

# UN

# ENVIRONMENTAL PROGRAM

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# DIRECTOR'S LETTER

Dear Delegates,

Welcome to Pacific Model United Nations 2019 and the United Nations Environment Programme! My name is Ishaan Ghose and I am a senior at Interlake High School. I am incredibly excited to be serving as the Director of this committee. Alongside me are my fellow staff members: Freya Gulamali, a junior at Interlake High School as my Chair, and Kaitlyn Hung, a senior at Bainbridge Island High School as my Assistant Director.

One of the most special aspects of this committee is its focus on science and the natural world. This year, we will be discussing the topics of the Long-Term Sustainability of Nuclear Energy and the Effects of Fast Food on Development of Sustainable Agriculture. We chose these topics because while they play an integral role in the protection of the environment, they are also specific enough to generate engaging and intense debate.

Our first topic is unique because although nuclear power is lucrative, member states must debate the dangers and disadvantages of the technology. There are member states within the UNEP that are the largest consumers of nuclear power, as well as innovators on the cutting edge of nuclear energy. Delegates must understand specific concepts such as alternative energy, investment and capital, and general geography and topography to be successful when debating this topic.

Our second topic focuses on the rapid spread of chain restaurants and the impact of monopolization on the environment. This topic is often overlooked because, undeniably, every nation relies on the fast food industry. Thus, the public, media, and government avoid acknowledging the disadvantages of chain restaurants on the environment. An understanding of micro and macroeconomics, corporation control, and globalization will be essential to promote successful debate on the topic.

We have purposefully made the topics broad enough to include all member states of the UNEP, but specific enough to include key areas of debate. We hope to see specific solutions to the topics, as they are multifaceted and interdisciplinary. Reading through the Background Guide and doing additional research will help you focus your solutions. Please feel free to email us at [unep@pacificmun.com](mailto:unep@pacificmun.com) with any questions. We all are incredibly excited to see you all at PACMUN 2019!

Regards,

**Ishaan Ghose**

**Director | United Nations Environmental Programme**

Pacific Model United Nations 2019



# COMMITTEE OVERVIEW

Welcome to the United Nations Environment Programme (UNEP) at PACMUN 2019.

UNEP is unique in its scientific focus and possibilities in action. The UNEP serves as a forum for the various foreign ministers of the member states to discuss environmental issues across the world. UN Environment is an official committee of the UN, and interestingly, has greater jurisdiction than other economic and social bodies which must function under the supervision of the UN General Assembly. Nevertheless, UNEP members states are only allowed to assess environmental conditions, develop international agreements, and found institutions intended to better the environment in countries of concern.

In committee, expect debate to range from scientific topics such as alternative energy to the economic ones such as the impact of capitalist industry on the environment. As a key body within the United Nations, preparation will be integral for success during committee session. An understanding of basic rules of procedures will also be instrumental. Most importantly, delegates must be familiar with the science and economics of climate change in multiple regions of the world, understand key alliances and animosities between member states, and commonalities that bind certain groups of countries together. In order to tackle the issues that are unique to the environment, coalitions must be created, and compromise must occur to produce effective solutions. Delegates with background knowledge, wit, and creativity will be most successful in producing solutions to the most pressing danger threatening humanity today.

In preparation, delegates must write a position paper on each topic to be eligible for awards. Each position paper should be about one page in length and include a brief introduction about your country and its history concerning the topic and the committee, how the issue impacts your country, previous United Nations and UNEP policy that relates to the topic as well as your country's policy that relates to the topic, and finally, what your country believes should be done to solve the issue. This should be a specific solution and not a general statement. Be tactful and creative. **Position papers on both topics must be submitted by the November 10th, at 11:59 PM PST to [unep@pacificmun.com](mailto:unep@pacificmun.com).**



# TOPIC A

## Long-Term Sustainability of Nuclear Energy

### TOPIC INTRODUCTION

According to the US Energy Information Administration, nuclear energy is the energy released when atoms are split. As the energy is released from atomic fission, the heat released boils water into steam that spins a turbine and drives generators. Currently, as reported by the UNEP, 11% of the world's electricity is generated through 450 nuclear reactors residing in 50 countries, 13 countries of which utilize nuclear energy as a quarter of their total electricity generation. Furthermore, 60 reactors are under construction at the present. The United States generates more nuclear power than any other country, followed by France, Russia, China, and South Korea.

While previously energy sustainability was measured by availability of the energy in comparison to its use, the World Nuclear Association has revised this definition to include environmental risks and safety in waste disposal. Regarding the former, the IAEA claims nuclear energy to be a “clean, reliable, and affordable” energy source that may be useful for “mitigating the negative impacts of climate change.” However, although generation of electricity from the nuclear reaction does not directly contribute to the emission of greenhouse gases, pollution is generated indirectly through the mining and refining of iron to build reactors.

