

QTMUN



United Nations Environment Programme

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As UTMUN seeks to provide an enriching educational experience that facilitates understanding of the real-world implications of issues, our committees' contents may necessarily involve sensitive or controversial subject matter strictly for academic purposes. We ask for delegates to be respectful, professional, tactful, and diplomatic when engaging with all committee content, representing their assigned country's or character's position, communicating with staff and other delegates, and responding to opposing viewpoints.

The below content warning is meant to warn you of potentially sensitive or triggering topics that are present in the formal content of this background guide, as well as content that may appear in other aspects of committee (e.g., debate, crisis updates, directives), so that you can either prepare yourself before reading this background guide or opt-out of reading it entirely

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We ask for your cooperation in maintaining order, both inside and outside of committee session, so that we may provide a professional, safe, inclusive, and educational conference.

Throughout the conference, please note that delegates shall only:

1. Wear Western Business Attire (i.e., no costumes, no casual wear)
2. Embody their assigned country's/character's position, not their mannerisms (e.g., no accents, no props)
3. Opt for diplomatic, respectful, and tactful speech and phrasing of ideas, including notes (e.g., no foul language, suggestive remarks, or obscene body language)
4. Make decisions that contribute to a professional, safe, inclusive, and educational space for debate

The rest of our conference policies can be found on our website.

By attending all or part of a UTMUN conference, attendees agree to abide by all of our conference policies.

Furthermore, delegates' efforts to contribute to a culture of collaboration, inclusivity, and equity at our conference, both inside and outside of committee session, will be considered by the dais and Secretariat when determining conference scholarships and committee awards.

In cases of failing to adhere to any of UTMUN's policies, the Secretariat reserves the right to take any action it deems necessary, including rendering delegates ineligible for awards, taking disciplinary action, and prohibiting delegates from participating further in the conference.

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UTMUN 2021's Secretariat and Staff are committed to ensuring every attendee has an enjoyable, comfortable, and safe experience and is able to participate fully and positively at our conference.

If you have any equity concerns (e.g., concerns about barriers to participation) or accessibility needs now or during the conference, please do not hesitate to contact your committees' dais and/or our Director of Academics at academics@utmun.org.

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Dear Delegates,

Welcome to the United Nations Environment Programme (UNEP). My name is Ariel Moon, and I am a second year student studying a double major in political science and philosophy. I have been involved in MUN throughout high school back home in Vancouver, and I am so thrilled to be a part of your MUN experience serving as your director of UNEP this year. I am pleased to introduce you to the diligent dias team, made up of your Assistant Director, Jennifer Han, who is a second year student pursuing international relations and East Asian studies, and your moderator, Yasmin Saeedi, a first year life sciences student. This committee leads the world's environmental agenda, advocating for policies to meet the Sustainable Development Goals and restore a healthier environment to overall ensure a better quality of life for every individual.

This year, our topics deal with the environmental ramifications of the fashion industry, detriments of fracking, and waste disposal. With such a diversity in subject matter, this committee will debate sub-topics ranging from the trends of fast fashion and their consequences on the environment to oil companies violating Indigenous land rights to the health and safety repercussions of radioactive waste disposal.

The dias has worked hard to prepare this background guide to provide general information on each of the topics. We expect delegates to read over this background guide to get a better sense of each of the topics, then further their preparation through individual research upon the topics and your country's stance on them. Exemplary delegates have a deep understanding of their country's policies on each topic as well as the global state of affairs and can engage in meaningful debate with other delegates during committee sessions, proposing and collaborating to create solutions to prominent problems that the world currently faces.

We encourage delegates to be familiar with the rules of procedure, which UTMUN has provided a guide to, as well as come prepared for a great experience meeting other globally engaged delegates and contributing to fruitful debate. Should you require further assistance beyond what the background guide can provide, please do not hesitate to contact me with any questions. Good luck with your preparations, and I look forward to meeting you all.

Best regards,

Ariel Moon

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Topic A: The Environmental Ramifications of the Fashion Industry

Introduction

In today's fast paced world, fashion brands do not design their clothing to last, but as artifacts of a particular era of consumer trends. New fashion trends come and go, and companies are creating products for consumers left and right, resulting in fast fashion. As a consequence, the production, manufacturing, shipment, and finally, the waste of fast fashion has created a major environmental and climate issue. Clothes have become like plastic bottles or plastic bags; they get used then thrown out, playing the role of a product whose purpose is to be consumed instead of owned. One of the world's leading fast fashion brands is Zara. Zara has had such an impact on the fast fashion industry that competitors around the globe, such as Forever 21 and even high-end brands like Gucci, have adopted Zara's methods. Zara was the first to implement this 'fast fashion ideology': providing the latest fashion in medium quality at affordable prices while producing a significantly large quantity. By 2015, Zara had outsourced its manufacturers to India, Pakistan, Bangladesh, Sri Lanka, and Indonesia. It has become common for fast fashion brands to outsource, as labor is cheap and production is fast, thus it fits their ideology perfectly. However, this outsourcing and growth in manufacturing has led to terrible and damaging environmental and societal effects.

Currently, more than 150 billion new articles of clothing are produced annually. Fast fashion and the apparel industry are responsible for 10% of all carbon emissions globally, thus playing a major role in the climate crisis. Through the harmful production of textiles, the outsourcing of work in developing countries with low labor conditions and environmental regulations, and clothing ending up in landfills, the fashion industry has gained a reputation of having a massive carbon footprint. To put the fast fashion industry carbon footprint in perspective, the top 20 companies that have the largest carbon footprints contribute 35% of all greenhouse gas emissions- the fashion industry alone contributes about one third of that amount. ¹

The United Nations is working alongside many environmental corporations to find a sustainable solution to the fast fashion industry. Many apparel companies are partnering with these corporations and initiatives to decrease their carbon footprint and make their productions as sustainable as possible within the coming decade or two. Currently, the situation is being taken into the hands of the consumers, with responsible consumers switching to more environmentally friendly alternatives to stay on top of fast fashion trends.

Fast Fashion and its Trends

Currently, more than 150 billion new articles of clothing are produced annually. ² This is a significantly large exponential growth in production when compared to only 10 to 15 years ago. The switch to fast fashion has become possible as a result of the rising exploitation of people and workers. The exploitation of workers has made cheap labor efficient for many clothing companies, which in turn has made fast fashion much more feasible for consumers. Due to cheap labor and the exploitation of workers, in the United States of

1 "Revealed: the 20 firms behind a third of all carbon emissions," *The Guardian*, October 9, 2019, accessed December 4, 2020. <https://www.theguardian.com/environment/2019/oct/09/revealed-20-firms-third-carbon-emissions>

2 "There Is A Major Climate Issue Hiding In Your Closet: Fast Fashion," *Fashion Company*, November 11, 2016, November 20, 2020. <https://www.fastcompany.com/3065532/there-is-a-major-climate-issue-hiding-in-your-closet-fast-fashion>

America alone, 800,000 apparel jobs were lost just in the last few decades.³ These jobs were given to countries such as Bangladesh and Vietnam, where labor standards and salary are extremely low. Conditions are so low that although apparel is the largest employer of women globally, less than 2% of exploited female workers are actually making a living wage.⁴ The incident that revealed the unacceptable working conditions of the whole fast fashion industry to the world was the collapse of the Rana Plaza in 2013, killing 1134 garment workers in Dhaka, Bangladesh.⁵

Retailers and brands like H&M and Zara simply cannot avoid the responsibility of poor conditions in their manufacturing factories due to the fact that fast fashion directly affects workers in third world countries in regard to poor work wages and conditions. Unfortunately, this is not in effect. Not only do these poor conditions affect the environment- increased greenhouse gas emissions and deforestation to name a few- but they also have an affect on society. There have been reports of numerous fashion retailers, such as Urban Outfitters, having highly toxic metal lead in some of their accessories and other products. Similarly, in 2018, Nike used lead-based paint in many of their Bauer hockey sticks, causing them to get recalled.⁶ Such companies and retailers are making huge profits from the exploitations. The top fast fashion retailers grew 9.7 percent per year over the last five years, topping the 6.8 percent of the growth of traditional apparel companies, according to financial holding company CIT.⁷ Fashion is an extremely large business; the global industry is approximately at \$1.2 trillion, with more than \$250 billion spent in the United States of America alone.⁸ For this reason, large retailers and companies stick to the process that gives them the most profit, no matter the negative environmental effects.

