

Wake up the Sleeping Beauty
Challenges to the Right to Use Science and
Technology for Peaceful Purposes (RUPP)
and the Way Forward

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Wake up the Sleeping Beauty

Challenges to the Right to Use Science and Technology for Peaceful Purposes (RUPP) and the Way Forward

Science and technology are important engines for the development of human society. At present, a new wave of scientific and technological revolution and industrial transformation is in full swing. It provides an important opportunity for sustainable development and security. But at the same time, the trend of technological decoupling and containment has intensified, and the digital and development divide has continued to widen, hindering countries from making full use of the fruits of scientific and technological progress to benefit their people.

Against this background, the UN General Assembly passed resolutions in 2021 and 2022, calling for “promoting international cooperation on peaceful uses in the context of international security”.¹ These resolutions carry the spirit of the Global Security Initiative and the Global Development Initiative, and have aroused heated

¹ UNGA Resolution A/RES/76/234, “Promoting international cooperation in the peaceful uses of energy in the context of international security”, 24 December 2021, <https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F76%2F234&Language=E&DeviceType=Desktop&LangRequested=False>. UNGA Resolution A/RES/77/96, “Promoting international cooperation in the peaceful uses of energy in the context of international security”, 7 December 2022, <https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F77%2F96&Language=E&DeviceType=Desktop&LangRequested=False>.

discussions among UN member states.² This report represents an attempt to elaborate on the right to use science and technology for peaceful purposes (RUPP) as an inalienable right to development, assess upcoming challenges, and suggest a roadmap for better safeguarding this right through strengthened dialogue and collaboration.

² *Promoting international cooperation on peaceful uses in the context of international security: report of the Secretary General*, 13 June 2022.

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/381/04/PDF/N2238104.pdf?OpenElement>.

1. The Right to Use Science and Technology for Peaceful Purposes (RUPP), a Sleeping Beauty

For the purpose of this report, the RUPP refers to the right to develop, acquire, retain, transfer and use equipment, materials and scientific and technological information for peaceful purposes. Although RUPP sounds like a new concept, it is deeply rooted in a series of international declarations, covenants and treaties as an inalienable part of the right to development. However, without sufficient attention from the international community, it has long been dubbed the “sleeping beauty”.³

I. RUPP Deeply Rooted in International Law

The idea of RUPP is contained in human rights law, nonproliferation treaties, international law on outer space and Antarctica and recent UN General Assembly Resolutions.

i. RUPP in Human Rights Law. Article 27 of the 1948 Universal Declaration of Human Rights stipulates that everyone has the right to “share in scientific advancement and its benefits”.⁴ Article 15 of the

³ Sebastian Porsdam Mann , Helle Porsdam , Yvonne Donders, “‘Sleeping Beauty’: The Right to Science as a Global Ethical Discourse”, *Human Rights Quarterly*, Volume 42, Number 2, May 2020.

⁴ Article 27, *Universal Declaration of Human Rights*, <https://www.un.org/en/about-us/universal-declaration-of-human-rights> .

1966 International Covenant on Economic, Social and Cultural Rights first included the right to use science and technology for peaceful purposes in a legally binding form: the States Parties recognize that everyone has the right to “enjoy the benefits of scientific progress and its applications”.⁵ The 1975 Declaration on the Use of Scientific and Technological Progress for Peace and the Benefit of Mankind also called on countries to use science and technology for peaceful purposes, stop non-peaceful uses and strengthen international cooperation.⁶

ii. RUPP in Nonproliferation Treaties and International Laws on Global Commons. To maintain international peace and security, the international community has reached a series of legal documents to prevent the proliferation of equipment, materials and technologies related to weapons of mass destruction and their means of delivery. It is also provided that restrictive and prohibitive measures taken to maintain international security must have clear boundaries and should not undermine the right to peaceful use. For example, although nuclear technologies and materials are prohibited from use in the development of nuclear weapons, the use of the same technologies and materials for

⁵ Article 15, *International Covenant on Economic, Social and Cultural Rights*, https://treaties.un.org/doc/Treaties/1976/01/19760103%2009-57%20PM/Ch_IV_03.pdf.