Meanwhile, regarding the latter consideration of sustainability, a significant barrier preventing the sustainability of nuclear energy is the lack of a plan for safe disposal of nuclear waste. Currently, only short-term disposal plans for nuclear waste have been implemented, including storage in pools of water and subsequently in dry storage facilities. Due to the lack of a proper safety disposal plan, ionizable radiation from uranium mill tailings, reactor fuel, and parts of the reactor may remain radioactive for tens of thousands of years. While this may not pose a significant issue for people living near nuclear reactors because ionizable radiation accounts for less than 0.1% of background radiation, according to the UNEP, many health risks ensue following immediate exposure from damage to nuclear power plants due to a natural disaster or an engineering issue. These health risks include initial skin burns, hair loss, fertility impairment, and an increased risk of cancer and cardiovascular diseases. Despite this, the OECD Nuclear Energy Agency





claims “the safety and benefits of geologic disposal” are under general consensus among experts of the science and technology community. Thus, unless a long-term solution to nuclear waste disposal is found and the risk to humans living within close vicinity of nuclear reactors is reduced, the sustainability of nuclear energy will continue to be questioned.

## HISTORY

Following the discovery of fission by Enrico Fermi in 1934 as well as the discovery of fission’s ability to release energy through a chain reaction by Otto Hahn and Fritz Strassman in 1939, significant developments occurred regarding the utilization of nuclear energy. While the initial utilization was focused on the development of an atomic bomb through the Manhattan Project during World War 2, countries around the world began to learn more about nuclear energy’s use as an effective alternative to highly unsustainable fossil fuels. In 1951, nuclear energy was used to create electricity for the first time in Idaho. Then, in 1953, President Eisenhower launched the Atoms for Peace program, advocating for the use of nuclear energy as a reliable source for the generation of electricity. Many countries such as Russia and the UK followed the United States’ steps towards nuclear energy. In 1956, Calder Hall, the first commercial nuclear power station, was created on an industrial scale.

Despite numerous advances, dangers presented itself in 1986 with the catastrophic Chernobyl plant accident in Ukraine attributed to faulty design. This accident resulted in severe radiation exposure to the surrounding population leading to an estimated diagnosis of 134 people with acute radiation syndrome, 28 of whom died. Furthermore, long term studies indicated an increase in leukemia and cataracts as well as health risks in the Soviet Union and parts of Europe due to the contamination of water with radioactive substances. Due to the significant consequences from the power plant accident, the International Atomic Energy Agency (IAEA) created structured safety standards to ensure the safety of those living within close vicinity of nuclear sites. A second devastating accident occurred in 2011 at the Fukushima plant in Japan following a 9.0 magnitude earthquake. At least 95,000 people were quickly evacuated, and workers were sent into the scene to clean up contamination. Following this event, the Action Plan on Nuclear Safety was created by the member states of the IAEA to strengthen safety



measures. By 2010, 440 nuclear reactors were operating in 29 countries, providing 10% of global electricity. Currently, 58 additional power reactors are under construction. While many nuclear reactors are on the rise, few developments have occurred in the disposal of nuclear waste, giving countries no choice but to stockpile it until it loses its radioactivity.



## PAST ACTION

Because the United Nations and the age of nuclear energy were born simultaneously, the UN Atomic Energy Commission and the UN Environment Programme constantly seek to maintain international safety when working with nuclear energy. Besides the 454 nuclear reactors running worldwide today, there are 3 plants in a state of long-term shutdown. Chernobyl became one of those instances after a catastrophic explosion in 1986. After the incident, the UNEP issued two mandates that have become the foundation of all modern resolutions for nuclear energy within the United Nations. The UNEP Code of Conduct was a non-legally binding guidance system that improved safety measures for nuclear reactor workers and has since been accepted by 130 member states within the General Assembly. Similarly, the UNEP's Safety Standards were issued to establish an ethical criteria which governed the management of radioactive waste and other environmental factors which result from constructing and maintaining nuclear power plants. Although the degree to which member states follow the UNEP's safety standards vary more than the overall embracing of the Code of Conduct, both documents were undoubtedly the starting point of international legislation regarding nuclear power.

Although these guidelines have been in place since 1986, after the 2011 Fukushima disaster, where a nuclear reactor was destroyed by floodwaters (the largest civilian nuclear disaster since Chernobyl), the UNEP issued their Action Plan on Nuclear Safety. This document was more decisive than the previous measures instituted after the Chernobyl crisis. It established a clear schedule of official reports and technical research grants that would allow officials to gather data from the Fukushima disaster and any others that followed. The UNEP Action Plan built upon the 1986 Safety Standards and Code of Conduct to make nuclear safety more measurable and enforceable.

Historically, the United Nations has focussed on the reduction of nuclear power generators in response to humanitarian crises. However, the UNEP recognizes that the nuclear power industry is shrinking naturally. A UNEP official stated, in 2018, that nuclear electricity generation would drop by 10 percent by 2030. The UNEP, through the International Atomic Energy Commission has encouraged member states such as Germany and Switzerland to plan to phase out nuclear power. Overall, the United Nations Environment Programme acknowledges the unsustainability of nuclear power and is working to shift the international community's attention to other alternative energies.





