

# ISCN Newsletter

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～Report on The International Forum on  
Peaceful Use of Nuclear Energy, Nuclear  
Nonproliferation and Nuclear Security～

## January, 2023

Integrated Support Center for Nuclear Nonproliferation  
and Nuclear Security (ISCN)

核不拡散・核セキュリティ総合支援センター

Japan Atomic Energy Agency (JAEA)

国立研究開発法人日本原子力研究開発機構

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**Report on  
The 2022 International Forum on Peaceful Use of Nuclear Energy,  
Nuclear Nonproliferation and Nuclear Security  
“Impacts of Russian Invasion of Ukraine on Nuclear Nonproliferation,  
Nuclear Security and Peaceful Use of Nuclear Energy, and Future Challenges”**

## **1. Purpose of the Forum**

The ISCN (Integrated Support Center for Nuclear Nonproliferation and Nuclear Security) of JAEA (Japan Atomic Energy Agency) held in 14 December 2022 an annual international forum to promote a better understanding of nuclear non-proliferation and nuclear security which is essential to ensure the peaceful use of nuclear energy.

This time, with the theme of “Impacts of Russian Invasion of Ukraine on Nuclear Nonproliferation, Nuclear Security and Peaceful Use of Nuclear Energy, and Future Challenges”, discussed what is happening to nuclear non-proliferation and nuclear security caused by Russia's invasion of Ukraine, and deepened understanding of how the IAEA and other international community has been responding

The following overview is the responsibility of the organizer, JAEA, and summarizes the keynote speeches and panel discussions.

## **2. Overview of the Forum**

### **(1) Date & Time**

14 December 2022, 16:00-18:30 Japan Standard Time

### **(2) Format: Online, simultaneous interpretation in English and Japanese**

### **(3) Participants: Around 250**

### **(4) Program**

[Opening remarks]

- **Mr. KOGUCHI Masanori; President of JAEA**

[Keynote Speech]

- **Mr. SANO Toshio; Commissioner, Japan Atomic Energy Commission**

[Panel discussion]

(Moderator)

- **Ms. IWAMA Yoko; Professor, Maritime Safety and Security Policy Program, National Graduate Institute for Policy Studies (GRIPS)**

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(Panelists)

- **Mr. SANO Toshio**; Commissioner, Japan Atomic Energy Commission
- **Ms. Elena K. SOKOVA**; Executive Director, Vienna Center for Disarmament and Non-Proliferation (VCDNP)
- **Ms. Anna BRADFORD**; Director of the Division of Nuclear Installation Safety, IAEA
- **Ms. Margarida GOULART**; Head of Unit - Euratom Coordination, European Commission, Joint Research Centre (EC/JRC)
- **Mr. NAOI Yosuke**; Director of ISCN, JAEA
- **Ms. IMAMURA Yuri**; Master Course, Kyushu University Faculty of Law; Representative of Student Session

[Closing remarks]

- **Mr. OHSHIMA Hirovuki**, Executive Director of JAEA

### 3. Keynote speech

#### **Impact of Russian Invasion on Ukraine Nuclear Issues**

##### **Mr. SANO Toshio**; Commissioner, Japan Atomic Energy Commission

On April 24, 2022, Russia launched a military invasion to Ukraine. It is a clear violation of the United Nations Charter and an outrageous act that tramples on the principles of the international community (sovereign equality, political independence, territorial integrity, peaceful settlement of disputes, etc.).

Although there are various points of contention, I will consider how an attack or occupation of a nuclear facility would affect nuclear non-proliferation, nuclear security, and the peaceful uses of nuclear energy.

#### **(1) What Happened to Ukraine's Nuclear Facilities?**

There are five nuclear power stations in Ukraine (Chornobyl NPS, Khmelnytsky and Rivne NPS in the West, South Ukraine NPS, Zaporizhzhya NPS), and Kharkiv Research Institute and others. Prior to the Russian invasion, Ukraine relied on nuclear power for about



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55% of its electricity supply. The Russians attacked and occupied Chernobyl shortly after the invasion to Ukraine and later the Zaporizhzhya nuclear power station. Battles are repeated in the surrounding area, and the situation is unprecedentedly serious in terms of safety and security. At the end of November, off-site power supplies to four nuclear power plants were cut off due to an attack by Russia, and all nuclear power plants were unable to operate. Below is a brief introduction to what is happening at each nuclear power plant.

On March 2, Russia notified the IAEA that it had taken control of the Zaporizhzhya nuclear power station, and the occupation continues thereafter. Artillery fire, land mine explosions, and intermittent loss of offsite power and communications make the situation extremely dangerous. In early September, the IAEA was visited by a mission headed by Director General Grossi, and several IAEA staff members have been stationed there ever since. On September 3, he proposed to the UN Security Council the establishment of a "nuclear safety and security protection zone," and has continued negotiations with Presidents Putin and Zelensky. In early October, the plant director was detained, and there are reports that about 50 employees are also in detention.

South Ukraine's nuclear power plant was hit by missiles in April, and in September shelling caused a temporary loss of off-site power, and in early and late November, off-site power was also lost at the Rivne and Khmelnytsky power station.