Ultimately, where fast fashion trends and production causes the most substantial damage falls into the environment. Although major clothing retailers and companies are conveniently outsourcing the work and production, they are also increasing their carbon footprint. By moving the manufacturing of fast fashion to places with low labor standards and low environmental regulations, companies have easy access to use the cheapest and dirtiest form of power: coal.⁹ The production of all those 150 billion pieces of clothing annually requires an enormous amount of electricity, and due to the fact that manufacturing is now located in developing countries, this enormous amount of electricity is coal based.¹⁰ It is commonly known that coal is not a sustainable source of energy, however, the reason why it has such harsh impacts on the environment is due to the fact that coal combustion releases greenhouse gases, such as carbon dioxide and nitrous oxide, into the atmosphere. This increases levels of said gasses, which trap heat, and contribute to global climate change. In addition to the

3 "There Is A Major Climate Issue Hiding In Your Closet: Fast Fashion," *Fashion Company*, published November 11, 2016, accessed November 20, 2020. <https://www.fastcompany.com/3065532/there-is-a-major-climate-issue-hiding-in-your-closet-fast-fashion>

4 Ibid

5 "What's wrong with the fashion industry?," *Sustain Your Style*, Accessed November 20, 2020, <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

6 "Bauer vows to replace hockey sticks after lead-paint recall," *Toronto Star*, published March 18, 2020, https://www.thestar.com/life/parent/2010/03/18/bauer_vows_to_replace_hockey_sticks_after_leadpaint_recall.html

7 "How Fast Fashion Is Slowly Killing The Environment," *Enji Studio*, published July 26, 2017, <https://enjistudiojewelry.com/blog-64/2017/7/26/how-fast-fashion-is-slowly-killing-the-environment#:~:text=According%20to%20NPR%20%E2%80%9CThe%20top,bought%2C%20the%20bigger%20the%20waste>

8 "What Happens When Fashion Becomes Fast, Disposable And Cheap?," *NRP.org*, published April 10, 2016, <https://www.npr.org/2016/04/08/473513620/what-happens-when-fashion-becomes-fast-disposable-and-cheap>

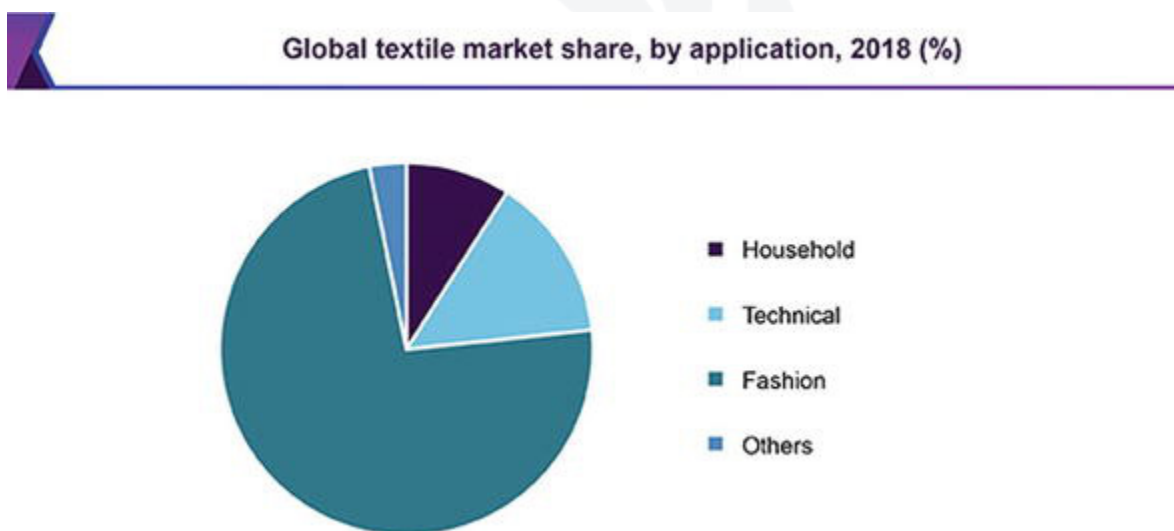
9 "There Is A Major Climate Issue Hiding In Your Closet: Fast Fashion," *Fashion Company*, published November 11, 2016, <https://www.fastcompany.com/3065532/there-is-a-major-climate-issue-hiding-in-your-closet-fast-fashion>

10Ibid

coal-rich production of clothing, retail companies emit thousands of untreated chemicals into water systems worldwide.¹¹ As a direct result, not only is the apparel industry alone responsible for 10% of all carbon emissions globally, but it is also ensuring that the majority of third world countries' water remains unfit for drinking due to industrial contamination.

The Production and Use of Textiles

Many fast fashion clothing companies are manufacturing their apparel with low quality and harmful textiles. The textile manufacturing process is largely required for the fashion industry in the global textile market. A large amount of demand for textile production by fashion companies accounts for more than 65% of the textile product market.¹²



<https://www.intechopen.com/books/textile-manufacturing-processes/introductory-chapter-textile-manufacturing-processes>

One main example is nylon. Nylon is most prominently used for the production of swimwear, activewear, and stocking. This means that there is continuous market demand for its production. Although nylon is common and extremely useful in our everyday lives; however, its negative environmental impacts are significant. It is a synthetic man-made fiber derived from petrochemicals which requires a lot of energy to manufacture and results in the release of nitrous oxide, a greenhouse gas that has a significant contribution to global warming.¹³ For perspective, the energy used to produce a kilogram of polyester nylon is around 130 MJ, but the energy used to produce a kilogram of linen is only around 10 MJ.¹⁴ Emissions from a single United Kingdom nylon plant in the 1990s were predicted to have a climate change impact equivalent to more than 3% of the United Kingdom's

¹¹ "What's wrong with the fashion industry?," *Sustain Your Style*, accessed November 20, 2020. <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

¹² "Introductory Chapter: Textile Manufacturing Processes," *IntechOpen*, published August 28, 2019, <https://www.intechopen.com/books/textile-manufacturing-processes/introductory-chapter-textile-manufacturing-processes>

¹³ "The Environmental Impacts of Nylon," *Tortoise and Lady Gray*, published February 1, 2016, <http://www.tortoiseandladygrey.com/2016/02/01/environmental-impacts-nylon/>

¹⁴ "The Fabric for Our Lives," *Nicholas School of the Environment*, published November 26, 2018, <https://blogs.nicholas.duke.edu/citizenscientist/the-fabric-for-our-lives/>

entire carbon dioxide emissions.¹⁵ Similarly, in 2007, a Chinese nylon power plant, Henan Shenma Nylon Chemical Company, which manufactures adipic acid, a key ingredient in nylon and polyurethane, emitted thousands of tons of nitrous oxide, a greenhouse gas nearly 300 times more potent than carbon dioxide in warming the planet.¹⁶ One can predict that these rates of greenhouse gas emissions have exponentially gone up in the current decade, especially in developing countries due to the fact that nylon production has been outsourced to these locations and that developing countries are responsible for a larger degree of carbon emissions.

In addition to greenhouse gas emissions, the production of nylon is also damaging to our oceans. Nylon creates water pollution through both the process of colouring and washing the fibers. During the production of nylon fabrics, nylon gets dyed using harsh chemicals, a process that creates significant water pollution.¹⁷ Textile dyeing is the world's second-largest polluter of water, after industrial waste. The leftover water mixed with the harsh dyeing chemicals, such as acids, sulfurs, and aromatic amines, often get dumped into ditches, streams, or rivers, harsh chemicals. Consequently, the fashion industry is responsible for 20% of all industrial water pollution worldwide.¹⁸ With higher nylon production in countries with weaker environmental protections and regulations in place, water insecurity in the developing world becomes a reality. However, the environmental damage does not end as soon as the product is shipped out for sale. When consumers wash their synthetic apparel, about 1,900 individual microfibers are released into the water, making their way into the ocean.¹⁹ Furthermore, small aquatic organisms ingest these microfibers, thus when they are eaten by bigger fish, there is an introduction of plastic in our food chain. Nylon is not biodegradable; therefore, it will negatively persist in the environment indefinitely and that its impact in the aquatic environment is damaging. Bioaccumulation and biomagnification are one of the most environmentally damaging occurrences that happen to aquatic life as a result of textile production and waste. Bioaccumulation is the gradual accumulation of substances, such as pesticides or other chemicals, in an organism. Biomagnification is concentration of a toxin, such as pesticides or chemicals, in the tissues of organisms that continue up the food chain. Aquatic organisms absorb the textile pollutants directly from the seawater and accumulate them in their bodies over time. The toxins build up in their tissues because they are absorbed from the water at a rate faster than they can be metabolized. Biomagnification can continue and become more concentrated as they make their way up the food web or chain, thus the apex predators are at risk of potentially fatal levels of textile toxins in their bodies.²⁰

15 "The Environmental Impacts of Nylon," *Tortoise and Lady Gray*, published February 1, 2016, <http://www.tortoiseandladygrey.com/2016/02/01/environmental-impacts-nylon/>

