

A farewell to arms control

Dr John R. Walker

I retired at the end of May 2020 after 40 years working in arms control, just over 35 of them in the UK's Foreign and Commonwealth Office. In that time I have witnessed the Cold War descending into the freezer again in the early 1980s after the demise of détente, the end of the Cold War in the 1990s with the collapse of the Soviet Union, a brief interlude when East–West relationships appeared to be rosy and all things seemed possible, an increase in the threat of chemical and biological weapon (CBW) terrorism, and a descent into a new Cold War between Russia and the West in a new menacing digital age. Despite all this, arms control and disarmament remain vitally important as we try to make the world a safer and more secure place. Both are essential and enduring objectives in UK foreign policy and have been since the 1950s.

I could offer many observations on arms control issues looking back over these 40 years, but here are some discussed under five general headings:

- The importance of science and technology;
- Patience and persistence of purpose;
- Understanding the history;
- Diplomacy and personalities; and
- Reflections on the UK's role

The importance of science and technology (S&T)

'We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.'

—Carl Sagan, US astronomer and astrophysicist

Arms control and disarmament includes controlling and regulating technologies, whether it is about making sure that such things as gas centrifuge uranium enrichment, organo-phosphorus chemistry and gene drives only serve peaceful purposes. We cannot seek to ban technologies or prohibit lines of scientific enquiry since many of them are inherently dual-use, especially in the CBW world where applications stray across many diverse disciplines from medicine, neuroscience to plant health. There will always be risks and benefits. Understanding what these are as well as their possible implications, discerning the trends and potential time-scales for application beyond the laboratory are key to ensuring that the design and implementation of arms control regimes are effective and remain so. This is a dynamic environment, not a static one. Science and technology developments also provide tools to make verification more effective whether through remote sensing, detection and identification instrumentation, analytical chemistry or new genetic sequencing. We must remember that there is always a time lag between the emergence of new technologies and their wider application – and sometimes the early hype either does not translate into early use, or only does so much later than predicted; and then perhaps not as extensively as initially envisaged.

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Patience and persistence of purpose

‘The very greatest things – great thoughts, discoveries, inventions – have usually been nurtured in hardship, often pondered over in sorrow, and at length established with difficulty.’

—Samuel Smiles (1812–1904), Scottish reformer and author.

Arms control and disarmament agreements do not come easily, and when they are established, they then require endless time and effort to keep them effective and relevant. There is not much glamour or political profile in the necessary hard graft at the coal face of protracted, fractious, contentious and at times tedious negotiations and never ending cycles of meetings. At times we simply have to sit it out and endure. Many of the issues in the original negotiations keep coming back and underpin many of the contemporary squabbles in the treaties’ policy making organs, particularly over the scope of decision making, verification and the proper place of assistance in the Non-Proliferation Treaty’s (NPT) Article IV, the Biological and Toxin Weapons Convention’s (BTWC) Article X and the Chemical Weapon Convention’s (CWC) Article XI. Mastery of the detail and getting it right is essential – one day others will have to implement the agreement. While creative ambiguity is unavoidable in the drafting and agreement of treaties (or meeting reports), and sometimes this will be quite deliberate, it will likely stoke up problems for later. For example, the United States conceded the principle of reciprocity in the September 1992 UK/US/Russia Joint Statement on Biological Weapons (the Trilateral Agreement), which later returned to haunt the UK and ultimately led to the agreement’s suspension sine die in May 1996. Other ambiguities or lacunae are inadvertent, either because the issue was not recognised or the negotiators could not envisage future circumstances. These may well reappear to confound the implementation of the treaty and provoke new rows and divergences to be overcome or at least mitigated. Disputes in the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) over medical isotope production and xenon background monitoring provide good examples; and neither did we ever think during the CWC negotiations in the late 1980s when arguing over whether we needed toxicity criteria to define what chemicals to include in the CWC that the use of a novichok agent in Salisbury would threaten the Convention’s integrity.

Multilateral arms control and disarmament negotiations have always been difficult, but they seem to have become even more ill-tempered and polarised over the last decade or so. Substantive progress is extremely difficult to achieve, and only modest goals seem feasible and realisable. I doubt that the CWC in its current form would prove possible to agree in today’s multipolar world whereas the BTWC has grappled with persistent underachievement for decades. A good deal of effort is required just to stand still and preserve the acquis. Much time is spent preventing bad things from happening, such as the undermining of verification provisions, the weakening of treaty decision making powers, the distortion of a treaty’s basic purpose, and outcomes that are scientific nonsense or which would commit states parties to wasteful expenditure. All this requires inexhaustible supplies of patience and persistence in the face of multiple challenges and frustrations.

Dealing with non-compliance and maintaining a treaty’s integrity and utility remains a never ending and existential challenge. In large part this is because too many States Parties prefer to sit on the fence and duck the hard choices and difficult decisions. And of course some states cheat. Determining intent is difficult and activities can be borderline, particularly in a CBW context. We still do not have a meaningful answer to Fred Iklé’s famous 1961 question in the *Foreign Affairs* journal, “After detection, what?”. The problem is not so much a failure of verification regimes to expose cheating or to highlight potentially significant ambiguities, but in doing something meaningful about it. However, the 9 July 2020 landmark Executive Council Decision by the Organisation for the Prohibition of Chemical Weapons (OPCW), entitled *Addressing the Possession and Use of Chemical Weapons by the Syrian Arab Republic*, shows that States Parties can make a meaningful response when confronted by documented violations.

Understanding the history

‘History is who we are and why we are the way we are.’

—David McCullough, US historian and writer.

All of the treaties have long complex histories – and in the CB case going back over a century, which explains to a large degree the way they look and the issues that they face today. Events move slowly, but on occasions they can move rapidly to open up possibilities for significant change. In the CWC two key turning points came with the ending of the Cold War,

which made successful conclusion of the Convention possible in September 1992; and again after the Salisbury poisoning (June 2018) and persistent CW use in the current war in Syria (2011–to date). These latter two events created the circumstances leading to the June 2018 Special Session of the Conference of States Parties' Decision on establishing an attribution mechanism within the OPCW. The end of the Cold War was instrumental in enabling the indefinite extension of the NPT in 1995. However, neither the NPT extension or the June Decision just happened; both required massive diplomatic effort to ensure outcomes that would reinforce and reinvigorate the treaties.

A CTBT has been a Holy Grail of arms control since the mid-1950s. Had a CTBT proved possible at that time, it would likely have prevented the weaponisation of thermo-nuclear multi stage warheads and the miniaturisation necessary to enable the development of multiple independently targetable re-entry vehicles. We have a CTBT now, but it is sadly not yet in force. Nevertheless, infrasound station ISO1 in Argentina and radionuclide laboratory RL14 in South Africa were both certified on 13 December 2019, bringing the tally of certified facilities to 300 out of an eventual total of 337 in the CTBT's International Monitoring System. This is more than 60 years since the first group of government experts devised an outline global verification regime for a test ban treaty in the summer of 1958 based on seismic, radionuclide, hydro-acoustic, and infrasound detection. When I joined the FCO in 1985 the Soviet Union conducted 16 underground nuclear tests at the Polygon – the test site at Semipalatinsk. I could therefore not have imagined that almost 30 years later I would be living in a camp for a month just outside the Polygon in a large-scale CTBTO on-site inspection exercise. Moreover, at the end of the exercise I stayed in the dacha occupied by the testing directors in the formally closed Soviet city of Kurchatov or Semipalatinsk-19 to give it its Soviet era designation. History moves slowly, and whilst things might seem impossible today, they might well be possible in the future. And the unimaginable becomes real. We are in a never ending process – events are but one chapter, one closes and we move on to the next one. History helps our understanding, but it does not provide a precise prescription for contemporary policy. However, as eloquently put by two American academics, one a political scientist and the other a historian, “The future has no place to come from but the past”.¹ In other words, a careful analysis of history can lead to better decisions.

