ According to the MTCR website, each visit should also include representatives of at least four MTCR partners.⁵⁵ However, this has not always been the case in recent visits. For example, in 2021/22 the Russian chair met with Belarus without other partners joining the visit and some meetings may not have been preceded by a communication to the partners about an upcoming outreach mission.⁵⁶ This could set a precedent whereby the chair gains increased autonomy in designing their outreach programme, potentially at the expense of coordination among partners. Other types of outreach have included attendance by the chair at seminars and other events that provide an opportunity to engage with academia, industry and other multilateral instruments.⁵⁷

The future of membership, adherence and outreach

As noted above, the growth in MTCR membership has largely stagnated since the early 2000s and partners have seemingly entered a stalemate over the admission of new partners, while only three states have used the adherence procedure established in 2014. To strengthen the MTCR, the partners should engage in a broader discussion about their objectives in increasing the membership of the MTCR. In particular, partners should seek to determine whether the overarching goal is expanded membership to universalize the standards established by the MTCR and strengthen states' adherence to the guidelines, or if the goal is to ease future decision making by limiting regime membership.⁵⁸

In the short term, the circumstances created by Russia's renewed invasion of Ukraine mean that no consensus on any expansion of membership can be expected. It is also unclear if maintaining the current membership level would ensure constructive decision making in the future. The partners should therefore focus discussions on developing a strategy for how they intend to approach regime membership in the future and continue outreach to key missile-exporting and transit and trans-shipment states. In the longer term, applications from other states whose export control systems

⁵³ Leenman (note 14).

⁵⁴ MTCR, 'Partners' (note 1); MTCR, *Missile Technology Control Regime Newsletter*, Sep. 2020; and Leenman (note 14).

⁵⁵ MTCR, 'Partners' (note 1).

⁵⁶ MTCR Chair (@MTCR_Chair), 'On March 2–3, 2022, the MTCR delegation carried out its 5th outreach mission to Minsk, where it held discussions with the MFA and government agencies involved in export control and visited the local customs clearance center. Many thanks to our colleagues for their warm welcome!', Tweet, 3 Mar. 2022; and MTCR Chair (@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.', Tweet, 22 Dec. 2021.

⁵⁷ See e.g. the outreach activities carried out by the New Zealand MTCR chair in 2019/20, which are detailed in the MTCR *Newsletter* (note 54).

⁵⁸ Gahlaut, S. and Zaborsky, V., 'Do export control regimes have members they really need?', *Comparative Strategy*, vol. 23, no. 1 (2004), pp. 79–80.

already apply the MTCR guidelines—such as Malaysia, Singapore and the United Arab Emirates—might find consensus more easily than current applicants.⁵⁹

More transparency and public communication (see chapter 4) about the MTCR's approach to membership could also help increase the regime's legitimacy. The partners could, in particular, consider increasing transparency surrounding membership decisions and the process through which these decisions are reached. While MTCR meetings must retain confidentiality, increased transparency, including in annual public statements, could contribute to assessing the progress of ongoing membership applications. Referring to the informal list of criteria when making assessments of membership applications could serve to structure the application process and provide the basis for a common assessment. Engagement with other relevant instruments, including UN Security Council Resolution 1540 and the HCOC, could also help strengthen the appeal of the MTCR and provide an opportunity for clear messaging about membership and adherence.

As increased membership remains for now unlikely, the partners should focus short-term efforts on strengthening the adherents category. Internally, the partners should try to define priorities for engagement and outreach with possible adherents, including states that have already unilaterally aligned their controls with the MTCR guidelines and annex but have not formally declared their adherence. In the longer term, if more states were to become adherents, the nature of the engagement with adherents would also be likely to evolve, with the input of adherents probably becoming more important.

More regular engagement with the adherents could also be leveraged as an advantage of becoming an adherent. The partners could consider holding a more consistent set of events with adherents, applicants and recipients of outreach visits, such as more frequent TOMs—for example, every year in conjunction with an intersessional TEM. The partners could also consider systematizing follow-up after outreach visits to maintain good lines of contact and a fruitful relationship with these states.⁶⁰ Digital or hybrid formats could be explored for this follow-up. The partners could also lead efforts through their outreach visits and communication channels to increase the visibility of the adherence procedure and to clearly outline the incentives currently offered. In particular, this could focus on how adherents receive assistance to establish or improve their export control systems.

Aside from increased engagement, providing additional incentives could be a way of encouraging more states to become adherents. Unlike the other multilateral export control regimes, the MTCR has not made public any of the good practice documents that it has produced—these have only been shared between the partners.⁶¹ Publishing them, or at least sharing them with adherents, would increase the visibility of the regime and of the work carried out within it, and it may help states with less effective export control regimes to take the necessary steps to strengthen their provisions. The partners could also share more of the presentations they make during LEEMs. Currently, few presentations are made available to adherents, even though they can provide valuable information on how export licensing decisions are taken and could help with the adoption of good practices.⁶² The introduction of the adherents category created a way for the MTCR to have non-partners make a more formal and sustainable commitment to the guidelines and the control lists. Developing a strategy around adherence would now serve to strengthen this category.

⁵⁹ Van Diepen, V. H., Remarks for Center for Nonproliferation Studies—Arms Control Association MTCR 30th year event, 15 Feb. 2018.

⁶⁰ Leenman (note 14).

⁶¹ Leenman (note 14); and Brockmann, K., 'Controlling ballistic missile proliferation: Assessing the complementarity between the HCOC, MTCR and UNSCR 1540', HCOC Research Papers no. 7, Fondation pour la recherche stratégique, June 2020.

⁶² Leenman (note 14).

4. Transparency and regime guidance

The partners generally view the MTCR as a ‘transparent regime’, citing the publication of the guidelines and annex and its outreach activities and engagement with broader audiences as evidence.⁶³ However, although the MTCR encourages all states to adopt its guidelines and annex, non-partners are not privy to any of the deliberations that lead to decisions taken at the plenary and other official regime meetings as these are strictly confidential. In combination with the limited membership of the MTCR, the necessarily confidential nature of regime meetings and processes has often been used to criticize the MTCR as an exclusive club shrouded in secrecy that nevertheless claims legitimacy for itself.⁶⁴ It could therefore be seen as a public relations issue rather than a transparency issue. Increased transparency, visibility and public communication would be a key step that could help the MTCR improve non-partners’ understanding of its activities, reduce accusations of discriminatory practices, and thus ultimately improve the perceived image and legitimacy of the regime.

Public communication of regime activities

One of the key aspects of transparency is the publication of information on and public communication about regime activities. The MTCR provides information through a range of different channels, including press releases and public statements, the MTCR website, the MTCR chair’s Twitter account and the MTCR newsletter and through participation in events organized by third parties.

Public statements

The MTCR partners collectively release a public statement on the conclusion of each annual plenary.⁶⁵ The statement usually includes a broad description of the deliberations during the plenary and reiterates the partners’ commitment to the MTCR’s goals and to the implementation of the guidelines and annex. The statement usually mentions the broad topics discussed during the IEM and LEEM but does not mention which technologies or listed items have been discussed in the TEM. The public statements after the plenary have been similar over the last 10 years and provide only limited hints about the direction of discussions on membership issues and proposed changes to the guidelines and annex.

On rare occasions, the MTCR or the chair has also issued public statements on events of particular importance to the MTCR (e.g. concerning proliferation activities), on significant regime anniversaries or to jointly appeal for adoption of the guidelines.⁶⁶ The denunciation of specific states’ missile proliferation activities has usually been limited to those cases covered by UN Security Council resolutions, such as Iran and North Korea.

