

LSRMUN2018



# The United Nations Environment Programme

**Committee:** The United Nations Environment Programme (UNEP)

**Topic A:** The expansion of nuclear energy production as a way to reduce greenhouse gas emissions

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## I. Committee Background

The United Nations Environment Programme (UNEP) has the mission to lead and embolden partnerships that care about the environment by encouraging and advocating for its preservation and to improve our quality of life without compromising future generations (UNEP, 2017). UNEP was founded on June 5th, 1972 and its headquarters are located in Nairobi, Kenya. Currently, Erik Solheim is the committee's Executive Director and Ibrahim Thiaw is the Deputy Executive Director. The organization has had many accomplishments related to improving the environment and limiting climate change. For example, in August 2015, UNEP created its Environmental Policy and established the Environmental Management System (EMS), the Environmental Management System's main objective is to reduce humanity's environmental footprint with a comprehensive set of steps. Before starting the EMS action plan, in 2008, UNEP started measuring the earth's annual greenhouse gas (GHG) emissions. Doing this helped UNEP to create strategies and reduction efforts for greenhouse gases. In 2015, the organization's World Environment Day theme was "Seven Billion Dreams. One Planet. Consume with Care." This then led the UNEP's annual Green Week which promotes education about climate change and responsible consumption. At the moment, UNEP is currently focusing on the prevention or the reduction of climate change, pollution, natural disasters, exposure to fatal chemicals, as well as environmental governance, resource efficiency and ecosystem management (About UN Environment, UN Environment, 2018).

## II. Topic information

### A) History of Topic

Nuclear power is a source of electricity that uses nuclear reactions to create nuclear energy and heat. The energy is converted into a source of electricity with the use of turbines. A large portion of nuclear power is made inside nuclear power plants. From what is known about it, nuclear power produces little to no greenhouse gas emissions and other chemicals that are harmful to the environment, such as nitrogen oxides, mercury, and sulphur dioxide, in comparison to other traditional power sources, such as burning fossil fuels and coal power plants (NEI, 2018). The issue first began when global warming started to increase, causing the world to realize that greenhouse emissions needed to decrease each year in order to avoid dangerous conditions and abrupt climate change. According to James Hansen, a professor at the Earth Institute of Columbia University, the world needs to drop its global warming pollution by 6 percent every year to avoid the dangerous consequences associated climate change. Economist Jeffrey Sachs has added, "On a global scale, it's hard to see how we could conceivably accomplish this without nuclear [sources]" (Biello, *Scientific American*, 2013).

The main reason many people promote the expansion of nuclear energy is because in order to properly reduce greenhouse gas emissions, governments everywhere would need to find an energy source that does not just releases low emissions, but also for them to be reliable on a large scale. Thanks to its properties that allow for more eco-friendly production and its consistently high rates for the production of energy, many believe that the only proper alternative to using fossil fuels is nuclear energy (NEI, 2018). Due to the large number of greenhouse chemicals that are generated during the creation of energy, alternative sources must be used. In 2003, the

production of energy created 40% of the greenhouse gases released into the atmosphere (Parliament of Australia, 2015). Now, electrical companies and governments are starting to consider the expansion of nuclear energy and other more eco-friendly ways. However, many environmental researchers and scientists still have many concerns about the the use of nuclear power as a substitute fossil fuels. Some includes if they could be developed quickly enough to lower greenhouse gases and if the world's uranium supply could be sustained if all countries turned to nuclear energy (OECD, 2015).

In 1988, the World Meteorological Organization and the United Nations Environment Programme initiated the Intergovernmental Panel on Climate Change (IPCC), an expert organization that would research, assess and report on scientific information related to climate change. Due to the burden raised various IPCC Assessment Reports, the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change was established. In May 1992, the UN Framework Convention on Climate Change (UNFCCC) was adopted and it went into force in 1994 (Policy, WNA, 2017). The first Convention of the UNFCCC took place in 1995. Agreements were made and expanded upon, eventually leading to the Kyoto Protocol in 1997, which committed countries to reduce targeted greenhouse gas emissions (Kyoto Protocol, UNFCCC, 2018). The international agreement involved various resolutions; mainly including to reduce emissions and to commit to this protocol. Also, there were many other projects that were proposed to reduce emissions. One of these proposals was the Emissions Trade, a market-trade approach, with a goal of reducing greenhouse gas emissions and pollution by required trading of excess reduction to offset emissions, the trade could be in or outside of the country. Another was Joint Implementation, a project-based process, through which a developed country (with emission caps) could work with another country to reduce emissions and share the resulting emission reduction units (Policy, WNA, 2017).

When it comes to nuclear energy, many of the laws and regulations corresponding to it typically refers to safety, its use and its production. The Nuclear Safety Standards (NUSS) programme from the International Atomic Energy Agency (IAEA) is different. This programme focuses on regulations concerning the handling of nuclear power plants (IAEA,1979). Another regulation is the Civil Liability for Nuclear Damages, which handles incidents involving nuclear power worldwide. In addition, there is the Nuclear Safety Convention, which regulates the safety of land-based nuclear power plants. The issue is that these are not enforced in every nation, meaning that some countries may have unregulated or unsafe nuclear power plants that could endanger the population and environment instead of help it (Liability, NWA, 2017).

