Meltdown at Chernobyl: International Atomic Energy Agency, 1986

Letter from the Dais

Esteemed delegates,

It is with great pleasure that we welcome you to MSUMUN XXI! We are excited to once again see our delegates and advisors in person. MSUMUN is thrilled to run a historical session of the International Atomic Energy Agency this year! The committee will be responding to the Chernobyl nuclear disaster in 1986, as well as debating nuclear proliferation in the Cold War era. Here are some important things to keep in mind.

First and foremost, this committee takes place on May 1, 1986. When participating in committee, make sure you are not talking about events that take place after this time, since they have not happened yet. Since this committee takes place in the past, you may find yourself representing a country that no longer exists. Be sure to keep this in mind while researching your country's policy. The dais stresses the importance of following country policy in committee. This committee will feature some crisis elements to accurately depict a disaster response.

We highly encourage everyone to fully read this background guide. This is obviously a complex topic, but we believe all of you are very capable delegates! Be sure to check out the links at the end of the background guide for more info as well. Please do not hesitate to ask us questions if you need help. Email us at ga3@msumun.org and we will respond as soon as possible. We will provide you with any help you need to be successful in committee.

Best of luck,

IAEA 1986 staff

Letter from the Director General of the IAEA

Honourable member states of the International Atomic Energy Agency,

Welcome to this emergency session at our headquarters in Vienna, Austria. There has been an accident at the Chernobyl nuclear power plant in Soviet Ukraine, on a scale that has never before been seen on this planet. Chernobyl is on fire, spreading an untold amount of radiation as we speak. I have traveled to the disaster zone alongside agency representatives to assess the situation. In the meantime, it is of utmost importance that member states coordinate a response to the ongoing catastrophe.

Mitigating the disaster is essential. As Chernobyl continues to burn, radiation from the exposed reactor is wreaking havoc on the nearby area. This radiation is so destructive that some areas could be uninhabitable for thousands of years. Member states must come together and ensure containment of the damaged reactor, while also considering ways to remedy issues faced by the surrounding population. Implementing new safety protocols for nuclear energy to stop future disasters from occurring would be a step in the right direction. An investigation into the events at Chernobyl is necessary. If we don't find out how this happened, it will happen again.

A wider discussion of nuclear energy must be held. Aggressive stockpiling of atomic weapons by nuclear powers is a matter of international concern. But as the world witnesses the destructiveness of a nuclear disaster firsthand, Chernobyl may prove to be a watershed moment on the path to proliferation. Cooperation on nuclear affairs is difficult in this political climate. I encourage all member states to fiercely represent their interests, but also work towards the common good in all aspects.

Best of luck,

Hans Blix, Director General of the International Atomic Energy Agency

Introduction

In the 1980s, the world was in the midst of a decades-long political, economic, and social rivalry known as the "Cold War", where the United States of America and the Union of Soviet Socialist Republics were competing for global dominance[1]. Many countries supported the United States and became capitalist democracies (Western Bloc). Other countries supported the Soviet Union and became communist dictatorships (Eastern Bloc). Some countries did not take sides and were neutral (Third World).

Atomic energy came to the forefront of the Cold War. The United States was the first country to experiment with nuclear fission, the process of splitting atoms to produce energy. Under the secretive Manhattan Project in the Second World War, both the first nuclear reactor and nuclear weapons were developed[2]. After the Hiroshima and Nagasaki bombings, which showcased the power of the atom bomb, other countries, most notably the Soviet Union, sought to create their own nuclear weapons. Soon, the United States and Soviet Union entered an "arms race" to develop more nukes than their counterpart, with both nations coming to possess enough nuclear weapons to destroy the planet. This led to worldwide fears of nuclear annihilation in the event that these weapons were ever used.

The International Atomic Energy Agency (IAEA) is the global top body on nuclear safety. It is an independent body headquartered in Vienna, Austria, that reports to the United Nations. Established in 1957, the IAEA was founded with the goal of increased cooperation on nuclear power in an increasingly polarizing international political climate[3].

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[1] "The Cold War." The Cold War | JFK Library, https://www.jfklibrary.org/learn/about-jfk/jfk-in-history/the-cold-war.
[2] "Outline History of Nuclear Energy." History of Nuclear Energy - World Nuclear Association, World Nuclear Association, Nov. 2020, https://world-nuclear.org/information-library/current-and-future-generation/outline-history-of-nuclear-energy.aspx.
[3] "History of the International Atomic Energy Agency." IAEA, IAEA, 8 June 2016, https://www.iaea.org/about/overview/history.