⁶ *Declaration on the Use of Scientific and Technological Progress for Peace and the Benefit of Mankind*, <https://www.un.org/zh/documents/treaty/A-RES-3384%28XXX%29>.

peaceful purposes should not be hindered, which is clearly stipulated in the Treaty on the Non-Proliferation of Nuclear Weapons.

The international community also has extensive common understanding on preventing weaponization of and arms race in the outer space and using the outer space and Antarctica only for peaceful purposes. The relevant international legal documents have further clarified and strengthened the right to use science and technology for peaceful purposes in these domains.

iii. RUPP in UN General Assembly Resolutions. The two resolutions of the United Nations General Assembly on “promoting international cooperation on peaceful uses in the context of international security” drew international attention by stressing the following points: measures “preventing the proliferation of nuclear, chemical and biological weapons should not hamper international cooperation on materials, equipment and technology for peaceful purposes”; it is “the inalienable right of all States to participate in the fullest possible exchange of equipment, materials and scientific and technological information for peaceful purposes”; “All countries are entitled to benefit from science and technology”; and “there is a strong need to continue exchanges in science and technology for peaceful purposes”.⁷

⁷ UNGA Resolution A/RES/76/234, “Promoting international cooperation in the peaceful uses of energy in the context of international security”, 24 December 2021 ,

<https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F76%2F234&Language=E&DeviceType=Desktop&Lang=en>

iv. RUPP and Export Control Regulations. It is a common practice in the world to impose export controls over dual-use items, military items, nuclear and related equipment, materials and technologies in order to safeguard national security and interests and implement non-proliferation and other international obligations. The purpose of export control is to control what should be controlled and free what should not be restricted, and ensure that the peaceful uses of relevant equipment, materials and technologies not hampered by excessive export control regulations and implementations.

Non-proliferation export control regimes are not designed to excessively restrict peaceful uses out of concerns over proliferation. The Nuclear Suppliers Group (NSG) makes it very clear that the aim is to “ensure that nuclear trade for peaceful purposes does not contribute to the proliferation of nuclear weapons or other nuclear explosive devices, and that international trade and cooperation in the nuclear field is not hindered unjustly in the process.”⁸ The Missile Technology Control Regime (MTCR) says that its guidelines “are not designed to impede national space programs or international cooperation in such programs as long as such programs could not contribute to delivery systems for

[gRequested=False](https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F77%2F96&Language=E&DeviceType=Desktop&LangRequested=False). UNGA Resolution A/RES/77/96, “Promoting international cooperation in the peaceful uses of energy in the context of international security”, 7 December 2022, <https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F77%2F96&Language=E&DeviceType=Desktop&LangRequested=False>.

⁸ <https://www.nuclearsuppliersgroup.org/index.php/en/guidelines/nsg-guidelines>.

weapons of mass destruction”.⁹ The Wassenaar Arrangement vows that the arrangement will not to “be directed against any state or group of states and will not impede bona fide civil transactions. Nor will it interfere with the rights of states to acquire legitimate means with which to defend themselves pursuant to Article 51 of the Charter of the United Nations”.¹⁰ The Australia Group claims that its guidelines are not intended to impede trade or international cooperation in biological or chemical-industry fields.¹¹

International trade is the main way to exchange equipment, materials and scientific technology for peaceful purposes. According to the General Agreement on Tariffs and Trade (GATT), trade can only be restricted when “essential security interests” are threatened, which grants and protects the right of the contracting parties of GATT to peacefully use scientific and technological products. The Agreement on Trade-Related Aspects of Intellectual Property Rights and the General Agreement on Trade in Services also take the freedom of scientific and technological trade as normal.