## CURRENT SITUATION

Nuclear energy has become an option in today's world as climate change becomes more of a concern and energy demands increase. Nuclear energy has the smallest impact on the environment of any energy source because it has a small carbon footprint and releases no methane or carbon dioxide. Additionally, nuclear plants run almost nonstop, so nuclear energy is more reliable than other renewable energy sources. While coal may be cheaper, nuclear energy requires very little material: 28 grams of uranium is equivalent to 100 metric tons of coal. Yet nuclear energy is not a perfect energy source.

Currently, waste disposal is a largely unsolved problem of nuclear energy. This involves both long term and short term disposal. The general guideline of waste disposal is to store used fuel in pools at the site, and once the fuel is cool (generally after a few months), it is moved to long term storage. However, in many cases, the used fuel ends up staying in short term storage for much longer than necessary, creating a safety hazard. When used fuel is incorrectly disposed of, the radiation can contaminate water and food. An alternative to storing the waste is to recycle it. However, this option is expensive and risky. The fuel can be stolen and used to create nuclear weapons and it still requires disposal and storage areas. Natural disasters are another concern. Earthquakes and hurricanes, among other disasters, can wreak havoc on power plants and release radioactive waste into the environment, as seen with the Fukushima accident. Finally, nuclear power plant accidents can severely damage human health. There were 4,000- 500,000 deaths from the Chernobyl disaster alone, infant mortality rates increased, and there were over 6,000 cases of thyroid cancer in children.

There have been new safety procedures and tests on power plants as a result of Chernobyl and Fukushima. Regular monitoring and testing have been implemented, along with better shielding and passive cooling systems to prevent overheating within plants. The industry has stated that safety has increased in newer power plants. Yet even within the United States, 23 plants of the same make as Fukushima still exist. It has been debated whether or not they need to be replaced. This issue becomes increasingly prominent as more plants begin to reach their estimated life span (generally 40 years). Some plants are given upgrades to increase their life span by 20 to 30 years. A balance must be found between upgrading aging plants and building new ones.

One of the most recent and concerning accidents occurred in 2017 when radioactive material leaked across Europe. This leak released 30 to 100 times the radiation released in the Fukushima accident. In Europe, human health was not impacted as the leak was diluted enough not to cause harm. The leak was first noticed on October 2nd in Italy. At the time, Russia denied the possibility that one of its facilities was the source. They deduced that it was likely caused by a satellite. Yet



as a group of international scientists conducted more research, it was determined that the source was located between the Volga River and the Ural Mountains, the location of the Russian Mayak fuel recycling facility. This leak only consisted of radioactive Ruthenium, which is a byproduct of reprocessing fuel. It is typically separated and put into long-term storage. This facility has had a history of bad accidents, particularly in 1957, where the second-worst nuclear accident in the region (second to Chernobyl) took place. This accident highlights some of the current issues with nuclear energy. The plant had a history of accidents and it took 2 years to trace the accident to the source. Also, there is little collaboration occurring after the accident to understand the cause. A group of international scientists has formed to try to understand the cause, yet they are doing all of their research from afar. Russia has yet to confirm if the accident did indeed occur at the Mayak facility, although it has been investigating it. Currently, while nuclear waste has some advantages to fossil fuels, there are still improvements to be made to increase its sustainability.

## CASE STUDIES

### CASE STUDY 1: GERMANY

After the oil shock of 1973, support for nuclear energy in Germany was very strong due to high oil prices. After the Chernobyl accident, public support for nuclear energy greatly decreased, and the government decided to phase out nuclear power within 10 years. In 1998, the government changed again, and the phase-out was canceled. Instead, the power plants lifetime was set to 32 years and no new power plants were to be built. In 2009, after another election, this was extended by 8-14 years depending on year built, and taxes were put on them, creating large profits for both the government and the power plant companies. In 2011, the government decided to shut down all plants created before 1980, as public opinion stayed very opposed to nuclear power. Later, the government reintroduced the phase-out, deciding to shut down all power plants by 2022. At the same time, the government built more coal and gas-fired plants. Before 2011, Germany generated 25% of its electricity from its 17 nuclear reactors. Now, 8 years later, it generates 12% from 7 reactors and 40% from coal. Since Germany has little resources other than lignite (a type of coal) and renewables, it is one of the largest importers of gas, coal, and oil in the world. Per year, Germany consumes 6300 kWh per capita and emits the most carbon dioxide in Europe. At the same time, it has one of the lowest wholesale electricity prices in Europe, yet one of the highest retail prices due to taxes. In the past 10 years, Germany has provided large subsidies on renewable energy, and while this has created lots of renewable energy, it is ultimately unsustainable and has increased energy prices. Even with this increase in renewable energy, carbon dioxide



emissions from industry and power stations have only decreased slightly between 2008 and 2015. Due to this, it has been determined that Germany's target reduction of 20% from 2007 by 2020 is not achievable. Even as early as 2007, a report by Deutsche Bank reported that if Germany decided to go through with its nuclear phase-out policy, they "would miss its carbon dioxide emission targets by a wide margin, face higher electricity prices, suffer more blackouts and dramatically increase its dependence on gas imports from Russia."