⁶³ de Klerk, P., MTCR Co-chair, ‘The Missile Technology Control Regime: Successful international co-operation, with limits’, Statement at the 23rd Asian Export Control Seminar, Tokyo, 23–25 Feb. 2016.

⁶⁴ van Ham, P., ‘The MTCR at 30: Ideas to strengthen the missile technology control norm’, Policy brief, Clingendael–Netherlands Institute of International Relations, Nov. 2017, p. 2.

⁶⁵ MTCR, ‘Press releases’ (note 15).

⁶⁶ MTCR, ‘Other public documents’, [n.d.]; and MTCR, ‘Press releases’ (note 15).

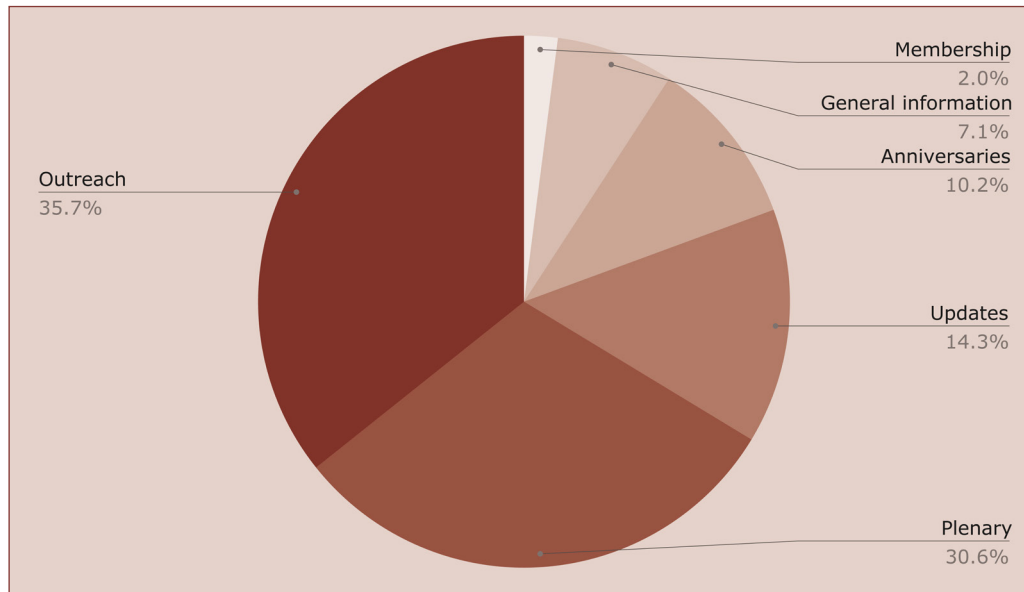


Figure 4.1. Missile Technology Control Regime Twitter account posts, by topic, 1 October 2015–1 September 2022

Note: A total of 98 tweets were posted between 1 Oct. 2015 and 1 Sep. 2022. ‘General information’ posts are about the MTCR, the brochure and the newsletter; ‘Plenary’ posts are about the annual plenary and the handover of the chair; ‘Anniversaries’ posts concern MTCR anniversaries; ‘Updates’ are posts on updates to the annex, the annex handbook and the website, press releases, and statements by the troika (the current, previous and incoming chairs); ‘Outreach’ posts are on the chair’s outreach activities and participation in events; and ‘Membership’ posts are on changes in MTCR membership.

Source: MTCR (@MTCR_Chair), Twitter account, <https://twitter.com/MTCR_Chair>.

The MTCR website

The MTCR’s website was first created in 2002 during Canada’s period as chair and has since been managed and maintained by Canada on behalf of the partners.⁶⁷ The website underwent a major update in 2016.⁶⁸

The website includes information on the partners and adherents, MTCR principles on trade, the MTCR guidelines and annex, public documents, news items, press releases and frequently asked questions.⁶⁹ The website is available in English, French and German.

The news section of the website is sometimes updated infrequently and can provide information inconsistent with that provided through other channels. For example, it does not consistently provide reports on outreach missions and the chair’s participation in events organized by third parties. In the past few years this information has often only been provided via the official Twitter account (see below) or has only been mentioned in other statements or presentations.

The MTCR Twitter account

Since October 2015, the MTCR has had an official presence on social media platform Twitter. Under the account name ‘MTCR’ there is an official account of the MTCR chair that is at the disposal of the incumbent chair.⁷⁰

Twitter posts have largely been used by the MTCR chairs to flag the outreach activities they conduct, to communicate and share impressions on the annual plenary and

⁶⁷ MTCR, MTCR, Plenary meeting, Public statement, Warsaw, 27 Sep. 2002.

⁶⁸ MTCR Chair (@MTCR_Chair), ‘The modernized #MTCR website is now online. Have a look at <http://mtrc.info>’ @DutchMFA @MFA_Lu, Tweet, 4 July 2016.

⁶⁹ MTCR, ‘Missile Technology Control Regime’, <<https://mtrc.info>>.

⁷⁰ MTCR (@MTCR_Chair), Twitter account, <https://twitter.com/MTCR_Chair>.

the handover of the chair, and to share press releases, updates to the MTCR annex and MTCR annex handbook, and changes to MTCR membership (see figure 4.1).

In recent years, the most frequent postings have been about outreach activities conducted by the chair, including both official outreach visits and participation in relevant conferences and events. Notably, the MTCR Twitter account has at times provided a more comprehensive account of MTCR outreach activities than the news section of the website.⁷¹

The MTCR newsletter

The MTCR has only published a dedicated newsletter on one occasion, towards the end of New Zealand's tenure as MTCR chair in 2019/20.⁷² The newsletter included reflections from the plenary chair, short reports from the TEM, LEEM and IEM chairs, and an introduction from the incoming MTCR chair. In addition, it discussed the topic of hypersonic missiles and outreach activities.

The exercise of reporting the perspectives of the chairs of the different MTCR bodies and discussing specific technologies or topics of concern has not been repeated.

Participation of plenary and subgroup chairs in events

The MTCR and subgroup chairs occasionally participate in relevant meetings organized by states, international organizations, governance instruments (e.g. the HCOC) and non-state actors, including think tanks and universities. For example, the MTCR chair has often participated in activities in support of UN Security Council Resolution 1540 and in HCOC annual regular meetings. The annual Asian Export Control Seminar has also regularly been attended by the MTCR chair, who delivers a presentation on the MTCR, its recent activities and some of the prevalent discussions among the partners.⁷³

Provision of guidance documents

Coordinating and harmonizing export controls is a key function of the multilateral export control regimes. One important way to enable harmonization is to create common guidance or good practice documents. Each of the multilateral export control regimes has created such documents, but they differ significantly in terms of their number and whether they are shared publicly or restricted to members.

The MTCR guidelines and annex are public documents and any changes to them are also published. On its website, the MTCR publishes a periodically updated MTCR annex handbook, produced by the United States government (in Arabic, Chinese, English, French, Spanish and, albeit outdated, Russian).⁷⁴ This handbook provides valuable explanations and descriptions of all items listed in the annex. While the annex handbook is not an official MTCR document, it is still valuable in making the annex more understandable and user-friendly, including for states that adopt the MTCR annex as part of their dual-use control lists.

Other regimes have published a range of good practice documents that outline agreed standards on how to tackle challenging issues related to the implementation of export controls and related measures. These include general areas such as controlling ITT, transit and trans-shipment, and brokering, but can also relate to specific items covered

⁷¹ MTCR, 'News', [n.d.].

⁷² MTCR, *Newsletter* (note 54).

