International Atomic Energy Agency

The International Atomic Energy Agency (IAEA) was created in 1957 in response to the deep fears and expectations resulting from the discovery of nuclear energy. The IAEA Statute, which 81 States unanimously approved in October 1956, outlines the three pillars of the Agency's work: nuclear verification and security, safety, and technology transfer. This session will simulate the General Conference of IAEA Member States. Note: if the Security Council, which is given the primary task of ensuring peace and security by the Charter, is discussing a particular issue, the International Atomic Energy Agency will cease its own deliberations and defer to the Security Council. Additionally, only the Fifth Committee is able to set or discuss the United Nations budget. No other body, including the International Atomic Energy Agency, is able to do so.

Topic #1: Nuclear security

The International Atomic Energy Agency (IAEA) defines nuclear security as "the prevention and detection of, and response to, criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities." While there has never been a successful nuclear attack by a non-state actor, IAEA reported 147 incidents of unauthorized use of nuclear or radioactive material in 2024, a number in line with historical averages. IAEA has a longstanding mandate to ensure the protection of nuclear and radioactive materials, collaborating with Member States, industry and partners in the United Nations system to share knowledge, help develop States' capacity to implement and execute nuclear security frameworks, and provide monitoring and oversight. As the international community faces escalating risks—including a rise in global terrorism, increasing concern around possible nuclear proliferation and the presence of nuclear facilities in armed conflict zones, with direct attacks on nuclear facilities—maintaining the security of radioactive materials and nuclear facilities remains a high priority.

Ensuring the protection of nuclear material has been central to IAEA's mission since its founding. The 1968 Treaty on the Non-Proliferation of Nuclear Weapons (the Non-Proliferation Treaty, or NPT) acknowledges the importance of protecting nuclear material, but primarily in the context of State actors. In 1972, IAEA published a booklet of "Recommendations for the Physical Protection of Nuclear Material," its first formal guidance in nuclear security topics. This booklet was revised into an official informational circular by a panel of experts in 1975. In 1979, the international community adopted the Convention on the Physical Protection of Nuclear Material (CPPNM). CPPNM is important as the first legally-binding instrument for nuclear security, with specific technical mandates for appropriate physical protection of nuclear material in transport and a framework for prosecuting unlawful transfer, theft or interference with nuclear materials. However, concerns over respecting State sovereignty severely limited its scope—its sole jurisdiction was the peaceful transfer of nuclear material between States Parties. There was also no formal mechanism for enforcing CPPNM beyond general categories of laws States Parties were encouraged to adopt, and States Parties were able to opt out of formal dispute-resolution mechanisms.

As the global environment shifted through the 1990s and early 2000s with the end of the Cold War and a rise in international terror incidents, concerns over the risk of nuclear material falling into the wrong hands led to consideration of CPPNM's shortcomings and broader consideration of how to strengthen nuclear security. IAEA implemented the voluntary Incident and Trafficking Database (ITDB) in 1995 to better capture data around nuclear security incidents. In 2002, IAEA adopted its first Nuclear Security Plan (NSP). The NSPs, updated every four years, lay out IAEA's goals and priorities, including projects to be implemented by IAEA and Member States as well as additional opportunities for information sharing. In an effort to support the implementation of the NSPs, the IAEA Board of Governors also established the voluntary Nuclear Security Fund in 2002.

In 2004, the Security Council adopted Resolution 1540, declaring that States may not support non-state actors in any attempt to develop, transport or use weapons of mass destruction, including nuclear weapons, and establishing the 1540 Committee to review progress and provide expert assistance to States. In

2005, the Amendment to the CPPNM (the Amendment, or A/CPPNM) was adopted after years of expert review. The Amendment strengthened CPPNM by expanding its scope to cover broader risks to the physical protection of nuclear material, including risks to facilities and domestic use of nuclear material. The Amendment also strengthened international cooperation and expanded data sharing amongst States Parties. Also in 2005, the international community adopted the International Convention for the Suppression of Acts of Nuclear Terrorism (the Nuclear Terrorism Convention, or ICSANT). While ICSANT is more focused on legal responses to nuclear terrorism, it works alongside CPPNM in criminalizing the improper use of nuclear and radioactive materials by non-state actors, with specific frameworks for legal reforms and information sharing between States Parties.