According to Statista, in 2016, the largest carbon dioxide producer was China with the most greenhouse gases emitted with 28.21%. Also, the United States (US) took the second spot with 15.99% of the greenhouse gases emitted. China, the US, India and Russia are ranked among the five biggest greenhouse gas emitters globally (Statista, 2017). Carbon dioxide emissions are also a critical problem globally. In 2012, 38.2 billion tons was created globally just from the burning of fossil fuels such as coal and oil. Moreover, every second, 2.4 million pounds of carbon dioxide emissions rise up into the atmosphere (CBS News, 2012). In addition, according to the Union of Concerned Scientists, in 2015, the country with most carbon dioxide emitted was China with 9,040.74 million metric tons (UCS, 2015). Generally, most developed countries and major emerging economy nations are the ones who emit the most carbon dioxide. An example is India (a developing nation) which is predicted to have the most significant growth in carbon dioxide emissions over the span of the next 20 years (Mongabay, 2006).

## B) Current Issues

**South Korea:** Over the past 20 years, greenhouse gas emissions in South Korea have been rising. In 2010, more than 656 million tons of carbon dioxide was emitted and in 2013, 696 million tons were released into the atmosphere. Fortunately, between 2013 and 2014, the number fell by 6 million tons of greenhouse gas emissions (Business Korea, 2016). Even though South Korea is still in the one of the largest greenhouse gas producers, its numbers have been slowly decreasing. While the government has been pledging to do more to stop pollution, its commitment to the Paris Agreement is very weak. In fact, scientists predict that South Korea's greenhouse gas emissions to double by 2030 (Reuters, 2015). As of now, the government has lots of work to do in decreasing its impact on climate change. The country is currently exploring alternate options to producing energy such as using nuclear energy but there are concerns about producing a reliable source that can meet the high demands required due to South Korea's increasing population, especially in large cities such as Seoul and Busan (South Korea, Climate Action Tracker, 2017).

**India:** India is the third largest greenhouse gas emitter in the world. In 2016, its emissions increased by 4.7% compared to the previous year. Therefore, the total greenhouse gas emissions were about 7%. However, in 2016, India signed the Paris Agreement and agreed to lower its greenhouse gas emissions (India, Climate Action Tracker, 2017). By 2030, India's proposal is to reduce greenhouse gas emissions by 35% and expand its renewable energy capacity (Vyawahare, *Hindustan Times*, 2017). One of the Paris Agreement's points is to increase the use of nuclear power as a long term method in reducing climate change and environmental threats (Policy, WNA, 2017). In 2015, India became an Intended Nationally Determined contributor, which means a member of the UN's campaign to reduce greenhouse gas emissions in accordance with various international agreements. The main focus of being a contributor is to promote

the use of clean energy, including solar power, and also planting more trees to reduce carbon dioxide emissions by 2030 (Vaughan, *The Guardian*, 2015).

**Germany:** According to the World Nuclear Association (WNA), Germany's electricity production reached around 648 terawatts (TWh), meeting its demand of 595 TWh and a net export of 54 TWh, around 13% of this electricity overall was produced using nuclear energy. Germany is one of the biggest importers of gas, coal and oil worldwide, with an import share of 61.4% in 2014. Due to this it has only a few domestic resources are used for energy apart from lignite (Amelang, *Clean Energy Wire*, 2016). Since it is dependant on fossil fuels, Germany uses up about 6300 kWh per capita and this amount exceeds more than any other country in Europe. As a matter of fact, according to the WNA, Germany's 2016 renewable generation has been at its lowest since 2009. In 2001, the leaders of Red-Green and four major electricity companies signed a contract regarding a compromise made in 2000. This compromise claimed to "secure the production of nuclear power plants during the term of the government" but, to a certain extent, also shortened the life spans of power plants in exchanged of removing risks to federally-endorsed power plants. As of now, Germany and its leaders have shown to be against enforcing the expansion of nuclear energy due to both the 2011 Fukushima power plant incident in Japan and the fear of any future accidents that could greatly impact the country (Delamaide and Flauger, *Handelsblatt*, 2018).

**Pakistan:** In 2015, Pakistan produced a total of 111 TWh, with a consumption of 450 kWh or 88 TWh per capita. Pakistan, in its current state, has a small nuclear power program, which supports a capacity of 1335 megawatt electricals (MWe). However, due to how nuclear energy benefits both Pakistani citizens and the environment, the government of Pakistan is working to rapidly expand it. In July 2013, the Executive Committee of the National Economic Council (ECNEC) approved multiple energy

projects, all of which have a combined worth of 12.4 billion US dollars, in order to produce about 2200 MWe of nuclear energy. All of these projects were made in collaboration with many Chinese companies, one of the most important of these collaborations is the China–Pakistan Economic Corridor (CPEC), an organization that aims to benefit both countries by promoting sustainable energy sources and various infrastructure endeavours (CPEC, 2017). Apart from this, in January 2014, the government of Pakistan began construction on multiple power plants to meet up with the projected demands of electricity, of these power plants, the majority will produce about 1100 MWe to 8000 MWe each. As mentioned previously, the government of Pakistan is investing heavily in nuclear energy because of its benefits to the environment. Many of the major cities in Pakistan suffer from intense smog, which has caused around 20,000 premature deaths over the past three decades. Therefore, more must be done to lower the country's pollution output (*Pakistan Today*, 2018).

