Welcome to the 32nd annual UC Irvine Model United Nations Conference! My name is Kareem Shaheen and I will be your Director for the International Atomic Energy Agency (IAEA) committee. This is my 7th year competing in Model UN and my 2nd year chairing here at UCI. To learn a little about me, I am a 3rd-year at UCI studying Political Science, Sociology, and Philosophy. I love to draw, go to the gym, and hang out with friends. On campus, I am mainly a part of social clubs but I am also on board the Model UN Travel Team here at UCI. If you have any questions when it comes to anything Model UN or college-related stuff in general, feel free to ask.

Enough about me, now moving on to our committee. We will be simulating the IAEA committee, an inter-global and intergovernmental organization that seeks to advocate for the peaceful use of nuclear energy. It is an autonomous organization that operates under the United Nations and reports to the UN General Assembly. The jurisdiction of the committee is upheld by a comprehensive safeguard agreement, authorizing both a right and obligation to ensure that safeguards are applied on all nuclear material in the territory, jurisdiction, or control of the State for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.

Our topics for this committee include Topic A: Nuclear Security and Safeguards in Developing Countries and Topic B: Developing Plans for Nuclear Emergency Preparedness. Nuclear security and safeguards in developing countries are crucial global concerns due to the potential risks associated with the proliferation of nuclear materials and technology. Developing countries often lack the resources, infrastructure, and expertise to effectively secure and safeguard their nuclear facilities, which raises concerns about the possibility of nuclear terrorism, unauthorized access to nuclear materials, and the spread of nuclear weapons.

The Chernobyl nuclear accident, which occurred on April 26, 1986, in Ukraine, remains one of the most devastating nuclear disasters in history. It resulted from a combination of reactor design flaws, human error, and inadequate safety protocols. A sudden power surge during a systems test led to a massive explosion, destroying the reactor core and releasing large amounts of radioactive material into the atmosphere. The Chernobyl accident highlighted the dangers of nuclear power and the importance of stringent safety measures. It prompted improvements in reactor design, emergency response procedures, and international cooperation on nuclear safety. The affected area remains restricted, serving as a stark reminder of the enduring legacy of nuclear disasters and the need for vigilance in managing nuclear technology.

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Topic A: Nuclear Security and Safeguards in Developing Nations

Introduction

As the development and use of nuclear technology rapidly increases, the concern for its safety and security is becoming a hot topic. In previous years, there were many occurrences of intentional, malicious acts involving radioactive substances, which is why the International Atomic Energy Agency (IAEA) aims to globally to prevent, detect, respond, and protect against such dangerous attacks (IAEA, 2017). Not only for illegal uses, but nuclear or radioactive material of all types can cause massive harm and disruption to our society when mishandled whether in use, storage, or transport, being the reason for the need for nuclear security (IAEA, 2017).

Nuclear technology began to rapidly develop during World War II for military purposes. After long years in conflict, countries realized that using nuclear weapons instead of traditional firearms was a better option. In August 1945, two nuclear bombs consisting of uranium-235 and plutonium-239 were dropped on the Japanese cities of Hiroshima and Nagasaki, abruptly ending the protracted conflict. Safeguards are contract-like agreements where countries can declare international commitments not to use their nuclear programs for weapons and threat purposes (UN, 2005). The IAEA offers a variety of global treaties, including the Nuclear Non-Proliferation Treaty (NPT), to willing states. The NPT was established within the framework of the United Nations in 1958, and it now has 179 signatories, including Russia, the United States, Kazakhstan, China, and France. These declarations they sign include clauses promising to encourage the peaceful use of nuclear energy and to not manufacture, acquire, or possess any type of explosive nuclear device (UN, 2005). Thus, signing treaties and agreements as such gives the IAEA permission to access, follow up, and implement a verification system to examine the country's nuclear weapons, material, energy, and nuclear-related activities. The IAEA has currently completed a total amount of over 700,000 reports and 2,000 inspections each year.