⁷³ E.g. Sargison, G., 'Missile Technology Control Regime', Presentation to the 27th Asian Export Control Seminar, Tokyo, 12 Feb. 2020; and de Klerk (note 63).

⁷⁴ US Government, *Missile Technology Control Regime (MTCR) Annex Handbook 2017* (MTCR: 2017). The other language versions are available from MTCR, 'Equipment, software and technology annex', [n.d.].

(e.g. man-portable air defence systems) and outreach to certain types of exporter (e.g. research and academia).⁷⁵ For example, the Wassenaar Arrangement has published best practice documents on catch-all controls, internal compliance programmes and ITT controls.⁷⁶ The MTCR does not publish any official guidance document. There is also no public information available on any guidance or good practice materials—whether on a specific topic or targeted in some other way—that the MTCR has produced and shared internally.

The main non-public guidance document that the MTCR has developed is the MTCR enforcement handbook. It is a practical tool to be used by licensing officials and enforcement officers to assist them in performing their duties in relation to goods controlled under the MTCR. The enforcement handbook provides an overview of export controls relating to the MTCR and indicators to identify suspicious permit applications and suspicious exports, as well as intelligence indicators and information to increase the ability of enforcement officers to target shipments suspected of being intended for use in CBN weapon-delivery systems. The enforcement handbook is updated regularly and includes a contacts list through which officials of all partners can be reached at any hour, every day of the week. The contact list is a valuable tool for licensing officials and enforcement officers to enable fast sharing of information between relevant officials.⁷⁷

The future of MTCR transparency and guidance

In order for the MTCR to be perceived as a transparent regime that is engaged in a genuine effort to share information about the work it conducts, it needs to improve its outward communication, increase the consistency and depth of information shared, and provide guidance materials that benefit partners, adherents and non-partners alike.

To this end, the MTCR should develop a strategy for its outward communication that prioritizes activities that help it reach its goal and shape its public image. This requires consistency in the information communicated through its website and Twitter account. The chair and the subgroup chairs should also produce a regular newsletter that provides further insights on specific technical or export control topics under discussion within the regime. Finally, the MTCR should report consistently on its meeting and outreach activities and more clearly outline the objectives it pursues through these activities. The public statement on occasion of the annual plenary could present one such opportunity. Allowing for the statement to reflect diverging opinion could allow for it to provide more information beyond its usual formulaic content.

In addition, the partners should make any guidance and good practice materials that they have produced through the MTCR publicly available for the benefit of adherents and non-partners. They should also consider the production of guidance materials that target audiences that are specific to the MTCR context (e.g. internal compliance programmes and conducting effective outreach to aerospace companies or the NewSpace industry).

Pursuing these steps could improve the understanding by adherents and non-partners of the work of the MTCR and increase the accessibility of relevant information and guidance. It could also enable more meaningful engagement both with officials from non-partners and with the community of experts in research and among compliance practitioners.

⁷⁵ E.g. Nuclear Suppliers Group, 'National practices', [n.d.].

⁷⁶ Wassenaar Arrangement, 'Best practices and guidelines', 7 Sep. 2022.

⁷⁷ Leenman (note 14).

5. The legitimacy of the MTCR

Perceptions and image of the MTCR

In the 1990s, some states and commentators characterized the MTCR and other export control regimes as cartels that prevented states in the developing world from accessing the technology needed for economic development and national security.⁷⁸ In the case of the MTCR, criticism focused on the notion that the controls it required of the MTCR partners were limiting the ability of states in the developing world to develop their space launch and satellite-related industries. For example, in 1999 it was noted that the imposition of restrictions on exports of SLVs was contributing to the unwillingness of India and other key states to apply for membership.⁷⁹

A second concern was that the MTCR was reinforcing existing disparities between those with access to advanced military systems and those without. This view was reflected in an official position paper that Pakistan put forward in 1997, where it argued that the MTCR ‘is a cartel formed by some industrialized countries . . . for promoting their own security interests only’.⁸⁰ The issue has been particularly contentious for the MTCR since—unlike the Nuclear Suppliers Group or, in the case of biological and chemical weapons, the Australia Group—it does not reflect or enforce an internationally agreed non-proliferation, arms control or disarmament norm or treaty.⁸¹

Increased legitimacy through United Nations Security Council Resolution 1540

Some of these concerns about the MTCR and other export control regimes appeared to dissipate during the 2000s. One broader enabling factor was the greater international acceptance of the importance of strategic trade controls and, in particular, recognition of their value in helping to prevent terrorist acquisition of weapons of mass destruction. This shift was partly driven and enabled by the increased focus on these risks in the wake of the terrorist attacks on the United States of 11 September 2001. This response was embodied in UN Security Council Resolution 1540 in 2004, which required all states to ‘develop, review and maintain appropriate effective national export and trans-shipment controls’ and generated a renewed global focus on strategic trade controls.⁸² One consequence of the adoption of the resolution is that ‘almost all countries have felt the pressure to explain whether and how they “do nonproliferation”’.⁸³ The expansion in the scope of the regime’s focus to include terrorist acquisition of missiles was reflected in the internal work of the MTCR.⁸⁴

During this period several vocal sceptics became partners or softened their opposition to the MTCR. In 2004 China formally indicated that it was interested in joining the MTCR, leading to several rounds of dialogue between the regime and China (see chapter 3).⁸⁵ India, a long-time critic of the MTCR, applied for membership in 2015 and became a partner state in 2016. In addition, the positions of Pakistani officials

⁷⁸ E.g. Chellaney, B., ‘An Indian critique of US export controls’, *Orbis*, vol. 38, no. 3 (summer 1994).

⁷⁹ McCarthy, T. V., ‘The Missile Technology Control Regime’, eds M. Barletta and A. Sands, *Nonproliferation Regimes at Risk*, Monterey Nonproliferation Strategy Group Occasional Paper no. 3 (Monterey Institute of International Studies: Monterey, CA, Nov. 1999), p. 20.

⁸⁰ Permanent Representative of Pakistan to the UN, Presentation at the UN Conference ‘New Agenda for Disarmament and Regional Security’, Tokyo, 23 July 1997, quoted in Feickert, A., *Missile Technology Control Regime (MTCR) and International Code of Conduct Against Ballistic Missile Proliferation (ICOC): Background and Issues for Congress*, Congressional Research Service (CRS) Report for Congress RL31848 (US Congress, CRS: Washington, DC, 8 Apr. 2003), p. 9.

⁸¹ See Smith, M., ‘On thin ice: First steps for the ballistic missile code of conduct’, *Arms Control Today*, vol. 30, no. 6 (Aug. 2002).

⁸² UN Security Council Resolution 1540 (note 3), para. 3.

⁸³ Gahlaut, S., ‘United Nations Security Council Resolution 1540 implementation: More of the same or brave new world?’, *Strategic Trade Review*, vol. 5, no. 7 (winter 2019), p. 44.

⁸⁴ Leenman (note 14).

