Capturing Technology. Rethinking Arms Control.

Berlin, 15 March 2019

Conference Report

Summary

The event aimed to improve the understanding of the challenges posed to global arms control by the military application of emerging technologies and hoped to provide a forum for the discussion of possible solutions to these challenges. The Conference also aimed to create a sense of urgency to discussions regarding arms control in an effort to revitalise these debates. The main topics treated in the Conference were: lethal autonomous weapons systems (LAWS), new trends in missile technologies, and the potential misuse of cyber-instruments and biotechnologies. This report will be divided into a summary of the high-level panel which opened Conference and a summary of the discussions about each one of the previously mentioned technologies. Throughout all panels, scientists were encouraged to more actively participate in the regulation of emerging technologies. It was also generally accepted that arms control should be worked on with an increased sense of urgency by all stakeholders.

Summary of opening remarks

Heiko Maas, Federal Foreign Minister of Germany

The conference was opened with a keynote address by the Federal Foreign Minister of Germany, Heiko Maas. Mr. Maas started his address by stating that most technological innovations are inherently dual-use, that we cannot depend on these technologies to contain future wars, that technology is being increasingly democratised and that instruments to regulate these technologies have almost always come too late to prevent human suffering. He stressed that regardless of the current international context, nations must continue to work towards a strong arms control regime as a pragmatic measure to improve security and hopefully prevent the catastrophic effect new technologies could have on humanity. Particularly, Mr. Maas called for the prohibition of fully autonomous weapons.

Furthermore, Mr. Maas encouraged the international community to work towards the preservation and improvement of the current arms control architecture. However, it was stressed that this architecture must be expanded to include new actors. Mr. Maas called on these actors, particularly on China, to assume their responsibility in preserving strategic stability. It was also stated that Germany would make the issue of nuclear non-proliferation part of the Security Council's agenda as soon as the country assumes the Presidency this year. Mr. Maas also mentioned that progress in arms control will require sincere political will and a collaboration between governments, think tanks, researchers, military experts and industry representatives.

Mr. Maas also expressed his hope that the conference would promote frank and serious dialogue on the future of arms control.

Stef Blok, Minister of Foreign Affairs of the Kingdom of the Netherlands

Mr. Blok's speech emphasised the need for cooperation, predictability and transparency on the international arena, and observed that the mechanisms which foster these characteristics are being eroded. He then encouraged countries to work towards strengthening the pillars of strategic stability: good decisions by individuals in positions of power, disarmament, arms control and deterrence. Mr. Blok also called on Russia to respect the INF treaty and stop its violation of the treaty's provisions so that it may be saved. He made no such request to the US and argued that Russia's actions have left the US with no option but to abandon the treaty unless there is a change in Russian policy.

Margot Wallström, Minister of Foreign Affairs of the Kingdom of Sweden

Ms. Wallström urged international leaders to abandon the reckless nuclear rhetoric which has dominated much of the international dialogue lately. She lamented the return of nuclear weapons as a major political issue, as well as the deadlocks plaguing multilateral fora, deadlocks which are often caused by the lack of trust among international actors. Ms. Wallström guaranteed that non-proliferation and disarmament will be at the top of Sweden's foreign affairs agenda for the coming years. She insisted that states should put great effort in achieving a positive outcome in the 2020 NPT review conference and lamented the absence of a forum in the UN dedicated to discussing the development and control of missile technologies.

The address then focused on emerging technologies. Ms. Wallström stated that although these are highly technical subjects, the problems which we face in the regulation of emerging technologies are essentially political. She called on states to take practical measures to guarantee that resources are readily available for discussions to be had on these issues, and for the enforcement and improvement of already existing treaties and instruments. Ms. Wallström extended an invitation to the Netherlands and Germany to form a group of countries which will lead the way in international arms control.