16 "'Super-Pollutant' Emitted by 11 Chinese Chemical Plants Could Equal a Climate Catastrophe," *InsideClimate News*, published August 6, 2020, <https://insideclimatenews.org/news/04082020/china-n2o-super-pollutant-nylon-emissions-climate-change>

17 "The Environmental Impacts of Nylon," *Tortoise and Lady Gray*, published February 1, 2016, <http://www.tortoiseandladygrey.com/2016/02/01/environmental-impacts-nylon/>

18 "These facts show how unsustainable the fashion industry is," *World Economic Forum*, published January 31, 2020, <https://www.weforum.org/agenda/2020/01/fashion-industry-carbon-unsustainable-environment-pollution/#:~:text=Fashion%20causes%20water%2Dpollution%20problems,causes%20lots%20of%20water%2-Opollution>

19 "What's wrong with the fashion industry?," *Sustain Your Style*, accessed November 20, 2020, <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

20 "Bioaccumulation and Biomagnification: Increasingly Concentrated Problems," *Catalina Island Marine Institute*, accessed December 4, 2020, <https://cimioutdoored.org/bioaccumulation-and-biomagnification-increasingly-concentrated-problems/>

Another major textile used in the fashion industry is polyester. Polyester is cheap and versatile, and for that reason it has become extremely present in fashion. A large majority of polyester on the market today is very poor quality and is used by manufacturers due to it being a cheap alternative to natural fibers. For this reason, it is in big demand for fast fashion, as it will only last a few wears. Polyester is a synthetic petroleum-based fiber, nearly needing 70 million barrels of oil for its production every year, and therefore is made from a carbon-intensive non-renewable source.²¹ Since polyester is not biodegradable, it will persist in the ecosystem even if it eventually breaks apart, which in turn has negative effects to the environment, such as water pollution, bioaccumulation, biomagnification, and pollution. Just like nylon, polyester has significant potential to cause water insecurity and increase greenhouse gas emissions. In addition to terrible environmental effects, the production of polyester also possesses social complications. Its production uses extremely harmful and toxic chemicals, predominantly carcinogens, thus many workers are exposed to life threatening environments.²² Employees usually work with no ventilation, breathing in toxic substances, inhaling fiber dust or blasted sand in unsafe buildings. In 2009, Turkey banned sand blasting in denim factories as nearly 5000 employees were becoming very ill. Abdülhalim Demir, a denim worker in a Turkish factory, lost 46% of his lung capacity due to a now-banned sandblasting practice.²³

The obvious solution to the environmentally damaging production and use of textiles is for consumers to switch to natural or semi-synthetic fibers for their clothing. However, this is not a possibility for most, as apparel made from nylon or polyester, for example, may be the only clothing within their financial reach. Currently the NRDC is implementing an initiative to cut down the massive carbon footprint of textile manufacturers. NRDC's Clean by Design initiative works alongside major apparel retailers and brands by using their buying power as leverage to clean up factories in their supply chain.²⁴ They are encouraging factories and implementing simple ways to reduce pollution and cut water, chemical, and energy use while saving money.

Scraps and Waste

Clothing and apparel have clearly become disposable to the average consumer. As a result, the fashion industry generates more and more textile waste with every coming year. Statistically, a family in the western world throws away an average of 30 kg of clothing each year, only 15% of it is recycled or donated and the rest going directly into landfills or incinerated.²⁵ As previously mentioned, synthetic fibers and textiles, such as nylon, are plastic productions, therefore are non-biodegradable and can take up to 200 years to decompose. These synthetic fibers are used in 72% of our clothing.²⁶ This means that the remaining 85% of clothing that ends up in landfills will never break down and will leave damaging impacts on the environment. The apparel that ends up in landfills contain textiles that pollute groundwater, destroy air quality when incinerated, and contribute

21 "The Environmental Impacts of Nylon," *Tortoise and Lady Gray*, published February 1, 2016, <http://www.tortoiseandladygrey.com/2016/02/01/environmental-impacts-nylon/>

22 "Sandblasting tragedies inspire Turkish worker to make 'cleaner' jeans," *Daily Sabah*, published February 17, 2020, <https://www.dailysabah.com/turkey/2020/02/17/sandblasting-tragedies-inspire-turkish-worker-to-make-cleaner-jeans>

23 "The Environmental Impacts of Nylon," *Tortoise and Lady Gray*, published February 1, 2016, <http://www.tortoiseandladygrey.com/2016/02/01/environmental-impacts-nylon/>

24 "Encourage Textile Manufacturers to Reduce Pollution," NRDC.org, accessed November 20, 2020, <https://www.nrdc.org/issues/encourage-textile-manufacturers-reduce-pollution#:~:text=Textile%20mills%20generate%20one%2Dfifth,them%20carcinogenic%2C%20to%20make%20clothes.&text=Each%20mill%20in%20the%202014,of%20chemicals%20from%20their%20processes>

25 "What's wrong with the fashion industry?," *Sustain Your Style*, accessed November 20, 2020. <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

26 Ibid.

to high levels of methane being released as they slowly decompose.²⁷ This is a severe problem as the United States Environmental Protection Agency estimated that in 2017, about 17 million ton of textiles were created in the country alone and more than 11 million tons were deposited in landfills. Only about 2.6 million tons were recycled.²⁸

Fortunately, there are many solutions that are currently being acted on, such as creating fashion from scraps. A New York based fashion company, Zero Waste Daniel, creates clothing from bits and bolts of leftover cloth with the importance of the using, reusing, and recycling.²⁹ Not only has Zero Waste Daniel targeted the problem of fashion waste by creatively producing new apparel from old apparel, the company has also inspired many fashion lovers to be more sustainable with their purchasing. Zero Waste Daniel has inspired consumers to reach for alternative solutions instead of opting to purchase from fast fashion retailers. Due to sustainable and creative companies like Zero Waste Daniel, another common solution to target fashion waste and scraps has become thrift shopping and upcycling clothing. Many consumers are switching to shopping second hand as opposed to traditional retail stores for the purpose of environmental sustainability. Sustainable fashion can mean upcycling fabric into new apparel in order for them to last and not be discarded for the next fast-fashion trend. Upcycling is definitely a sustainable solution because it ensures that textiles remain out of landfills or incardinated and does not require the production of new textiles.³⁰ Upcycling has recently reached popularity-currently about 44.1% of the United States of America population upcycles.³¹ This is a significant amount of people that are taking the opportunity to save the environment in a creative way, which in turn makes upcycling a very MEDC procedure. Ultimately, consumers who are concerned about what their fashion purchases are doing to the planet and people are discovering that they have to take matters into their own hands through thrifting and upcycling.

However, it is not only consumers who are making progress in their sustainability. A power plant in Sweden is burning H&M clothing instead of coal. This waste-to-energy power plant, operated by Malarenergi, acts as a disincentive to develop more sustainable waste reduction strategies.³² Sweden prides itself on an almost entirely emission free-power system thanks to its hydro, nuclear and wind plants. Therefore, this power plant came to this idea in order to eliminate the use of fossil fuels by 2020. H&M only provided the power plant with clothing that was unsafe to wear and sell, meaning not a significantly large fraction of apparel was given for power production. According to Bloomberg, in 2017, the plant burned about 15 tons of discarded clothing from H&M, making it a minuscule percentage of the 400,000 tons of trash the power plant had burned as well for power.³³ While Sweden is a leader in eliminating the use of fossil fuels, and this power plant has a

27 "'Fast Fashion': environmental impacts and what you can do as a consumer," *Global News*, published December 20, 2018, <https://globalnews.ca/news/4774400/fast-fashion-environmental-impacts-tips-consumers/#:~:text=Well%2C%20what%20about%20textile%20waste,released%20as%20they%20slowly%20decompose>

28 "What's wrong with the fashion industry?," *Sustain Your Style*, accessed November 20, 2020. <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

29 "Scrap by scrap, New York designer creates fashion from waste," *Reuters*, published February 6, 2020, <https://www.reuters.com/article/usa-climate-fashion/scrap-by-scrap-new-york-designer-creates-fashion-from-waste-idUSL1N29Y28J>

30 Ibid

31 "Ei Upcycling," *Weebly*, accessed December 4, 2020, <https://eiupcycling.weebly.com/graphs.html#:~:text=This%20graph%20shows%20how%20many,way%2C%20whether%20creative%20or%20not>

32 "In Sweden, They Are Burning H&M Clothing Instead of Coal," *Tree Hugger*, published October 11, 2018, <https://www.treehugger.com/sweden-they-are-burning-hm-clothing-instead-coal-4855614>.

33 "A Swedish power plant is burning discarded H&M clothes for fuel," *Quartz*, published November 25, 2017, <https://qz.com/1138035/a-swedish-power-plant-is-burning-discarded-hm-clothes-for-fuel/>.

positive influence on other power plants, the fast fashion cycle encouraged by brands such as H&M is far from sustainable, as 15 tons of discarded clothing from a single warehouse would indicate.