⁹ *Guidelines for Sensitive Missile-Relevant Transfers*,
<https://www.mtcr.info/en/mtcr-guidelines/guidelines-for-transfer>.

¹⁰ *Guidelines & Procedures, including the Initial Elements (A)*, p.4,
<https://www.wassenaar.org/app/uploads/2021/12/Public-Docs-Vol-I-Founding-Documents.pdf>.

¹¹ <https://www.dfat.gov.au/publications/minisite/theaustraliagroupnet/site/en/guidelines.html>.

II. Priorities of RUPP in Today's World

Nowadays the importance of peaceful use of science and technology has become more prominent. If any country wants to achieve sustainable development, if any man or woman wants to improve the quality of daily life, the access to equipment, materials and technologies in a wide range of fields such as electronics, communications, biology, nuclear energy, chemical industry, aviation, aerospace, etc. are indispensable. In this backdrop, the emphasis on the RUPP has three main components:

- i. The Right to Cooperate. All countries have the right to participate equally in international cooperation related to the peaceful use of science and technology. The peaceful use projects of nuclear energy carried out by the International Atomic Energy Agency are good examples in this regard.
- ii. The Right to Governance. All countries have the right to participate equally in the formulation of rules related to the peaceful use of science and technology. In this regard, the two resolutions of the United Nations General Assembly on “promoting international cooperation on peaceful uses in the context of international security” have opened up novel multilateral processes.
- iii. The Right to Welfare. All countries have the right to equally enjoy the dividends of scientific and technological development for

peaceful purposes. The COVAX program aimed to accelerate the development and manufacture of COVID-19 vaccines and to guarantee fair and equitable access for every country in the world provides valuable experiences in fulfilling the right to welfare driven by scientific and technological advancement.

III. RUPP Critical to International Security

Promoting the peaceful use of science and technology is not only essential to the realization of the right to development, but also of great significance for maintaining international security. It will first help expand the global economic pie and provide a solid material foundation for sustainable security. It will also help consolidate the moral basis of international non-proliferation mechanisms and reduce the risk of proliferation of weapons of mass destruction and their delivery means. It will help regulate the use of emerging technologies and reduce the risk of conflicts in new domains. It will help address global challenges such as epidemics and climate change. It will additionally help enhance interdependence among countries and reduce the risk of conflicts between major powers.

All in all, RUPP has both development and security attributes and constitutes an indispensable subdivision of the right to

development. Any acts to obstruct the peaceful use of science and technology and related international cooperation violate international law. Furthermore, failures to promote peaceful use of science and technology and related international cooperation or any passive attitudes in this regard should also be deemed as in violation of the relevant international law.

2. Significant Challenges to RUPP

With the joint efforts of the international community, science and technology have been widely used in the fields of health, food and agriculture, environmental protection, etc., playing an important role in promoting sustainable development and enhancing human well-being. But in general, the peaceful use of science and technology has not got sufficient international attentions or investments it deserves. What is more worrying is that in recent years, the trend of technological decoupling has intensified around the globe while legitimate international scientific and technological exchanges and cooperation have been overly restricted. This has not only caused tensions between countries, but also deepened and widened the North-South technology gap, and affected the realization of the United Nations Sustainable Development Goals by developing countries.

I. Politicization and Weaponization of Science and Technology

Poisons the Environment for International Cooperation

The 1966 International Covenant on Economic, Social and Cultural Rights provides that all States Parties have the responsibility to encourage

and develop “international contacts and cooperation in the scientific and cultural fields”. However, in recent years, as the trend of politicization and weaponization of science and technology has intensified, the environment for international scientific and technological cooperation has deteriorated. Some countries have abused unilateral sanctions against other countries, blocking other countries and their people from obtaining materials and technologies, even in pandemic response, which seriously infringed on the right to survival and development of the people of the sanctioned countries.

