LASALLECUNMUN 2025

IAEA

(International Atomic Energy Agency)

"Reevaluation of nuclear energy post-Chernobyl: Ensuring the safe and sustainable use of nuclear plants in 21st century"

Background Guide

Dear Delegates,

Welcome to the INTERNATIONAL ATOMIC ENERGY AGENCY committee, I'm honored and elated to serve as your president in this model of LASALLECUNMUN 2025! My name is Danna Paulina González Malaver, and I am pleased to introduce to you the members of the chair, Jackie Lynette Beltrán García as your moderator and Cecilia Cruz Perera as your conference officer.

I'm 17 years old and I am in my fifth semester at the Universidad La Salle Cancun, specifically in the Architectural area. I don't know what to study but probably Obstetrics because when I was in elementary school I went to different associations as a volunteer to help people. Recently I was part of Teleton and I love helping children. For me, helping babies to be born is the most beautiful thing in the world. Also, I love pets. I have one dog, five cats and five fish. My favorite series are Law & Order, Grey's Anatomy, dark, stranger things, the walking dead, gravity falls etc. I'm 100% a dystopian girl, I love hunger games, maze runner, divergent, harry potter and of course that I read all the books. In my free time I love to listen music, watch terror movies and sleep. This is my second time participating in the model, the first time I was a delegate but this time I choose to be president because I saw law & order and I was so interested in resolve problems that has an impact in the world. In my first MUN I was so lost that I don't choose a committee that I really like it, and I don't enjoy it too much but my friends that were in MUN told me and explain me all the things that they do and I was so interested because we have the privilege to voice our opinions and champion what we believe is right. Living in a world where we can make a difference for the better, let's seize this opportunity to drive positive change.

For many of us MUN sounds boring but once you choose a topic you like, believe me, there's no going back. This is my mission as president, that many of us have the initiative to be able to continue participating in MUN and that you can discuss problems that affect our environment and change the world. ***"If not us, who? If not now, when?" -John F. Kennedy.*** I hope you enjoy the debate and love this topic as I do, don't be afraid to speak remember that there's always a first time for everything. Don't be shy if you have some questions and you need to contact us, we will be willing to help us.

Wish you all the best!

Danna González

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COMMITTEE DESCRIPTION

The International Atomic Energy Agency is the world's central intergovernmental forum for scientific and technical cooperation in the nuclear field. It works for the safe, secure and peaceful uses of nuclear science and technology, contributing to international peace and security and the United Nations' Sustainable Development Goals. The IAEA was created in 1957 in response to the deep fears and expectations generated by the discoveries and diverse uses of nuclear technology.

Topic: "Reevaluation of nuclear energy post-Chernobyl: Ensuring the safe and sustainable use of nuclear plants in 21st century"

INTRODUCTION

In 1986 an explosion at the Chernobyl nuclear power plant spread a radioactive cloud over much of what was the Soviet Union and what are now the territories of Belarus, Ukraine and the Russian Federation. Nearly 8.4 million people in the three countries were exposed to radiation. The RBMK (high-power condenser) reactor number four at the Chernobyl nuclear plant in Pripyat, Ukraine, exploded. Plant officials failed to follow the plant's safety measures, and the reactor's uranium fuel overheated. Those plants did not include what is known as a "containment structure", a concrete dome designed to keep radiation inside the plant in the event of such an accident, so that the explosion would end up causing the dispersion of radioactive elements.

The Chernobyl catastrophe had several consequences not only on human and environmental health, but also brought political and economic consequences since in several countries in Europe food had to be destroyed and milk consumption stopped for more than two decades. Since 1986, the United Nations system and major NGOs have launched more than 230 different studies and assistance projects in the fields of health, nuclear safety, rehabilitation, the environment, clean food and information. Currently, there are 437 reactors in use worldwide, spread over 32 countries. Even when new reactors are built, older ones are shut down, so the total number has remained more or less constant for years. Countries such as China, France and the United Kingdom announced new constructions. Others want to build small, modern reactors. The use of nuclear plants is becoming more and more frequent, but due to what happened with Chernobyl, some countries believe that using nuclear plants is a risk to humanity, and many wonder if the measures taken by the IAEA are really optimal to deal with catastrophes of that magnitude.