Green Washed Branding

Green washing is an attempt by companies to appear more green, sustainable, and ethical in order to distract people from the everyday reality of what is not being done. Primarily, green washing is used in order for companies to put forward what they deem to be a positive public relation move, all while actually putting in no beneficial change to their environmental effects.³⁴ Many companies, such as Lululemon, H&M, and Uniqlo, greenwash to pretend that they are addressing an issue, while in reality, they are just looking to silence environmental critics.³⁵ The figure below shows an H&M advertisement that is marketed to please the consumers 'environmental conscious'. All in all, this greenwashing campaign, just like many others, was created for the sole reason of luring well-intentioned consumers into feeling virtuous while making no improvements to the environmental problems. Ultimately, it has been emphasized that a brand's commitment to sustainability is targeted more for consumer perception rather than a genuine desire to be environmentally friendly.



<https://www.notjustalabel.com/editorial/sustainable-fashion-and-social-norms-part-3-greenwashing>

Greenwashing exists because there is a lot that companies must do in order to be considered 'green', eco-friendly, gain a competitive advantage, and to avoid spending money on areas which do not require

34 "Greenwashing Is Real—Here's How to Avoid It," Clever, published May 7, 2020, <https://www.architecturaldigest.com/story/greenwashing-and-sustainable-brands>

35 Ibid.

important attention and radical change in the perspective of the company.³⁶ In general, greenwashing is an extremely unethical practice used by companies and the apparel industry to make more money and profit, influence outcomes, and solicit consumer trust. Many brands greenwash their image by leaving sustainability and ethicality in the hands of the consumer. For instance, one major greenwashing ploy is the use of recyclable packaging, which is only eco-friendly if the consumer chooses to properly recycle, which is only approximately 32.1% of the global population.³⁷

Green washing is minimally regulated, but it falls under the Green Guides of the Federal Trade Commission (FTC), which monitors truth in advertising.³⁸ The FTC determined that providing guidelines for environmental marketing would be an effective approach to prohibit deceptive acts or practices of greenwashing. However, although there are guidelines being enforced in order to monitor and prohibit greenwashing, companies are still persisting. This is due to the fact that many companies are now working to engage customers in their sustainability efforts, despite the fact that their core business model remains environmentally unsustainable. However, although these regulations are made in place, deciphering whether a brand is truly making changes to negatively impact the environment as little as possible is mostly up to the consumer. The United Nations has been working on initiatives with the NRDC to prevent greenwashing, mostly by educating consumers on how to detect greenwashing companies.³⁹ In addition, in July of 2018, the United Nations High-level Political Forum discussed the potential for a UN Alliance on Sustainable Development, and the potential methods that the clothing industry as a whole can work towards meeting UN sustainable development goals.⁴⁰ One of the sustainable development goals that was set by the United Nations was inability for clothing companies to greenwash their brand.

Environmental Activism

As mentioned previously, the fast fashion industry is responsible for 10% of all carbon emissions globally. One main reason for this is the convenient outsourcing of production to developing countries where there are low labor standards and little to no environmental regulations. Due to this, the use of coal, the dirtiest and cheapest form of energy, can be used. In addition to this, the production of textiles for these pieces of clothing, such as nylon and polyester, leave significant damage to the environment, water, and aquatic wildlife. Alongside textile production, harsh chemicals are added to dye and bleach fabrics. This heavy use of chemicals in cotton farming and textile production causes diseases and premature deaths amongst farmers and workers.⁴¹ Cotton accounts for just 2.4% of the world's cultivated land but uses 6% of the world's pesticides and 16% of its

36 "Is your favorite fashion brand greenwashing? Use this checklist to find out," *Fast Company*, published May 22, 2019, <https://www.fastcompany.com/90352401/is-your-favorite-fashion-brand-greenwashing-use-this-checklist-to-find-out>

37 "What Is Greenwashing?," *Ethical Brand Directory*, published August 20, 2016, <https://ethicalbranddirectory.com/what-is-greenwashing/>

38 Ibid.

39 "Rio+20 Voluntary Commitments: delivering promises on sustainable development?," *United Nations Conference on Sustainable Development*, published August 2012, <https://sustainabledevelopment.un.org/content/documents/1649iddri.pdf>

40 "Sustainable Fashion and Social Norms Part 3: Greenwashing," *Not Just a Label*, published April 5, 2019, <https://www.notjustalabel.com/editorial/sustainable-fashion-and-social-norms-part-3-greenwashing>

41 "The fashion industry is the second largest polluter in the world," *Sustain Your Style*, accessed November 20, 2020, <https://www.sustainyourstyle.org/old-environmental-impacts>

insecticide.⁴² India is the world's leading producer of cotton, and every year a large number of the countries 5.8 million cotton farmers are poisoned by their exposure to pesticides and chemicals.⁴³ Furthermore, fast fashion is also helping with soil degradation. Soil degradation is the decline in the soil quality and condition resulting in a diminished capacity of the ecosystem to provide goods and services, such as growing crops. The degradation of soil is a serious environmental problem, as soils are a fundamental natural resource, and are the basis for all terrestrial life. Although the soil is a fundamental element of the world's ecosystems and its degradation must be avoided, the fashion industry plays a major role in its degradation through the massive use of chemicals and deforestation caused by wood-based fibers like rayon.⁴⁴ This loss of forests is not only threatening to the ecosystems, but it also threatens indigenous communities, such as in Indonesia where large-scale rainforest deforestation has taken place over the past decade.⁴⁵

Impacts of fast fashion

26.7kg

UK consumption of new clothing per head
(highest in Europe)

235m items of clothing sent to landfill last
year

700,000 fibres released in a single
domestic wash

1.2bn tonnes of carbon emissions
produced by global fashion industry (2015)

3,781 litres of water used in full lifetime of a
pair of Levi's 501 jeans

Enviro Audit Committee submissions



<https://www.bbc.com/news/science-environment-45745242>

The solution seems simple: recycle. However, in 2012, 84% of unwanted clothes in the United States went into either a landfill or an incinerator.⁴⁶ Thus, the switch to sustainability when it comes to fast fashion is a difficult one. In fact, leading clothing brands in fast fashion believe that damaged clothes do not deserve to be fixed or recycled, but rather be incinerated because recycling would be too expensive and time-consuming.⁴⁷

42 "The Casualties of Cotton," *Environmental Justice Foundation*, accessed December 4, 2020. <https://ejfoundation.org/news-media/the-casualties-of-cotton>

43 Ibid.

44 "The fashion industry is the second largest polluter in the world," *Sustain Your Style*, accessed November 20, 2020, <https://www.sustainyourstyle.org/old-environmental-impacts>

45 Ibid.

46 Ibid

47 Ibid

However, there is still a small portion of retail environmental activism being done. As previously mentioned, H&M gives their products to be burned to the Swedish power plant to reduce the use of coal. In addition, while H&M promotes fast fashion, the brand also promotes wardrobe recycling for environmental benefits. In 2013, they launched a garment collecting initiative worldwide, where they allow customers to drop off their unwanted apparel- no matter the brand or condition- in all H&M stores internationally.⁴⁸ This initiative has been successful in many participating locations and inspired some consumers to be more cautious with how and where they get rid of their unwanted wardrobe. This initiative resulted in less clothing and garments that end up in landfills, thus minimizing the brands ecological footprint. However, the initiative does not completely put an end to the brand's massive carbon footprint, as the campaign encourages millions of consumers to buy more products to adopt new trends.

Although environmental activism done by brands is not too significant, consumer environmental activism is much more prominent. Consumers are starting to recycle everything that can possibly be recycled in order to minimize the impact fast fashion has on the environment. Instead of following the quick coming trends of the fast fashion world, consumers are following the 'reduce, reuse, recycle' lifestyle in order to reduce the amount of clothing waste that is going into landfills. The stigma of wearing second-hand clothing is shifting, as consumers are increasingly aware of the conditions in which fast fashion apparel is manufactured. One non-profit global movement is taking charge and calling out big brands and companies for the awful conditions in which their clothes are produced. Fashion Revolution raises awareness of the exploitation of supply chain workers and the negative environmental impacts of outsourcing in order to persuade consumers to shop more ethically and sustainably. Consumers are also starting to say no to fast fashion and environmentally unsustainable clothing companies in order to make demands to these businesses for change. Finally, consumers are turning their attention to the unlimited amount of fast fashion that can be purchased second hand, through apps like Depop that allow private owners to sell clothing.⁴⁹ This way, consumers are finding ways to stay on top of new clothing trends while being environmentally friendly.