Impact of US Sanctions on Cuba's Fight against COVID-19

From April to December 2020, the Government of the United States deliberately blocked the import of supplies needed for COVID-19 pandemic response. For example, on 18 November, the US Department of Transportation denied, on the orders of the State Department, requests from IBC Airways and Skyways Enterprises to operate humanitarian cargo flights to Cuba.

The extraterritorial application of the blockade has continued to impede the access of Cuba to medical technologies containing more than 10 percent of United States parts and components, as well as the procurement of over 30 products and supplies that are urgently needed for COVID -19 prevention and treatment protocols.

In particular, the German companies Sartorius and Merck, as well as Cytiva and other regular providers of laboratory material, reagents and supplies, stopped their shipments to Cuba in 2020 owing to the tightening of the blockade. During the period, the country was unable to obtain equipment and supplies related to the production of COVID-19 candidate vaccines or to the conduct of phases necessary for the completion of clinical trials of the vaccine, including equipment for the purification of the candidate vaccines, accessories for production equipment, filtration tanks and capsules, potassium chloride solution, himerosal, bags and reagents.¹²

Impacts of Unilateral Sanctions on Syria's Import of Medical and Health Equipment

Unilateral restrictions and sanctions are preventing the Syrian Arab Republic from obtaining and importing essential materials, equipment and technology used for peaceful purposes in the health sector. That includes, *inter alia*:

- Spare parts for cyclotrons (for the manufacture of radioactive pharmaceuticals)

¹² “Country Report of Cuba”, *Promoting international cooperation on peaceful uses in the context of international security: report of the Secretary General*, p. 19, 31 May, 2022, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/381/04/PDF/N2238104.pdf?OpenElement>.

- Spare parts for electronic accelerators (for the sterilization of medical materials)
 - Cobalt 60 sources for irradiation plants (for the sterilization of medical instruments and food substances)
 - Cobalt 60 sources for cancer treatment machines
 - Iridium 192 sources for the treatment of cancerous tumors (especially cervical cancer)
 - Spare parts for non-operational radiotherapy devices (for treatment of cancer) and equipment for the maintenance and operation of old machines in State hospitals (for the treatment cancer and non-cancer cases)
 - Chemical and biochemical substances and kits (for various analyses for medical treatment and diagnosis of rare diseases)¹³

Some countries are keen to stigmatize and demonize other countries' science and technology development policies and achievements, and instrumentalize science and technology issues for unfair competitive advantages. For example, the United States imposes export controls on a large number of generic and basic technologies and advocates its use of export controls for industrial advantages. In addition, the United States has also set up technical barriers and restricted the free flow of science

¹³ "Country Report of Syria", *Promoting international cooperation on peaceful uses in the context of international security: report of the Secretary General*, p. 56, 31 May, 2022, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/381/04/PDF/N2238104.pdf?OpenElement>.

and technology investment in both directions, thus seriously disrupting the global science and technology market order.

II. Discriminatory Measures Encroaches on the Right to Governance

The new wave of scientific and technological revolution is characterized by integrated innovation and explosive development, bringing a series of unprecedented security challenges and governance difficulties. Its impact extends to countries in the North and South, as well as to future generations of mankind. It is reasonable for all countries in the world to work together to discuss the way of global science and technology governance. However, in the process of reforming and improving the global science and technology governance mechanism, there are a series of outstanding problems that hinder the equal participation of developing countries in decision-making.

i. The problem of under-representation of developing countries in the non-proliferation export control mechanisms is prominent. First, the proportion of developing country members in those mechanisms is low. Second, the existing non-proliferation export control rules and lists are without a clear mandate from the NPT, CWC, BWC or UN Security Council Resolution 1540. This has caused an “imbalance between rights

and obligations” of states and weakened the moral basis of the non-proliferation export control regimes.