By 1986, there were several close calls with global nuclear annihilation, most notably the Cuban Missile Crisis of 1962. This led to increased calls for limiting nuclear proliferation, the development of nuclear weapons. At the same time, the use of nuclear energy for peaceful purposes was on the rise[4]. Due to high oil prices in the previous decade, countries began to turn to alternative energy sources. Nuclear energy was regarded as clean, efficient, and futuristic. The Three Mile Island accident, a leak of radiation that occurred at a plant in Pennsylvania in 1979, raised concerns on the safety of nuclear power plants. Despite this, over 250 nuclear power plants were built across 22 countries. The Soviet Union is among the leaders of nuclear energy. About a quarter of electricity in the European part of the country is supplied by a combined ten power plants[5].

Science of Nuclear Reactors

A nuclear reactor uses the process of fission to produce energy. Inside a reactor, a neutron is fired at an atom of uranium[6]. When hit by the neutron, the atom of uranium splits into smaller atoms, releasing energy. More neutrons are released, and these neutrons collide with the smaller atoms, producing further reactions and releasing more energy. This energy is used to heat up water into high-pressure steam that turns turbines and generates electricity. Reactions are regulated by control rods, made of material that absorbs neutrons, which slow or stop fission as needed.

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[4] *Nuclear Power Development: History and Outlook - IAEA*. https://www.iaea.org/sites/default/files/publications/magazines/bulletin/bull29-3/29304781925.pdf.
[5] *Nuclear Power in the Soviet Union*. https://www.iaea.org/sites/default/files/25204744759.pdf.
[6] "What Is Nuclear Energy? The Science of Nuclear Power." *IAEA*, IAEA, 2 Aug. 2021, https://www.iaea.org/newscenter/news/what-is-nuclear-energy-the-science-of-nuclear-power.

Accident at the Chernobyl Nuclear Power Plant

The Chernobyl Nuclear Power Plant, officially named the Vladimir I. Lenin Nuclear Power Plant, consists of four nuclear reactors, with two more under construction in 1986. It is located in the Ukrainian Soviet Socialist Republic, one of the fifteen republics of the Soviet Union. Situated about 58 miles from Kyiv and 432 miles from Moscow, it is named for the nearby town of Chernobyl. The plant started construction in 1970, along with the city of Pripyat, built to house workers of this new facility. Reactor No.1 was commissioned in 1977, with reactors 2, 3, and 4 following in 1978, 1981, and 1983, respectively. Reactor No. 5 is scheduled for completion in about 6 months, or just before 1987[7].

The Chernobyl plant has a history of poor safety, with documented instances preceding the 1986 disaster. For example, in 1982, Reactor No.1 had an incident, and was shut down for a few months. However, it has since been operating normally. In 1984, unknown incidents, classified as serious, were also recorded in reactors no. 3 and 4, however not much is known about these incidents. Moscow knew that Chernobyl was one of the most dangerous nuclear plants in the Union[8], according to leaked documents in 1983. This is indicative of Chernobyl's lack of safety culture, as repeated incidents in the past did not act as a wakeup call in time to stop the April 26th catastrophe.

On April 26, 1986, a safety test of turbine power generation under emergency situations took place in reactor No. 4. Reactor No. 4 is a Soviet designed RBMK-1000 nuclear reactor, with a peak output of 1000 megawatts of electricity. The details of this test are scarce. However, it is believed this test is related to the incident that is unfolding currently. Shortly after 1 AM local

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[7] "Article Describing City of Chernobyl, Ukraine, Prior to the Nuclear Disaster in April 1986." *Newspapers.com*, Anniston Star, 1 May 1986, https://www.newspapers.com/clip/32865926/article-describing-city-of-chernobyl/.
[8] Sveriges Radio. "25 Years after Chernobyl, How Sweden Found out - Radio Sweden." *Radio Sweden | Sveriges Radio*, Sveriges Radio, 31 May 2019, https://sverigesradio.se/artikel/25-years-after-chernobyl-how-sweden-found-out.

time, there was an explosion in Reactor No. 4. This has caused an unknown amount of damage, but we do know the reactor's exposure to the open air has caused a fire, one that has not yet been put out, and radiation has been leaking from the area. The situation on the ground is not fully known and developing.