Diplomacy and personalities

‘There is nothing dramatic in the success of a diplomatist. His victories are made up of a series of microscopic advantages: of a judicious suggestion there, of an opportune civility there, of a wise concession at one moment and a far sighted persistence at another, of sleepless tact, immovable calmness and patience’

—Lord Salisbury, Foreign Secretary on four separate occasions at the end of the 19th century.

Diplomacy matters. The difference between success and failure may rely on a combination of negotiating and drafting skills, charm, an ability to get on with and empathise with others – even the difficult or demanding characters, patience allied to expertise and a thorough understanding of the scientific and technological aspects, the history and the UK's ultimate objectives. Success can often be measured in terms of preventing meetings accepting poor outcomes. A sense of humour is essential too, especially when deployed effectively at the right time. Learning by doing is key to a lot of this. So much takes place behind closed doors in private consultations and drafting sessions in small groups – that is where all the decisive moments occur and it is important to be there even if that means missing dinner.

Personalities matter too. Sometimes it is possible to work effectively with someone on the other side and this is often the key to opening the way to progress. Sometimes it is essential too. On the other hand, contrary and malign individuals can and do thwart progress. It is the easiest thing in the world to obstruct negotiations by airing all sorts of feeble excuses, or repeatedly asking for the moon when it is known perfectly well that to do so goes beyond the red lines of others in the negotiations. The real challenge is to make things happen and secure substantive progress, and that is never easy for the sorts of reasons aired here. That is why we need patience and persistence of purpose.

Reflections on the UK's role

‘A lot of the thinking behind the Treaty, and some of the language, originally came from us. We shall legitimately be able to say so in public when the right moment comes.’

—Fred Mulley, Minister for Disarmament, Foreign Office on Britain's role in the NPT; TNA FCO 10/77, Brief for the Minister of State, Speaking Notes for OPD (68) 6, 29 January 1968.

The UK has been a key player in multilateral arms control and disarmament since the 1950s, making proposals, finding the solutions and making sure that effective verification arrangements could be agreed and implemented wherever possible. Many important initiatives came from the UK, including:

- separating CW from BW to enable agreement on the BTWC (1968–71);
- a lot of the intellectual input into the design of NPT safeguards (1969–71);
- a practice challenge inspection programme to test the feasibility of intrusive verification in the CWC and to the development of the concept of managed access (1988–90), which then appeared in the final draft of the Convention;
- the design and content of the BTWC Protocol and the shape and content of the intersessional work programme adopted following the Protocol's demise (1995–2002); and
- the development and implementation of the CTBTO's on-site inspection operational manual and OSI evaluation system (2002–2020).

Career highlight

I have been immensely lucky to be involved closely with many activities central to the history of arms control and disarmament since I joined the FCO on 19 March 1985. However, the undoubted highlight was the CTBTO's Integrated Field Exercise 2014 (IFE14) in Jordan where I led the external evaluation team. IFE14 was the largest and longest ever multinational on-site inspection exercise. Experts from the Atomic Weapons Establishment (AWE) Aldermaston helped to design the complex but scientifically credible exercise scenario as well as providing a refurbished radionuclide lab. Other UK experts came from academia and industry. We had inspectors, inspected state party representatives, exercise and management teams and the external evaluation team, as well as observers from States Signatories. These were scientists, engineers, military personnel, medics, policy, diplomatic and other experts from a wide range of disciplines. There was a good gender balance too. In all, 364 experts from 53 States Signatories, the CTBTO's Provisional Technical Secretariat and Jordan participated in the exercise. That we could do all of this in the Middle East with war raging in Syria was highly symbolic.

The exercise itself marked a major improvement on IFE08 and generated many important lessons for the develop-

ment and operationalisation of the Treaty's on-site inspection provisions. All participants pulled together for a common purpose. IFE14 serves in a modest way as a reminder of what humanity can achieve when it puts its mind to it. It is a great shame that the common spirit and purpose created during IFE14 does not currently translate into the day-to-day affairs of arms control and disarmament efforts whether they are in Geneva, The Hague, Vienna or New York.

John Walker was formerly Head of the FCO's Arms Control and Disarmament Research Unit; the views expressed here are the author's own. He is currently a VERTIC trustee and director; a Senior Associate Fellow at the European Leadership Network and a Senior Associate Fellow at the Royal United Service Institute.

Endnotes

- 1 Richard Neustadt and Ernest May, *Thinking in Time: The Uses of History for Decision-Makers*, New Free Press New York, 1986.

Anuradha Damale publishes commentary on space and rendezvous proximity operations

In August 2020, Research Assistant Anuradha Damale [published a commentary](#) on space for the European Leadership Network. Using Rendezvous Proximity Operations as an example, the article explores the application of systems theory style approaches when considering the impact, intention and legitimacy of space activities. Anu has been exploring space issues for VERTIC that fall within the space policy-technology interface. Together with Associate Legal Officer Thomas Brown, Anuradha participated in the Space Law Games that took place in August 2020, organised by Northern Space and Security (NORSS) and the University of Northumbria.

Verification Watch

Iran's new law threatens IAEA verification activities

Alberto Muti

Iran has continued expanding its nuclear activities beyond the limits set by the 2015 Joint Comprehensive Plan of Action (JCPOA), as outlined in recent reports by the International Atomic Energy Agency (IAEA). Iranian lawmakers also passed a new law on 2 December (despite opposition by Iranian President Rouhani) that commits the country to further escalate its uranium enrichment activities and, crucially, to reduce IAEA Access to the country's nuclear infrastructure, if sanctions are not eased in two months.

If implemented, this law would mark a significant step up in Iran's policy of deliberately and visibly reducing compliance with the JCPOA. This policy was billed as a response to the US withdrawal from the JCPOA and reimposition of sanctions, and Iranian leaders have insisted that they are willing to return to full compliance once the United States does as well. International observers have expressed hope that a solution to the stalemate can be found before the JCPOA collapses, possibly by the upcoming Biden administration (see the article in Compliance Watch below).

As publicised in the IAEA's November report, Iran has continued increasing its stocks of enriched uranium, as well as the scale of its enrichment plans. In addition, the agency noted that Iran has not provided suitable clarification regarding particles of nuclear material found this year in two previously unknown sites, widely believed to be connected to Iran's pre-2003 nuclear weapons programme. While the IAEA has formally closed its investigation in the 'Possible Military Dimensions' of Iran's past activities, it still has a mandate to verify the absence of undeclared nuclear activities, and has inspected the sites on these grounds after an initial standoff with Iranian authorities.

The scale and intensity of the existing violations and disputes with Iran are likely to escalate if the new law comes into effect. It establishes a timeline of two months from the day it is enacted for the JCPOA parties to ensure key sanctions are lifted. After this deadline, it mandates a series of steps that

would greatly expand Iran's nuclear capabilities. These include tripling its monthly uranium enrichment output and installing new advanced centrifuges; starting to enrich some of its national stockpile to 20% U₂₃₅, which drastically reduces the amount of work needed to achieve weapons-grade material; operating a plant capable of producing uranium metal; and constructing a new heavy-water reactor. While all these steps have potential civilian applications, some of these have no real utility in Iran's current nuclear fuel cycle (such as 20% enriched uranium), and many would open up new pathways to weaponization activities, or greatly facilitate existing pathways.