ii. Some developed countries are keen to develop exclusive small circles and erect barriers to emerging technologies. For example, the United States exaggerates the confrontation between so-called “technological democracies” and “technological authoritarian regimes,” promotes the concept of a so-called “Democratic Technology Alliance”, and even plans to establish a new COCOM¹⁴to protect the West’s technological monopoly. These small circles exclude developing countries and formulate their own control rules in the field of emerging technologies, which seriously infringes on the equal decision-making right of the Global South.

iii. The phenomenon of double standards in export control is prominent. Some self-proclaimed international export control leaders violate international non-proliferation rules they helped develop and wantonly export items restricted by the existing control regimes. For example, the United States, Britain, and Australia conduct nuclear submarine cooperation in blatant violation of the purposes and principles of the NPT, dealing a blow to the international nuclear non-proliferation system. The United States also transferred cruise missiles in large

¹⁴Gina M. Raimondo, “Reagan National Defense Forum 2023 Fireside Chat”, 2 December, 2023, p.4, <https://www.reaganfoundation.org/media/361835/rndf-2023-fireside-chat-transcript-sec-raimondo.pdf>.

quantities to allies such as Australia and Japan¹⁵ and exported missile interceptors to allies in the name of missile defense cooperation, seriously violating the relevant MTCR provisions and speeding up missile proliferation.

III. New McCarthyism Erodes Freedom of Research

Article 2 of the International Covenant on Economic, Social and Cultural Rights stipulates that the States Parties undertake to guarantee that scientific knowledge, information and progress must be accessible to all without discrimination of any kind as to race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. However, some countries link the access to scientific and technological research with ethnic background, nationality and ideology, and implement discriminatory visa, education and judicial measures. Some countries ignore international rules such as the United Nations Headquarters Agreement and refuse to issue visas to diplomats and researchers participating in international education, science and technology, and cultural exchanges.¹⁶ The United States has hyped up the so-called “research security” issue. Since June 2018, it has tightened visas

¹⁵ For example, on March 16, 2022, the US State Department announced the approval of the sale of 220 Tomahawk cruise missiles to Australia; in November of the same year, the US State Department approved the sale of 400 Tomahawk cruise missiles to Japan. The missile has a maximum range of 1,700 kilometers, far exceeding the restrictions of the Missile Technology Control Regime.

¹⁶ Xinhua News Agency, “Guterres expresses concern over US delay in issuing visas to representatives of some UN member states”, December 26, 2019, http://www.xinhuanet.com/world/2019-12/27/c_1125395741.htm.

for Chinese students of certain disciplines at American universities and repeatedly interrogated, harassed and repatriated Chinese students.

According to the United Nations Committee on Economic, Social and Cultural Rights' 2020 general comment on Article 15 of the International Covenant on Economic, Social and Cultural Rights, researchers should be guaranteed the freedom to cooperate with other researchers, both nationally and internationally.¹⁷ However, in November 2018, the US Department of Justice launched the China Initiative, targeting Chinese researchers working in the United States or American scientists who have exchanges and collaborations with China, infringing on their freedom of research.

IV. Widening Technology Gap Threatens Developing Countries' Right to Benefit from Scientific and Technological Development

The 2005 Universal Declaration on Bioethics and Human Rights stipulates that “benefits resulting from any scientific research and its applications should be shared with society as a whole and within the international community, in particular with developing countries.”¹⁸ However, it is a grim reality that global scientific and

¹⁷ Committee on Economic, Social and Cultural Rights, *General Comment No. 25 (2020) on science and economic, social and cultural rights in the context of the International Covenant on Economic, Social and Cultural Rights* (art. 15, paras. 1 (b), 2, 3 and 4), E/C.12/GC/25, 30 April 2020, <https://undocs.org/Home/Mobile?FinalSymbol=E%2FC.12%2FGC%2F25&Language=E&DeviceType=Desktop&LangRequested=False>.

technological progress is extremely uneven, and the North-South technology gap continues to widen. The gap is three-folded.