The IAEA was also given access to four of Ukraine's five nuclear power reactors and other installations. According to IAEA Director General Rafael Mariano Grossi, in order to be attentive and sure of all responsible nuclear-related technologies, the IAEA has established seven indispensable pillars for promising nuclear safety and security during an armed conflict (IAEA, 2023). Specifically in Ukraine, they compromised the physical integrity of nuclear facilities, checkups on safety and security systems, quality of staff working conditions, energy supply chains, radiation monitoring and emergency protocols, and the critical off-site power supply. These interactions and agreements between Ukraine and the IAEA allowed constant utilization of the IAEA's Incident and Emergency Centre (IEC), which stationed safety and security experts at all Ukrainian nuclear sites such as the front-line Zaporizhzhya Nuclear Power Plant. The IEC also facilitated an "international assistance package" totaling a cost of over €7 million (7.6 million USD) and published multiple web updates of situations at Ukraine's nuclear sites, keeping the world informed of this matter (IAEA, 2023).

Although combating this issue within the IAEA's powers may appear to be protective, developing nations with weaker security systems who may not have a voice or be aware of subtle malicious attacks from outside sources or citizens should be provided with solutions to protect themselves as an individual nation as well as ensure public safety.

Description of the Topic

Transnational Crimes

The threat posed by transnational organized crimes (TOC) to national and international security is large and expanding, and it has serious repercussions for global public health, safety, political structures, and economic stability (National Archives and Records Administration, n.d.). Criminal networks are not only growing but also broadening the types of malicious acts. Thus, once discrete dangers yet now have catastrophic and unpredictable repercussions are now interrelated (National Archives and Records Administration, n.d.). The problem with developing nations is that a weak legal system is more prone to TOC activity. The spread of TOCs into countries is increasing which has resulted in solutions, in certain cases, that further weakened governance and attention in other parts of society. For example, industrial growth and democratic structures are being severely threatened by what appears to be a growing alliance of TOC organizations, and government agencies, including the intelligence services and wealthy corporate figures with power. Since these countries are underdeveloped, there are numerous unethical and problematic authorities in the nation with poor governments, who overlook TOC activities intentionally. These TOC groups have a variety of ways to be insinuated in the political world but are usually through bribery, planning coercion, and corruption in the financial and security sectors of the government in developing nations. TOC networks, when they spread further, may endanger financial stability and weaken free markets by using tactics to establish partnerships with political leaders, financial companies, law enforcement authorities, and even foreign intelligence.

There have been alleged reports of red mercury found inside nuclear weapons. For example, Osmium-187 has been advertised as a vital part of nuclear explosives. The allegations regarding non-fissile substances have no scientific foundation, and yet they remain popular globally. The vast majority of these instances entail money-hungry merchants, seeking to take advantage of unaware clients amidst economic recessions that are influencing the newly independent states (NIS) and parts of Eastern Europe (IAEA, 2008). Of particular interest is the suspected utilization of unknown minuscule, portable nuclear explosives, such as the widely known “suitcase bombs”, which also stemmed from NIS arsenals (IAEA, 2008). For example, the terrorist attacks on September 11, 2001, in the United States revealed that terrorist organizations are willing to employ the most deadly and ruthless tactics to achieve their goals. Prior to the bombings the 1995 Tokyo chemical attack in the public subway, which deployed sarin (manmade “nerve agent” chemical that instantly kills humans) gas as well as the series of attacks from private organizations, had brought attention worldwide to the emerging likelihood of large-scale terrorism. Following the terror attacks in New York and Washington as well, the increasing number of bombings have only amplified such anxieties to the public. Despite the fact that these ongoing incidents have yet to entail radioactive or potentially hazardous substances, they have proven to be key for estimating the jeopardy that we are facing worldwide.

Cybersecurity

The goal of traditional nuclear safety measures has been to fight off attacks with weapons. To that end, "guns, guards, and gates" have been implemented in place to prevent the theft of substances used for bomb-making, vandalism of nuclear infrastructure, and illegal possession of nuclear power, authority, and communication technologies (The Nuclear Threat Initiative, 2022). Although there has been substantial development in the "traditional" nuclear defense field, the risk of cyber-attacks is rising.