## CASE STUDY 2: CHINA

According to the World Nuclear Organization, 45 nuclear power reactors are currently operating in China, with an additional 15 under construction. China is undergoing a mission to become self-sufficient in reactor design. This mission stems from China's recent desire to move away from fossil fuels and the air pollution, resulting in a loss of 6% of China's GDP. Furthermore, due to its high energy demand and recent power shortages, China hopes to move towards a more economically sustainable energy source, nuclear energy. In December 2011, the NEA announced that China would be the global leader of nuclear technology, using nuclear energy as its base of power-generation within the next 10 to 20 years. This announcement, while unachievable in the limited time remaining, demonstrates China's ambition to take on nuclear energy in the future. In fact, in 2017, China was at the top of the list of "expanding countries" for nuclear energy as decided by the IAEA. In October of 2018, NDRC's Energy Research Institute claimed that in order for China to contribute to the reduction of global warming, it would increase its nuclear generating capacity to 554 GWe by 2050. Furthermore, while the IAEA decided China's nuclear and radiation safety as effective, further measures are necessary to keep up with the rapid development of nuclear power plants.

In regard to the former statement of the effectiveness of China's safety measures, China has taken many steps to ensure the prevention of harm to its citizens. Following the 2011 Fukushima accident, China initiated safety checks in operating plants and review of those under construction. The NNSA connects with the IAEA to provide updates on material usage throughout the fuel cycle and the CAEA signed an agreement with OECD's Nuclear Energy Agency to confirm China as a "key partner" with the OECD. These international partnerships China has solidified, demonstrates China's commitment to cooperation and acceptance of international regulations to maintain the safety of its nuclear sites.

In regard to the latter statement of China's necessity to deal with other measures to keep up with rapid development, China places dealing with nuclear waste at the top of its priorities. According to the IAEA, China's annual generation of nuclear waste totals to 13,000 cubic meters. Article 41 of the 2015 Environmental Protection Law in China states, "Pollution prevention facilities in construction

projects should be simultaneously designed, constructed, and put into use with the main project.” Thus, China holds it under high importance to build reprocessing and disposal sites for both low- and high-level wastes while increasing its nuclear energy generation capacity. For Low to Intermediate Waste (LILW), China plans for a system of regional disposal in which repositories are constructed closer to nuclear power plants to concentrate local waste in one area. However, at this time, only 2 ILW and LLW regional disposal sites have been constructed and other planned regional sites do not meet the requirement of being close to nuclear power plants. Furthermore, these plants limit their acceptance of nuclear waste to only local and military plants, disregarding commercial ones. For HLW disposal and spent nuclear fuel, China hopes to utilize geological disposal, planning to build a national geological repository by 2050. China plans on reprocessing the radioactive material, vitrifying it, encapsulating it, and then placing it into a geological repository 500 meters below the ground in accordance with OECD recommendations. However, there is controversy surrounding with site selection for a repository demonstrated by the thousands of protesters protesting reports in 2016 that Lianyungang was chosen as the site for a \$15 billion Sino-French nuclear reprocessing plant. This project was effectively shut down by officials due to overwhelming objection in the community. In 2006, China published a plan for HLW disposal including site selection for a HLW repository, underground in-situ tests, and repository construction. Currently, there is controversy in whether Beishan should be the site for a geological depository and underground laboratory due to the abundance of granite rocks or if more discussion is needed to decide on a more appropriate site. Thus, while China’s nuclear development remains on the rise, waste disposal requires immense time both in deciding on the appropriate location to store toxic substances that will be radioactive for thousands of years as well as in actually building an underground site hundreds of meters below the ground to achieve that objective.

## BLOC POSITIONS

**Bloc 1 - Largest Producers: United States, Brazil, Russia, China, India, France, Sweden, Austria, Republic of Korea, United Kingdom, Canada**

These member states have the largest nuclear power industries and are also the largest consumers of electricity produced by nuclear power plants. However, certain states such as France, the United Kingdom, and Canada are hoping to move to solar, wind, and hydropower. Most of these nations have diversified energy sources, which means they might not provide as much resistance to nuclear power legislation as expected. However, for nations that rely on nuclear power, there would likely be a push for a longer time period to give them time to phase out nuclear power.



### **Bloc 2 - Phasing Out: Germany, Japan, Spain**

These three member states are not producing more nuclear facilities and are instead, working to reduce their dependence on nuclear energy. Japan's earthquake and tsunami prone location causes it to be a dangerous environment for nuclear power plants. Meanwhile, Germany and Spain are heading efforts to shift towards wind, solar, and hydro power. These nations would largely be in favor to increase regulation on nuclear power plants, as the burden for these regulations would fall mostly on neighboring nations.