i. Resource Gap. Developed countries have abundant scientific and technological resources, including infrastructure, knowledge reserves, research institutions, R&D funds and talents, which are far more than those of developing countries.

ii. Capacity Gap. The latest report of the World Intellectual Property Organization (WIPO) pointed out that the top 30 countries in the world in terms of innovation capacity in 2023 are mostly developed countries in Europe and North America.¹⁹

iii. Output Gap. According to researches by the China Academy of Information and Communications Technology, the current digital economy output of developed countries accounts for about 70% of the world total, much higher than that of developing countries.²⁰ Moreover, scientific and technological innovation has a “Matthew effect”. The sufficient resources, mature institutions and huge markets of developed countries further amplify their innovation capacity while developing countries fall into a vicious circle due to deficiencies in resources,

¹⁸ Article 15, *Universal Declaration on Bioethics and Human Rights*, https://unesdoc.unesco.org/ark:/48223/pf0000146180_chi.

¹⁹ World Intellectual Property Organization, *Global Innovation Index 2023: Innovation in the face of uncertainty*, 16th Edition, Geneva: WIPO, 2023.

²⁰ China Academy of Information and Communications Technology, *White Paper on Global Digital Economy (2023)*, January 2024, <http://www.caict.ac.cn/kxyj/qwfb/bps/202401/P020240326601000238100.pdf>.

markets and institutions. Against this background, some developed countries are using "national security" as an excuse to increase technological blockades and export controls, which will further widen the technology gap.

The widening technology gap between the North and the South not only is unhelpful to the development of the world economy but also hinders the resolution of current global problems.

First, it is not conducive to sustainable socioeconomic development. Recently, the United Nations released a mid-term assessment report, revealing regression in achieving the Sustainable Development Goals (SDGs). The technology gap hinders green development and digital transformation in developing countries, and many countries cannot achieve the Sustainable Development Goals as scheduled.²¹

Second, it is not conducive to the resolution of social crises in various countries. Technology innovation contributes to balanced development. For example, digital technology promotes inclusive finance and brings universal and equal educational opportunities. The technology gap exacerbates social and economic inequality, frustrates the empowerment of vulnerable groups such as women, and exacerbates social divisions, polarization and turmoil.

²¹The United Nations, *The Sustainable Development Goals Report*, 2023, <https://unstats.un.org/sdgs/report/2023/>.

Third, it is not conducive to human security or world peace. The technology gap hinders the technological transformation of the vast number of developing countries, making humans more vulnerable to climate change, environmental degradation, epidemics and natural disasters. At the same time, technological differentiation accelerates wealth inequalities, which may well become a hotbed for the spread of regional conflicts, extremism and terrorism, and organized crime.

3. Recommendations for Promoting the Peaceful Use of Science and Technology

The RUPP is like a sleeping beauty. Now it is the time to wake her up and dress her beautifully. She will help make the world more prosperous and more secure. Based on relevant reports from governments and think-tanks, our RUPP task force would like to propose the following principles and measures to promote the peaceful use of science and technology.

To promote the peaceful use of science and technology, the international community should adhere to three principles.

First, Balance between Development and Security

The international community should pursue both development and security simultaneously, with shared prosperity achieved through sci-tech cooperation and common security protected through shared prosperity, thus striking a better balance between security needs such as non-proliferation and peaceful uses of science and technology.

Second, Rule of International Law

The international community should maintain the international order based on international law, implement export controls in accordance with the principles of fairness, rationality and non-discrimination, and oppose the abuse of science and technology embargoes based on domestic legislations and double standards.

Third, Real Multilateralism

The international community should try to achieve shared growth through discussion and collaboration, safeguard the international system with the United Nations at its core, and say no to exclusive small circles which seek science and technology monopoly.

These principles might be implemented by taking the following actions.