**Indonesia:** According to the WNA, in 2016, Indonesia's population of 260 million were sustained with just 58 GWe. In 2015, its total amount of energy produced reached around 234 TWe without any imports from foreign countries. Indonesia consumes around 900 kWh of energy per year, a consumption rate well-placed below its neighbouring countries. Officials from Indonesia have also confirmed to have plans to reduce the nation's emissions by around 29% by 2030. In February 2014, the government of Indonesia issued its own National Energy Policy (NEP), which favoured the development of nuclear energy and established a goal of 4000 MW for installed nuclear capacity. In addition to its NEP, the government of Indonesia and the energy companies operating within the country have also agreed to collaborate on various projects with international partners. An example is the National Nuclear Energy Agency of Indonesia's (BATAN) cooperation agreement with China's Nuclear Engineering Corporation to build high-temperature gas-cooled reactors in Indonesia. Indonesia has also promoted experimentation with its expansion of nuclear energy and has recently

developed a prototype for a high temperature reactor, or an I-EPR, a first of its kind for Indonesia. The I-EPR is still in its pre-project phase and it is scheduled to begin construction between 2018 - 2022 (Indonesia, WNA, 2018).

**Mexico:** In 2013, Mexico's total greenhouse gas emissions was about 665.3 million metric tons of carbon dioxide. Mexico has many sources that cause and emit greenhouse gases such as cars, large factories and a high demand for electricity. According to the World Resources Institute (WRI), Mexico is one of the top ten greenhouse gas emitters (Friedrich, Ge and Pickens, WRI, 2017). In 2016, Rafael Pacchiano Alamán, Mexico's Environment Secretary, ratified the Paris Agreement in order to lower the nation's greenhouse gas emissions (Maxwell, NRDC, 2016). The nation has also promised to decrease its greenhouse gas emissions by 22% before 2030, being the first of many developing nations to propose a climate action plan. As of 2017, Mexico has two nuclear reactors generating almost 4% of its electricity. It is currently finding ways to expand the use of nuclear energy in order to lower its reliance on natural gas and lower its greenhouse gas emissions (Mexico, WNA, 2017).

### **C) UN Action**

The United Nations understand the benefits nuclear energy can bring to countries in order to help the environment. As such, the UN only promotes its use as strictly for peaceful purposes. Therefore, the UN has established several treaties with nations in order to ban the use of nuclear energy in relation to the creation of weapons. An example is the Treaty of Tlatelolco, which is an agreement to ban all nuclear weapons across both Latin America and the Caribbean. Moreover, it also rewards nations that use it in order to make technological and scientific advances in aiding nations reverse the impact of climate change (UN, 2016). In order to fully enforce this guideline on an international scale, the International Atomic Energy Agency (IAEA) was created by the UN in 1957. Its goal is to administer the development, research,

exchange, improvements and the cycle for nuclear energy on an international scale (IAEA, 2018). In addition to the IAEA's efforts in developing nuclear energy, UNEP has also contributed to the promotion and develop of nuclear energy, especially in areas related to environmental sustainability (IAEA, 2015). Moreover, the UN has been a driving force in the signing of conventions that promote the use of nuclear energy such as the Paris Agreement, which began in 2015 (Policy, WNA, 2017).

### **III. Conclusion**

Greenhouse gas emissions have been an issue for the long period of time. They have impacted the environment in a negative manner, causing climate change and adversely affecting human health. In order to lower greenhouse gas emissions that cause climate change, the UN has been promoting the use of nuclear energy. This type of energy produces environmentally friendly electricity at consistently high rates. However, while research has shown that it is good for the environment, scientists are concerned about its costs and the reliability of uranium supplies around the world. That said, nuclear energy is already being used by many countries around the world and expanding each day. Therefore, due to the fact that its positives outweigh its negatives, governments around the world need to do more to implement nuclear energy in their production of electricity. If they continue to use methods that are proven to pollute the environment, climate change will only become an even larger problem for the world as a whole.

### **IV. Essential Questions**

1. What are greenhouse gases?

2. Does your nation use nuclear energy to produce electricity?
3. How would using nuclear energy to produce electricity impact your country?
4. What is the UN doing to address this issue?
5. Is your country a member of any conventions that aim to lower greenhouse gas emissions? If so, which ones?
6. Has your nation made any progress in lowering its greenhouse gas emissions? If not, why?
7. What other international organizations are working on this issue? Is your nation collaborating with any of them? If so, which ones?
8. Why are scientists concerned about the expansion of nuclear energy? Does your country share the same concerns? If so, why?

## **V. Resources**

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