### **Bloc 3 - Emerging Producer: Morocco, Algeria, Saudi Arabia, Ukraine, Malaysia, Vietnam, South Africa, Ireland, Norway, South Africa, Switzerland**

These member states are either planning or just beginning to construct their first nuclear reactors. They understand they are entering a lucrative market and have an opposite perspective to the countries hoping to phase out nuclear power, as they would like to increase their profit potential as much as possible.

### **Bloc 4 - Most Adverse: Australia, Colombia, Peru, Venezuela, Nigeria, Italy, Kenya**

These countries either have no reactors and do not plan to build them, or civilian usage of nuclear power is illegal. For these nations, they would be largely ambivalent towards any nuclear regulation, or slightly in favor of reducing contamination from nuclear waste, as any nuclear waste affecting their country would be a result of waste from other nations.

## **GUIDING QUESTIONS**

1. What steps are being taken to ensure public safety and health in your country as related to power plants?
2. When is it time to replace an aging power plant as opposed to updating it?
3. Is your country prone to natural disasters? How should that affect your ability to utilize nuclear power?
4. What is your country's view on waste management? Should used fuel be recycled?
5. How does nuclear energy to other renewable energy sources?
6. How much collaboration and communication should occur between countries on power plant accidents?



## FURTHER RESEARCH

1. The International Atomic Energy Agency's (IAEA) website contains information concerning many past United Nations resolutions concerning nuclear power, which could be helpful for finding resolutions more specific to your country:  
[HTTPS://WWW.IAEA.ORG/TOPICS/ENERGY](https://www.iaea.org/topics/energy)
2. This website contains information about the health risks of nuclear power, which could be helpful for background research to emphasize the importance of containing nuclear waste:  
[HTTP://WWW.WORLD-NUCLEAR.ORG/INFORMATION-LIBRARY/SAFETY-AND-SECURITY/RADIATION-AND-HEALTH/NUCLEAR-RADIATION-AND-HEALTH-EFFECTS.ASPX](http://www.world-nuclear.org/information-library/safety-and-security/radiation-and-health/nuclear-radiation-and-health-effects.aspx)
3. This Reuters article describes how China halted the construction of a nuclear power plant after public protest, serving as a reminder to keep in mind the impact public opinion can have on legislation:  
[HTTPS://WWW.REUTERS.COM/ARTICLE/US-CHINA-NUCLEARPOWER/CHINA-HALTS-WORK-ON-15-BILLION-NUCLEAR-WASTE-PROJECT-AFTER-PROTESTS-IDUSKCN10LOCX](https://www.reuters.com/article/us-china-nuclearpower/china-halts-work-on-15-billion-nuclear-waste-project-after-protests-idUSKCN10LOCX)





# TOPIC B

## Effects of Fast Food on Development of Sustainable Agriculture

### TOPIC INTRODUCTION

According to the World Health Organization, fast food is “food that can be prepared quickly and easily and is sold in restaurants and snack bars as a quick meal or to be taken out.” The fast food industry is based on providing high-calorie food quickly and cheaply. To reduce production costs, the industry has turned towards environmentally unfriendly practices including the use of GMOs, pesticides, herbicides, livestock, and plastic.

As the fast food industry has grown, so has the use of genetically modified organisms (GMOs). GMOs allow farmers to grow corn, soybeans, canola oil, and sugar beets efficiently. According to the Washington Post, these crops fuel the fast food industry as both feed for livestock and as ingredients in menu items. In studies conducted by the University of Minnesota, it was discovered that GMOs pose significant issues to environmental health and may lead to developmental and reproductive health issues.

Although GMOs make land use more efficient, livestock have the opposite effect. Livestock use the most agricultural land out of any sector, between grazing and feed crop lands, contributing to degrading soil quality. Similarly, waste created by livestock outweighs waste created by crops and contributes to the spread of pesticides and disease. Additionally, the water required to create one ton of beef from livestock is more than seven times the amount of water needed to grow an equivalent amount of grain, showing that livestock is an incredibly water-intensive food source.

While waste from livestock can have harmful effects, the waste from restaurants themselves is becoming an increasingly greater problem. Fast food packaging is the most common litter, after cigarettes, making up nearly 50% of litter in the US. These packages are often coated in toxic chemicals to stop food from leaking, which hurts both human and environmental health. These packages are also often made from single-use plastics, which contribute to watershed and ocean pollution. Overall, every step of the fast food production process, from cultivation to packaging, is unsustainable and threatens the safety of every organism on earth.



# HISTORY

Fast food originated from street vendors selling food to city dwellers. In Ancient Rome, street vendors would sell wine soaked bread and stews in cities. In the Middle Ages, street vendors sold pies, pancakes, and meat to those who did not have kitchens or a way to cook for themselves. Later on in 1860, a fish and chips store opened in England, where fish and chips were sold quickly to customers. In 1896, the first automat was created in Germany. This was a restaurant where customers would order through a vending machine and receive food. In 1916, the first hot dog stand was opened in New York. In 1948, McDonald's created the "Speedee Service System" which was an assembly line system that could quickly produce hamburgers.