All facets of society are at risk from cyberattacks, including the financial sector, the entertainment sector, department stores, and insurance firms. When it comes to cyberattacks on their most important systems, governments are confronted with an even more serious dilemma. A successful cyberattack on a nuclear weapon or related system such as a nuclear weapon, a delivery system, or the accompanying Nuclear Command, Control, and Communications systems may have existential repercussions (Stoutland, 2018). Attacks on key infrastructure could have extreme implications. Cyberattacks may result in misleading attack alerts, disrupt vital information flow or communications, undermine nuclear delivery or planning systems, or even give an enemy access to a nuclear weapon. Threats specific to particular actors should be evaluated as part of the cyber risk analysis. The largest of these originates from other states trying to disable the nuclear weapons systems of their rivals through cyberattacks (Unal and Lewis, 2018). Hackers, gangs of organized criminals, lone individuals, and terrorist groups are examples of additional actors. The increased level of cooperation between hackers and organized crime groups has been noted as a growing threat, even though states now have the capability and knowledge necessary to undertake assaults on sophisticated strategic assets and industrial control systems.

Potential artificial intelligence applications could improve cybersecurity while also posing new risks to nuclear weapon systems and adding new layers of complexity. Vladimir Putin, the president of Russia, recently said during a speech at a Russian school marking the beginning of a new school year that whoever controls the development of AI will rule the world (Unal and Lewis, 2018). This message is also consistent with Russia's ambitions to develop a new spoofing tool that may mimic jet, rocket, or missile attacks in order to trick defense systems. Through cyber methods, it is possible to sabotage these electronic warfare capabilities' command, control, or communication.

It was once thought difficult to hack nuclear systems, including command and control, crucial assets, and nuclear weapons installations. However, history has demonstrated that human mistakes, system malfunctions, and design flaws frequently occur in nuclear weapon systems. For example, it is said that submarines are air-gapped and are hence safe when submerged (Unal and Lewis, 2018). However, submarines are not constantly submerged, and breaches could occur while docked for maintenance. This is particularly problematic since attacks on complicated, tightly connected systems, like nuclear weapon systems, could have serious repercussions (Unal and Lewis, 2018).

Biological warfare

Biological and toxin weapons are either microorganisms, such as viruses, bacteria, or fungi, or toxic substances produced by living organisms that are intentionally produced and released to cause illness and death in humans, animals, or plants (World Health Organization, n.d.). Biological agents that cause numerous deaths quickly, such as anthrax, botulinum toxin, and plague, can provide a challenging public health dilemma. Epidemics can be caused by biological agents that are capable of secondary transmission. A biological strike may resemble a natural occurrence, which would make it more difficult to assess the situation and respond to it in terms of public health (World Health Organization, n.d.). High-threat infection laboratories might be attacked in times of war or conflict, which could have detrimental effects on the general health.

“Biological assault weapons form one category of a wider category of weaponry frequently referred to via the terms unconventional weapons or weapons of mass destruction, which additionally incorporates chemical-based atomic and radiological firearms (World Health Organization, n.d.). The use of chemical agents is brought to attention, and the danger of utilizing such bacteria in a terrorist assault appears to be increasing.” The fight against sickness is an ongoing struggle for humanity. Bacteria and viruses have historically attacked humans, animals, and plants, frequently with fatal results. We now confront the possibility of sickness being intentionally used for military or terrorist reasons through biological warfare, as if this weren't a difficult enough task. Through international law, meticulously negotiated treaties, and verification systems, such dangers may be defeated. In the fight against biological weapons, Geneva is now negotiating an essential safeguard. The Chemical Weapons Convention, which did include substantial verification procedures, banned chemical weapons in 1993. Since then, Geneva-based negotiators have tried to add comparable safeguards to the Biological and Toxin Weapons Convention through a unique, legally binding protocol.

World Bank Safeguard Policies

The "Safeguard Policies," the system for addressing environmental and social concerns in our project design, execution, and operation, provide a framework for community participation and public transparency (World Nuclear Association, 2021). They represent the Bank's current environmental and social policies. Conducting environmental and social impact studies, interacting with impacted communities about potential project impacts, and re-establishing the livelihoods of displaced individuals are a few examples of these criteria (World Nuclear Association, 2021).