Izumi Nakamitsu, UN Under-Secretary-General and High Representative for Disarmament Affairs

Ms. Nakamitsu stressed that it is urgent to make progress in arms control given the deterioration of great power relations, the erosion of international norms and treaties, and the fact that the pace of technological progress is much greater than our current capability to regulate emerging technologies. It was emphasised that a business as usual approach will not be enough to solve these problems. Ms. Nakamitsu also regretted that some states lack the political will and interest necessary to make progress in arms control. It was then mentioned that it is necessary to understand how these technologies interact with each other, test the applicability of Cold War arms control methods in the current international context and develop ways in which emerging technologies can become tools for the improvement of arms control.

Ms. Nakamitsu stated that arms control should not be pursued exclusively as a security measure, but also as a form of dignified restraint.

Cyber Capabilities

The conversation about cyber instruments focused firstly on the complexity of conducting threat assessments in this domain. This is partially due to the intricacies of defining the nature of cyber weapons and to the difficulty in assessing the extent of an attack. It was agreed that conceptual discussions should focus on the impact these capabilities could have at the strategic level. Moreover, it was mentioned that there is a great lack of transparency between countries regarding their cyber capabilities. This reality, as well as the difficulty of attributing responsibility for cyber operations and the possibility for 'false flag' attacks, has created an atmosphere of extreme distrust in the cyber domain. Much to the forum's surprise, a senior participant with a technical background disputed the claim that attribution is a great technical hurdle. The participant did not go into detail regarding the technique(s) he had successfully tested.

It was also said that private companies, which often own vast portions on nations' critical infrastructure, do not understand and often do not care about the threat cyber operations might pose to their assets. It was mentioned that the initiatives undertaken independently by these actors to stablish 'rules of the road' in cyber behaviour produce often underwhelming results. Arguments were made for and against including private companies in the crafting of arms control instruments for cyber technologies, with one participant even arguing that participation in these efforts should be restricted on a basis of capability, opening the door for the restriction of the participation of countries which are yet to develop this technology. Calls were also made for a more pluralistic approach including all nations and private sector experts. It was agreed that if the input of private companies is to be expected, then market incentives must be created to make cyber security a profitable investment.

One of the most fundamental disagreements in the forum was on the question of whether the regulation of cyber instruments should assume the form of arms control or not. It was argued by some participants that an arms control approach would be unnecessary and counterproductive, because these capabilities are allegedly yet to be weaponised and because assuming an arms control approach to the issue would legitimise the use of cyber capabilities as weapons. This view was met with strong disagreement by many. There was a less marked division in the forum about whether the open-ended working group or the GGE on cyber technology in the UN should be seen as the main forum of discussion regarding this topic. Since it has become apparently impossible to unite both groups, it was proposed that these fora could work together constructively and share their workload.

Those in support of an arms control approach to cyber security assessed the possibility of creating such agreement in the current political context. It was mentioned that frigid great power relations are not the main factor keeping arms control from happening in this sphere. Instead, it was argued that the cause for the current impasse is the fact that most great powers and aspiring great powers believe that they can still win a cyber arms race. It was proposed that cyber development could be shifted towards defensive capabilities. However, this was seen as unlikely due to cost and the current international rhetoric. It was also proposed that countries could unite in preventing attacks from non-state actors. This was also seen as improvable because states often hire non-state actors to carry out their cyber operations. Given this context a participant suggested that states should start small in their cooperation and seek international agreement on the measures to be taken against cybercrime. The hope is that said approach could lead to greater cooperation in the future.

Other measures which received widespread support were: the creation of national laws prohibiting cyber attacks against nuclear facilities, the establishment of a crisis communication framework, investing in network resilience, investing in verification technologies to improve norm adherence,

the creation of a framework for de-escalation, more communication regarding conflict prevention, the creation of a multistate norm model with appropriate norm adherence and promoting greater cohesion between private forums working on the development of norms.