The Chernobyl nuclear power station, which is closed, was occupied at the beginning of the military invasion, which lasted until the end of March. There were repeated bombardments, digging up the soil and so on, and a high radiation dose was observed at one time.

In addition, part of the Kharkiv waste facility was destroyed in February, and a missile landed on the Kyiv waste storage facility. Similar situations have occurred at other research facilities.

Russia claimed Ukraine was producing dirty bombs, but the IAEA, which conducted the inspections, confirmed no undeclared activity at the three facilities involved.

## **(2) How the international community responded**

### **①IAEA**

The IAEA has made the greatest contribution to date. The Board of Governors adopted three resolutions, and since the beginning of the Russian invasion, the IAEA has been active in providing information on nuclear-related facilities on the home page, visiting the site by the Director-General himself, and stationing staff in Zaporizhzhya. Regarding the safety and security of nuclear facilities, IAEA has announced seven main points to be observed, and has published two reports (April and September) on the current situation in Ukraine.

### **②Group of 7**

The G7 has issued several statements condemning Russia's military invasion, as well as supporting the IAEA's activities and condemning Russia's annexation of four provinces of Ukraine.

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### **③NATO, EU**

From the outset, NATO and EU have positioned Russia's invasion as a threat to international security and stability, denouncing it as a violation of international law and against humanity. On the other hand, Ukraine has expressed its desire to join the EU and NATO, and the EU recognized Ukraine as a candidate country in June. Finland and Sweden, which had until now taken a neutral stance, applied for NATO membership in May, marking a turning point in European politics.

### **④United Nations**

The United Nations adopted five resolutions in its emergency special session. The Human Rights Council proposed a special inquiry into the actions of the Russian military and adopted a resolution condemning the invasion which Russia opposes. Regarding grain exports, the agreement was mediated in August and extended in November. Secretary-General Guterres also visited Moscow, met with President Putin, and acted as an intermediary for the establishment of a humanitarian corridor. However, can we say that UN has done its best to ensure the safety of nuclear power plants in Ukraine?

### **⑤G20**

At the recent G20 summit meeting held in Indonesia, many countries issued statements criticizing Russia.

## **(3) Perspective from International Law**

### **①Geneva Conventions**

Additional Protocols I and II of the Geneva Conventions, which are international humanitarian law (international law of war), apply to attacks that cause enormous damage to humanity, such as the destruction of nuclear power plants, dams, and embankments, and attacks are prohibited. If international humanitarian law is applied, the application of the "Nuclear Terrorism Treaty" and "Nuclear Material Protection Treaty" that assumes peacetime will be excluded, and the issue of how to deal with nuclear terrorism in wartime will remain.

### **②International Court of Justice**

In response to Ukraine's appeal, the International Court of Justice issued an interim measure to Russia in March to immediately suspend its military activities, and so Russia is also in violation of this measure afterwards.

## **(4) Implications of Russia invasion to Ukraine on nuclear issues**

### **①Impact on IAEA Safeguards**

Safeguards is an inspection system in which the IAEA conducts inspections on member states to ensure that there are no undeclared nuclear materials or nuclear activities in order to ensure that nuclear materials are not diverted for purposes other than peaceful uses. The Nuclear Non-Proliferation Treaty (NPT) mandates safeguards. Due to the recent military invasion, the activities of the IAEA have been greatly hindered, and the situation continues to

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be such that no conclusion can be reached regarding safeguards. IAEA dispatched some special missions to ensure inspection activities.

## **②Impact on Nuclear Nonproliferation and Nuclear Disarmament**

Putin's repeated "threat to use nuclear weapons" has lowered the "threshold" of nuclear use and inadvertently raised the political value of nuclear weapons. In addition, it has given potential nuclear weapons states (Iran, South Korea, Saudi Arabia, and others that once tried to develop nuclear weapons) and aspiring dictators an incentive to do so. The U.S. Secretary of Defense has warned that it "dangers a dangerous spiral of proliferation."

The recent invasion has reaffirmed the usefulness of nuclear deterrence. Finland and Sweden have applied for NATO membership, and Ukraine has expressed its desire to join. Nuclear disarmament will come to a standstill. It is also the backdrop for North Korea's missile launches and nuclear development. Even the Ukrainian model based on the "Budapest Memorandum" (Ukraine gave up 5,000 nuclear weapons from the former Soviet Union in exchange for security grants from the United States, Russia, and the United Kingdom) did not work. It is easy to imagine. At the NPT Review Conference held in August, Russia was the only country opposed and the Conference could not reach an agreement on the final document. There is concern that the NPT's unifying force will weaken due to the confrontation between the five nuclear-weapon states.

## **③Impact on Nuclear Security**

Nuclear security is the prevention of criminal acts on nuclear materials, facilities, transportation, and so on. The international law governing attacks on Chernobyl and Zaporizhzhya nuclear power station is the Geneva Conventions, and Russia's violation of this obligation is clear. It is the "insider threat" that concerns the nuclear security of this invasion. Insiders include mercenaries such as Wagner, employing convicted prisoners on the battlefield, and the uncontrolled Russian military that steals and distributes nuclear materials, and destructive acts that disperse radioactive materials. The "Nuclear Terrorism Treaty" and the "Nuclear Material Protection Treaty" do not apply in times of war between nation states, and how to regulate these kinds of insiders are a future issue.