⁸⁵ Huang, C., ‘“Bridging the gap”: Analysis of China’s export controls against international standards’, 25 May 2012.

appeared to be more divided than in previous years, with some noting that Pakistan was not necessarily opposed to joining the MTCR and that it already voluntarily applied many of the guidelines.⁸⁶

The shifts in China's and India's national positions on the MTCR took place at a time when both states were developing and expanding their national systems of strategic trade controls.⁸⁷ These efforts were motivated both by the growing legitimacy of these policy tools and, more broadly, the two countries' economic development and integration into the world economy and associated supply chains. However, they were also driven by a range of factors over and above the legitimacy of strategic trade controls that were contingent to each case. For example, China's shift in views came after it became the subject of US-led political pressure and sanctions measures imposed in response to missile transfers to Pakistan, Saudi Arabia and Syria.⁸⁸ India's application for MTCR membership appears to have been driven by a perception within Indian policymaking circles that joining the MTCR would improve the country's access to missile-related technology.⁸⁹ MTCR membership does not formally create any explicit rights of access to missiles or missile-related technology. However, many states consider an importing states' regime membership status when considering export licence applications.⁹⁰

The broader geopolitical factors that act as both motivators and barriers to accession processes were also present. In particular, there was a widespread perception that the true focus of India's ultimate ambition was gaining membership of the NSG and the associated benefits that this could bring in terms of access to civilian nuclear technology.⁹¹ Membership of the MTCR was thus a way for India to demonstrate its competence in strategic trade controls—and thereby strengthening the merits of its NSG application—while gaining a veto over China's accession to the MTCR. At the time, China was one of the states blocking India's membership of the NSG.⁹² Moreover, China and Pakistan both responded negatively to India's accession to the MTCR, indicating that it weakened the system of multilateral export controls and that it reduced either their interest in joining the MTCR or the likelihood of any application being successful.⁹³

Global export control capacity building and adoption of the MTCR guidelines and control list by non-partners

Several of the partners, in particular the USA and several EU members, have engaged in dual-use export control outreach and capacity-building programmes outside the MTCR framework. Some programmes have explicitly been in support of the implementation of UN Security Council Resolution 1540, while others are part of EU or national CBN and delivery system non-proliferation activities.⁹⁴ The programmes do not usually explicitly promote the multilateral export control regimes, but many capacity-building recipients have moved to adopt either the EU dual-use list or another control list that integrates the MTCR annex and other regimes' control lists, and have therefore adopted many of the standards effectively set by the MTCR. Linking capacity-

⁸⁶ Sajjad Syed, B., 'Why Pakistan doesn't want to join MTCR', *Dawn*, 30 June 2016.

⁸⁷ See Lieggi, S., 'From proliferator to model citizen? China's recent enforcement of nonproliferation-related trade controls and its potential positive impact in the region', *Strategic Studies Quarterly*, vol. 4, no. 2 (summer 2010); and Kumar, S. S., 'What India's new export control regime means for its software industry', *The Wire*, 11 Apr. 2018.

⁸⁸ Huang (note 85).

⁸⁹ BBC, 'India joins elite missile control group MTCR', 28 June 2016.

⁹⁰ E.g. Council of the European Union (note 35), p. 114.

⁹¹ Pathak, S., 'After NSG upset, India joins MTCR', *News Aur Chai*, 29 June 2016.

⁹² BBC (note 89).

⁹³ Chinese Ministry of Foreign Affairs, 'Foreign Ministry spokesperson Hong Lei's regular press conference on June 28, 2016', 28 June 2016; and Sajjad Syed (note 86).

⁹⁴ See e.g. European Commission, Service for Foreign Policy Instruments, 'EU P2P Export Control Programme: Dual-use trade control', [n.d.]; US Department of State, Bureau of International Security and Nonproliferation, 'Export control and related border security program', [n.d.]; and United Nations, Security Council, 1540 Committee, 'Offers of assistance', [n.d.].

building efforts to the obligations under Resolution 1540 provides an international legal reference and therefore increases the MTCR's legitimacy.

The MTCR's evolving role as a provider of public goods

By making the MTCR guidelines, the continuously updated annex and the annex handbook available to the public, the MTCR not only seeks to be transparent but also provides a public good: non-partners can use these resources to meet international obligations and to help prevent the proliferation of missiles and other uncrewed delivery systems capable of delivering CBN weapons.

The provision of this public good, the increasing transparency on the reasoning behind changes to the annex and the provision of additional guidance documents could further benefit the implementation and global harmonization of missile-related export controls and improve the legitimacy of the MTCR.⁹⁵

Challenges to the legitimacy of multilateral export control regimes

The rise in the geopolitical tensions between China and the West has seen a growing use of export controls to pursue national security objectives and an interest and willingness to coordinate policies outside the framework provided by the regimes. In response, the growth in the international consensus around the value and purpose of strategic trade controls that emerged in the 2000s has slowed or reversed and questions have been raised about the value and future purpose of the regimes.

Beginning with the US administration of President Barack Obama and continuing under those of presidents Donald J. Trump and Joe Biden, the United States has significantly expanded the restrictions it imposes on exports of dual-use items to China, citing both national security and human rights grounds, and has imposed sanctions on a range of Chinese companies for violations of US controls on re-exports. The USA has also sought to coordinate these efforts with like-minded MTCR partners and, in particular, with the EU and its member states. In June 2021 the EU and the USA launched the EU–US Trade and Technology Council (TTC) which, among other things, is focused on coordinating controls on transfers of advance dual-use technologies to China.⁹⁶

The expansions in membership of the MTCR and the growing political divisions among partners has led some commentators to argue that the MTCR and other regimes can no longer serve their original intended purpose and may need to be replaced or supplemented by other arrangements.⁹⁷ For its part, China has sought to build international support for the notion that the USA and the EU are using trade control measures to pursue nationally defined economic and security objectives and that this is undermining the use of these tools to pursue commonly shared global objectives. In doing so, China has sought to reignite some of the concerns about the cartel-like nature of the regimes that were more widely held in the 1990s and 2000s. In December 2021 China secured the narrow adoption by the UN General Assembly of Resolution 76/234, which noted 'with concern that undue restrictions on exports to developing countries of materials, equipment and technology for peaceful purposes persist' and tasked the UN secretary-general with collecting states views on this issue.⁹⁸

⁹⁵ Brockmann (note 61).

⁹⁶ Bromley, M., Brockmann, K. and Maletta, G., 'Developments in the European Union's dual-use and arms trade controls', *SIPRI Yearbook 2022: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2022), pp. 626–27.

⁹⁷ Beck, M. D. and Jones, S. A., 'The once and future multilateral export control regimes: Innovate or die', *Strategic Trade Review*, vol. 5, no. 8 (winter/spring 2019).

⁹⁸ UN General Assembly Resolution 76/234, 'Promoting international cooperation on peaceful uses in the context of international security', 21 Dec. 2021, preamble and para. 2.

China has sought to emphasize that it is not seeking to question the legitimacy of the export control regimes.⁹⁹ In its submission to the UN secretary-general, it notes that

The existing non-proliferation-related export control regimes . . . play important roles in achieving the objectives of non-proliferation. . . . China will stay committed to promoting the sound and sustainable development of NSG and . . . is also willing to conduct dialogue and develop relations with [the Wassenaar Arrangement], MTCR and [the Australia Group] in the spirit of equality and mutual benefit.

Rather, China asserts that it is criticizing the regimes' lack of openness to new members, the overly broad nature of their controls lists and, most substantially, the way in which export controls are being implemented by the USA and its allies. However, the resolution has been widely viewed as a direct threat to the legitimacy of the export control regimes. In its submission to the UN secretary-general, Australia asserted that 'The inherent objective of resolution 76/234 undermines the effectiveness of the [NSG, the Australia Group and the MTCR]'.¹⁰⁰

Unilateral reinterpretations of the guidelines

A consistent focus of debate has been the application by regime partners—the United States in particular—of the obligation to exercise an 'unconditional strong presumption of denial' for all category I items.