As the fast food industry continued to grow, restaurants needed consistent supplies of food at a standard quality. This caused their suppliers to grow, sacrificing conditions and quality for quantity. Agriculture shifted to more specialized and consolidated farms. This meant that there were overall larger and fewer farms, and that these farms would specialize in a certain crop, resulting in a monoculture. On the animal production side, the industry changed from each facility raising many types of animals outdoors to a single type of animal inside. Facilities are focused on producing as much meat from one animal as quickly and cheaply as possible. They often depend on antibiotics, GMOs, and fossil fuels. These practices were in stark contrast to the pre-fast food era. Before the fast food industry grew, farms were smaller and grew a large variety of crops. Those that focused on animal production would be less dense and provide much outdoor space. Now, farms are incredibly large and packed with animals to maximize meat production.

# PAST ACTION

According to a report by the Food and Agriculture Organization of the United Nations, the livestock sector represents "14.5 percent of all human-induced emissions" and "plays an important role in climate change" with beef and cow milk production accounting for the majority of emissions. Additionally, fast-food packaging, which comprises almost half the litter found on U.S. streets, is coated with perfluoroalkyls, which are toxic compounds that harm the environment and human health.

The World Economic Forum states that the beef and dairy industry is more responsible for greenhouse gas emissions than the world's largest oil companies. Nevertheless, the demand for meat and dairy products grows, accelerating climate change. Strangely, the United Nations has never passed resolutions to combat this issue. Nonetheless, there are many international agreements related to reducing fast food consumption to combat malnutrition which include limited climate change

legislation. For example, in 2017, the UN World Programme passed the Decade of Action on Nutrition, 2016-2025. Although the majority of the document was focused on global health in developing countries, a section labelled “Aims and Added Value” mentions encouraging a shift away from meat and dairy products through “education and aid packages featuring vegan alternatives”.

In addition to international action, private fast food companies have reformed their production to lessen their impact on the environment. In 2018, McDonalds released their plan to prevent 150 million metric tons of greenhouse gas emissions from being released into the atmosphere by 2030. Supposedly, the company will employ a more sustainable factory system which will make progress equivalent to taking 32 million passenger cars off the road for an entire year. While McDonalds is focused on making its mass production more environmentally friendly, companies such as Taco Bell and Pizza Hut, which are owned by Brands Inc. have joined efforts with the United States Green Building Council to convert their chain stores to LEEDS-certified establishments. These buildings conserve water, boost energy efficiency, and reduce waste in a sustainable fashion.

Interestingly, because fast food chains are such large corporations, when one chooses to become more sustainable, the rest of the industry must follow in order to remain competitive. One such example is Chipotle, which was one of the first chains to convert to sustainably sourced meat. This caused competitors such as Qdoba to follow in suit in order to maintain a similar status within the industry. Similar strategies have been employed by other companies in hopes of reducing their carbon footprint. However, the fast food industry has a long way to go before its practices will become truly sustainable.

## CURRENT SITUATION

The fast-food industry currently generates \$570 billion globally and is expected to grow by 2.5% in the next couple of years. While it is a very successful industry, according to environment and business writer Mike Scott, “animal agriculture is the world’s highest-emitting sector without a low-carbon plan.”, meaning that there have been few standardized attempts to reduce carbon emissions as a result of agriculture. Investors of many fast-food restaurants, including McDonald’s and Burger King, have recognized the sector’s impact on the environment and have pressured companies into setting targets to lower water usage and greenhouse gas emissions.

In general, the fast-food industry requires a huge amount of resources, from growing wheat to feeding cattle, and more. The average cheeseburger contributes 1 to 3.5 kilograms of CO<sub>2</sub>. This does not include the methane released by cows. Cows also require large amounts of land, water, and feed, which is a huge drain on



resources. Cows used by the fast-food industry are typically housed in factory farms and contribute more to global warming than all cars on Earth combined.

In addition to using large amounts of water (the global food system accounts for 70% of total water use), the industry also contributes to decreasing water quality. Fertilizers, pesticides, and hormones, used on both plants and animals, can leak into water supplies and contribute to the spread of waterborne illnesses and the destruction of aquatic ecosystems. This, in turn, impacts environmental, animal, and human health.

While the industry requires a large number of resources, it also creates a lot of waste. Fast food restaurants encourage overconsumption by providing large portions at an inexpensive price. Therefore, not only is food wasted but at the same time the energy and resources used to create the food are also wasted. In addition, food waste can emit methane if improperly disposed of. Besides food waste, food packaging is another source of waste. Food packaging contributes to 40% of litter. The most common food waste is Styrofoam, which takes 900 years to break down. Additionally, fast food often relies on cheap but polluting single-used plastics, such as straws and drink lids. These plastics can find their way into waterways and oceans, becoming a hazard to marine life. In conclusion, the fast-food industry is harming the environment both in production of food and disposal.