## **④Impact on Peaceful Use of Nuclear Energy**

The peaceful use of nuclear energy began in the late 1950s, primarily in the United States, and spread throughout the world. The NPT, which entered into force in 1970, positioned nuclear non-proliferation, nuclear disarmament, and the peaceful use of nuclear energy as three pillars. Currently, there are about 440 nuclear power plants in operation around the world. At the time of the Fukushima Daiichi accident, countries such as Germany, Italy, and South Korea gave up on nuclear power generation one after another, but this time the situation was different. There has been no change in the movement to reevaluate nuclear power due to issues such as the supply of natural gas and crude oil. However, the recent invasion has raised the real issue of protection in an emergency, and has caused anxiety among neighboring countries with nuclear power plants (former Eastern European countries, Baltic countries, Nordic countries, etc.).

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## **(5) Future Action**

### **①Support for the IAEA**

It is necessary to support strongly the activities of the IAEA, which has made every effort to protect nuclear facilities, including the Zaporizhzhya Nuclear Power Station. In particular, Secretary-General Grossi has called on the leaders of the United Nations, Russia, and Ukraine to establish a "nuclear safety and security protection zone," and dispatched "Safety and Assistance Missions" to these facilities. The IAEA's efforts to date are highly appreciated. Incidentally, the Japanese government has also provided support through contributions of 2 million euros to the IAEA, in addition to approximately \$840,000 for providing four bulletproof vehicles to the IAEA.

### **②Diplomatic Efforts**

First, the international community should further strengthen its diplomatic efforts to support the IAEA's activities, and Japan, which experienced the Fukushima Daiichi accident, should work together with other countries to resolve the issue. It is important to appeal to Russia, via the leaders of the BRICS and CIS, of the inhumane consequences of a nuclear power plant accident. Indian Prime Minister Narendra Modi has admonished President Putin about the war, while Chinese President Xi Jinping and Kazakhstan President Tokayev have expressed similar concerns. It will be necessary to keep sending messages to Putin's ears via the heads of Russia's friendly nations.

Second, it is important to mobilize the power of nuclear-powered countries. With 30 countries plus one region having nuclear power plants, convening an international conference to propose, for example, measures for the "safety and protection of nuclear power plants in times of war" would give the IAEA a boost. I would like Japan to take the initiative.

### **③Leveraging the United Nations**

Third, make use of the United Nations. With the Security Council crumbling due to Russia's exercise of its veto power, the role of the General Assembly is increasing, but six resolutions so far of this Assembly have not led to effective responses.

I think that the General Assembly should adopt a resolution "safety and protection of nuclear power plants in time of war" and consider sending peacekeepers to protect Ukrainian nuclear installations by the power of General Assembly.

A case in which the General Assembly organized and dispatched United Nations Emergency Force (UNEF) while the Security Council was dysfunctional due to its veto power, based on the "United Nations Resolution for Peace" during the Suez uprising (second Middle East war). I want the international society to pursue this possibility again this time. The PKO dispatched by the General Assembly is premised on three principles: 1) agreement of acceptance by the parties, 2) universality, and 3) no use of force other than self-defense and defense of mission. For that reason, a ceasefire agreement in Zaporizhzhya is necessary, and the United Nations Secretary-General's active intervention efforts (good offices) are required.

## **(6) The Path Forward**

When it comes to Russia's invasion against Ukraine, there is a dislike that the focus has

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been on "threatening to use nuclear weapons", considering the tragic consequences of an attack on a nuclear facility and an explosion, more effort should be focused on "how to protect nuclear power plants". From January next year, Japan will become a non-permanent member of the United Nations Security Council and the chair of the G7. As a country that experienced the Fukushima accident, I would like Japan to demonstrate proactive leadership on this matter.

#### 4. Panel Discussion



In each panel session, after the presentation by the presenter, discussion was held among the panelists and among the online participants.

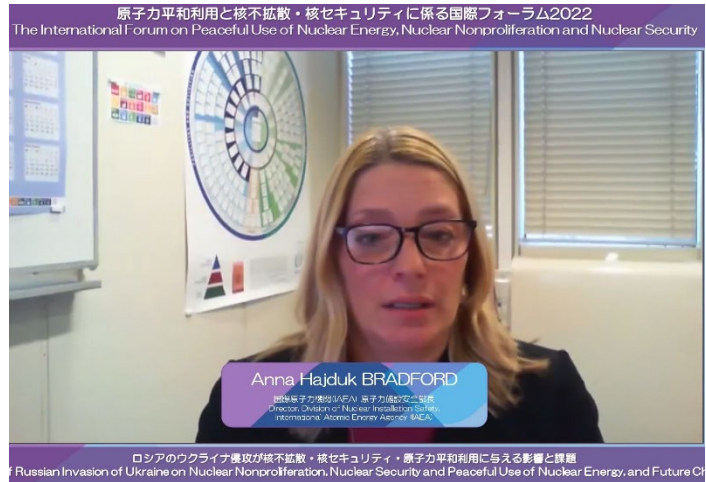


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## **[Topic1] IAEA Support for Ukraine Nuclear Safety and Security**