For example, when the Republic of Korea (South Korea) joined the MTCR in 2001, it agreed with the USA that it would limit the ballistic missiles that it would develop using technology previously acquired from the USA to a range of 300 km range and a payload of 500 kg in accordance with the MTCR restrictions.¹⁰¹ In October 2012 the USA agreed to amend the terms of the bilateral agreement to permit missiles with a range up to 800 km.¹⁰² The new agreement also raised the payload limit for UAVs from 500 kg to 2500 kg and took away all limits on range.¹⁰³ The restrictions were modified upwards in 2017 and 2020 before being lifted entirely in May 2021.¹⁰⁴ The question of how the USA is applying the MTCR guidelines has also been raised in connection with its decision to supply Australia with Tomahawk cruise missiles—which can deliver a 500 kg payload to a range of more than 1000 km—as part of the 2021 trilateral security pact between Australia, the UK and the USA (AUKUS).

The response to the US decisions regarding South Korea and Australia has been relatively muted. China criticized the AUKUS deal and raised questions about the extent to which it conforms with US commitments under the MTCR.¹⁰⁵ However, it appears that no MTCR partner has publicly questioned the conformity of the US decisions with the regime's guidelines. In both cases the USA made presentations to MTCR partner states explaining the ways in which it viewed them as being aligned with the MTCR guidelines, but there was little in the way of public outreach. US officials stated that loosening the limits on South Korea's missile programme 'will have "no implications for other countries' missile-related export behavior"' and that it does "not impact the export control commitments" to which South Korea agreed when it joined the MTCR'.¹⁰⁶

⁹⁹ United Nations, General Assembly, 'Promoting international cooperation on peaceful uses in the context of international security', Report of the Secretary-General, A/77/96, 13 June 2022, p. 18.

¹⁰⁰ United Nations, A/77/96 (note 99), p. 5.

¹⁰¹ Anthony, I., 'Multilateral export controls', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), p. 745.

¹⁰² Choe, S., 'US agrees to let South Korea extend range of ballistic missiles', *New York Times*, 7 Oct. 2012.

¹⁰³ Davenport, K., 'South Korea extends missile range', *Arms Control Today*, vol. 40, no. 9 (Nov. 2012).

¹⁰⁴ Kim, B., 'US lifts missile restrictions on South Korea, ending range and warhead limits', *Defense News*, 25 May 2021.

¹⁰⁵ Chinese Ministry of Foreign Affairs, 'Statement by HE Ambassador Wang Qun on the trilateral nuclear submarine cooperation under AUKUS', 26 Nov. 2021.

¹⁰⁶ Davenport (note 103).

A more substantive debate—and one that potentially poses a greater risk to the long-term health of the MTCR—is taking place within US policymaking circles. Here there is a perception that the obligations generated by MTCR membership are placing unfair or self-defeating restraints on US arms exports. This concern has been raised with particular strength in connection with US exports of UAVs, where US industry representatives and non-governmental experts have argued that the restraints imposed on the USA by its membership of the MTCR are ceding market space and strategic influence to UAV suppliers that are not MTCR partners—China in particular.¹⁰⁷

In July 2020 the USA announced that it would unilaterally reinterpret the MTCR guidelines in order to facilitate sales of UAVs. Under the new policy, the USA announced that it would treat ‘a carefully selected subset’ of uncrewed aerial systems in category I with a maximum airspeed of less than 800 km/hour as category II.¹⁰⁸ The move drew criticism from members of the US Congress and US arms control experts, but the international response was muted.¹⁰⁹ The USA has also sought to have the reinterpretation reflected in a formal alteration to the MTCR guidelines, but these efforts have stalled, primarily due to the opposition of Russia.¹¹⁰ The policy has not been reversed under the Biden administration and continues to inform US decision making on exports of UAVs.

The future of regime legitimacy

The partners and adherents can make efforts to strengthen the legitimacy of the MTCR both within and outside the regime. These efforts are particularly necessary at a time when geopolitical tensions are leading to a re-emergence of narratives of a ‘cartel-like’ nature of the MTCR and other export control regimes.

Outside the regime, coordinated action could be taken by the MTCR partners in the UN General Assembly, in Security Council Resolution 1540-related processes and in missile-related forums, including the HCOG. Officials from regime partners could also highlight the public goods generated by the MTCR and the benefits of adherence when participating in export control outreach and capacity-building activities. This should aim to counter this narrative and emphasize the positive contribution that the work of the MTCR (and the regimes at large) makes to furthering the objectives of the established non-proliferation treaties. These efforts could focus on the fact that the MTCR aims to limit the proliferation of CBN-capable delivery systems. This would serve to strengthen the connection between the MTCR and the global arms control and disarmament normative framework and would emphasize the limits on what the MTCR can try to address in terms of conventionally armed missiles.

Within the regime, new or revised good practice documents, improved transparency, and further strengthening of export control standards through outreach activities could also contribute to elevating perceptions of legitimacy. These efforts would be greatly improved by the establishing of a legal reference or a norm to which the MTCR could appeal. However, this could only be achieved by the creation of either a UN process or—as was the case with 1997 Anti-Personnel Mine Convention and the 2008 Convention on Cluster Munitions—a process outside the UN framework aimed at establishing a multilateral agreement on missile non-proliferation.¹¹¹

¹⁰⁷ Penney, H., ‘US State Department must align UAV export policy with American interests’, *Defense News*, 11 June 2020.

¹⁰⁸ US Department of State, ‘US policy on the export of unmanned aerial systems’, Fact sheet, [24 July 2020].

¹⁰⁹ Kimball, D. G., ‘US reinterprets MTCR rules’, *Arms Control Today*, vol. 48, no. 7 (Sep. 2020).

¹¹⁰ Mehta, A., ‘US to push new rules for drone agreement in November’, *Defense News*, 12 Sep. 2018.

¹¹¹ Alberque (note 48), pp. 26–27.

6. Addressing emerging technologies through the MTCR

A key function of the MTCR is maintaining the annex, thereby ensuring that partners, adherents and non-partners have an up-to-date control list. The annex is a unique reference tool that covers dual-use goods and technologies to help prevent the proliferation of missiles and other uncrewed delivery systems capable of delivering CBN weapons. One of the most frequent criticisms of the MTCR (and of other multilateral export control regimes) is the pace at which the control list is updated and its inability to keep up with technological developments, particularly in relation to what is commonly referred to as ‘emerging technologies’.¹¹²

Emerging technologies

There is no agreed definition of what constitutes an emerging technology. However, several characteristics are commonly associated with emerging technologies, including (a) novel technology elements or novel applications of a technology that have disruptive potential but have not yet reached their full potential; (b) rapid development; (c) partial adoption by some industries or branches of industry; (d) significant dedicated research and development (R&D) efforts; (e) a lack of agreed technical standards on qualities and characteristics that raise proliferation concern; and (f) the absence of a conclusive common risk assessment by supplier states.¹¹³ Notably, there is considerable variation in the applicability of these six characteristics to specific technologies and in the use of the term ‘emerging technology’ in policymaking, business, research and technical expert communities.

Several emerging technologies are currently being considered by the MTCR partners because they necessitate either the addition of new items to the control list or amendment or clarification of existing items. These technologies include production-enabling technologies (e.g. additive manufacturing), missile systems with novel combinations of performance characteristics (e.g. stealthy UAVs, hypersonic boost-glide systems and hypersonic cruise missiles using scramjet engines) and new concepts for civilian space technologies that use dual-use missile technologies (e.g. orbital cargo-retrieval systems).