Globalisation

The early fashion houses and brands were specifically designed to showcase and appeal to the rich and powerful upper class. However, as the social and economic lines between the upper and the lower class began to blur, so did the target audience of fashion. During the last few decades, major fashion houses and brands began to recognize the changing demographics and began to design ready-to-wear collections in standardized sizes and produced in mass quantities to be sold at department stores.⁵⁰ Many of these garments were still quite expensive but still cheaper than the custom-made haute couture of the past.

In the 1980s, the fashion industry saw the rise of globalization.⁵¹ For the first time ever, consumers were introduced to cyber technology, transnational corporations, and electronic mass media. These three core innovations fundamentally changed how fashion was produced, marketed, sold, bought, worn, and discarded. This was mainly done through the influence of celebrities and stars who started trends that were easily accessed

48 Ibid

49 "Vogue gone rogue: Activists fighting fast fashion as a way to combat climate change," *Capital Current*, accessed November 20, 2020. <https://capitalcurrent.ca/vogue-gone-rogue-activists-fighting-fast-fashion-as-a-way-to-combat-climate-change/>

50 "Glenn Schlossberg: The Effect of Globalization on Fast Fashion," *Medium.com*, published September 24, 2019, <https://medium.com/@glennschlossberg/glenn-schlossberg-the-effect-of-globalization-on-fast-fashion-16bebbb5f80>

51 Ibid

and viewed by everyone through the convenience of technology and the start of social media. In response, the globalization of fashion opened an untapped market that fed on the massive demands for trendy clothing, and traditional fashion houses and department stores were struggling to keep up. Fast fashion thrives due to its inexpensive manufacturing, which in turn keeps production costs down and allows retailers to sell trending pieces quickly and affordably. Therefore, with this process, almost anyone can afford to wear the latest trends. Ultimately, as trends continuously change, the consumer's ability to update their existing wardrobe changes with it. At the end, the cycle repeats itself. This has damaging contributions to the environment, because as the demand for fast fashion is always increasing, the production and manufacturing of textiles will increase, increasing greenhouse gas emissions and water insecurity, eventually leading to environmental damage, such as climate change, deforestation, and harm to aquatic wildlife.

It is evident that the globalization of fast fashion has transformed the industry. Globalization allows global markets and cultures to influence local markets and cultures, as well as provide low-cost labor. Fast fashion allows for the optimization of a supply chain, as it is becoming faster, cheaper, and even more readily available. The increasing influence of globalization has directly impacted the fashion industry, and many insiders attribute the fashion industry as being the most significant effect of globalization.

Conclusion

In the recent decade since the fast fashion business era became the norm for fashion brands and their consumers, the increase of demands for large amounts of inexpensive and 'trendy' clothing has resulted in major environmental and societal degradation. The massive environmental effects that are directly caused by the fast fashion industry have been reflected for a long period of time and the effects will only get worse with every coming year. The numerous negative environmental effects include soil degradation, air pollution, greenhouse gas emissions, climate change, and water pollution. The negative societal impacts, such as poor working conditions, child labor, being exposed to harmful chemicals and toxins, and water insecurity, all have damaging impacts on communities, especially to those of developing countries where work is outsourced. In order to create successful resolutions, delegates are encouraged to tackle both environmental and societal concerns. The United Nations Environment Programme urges delegates to find solutions or alternatives to the harmful activities of the fashion industry, such as greenwashing, outsourcing to developing countries, and the production of nylon and other harmful textile. Delegates should also come up with ideas on how consumers must change their purchasing habits, and how to shop sustainably. In addition, delegates are encouraged to come up with ideas on how to decrease the carbon footprint and greenhouse gas emissions of the fast fashion industry within the next two decades. The impactful damages that this unsustainable industry has created cannot be reversed, but the United Nations Environment Programme is aiming for delegates to create resolutions that will ultimately eliminate any potential future environmental degradation.

Questions to Consider

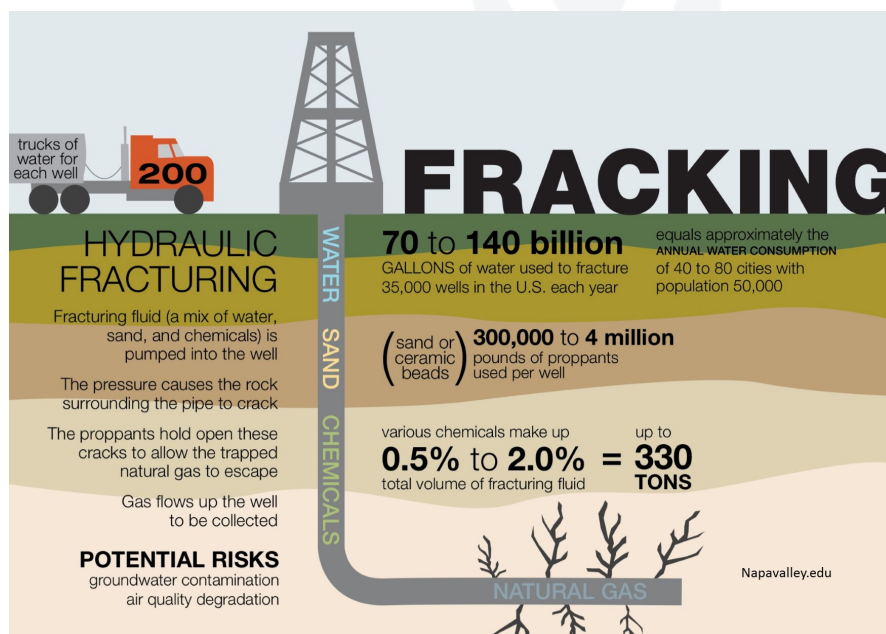
1. What are the massive impacts that textile production has on an environmental level and on a personal/social level?
2. What are the economic drivers behind fashion and its trends? How has the media played a role in its rapid growth, demand, and globalization?
3. What are some possible solutions for better fast fashion sustainability that can be accessible to most people globally?
4. How has the fast fashion industry created water insecurity, water pollution, and damaged aquatic wildlife?

Topic B: Environmental Detriments of Fracking

Introduction

Originally, hydraulic fracturing also referred to as shale gas development and commonly termed “fracking” is an oil and natural gas extraction technique. The process involves a mixture of chemicals, water, and sand being drilled into Earth’s rock at a high pressure to cause fissures within the rock, enabling natural gas that had previously been inaccessible with older extraction methods to flow out.

At first, fracking was a step forward towards cleaner energy, releasing about half the amount of CO₂ emissions compared to coal when generating electricity, simultaneously providing monetary incentives towards the transition away from coal, as a cheap technique to natural gas extraction. In addition to being a key stepping stone transitioning away from coal, the process has stimulated oil production, lowering the price of gas and offering financial security for many countries.⁵² Drilling an estimate of 35, 000 new wells every year, the fracking industry has drilled over 1.2 million wells worldwide in 2012⁵³.



<https://ukinvestormagazine.co.uk/should-i-invest-in-fracking/fracking/>

52 “What is Fracking and Why is it Controversial?” BBC News, Oct 15, 2018, <https://www.bbc.com/news/uk-14432401#:~:text=Fracking%20is%20the%20process%20of,the%20head%20of%20the%20well>

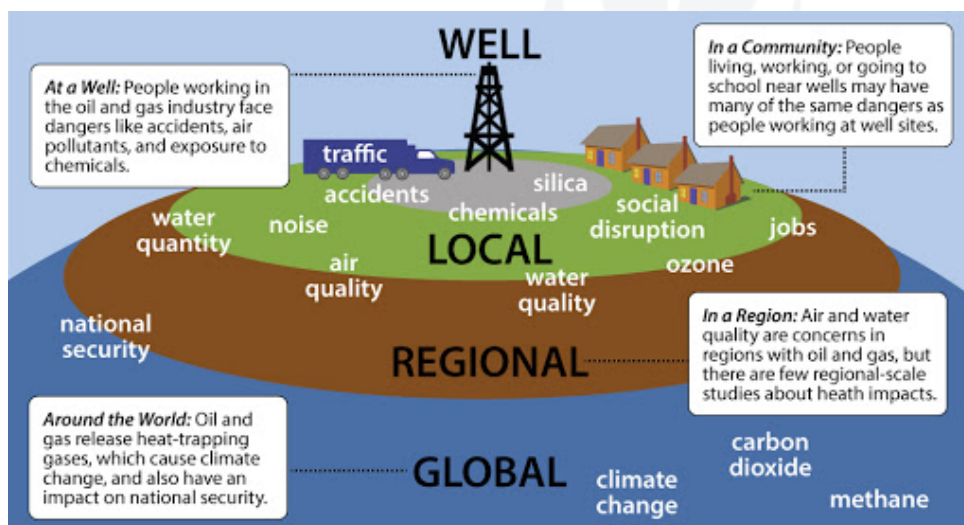
53 Jeff Goodell, “The Big Fracking Bubble: The Scam behind Aubrey McClendon’s Gas Boom”. Rolling Stone. March 15, 2012, <https://www.rollingstone.com/politics/politics-news/the-big-fracking-bubble-the-scam-behind-aubrey-mcclendons-gas-boom-231551/>

While there may be significant economic gain from the process, there exists enormous detriments to civilian health and security as well as the environment through resource contamination and carbon emissions, impacting those most marginalized within our society, while also now acting as a burden on the progression of climate change as low cost deters the movement away from renewable energy. There is no doubt that there are huge consequences with allowing fracking to continue which would fail to address the health and environmental consequences while banning fracking as a whole would be detrimental to many economies. This tension in balancing the environment and our health with economic prosperity is a considerable challenge that is central to our future as a sustainable global force.