**Ms. Anna BRADFORD**; Director of the Division of Nuclear Installation Safety, IAEA

The Russian invasion of Ukraine occurred on February 24, on the same day the IAEA launched its “Incident and Emergency Center (IEC)”. The IEC can continuously grasp events 24 hours a day, and it is possible to exchange expertise and other information from each department of IAEA via the IEC. Since February, we have been continuously monitoring and evaluating nuclear safety and security in Ukraine, and have been exchanging information with our counterparts in Ukraine once a day. The events occurring in Ukraine are an unprecedented situation, and the IAEA is not concerned with military affairs, but is limited to matters in line with the IAEA's terms of reference, that is, nuclear safety and security issues.



The IAEA has established seven major pillars to ensure nuclear safety and security in times of military conflict, and continues to disseminate information on Ukraine to the international community through its website and other means. Regarding the issue of Ukraine, the IAEA Board of Governors special meeting was held in March, and discussions are held at the meetings in September and November. Also, the IAEA published two reports on the situation in Ukraine in April and September. Furthermore, in collaboration with relevant organizations, we have participated in meetings with the European Nuclear Safety Regulators Group (ENSREG) and the European Bank for Reconstruction and Development (EBRD), provided information and held briefing related to Ukraine, and made requests from the UN Security Council.

Ukraine has 4 nuclear power stations and 15 reactors. So far, no release of nuclear material has been detected, so no radioactive material is believed to have leaked.

IAEA staff have been dispatched to Ukraine and have conducted nine missions so far. IAEA has visited nuclear facilities Southern Ukraine, Chernobyl, Zaporizhzhya and Kharkiv, and most recently Khmelnytsky and Rivne in the last two weeks.

One important aspect of technical assistance is the provision of equipment and instruments. This provision is based on Ukraine's request, and many member states are cooperating to ensure the safety and nuclear security of each nuclear facility. It also receives extra-budgetary contributions from member states through the IAEA's Response Assistance Network (RANET). Ships are used to transport equipment related to ensuring the safety and nuclear security of nuclear facilities, and are delivered to Ukraine with the cooperation of operators. Items offered include full-body suits, personal protective equipment such as masks, radiation monitors, and communications equipment. Since September 5th, we have provided devices and equipment worth a total of 4 million euros, and we will continue to cooperate in the

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future. In providing this equipment, the IAEA grasps the needs in cooperation with the relevant Ukrainian ministries and agencies, operators of nuclear power plants such as Zaporizhzhya and so on., informs the member countries of the information, and requests the donation of equipment and provision of funds.

Chernobyl was occupied by the Russian military from the end of February to the end of March, and the unique challenges are the suspension of the monitoring system, the impossibility of changing shifts of operators, and the temporary power outage. Chernobyl safety assessments are carried out regularly, and a third mission was recently conducted.

The Zaporizhzhya nuclear power station is also under Russian control, and although Russia claims to have operational control over the plant, it is actually operated by Ukraine. With the frequent loss of power due to shelling, the operators seem to be under a lot of stress both physically and mentally. The decision-making process for ensuring the safety of the power plant, that is, the controllers and decision-makers, are unclear, and there is unprecedented confusion. In addition, normal activities such as supply chain and maintenance interruptions, suspension of emergency response, and regulatory inspection activities are not being carried out.

Staff from the "IAEA's Support and Assistance Mission to Zaporizhzhya (ISAMZ)" has been stationed from September. Each team consists of 3-4 people, including experts in safety and nuclear security, rating every 3 to 4 weeks, the 4th team is currently stations. The team feeds back information to the IAEA, which provides advice and support.

It is also negotiating with Russian and Ukrainian authorities for a "nuclear safety and security protection zone" at the Zaporizhzhya nuclear power station. The purpose of establishing the protection zone is to stop shelling of the Zaporizhzhya nuclear power station, ensure safety and nuclear security, and thereby prevent accidents at the nuclear power plant.

Nuclear power plants of Southern Ukraine and Rivne have suffered less damage than in Zaporizhzhya, and the IAEA has dispatched staff to assess their safety. We are also monitoring environmental samples around the Chernobyl nuclear power station.

We are in contact with the ISAMZ staffers twice a day to understand the situation. they communicate with the operators of the Zaporizhzhya NPP and the Ukrainian authorities, as well as conducts technical briefings for various staffers, organizations and neighboring countries. In the event of an emergency, information obtained through ISAMZ staffers will be disseminated.

From now on, we plan to continue our current activities, hold discussions with the Ukrainian authorities, and dispatch IAEA staffers to all nuclear power station, including research reactors. In addition, we plan to formulate and continuously implement a systematic plan for delivering equipment that meets needs and providing technical support that meets needs. Since the critical situation of Ukraine's nuclear facilities is not going to end anytime soon, we would like to work with member states and other international organizations to consider how to continue global support.