Challenges posed by emerging technologies

The characteristics of emerging technologies listed above translate into a number of challenges for the MTCR. When a technology contains a novel element, that emerging technology, or at least the novel element, may not have been considered for addition to the annex yet. In particular, until the technology reaches its full potential, a certain ambiguity remains over the significance and the nature of its impact. In this context, reaching a common assessment of the proliferation relevance of a technology and how it should be controlled may require an extended consultation process. States with industries pioneering in the technology or significant investments in R&D efforts may maintain some ambiguity over the maturity of their national capabilities and they may be cautious about sharing sensitive technical information and agreeing to create new

¹¹² Beck and Jones (note 97), p. 67.

¹¹³ Brockmann, K., ‘Drafting, implementing, and complying with export controls: The challenge presented by emerging technologies’, *Strategic Trade Review*, vol. 4, no. 6 (spring/summer 2018).

control list entries quickly.¹¹⁴ In addition, emerging technologies often result in new business practices that present challenges for export control implementation.

The speed of development of emerging technologies is often viewed as a particular challenge for the MTCR. It can be difficult for all partners to follow technical developments, and the low number of meetings each year limits the opportunities for in-person discussions among the technical experts on such developments. The rapid development of many emerging technologies also means that the assessments of both the threats they may pose and the performance characteristics they enable may change frequently. Without broad agreement on the significance of the risk posed and therefore the need to develop new controls, finding consensus is particularly difficult.¹¹⁵

In addition, adding an item to the MTCR control list requires accurate delineation of the specific goods, software or technology, often based on an agreed international standard. In the case of many emerging technologies, there is no such standard that could be used as an appropriate technical parameter to create meaningful and sustainable controls, without having an undue impact on industries making legitimate use of the technology.¹¹⁶ In the absence of established standards it is therefore difficult to design control list items in a way that prevents the technical thresholds selected from quickly becoming obsolete as the technology continues to develop rapidly.¹¹⁷

Ways of addressing emerging technologies through the MTCR and their limitations

Changes to the annex

Adding a new control list item or amending an existing one to capture an emerging technology may require changes to the MTCR annex, which would have to follow a general procedure. Any of the partners can submit a proposal for an amendment or an addition to the annex to the TEM chair. Proposals are usually preceded by presentations during TEMs or submission of working papers or non-papers. Proposals for changes to the annex can be discussed among the technical experts in the TEM during its regular meeting in the plenary week or if an intersessional meeting is organized by the TEM chair.

If the TEM delegates from all partners agree on a proposal, or a revised version, the TEM can forward the proposal to the next plenary for a formal vote to adopt the change to the annex by consensus. If there is no agreement in the TEM but there is clear interest from the partners to continue a focused discussion on the proposal or the specific technology it mentions, the partners can also agree to set up an ad hoc informal working group on the topic.

In most years, there is only one formal meeting of the TEM and possibly one intersessional meeting if a high volume of presentations, papers and proposals have been submitted or have been deferred from previous TEMs. The frequency of meetings therefore limits the opportunities and time available to discuss emerging technologies and other technological developments. However, in practice, according to one delegate, the number of papers submitted and presentations given rarely overburdens the agenda of the TEM.¹¹⁸ In years when the annual plenary had to be cancelled because no partner volunteered to assume the chair or in 2020 when the Covid-19 pandemic

¹¹⁴ Brockmann (note 113).

¹¹⁵ Brockmann (note 18), pp. 14–15.

¹¹⁶ For a discussion of this challenge in the case of additive manufacturing see Brockmann, K. and Kelley, R., *The Challenge of Emerging Technologies to Non-proliferation Efforts: Controlling Additive Manufacturing and Intangible Transfers of Technology* (SIPRI: Stockholm, Apr. 2018), pp. 29–30.

¹¹⁷ Brockmann (note 113), pp. 10–11.

¹¹⁸ National delegate to the MTCR, Interview with authors, 5 Aug. 2022.

prevented meetings from taking place, a higher number of papers and proposals stacked up.¹¹⁹ However, there are rarely specific delays to discussions because of a lack of time in meetings.

Rather, the slow process of agreeing new list items is due more to the challenges outlined above, which often makes finding consensus on an approach to controlling an emerging technology and developing specific parameters for a list item a complex and difficult process. This remains the case even under the current difficult circumstances linked to Russia's invasion of Ukraine and continues to be the main reason why list changes concerning emerging technologies are not quickly adopted.¹²⁰

Incidental controls

In certain cases the materials, components or required technology associated with a particular emerging technology may already be controlled by existing control list items. For example, in the case of additive manufacturing machines, certain lasers used in these machines are already controlled due to their dual-use characteristics in a different context, and these controls can be used to control certain transfers of additive manufacturing machines. Knowledge of such incidental coverage under existing controls can be a helpful means for partners to apply licensing requirements where appropriate.

However, incidental controls provide only a limited ability to capture transfers and they may be short-lived if the control list parameters or threshold values are amended, as was the case for some of the above-mentioned lasers.¹²¹

Catch-all controls

The MTCR guidelines also require the adoption by partners of catch-all controls on unlisted items.¹²² Catch-all controls allow a state to impose licensing requirements on unlisted items under certain circumstance, including knowledge of a possible end use in CBN weapons or their delivery systems and military end uses in a recipient state subject to an embargo. They can be a versatile tool because they enable a partner to control sensitive trade solely on the basis of a possible end use in delivery systems for CBN weapons and require exporters to exercise due diligence concerning the end use of their exports. Catch-all controls can be particularly useful where there is a lack of international standards that could readily be used to define parameters for a list item.

The extent to which partners use catch-all controls varies considerably. Some use them widely to impose licensing requirements on certain items; others use them only when they have the intention to deny a specific transfer.¹²³ Catch-all controls are particularly relevant in the context of emerging technologies because they enable partners to balance security-driven control requirements with economically driven trade-facilitation imperatives, by avoiding the introduction of broad list-based controls while retaining the ability to impose controls based on available intelligence.¹²⁴

Inter-regime dialogue and coordination

In some cases, emerging technologies or other technological developments are of relevance to more than one of the multilateral export control regimes. Discussions thus take place in parallel in each relevant regime from different perspectives and with

¹¹⁹ Horton, A., 'The TEM: Keeping calm and carrying on', MTCR, *Newsletter* (note 54).

¹²⁰ Remarks provided under the Chatham House rule by a participant in the meeting of the Missile Dialogue Initiative, Berlin, 7–8 Sep. 2022.

¹²¹ Brockmann, K., *Additive Manufacturing for Missiles and Other Uncrewed Delivery Systems: Challenges for the Missile Technology Control Regime* (SIPRI: Stockholm, Oct. 2021), pp. 14–15.

¹²² MTCR, 'Guidelines' (note 6), guideline 7.

¹²³ Brockmann (note 121), pp. 14–15.

¹²⁴ Brockmann and Kelley (note 116), p. 26.

the different objectives of the respective regime in mind. Inter-regime dialogue and coordination is a helpful tool to prevent possible control list overlaps using different types of performance characteristic. Consultations between the MTCR and other regimes at the technical level can also improve the understanding of aspects of an emerging technology based on the different regime perspectives. Currently, inter-regime dialogue between the MTCR and the Wassenaar Arrangement could be particularly valuable and could cover topics related to additive manufacturing, hypersonic glide vehicles, spaceplanes, orbital cargo-retrieval systems, and small and micro space launch vehicles.