Another troubling measure mandated by the bill would see Iran scale back its transparency measures and reduce its cooperation with the IAEA – something that Iran has studiously avoided doing so far, except for the aforementioned stalemate over inspection access earlier in 2020.

Since 2015, international verification activities in Iran have taken place in accordance with three key legal texts: Iran's Comprehensive Safeguards Agreement (CSA), which has been in force since 1974; the Additional Protocol, which Iran has signed but not ratified, and is provisionally implementing; and the JCPOA itself. Under the new law, Iran would stop implementing the verification provisions of the Additional Protocol and the JCPOA, leaving the IAEA – and the international community – to rely on the CSA exclusively to monitor Iran's nuclear activities. The CSA is a robust and time-tested international instrument, and indeed it is the backbone of the IAEA's global nuclear safeguards regime. However, the verification tools it offers are focused on monitoring activities and nuclear material in known facilities. In the case of Iran, this is arguably insufficient.

By contrast, the Additional Protocol was designed to help the IAEA detect undeclared or secret activities, and provides safeguards inspections with additional tools, including the right to visit any location of interest and to conduct environmental sampling. This powerful technique allows the Agency to collect even minute traces of nuclear material from environmental contamination (which can last years, even after activities have ceased), and analyse it in a laboratory to

determine its exact nature. This can help identify past or present nuclear activities through the material's element, enrichment level (in the case of uranium), and chemical form such as oxides (for storage and certain industrial processes), fluorides (used in enrichment), or metal (used in certain types of fuel, in experiments, but also for weapons fabrication).

The JCPOA further expands the verification options available to the IAEA. Among other measures, it explicitly allows for a constant, in-person presence of IAEA inspectors at some key Iranian facilities (an unprecedented effort), and it allows for the use of special sensors providing real-time monitoring of activities in Iranian facilities, including the constant monitoring of material flows and enrichment levels within Iran's centrifuge cascades.

The tools offered by the Additional Protocol and the JCPOA have been key to the IAEA's activities in Iran over the past five years, and losing them would impair the Agency's ability to monitor Iran's nuclear enterprise for signs of weapon-related activities. As such, suspending the implementation of the Additional Protocol and of the verification provisions of the JCPOA would likely cause an escalation in the current tensions between Iran, the JCPOA parties, and other states in the region.

The future of New START: the 'verification Rubicon' is yet to be crossed

Elena Gai

In October 2020, after months of uncertainty about the future of New START, Russia accepted the US proposal to freeze the number of nuclear warheads and extend their last remaining bilateral arms control agreement for one year, provided that the United States does not present 'additional demands'.

New START entered into force in February 2011 after advice and consent to ratification by the US Senate and approval by the Russian Duma and Federation Council. The treaty provided the parties with seven years to reduce their nuclear forces and remains in force for ten years in total. It allows each party to retain up to 800 deployed and non-deployed land-based intercontinental ballistic missile (ICBM) and submarine-launched ballistic missile (SLBM) launchers and deployed and non-deployed heavy bombers equipped to carry nuclear armaments. Within that total, each side is limited

to no more than 700 deployed ICBMs, SLBMs and heavy bombers equipped to carry nuclear armaments. The total number of deployed warheads is fixed at 1,500; those are the actual number of warheads on deployed ICBMs and SLBMs, and one warhead for each deployed heavy bomber. These represent the lowest levels of US and Russian strategic nuclear forces since the 1960s.

An extension of New START would ensure continuing limits on US and Russia strategic nuclear forces, as well as the continuous exchange of information through data exchanges, notifications and on-site inspections, and no changes in the strategic modernization plans of the two parties.

However, there are no imminent negotiations of a follow-up to New START on the horizon and several stiff challenges would need to be tackled in order for them to stand any chance of success. According to Moscow, [as officially expressed by the Foreign Ministry](#), an extension could be used to "conduct comprehensive bilateral negotiations on the future nuclear and missile arms control that must address all factors affecting strategic stability". These factors would presumably include US ballistic missile defence, US long-range conventional weapons and the weaponisation of space. According to Washington (at least under the outgoing Trump administration), a post-New START agreement should address both strategic and non-strategic nuclear weapons, have a detailed set of verification and transparency measures, and possibly include China in a trilateral treaty.

At the current stage, verification represents one of the most controversial issues in the bilateral discussions. Ambassador Marshall Billingslea, US Special Presidential Envoy for Arms Control, in a [press briefing](#) held during the summer, specified that it would be appropriate for the two parties to look at how the 1974 Threshold Test Ban Treaty (TTBT) ultimately achieved ratification in 1990. This entailed a joint verification experiment between the two nations in 1988 involving enterprises and laboratories that were able to develop the necessary technology for the specific verification challenge encountered at that time. According to Billingslea, if this approach were to be applied to warhead verification it "could have big dividends".

Billingslea also suggested that the two parties could verify limits on nuclear warheads by installing perimeter monitoring systems outside warhead production facilities to

verify warheads limits as the warheads enter and leave the facilities. This would resume a measure included in the original START treaties and the INF Treaty to monitor the production of rocket motors for missiles, much bigger items compared to warheads. Billingslea also indicated that the “most glaring deficiencies” in the verification regime of New START needed to be addressed, such as telemetry, the exchange of telemetry missiles, the frequency of inspections and the length of time that it takes for inspectors to arrive at an inspection site.

According to Russian Deputy Foreign Minister Sergey Ryabkov in a recent [interview](#) to *Kommersant*, however, verification should be a derivative of an agreement and it would be impossible to address verification before defining the scope and parameters of such an agreement. In terms of perimeter monitoring systems, he defined those as “part of some distant foggy past”.

When New START was negotiated the focus was on securing provisions on definitions, data exchanges, notifications, eliminations, inspections and verification procedures, along with creating transparency and confidence building measures that were simplified and less costly compared to the original START treaty. New START turned out to be the most tangible achievement of President Obama’s *reset policy* with Russia. The current deterioration of relations between Washington and Moscow makes reaching a new agreement with complex verification provisions even more challenging than previously was the case.

Currently, therefore, it is unclear if verification measures will be codified before extending New START or in a discussion following the extension. What is clear is that the ‘verification Rubicon’ is still to be crossed and it will fall upon the Biden administration to try to build the right bridge.

A new US administration, but the same guiding aims towards North Korea?

Grant Christopher

As the Biden administration prepares for power, many analysts are expecting a US policy towards North Korea of ‘principled diplomacy’, which would echo Obama’s policy of ‘strategic patience’, rather than the personal relationship with Kim Jong Un that characterized the Trump era.

To decipher future policy, analysts have looked to the pre-election Biden [op-ed](#) published by Yonhap and the past positions of his picks for Secretary of State (Anthony Blinken) and National Security Advisor (Jake Sullivan). The guiding aims, at least in public, will likely remain denuclearisation or the Korean peninsula, including the removal of the North Korean arsenal, and reunification of the two Koreas, as reiterated in Biden’s October op-ed.

The administration must decide between arms control that somehow caps the North Korean nuclear arsenal – which effectively acknowledges North Korea as a nuclear-armed state – versus holding out for total disarmament. A US government that concluded an agreement that was seen to acknowledge North Korea as a nuclear-armed state would face fierce domestic and international criticism. On the other hand, North Korea has strongly indicated it is unwilling to consider a negotiated solution that would satisfy the long-standing US requirement for Complete Verifiable Irreversible Disarmament (CVID). Both Blinken and Sullivan have acknowledged the difficulty of making progress on disarming North Korea and have praised the Trump administration’s willingness to try something new, while being critical of the results. Both have also indicated that a realistic goal of negotiations should be arms control rather than complete disarmament.