A report by the United Nations agency highlights both the challenges and opportunities facing nuclear technology, emphasizing the need for energy policy support, investment in new developments and international collaboration to achieve this long-term growth. The Agency's projections are part of the continued increase in global energy demand, driven by population growth, increased industrialization and the shift to clean energy sources.

HISTORICAL BACKGROUND

On April 25, 1986, routine maintenance of the fourth reactor at the V.I. Lenin nuclear power station was scheduled, and workers planned to use the downtime to test whether the reactor could cool down if the plant lost power. However, during this test, workers violated safety protocols and increased power inside the plant. Despite attempts to shut down the reactor entirely, another power surge caused a chain reaction of explosions inside. Firefighters tried to put out a series of flares at the plant, and eventually, helicopters dropped sand and other materials in an attempt to put out the blaze and contain the pollution. Despite the deaths of two people in the explosions, the hospitalization of workers and firefighters, and the danger of nuclear fallout and fire, there were no evacuees in the surrounding areas (not even in the nearby city of Pripyat, which was built in the 1970s to house the plant's workers) until 36 hours after the disaster began. The incident, which was kept a secret, was a watershed moment for both the Cold War and the history of nuclear power. More than thirty years later, scientists estimate that the area surrounding the old plant will not be habitable for another 20,000 years.

The IAEA worked closely with other United Nations organizations in the framework of the "international Chernobyl project", which made an assessment of the radiological consequences of the accident and evaluated protective measures. The results were presented at the international conference entitled One decade after Chernobyl: summing up the consequences of the accident, held in April 1996, the IAEA drafted two conventions that Member States ratified: the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, which establish the international framework for emergency notifications, the exchange of information and the provision of national assistance upon request.

In 1995, the United Nations established the United Nations Scientific Committee on the Effects of Atomic Radiation to report on the impact of radiation on people. The body brings together experts from around the world to recommend prevention and protection measures. Under the conventions, the IAEA is mandated to act as an international hub for the coordination of these activities. In 2003, the IAEA established the Chernobyl Forum in cooperation with the Governments of the most affected countries, namely Belarus, Russia and Ukraine, as well as with relevant international organizations, to address recovery operations and carry out radiological assessments of affected areas.

CURRENT SITUATION

Although the Chernobyl plant no longer produces electricity, the decommissioning of the remaining three reactors will not be completed until 2065, and there is an entire division of the Institute for Nuclear Power Plant Safety Problems dedicated to the containment of reactor 4. In 2016, a new containment unit was built that looks like a huge Quonset

barracks, which should last a hundred years, although the materials inside will be radioactive for millennia. Nuclear energy plays an important role in the transition to clean energy. However, over the years, its use has sparked controversy in various countries and regions, such as Spain and Latin America. As a number of developing countries are choosing to use this type of energy, resolving this long-standing debate is crucial for the transition to sustainable and clean energy.

The myth that nuclear power is bad is a story that is easily passed on to the public. Many remember the accidents that occurred at the Chernobyl nuclear power plants in 1986 and Fukushima in 2011. Although these were serious situations, the alarmist news that was published about them generated misinformation about what happened and about nuclear energy in general, and this reinforced many prejudices about nuclear energy. In addition, nuclear power has long enjoyed a bad image due to popular culture. For example, when I talk to people who are afraid of nuclear waste, it usually becomes clear within a few minutes that they imagine that it is a green and corrosive liquid that is not properly managed. That is the image that has been disseminated in television series, cartoons and cinema. Their idea of radiation is also far from reality, and finally, many confuse nuclear energy with nuclear weapons. We live on a planet where temperatures are rising, and countless species are on the verge of extinction. Such phenomena worsen the situation of those already in poverty and create difficulties for the economies of all countries. To curb these trends, lift people out of poverty, and improve air quality, we need clean energy options. Nuclear power is our only realistic option for achieving the goal of reducing carbon emissions.