Impacts on Climate Change

In the process of extracting natural gas from the ground, there can be inevitable leakage. Seeing as natural gas constitutes 80% methane, a harmful greenhouse gas that does not remain in the atmosphere as long as CO₂ but will trap heat 84 times more effectively, fracking presents a clear detriment for atmospheric health and global warming as a whole.⁵⁴ In fact, 25% of our current status of global warming can be connected back to methane.⁵⁵ In nearly every part of the process in fracking, methane leaks or flares (burning of methane) are expected and this is a concern for activists against the drilling technique. In combating global warming, preventing methane pollution is logically the most efficient and expeditious solution to slowing down the rate of global warming.

Through global warming, we have witnessed annual wildfires, long periods of droughts, fierce storms, and dramatic floods. These are a few examples that showcase how alarming the consequences of global warming are and how limited we are in time to work to prevent further irreversible damage. Perhaps it is time to make considerable changes to our lifestyles and environmental policies before the ramifications of global warming force us to make drastic changes in the future.



<http://insideenergy.org/2017/09/18/ie-questions-is-fracking-dangerous/>

⁵⁴ David Roberts, "Fracking May be a Bigger Climate Problem than we Thought" Vox, August 29, 2019, <https://www.vox.com/energy-and-environment/2019/8/15/20805136/climate-change-fracking-methane-emissions>

⁵⁵ Ibid.

Another element to global warming is its disproportionate effects, afflicting terrible consequences of carbon emissions on developing countries which severely forestall their development and ability to achieve the UN's Sustainable Development Goals (SDG) already hampered by other factors.⁵⁶ Simultaneously plagued by issues such as food insecurity or extreme poverty, undeveloped countries unfairly face the most destructive consequences of pollution induced by the heavy carbon emissions of wealthy and developed countries.

In accordance with the 13th goal of the SDG which emphasizes the urgency in needing to combat climate change, limiting greenhouse gas emissions is not discretionary but an obligatory course the global community must take upon as the consequences become more extreme and affect more individuals drastically.⁵⁷ With the Paris Agreement and the signatories' commitment to more sustainable energy sources, the world is aimed at bringing global temperature rises below 2 degrees Celsius and SDG 13 particularly encourages a target of decreasing it down to 1.5 degrees Celsius. The Intergovernmental Panel on Climate Change (IPCC), a body of the UN that creates reports and policy recommendations from scientific analysis on climate change, has emphasized the importance of committing to the goals of the Paris Agreement by 2030 in order to prevent "permanent and catastrophic environmental damage".⁵⁸

Additionally, Achim Steiner, head of UNEP, asserts that our switch from coal replaced by a significant dependency on natural gas only defers our ultimate goal towards renewable fuels and energy sources. By developing an economic dependency on an unsustainable and highly polluting source of energy, which fracking is the primary medium to extracting these resources, we fail to recognize that natural gas should not be a permanent solution from coal, but rather a brief transitional period towards more sustainable practices. This transitional period is currently ongoing while climate change policies are becoming much more urgently needed with the environmental consequences of the world's overreliance upon fracking.

Civilian Health and Security

Contamination and Overconsumption of Water

In addition to contributing to harmful carbon emissions, fracking poses another threat to the environment and more pertinently to civilian health by the contamination of groundwater and potable water and the overconsumption of water sources in its process.

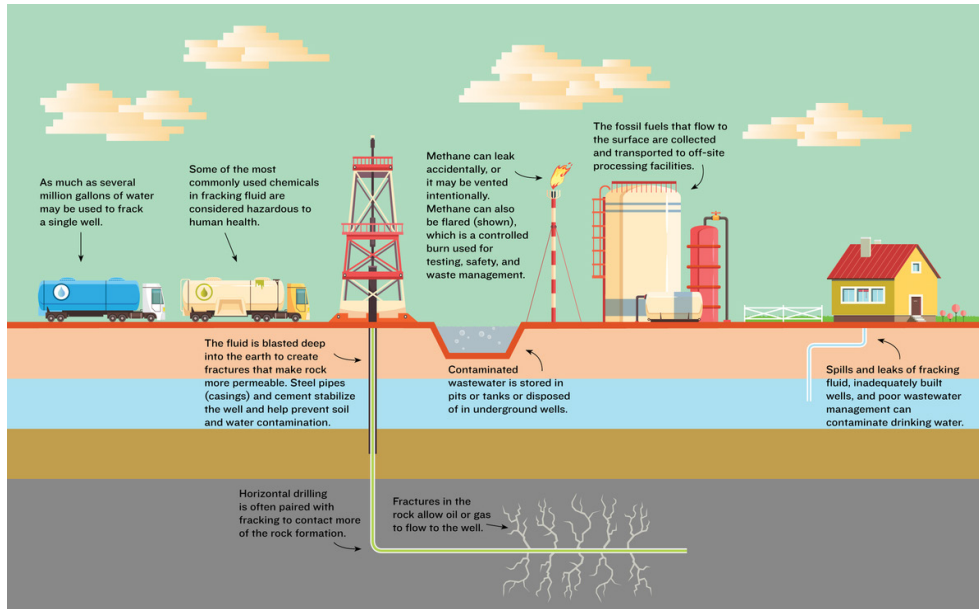
What is injected into the Earth during the drilling technique is called 'frack fluid' which contains a variety of toxic chemical compounds that can contaminate a variety of water sources, including groundwater, potable water, and natural bodies of water, in its initial transportation and drilling process. This not only poses a threat to polluting local water wells, the only source of potable water for some communities, but additionally if improperly disposed into rivers or other bodies of water, contaminates a community's water source in this aspect as well.⁵⁹

56 "Unprecedented Impacts of Climate Change Disproportionately Burdening Developing Countries" *United Nations Meetings Coverage and Press Releases*, published Oct 8, 2019, <https://www.un.org/press/en/2019/gaef3516.doc.htm>

57 Goal 13: Take Urgent Action to Combat Climate Change and its Impacts: Sustainable Development Goals (United Nations) <https://www.un.org/sustainabledevelopment/climate-change/>

58 *Impacts of 1.5°C global warming on natural and human systems*, in: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, (IPCC: 2018), Accessed Nov 8, 2020

59 "Fracking's Environmental Impacts: Water," *GreenPeace*, Accessed Nov 8 2020, <https://www.greenpeace.org/usa/global-warming/issues/fracking/environmental-impacts-water/>



<https://www.nrdc.org/stories/fracking-101>

In addition, fracking requires an immense supply of water, which heavily depletes communities with little access to fresh water. Meanwhile, the process of storing such copious amounts of water presents another risk with their method of storage of fracking fluid of open pits which have been associated with adverse health effects. According to a study conducted by Oxford, the direct ramifications of fracking on civilian health can be as serious as “pregnancy and birth complications, migraine headaches, chronic rhinosinusitis, extreme fatigue, asthma exacerbations, and psychological/stress-related concerns”.⁶⁰ Meanwhile, the indirect impacts of fracking through expediting climate change has caused severe health concerns such as cancer and neurodegenerative diseases.⁶¹ Thus, fracking brings harmful consequences to civilian health in its carbon emissions during the process of gas extraction, improper disposal of fracking fluid, storage methods of large amounts of toxic fracking fluid, and its depletion of many water sources which overall repudiate goal 6 of the SDG, the basic access to clean water, and goal 3, the right to health and the priority of a state to promote civilian wellbeing.

Moreover, the vigorous pressure at which frack fluid is injected into the earth can stimulate tectonic motions, releasing accumulated tectonic energy to cause an earthquake.⁶² While not every instance of fracking has induced earthquakes, it can take time for pressure to accumulate enough to stimulate these movements and earthquakes may occur miles away from the initial injection sites, causing confusion on whether the Earthquake was caused by the fracking processes.

Overall, the harmful consequences of fracking breach various international human rights standards that the UN has deemed basic and intrinsic to every individual, namely the right to water, right to health, right to property, right to development and progress, right to healthy environment, and the right to life.