The event was initially not reported by the Soviet Union, with evacuations of nearby areas only commencing around April 28. Also reported on that day was the discovery of unknown radiation in Sweden, who then tied this radiation to an incident in the Soviet Union. While they initially denied any such incident, Soviet officials finally recognized the incident that evening. In a news report, Soviet state television proclaimed that an incident happened at Chernobyl, a reactor was damaged, and that they are remedying the effects. Other than the official announcement, details for the incident are scarce for the international community.

Current Situation

As of May 1, 1986, there has been minimal response to the disaster in Chernobyl. Following the explosion, business went on as usual in the towns closest to the plant. However, residents of Pripyat were exposed to high amounts of radiation, with many experiencing symptoms of radiation poisoning. Two fatalities have been reported, with dozens more hospitalized.

Moscow quickly established a commission to investigate the incident. The commission is led by Valery Legasov, deputy director of the Kurchatov Institute of Atomic Energy, and overseen by Boris Shcherbina, Deputy Director of the Council of Ministers of the USSR[9]. A

[9] Mitchell, Molli. "Chernobyl: How Did the Soviet Government Respond to the Explosion of Nuclear Power Plant?" *Express.co.uk*, Express.co.uk, 13 Aug. 2020, https://www.express.co.uk/showbiz/tv-radio/1130632/Chernobyl-How-did-the-Soviet-government-respond-Chernobyl-nuclear-disaster-USSR-Ukraine.

delegation of top scientists was deployed to Pripyat to assess the situation. Upon concluding that the destroyed reactor was spewing lethal amounts of radiation, a ten-kilometer radius around Chernobyl was declared an exclusion zone and hastily evacuated. Over 100,000 people were told to quickly grab their belongings and temporarily evacuate. Radiation checkpoints have been set up in the area, and Ukrainian officials are in contact with Moscow to coordinate next steps.

Exact figures on radiation levels in the exclusion zone are currently unknown. The Chernobyl commission has estimated that around 15,000 to 20,000 roentgens are spewing out of the reactor per hour. Roentgen is a unit of measurement for x-rays and gamma rays produced by ionizing radiation. For context, a lethal dose of radiation is 100 roentgen per hour. Radiation levels are so high in some places that Geiger counters are unable to measure them.

International Reaction

As previously mentioned, the international community only became aware of the disaster several days after it occurred. The International Atomic Energy Agency has been notified; the Director General and his team have been deployed to Chernobyl to inspect the consequences. Around the world, newspaper headlines are sounding the alarm. While media coverage in the Western Bloc is quick to depict the worst-case scenario, media coverage in the Eastern Bloc is downplaying the incident[10]. Several European countries have issued advisories to stay indoors as a precaution against radiation, including Austria, West Germany, and the United Kingdom. Meanwhile, in East Germany, state media has urged the population to continue "business as usual". The Soviet Union has gone far as to enforce a media blackout.

[10] Herbert, Roy. "Chernobyl Disaster: How the Soviet Union's Cover Story Was Blown." *New Scientist*, New Scientist, 3 May 2019, https://www.newscientist.com/article/2201677-chernobyl-disaster-how-the-soviet-unions-cover-story-was-blown/.

On the diplomatic front, tensions are high. The United States has expressed outrage, blaming Soviet mismanagement for the disaster. Western Europe has criticized Soviet secrecy surrounding the disaster[11]. The Soviet Union has responded by referencing nuclear mishaps in the United States, such as the Three Mile Island accident seven years earlier. Despite downplaying the incident, Soviet authorities have taken all steps to properly report the accident to the IAEA, and have asked foreign governments for assistance in mitigating the disaster.

Topic A: Disaster Response

The International Atomic Energy Agency's first objective is to mount a response to the disaster, separated into two categories: short-term and long-term. These are to be addressed as soon as possible, while the situation develops.

Short-Term Issues

One of the most pressing issues is containment. The reactor is still in a damaged, unstable condition, and further deterioration is possible, meaning more must be done before this situation is under control. How the IAEA will go about preventing further explosions, or further meltdown of the reactor, is yet to be determined, pending the action of members. The reactor is actively releasing more radiation into the atmosphere and environment, which gets worse every moment. Scientists estimate that radiation has already spread across the entire northern hemisphere. This flow must be stopped, and the committee must come together to find the best and fastest way to contain Reactor No. 4, or else the situation may prove irreparable.