Building on these instruments, IAEA continues work to improve its support infrastructure for nuclear security. IAEA continues to update technical guidance, including continuing additions to and revisions of Nuclear Security Plans, information circulars and the Nuclear Security Series of technical bulletins. IAEA's Integrated Nuclear Security Sustainability Plan (INSSP) framework provides Member States with tools for strengthening their approaches to nuclear security in line with IAEA best practices. IAEA also supports capacity-building and peer-review programs to help States share knowledge and implement recommendations. In recent years, IAEA has also hosted a review conference for the A/CPPNM in 2022 and a regular International Conference on Nuclear Security (ICONS), last held in 2024, to bring stakeholders together around key security issues.

As IAEA prepares its 2026–2029 Nuclear Security Plan, the list of threats to nuclear security is lengthy and evolving. Cyberattacks remain a substantial area of concern, particularly as nuclear facilities increasingly rely on automated operations. Successful cyberattacks—such as the 2011 Stuxnet attack on Iran's Nantanz nuclear facility— pose significant risks, potentially compromising physical protection regimes or command and control systems. IAEA provides assistance to Member States to help them implement best practices for cybersecurity as well as providing updated guidance for States and industry partners to implement on their own. Novel technologies, both nuclear and non-nuclear, also pose new security challenges. Global demand for new nuclear

technologies, including small modular reactors (SMRs), also requires updates to regulatory frameworks and comes with additional security considerations. IAEA and other experts are increasingly focused on the benefits and drawbacks of artificial intelligence around nuclear security. IAEA has also released guidance around maintaining physical protection against drones and other uncrewed aerial vehicles, noting increased use by both state and non-state actors.

Another significant concern in nuclear security is the risk of insider threats, malicious acts carried out by people with authorized access to nuclear materials or facilities. Like cyberattacks, insider threats have been successfully carried out against nuclear facilities—such as a 2014 attack in Belgium that resulted in substantial damage to a reactor's turbine. IAEA updated its guidance for insider threats in 2020 in the face of increased risks and established a working group to continue developing new approaches and best practices to share with Member States.

While these efforts have achieved results in the nuclear security landscape over time, nongovernmental organizations have called out the international community for stalling or backsliding on its commitment to nuclear security, particularly for failing to meet information-sharing and political commitments. While the number of States Parties to the A/CPPNM has grown, as of December 2023, only 78 of 135 States Parties have shared their legal frameworks with IAEA for review, a key component of its implementation. The binding nature of A/CPPNM, coupled with the investments necessary to meet its obligations, has historically slowed acceptance. States Parties have also called for additional support from IAEA in implementing nuclear security plans, particularly in physical protection. IAEA has also come under criticism for maintaining broad strategic goals versus measurable performance indicators.

Questions to consider from your country's perspective:

- What areas should IAEA emphasize in the forthcoming Nuclear Security Plan 2026–2029?

- How can the international community balance the benefits of implementing new technologies with the need to protect from cyberattacks and other threats to nuclear security?
- What can IAEA do to help build capacity and work towards greater compliance with international nuclear security instruments?
- How can the international community improve risk management around insider threats to nuclear and radioactive facilities?

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Top ↑

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Top ↑

Topic #2: Strengthening the Agency's activities related to nuclear science, technology and applications

Nuclear science is the study of atomic nuclei and their application in nuclear power plants, atomic theory and radiation. The International Atomic Energy Agency (IAEA) is the world's intergovernmental forum focused on ensuring safe,

secure and peaceful uses of nuclear science and technology. Globally, there are 220 research reactors, many of which produce medical and industrial isotopes. Today, nuclear science is utilized in a litany of industries including agriculture, medicine, transportation and environmental science. Despite a growing interest in nuclear science and energy, developing states lack the internal capacity to support the research and have to rely on external sources for initial designs and fuel.