60 Irena Gorski & Brian S. Schwartz, “Environmental Health Concerns From Unconventional Natural Gas Development,” *Oxford Research Encyclopedia of Global Public Health*, published February 25, 2019.

61 Ibid.

62 Vanessa Greebe, “New Induced Seismicity Study: Fracking And Earthquakes in Western Canada,” *Government of Canada*, January 10 2019, <https://www.nrcan.gc.ca/simple-science/21672>



<https://www.greenpeace.org/usa/global-warming/issues/fracking/>

Indigenous Rights

Unfortunately, much like the unproportionate nature of consequences that fracking poses upon the environments of developed and undeveloped countries, the most marginalized communities are the most deprived of clean water due to fracking processes and pre-existing inequities to basic needs. There exists a substantial dispute between fracking corporations against Indigenous communities. It is often the case that Indigenous communities live in resource-rich regions which fracking corporations target for its potential in extracting abundant amounts of oil and natural gas. While there is a progressive movement towards acknowledging Indigenous rights and addressing the reverberating effects of colonial history, there seems to continually exist a complete disregard for Indigenous wellbeing with the fracking industry, leading to multiple protests and lawsuits. According to Article 19 of the United Nations Declaration on the Rights of Indigenous Peoples, “States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources”.⁶³

Indigenous communities disproportionately bear significant consequences of contaminated and depleted potable water sources as well as the direct health effects of fracking. Demonstrated by heavy protests across the world along with various lawsuits in response to the environmental and health detriments, there seems to lack any respectful consultation and discussion between the government, Indigenous communities, and fracking corporations as well as no consent to utilizing Indigenous land for practices they vehemently oppose. An Argentine Indigenous group, the Mapuche Confederation of Neuquén, located in the region of Patagonia filed a lawsuit against Exxon, French-owned and Argentina-based corporation, in 2018 to hold government officials and corporate executives accountable for water contamination, improper dumping of toxic wastes, and soil contamination.⁶⁴ The overstepping of fracking corporations on Indigenous voices and the government’s neglect in penalizing Indigenous rights violations is indicative of how much more momentum is required in Indigenous

63 United Nations. 2011. *United Nations Declaration on the Rights of Indigenous Peoples*.

64 Lorraine Chow, “Indigenous Groups Sues Exxon, Energy Majors over Fracking Waste Contamination in Patagonia,” *EcoWatch*, Dec 18, 2018, <https://www.ecowatch.com/argentina-fracking-indigenous-lawsuit-2623742584.html>

rights advocacy and in eliminating non-consensual colonial practices. According to multiple studies, there exists a positive correlation of an economic dependence upon natural resources and increased corruption in order to continue to control the use of this natural resource.⁶⁵



<https://www.ecowatch.com/argentina-fracking-indigenous-lawsuit-2623742584.html>

How exactly do corporations and governments determine how to access and who will benefit from their natural resources? The “Natural Resource Value Chain” describes the steps necessary to take from discovering a natural resource then putting it to use. There are variations to this value chain, however, the value chain for the government is as follows: First, the government will decide to extract a natural resource to reap its benefits. Then, the government must develop regulations, laws, and rules to who has access to extradition this resource and how it is distributed. Lastly, governments should be responsible for a certain extent of transparency to how the monetary or other benefits of this resource extradition is put to use and developing a sustainable goal for the resource.⁶⁶ While government value chains are intended to focus on civilian and state wellbeing, industries and their value chains are highly monetary focused on maximizing corporate profit. However, the overarching concern within both these value chains is often the lack of community consent, particularly sovereign Indigenous communities who have a right to being a part of the discussion. During the first step of the value chain in deciding whether or not to extract a natural resource is the time for which consent is required if the resource that the government wishes to extract is located on Indigenous land. Nonetheless, many governments have favoured economic growth, similar to corporations and their economically incentivized decisions, rather than pursuing civilian wellbeing and advocating for basic rights.

Trends in Environmental Activism and Social Justice

In response to the concerns of fracking, there have been countless demonstrations advocating against the practice for its detriments to our environment and health and for its violations of Indigenous rights. When

⁶⁵ Rabah Arezki, Markus Brückner, *Oil rents, corruption, and state stability: Evidence from panel data regressions* (European Economic Review: Volume 55, Issue 7), 2011, Pages 955-963

⁶⁶ “The Value Chain,” *Natural Resource Governance Institute*, Jan 1, 2010, <https://resourcegovernance.org/analysis-tools/publications/value-chain>

addressing the environmental concerns of fracking, there has been a spark in climate change activism that has captivated the world, advocating for governments to enforce more policies to address rapid climate change and imploring corporations to consider the environmental repercussions of their purely economically-incentivized actions. Recently, there are increasing waves of initiatives from young activists, voicing their concerns to world leaders through school walk-outs and large-scale climate change protests.

On the other hand, corporations and the government ignoring land disputes and allowing drilling on Indigenous land has caused public outcry with protests and even legal action. In Canada, fracking projects on the territories of Indigenous people in British Columbia and New Brunswick within Canada are being challenged on the basis of a lack of consent while environmental concerns also pose a big threat in the continuation of these projects. In Canada, consenting Indigenous people is not only necessary to adhere to international human rights law, UNDRIP, but inherent to the supreme law of the land in section 35 of the Constitution Act. Recognizing these rights and the history that land in New Brunswick and British Columbia were not surrendered by treaties makes for a solid case for Indigenous rights advocates with the circumstances of fracking. Yet, the matter is extremely contentious and an ongoing tension within Canada and many other countries in the world.



Yoland Flores, Aymara Indigenous Woman, Leading Protests in front of White House 2016

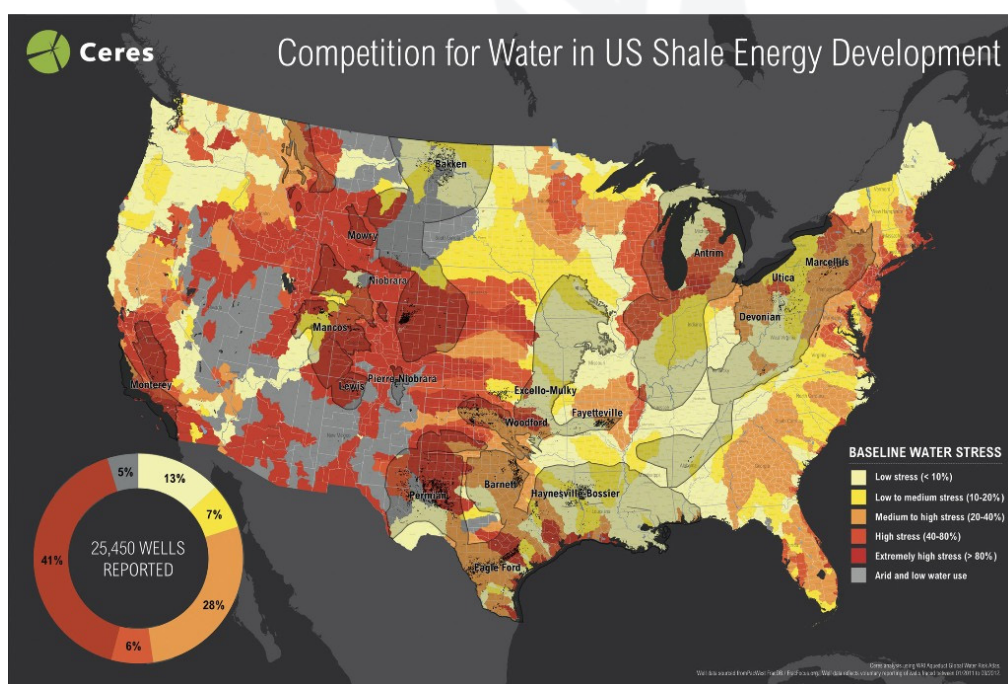
<https://maryknollogc.org/article/trade-indigenous-peoples-say-%E2%80%9Cwater-life%E2%80%9D>

Case Study: Fracking in America

While fracking is a major source of natural gas globally, it is a particularly massive player in the energy landscape in the United States that some benefit significantly in regards to finance while others suffer the burden of its consequences. In a span of 15 years, the number of natural gas wells made for fracking was a mere 26,000 in 2000 which grew over eleven times to 300,000 natural gas wells.

Fracking has become so pivotal to the American domestic economy that imposing a ban would leave 19 million unemployed and reduce their GDP by \$7.1 trillion over the span of 2021 and 2025 while natural gas prices would rise by 324% and household energy bills would quadruple.⁶⁷ Electricity is estimated to cost 31% more while motor fuel would cost 43% more.⁶⁸

Nonetheless, American communities suffer drastic consequences of fracking in various states. In Texas, over 3.6 million gallons of water is required for fracking and their susceptibility to droughts is a dangerous combination, which has often contaminated water sources and depleted local water sources, depriving citizens of the basic access to water and negatively affecting their health by being near so many fracking facilities.⁶⁹ This has created a problem for individual households as well as farming businesses and wildlife, since many animal deaths have been correlated to the open pits of toxic fracking fluid.