Despite these effects on the environment, fast food is incredibly popular. The three major draws of fast food are how cheap, fast, and convenient it is. Fast food is so widespread that it is almost always an option. It's fast, making it perfect for any situation, whether you are a student with little time to eat or on a long road trip looking for a quick stop. And finally, it's cheap, making it a better option than a fancy restaurant. Although it is such a convenient option, there are some major health drawbacks. Frequent consumption of fast food has been linked with a higher risk of obesity, depression, digestive issues, heart disease and stroke, type 2 diabetes, cancer, and early death. Currently, healthier foods are becoming more popular, causing the industry to provide more healthy options, such as low calorie and plant-based meals. Chains like McDonald's and Burger King are also beginning to focus on quality and sustainability. Both use 100% beef in their hamburgers with no preservatives. McDonald's sources fish and coffee from a sustainable source, milk from cows not treated with rbST, and chickens that have not been treated with antibiotics important to human medicine. Ultimately, while there have been attempts by many chains to introduce and increase sustainability, there is still a huge and largely unregulated impact of fast food chains on the environment.



# CASE STUDIES

## CASE STUDY 1: SUBWAY

Subway is one of the most environmentally friendly and sustainable corporations in the US. With the increasing expansion of the fast food industry, Subway divides its environmental goals into 3 divisions: sustainable agriculture, sustainable packaging, and resource conservation.

In regards to the former, Subway selects local farmers who have maintained eco-friendly practices for generations. These eco-friendly practices often utilize modern science and technology to optimize resource utilization, preserve soil fertility, maintain water and air quality, and prevent the fall of biodiversity. By selecting local farmers, Subway additionally reduces carbon emissions by curving transportation length while economically supporting the community. In the US and Canada alone, cutting transportation has saved 21.8 million truck miles and 3.6 million gallons of diesel annually.

For sustainable packaging, Subway considers reusability, recyclability, degradability, and compostability in designing sustainable materials. Since 2009, reusable bags have been available in the US and Canada. Additionally, towel and tissue products are 100% recyclable, napkins are composed of 100% recycled fiber with prints written in soy or water-based ink to not interfere with recycling, and specialty sandwich pouches contain 50% recyclable fiber. Furthermore, Subway has worked with Pactiv to re-design containers to use less plastic for years. In 2012, this partnership accomplished a major feat: salad bowls and lids composed of material from two recycled water or soda bottles, reducing the number of bottles head to landfill by 141 million. While recycling and compost bins are available at each franchise, San Francisco and Seattle have been composting all their food waste.

Subway aims to optimize resource conservation to optimize energy use and water use. In regards to energy use, Subway has been moving towards LED lighting and signage. In regards to water conservation, in 2006, Subway implemented low-flow faucets in all restaurants, saving 182.1 million gallons of water annually. Many franchises have installed motion sensors, dual flush toilets, rain gardens, and landscape irrigation to reduce water usage. In 2007, Subway collaborated with pickle and pepper suppliers to reduce brine, saving 739,000 gallons of water and 130,000 lbs of plastic annually. Moreover, Subway encourages its franchisees to build Eco-Restaurants or incorporate green elements into remodeling such as energy-saving appliances, recyclable trash cans, and motion sensors. One store in Kokomo, Indiana was built entirely from recycled material and displays real time energy usage onto a big monitor to increase awareness in customers of the immense potential to save the environment. Other initiatives in individual franchises include solar panels, plants

without the necessity for water maintenance, rooftop gardens, and high efficiency air conditioning.

Subway has been implementing numerous initiatives at all levels of its supply chain to create an environmentally friendly restaurant with environmental sustainability. Subway's journey additionally demonstrates various methods other companies can take to save the planet. However, there is a simultaneous difficulty in implementation within restaurants that are already built and lack sufficient money to renovate.

## CASE STUDY 2: BURGER KING

While many corporations have been on a track towards environmentally friendly practices, Burger King has been distancing itself from that movement.

Since Burger King's base is beef, a meat requiring 28 times more land, 11 times more water, and 5 times more emissions than chicken or pork, it is necessary that they begin to move in a new direction.. In a recent report by Mighty Earth, Burger King's suppliers, Bunge and Cargill, have been using deforestation in sloth and jaguar habitats of Brazil and Bolivia to provide land for soy and animal farming. Burger King fails to reveal its palm-oil suppliers, but instead subsidizes Roundtable, which destroys secondary forests as well as peatlands. Despite these reports and public dissent, Burger King has failed to resource their meat or prevent palm oil usage, lagging behind McDonald's and scoring a zero out of one hundred in efforts to implement policies that would prevent deforestation along its supply chain in a 2016 UCS study. Burger King plans on eliminating deforestation due to beef, chicken, soy, palm oil, and packaging by 2030, granting Bunge and Cargill eleven more years to deforest. Although Burger King has promised to halt interference in the Amazon, this impact has only been transferred to other forests in Brazil, emphasizing Brazil's action in recent years as a PR stunt instead of a promise for real action. In fact, within just four years, Bunge and Cargill were responsible for the deforestation of 700,000 hectares in the Cerrado forest in Brazil. While Burger King has attempted to claim that Germany's meat is locally sourced, farmers fail to break the connection between the animal feed used for the cattle and loss of rainforests in Brazil. In this manner, Burger King has been utilizing the unaccountability of supply chains and subsidies to complicate the attribution of blame on the corporation. In fact, in order for Mighty Earth to track down Burger King's impact in South America, it used satellite imaging.