International safeguards have both strengths and drawbacks despite the strict regulations and policies. Iraq and Iran have installed intricate machinery elsewhere in an effort to enrich uranium, in Iraq's case to weapons grade, while accepting safeguards at disclosed plants. To create some weapons-grade plutonium, North Korea employed research reactors (rather than commercial electricity-generating reactors) and a reprocessing facility (World Nuclear Association, 2021). The NPT regime's flaw was that there was no clear material diversion taking place. The countries themselves developed the primary nuclear facilities involved without being disclosed to the IAEA or having safeguards in place, and the uranium used as fuel likely originated from domestic sources. Still, the actions were discovered and put under control by international diplomacy in North Korea and Iraq. After the covert program of Iraq was discovered, a program to reinforce and expand the traditional safeguards system was started in 1993, and the IAEA Board of Governors approved a model protocol in 1997 (World Nuclear Association, 2021). This was done to improve the IAEA's capacity to find hidden nuclear activity, even that which had nothing to do with the civil fuel cycle. Some of them might be put into practice using the IAEA's current legal standing as a result of safeguards agreements and inspections (World Nuclear Association, 2021). Others needed the granting of further legal power via a further Protocol. Although the purpose is different, NPT Weapons States (including India) have also committed to embrace the model Additional Protocol's principles.

The key factors in these policies were: 1. The IAEA receives a lot more information about nuclear and nuclear-related activities, including R&D, uranium and thorium production (regardless of whether it is traded), and imports and exports of nuclear-related goods 2. Inspectors from the IAEA have more access privileges 3. The IAEA may use environmental sampling and remote monitoring tools to discover illegal operations at any suspect place and can do so with little warning (like two hours). Member states must allow easy access to their administration informatics to IAEA inspectors (World Nuclear Association, 2021). As safeguards continue to advance, every nation will be evaluated individually, considering its unique position and the type of nuclear resources it has. This will need more discretion apart from the IAEA and the creation of efficient techniques that reassure NPT Members.

Bloc Positions

African Bloc

The Organization of African Unity (OAU) is established as a de-nuclearized zone with the Nuclear-Weapon-Free-Zone (ANWFZ) Treaty (Pelindaba Treaty). This treaty was signed by 47 out of 53 continent states in 1996, with 3 strict protocols drafted (The Nuclear Threat Initiative, 2023). The three treaty obligations were to not threaten other states with nuclear weapons, to not test nuclear explosives and weaponry on the territories of Pelindaba, and to respect member countries that are signed into this treaty. The ANWFZ Treaty has worked to encourage and inspire other blocs also to sign and ratify their protocols as well as draft their own, as France ratified all three protocols, and the United Kingdom and China ratified two of the ANWFZ Treaty protocols in early 2023 (The Nuclear Threat Initiative, 2023).

Asian-Pacific Bloc

The Asian-Pacific bloc has the highest risk in nuclear conflict, being the only region that has performed nuclear weapon testing in this century (in North Korea) (Hanson, 2020). This bloc has the most rapid developments in nuclear weaponry by holding the strongest nuclear states including China, India, Pakistan, and North Korea. However, not all countries in this region are pro-nuclear, as Southeast Asian countries including Thailand and Vietnam have signed the Southeast Asian Nuclear-Weapon-Free Zone Treaty (SEANWFZ), or the Bangkok Treaty of 1995 (Hanson, 2020).

North American and Latin American Bloc

The Treaty for the Prohibition of Nuclear Weapons in Latin America, or the Treaty of Tlatelolco, strictly prohibits the ratified states from acquiring as well as owning any type of nuclear weaponry and also obligates them from storing and testing any type of nuclear weapons in the territories of Latin America (US Department of State, n.d.). The Treaty of Tlatelolco has been signed and ratified by 33 Latin American countries, discouraging not only nuclear weaponry but also the development of any type of nuclear weapon device (Forté, 2023).

European Bloc

By limiting the distribution and deployment of weapons across international borders, the European Union encourages nuclear peace and safeguards. A major concern in this region is the trafficking of traditional weaponry (Hanson, 2020). The European bloc is supportive of the International Atomic Energy Agency (IAEA) and is playing an essential part in the worldwide issue of nuclear security. Not only did this region have a big influence on politics, but the European Union is also one of the biggest financial donors to the IAEA and the International

Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT), which seeks to solidify the international framework for nuclear security (Hanson, 2020).

Committee Goals

Our committee's goal is for delegates to share and acquire knowledge of the realities and risks of today's society as new technologies emerge. Delegates should ultimately have a better grasp of how, where, and why nuclear weapons and technology should be properly maintained, as well as what the IAEA has done to address this concern. Delegates are expected to converse and debate creative solutions to ensure safety by the end of the committee, with a particular focus on underdeveloped nations that may not be able to protect themselves from the threat of a nuclear attack. As this is a continuing heated topic in society, delegates should conduct extensive research on the nation they represent to effectively argue for their proposals regarding how to address this issue.