The United Nations and the nuclear age emerged nearly simultaneously. As a result, the first United Nations General Assembly resolution established a United Nations Atomic Energy Commission in 1946. Goals of this commission included creating means for Member States to exchange scientific information and use nuclear energy for peaceful means. Seven years later, President Dwight D. Eisenhower gave his landmark address to the United Nations General Assembly where he recognized the capability of nuclear energy for "universal, efficient and economic usage". Following President Eisenhower's speech, the United Nations established the International Atomic Energy Agency (IAEA) in 1957. From the beginning, IAEA's mandate was to work with Member States to promote safe, secure and peaceful nuclear technologies.

Nuclear proliferation continued to escalate through the 1960s. In response, the United Nations adopted the Treaty on Non-Proliferation of Nuclear Weapons (NPT) in 1968. While mainly focused on disarmament, the NPT actively encouraged Member States to utilize nuclear energy for peaceful means and to share equipment, materials and scientific and technological information with each other. The NPT is viewed as the cornerstone of global nuclear non-proliferation, but further work was required. As Member States began expanding their nuclear science and technology programs, IAEA's Technical Cooperation Fund increased, allowing the agency to fund multi-year projects. With the adoption of Elements of a comprehensive programme of disarmament in 1979, the United Nations provided further baseline recommendations as they pursue further disarmament following the NPT, including shifting resources utilized for nuclear proliferation towards nuclear science and its applications in both social and economic development.

Following the Chernobyl disaster in 1986, the United Nations adopted the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. This convention expanded IAEA's role providing assistance to Member States that experienced a radiological emergency. Shortly after the adoption of the convention, IAEA's capabilities were tested in response to a radiological incident in Brazil and led to further realization that while nuclear science, technology and applications can provide significant benefits to a variety of industries, radiological incidents can still occur. IAEA shifted away from directly providing capacity building and safety assistance to Member States pursuing nuclear science and technology, focusing on providing oversight and establishing norms for Member States through the Convention on Nuclear Safety in 1994. Through this convention, Member States could obtain licenses for developing nuclear power plants and in exchange, would have to uphold the established guidelines, specifically in regards to safety and emergency preparedness.

Ten years later, IAEA established the Collaborating Centre's Scheme, allowing Member States to take an active role in implementing IAEA's programs on nuclear science, technology and applications. Since its inception, 76 Collaborating Centres have been established with the majority of them focusing on non-power nuclear technology. To further encourage Member States to pursue peaceful uses of nuclear technology, IAEA established the Peaceful Uses Initiative (PUI) in 2010. Through this program, IAEA shifted back to taking an active role in mobilizing extrabudgetary funds from the Technical Cooperation Fund to support Member States initiatives, but also added a layer of flexibility in case IAEA is required to quickly respond to an emergency.

IAEA continues to lead to charge in establishing nuclear science, technology and application initiatives through programs such as the the Zoonotic Disease Integrated Action (ZODIAC) project, creating networks and capacity-building measures for Member States to access molecular, nuclear and isotopic techniques in response to the COVID-19 pandemic and Nuclear Technology for Controlling Plastic Pollution (NUTEC Plastics) where gamma and electron beam radiation is utilized to break down plastic polymers, converting it into fuel, feedstocks and additives.

While the Technical Cooperation program continues to serve as an effective framework for collaboration, nuclear technology is expected to rapidly advance, resulting in an increased demand for IAEA's support. In response, IAEA enacted the Medium Term Strategy 2024-2029, which lays out goals and objectives IAEA hopes to achieve before the end of the decade, including increased partnership with other United Nations bodies such as the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). Likewise, Member States can continue to engage in independent collaboration with each other through South-South and Triangular Cooperation to create practical solutions and improve interregional collaboration.

Questions to consider from your country's perspective:

- How can Member States utilize IAEA's Technical Cooperation programmes to pursue nuclear science, technology and application initiatives?
- How can Member States assist IAEA in achieving the objectives of the Medium Term Strategy 2024-2029?
- What steps should IAEA take in response to evolving threats in nuclear technology while still supporting Member States in their development of peaceful technology?

Top ↑

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Top ↑

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