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## 【Topic2】 Impact of Russian Invasion on Ukraine on EC-JRC

**Ms. Margarida GOULART; Head of Unit - Euratom Coordination, European Commission, Joint Research Centre (EC/JRC)**

Participating online from the Joint Research Center (JRC) within the European Commission (EC). The Unit Euratom Coordination, to which I belong, carries out coordinating tasks for the Euratom training programmed. The JRC is an internal body of the EC, composed of 7 members from member countries, including Chairman Leyen, who are in charge of various fields and have 11 EC departments that formulate policies.



The department's work also includes activities including safety, nuclear security, safeguards and emergency response. Radiation monitoring and a data exchange platform (EURDEP) that makes available radiation monitoring data. The European Community Urgent Radiological Information Exchange (ECURIE) from many European countries can help in such situations.

There is also a program called RescEU that deals with crisis management. Developing and cooperating with medium- to long-term capacity building activities in neighboring countries in cooperation with international cooperation budgets (INSC, NDICI).

Since the day of the Russian invasion, EC/JRC has been actively communicating with the nuclear regulatory authorities. Member States are responsible for formulating contingency plans to respond to nuclear crises, sharing information with their citizens, and protecting them. Of great concern to the JRC is the fact that this invasion has placed a very heavy burden on the operation of the nuclear power plant. Since the Ukrainian task force was set up in the EC, it has assessed that monitoring system failures, fire risks, temporary power losses, and the proximity of military equipment to nuclear power plant buildings, and problems such as danger and hindrance to verification of safeguards are raised.

JRC operates two large systems, ECURIE for secure communication with all EU member countries and neighboring countries can exchange information with high security using specific channels, and also has a backup system, and has low-tech to cope with the loss of telephone lines and internet. This will allow us to maintain communication with member states, neighboring countries, IAEA, Europol and other EU institutions.

JRC also maintains provision of information on the activities of JRC to the public. EURDEP compiles data from nearly 5,000 monitoring stations that are updated hourly during emergencies. When automatic reading is difficult, the data is manually read and provided, but it may be difficult in the situation of armed conflict. Some of this data is accessible to the

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general public, and we also provide data analysis support. In addition, we use the data to check our risk assessment. It also covers around the area of Ukraine.

We also cooperate with organizations such as the Western European Nuclear Regulators Association (WENRA) and the Heads of the European Radiological Protection Competent Authorities (HERCA) on this monitoring. The modeling is being fine-tuned in various scenarios to prepare for a nuclear accident. As the threat progresses, additional modeling capacity is being requested to address nuclear weapons.. In response, a task force of several experts has been formed to coordinate and provide monitoring data, if necessary, for crisis management, protective actions and risk assessment. It also conducts capacity-building training for emergency responders to prepare for risks in front-line member states, such as illicit trade and dirty bombs. It also organizes advice and risk assessment on radiation protection, border monitoring training, protection, response to alarms, nuclear forensics, EURATOM and IAEA safeguards training. The European nuclear Security Training Center "EUSECTRA" conducts various activities, not only emergency response but also medium- and long-term capacity building training.

This week, we are holding a member state meeting to hold consultations at the chairman's level and provide 40 million euros in support. Support for potassium iodide tablets and others., and satellite data analysis using a system called Copernicus. This system can also be used in Ukraine to monitor forest fires and grasp the situation when infrastructure problems occur. In addition, with Ukraine, a project was launched to share information on lessons learned in the operation of nuclear power plants during armed conflict. Work with the Technical Standard Organization (TSO) to discuss how lessons can be learned going forward. These will also be used to update international standards.

### (Discussions after Presentations)

**Ms. IWAMA Yoko; Professor, Maritime Safety and Security Policy Program, National Graduate Institute for Policy Studies (GRIPS): Moderator**

Although it may be difficult to understand what is happening, there was a fairly extensive introduction to the measures being taken by Europe and the IAEA. Are all Ukrainian nuclear facilities operating or shutting down as usual? Also, has the safety of nuclear fuel, especially the spent fuel in Zaporizhzhya been confirmed?



**Ms. BRADFRD**: First, the operating status of the Zaporizhzhya nuclear power plant is that two out of the six reactors are shut down and not all are operating. There have been no

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problems with the integrity of the spent fuel of Zaporizhzhya, and no leaks of radioactive material have been confirmed. The dispatch team has confirmed, and there is no leakage. No security issues have arisen so far. However, since there is spent fuel, how to ensure nuclear security for them would be the problem.

**Mr. SANO:** I have two questions for Director Goulart. One is that we have 5,100 spots in 39 countries and 2,030 spots in Ukraine. Are these all working? And to what extent does it contribute to telling what is happening in Ukraine? Second, you mentioned illicit trade, terrorism, and nuclear non-proliferation. Does Europe have laws and regulations to deal with terrorism and illicit trade during armed conflicts?