Research Questions

1. What is your country's position on nuclear weapons?
2. Do you believe that all signatories of nuclear proliferation treaties can be trusted even while continuing to rapidly develop their weapons?
3. How will your country (applies to countries possessing nuclear weapons) ensure safety to others without the reasoning that you signed a treaty?
4. How can the international community contribute to helping your country become a

nuclear-safe zone?

5. What measures have been implemented in the past to address criminal activities using nuclear or radioactive material, and why do they continue to occur?
6. What is your country's policy and boundaries for providing direct assistance and support to poor nations that may be attacked by nuclear weapons states in the future?

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Topic B: Developing Plans for Nuclear Emergency Preparedness

Introduction

Nuclear safety and emergency preparedness are paramount considerations in ensuring the secure and responsible use of nuclear technology worldwide. With the potential for catastrophic consequences, the United Nations needs to create an effective protocol for nuclear emergencies, which requires global cooperation and international coordination. Guided by the 1957 agreement with the United Nations, the IAEA is mandated to cover all activities related to nuclear energy, safety, security, and safeguards (IAEA, 1957). When discussing measures in response to nuclear emergencies, aspects of nuclear fallout, containment of radiation, and evacuations of affected populations must be considered.

Understanding lessons from history, both the Chernobyl Nuclear Accident in 1986 and the Fukushima Nuclear Accident in 2011 are relevant to the study and will be used as a baseline for a comprehensive response package. These events highlight the urgent need for a robust emergency preparedness and response system at both the national and international levels. Threats of nuclear attacks in the 21st-century are relevant in the topic of developing a protocol in case of disaster, as the current system needs improvement in its design and framework of cooperating with the international community. Additionally, containment of nuclear emergencies and accidents provide the context for continued amendments and changes in order to provide a more effective procedure in countries currently pursuing or implementing nuclear technology. The goal of the IAEA is to ensure the safe development and implementation of nuclear technology in order to prevent wide scale catastrophes.

Description of the Topic

Historical Precedent: Chernobyl

On April 26, 1986, one of the world's worst nuclear disasters in history occurred in Chernobyl, Ukraine (former Soviet Union). The involved nuclear power plant was Chernobyl's Number Four RBMK Reactor, which lost control during a trial test at a low power of 7% and was followed by a deadly explosion and fire. The explosion was severely large and the entire reactor building was left completely destroyed in a matter of minutes. This caused between 50 and 185 million curies of radionuclides including massive amounts of plutonium and iodine to be released into the public, which is "several times more radioactivity than that created by the atomic bombs dropped on Hiroshima and Nagasaki, Japan." This disaster ultimately affected around 50,000 citizens living in the town of Pripyat to be evacuated in 36 hours, which was only 3 kilometers away from the explosion (World Nuclear Association, 2022).

During the next few weeks, it was recorded that an additional 67,000 people were forced to be evacuated from nearby areas and towns due to a governmental order of safety. Not only this but there were 31 recorded deaths as well as 1800 documented cases of thyroid cancer in children due to radiation exposure. The approximately 600 emergency workers who were on the site of the Chernobyl power plant during the night of the accident received the highest doses. The most important exposures were due to external irradiation (relatively uniform whole-body gamma irradiation and beta irradiation of extensive body surfaces), as the intake of radionuclides through inhalation was relatively small (IAEA, 2008). Acute radiation sickness was confirmed in 134 of those emergency workers. Forty-one of these patients received whole-body doses from external irradiation of less than 2.1 Gy. Ninety-three patients received higher doses and had more severe acute radiation sickness: 50 persons with doses between 2.2 and 4.1 Gy, 22 between 4.2 and 6.4 Gy, and 21 between 6.5 and 16 Gy. The skin doses from beta exposures, evaluated for eight patients with acute radiation sickness, were in the range of 400-500 Gy. Within a few weeks after the accident, more than 100,000 people were evacuated from the most contaminated areas of Ukraine and of Belarus. The thyroid doses received by the evacuees varied according to their age, place of residence, dietary habits, and date of evacuation. For example, for the residents of Pripyat, who were evacuated essentially within 48 hours after the accident, the population-weighted average thyroid dose is estimated to be 0.17 Gy and to range from 0.07 Gy for adults to 2 Gy for infants (IAEA, 2008). For the entire population of evacuees, the population-weighted average thyroid dose is estimated to be 0.47 Gy. Doses to organs and tissues other than the thyroid were, on average, much smaller. 414. The large number of thyroid cancers in individuals exposed in childhood, particularly in the severely contaminated areas of the three affected countries, and the short induction period are considerably different from previous experiences in other accidents or exposure situations. Other factors, such as iodine deficiency and screening, are almost certainly influencing the risk. Few studies have addressed these problems, but those that have still found a significant influence of radiation after taking confounding influences into consideration. The most recent findings indicate that the thyroid cancer risk for those older than 10 years at the time of the accident is leveling off, the risk seems to have decreased since 1995 for those 5-9 years old at the time of the accident, while the increase continues for those younger than 5 years in 1986.