Yet, concluding any nuclear agreement with North Korea will be difficult. Successful arms control agreements between nuclear-armed states up to this point have consisted of either mutual constraints, such as the New START treaty between the United States and the Russian Federation, or complete disarmament for a small group of former Soviet states (Ukraine, Belarus and Kazakhstan) under the Budapest memorandum.

A rollback or capping of the North Korean nuclear weapon programme could be presented to domestic and international audiences as an initial step with the future prospect of complete disarmament. North Korea has reportedly offered to dismantle individual facilities in ‘like for like’ measures, including sections of the Yongbyon complex. It is unclear why the Trump administration did not pursue this offer. Possible explanations include that it did not meet the CVID standard, that the United States could not offer enough in return to induce the North Koreans or that the US insisted on including clandestine facilities.

Verifying the Treaty on the Prohibition of Nuclear Weapons: a future endeavour

Noel Stott

When Honduras ratified the Treaty on the Prohibition of Nuclear Weapons (TPNW) in late October 2020 the treaty reached the required 50 ratifications by UN member states to enter into force. It will now do so on 22 January 2021.

The TPNW is the first legally binding international agreement to comprehensively prohibit nuclear weapons. While controversial amongst nuclear-armed states and those countries falling under the US nuclear umbrella, proponents (which include at least 122 UN member states that voted for the treaty's adoption in 2017) view it as complementary to the Non-Proliferation Treaty (NPT) and as a major step towards the goal of achieving a world without nuclear weapons.

The Treaty includes undertakings not to develop, test, produce, acquire, possess, stockpile, use or threaten to use nuclear weapons. The Treaty also prohibits the deployment of nuclear weapons on national territory and the provision of assistance to any State in the conduct of prohibited activities.

A major criticism of the Treaty, in addition to the argument that the global security environment is presently not conducive to disavow the concept of nuclear deterrence, is that its text lacks detailed verification and compliance provisions, and so may not provide assurances to maintain a world without nuclear weapons.

However, Article 8 of the Treaty makes provision for meetings of States Parties to 'consider and, where necessary, take decisions . . . on further measures for nuclear disarmament, including . . . for the verified, time-bound and irreversible elimination of nuclear-weapon programmes'. In addition, Article 4 requires each States Party to conclude a safeguards agreement with the International Atomic Energy Agency (IAEA) to provide credible assurance of the non-diversion of nuclear material from peaceful activities and for each States Party that possesses nuclear weapons to remove them from operational status, and destroy them as soon as possible.

Instead of creating an alternative safeguards regime to that of the NPT, the TPNW seeks to reinforce the existing obligations of NPT non-nuclear-weapon states and to ensure that no gaps in relation to safeguards are created through the new treaty. It therefore requires State Parties to maintain their

existing safeguards agreements with the IAEA and those that have not yet done so must, at a minimum, conclude a comprehensive safeguards agreement (on the basis of [INF-CIRC/153 \(Corrected\)](#)).

Provision is also made for the first meeting of States Parties, to set a time-bound plan for the verified and irreversible elimination of a States Party's nuclear-weapon programme.

Importantly, provision is made for the future establishment of a competent international authority to verify the irreversible elimination of a State's nuclear-weapon programme. Possible options for a 'competent international authority or authorities' will be discussed and decided on by States Parties.

Negotiators recognised that it was not feasible to include any detailed verification provisions without the active participation in the negotiations of the possessors of nuclear weapons. There could not be a one-size-fits-all solution given that there would, in all likelihood, be significant differences between the States possessing nuclear weapons when they join the Treaty. Such differences include the size of their arsenals and production facilities. This allows for different pathways for the verified elimination of their nuclear weapon programmes.

The deferral of detailed verification provisions until later is not unusual, with both the NPT and the treaties governing nuclear-weapon-free zones excluding the technical details of verification and compliance measures. These measures have since been created over time by States Parties and allied organisations through the establishment of, for example, IAEA safeguards, national guidelines for nuclear-related exports and other confidence-building approaches. Hence, future discussions on verification modalities for the TPNW will be a crucial element of the meetings of States Parties as they consider how best to implement the Treaty.

Implementation Watch

Criminal complaint filed in Germany in relation to CW use in Syria

Thomas Brown

On 5 October 2020, a group of non-governmental organisations (NGOs) submitted a criminal complaint to the Office of the German Federal Public Prosecutor in relation to two chemical weapons attacks in Syria. [The public summaries](#) of the complaint call on prosecutors to investigate senior Syrian military officials in relation to the chemical weapons attacks in Ghouta on 21 August 2013 and in Khan Shaykhun on 4 April 2017.

The two incidents have already been assessed by international investigators. In 2013, a [report](#) of the United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic, established under the UN Secretary-General's Mechanism, concluded that chemical weapons had been used in the Ghouta incident, and found clear evidence of the use of sarin. Similarly, a 2017 [report](#) of the Organisation for the Prohibition of Chemical Weapons (OPCW) Fact-Finding Mission in Syria concluded that victims were exposed to sarin or a sarin-like substance in the Khan Shaykhun incident. Sarin is a toxic chemical that is listed under Schedule I of the Annex on Chemicals to the 1993 Chemical Weapons Convention (CWC).

International attempts to identify the perpetrators of chemical weapons attacks in Syria provided the NGO coalition with a wealth of information to build upon, including material found in reports of the OPCW-United Nations (UN) Joint Investigative Mechanism (JIM) and the OPCW Investigation and Identification Team (IIT), which are referenced in the criminal complaint. Such bodies were however, tasked with reaching findings of fact, rather than legal findings of responsibility. Indeed, the first IIT [report](#) emphasises that it is “not a judicial body with the authority to assign individual criminal responsibility”. As such, it is for a court of law to ascertain criminal responsibility for the attacks.

This NGO action is the first criminal complaint that has been filed against Syrian officials alleging criminal responsibility for the use of chemical weapons. The NGO coalition

is attempting to persuade German authorities to exercise universal jurisdiction over incidents in Syria that they consider constitute war crimes and crimes against humanity under international criminal law. Germany ratified the Rome Statute of the International Criminal Court, which addresses accountability for international crimes, on 11 December 2000. In order to implement the Rome Statute, Germany passed the *Völkerstrafgesetzbuch (Code of Crimes against International Law)* on 26 June 2002. The code includes the war crime of use of a chemical weapon as a prohibited means of warfare.

The primary laws through which Germany implements the CWC are *the Act Implementing the Chemical Weapons Convention* and *the War Weapons Control Act*. However, these two laws require a connection to Germany before German authorities can exercise jurisdictional control. Contrastingly, the *Völkerstrafgesetzbuch* applies even when the offence was committed abroad and bears no relation to Germany (as a result of provisions contained under section 1 of the code). This is a codification of universal jurisdiction, a principle in international law that allows national courts in third countries to prosecute individuals for serious crimes committed abroad. A number of countries around the world have adopted legislation invoking the principle of universal jurisdiction, and in multiple instances such legislation is currently being used to try alleged perpetrators of crimes committed during the Syrian armed conflict.