**Ms. GOULART:** It is on high alert to maintain communications with Ukrainian stations. Around the exclusion zone in Chernobyl, when the armed conflict began, some stations were shut down, partly due to forest fires, but they have now been brought back online. However, there is a difficulty in that the operator must respond in the event of a power outage. The power outage will affect other stations, but since we have no way to directly intervene in the situation, we are trying to exchange information with Ukraine. We have heard requests from the Ukrainian authorities regarding the refurbishment of the station and are discussing this with the IAEA and the Monitoring Group. For example, we are considering measures to mitigate the problem, such as providing devices that stabilize internet connections and power supply devices such as generators. Regarding nuclear security legislation, there is no regulation from the EU as we believe that it is the responsibility of each member states. A Chemical, Biological, Radioactive and Nuclear Materials (CBRN) coordinator is located in each Member State and is in discussions with member states around the Ukrainian borders to set up a coordination system. Monitoring, illicit trade response capabilities are provided not only to Ukraine but also to other member states. The framework on protection of civilian has two aspects and applies to member states as well as to third countries. We stockpile equipment and make it available to member countries at any time.

### **【Topic3】 Impact on Future Nuclear non-Proliferation and Nuclear Security**

**Ms. Elena K. SOKOVA; Executive Director,  
Vienna Center for Disarmament and Non-Proliferation (VCDNP)**

Russia's military invasion to Ukraine has implications for many things related to nuclear weapons.

(1) Impact on status of nuclear weapons, security and deterrence

Russia's statement about the use of nuclear weapons deters direct entry into the war by the United States and NATO, but restrictions on the supply of weapons are changing and deterrence has limits. On the one hand, it is clear



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that Russia is using nuclear deterrence and the threat to use nuclear weapons to show that nuclear-weapon states have more options than non-nuclear-weapon states.

The war has shown the respective importance of nuclear weapons and the actions of the nuclear-weapon states, especially to Russia and China (both nuclear-weapon states and NPT parties). The gap between nuclear-weapon states and their allies (those under the nuclear umbrella) and non-nuclear-weapon states (advocates of nuclear disarmament) is expected to deepen.

## (2) Implications for disarmament and arms control

The scope for nuclear disarmament is narrowing. On the side of the nuclear-weapon states, their dependence on nuclear weapons is increasing, and there are moves to strengthen them. However, this is a trend from before the war in Ukraine. Regarding the future buildup of nuclear weapons, it will continue not only the quantitative buildup of nuclear weapons, but also the qualitative buildup (various delivery systems, new weapon systems and others). This form of arms race is difficult to detain.

Also, multilateral disarmament negotiations, such as involving China, are not going well. Another reason why multilateral arms control is difficult is the evolution of conventional weapons. With the move to incorporate integrated conventional weapons into strategic deterrence, there are many challenges for arms control.

## (3) Impact on nuclear non-proliferation

I do not believe that this situation will lead to nuclear proliferation. Possession of nuclear weapons depends on the security environment of each country. But military conflicts affect the functioning of international institutions and affect multilateralism itself.

An example is the results of the NPT Review Conference in August 2022. The Review Conference was unable to agree on an outcome document because Russia could not negotiate sufficiently forward. Most importantly, however, such developments are also affecting the NPT's ability to address other issues. An important example is the nuclear development of Iran and North Korea.

Expectations are rising for the negotiations toward the resumption of the JCPOA with Iran. However, given the current situation, it is difficult for Russia to contribute, making relations between Iran and the United Nations and the IAEA difficult. Achieving international consensus on North Korea will remain even more difficult, especially given Russia's veto power as a permanent member of the UN Security Council.

## (4) Conclusion

The effects of war on the functions of multilateral institutions and organizations are already evident in the IAEA Board of Governors meetings and CTBTO meetings. This, in turn, has a significant negative impact on the ability to find solutions (key problems, especially the safety and security of Ukrainian nuclear installations).

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## (Discussions after Presentations)

**Ms. IWAMSA:** I would like to hear your views on the adoption of nuclear sharing by US allies other than NATO from the standpoint of nuclear non-proliferation.

**Ms. SOKOVA:** I think that nuclear sharing is a relic of the past. Looking at the weapons of Europe and the United States, nuclear weapons in particular have a lot of symbolic meaning and do not provide real security. The expansion of nuclear sharing will likely have a negative reaction and should not be pursued under the nuclear umbrella.

## **【Topic 4】 Implications for Peaceful Use of Nuclear Energy**

### **Mr. NAOI Yosuke; Director of ISCN, JAEA**

Russia's invasion of Ukraine has almost no impact on the peaceful use of nuclear energy, such as the suspension of construction of new nuclear power plants. On the other hand, the supply of gas that had been done by Russia has stopped, creating a global energy security problem. Therefore, there is a movement to actively utilize nuclear energy. Since the industrial revolution, the social and industrial structure has become dependent on fossil fuels. The Japanese government started in July, the GX Executive Committee pointed out four fault-like fluctuations in the world of energy.



- (1) Energy geopolitical change. Russia's invasion of Ukraine has destabilized natural gas supplies and accelerated increases in energy consumption in emerging countries.
- (2) Financing for decarbonization and increased risk of dependence on fossil fuels
- (3) Renewable energy is expected to increase toward carbon neutrality in 2050, and approximately six times the current amount of renewable energy power generation will be required. In addition, the fact that China accounts for about 70% of solar panel production and about 50% of wind turbine production is an energy security issue.
- (4) There is a movement to review nuclear power generation. According to the IEA's analysis, the evaluation of the importance of nuclear power in the future is increasing. Another problem is that in global nuclear power market, China and Russia account for about 60% nuclear reactors (light water reactors) under construction or planned.