Meanwhile, Burger King has been making minute changes to protect the environment. In April, Burger King released the Impossible Burger, a Whopper made with plant-based protein instead of beef. Additionally, in 2010, Burger King unveiled the first pilot eco-friendly design with renewable energy powering one-third of its total energy requirements, reducing energy costs by 45% and carbon dioxide





emissions by 1201 metric tons annually. Furthermore, this store features a solar-powered electric charging station as well as a rainwater reclamation system. In all North American restaurants, the Duke Flexible Batch Broiler cuts electrical consumption by 52% and cost by 90%. However, these changes have come to little avail in comparison with the immense, irreversible damage done to forests in Latin America due to Burger King's focus on economic gain and maintaining its consumer base over saving the environment.

## BLOC POSITIONS

### **Bloc 1 - Largest Fast Food Industries: Sweden, Switzerland, Germany, Austria, Japan, Republic of Korea, United Kingdom, Canada, France, United States**

These member states are the 10 largest fast food consumers worldwide. The United States, Germany, Japan, Republic of Korea, and Canada are also some of the largest producers of greenhouse gases. The fast food industry often contributes to the economies of these nations, which may make it difficult to enact sustainability legislation that may jeopardize profits. However, if solutions with a minimal burden on the fast food industry can be found, these nations would be more inclined to support them.

### **Bloc 2 - Smallest Fast Food Industries: Algeria, India, Kenya, Malaysia, Morocco, Nigeria, Peru, South Africa, Thailand, Vietnam, Venezuela, Ireland, Norway**

These member states have the smallest fast food industries worldwide. Most African and South Asian member states also have small meat and dairy industries, relying on pork or chicken production as main sources of protein. This often means that these states are more able to enact regulations on fast food corporations without fear of retribution from corporate lobbyists.

### **Bloc 3 - Greatest Dependence on Meat and Dairy Industries: Brazil, China, Australia, Mexico, Russia, Colombia, Chile, Ukraine, Austria, Spain**

Although these member states are not the largest consumers of meat and fast food, they produce the most meat and dairy worldwide, thus, relying on the international demand for fast food to fuel the export of their products. While these countries may not be very opposed to regulations that burden fast food chains, they would likely oppose any regulations that fall largely on the meat and dairy industry.



### **Bloc 4 - Emerging Fast Food Industry: Saudi Arabia, Panama, Iraq, Iran**

These countries contribute minimally to global emissions, have little to no meat and dairy industry, but feature successfully spreading fast food industries. Because they are on the cusp of a lucrative industry, they are almost as likely as the first bloc to support fast food and to be against sustainability initiatives that would limit potential profit in the future. These nations would be in favor of legislation that is able to promote sustainability while maintaining a minimal burden on the fast food industry.

## **GUIDING QUESTIONS**

1. Where does the responsibility for the fast food industry's impact on the environment lie? On the producers or consumers?
2. Can the fast food industry focus on sustainability without sacrificing price or accessibility?
3. Can more sustainable methods of farming be implemented while still producing enough food for the industry?
4. How does the fast food industry's impact on human health affect the environment?
5. What does your country's livestock sector look like? Can emissions be limited without affecting food security?

## **FURTHER RESEARCH**

1. This Forbes article describes the pressures on fast food corporations to increase sustainability by their investors, a possible incentive a proposed solution could address:  
<https://www.forbes.com/sites/mikescott/2019/02/04/fast-food-giants-need-to-face-up-to-climate-and-water-risks-investors-warn/#459b9c8a1f91>
2. This Washington Post article uses GMOs as a lens to examine and criticize the sustainability of the agricultural industry, which every fast food chain sources from:  
[https://www.washingtonpost.com/news/wonk/wp/2017/02/06/were-having-the-wrong-argument-about-gmos/?noredirect=on&utm\\_term=.416689e3e82e](https://www.washingtonpost.com/news/wonk/wp/2017/02/06/were-having-the-wrong-argument-about-gmos/?noredirect=on&utm_term=.416689e3e82e)
3. This article on Harvard Business School's blog, written by an alumni, serves as a case study for Burger King's sustainability practices and criticizes their efforts as not being impactful enough to meaningfully slow climate change:  
<https://digital.hbs.edu/platform-rctom/submission/burger-kings-sustainability-efforts-barely-trying/>



4. This source describes some economic incentives fast food chains would have to increase sustainability efforts:  
<https://smallbusiness.chron.com/types-economic-factors-can-affect-fast-food-industry-36923.html>

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