I. Develop a Global Science and Technology Community with the United Nations at Its Core

i. The UN General Assembly may discuss and adopt a Declaration on the Peaceful Uses of Science and Technology to reaffirm that all countries have the right to acquire knowledge, technology, materials and goods for the pursuit of peaceful social and economic development, and clarify that the right to peaceful use of science and technology is an

important component of the country's right to development and an inalienable human right.²²

ii. The UN General Assembly may maintain a regular dialogue process on peaceful use. The General Assembly's First Committee should hold annual meetings to discuss about progress in peaceful uses. Since this topic involves both security and development, the First Committee and the Second Committee may also convene a joint meeting on how to balance security and development in related fields.

iii. The General Assembly may also set up a Group of Governmental Experts or an Open-ended Working Group to systematically discuss topics such as the scope of peaceful use, the relationship between peaceful use and non-proliferation export control, the role of peaceful use towards sustainable development goals, the channels and modalities for international cooperation and the practical challenges.

iv. Think-tanks and non-governmental organizations should be encouraged to conduct more researches on the RUPP, hold relevant international seminars, and actively make recommendations to the United Nations.

²² Country Reports submitted by countries such as Belarus, Cambodia, Malaysia, Nicaragua, Pakistan, Russia, Syria, Venezuela, etc., *Promoting international cooperation on peaceful uses in the context of international security: report of the Secretary General*, 13 June 2022, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/381/04/PDF/N2238104.pdf?OpenElement>.

II. Reform the Global Science and Technology Governance

Mechanism to Increase Inclusiveness and Transparency.

The international community should try to agree on the regulation of emerging technologies with multiple stakeholders in technology, business, policy, law and diplomacy, set up necessary guardrails in such new fields as cyber, biology, space and artificial intelligence, and create a favorable environment for their healthy development and safe use. In this process, the principles of peace, development, inclusiveness, and co-governance should be followed. The opinions, interests and demands of developing countries should be fully guaranteed. As far as export control is concerned, the existing non-proliferation export control regimes should be improved and made more inclusive and transparent. They should share more details with the international community during the rule-making stage. In the long run, it is worthwhile to consider integrating the four major export control mechanisms into a unified international non-proliferation export control regime.

III. Strengthen Cross-Institutional Communication to Share

Experiences of Peaceful Use

Resources of relevant international mechanisms and organizations should be fully used. Experience sharing may be increased in various

organizations and mechanisms such as the Preparatory Commission for the CTBTO, the IAEA, the OPCW, the World Health Organization, the Food and Agriculture Organization of the United Nations, the World Organization for Animal Health and the Security Council's 1540 Committee.

IV. Create a Good Environment for International Scientific and Technological Cooperation by Respecting Each Other's Legitimate Concerns

i. Countries of concern should conduct dialogues on supply chain security to further a common understanding on supply chain elasticity. In view of the concern of the international community, especially the Global South, multilateral and bilateral dialogues should be actively pursued with a strong sense of responsibility to clarify the boundaries of national security in international trade, identify and put in place confidence-building measures, and provide a more robust drive for the security and stability of the global production and supply chains.

ii. The international community should promote bilateral and multilateral scientific and technological cooperation and jointly respond to global challenges. A special fund for international scientific and technological cooperation could be established to support transnational scientific research projects and international academic exchanges to

respond to common threats such as climate change, loss of biodiversity, food security, epidemic diseases, and the proliferation of weapons of mass destruction.

V. Protect the Freedom of International Exchanges in Science and Technology in the Spirit of Borderless Science

All countries should adhere to the spirit of border-less and barrier-free open science, facilitate the free flow of tech innovators and resources such as knowledge, data and research results around the world and advocate equal participation in international cooperation by all countries and research entities. Dialogues should be carried out on safeguarding the international exchange rights of scientists and technicians, exploring practical measures to safeguard the personal safety and international travel rights of researchers and tech entrepreneurs, resolutely opposing restrictions or obstructions, knowledge blockade and arbitrary barriers in this field.