Under these circumstances, there are 10 nuclear reactors in Japan that are allowed to restart in the short term in the revised policy for nuclear power generation toward carbon

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neutrality in 2050, and 9 of them will be promoted to restart. A total of 16 reactors, including 7 reactors whose safety inspections have been completed and are undergoing countermeasure construction, are aiming to restart operations. In the medium to long term, proposals have been made to further promote the restart of nuclear reactors, extend the existing operating period (60 years), and remove the inspection period from the design life (60 years). Furthermore, development of next-generation nuclear reactors, completion of the Rokkasho reprocessing plant, steady implementation of decommissioning, and measures against high-level radioactive waste are considered important.

In the development of next-generation nuclear reactors, JAEA's HTTR, FBR, and robust 3S, that is, proposals for innovative reactors with sufficient safety, safeguards, and nuclear security measures, are important. With regard to nuclear security, which is the key point here, ISCN started a human resource development support activities after the Nuclear Security Summit 12 years ago. So far, 5,000 people (200 courses) have taken this training, supporting the strengthening of human resources. It is said that the Zaporizhzhya nuclear power station will strengthen its nuclear security, but in Japan, it is not the strengthening of the current regulation that is being questioned, but the achievement of effective nuclear security. ISCN will continue to contribute in the field of capacity building support of human resources involved in nuclear security.

### **(Discussions after Presentations)**

**Ms. IWAMA:** Next-generation nuclear reactors (innovative reactors) are a very interesting initiative. What kind of destination is the world aiming for, and is cooperation and coordination being carried out?

**Mr. SANO:** What kind of legal norms and regulations should be harmonized, how should R&D be grouped (in various fields). I think that there is a market, there is competition, and legal norms are born. In Japan, JAEA and domestic private companies are actively participating in joint research with the United States and Canada. There is plenty of room for Japan's excellent technology to contribute to the world.

**Ms. IWAMA:** What is the status of next-generation nuclear reactor initiatives?

**Ms. GOULART:** This area is of growing interest in the EU member states from an energy mix point of view. It is also being discussed at EURATOM's next-generation nuclear power generation forum. We are building a concept among European member states and proceeding with R&D. In particular, cooperation in dealing with 3S is progressing. It also utilizes external technology provided by US companies. Europe is considering harmonization with safety, safeguards and nuclear security regulations and their harmonization. We are also working on building SMR partnerships. The EC (European Commission) conducts not only R&D but also research on finance and research on planning roadmaps. We also recognize the importance of strong sustainability. It does not simply provide nuclear power generation, but also trains and secures human resources.

**Ms. IWAMA:** What do you think about the peaceful use of nuclear energy in the future, the safety and nuclear security of existing nuclear reactors, and the future direction?



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**Ms. BRADFORD**: As for Ukraine, safety and nuclear security are in a perilous situation. Due to the impact of the loss of off-site power, the operators are in a difficult environment and I think the control is unclear. At present, we have confirmed that safety and nuclear security are being maintained through the efforts of local operators. In response to requests from member states, we are also developing standards that will maintain safety even in the event of armed conflict, although this is not an IAEA mandate. A gap analysis with existing safety standards is being conducted to determine what revisions can be made to address the situation, and work is expected to be completed by late 2023.

**Ms. IWAMA**: How do you view the current situation and its impact on the peaceful use of nuclear energy? What are your thoughts on nuclear security, nuclear danger (threat reduction)?

**Ms. SOKOVA**: I don't think there is much movement in the peaceful use of nuclear energy. At present, an attack on a nuclear facility is unlikely. However, it is necessary to pay attention to the location of the facility, and whether it is a conflict area or not. It is also necessary to pay attention to terrorism when providing nuclear materials. Regarding new nuclear reactors and SMRs, there are issues including the selection of installation sites that can ensure safety and security. Countries promoting nuclear power have not been affected, but countries receiving related material supplies from Russia may be affected in the future.

There is no impact on the construction of nuclear power plants, but Russia is active in supplying and exporting nuclear technology. It has been suspended in Europe, while other countries are preparing funds for its introduction, but the flow of funds will be limited in the future. Russian nuclear company Rosatom is not subject to sanctions, but that is not to be continued. At some stage, however, sanctions on Russian energy companies must be considered.

## **【Topic 5】 Expectations from the Younger Generation (Student Session Discussion)**

**Ms. IWAMURA Yuri ; Master Course, Kyushu University Faculty of Law;  
Representative of Student Session**

A total of eight students who participated in "ISCN Summer School 2022", which was held as part of JAEA's summer vacation training participated in the "International Forum Student Session" held on December 9, 2022, "Based on war in Ukraine and the 10th Nuclear Non-Proliferation Treaty Review Conference (NPTRC), what is peace? How should the world and Japan respond to nuclear-related



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threats?" On behalf of the participating students, I will introduce the contents of the discussion on the day.

In the student session, 3 points below were discussed; (1) What threats do you see in light of the Ukrainian War and the NPTRC? (2) How should the world respond to these threats? (3) How should Japan and Japanese people respond to this threat.