[11] "News Summary: Thursday, May 1, 1986." *The New York Times*, The New York Times, 1 May 1986, https://www.nytimes.com/1986/05/01/nyregion/news-summary-thursday-may-1-1986.html.

Evacuations, and the subsequent issues of moving tens to hundreds of thousands of people, will also need to be addressed[12]. The Soviet Union has evacuated the nearby city of Pripyat, which has a population of approximately 50,000 people. While evacuations of other nearby towns are ongoing, a further worsening of the situation could lead to more evacuations. The city of Kyiv only lies about 60 miles south of Chernobyl, and the city of Gomel lies 160 miles northeast. These major population centers are in a precarious situation, with further radiation endangering these residents.

The evacuations have several problems attached to them, including the resettlement of refugees within the Soviet Union, which could number over 100,000. These people will have lost their homes, their jobs, and virtually every possession they own. As such, the committee should issue recommendations on logistics regarding the resettlement of these refugees. This includes possible foreign and international aid, as the cost for the resettlement program is sure to be heavy. Resettled people will need housing, food, and other basic amenities. Providing medical attention to those affected is also important. Radiation poses immediate health risks to those who were in the vicinity of the damaged reactor. Exposure to high amounts of radiation causes Acute Radiation Syndrome (ARS), also known as radiation poisoning. Cases of ARS have spiked in the area surrounding Chernobyl. Early symptoms include nausea, vomiting, and redness of skin. Later symptoms include internal bleeding, organ failure, and eventually, death.

Investigating the cause of the incident is of utmost importance. In 1985, the International Atomic Energy Agency established the International Nuclear Safety Advisory Group (INSAG). This organization has the power to conduct investigations through summoning testimony, collecting evidence, and issuing recommendations. How an international investigation into the

[12] "Chernobyl Exclusion Zone." *Radioactivity*, https://www.radioactivity.eu.com/site/pages/Chernobyl_Exclusion_Zone.htm.

events at Chernobyl would be conducted is up to the member states to decide. Any investigations will need to juggle Cold War politics. It is also important to balance international investigations with ongoing internal investigations within the Soviet Union.

Long-Term Issues

In the aftermath of the disaster, member states must turn their attention to nuclear safety. Nuclear safety is defined as "the achievement of proper operating conditions, prevention of accidents or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards". New protocols must be put in place for reactor operations. The scope of these new regulations is for member states to decide. Much of this is contingent on findings from investigations into the events at Chernobyl.

Chernobyl's environmental impacts must also be remedied. About 40,000 square miles of land have been contaminated with radiation. Belarus is the hardest hit region, with Ukraine and Russia also experiencing significant fallout. Contamination of natural resources is a pressing issue. Farmland in the affected regions is covered by fallout, deeming agriculture, livestock, and drinking water unsuitable for consumption. Flora and fauna has also been affected; nearby forests and animals are suffering from the adverse effects of radiation exposure. Due to the Chernobyl plant's proximity to the Dnieper River, a part of one of the largest river systems in Europe, there are fears that further contamination could spark an ecological catastrophe. Internal cleanup efforts are underway. On the orders of the Soviet government, civil and military officials dubbed "Chernobyl liquidators" are assisting with removal of contaminated materials in affected regions. However, Moscow has requested help from the international community.

Long-term health issues will likely plague those impacted by the disaster. Extended exposure to radiation can cause conditions such as cancer, birth defects, cardiovascular disease, and poor brain function. Lingering health effects could last for generations to come[13]. Those especially at risk are Chernobyl liquidators, as well as residents of evacuated areas. It is important to plan for administering aid for those suffering from long-term health consequences.

Topic B: Nuclear Proliferation

With the Cold War at its peak, there is worldwide concern about nuclear weapons. Both the Western Bloc and Eastern Bloc are engaging in a nuclear arms race, stockpiling weapons at an alarming rate. If detonated by either side, these weapons could trigger mutually assured destruction, a situation where the entire world is annihilated. The IAEA is thus tasked with limiting nuclear proliferation, "the spread of nuclear weapons, nuclear weapons technology, or fissile material to countries that do not already possess them"[14]. Focus should be given on applying treaties to resolutions and adjusting treaties as necessary, rather than creating entirely new treaties in session. As of 1986, the current nuclear weapons states, along with the year they became nuclear powers, are as follows: United States (1945), Soviet Union (1949), United Kingdom (1952), France (1960), China (1964), and India (1974). Two other suspected states are Israel and South Africa, but there is no confirmation of these claims.