Lethal Autonomous Weapons Systems (LAWS)

Although it was stated from the start of the discussion that lengthy deliberations about the definition of terms such as 'autonomous' and 'automatic' often yield no results, this debate occupied a significant amount of the forum's time. A more interesting discussion was had on the definition of what many agree is the main term in the regulation of LAWS: meaningful human control. There were two main positions on what could be considered as meaningful human control. The first, sustains that a human should have situational awareness and the ability to approve and override every one of the weapon's processes. The proponents of the second view argued that the first approach would render LAWS inefficient and would add an important possibility for human error in the process. Instead, they proposed that the decision of developing LAWS and deploying them should count as meaningful human control. This view holds that accountability can be transmitted from the weapons system to the commander which made the decision to deploy it.

Those in line with this view tended to argue that the principles set out in International Humanitarian Law (IHL) are all the legislation needed on the issue. They sustained that international efforts should instead focus on sharing procedures to prevent countermeasures against LAWS. These countermeasures were seen as deeply troubling by most participants. Other participants agreed that IHL is extremely important in this discussion. However, they argued that IHL should only form the backbone of the regulation of LAWS and that further instruments are required. This group of participants cited article 36 of the 1977 Additional Protocol I of the Geneva Conventions as an important basis for their argument. Participants also stressed the importance of the CCW's (Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects) GGE on LAWS in providing detailed analysis regarding the different contexts in which these weapons might be deployed.

It was mentioned that the development of LAWS does not necessarily involve the application of AI. The forum also heard that automation itself is a rather dated technology and that it is becoming more relevant because of greater processing capabilities and because of its ability to work despite interference.

This increased operation speed allows for extremely rapid conflict escalation. The possibility of using autonomy to control strategic weapons was mentioned and unanimously classified as worrying, undesirable and dangerous.

Finally, a participant called for the 'legal philosophising' around LAWS to stop and stated that it is high time for the creation of a legal instrument regulating these weapons.

Missile Technologies

The discussion on missile technologies identified several problematic trends in this area. One of such trends is the proliferation of missile technologies to countries such as North Korea and Iran.

Proliferation in these cases encompasses both the acquisition of missiles and the attainment of new manufacturing techniques by these regimes, such as 3D printing. It was said that it would be helpful if more resources would be used to follow the Hague Code of Conduct against Ballistic Missile Proliferation (HCoC). The forum also identified the limitations of the HCoC and proposed that it should be expanded to include more types of missiles, such as cruise missiles and hypersonic weapons.

Moreover, it was mentioned that the two main reasons for the apparently inevitable failure of the INF treaty are lack of effective verification and lack of trust. It was agreed that it is highly unlikely that the treaty will continue to exist beyond August of this year.

The issue of verification was mentioned again because of the possibility of payload ambiguity in many new missile systems. This led participants to recommend that new verification procedures should be implemented to prevent payload ambiguity and to improve transparency. It was also recommended that nuclear cruise missiles should be banned. These actions should ideally be taken internationally as opposed to bilaterally.

Biotechnology

The conversation on biotechnology was a significantly different one from the others, given that there is a ban in place on biological weapons. It is noteworthy that this ban extends to the use of non-lethal weapons, such as biological weapons which can destroy hardware. However, the Biological and Toxin Weapons Convention (BTWC) is a treaty with a particularly weak level of operation, verification and implementation in general.

The recent development of new synthetic pathogens, and of instruments able to modify an organism's DNA, RNA and bioregulators, pose a renewed threat to international security and the treaty. These developments have been enabled by emerging technologies such as AI, additive manufacturing and robotics. New bioweapons can affect new targets, for example an organism's life systems or crops. Likewise, they allow a variety of new delivery systems to be used, such as drones, insects or a simple sneeze.

Participants proposed a set of policy recommendations for the better management of biotechnologies to the forum. Their main recommendation was the formation of a Scientific Advisory Board in the BTWC which would raise the issue of technological convergence and would better address the potential mismanagement of commercial biotechnology and its enabling technologies. This group should be formed by an interdisciplinary group of experts, since its recommendations would often need to cut across domains. It was stressed that the BTWC is not a relic and that it has mechanisms for actualisation which have been successfully used in the past.

There were also calls for the formation of a group of states to lead and champion compliance with the treaty. Additionally, the wider scientific community was encouraged to become more involved in arms control and academia was encouraged to include more comprehensive ethical education.