The complaint submitted by the NGO coalition is the first step towards a potential criminal prosecution. Next, prosecutorial authorities will analyse the evidence and use their discretion to decide whether or not to open an investigation based on a number of considerations. Notably, under section 153f of the *Code of Criminal Procedure*, the public prosecution office retains the discretion to dispense with prosecuting an act involving international crimes if the accused is not in Germany and they are not expected to reside in the country. Should the prosecution office choose to open an investigation they may ultimately send a criminal indictment to a court. However, even if this were to happen, the whereabouts of the accused may still prove problematic. Trials *in absentia* (where the accused

is not present) are not possible for serious alleged offences under German law so it would be a significant challenge to ensure the physical presence of the accused in a German court. Nevertheless, the use of domestic criminal and universal jurisdiction laws provides a thought-provoking alternative avenue for accountability in relation to alleged uses of chemical weapons worldwide.

Ensuring nuclear security during the COVID-19 pandemic

Sonia Drobysz

This article draws on a presentation given by Sonia Drobysz during the International School of Nuclear Law webinar on 1 October – a recording of the webinar is available [here](#).

The COVID-19 pandemic has posed a number of challenges to international governmental organisations responsible for verification and monitoring of arms control agreements, such as the International Atomic Energy Agency (see [Trust & Verify Issue 166](#)). It has also been challenging for national authorities with regulatory functions in the nuclear sector, such as those necessary to implement IAEA safeguards. Other functions include nuclear security measures to prevent, detect and respond to criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material or associated facilities and activities.

According to the IAEA Incident and Trafficking Database illicit trafficking, thefts and losses of nuclear and other radioactive material have continued to occur over the past year. The pandemic has not put the nuclear security threat on hold and vulnerabilities have been [identified](#), including the ongoing threat of nuclear terrorism and the risk of cyber-attacks, which remote working, inspections, training and access to site information system and the associated use of technology may have increased.

While it is recognised that the responsibility for nuclear security within a state rests entirely with that state, international instruments for nuclear security impose a number of obligations on States Parties. Those instruments include the Convention on the Physical Protection of Nuclear Material (CPPNM), an amended version of which came into force in 2016 to expand the convention's coverage to nuclear facilities,

as well as establishing provisions on physical protection, offences and international cooperation.

According to the amended CPPNM, each State Party is responsible for establishing and maintaining a legislative and regulatory framework to govern physical protection including licensing and inspection systems. A competent national authority should be responsible for the implementation of this framework. During the pandemic, some national authorities [reported](#) a risk of reduced oversight, expressing concerns that physical protection may not be ensured due to facilities being locked down or the limited availability of security personnel. Other national authorities have adapted their practices to implement mitigation measures to maintain an adequate level of regulatory oversight, including for example remote oversight activities and inspections.

Parallel to the risk of reduced oversight is what could be considered regulatory relief or flexibility. According to the CPPNM as amended, each State should ensure that the prime responsibility for the implementation of physical protection of nuclear material or facilities rests with the licensee. That responsibility does not change during a pandemic, and licensees should make all reasonable efforts to meet regulatory requirements. However, regulators recognise that complying with some nuclear security related requirements may be challenging and perhaps even detrimental to nuclear security. They are therefore enabling expedited exemption review processes for certain training and requalification requirements, such as training and requalification of personnel performing [security programme](#) duties.

Such exemptions and processes should facilitate licensee efforts to maintain adequate security personnel staffing levels and effectively implement the necessary physical protection programmes. Likewise, in exercising reduced oversight, seeking and granting regulatory relief, national authorities and licensees have been aiming to maintain both the security of all regulated activities and the capacity to respond to a nuclear security incident. Having emergency management business continuity plans in place has [reportedly](#) proven crucial in doing so. Appropriate legal frameworks should also enable the quick identification and adaptation of priority nuclear security measures.

At the international level, there have been continued calls for the universalisation and implementation of the frame-

work for nuclear security. In its resolution on nuclear security, the last IAEA General Conference—held in September 2020 both in physical and virtual format due to COVID-19 related requirements—encouraged efforts towards adherence to the convention and its amendment, as well as to the International Convention on the Suppression of Acts of Nuclear Terrorism. CPPNM States Parties were also encouraged to fully imple-

ment their obligations and inform the convention's depositary (the IAEA) of their related laws and regulations. Finally, preparations have continued for the amended CPPNM review conference, an important opportunity to review the implementation of the convention. Although the conference's 2020 preparatory committee was postponed due to the pandemic, the conference is still set to take place in 2021.

Compliance Watch

Pressure mounts on all parties to renew compliance with Iran nuclear deal

Cristina Rotaru

On 11 November 2020, the Board of Governors of the International Atomic Energy Agency (IAEA) published its latest [report](#) on Iranian compliance with the Joint Comprehensive Plan of Action (JCPOA), revealing a further breach of the 2015 nuclear deal after Iran was found to have fired up advanced uranium-enriching centrifuges at its Natanz nuclear site. The finding, later confirmed by the Iranian Ambassador to the IAEA, is the latest in a series of advances to the Iranian nuclear programme which contravene restrictions set in the original text of the nuclear accord, and which Tehran sees as a justified response to the US decision to unilaterally withdraw from the deal in May 2018. (For more information on the IAEA's findings on the ground in Iran and their possible implications for verification, see the article in the Verification Watch section of this publication).

Under the Trump administration's 'maximum pressure' campaign both the scale and severity of US sanctions against Iran have increased. The restrictive measures target not only Iranian persons and entities that the US authorities deem to be involved in illicit activities, but also private foreign companies that seek to trade with Iran, under so-called US secondary sanctions.

Since January 2020, such extraterritorial sanctions against Iran include transactions involving the construction, mining, manufacturing and textiles sectors of the Iranian economy. Under these measures, the US Treasury's Office of Foreign Assets Control (OFAC) can sanction any non-US

individuals and entities if they are involved in a "significant" transaction for the sale or supply to or from Iran of "significant" goods or services "used in connection with" these sectors. Confusion around this terminology has given rise to a number of questions with regard to the provision of humanitarian assistance to Iran during the Covid-19 pandemic (see [Trust and Verify #166](#)). More recently, on 18 November 2020, OFAC imposed sweeping sanctions against a foundation controlled by Supreme Leader Ayatollah Ali Khamenei, which Washington alleges is linked to human rights abuses committed during a crackdown on anti-government demonstrators in autumn 2019.

Diverging from US policy, European signatories (known as the E3: the UK, France and Germany) of the JCPOA have continued to confirm their support for the nuclear deal. In a [statement](#) in response to the IAEA's report issued on 19 November, the E3 reiterated their "commitment to the preservation and full implementation of the nuclear agreement", but expressed "concern over Iran enriching uranium above the 3.67% JCPOA limit, and the continued growth of its low-enriched uranium stockpile".

In line with the provisions of the JCPOA, adopted unanimously by UN Security Council Resolution 2231 (2015), the EU lifted all of its nuclear sanctions against Iran. However, European companies have been wary of re-investing in Iran despite being entitled to do so under European law due to concerns about US secondary sanctions and the risk of significant penalties by US regulators. Hence many European companies have opted against dealing with Iran until there is assurance from Washington that it is safe to do so.

In an effort to allow Iran to pursue legitimate trade with European partners, the EU has developed the financial

mechanism INSTEX (or the Instrument for Supporting Trade Exchanges) (see [Trust and Verify #163](#) and [#166](#)). The first transaction using INSTEX as a payment mechanism was announced on 31 March 2020 for the export of humanitarian goods to Iran, with several EU member states openly showing their support for it. Non-EU member Switzerland followed suit by establishing the similarly purposed Swiss Humanitarian Trade Arrangement (SHTA). However, thus far, INSTEX has not been effective in reversing the decline in EU–Iran trade, which in 2019 alone suffered a 75% reduction from the previous year, with President Trump continuing to warn that those seeking to employ it will “most likely be subject to secondary sanctions”.