In addition to taking up little space, a single nuclear power plant can supply clean energy for 80 years. When this reliable energy source is not available, countries often end up using coal or natural gas to counteract the energy shortfall. About a quarter of the EU's energy is nuclear and more than half is produced in France. In total, there are more than 150 reactors in operation in the 27 Member States. However, across the bloc there are very diverse opinions on the use of nuclear energy. Safety concerns following previous major disasters have made nuclear power a controversial issue. Each Member State decides whether or not to include it in its energy mix. Plans to phase out nuclear power were introduced as early as 1999, but since then the dates and deadlines have changed constantly. In 2009, the Belgian government decided to extend the service life of its three oldest nuclear power plants until 2025. But the energy crisis caused by the war in Ukraine caused this date to be postponed for another 10 years.

On April 15, 2023, Germany joined Italy and Lithuania as one of three countries that have completely phased out nuclear power for electricity generation after having operational reactors. The European Union's energy policy varies among member states. Countries such as France, which gets about 70% of its electricity from nuclear power, continue to invest in modernizing their nuclear infrastructure. In contrast, countries such as Germany and Spain have decided to phase out nuclear power and focus on renewable sources. At EU level, the EU supports research into advanced technologies and the safe management of nuclear

waste. Recently, the European Parliament included nuclear energy in the classification of green energies.

The IAEA's work is related to many of the Sustainable Development Goals (SDGs) adopted last year by the United Nations General Assembly; A growing number of IAEA Member States, several of which are concerned about climate change and the need to strengthen their energy supply, are considering incorporating nuclear power into their energy mix or expanding the use of nuclear power. Nuclear power is responsible for approximately 11% of the world's electricity thanks to 450 nuclear reactors in operation in 30 countries. We project that nuclear power will continue to play a key role in the global energy mix for decades to come. The IAEA promotes the sustainable development of nuclear energy by supporting new and existing nuclear power programs around the world and by encouraging the development of new nuclear technology. We also help Member States build capacity at the local level in energy planning and analysis, as well as nuclear information and knowledge management, while laying the foundation for nuclear safety and security. Innovation, technological advances and new economic models can help increase the contribution of nuclear power to the global energy mix and to sustainable development. New nuclear reactor designs have improved safety features and can operate more efficiently and generate less waste, or even consume it.

Advances in the nuclear fuel cycle can further reduce waste, making nuclear power more sustainable. Creative financing and economic agreements between governments and the private sector contribute to technological development and help to better manage the large investment required for nuclear power infrastructure and the construction of nuclear power plants. If we consider the emissions over the entire lifetime of the electricity generation process through different energy options, nuclear power, together with hydroelectric and wind power, produces electricity without generating carbon dioxide (CO2) emissions and is one of the lowest emitters of greenhouse gases. Taking into account the lifetime as a whole, nuclear power is among the lowest emitters, compared to renewable energy sources.

Nuclear power can continue to promote sustainable development by providing the energy needed to support a growing population and a society that continues to industrialize. At the same time, its effects on climate and the environment are minor compared to those of most other forms of energy. To transform public opinion about nuclear power, it would require a paradigm shift in the way we talk about it and who talks about it, as well as a discourse focused on all the positive aspects of nuclear power that replaces the industry's current editorial line of saying that it is "safe". Fossil fuels are not safe, and yet the industry markets them as green options. Nuclear energy should succeed in conveying an ecological image. The nuclear industry must raise its voice to help the public understand that the sector has come to terms with its mistakes and to allay the fears of the public. In this way, we will be able to accept nuclear power for how incredible it is, rather than fear it.

COUNTRY BOX

Autonomous republic of Ukraine
Federal republic of Germany
French Republic
Italian Republic
Japan
Kingdom of Belgium
Kingdom of Denmark
Kingdom of Sweden
People's Republic of China
Republic of Austria
Republic of Belarus
Republic of Bulgaria
Republic of Latvia
Republic of Lithuania
Republic of Poland
Republic of Romania
Russian Federation
Swiss Confederation
United Kingdom of Great Britain and Northern Ireland
United States of America

GUIDE QUESTIONS

I. How have the lessons of Chernobyl influenced current safety protocols?
II. What would be the consequences of opening more nuclear power plants around the world?
III. What are the advantages and disadvantages of using nuclear energy?
IV. Is current international regulation sufficient to ensure nuclear safety?
V. Should existing nuclear power plants be replaced or modernized with new technologies?

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