Of these, (1) induces and raised further expansion of armaments by the Nuclear Weapon States (NWS), reverses disarmament, impedes the right to use nuclear energy for peaceful purposes, provokes incentives for non-nuclear-weapon States (NNWS) to develop and possess nuclear weapons, and possibility to make NNWS statements weaker, and the impact on nuclear safety and nuclear security associated with attacks on and management of nuclear power plants.

Regarding (2) The reality is that the international community is unable to stop Russia from using or threatening to use nuclear weapons, specifically, based on the dysfunctionality of UN Security Council because of the confrontations of Permanent members. In light of these factors, the need for UN reform and compliance with or accession to treaties related to nuclear weapons, and the need for stronger economic sanctions against countries that have violated Security Council resolutions and international law were raised. On the other hand, in the first place, it is difficult to obtain information on nuclear weapons from the NWS and information on whether the frameworks in the international community regarding the proliferation and prohibition of nuclear weapons are actually functioning, and difficulties to evaluate such information. was also pointed out.

Furthermore, regarding (3), in view of the current situation in the international community where the role of nuclear weapons is increasing, Japan, the only country that has been bombarded by nuclear weapons, should communicated the tragedy of nuclear weapons, and for that very reason it is a norm that nuclear weapons should never be used again. There was an opinion that it could act as a "bridge" between the NWS and the NNWS, which are disseminating it widely.

Based on the discussion in the "International Forum Student Session" above, I tried to summarize the proposals from the students for this international forum, but in fact, each of the eight students, especially regarding the above questions (2) and (3), faced with an elusive 'vague situation', we were unable to find a solution that seemed to be useful, and therefore were unable to formulate a clear consensus recommendation from the eight students. Rather, I believe that it is important to communicate this fact frankly in this from 8 participants, and I would appreciate it if you could give us students who are facing such a "moyamoya situation" a hint to summarize our thoughts.

### **(Discussions after Presentations)**

**Mr. SANO:** Speaking about the "vague situation" that students are facing, issues related to nuclear weapons, nuclear non-proliferation, and nuclear disarmament are currently only partially taught in high school and university. It is something that cannot be understood unless one actively collects information, thinks, and judges by oneself. Since this is a good

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opportunity, I would like you to gather information and proceed with research. If you continue to steadily build up, the fog will clear someday and the visibility will become clear.

Regarding the role of Japan as a "bridge" that Ms. Imamura mentioned, the "bridge" that the Japanese government has been referring to is the "bridge" between the NWS and the NNWS. Although Japan has experienced the tragedy of the atomic bombings of Hiroshima and Nagasaki, the reality of international politics is that Japan is positioned in a dilemma of being under the U.S. nuclear umbrella. There is one outcome of this effort is the draft resolution of United action with renewed determination towards the total elimination of nuclear weapons that Japan submits to the UN General Assembly every year, and this resolution has the support of more than two-thirds of the member states of the United Nations. The draft resolution enumerates very realistic measures that nuclear-weapon states can take with a little patience, and is based on the idea of gradually advancing nuclear disarmament. I believe that such efforts should continue. On the other hand, Japan should act as a "bridge" between the States Parties to the Treaty on the Prohibition of Nuclear Weapons (TPNW) and the NWS, specifically, some argue that Japan should participate in the Conference of the Parties to the TPNW as an observer and serve as a bridge between the two. However, if Japan, which is under the U.S. nuclear umbrella, joins the TPNW, which denies not only nuclear weapons but also extended deterrence, Japan will be unarmed in terms of security. Japan's position on such an unrealistic TPNW is close to that of the NWS, so it is not realistic for Japan to serve as a "bridge" between the TPNW contracting parties and the NWS.

Furthermore, Ms. Imamura pointed out that it is not easy to obtain information on the number and location of nuclear weapons held by the NWS, and that such ambiguity fuels the NNWS' anxiety. However, transparency of nuclear weapon is not necessarily high, and the transparency in exposure is extremely low. And it is also true that this leads to further suspicion of NNWS towards NWS. Therefore, in the future, there will be increasing demands for the NWS to provide accurate information on nuclear weapons.

### **【Final Discussion】**

Moderator, Professor IWAMA took up some questions via ZOOM and panelists answered them.

First, in response to a question about crisis management in the EU, especially how to prepare for a nuclear accident in Ukraine, Euratom Director Goulart said that the current situation in Ukraine is different from the Chernobyl accident, but that it was in contact with the first responders of member states to help them analyze the risks.

In response to a question about the impact on Japan's nuclear power plant security, ISCN Director Naoi replied that he did not think that security regulations would become stricter, but that security quality would be required to be improved.

When asked if it would be possible for the UN to dispatch a peace keeper in a situation in which Russia has veto power in the UN Security Council, Commissioner Sano replied that in fact UN dispatched a peace keeper to deal with the Suez uprising and the Korean War. He responded that the Acheson Plan's mobilization for peace resolution (Resolution 377) allows

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peacekeepers to be dispatched with a two-thirds vote in favor of the UN General Assembly.

Finally, the moderator, Professor IWAMA, concluded the session by saying that although the session revealed various challenges for Japan, the world, and international organizations regarding the Ukraine issue, there is plenty of room to conduct creative diplomacy..

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