For its part, the United States during summer 2020 attempted to invoke the JCPOA’s ‘snapback’ provision, under which UN sanctions are immediately reinstated if Iran fails to comply with the terms of the agreement. The other parties to the Iran deal – China, Russia and the E3 – opposed this US legal interpretation and invocation of the snapback mechanism and regard the US claim as invalid due to Washington’s non-participation in the deal since 2018. Prior to announcing the intended snapback, the US mission to the UN urged the Security Council to extend an embargo on transfers of conventional arms to Iran. The measure failed, and the UN embargo expired on 18 October, as stipulated under the original terms of the agreement.

In September 2020, the remaining signatory parties of the JCPOA gathered in Vienna to discuss possible ways of preserving the nuclear accord with Iran in light of recent developments. The incoming Biden administration views the Iran deal more favourably and is committed to re-entering it, but with issues of compliance abounding on both sides, the JCPOA’s future remains uncertain.

International finance regulator enhances standards to reduce proliferation funding risk

Cristina Rotaru

The Financial Action Task Force (FATF)—the independent intergovernmental body that establishes policies to protect the financial sector against money laundering, terrorist financing and the financing of proliferation of weapons of mass destruction—at its 32nd plenary meeting on 21–23 October 2020 adopted new measures to further strengthen the global response

to proliferation financing and sanctions evasion. In particular, an amendment to Recommendation 1 and its Interpretive note introduced a new requirement for countries and private sector entities to “identify and assess the risks of potential breaches, non-implementation or evasion of the targeted financial sanctions related to proliferation financing, as contained in FATF Recommendation 7, and to take action to mitigate these risks”. Additionally, a revised Recommendation 2 and its Interpretive Note aim to strengthen domestic cooperation, coordination and information exchange among national authorities.

In a [Public Statement](#), FATF clarified that these changes supplement previous obligations placed on natural and legal persons as contained in Recommendation 7, which requires countries to freeze the funds or other assets of parties designated under UN Security Council sanctions on the prevention of proliferation financing. Under the new guidance, public and private actors are urged to “identify and assess the risks of potential breach, non-implementation or evasion of targeted financial sanctions when dealing with their customers and take appropriate mitigating measures commensurate with the level of risks identified”. This was said to “ensure that these entities are aware of the risks involved in their businesses and professions, and do not unwittingly support or become part of the proliferation financing networks or schemes, in contravention of the relevant obligations. This will also ensure appropriate allocation of resources by countries and the private sector entities to their counter proliferation financing efforts, commensurate with the level of risks faced”.

In a separate development, in September 2020, FATF published a report on red flag indicators of virtual assets being used for money laundering and terrorist financing. The [report](#) was based on over 100 case studies contributed to the regulating body by jurisdictions between 2017 and 2020. As a general trend, it noted that while the majority of offences during this timeframe focused on predicate or money-laundering offences, virtual assets were also being used to evade financial sanctions and to raise funds to support terrorism. These included technological features that increased anonymity; unusual behaviour of the sender or the recipient of an illicit transaction; the source of funds or wealth itself; the use of IP addresses from sanctioned jurisdictions; geographical risks, such as dealing in virtual assets in countries with less stringent virtual asset regulations; and other similar unusual transaction patterns or activities.

Takeaways from the latest UN Panel of Experts Report on North Korea

Cristina Rotaru

The latest midterm [report](#) by the Panel of Experts on North Korea, covering the period between 8 February to 3 August 2020, was released to the public on 28 September 2020. The Panel documents North Korea's continued use of deceptive practices to trade in prohibited goods such as oil, petroleum products, coal, luxury goods and weapons, despite border closures, restrictions and special quarantine measures in response to Covid-19.

North Korea is reported to have continued most of its illicit maritime operations throughout this period. Specifically, the Panel's report shares evidence indicating that prohibited maritime shipments, reduced in the early stages of the pandemic, but never fully halted, have since resumed. The Panel

also reports that illicit imports of refined petroleum products and exports of coal continued throughout the reporting period, in violation of sanctions resolutions. According to data, imagery and calculations supplied to the Panel by 43 Member States, deliveries of refined petroleum products to North Korea between 1 January and 30 May had already far exceeded the aggregate amount of 500,000 barrels set by the UN Security Council as the annual ceiling for 2020.

The illegal export of coal—temporarily suspended between late January and early March 2020—was also said to have resumed, with coal-smuggling vessels identified as the *Kal Ma*, *Jang Un*, *Phyong An*, *Jing Hung 9*, *Un Bong 2*, *Hae Song 1*, *Su Song*, *Nam Dae Chon* and the *Ji Nam San*. Satellite imagery provided to the Panel by a Member State also showed multiple North Korean vessels engaging in prohibited ship-to-ship transfers at sea. In addition, North Korea was said to have earned revenue by continuing to illicitly transfer fishing rights.

Science & Technology Scan

Another near miss in Low Earth Orbit, and what it means for collaborative policy instruments on responsible behaviour in space

Anuradha Damale

In the latest of a series of space debris events in 2020, a defunct Soviet era satellite from 1989 and a discarded Chinese rocket stage from 2009 almost collided in Low Earth Orbit (LEO) in October. The close call returned the issue of space debris into the public limelight.

During 14–16 October 2020, LeoLabs, a private space debris tracking and LEO collision prevention service provider, reported that the two objects were orbiting at a 1000km altitude and had a 10% chance of colliding with each other. The incident was followed by space watchers, mainstream news outlets and trended on Twitter. Neither of the two objects had a propulsion mechanism onboard (and so could not be directed away from each other) and their combined mass was approximately 2800 kg, with a relative speed of 33,000 miles per hour. Had they collided, the resultant debris would have been incredibly dangerous for other satellites and spacecraft

for decades to come. On 16 October, LeoLabs reported that a collision had been narrowly avoided.

This event, and others like it, including the Long March 5B incident in May this year (see *Trust & Verify*, Issue 166), highlighted several important issues in the space debris realm, which are discussed in this article under two key themes:

- (1) the threats posed by old satellites and spacecraft, and the increasing risk that this could generate the 'Kessler syndrome'; and
- (2) the overarching need for better regulation of behaviour in space in order to overcome a 'tragedy of the commons' in space.

The risk posed by defunct satellites and spacecraft

According to the European Space Agency there are approximately 5500 satellites in space, of which approximately 3200 are obsolete. There are a further 34,000 pieces of debris that are approximately 10 cm or bigger, and about 130 million objects that are even smaller than that. These obsolete objects can pose a serious problem for important operational satellites,

including those that play a part in critical national and international infrastructure.

In 2009, for example, an operational Iridium 33 communications satellite collided with a defunct Russian military satellite above Siberia. The collision was the cause of over a thousand pieces of space debris that are still being tracked, and according to astrophysicist Jonathan McDowell, it increased the total amount of debris in LEO by 10%. LEO is the most commonly used orbit for both crewed and uncrewed vehicles, including satellites for critical national infrastructure such as navigation, weather and communications.

While most modern satellites and spacecraft have some form of propulsion mechanism to avoid collisions the risks remain significant. According to LeoLabs, a 10% chance of collision (as in the October incident) is considered incredibly high for the space industry: “at one in 10,000, a satellite operator will move their satellite. At one in 1,000, it is considered an emergency”. Furthermore, according to LeoLabs’ founder and CEO Daniel Ceperley, “Every week we see close approaches, where derelict satellites, rocket bodies, are passing within 100 meters of each other . . . this isn’t like this happens once a year. This happens multiple times a week. It’s sort of a ticking time bomb that’s just out there in space”. Additionally, while the October event did not impact the International Space Station (ISS), this year the ISS has had to manoeuvre three times in order to avoid collision with debris.