Surrounding countries such as were also contaminated with radiation from this incident, including 40% of Europe including Austria, Finland, Sweden, Norway, and other parts of Asia such as China, United Arab Emirates, Turkey, and more (IAEA, n.d.). Although the accident may seem familiar due to other big nuclear catastrophes, the Chernobyl accident differs from the Fukushima Daiichi meltdown as Fukushima was caused by a tsunami (making this a natural disaster cause) that attacked the premises of their nuclear power facility, while the Chernobyl was caused by a flawed facility design and later discovered an also underdeveloped protocol (intentional mistake). Since then, the IAEA has worked immensely to figure out middle ground between pro-nuclear and non-nuclear member countries to promise nuclear safety and security for the world.

Historical Precedent: Fukushima

On March 11, 2011, Japan experienced one of the most significant nuclear disasters in recent history, when the Fukushima Daiichi Nuclear Power Plant suffered multiple meltdowns following a devastating earthquake and tsunami (IAEA, 2011). The Fukushima Daiichi facility, located in the Fukushima Prefecture, consisted of six boiling water reactors, with Reactor Units 1, 2, and 3 experiencing core meltdowns due to the loss of cooling systems following the tsunami. The earthquake, measuring a magnitude of 9.0, triggered a tsunami with waves reaching heights of up to 15 meters, which overwhelmed the plant's seawall defenses and flooded critical infrastructure, including emergency diesel generators and backup cooling systems. The loss of power resulted in the failure of cooling systems, leading to overheating and subsequent meltdowns of the reactor cores (IAEA, 2011).

The Fukushima Daiichi disaster released a substantial amount of radioactive materials into the environment, contaminating land, air, and water. Approximately 160,000 residents living within a 20-kilometer radius of the plant were evacuated, while others in surrounding areas were advised to shelter indoors or evacuate voluntarily. The aftermath of the Fukushima disaster saw widespread environmental contamination and significant health concerns among affected populations. The long-term effects of radiation exposure remain a subject of ongoing study and concern. Unlike the Chernobyl disaster, which was attributed to design flaws and human error, the Fukushima Daiichi meltdown was primarily a consequence of a natural disaster - specifically, the earthquake and tsunami. However, the incident also raised questions about the safety and resilience of nuclear power plants in the face of extreme events and the adequacy of regulatory measures.

In response to the disaster, Japanese authorities initiated emergency measures to assess damage and address immediate threats to public safety - including evacuation orders and containment of radioactive cores (IAEA, 2011). While international efforts were swift in response, radiation monitoring systems and the distribution of potassium iodide tablets were crucial in remedying the spread of radiation. In terms of stabilizing the damaged reactors, long-term plans were put in place in order to decommission the site while construction of protective barriers began in order to prevent contamination into the food and water supply. As a result of the 2011 accident, a reevaluation of nuclear safety regulations and practices worldwide was set in motion, with lessons revolving around transparency, preparation, and cooperation at the forefront.