Inter-regime dialogue and coordination usually take the form of meetings of a small, select group of delegates from two regimes that have each been given a mandate by their respective regime to discuss a specific, defined topic. Setting up inter-regime meetings can be difficult, due not least to the sensitivities of cross-regime engagement generated by the differences in their memberships.¹²⁵ Agreeing on an appropriate mandate may be particularly difficult in the current geopolitical environment and given heightened sensitivities. To facilitate future informal inter-regime meetings of experts, the TEM has developed a more formalized process for their arrangement.¹²⁶

Opportunities for technical expert collaboration without consensus decisions

As outlined above, the nature of emerging technologies makes finding consensus quickly particularly difficult—not just under the specific circumstances of the breakdown in relations due to Russia’s renewed invasion of Ukraine. Notably, technical discussions in the TEM have been less affected, and substantive discussions of technical aspects of emerging technologies, including additive manufacturing and hypersonic glide vehicles, have continued. Discussions in the TEM do not need to rely on consensus decisions, meaning that the partners are able to submit non-papers intersessionally and in the run-up to the annual plenary or to provide presentations on relevant emerging technologies at the plenary. Such non-papers and presentations remain important and can help inform all MTCR partners, as available expertise on certain emerging technologies naturally varies. The partners can also report on national monitoring of technology developments that may pose missile and UAV proliferation risks.

Presentations and non-papers can continue to consider different possible approaches to control list amendments and initiate discussions on how future list changes could be formulated. Informal preparatory processes for proposed list changes can also be advanced through discussions among more limited groups of partners with a particular interest in a certain emerging technology of concern. All of these processes also help the partners in that they provide additional information that can help states with the appropriate and effective application of catch-all controls to as yet unlisted items and, where necessary, help them to impose temporary national controls to block specific transfers.

The future of emerging technologies and maintaining the MTCR annex

The MTCR can take certain steps to improve its ability to address the risks posed by emerging technologies and adopt, where appropriate, timely amendments or additions to the MTCR annex.

¹²⁵ For more elaborate recommendations on how to successfully implement inter-regime dialogue and coordination see Brockmann (note 18), pp. 24–25.

¹²⁶ National delegate to the MTCR, Correspondence with authors, 25 Sep. 2019.

Specifically, the partners should create, where appropriate, ad hoc technical working groups on specific emerging technologies of concern to enable a more continuous and focused engagement among technical experts. The MTCR should also explore possible topics and prepare for future inter-regime dialogue and coordination activities with the Wassenaar Arrangement on specific emerging technologies that have matured sufficiently. In the short term, informal engagement among smaller groups of states may be the most practical solution. The partners should also seek to strengthen their national outreach activities to industry, research centres and academia working with emerging technologies to strengthen awareness, due diligence and compliance.

In addition, the MTCR partners should share experiences and case studies on the effective use of catch-all controls as a means to impose licensing requirements on transfers of uncontrolled emerging technologies. Technical experts should be encouraged to continue to provide technical presentations and submit non-papers in order to improve awareness and expertise of the partners and inform the effective implementation of catch-all controls and outreach to industry.

7. Managing geopolitics and conflict between MTCR partners

Challenges for the MTCR in the context of Russia's invasion of Ukraine

While the tensions between China and the West noted above (see chapter 5) have created a challenge for the MTCR and the other export control regimes, the tensions between Russia and the West—and, in particular, the near total breakdown in relations precipitated by Russia's renewed invasion of Ukraine in February 2022—pose a more existential threat to the regimes' survival. The packages of sanctions measures that the United States, the European Union and other states have imposed on Russia include a major expansion of the range of goods and technologies that are subject to trade restrictions. These include near total bans on exports of all dual-use items to any end user in Russia.¹²⁷ The lists of dual-use items that the USA, the EU and other states have adopted incorporate all items that appear on the MTCR control list, in the drafting of which Russia has an equal say.

More broadly, the MTCR—along with the other multilateral bodies in which both Russia and the states opposing the invasion are members—has become a forum for dispute and disagreement. The RPOC meeting in April 2022 was cancelled and a large number of partner states decided not to cooperate with or participate in outreach visits during Russia's chairmanship.¹²⁸

Previous episodes of conflict between MTCR partners

The MTCR has had to weather significant political storms and challenges in the past. Since 2014 it has had to contend with the challenges associated with having two partners—Russia and Ukraine—in a state of armed conflict with each other. It has also had to contend with the paradoxical situation of partner states imposing trade restrictions on each other. In response to Russia's actions in Ukraine, the EU imposed a ban in 2014 on all exports of dual-use items to Russia for military use or military end users.¹²⁹ There have also been prolonged disagreements over the admission of new partners linked to bilateral disputes between MTCR partners or between partners and the applicant states. In 2016 Italy unilaterally held up India's accession to the MTCR due to a bilateral dispute over India's arrest of two Italian sailors.¹³⁰ As noted above, Türkiye has unilaterally blocked Cyprus's application for many years because of the longstanding dispute over the occupation of Northern Cyprus.¹³¹ In 2008 the MTCR and other regimes had to manage the political fallout generated by Russia's invasion of Georgia and occupation of South Ossetia and Abkhazia. At the time there were reports that meetings of the Wassenaar Arrangement had become highly politicized, with Russia lecturing the other participating states on the destabilizing effects of previous arms transfers to Georgia.¹³²

The tensions and challenges generated in 2022 by Russia's invasion of Ukraine are on a different scale. They raise the open question of whether states that are engaged in direct armed conflict or that have imposed far-reaching economic sanctions on

¹²⁷ European Commission, 'EU sanctions map', 17 Oct. 2022.

¹²⁸ National delegate to the MTCR, Interview with authors, 1 June 2022.

¹²⁹ Council of the European Union, Council Decision 2014/512/CFSP of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 229, 31 July 2014.

¹³⁰ Kington, T. and Raghuvanshi, V., 'Italy blocks Indian application to MTCR', *Defense News*, 17 Oct. 2015.

¹³¹ Cypriot Embassy in Doha (note 42).

¹³² US Mission to the United Nations in Vienna, 'Wassenaar Arrangement: General working group reporting cable', Confidential cable, 7 Nov. 2008, via WikiLeaks.

each other can continue to engage in meaningful bilateral discussions on trade control issues. Moreover, the invasion and the speed and breadth of the response enacted by mainly Western states have also served to legitimize and strengthen calls for the MTCR and other regimes to be replaced or supplemented by other arrangements.¹³³

A key lesson from past episodes is to seek to ensure that, at the very least, work continues on the more technical, enforcement and procedural aspects of the MTCR's work, while issues that are likely to generate tension and division are set aside. There are signs that this approach has been taken and is achieving some level of success. Several delegates to the TEM from different partners interviewed for this report indicated that technical discussions have been considerably less affected by the intra-MTCR tensions resulting from the Russian invasion of Ukraine than policy-level deliberations in the plenary. This is evidenced by the 2022 plenary adopting some updates to the annex agreed by the TEM during the plenary week.¹³⁴

Opportunities and limitations to governing the MTCR without consensus decisions

The consensus rule has often been cited as a major obstacle to the effective operation of the MTCR and the other export control regimes, in particular in connection with the long-standing intra-regime tensions between Russia and the other largely Western-aligned MTCR partners around the USA and the EU member states. Consensus is required for any official decision to be recorded in the compendium of consensus decisions, including admissions of new partners and amendments to the MTCR guidelines or annex. However, many of the functions and processes in the MTCR do not require consensus decisions to continue. These include the technical deliberations in the TEM, discussion of good practices in the LEEM, and the sharing of information on acquisition attempts and on missile or SLV programmes in non-partner countries of concern.

