Address at the Indian Institute of Technology in New Delhi

(Check against delivery)

Ms. Izumi Nakamitsu
High Representative for Disarmament Affairs
United Nations
Namaste and dhanyavaad for hosting me here today. I am honoured to speak to you at this distinguished institution and look forward to our interaction following my remarks.

In May last year, Secretary-General António Guterres released his Agenda for Disarmament, *Securing Our Common Future*. This key policy document had several drivers.

For one, in the face of a deteriorating international security environment, the key multilateral disarmament bodies are utterly deadlocked and key States seem to have lost faith in the value of arms control and disarmament as means of ensuring international stability and national security.

Second, the nature of armed conflict has evolved such that civilians today bear the brunt of an increasingly complex and urban warfighting environment. The employment in villages, towns and cities of weapons designed for use on battlefields has had devastating humanitarian impacts.

Third, and the aspect I want to focus on today, developments in science and technology are enabling, at an accelerating pace, the design and acquisition of new weapon technologies with unclear and potentially dangerous applications.

Before I launch in, one caveat. While I, in my capacity as High Representative for Disarmament Affairs, tend to focus on the “dark side”, that is the negative applications of new technologies, or applications of technologies in warfare to put it more bluntly, this focus is not exclusive. I in no way wish to suggest that you should be discouraged from your pursuits in technological developments. Quite the contrary.

In fact, we at the United Nations are also interested in promoting and facilitating the beneficial applications of science and technology for achieving our aims and we recognize that science and technology will be key enablers for, among other things, realizing the Sustainable Development Goals.

It is then our key challenge to ensure we can understand, manage and mitigate the potentially negative implications of various technological advancements in a way that avoids hampering social and economic development and the pursuit of basic scientific research and exploration.
With that caveat out of the way I will return to the dark side and briefly outline some of the technologies that have already been identified as particular areas for concern. In doing this I will not talk about the technical side, on which you as faculty and students of India’s premier tertiary institute already have considerable expertise and insight. Rather I will invite you to think about some of the wider implications of these technologies, including for global security, international law and human rights, as well as some possible responses to these challenges.

Developments in artificial intelligence research are driving interest in autonomy in weapons and other military systems. The possible implications are vast and multi-dimensional.

Autonomous weapons could spark a new arms race. They could lead to a perception that armed conflict can be initiated without risk or collateral harm, thereby affecting calculations for resorting to the use of force. Growing reliance on autonomy or artificial intelligence could have negative implications for escalation control as decision-making timeframes are increasingly compressed and militaries begin to fear suffering losses every more swiftly.

Increasing autonomy in the critical functions of weapons systems arguably strains existing legal frameworks, raising questions about human accountability for the use of force. There are fundamental questions about whether a machine could ever be capable of performing the judgments required to conform with international law, including those related to proportionality and discrimination between civilian and military objects and persons in attacks. And there are profound ethical questions about outsourcing life and death decisions to algorithms.

At the 2018 Web Summit in Lisbon, the Secretary-General stated clearly that the existence and use of autonomous weapons with the discretion and capacity to take human lives is politically unacceptable, morally repugnant and should be banned by international law.

States are already discussing this important topic at the Convention of Certain Conventional Weapons in Geneva. In 2018, under the Indian chair, they agreed a consensus report that included ten possible guiding principles of emerging technologies in the area of lethal autonomous weapons systems.
From a non-proliferation perspective, there are concerns regarding the ability of new technologies such as synthetic biology to lower barriers to prohibited weapons, or the possible use of additive manufacturing to assist in the undesirable dissemination of controlled or sensitive weapons-related items.

Previous barriers to the acquisition of biological weapons have been reduced or eliminated by innovations such as gene transfer and other biosynthetic engineering approaches. Such techniques can moreover modify biological agents in ways that would enhance their utility as weapons by, for example, improving pathogenicity, circumventing immunity, enhancing transmissibility and improving drug resistance.