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[13] "Health Effects from Chernobyl Disaster Predicted 'to Linger for Decades.'" *Newspapers.com*, 1 May 1986, https://www.newspapers.com/clip/32865973/health-effects-from-chernobyl-disaster/.
[14] "Nuclear Proliferation." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., https://www.britannica.com/topic/nuclear-proliferation.

Non-Proliferation

As more states came to possess nuclear weapons, the international community reached a consensus that if more countries developed nuclear capabilities, there would be further threats to world peace. This led to the creation of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), negotiated between 1965 and 1968 by a UN-sponsored Eighteen Nation Committee on Disarmament[15]. Ratified in 1970, the NPT is made of three pillars: non-proliferation, disarmament, and peaceful use of nuclear technology. The treaty asserts that non-nuclear weapons states will not attempt to acquire nuclear weapons, while nuclear weapons states will ultimately eliminate their nuclear weapons arsenal and instead pursue peaceful nuclear technology.

There are several issues with the NPT. For one, as of 1986, a number of known nuclear powers have not acceded to the treaty (namely, the People's Republic of China, the Republic of France, and the Republic of India). There is also controversy regarding nuclear weapons sharing in the Western Bloc. During NPT negotiations, the North Atlantic Treaty Organization (NATO) secretly agreed to store American nuclear weapons in numerous Western European nations. The Eastern Bloc regards this as a violation of both the non-proliferation and disarmament pillars. Lastly, the Third World views the NPT as a way for the Western Bloc and Eastern Bloc to monopolize nuclear energy by preventing other countries from acquiring nuclear technology. There is little motivation for both nuclear weapons states and non-nuclear weapons states to adhere to the treaty. Thus, the NPT is criticized as being both "unfair" and "unenforceable". The treaty is to be renegotiated 25 years after its ratification, in the year 1995.

[15] "Treaty on the Non-Proliferation of Nuclear Weapons (NPT) – UNODA." *United Nations*, United Nations, https://www.un.org/disarmament/wmd/nuclear/npt/.

Arms Limitation

Alongside proliferation, the limitation of existing nuclear arms is necessary to prevent nuclear warfare. Both the Western Bloc and Eastern Bloc have a history of cooperation on arms limitation. In the previous decade, the Strategic Arms Limitation Talks (SALT) were established between the United States and the Soviet Union[16]. Through a series of negotiations in Helsinki, Finland, the two superpowers agreed to treaties regulating their nuclear arsenals. These treaties limited the production and deployment of nuclear weapons. SALT I saw both sides agree to limit the number of nuclear weapons in their arsenals. SALT II limited the total of both nations' nuclear forces to 2,250 delivery vehicles. SALT II was not ratified, due to the invasion of Afghanistan by the Soviet Union, but both sides agreed to adhere to the provisions of the treaty. This mutual agreement to the treaties expired on December 31, 1985. As such, more comprehensive arms limitation treaties are to be discussed in session.

Nuclear Testing

Nuclear testing refers to experiments involving the planned detonation of atomic bombs as part of a country's nuclear weapons development program[17]. The first ever nuclear test was conducted by the United States on July 16, 1945, in Trinity, New Mexico. The largest nuclear weapon ever tested was the Tsar Bomba, detonated on October 30, 1961, by the Soviet Union. Though nuclear testing is intended for scientific purposes, they have come to be regarded as a symbol of political force.

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[16] "Strategic Arms Limitation Talks (SALT II)." *The Nuclear Threat Initiative*, 14 Oct. 2021, https://www.nti.org/education-center/treaties-and-regimes/strategic-arms-limitation-talks-salt-ii/.

[17] "General Overview of the Effects of Nuclear Testing." *General Overview of the Effects of Nuclear Testing: CTBTO Preparatory Commission*, https://www.ctbto.org/nuclear-testing/the-effects-of-nuclear-testing/general-overview-of-theeffects-of-nuclear-testing/.

Controversy exists surrounding the environmental impact of nuclear testing. A Partial Test Ban Treaty (PTBT) was agreed to in 1963 by three nuclear powers: the United States, United Kingdom, and Soviet Union. It prohibited the detonation of nuclear weapons in the atmosphere, under water, or in outer space. However, nuclear weapons states continue to sporadically detonate atomic bombs in other locations. This has led to calls for a blanket ban on nuclear testing.

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