Interviews with TEM delegates indicate that, during previous periods of heightened geopolitical tensions and even during the current crisis over Russia's invasion of Ukraine, meaningful technical discussions have continued on significant topics currently on the agenda. Intersessional working papers and non-papers on relevant topics can also still be submitted and move forward substantive discussions. According to several delegates, the small number or absence of decisions on annex amendments does not result only from the current geopolitical tensions—the vast majority of proposals have not found consensus due to a variety of factors and different states' positions.¹³⁵ The partners can continue to provide presentations concerning good practice in licensing and enforcement (e.g. on combatting certain types of circumvention of controls) to benefit all partners and work towards harmonizing practices. Changes to the enforcement handbook require consensus but are less likely to be affected by current geopolitical tensions. Exchange of information on cases related to the current tensions is unlikely, but this would also be the case under normal circumstances as states are naturally selective about the information they share. Switzerland, the chair for 2022/23, may thus consider putting a particular focus on the implementation of these types of function and, in particular, encourage the other partners to prepare relevant types of presentation and contribution.¹³⁶

¹³³ Wolf K. and Weinstein, E. S., 'COCOM's daughter?', *World ECR*, May 2022.

¹³⁴ National delegate to the MTCR, Interview with authors, 7 Sep. 2022; National delegate to the MTCR, Interview with authors, 8 Sep. 2022; and MTCR, 'Annex' (note 7).

¹³⁵ National delegate to the MTCR, Interview with authors, 8 Sep. 2022; and National delegate to the MTCR, Interview with authors, 5 Aug. 2022.

¹³⁶ Swiss Federal Department of Foreign Affairs, 'Switzerland to chair Missile Technology Control Regime', Press release, 19 Oct. 2022.

Depending on how the MTCR's approach to membership and transparency evolves, the partners may also consider if the MTCR could move away from using only consensus decisions in some of the areas where a consensus is currently required. Instead, the partners could potentially adopt a limited use of qualified majority voting for a subset of MTCR decisions, for example, on appointing the chairs of the plenary and subgroups and on approving the mandate for their outreach and transparency activities. Under certain circumstances (e.g. if only a small minority of partners is opposed), states could agree to add items to the annex for a fixed period after which the entry would need to be reviewed. Some partners could then voluntarily adopt such additions into national legislation, while they would remain non-binding for partners that issue a reservation. This could also allow for the introduction of non-binding MTCR resolutions that do not require consensus and can include statements of reservation.

The future of multilateral cooperation through the MTCR

The current crisis over Russia's renewed invasion of Ukraine has created additional obstacles for the MTCR. At a minimum, in the short term, the partners should seek to focus attention on the more technical topics and practical aspects of the MTCR's work and put the more divisive and political decisions on hold. In this regard, a key focus should be to develop and prepare amendments or additions to the annex for adoption. As difficult as it may be for some states, the partners should seek to continue genuine efforts to demonstrate the value of multilateral cooperation through the MTCR for partners and adherents, of the normative role of the MTCR's objectives, and of the public good that the regime provides through the guidelines and annex.

In the longer term, it remains to be seen how long-lasting the tensions between most partners and Russia will be, what their impact will be, and if the common security interest in preventing the proliferation of CBN weapon delivery systems will enable a return to constructive engagement at the political and policy level. As long as possible, the partners should seek to preserve the unique forums that the TEM, LEEM and IEM provide, and thus the value they have for missile non-proliferation and the effectiveness of states' export control systems.

Finally, the partners should explore whether they could adopt a qualified majority voting system for a subset of MTCR decisions and introduce the possibility of non-binding decisions that allow for reservations to decide on certain temporary measures.

8. Recommendations to strengthen the MTCR to make it fit for current and future challenges

The Missile Technology Control Regime's partners need to strengthen the regime and reform certain of its organizational and operational rules and practices to improve its ability to address current and future challenges. This includes developing a clear strategy for the future of MTCR membership and adherence, improving transparency of the regime's work, strengthening its legitimacy, improving its ability to deal with emerging technologies, and managing the impact of geopolitics on the functioning of the regime.

A vision for membership and adherence

The MTCR should develop a consistent approach to MTCR membership and adherence in the future and strengthen the implementation of the guidelines and annex by partners, adherents and non-partners.

- The partners should determine the objectives that membership and adherence to the MTCR should serve, and they should develop a clear strategy for the future of MTCR membership and adherence.
- The partners should strengthen the adherent category by establishing a programme of more consistent engagement and by actively promoting and expanding the benefits offered to adherents.
- The partners should also develop a strategy for targeted engagement and outreach with possible future adherents. This would act as a means to build capacity in export controls globally and as a vision of how a future MTCR with a large group of adherents could use more inclusive processes.

Improving transparency of the MTCR

Steps can be taken to improve the transparency of the work of the MTCR and facilitate adoption of the MTCR guidelines and annex.

- The MTCR should develop additional guidance and good practice materials.
- The MTCR should share its existing and future guidance and good practice materials with adherents and should consider making them publicly available for the benefit of all non-partners.
- The partners should consider the production of targeted guidance materials on sector-specific internal compliance programmes and conducting effective outreach to aerospace companies and the NewSpace industry.
- The MTCR should develop a strategy for its outward communication that prioritizes activities that help it to reach its goal and shape its public image.
- The MTCR should also ensure consistency of the information communicated through its website and Twitter account.
- The MTCR chair and the subgroup chairs should produce a regular newsletter that provides further insights on specific technical or export control topics under discussion in the regime.

- The MTCR should more consistently report on its meetings and outreach activities and more clearly outline the objectives pursued through these activities.

Strengthening MTCR legitimacy

The legitimacy of the MTCR can be strengthened in several ways.

- In the UN General Assembly, in UN Security Council Resolution 1540 activities and in missile-related forums (including the HCOC) and in export control outreach and capacity-building activities, the partners should coordinate their messaging, engagement and promotion of the underlying norm supported by the MTCR's work, guidelines and annex.
- The MTCR should promote the guidelines and annex and possible future public guidance and good practice materials as public goods that it provides in order to strengthen missile non-proliferation and the export controls of all states.
- The partners should support renewed efforts through the United Nations to establish a multilateral agreement on missile proliferation, potentially emphasizing the non-proliferation norm specific to those missiles capable of delivering CBN weapons.

Strengthening regime procedures to better address emerging technologies

The ability of the MTCR to address the risks posed by emerging technologies can be improved.

- The subgroup chairs and co-chairs should encourage the partners to continue to provide technical presentations and submit non-papers since these improve awareness and expertise across the partners and inform the effective implementation of catch-all controls and outreach to industry.
- The partners should create, where appropriate, ad hoc technical working groups on specific emerging technologies of concern to enable a more continuous and focused engagement among technical experts.
- The partners should consider, where appropriate, setting up more frequent intersessional TEM meetings if circumstances lead to persistently high volume of papers, presentations and proposals submitted.
- The partners should share experiences and case studies on the effective use of catch-all controls as a means to impose licensing requirements on transfers of uncontrolled emerging technologies.
- The partners should also identify possible topics and prepare for future inter-regime dialogue and coordination activities with the Wassenaar Arrangement. In the short term, informal engagement among smaller groups of states will be likely to be the most practical solution.

Managing geopolitics and conflict between MTCR partners

In the face of geopolitical tensions and armed conflict between partners, the MTCR must ensure its continued functioning.

- The partners should continue technical and thematic work and the sharing of good practices through the MTCR's subgroups.
- The MTCR should preserve the unique forums that the TEM, LEEM and IEM provide and thus their value for the effectiveness of states' export controls.

- The partners should continue genuine efforts to demonstrate the value for partners and adherents of multilateral cooperation through the MTCR and the normative role of the MTCR's objectives.
- The partners should also explore if they could adopt limited use of qualified majority voting for a subset of MTCR decisions and introduce non-binding decisions on certain temporary measures that allow for reservations.

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