In outer space, new civilian technologies enabling on-orbit servicing of satellites and the removal of space debris present novel challenges. Such capabilities could feasibly be used for aggressive purposes and it will be difficult or impossible to infer intentions from their actions alone. These problems are compounded by the ever-growing dependence on space-based technologies of not only a broad range of civilian industries but many advanced militaries.

While cyberspace has come to underpin almost every aspect of our daily lives, the scale and pervasiveness of cyber “insecurity” is also now recognized as a major concern. The political and technical difficulty of attributing and assigning responsibility for cyberattacks could result in significant consequences, including in unwarranted armed responses.

Critical infrastructure that is connected through cyber technologies, ranging from the financial sector to power grids to nuclear facilities are vulnerable to malicious cyber operations. The hacking of nuclear weapon command and control, for instance, could result in devastating consequences for escalation control.

Many of these developments reflect broader trends in international security, including a growing interdependence between the civilian and military realms, and the difficulty of ensuring that normative efforts keep pace with accelerated technological development.
The history of humankind has always been driven by technological development and attended by a need to find ways to regulate their applications in wars to protect human beings. Beyond the operational aspects of warfare, rapidly developing new technologies may pose challenges to existing international law, which was developed over many centuries, both those regulating the use of force (jus ad bellum), and international humanitarian law (just in bello) to protect civilians in conflicts.

One cross-cutting and practical approach we are taking to address these issues is to facilitate the exchange of information and experiences on how States undertake reviews of new weapons to ensure their armed forces comply with international law. Under Additional Protocol I of the 1949 Geneva Conventions, States are required to undertake such reviews, but increased transparency in these reviews would help build confidence and ensure predictability with respect to the potential introduction of destabilizing new technologies. It would also promote common understanding regarding the application of international law.

On cyber security, while there already exists a nascent normative framework for responsible State behaviour in the use of information and telecommunications technologies, a lot still needs to be done to implement it. In this regard, the Secretary-General has committed himself to working with States to foster a culture of accountability and adherence to norms, rules and principles in cyberspace.

Furthermore, beginning this year, UN Member States will have the opportunity to discuss and take forward this issue in the context of an Open-ended Working Group as well as a Group of Governmental Experts, and the UN will do its utmost to support these processes.

We are also supporting intergovernmental deliberations on biological weapons, outer space security and the process on autonomous weapons that I mentioned earlier.

But business as usual will clearly not be sufficient. The Secretary-General’s agenda places particular emphasis on enhancing the engagement of multilateral disarmament processes with expertise from scientific and technology communities, i.e. with institutions like this one and people like you. The motivation for enhancing this engagement is – at least – two-fold.
For one, it is essential that our multilateral discussions are adequately informed, particular in this era of ever-accelerating and often compounding technological developments.

But this is about more than expertise. It is also about ensuring we have the best possible chance to make real progress on these important topics. A diversity of informed views improves decision-making and outcomes. At the United Nations we have geographic diversity, but we are often lacking in other areas including diversity of expertise and disciplinary backgrounds. At the outset I mentioned that the disarmament machinery is deadlocked – we are in desperate need of new ideas and approaches. Just as India, as a nuclear-possessor State, has a special responsibility to contribute to advancing disarmament, the Indian tech sector, given its heft and global leadership, has a distinct responsibility to contribute to our collective efforts to manage these risks.

On the other side, it is important that the work that you and your counterparts around the world are doing proceeds in a way that is conscious of the broader context. For this reason, a key commitment within the disarmament agenda is for the Secretary-General to work with scientists, engineers and industry to encourage responsible innovation and ensure the application and dissemination of developments in science and technology in conformity with the principles and objectives of the United Nations.

It is vital that innovators such as yourself think about your work in terms of how it might be used, not just how it should be used.

I hope this is something we can discuss further soon. I also hope some of you will consider bringing your scientific and technological expertise directly into the disarmament world, whether through your national delegations, your research pursuits or perhaps some of you may even pursue a career within the United Nations.

Dhanyavaad.