Developing Emergency Measures

Addressing the nuclear disasters in the past, it is imperative to draft a robust and adaptable emergency response plan. As the world shifts to an increasing reliance on nuclear energy, the ability to proactively identify and mitigate risks of nuclear facilities and infrastructure underscores the need for a solution, agreed upon by the United Nations and its members. Moreover, the growing frequency and intensity of natural disasters - exacerbated by climate change - must be addressed in order to create a comprehensive plan. In developing emergency measures, there are seven key aspects that must be addressed:

1. Technological Vulnerabilities
2. Communication and Coordination
3. Nuclear Disaster Preparedness
4. Radiation Monitoring
5. Evacuation and Sheltering
6. Public Health
7. International Cooperation

Key Aspects of Nuclear Preparedness

In addressing nuclear emergencies, the IAEA's goal is to emphasize the idea that "nuclear safety is the responsibility of every nation" and those with nuclear technology must follow the guidelines set forth by the international community. By developing a comprehensive agreement to prevent further nuclear disasters and include provisions to effectively respond to potential emergencies, the collaboration between the IAEA and the United Nations will induce a safer world for nuclear technology.

(1) Technological Vulnerabilities:

Technological vulnerabilities relate to methods of identifying potential weaknesses in nuclear technology, infrastructure, and cybersecurity. Assessing risks associated with technological issues, such as failures, malfunctions, software viruses, or cyberattacks, are important to consider as these are common sources which may lead to disruptions or accidents.

(2) Communication and Coordination:

Establishing clear communication channels among countries which utilize nuclear technology is vital in the process of responding to potential hazards or accidents in the future. The IAEA serves as a forum and mode of connection between nations with and without nuclear technology, which is a source for communication. From the intergovernmental level, countries should be transparent in their activities related to nuclear development and establish clear systems to disseminate information.

Training exercises are essential in testing these communication systems, however, agreement among countries tends to be a blockade in improvement. Therefore, developing a robust communication and coordination system is a priority in order to maintain security and transparency with the world community, as well as with the public.

(3) Nuclear Disaster Preparedness:

In cases of nuclear emergencies, preparedness is crucial in relation to contingency response plans. For the purpose of the topic, the IAEA will focus on nuclear incidents such as: reactor accidents, radioactive material exposure, and nuclear terrorism. Developing plans for different types of nuclear accidents induces a formal response and ability to address future concerns related to nuclear technology.

When discussing the creation of such plans, drafters must consider the resource allocation of emergency personnel, equipment, and materials needed to respond to nuclear accidents. Response and recovery operations are essential in nuclear emergencies, which tie into the important concept of prioritizing in situations where populations may be affected by contaminated resources or by radioactive exposure.

(4) Radiation Monitoring:

Along with the need for developing preventative measures, utilizing devices to measure radiation with monitoring stations are steps that contribute to the ability for national governments to respond effectively. Through the deployment of sophisticated monitoring devices and the establishment of comprehensive monitoring stations, nations can bolster their capacity to detect, assess, and respond to nuclear incidents or emergencies promptly.

The International Atomic Energy Agency (IAEA) advocates for the implementation of radiation monitoring systems as a fundamental component of nuclear emergency preparedness. By investing in radiation monitoring systems, countries can achieve several benefits of: early detection, real-time assessment, environmental protection, and public safety. Although some nations may have implemented radiation monitoring systems, an international requirement lacks enforcement and involvement at the IAEA, which can be addressed by discussing issues of accessibility, funding, or technological inability.

(5) Evacuation and Sheltering:

Creating individualized evacuation plans for every country with nuclear technology is implausible due to the diversity of landscape, population density, and geography. However, developing plans for the international community in terms of providing resources are possible when designing quick response forces for nuclear emergencies.

Currently, member states contribute funds to support the IAEA in its various activities regarding emergency response efforts, however, a more developed action plan which includes technical assistance, expertise, and equipment would be an area for improvement. As more countries begin developing nuclear technology in the energy sector, as discussed prior, countries with expertise can provide support to recently developed facilities and contribute to global nuclear security.

(6) Public Health:

Public health is a topic that must be addressed in discussing how best to implement emergency response plans on the international scale. Public health encompasses both monitoring assessments and support services to affected communities. The IAEA's stance on public health is tailored towards: prevention and mitigation, emergency response effectiveness, radiation protection, and health monitoring. Public health in nuclear emergencies underscores the importance of a holistic and multidisciplinary approach that integrates many facets of preparedness, prevention, and action.

(7) International Cooperation:

Fostering collaboration and information transparency among countries, international organizations, and nuclear industries are a priority in enhancing global nuclear security. The IAEA serves to provide standards and guidelines for members to follow, in which mechanisms during nuclear emergencies are a topic of revolving conversations.