Given also a potentially exponential growth in the number of satellites in orbit—US based space debris tracking company Analytical Graphics Inc (AGI) estimates that over the next decade more than 50,000 satellites could be launched—this could lead to an exponential growth in collision risks. In fact, AGI predicts that as a result of these trends there could be over 400 collisions and 17 million close calls over the next decade.

Related to the exponential increase of objects, and so debris in space, is the Kessler syndrome. Conceived by NASA scientist Donald J. Kessler in 1978, the term is used to describe a ‘chain reaction’ of self-sustaining collisions of space debris in LEO. It is a scenario in which the density of objects is so high, that one collision leads to debris which then contributes to another collision, and this pattern repeats itself in a cascade effect. While the likelihood of such a scenario arising increases as the number of satellites in LEO increases, estimating the extent of the current risk is difficult, given the complexity of the modelling of orbital collisions and the resultant debris.

These calculations also impact on issues of space situational awareness technology and space traffic management (STM). With the launches of both the SpaceX and the proposed Amazon mega constellation, as well as individual spacecraft launches, a better understanding is needed of LEO pollution levels, which will require advances in ground-based sensors for the tracking and cataloguing of objects in LEO. However, there is currently no international agreement on an STM system that would apply to both states and commercial launch companies—although the UN Committee on the Peaceful Uses of Outer Space agreed a set of voluntary guidelines in 2016 and 2018 for achieving a more sustainable space environment and to encourage the formation of STM processes.

Overcoming the ‘tragedy of the commons’ to regulate responsible behaviour in space

Any future STM framework will require the buy in of all states, as well as many important commercial actors. However, currently there is no such consensus and is an example of what economists describe as the ‘tragedy of the commons’, which refers to the overexploitation of a shared resource by individual actors acting in self-interest, often in an unregulated environment. In order to overcome, or avoid, this tragedy of the commons in space, there is a need for urgent regulation that is inclusive of all states and all non-state actors in the space industry that recognises the interconnectedness of the issues and industries operating in space. For sustainable and safe space exploration, both civil and military space activities need to be regulated in a systems-style approach.

In August this year the UK [launched](#) a global discussion in an attempt to broker a consensus on responsible behaviour in space. The UK’s Permanent Representative to the UN Conference on Disarmament, Aidan Liddle, drafted a resolution on ‘reducing space threats through norms, rules and principles of responsible behaviours’, which was [tabled](#) at the UN First Committee in November. It calls for states to commit to creating a safe, stable and sustainable environment in outer space. The resolution was [adopted](#) with support from 150 states, and was seen as a potential stepping stone on the way to creating a comprehensive set of rules for the governance of space. However, Russia [tried to block](#) consideration of the UK resolution and it was also criticised by a few other states with significant space programmes, such as

China. Some experts also [questioned](#) the resolution's 'value-added' when compared with the long-established [resolution](#) on preventing an arms race in outer space, which has received near universal backing for decades. Moreover, during the First Committee discussions on a basket of draft resolutions on the disarmament aspects of outer space many enduring disagreements among the major military powers with space ambitions continued to be aired, demonstrating the difficulty of the path ahead.

Nonetheless, the UK resolution will have served its purpose if it leads to fresh dialogue and approaches to problem solving in space. The latest near miss in LEO highlights the urgent need for a collaborative and well-evidenced set of policy instruments to regulate space behaviour. Only a robust STM framework will give humankind the chance to save space (and space-based) research, development and exploration for future generations.

New US National Strategy for Critical and Emerging Technologies

Grant Christopher

The Trump administration's [National Strategy for Critical and Emerging Technologies](#) (C&ET) was published on 20 October 2020. While being a White House publication of the incumbent administration, it is unlikely to be greatly modified by the incoming Biden administration.

The strategy should be considered as a continuation of the United States' so-called 3rd offset strategy: adding an economic dimension to protecting the US military advantage for a new group of C&ET. The new strategy document includes

typical proliferation protections such as export controls and partnerships with academia and the private sector. It also seeks to directly address the threat posed by illicit procurement of intellectual property, by cyber espionage or other means.

Twenty groups of technologies are defined as being covered by this strategy, many of which are relevant to arms control and weapons of mass destruction. The technologies include those that have only recently been evaluated for their applications in verification, such as: advanced manufacturing (taken to include additive manufacturing: see [Trust & Verify #157](#)); quantum information science (which includes quantum computing and quantum technologies: see [Trust & Verify #165 & #166](#)); and distributed ledger technologies (commonly referred to as blockchain technologies). More traditional verification-related technologies are also included in the list: advanced sensing, biotechnologies and CBRN (chemical, biological, radiological and nuclear) mitigation technologies. All remaining technologies on the list, with the single exception of agricultural technologies, have direct relevance to arms control and arms control treaty verification.

Emerging technology watchers are as interested in what the United States defines as C&ET as what is outlined in the strategy itself. For arms control, the technologies represent both a challenge to existing regimes and an opportunity for verification and monitoring.

The United States is in a position it has not been in for many decades with regards to many of the technologies on the list. Not only is it competing with allies in technologically advanced states, which has been true for several decades, but the United States now lags behind rival states in some areas of C&ET such as quantum information science.

Centre News

National Implementation Measures

Sonia Drobysz, Yasemin Balci, Thomas Brown and Suzanna Khoshabi

The National Implementation Measures (NIM) team has continued to implement global project work, adapting its methodologies to meet the challenges presented by COVID-19.

In November 2020, the NIM team welcomed a new Associate Legal Officer, Suzanna Khoshabi.

NIM made progress on EU CBRN CoE Project 81 on Enhanced Biosecurity in South East Asia, holding a series of virtual meetings with representatives of states in the region and initiating biosecurity legislative analysis. A new work pack-

age was added to this project to include the response to the pandemic, which was launched with a webinar on 24 November. Work further continued under EU CBRN CoE Project 61 in Southeast Asia to develop comprehensive legal analyses of the partner countries' legislation for the sound management of chemicals and their wastes.

NIM staff also continued to implement a project funded by the Norwegian Ministry of Foreign Affairs to provide legislative assistance for national implementation of the Biological Weapons Convention (BWC) and the Chemical Weapons Convention (CWC). The team updated many of the programme's assistance tools and continued to raise awareness on implementing obligations in both treaties through participation in remote events. Senior Legal Officer Yasemin Balci gave a presentation for an online training course for BWC National Contact Points in South-East Asia in August and spoke on national implementation at a BWC orientation workshop organised by UNIDIR in November. She also recorded a video delivering VERTIC's statement for the 25th session of the Conference of the States Parties to the CWC.

The team further engaged with partner countries about BWC and CWC legislative analysis and drafting. In July, NIM also began work on a new academic study on the reasons and challenges for UN Member States not becoming party to the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). This study is part of a project to promote universalisation and implementation of ICSANT, implemented by the UN Counter-Terrorism Centre of the UN Office of Counter-Terrorism and the UN Office on Drugs and Crime.

Finally, the team took part in a number of virtual events. In October, Programme Director Sonia Drobysz presented at an OECD Nuclear Energy Agency virtual roundtable on nuclear law and also participated in an event by the German Council on Foreign Relations on risks and challenges in the nuclear field. Associate Legal Officer Thomas Brown helped to facilitate the Space Law Games in August and attended the annual EU Non-Proliferation and Disarmament Conference 2020, presenting on BWC implementation at the Next Generation Workshop on 25 November 2020.

Verification and Monitoring

Larry MacFaul, Noel Stott, Grant Christopher, Alberto Muti, Elena Gai and Anuradha Damale

Capacity building for nuclear disarmament verification

The team has continued to engage with partners in Kazakhstan, South Africa, Brazil and Argentina on strengthening capacity building for nuclear disarmament verification (NDV). The COVID-19 lockdowns have led to such activities being moved online. In partnership with the International Science and Technology Centre we hosted our first online workshop in Kazakhstan on 25–26 November, in which we discussed Kazakhstan's potential to contribute to NDV. The meeting included representatives from the National Nuclear Center, Nuclear Technology and Safety Centre, Ministry of Foreign Affairs and international experts from the Carnegie Endowment for International Peace, the European Leadership Network (ELN) and Fondation pour la Recherche Stratégique. We have also continued our discussions with international organisations and partners in the policy and research community to consider new initiatives and activities that can support the issue of NDV capacity internationally. This project is funded by the Ministry of Foreign Affairs, Norway.

New nuclear disarmament verification methodologies

The programme has moved forward in refining technical methodologies in modelling North Korea's WMD production capabilities in order to assess priorities for verification. The project is being carried out by VERTIC, the James Martin Centre for Nonproliferation Studies (CNS) and the Royal United Services Institute (RUSI). This project is funded by Global Affairs Canada.

Building capacity to identify medium-long term approaches to the Iranian nuclear programme

In October, the programme launched a new project in partnership with the ELN. The work focuses on exploring medium-to-long term approaches to the Iranian nuclear programme in its wider context. The initiative uses a mixture of technical and policy assessment methodologies to provide an informed set of analysis and options. This project is supported by the UK Foreign, Commonwealth and Development Office.

Other activities

The programme continues to devote attention to the increasing importance played by emerging technologies and open source tools in shaping nuclear non-proliferation challenges. Senior Researcher Grant Christopher participated, along with Senior Researcher Alberto Muti, in a discussion on the impact of emerging technologies on strategic stability organised by ELN. Grant was also a panel member and presenter for the School of Oriental Studies (SOAS) webinar on the role of Open Source Intelligence in verification of arms control.

Programme Director Larry MacFaul presented on a panel at an event on ‘Space Security Awareness & Verification’ organised jointly by the Secure World Foundation and UNIDIR on 10 November. He provided insights from experiences in verification regimes in the nuclear sector. Senior Researcher Noel Stott spoke at an informal workshop titled ‘Good Practices and Lessons Learned with respect to the implementation of Treaties establishing Nuclear-Weapon-Free Zones’. Assistant Researcher Anuradha Damale was an invited speaker at the event ‘Satellites Save Lives’ organised during World Space Week by Students for Exploration & Development of Space (SEDS), and other events organised by the Centre for Feminist Foreign Policy and the Joseph Rowntree Charitable Trust to talk about diversity and inclusion in the workplace.

Compliance Mechanisms and Measures

Angela Woodward and Cristina Rotaru

Sanctions training and research

The Compliance Mechanisms and Measures (CMM) Programme’s work during the last half of 2020 focused predominantly on projects aimed at assisting the implementation of UN Security Council maritime-related sanctions on North Korea. Specifically, the team has continued to carry out bespoke research and training, maintaining a particular focus on states’ national implementation of these sanctions. With all travel for outreach and training activities under these projects suspended due to the Covid-19 pandemic, programme staff worked to redevelop and customise training materials for remote online delivery. This has involved a thorough redrafting and review process of existing training materials as e-learning modules, and a comprehensive technical production process using

the software platform Articulate, which has included the creation of multimedia content, including video animations, voiceovers and graphic design. The resulting e-learning course has been completed and is to be rolled out imminently to partner countries. CMM also helped to prepare, review and perform quality control on the French translation of the e-learning training course, in preparation for deploying such materials to French-speaking partner countries.

CMM has also carried out discrete research tasks to inform deliverables, on state engagement, e-learning development, ship registry research, fraudulent flagging, North Korean sanctions evasion tactics and effective national implementation.

Outreach and External Relations

The Covid-19 pandemic has seen much of the CMM programme’s usual work – including outreach and the management of external relations – moved to the realm of online conferences and meetings.

Cristina Rotaru attended a number of online webinars of relevance to the CMM Programme’s work. These included events hosted by the Centre for Strategic and International Studies (CSIS) on ‘The Efficacy of the U.S. Sanctions’, the Nuclear Information Service on ‘Nuclear Weapons and Disarmament – What Does the Future Hold’, the Royal United Services Institute (RUSI) on ‘Dark Money and Democracy’ and ‘The future of US Sanctions’, the Strategic Trade Research Institute on ‘Dual-Use Technological Innovation’ and ‘Artificial Intelligence (AI) Applications for Managing Export Controls and Sanctions Risks’ British Pugwash on ‘Iran and nuclear weapons - The present and future’ and the UK Government on ‘UK sanctions policy and compliance after the Transition Period’.

Angela Woodward participated in New Zealand civil society webinars on topical disarmament issues on 29 September and 24 November; was the New Zealand representative to the Council for Security Cooperation in Asia Pacific’s (CSCAP) Nonproliferation Study Group during 13–14 October; attended the DOS CTR grant implementer’s meeting on North Korea and Iran funding for FY20–21 on 31 October; spoke with a journalist about nuclear weapon treaty compliance issues on 12 November; joined a Ploughshares webinar on ‘Transforming national security: nuclear policy for a new era’ on 19 November; joined a UK charity governance webinar

on 'Recruiting and retaining good trustees' on 19 November; joined the Arms Control Association's Annual Conference on 2 December; and participated in a civil society call to discuss the challenges to chemical weapons arms control, including the politics of the 25th Session of the Conference of the States Parties (CSP25), on 3 December. She will meet with New Zealand's Ambassador for Disarmament, Dell Higgle, and an MFAT policy officer, on 9 December.

Staff News

The CMM team currently consists of Angela Woodward, Programme Director and VERTIC Acting Executive Director, and Cristina Rotaru, Researcher.

Other Centre news

During the second half of 2020, VERTIC's office reopened periodically in accordance with the UK government guidelines in response to COVID-19, however the majority of staff continued to work remotely. Goldwins Chartered Accountants were appointed as a new audit firm. They are specialists within the charitable sector and will be auditing VERTIC's accounts for the year ending 31 October 2020. VERTIC outreach continued through its digital formats: website, social media and emails.



building trust through verification

Mission statement

VERTIC is an independent, not-for-profit, non-governmental organisation. Our mission is to support the development, implementation and effectiveness of international agreements and related regional and national initiatives, with particular attention to issues of monitoring, review, legislation and verification. We conduct research, analysis and provide expert advice and information to governments and other stakeholders. We also provide support for capacity building, training, legislative assistance and cooperation.

Personnel

Ms Angela Woodward, Acting Executive Director (New Zealand/United Kingdom);
Mr Larry MacFaul, Programme Director (United Kingdom);
Dr Sonia Drobysz, Programme Director (France);
Ms Yasemin Balci, Senior Legal Officer (the Netherlands);
Dr Grant Christopher, Senior Researcher (USA);
Mr Alberto Muti, Senior Researcher (Italy);
Mr Noel Stott, Senior Researcher (South Africa);
Ms. Nataliya Izedinova, Finance Director (Russia/United Kingdom);
Ms. Cristina Rotaru, Researcher (Romania);
Ms Elena Gai, Researcher (Italy);
Mr Thomas Brown, Associate Legal Officer (United Kingdom);
Ms Suzanna Khoshabi, Associate Legal Officer (United Kingdom); and
Ms Anuradha Damale, Research Assistant (United Kingdom).

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