The IAEA's Incident and Emergency Centre (IEC) is a focal point in bridging the gap between countries, as it serves as a specialized facility to coordinate international response efforts during nuclear emergencies. Although its main purpose is to collect, analyze, and disseminate information, it can provide technical support and assistance to member states.

Bloc Positions

African Bloc

The African Bloc prioritizes capacity-building initiatives to enhance nuclear safety and emergency preparedness across the region. It advocates for international cooperation and assistance programs to support the development of robust regulatory frameworks, emergency response capabilities, and technical expertise in African countries with nuclear facilities or aspiring to develop nuclear energy programs. By emphasizing the integration of nuclear energy into their infrastructure, the African Bloc recognizes the importance of developing safety measures and advocates for global cooperation in addressing challenges and vulnerabilities faced by African nations.

Asian-Pacific Bloc

The Asian-Pacific Bloc prioritizes investment in technological innovation and research and development to enhance nuclear safety and security measures. It advocates for the adoption of advanced nuclear reactor designs, safety systems, and waste management technologies to minimize risks and ensure the sustainable use of nuclear energy in the region. Having experienced the Fukushima Daiichi Disaster and with rising concerns from nuclear testing by

North Korea, the Asian-Pacific Bloc emphasizes the importance of regional cooperation and information-sharing mechanisms to strengthen nuclear preparedness and response capabilities. It supports initiatives such as joint training exercises, capacity-building programs, and the establishment of regional centers of excellence to facilitate knowledge exchange and collaboration among member states.

North American and Latin American Bloc:

The North American Bloc advocates for the strict enforcement of safety standards and regulatory oversight to ensure the safe operation of nuclear facilities in the region. It emphasizes the importance of continuous safety inspections, risk assessments, and emergency preparedness drills to maintain public confidence in the nuclear industry and prevent accidents.

The South America Bloc advocates for the promotion of a strong nuclear safety culture and public awareness programs to instill confidence in the safety of nuclear energy among citizens. It emphasizes the importance of transparency, accountability, and stakeholder engagement in nuclear decision-making processes to build trust and credibility in the region's nuclear industry.

European Bloc

The European Bloc advocates for the standardization of safety practices and regulatory frameworks across the region to ensure uniformity and consistency in nuclear safety standards. It supports the implementation of harmonized safety assessments, peer reviews, and information-sharing mechanisms to promote continuous improvement and learning in the

European nuclear industry. Stemming from influences by the European Union, the integration of nuclear energy into broader energy infrastructure is a goal that has been undermined by European countries who are wary of nuclear technology. Despite advocating for a global framework, many countries have begun shutting down their nuclear facilities for alternative sources, expressing concern about the safety of nuclear technology as a whole.

Committee Goals

The committee's overarching goal is to develop a comprehensive nuclear preparedness plan that addresses a range of potential emergencies, including technological failures and natural disasters while prioritizing the safety, security, and well-being of affected populations. By focusing on key aspects such as technological vulnerabilities, communication and coordination, nuclear disaster preparedness, radiation monitoring, evacuation and sheltering, public health, and international cooperation, the committee aims to establish robust protocols, procedures, and mechanisms for effective emergency response at national and international levels. Through collaborative efforts and informed decision-making, the committee seeks to enhance global resilience against nuclear risks and minimize the potential impact of emergencies on human health, safety, and the environment.

Research Questions

1. Does your country have comprehensive policies and protocols in place for regulating and monitoring nuclear infrastructures to prevent accidents and mitigate potential risks, and if

not, what measures could be implemented to strengthen nuclear safety measures?

2. What initiatives has your country undertaken, or could it undertake, to increase public awareness and education about the risks of nuclear incidents and radiation exposure, and how can these efforts be improved to better prepare citizens for future emergencies?
3. In the event of a nuclear incident, how could your country provide assistance and support to neighboring countries affected by radiation contamination, and what mechanisms could be established for international cooperation and mutual aid?
4. What are the best practices for evacuation and sheltering protocols during a nuclear emergency, and how can these protocols be effectively communicated to and implemented by affected populations to ensure their safety and well-being?
5. What are the key components of effective nuclear disaster preparedness plans, and how can these plans be tailored to address specific risks and vulnerabilities of nuclear facilities in different geographical regions?
6. How can international cooperation and collaboration be enhanced to strengthen global preparedness and response to nuclear emergencies, including mutual assistance agreements, joint training exercises, and capacity-building initiatives?

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