<https://www.circleofblue.org/2013/world/report-half-of-u-s-fracking-wells-are-drilled-in-highly-water-stressed-regions/>

A study conducted by Duke University which overlooked 60 fracking sites in New York and Pennsylvania concluded that there exists "systematic evidence for methane contamination" to drinking water.⁷⁰ It is clear that through an overarching understanding of fracking is a harmful process to the environment and civilian health;

67 "New Chamber Analysis Quantifies Economic Risks of Proposed Fracking Ban," *Global Energy Institute*, Dec 19, 2019, <https://www.globalenergyinstitute.org/new-chamber-analysis-quantifies-economic-risks-proposed-fracking-ban>

68 "The Stats on Fracking: Real Numbers of Hydraulic Fracturing," *Aardvark Packers*, Sept 4, 2019, <https://www.aardvarkpackers.com/fracking-stats/>

69 "Fracking's Environmental Impacts," *GreenPeace*.

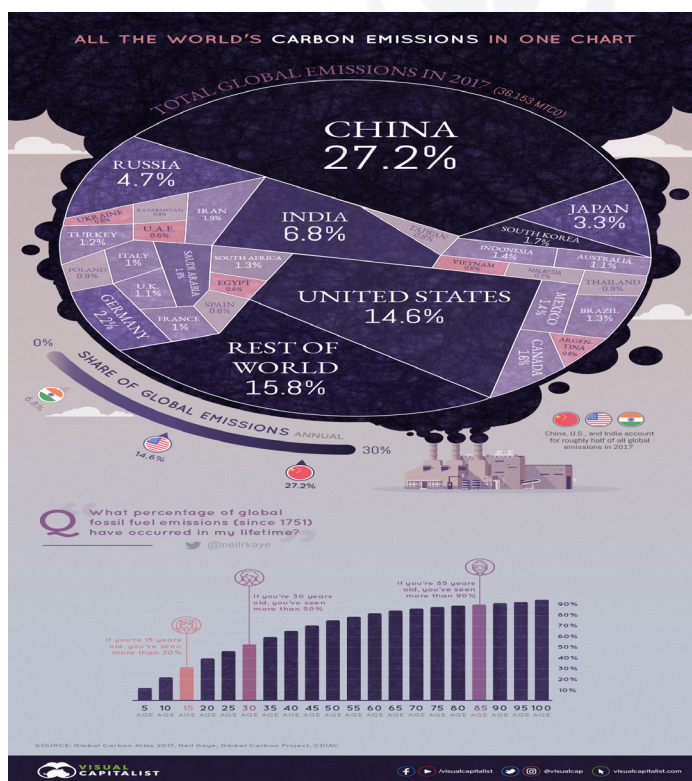
70 Stephen G Osborn, Avner Vengosh, Nathaniel R. Warner, & Robert B. Jackson, *Methane Contamination of Drinking Water Accompanying Gas-well Drilling and Hydraulic Fracturing*. Durham: Duke University, April 14, 2011.

however,

While statistics demonstrate a heavy reliance on fracking, banning might not be as impossible as one may assume. In 2014, the state of New York announced a fracking ban across the state for the harms on civilian health, specifically with water sources, considering the state held one of the largest natural gas reserves, Marcellus Shale.⁷¹

Current Global Situation and UN Response

Fracking is a commonly preferred energy extraction method to many countries, including but not limited to Russia, America, China, Argentina, and Algeria who have been particularly favourable to the technique and unsurprisingly so as some of the world's largest carbon polluters. Interestingly enough, in an interview earlier this year, Putin asserted his strong stance against fracking, stating how "terrible [it is] for the environment".⁷² Nonetheless, statistics contradict Putin's statement as Russia's largest natural gas company and oil producer, Gazprom Neft, is particularly fond of the practice. Having started drilling in the Bazhenov Basin, one of the world's largest sources for oil according to the International Energy Agency. A lack of transparency and environmental policies aimed at sustainable renewable energy sources may be a common pattern throughout the world's largest polluters.



71 "Governor Cuomo Announces Legislation to Make the Fracking Ban Permanent" New York State, Governor Andrew M Cuomo, Jan 22 2020, <https://www.governor.ny.gov/news/governor-cuomo-announces-legislation-make-fracking-ban-permanent-included-fy-2021-executive#:~:text=to%20Make...Governor%20Andrew%20M.,New%20York's%20fracking%20ban%20permanent.&text=%22In%20the%20five%20years%20since,option%20for%20the%20Southern%20Tier>

72 Kenneth Rapoza, "Putin: 'We'll Never Frack'" Forbes, Nov 20, 2019. <https://www.forbes.com/sites/kenrapoza/2019/11/20/putin-well-never-track/?sh=27d765553f01>

<https://www.visualcapitalist.com/all-the-worlds-carbon-emissions-in-one-chart/>

Nonetheless, there are many countries who have outright banned fracking. In 2011, President Sarkozy implemented a short-lived ban in France.⁷³ Following suit in 2012, Bulgaria became the second European country to ban fracking in recognition of the indisputable economic harms of the practice. In 2015, Scotland put a pause on the practice to determine its effects on civilian health as well as its environmental ramifications, to finalize a decision in 2019 that fracking was to be permanently banned for its incompatibility with their commitments to climate change policy.⁷⁴ On the other hand, Germany, known internationally for its progressive environmental policies have enforced a ban on “unconventional” fracking, essentially allowing much of the drilling to continue.⁷⁵ This demonstrates that even countries esteemed for their commitments towards sustainable energy struggle to fully eradicate fracking, considering its convenience and significant economic contributions.

There is undoubtedly an unhealthy reliance upon fracking that lends away from its purpose of being a transition towards renewable energy. In ensuring the SDG 12 of ensuring sustainable consumption and production patterns, many states fail to meet this goal in prioritizing the economic benefits of fracking over its significant repercussions and further interdependence through more investment.

Ultimately, the conflict of the economic benefits of and global overreliance on fracking versus the severe impacts on civilian health and safety, human rights, indigenous rights, and climate change require universal guidelines that consider and weigh the harms and benefits to a deeply established practice.

Questions to Consider

1. What policies should your country adopt understanding the benefits and consequences that fracking presents and in keeping up with the global standard of moving towards more renewable energy sources?
2. What policies could your country produce to balance the inequities that fracking presents to Indigenous communities as well as the conflicts in land jurisdiction with fracking corporations?
3. How can we encourage and incentivize the movement away from fracking to renewable sources of energy considering the high economic return of fracking yet its determinants on the environment?
4. How do we reconcile the economic reliance of many countries on fracking as the main element of economic stability while also recognizing the dire and urgent situation of climate change on the world?

⁷³ Kate Good, “These 4 Countries Have Banned Fracking... Why Can’t the US Get on Board?” *OneGreenPlanet*, 2014. <https://www.onegreenplanet.org/environment/countries-except-united-states-that-have-banned-fracking/>

⁷⁴ “Fracking Incompatible with Climate Policy” *Scottish Government*, Oct 3, 2019. <https://www.gov.scot/news/fracking-incompatible-with-climate-policy/#:~:text=%E2%80%9CThe%20Scottish%20Government’s%20final%20policy,%20fracking%20in%20Scotland.&text=%E2%80%9CFracking%20can%20only%20happen%20if,licences%20which%20would%20permit%20that.%E2%80%9D>

⁷⁵ “Fracking in Germany: Truly banned, allowed a little, or Even soon back in Vogue?” *Energy Transition: The Global Energiewende*, Jul 1 2020, <https://energytransition.org/2020/07/fracking-in-germany-truly-banned-allowed-a-little-or-even-soon-back-in-vogue/>

Topic C: Hazardous Waste Disposal

Introduction

In the modern era of globalization, our world has generated unprecedented amounts of waste - more than 2 billion tonnes in 2016 - and this trend is predicted to increase 70% by 2050 due to rapid industrialization, urbanization, and growth in populations.⁷⁶ Globalization is one of the biggest challenges for sustainable waste management as it drives rapid changes in technology and consumer demand. For example, the announcements of new models of iPhone and Samsung Galaxy may be exciting; however, as people are incentivized to buy newer models of smartphones, the quantity and speed of electronics discard has increased dramatically over the years. On average, consumers will trade or throw out their cellphones after two years.⁷⁷ It is important to remember that smartphones are not the only electronics that people consume: think about a wide range of devices from personal electronics including laptops, tablets, and gaming controllers to home appliances such as refrigerators, washing machines, and televisions. As more people are consuming electronic devices with the global population approaching 8 billion, safe management of electronics and other wastes such as chemical and nuclear waste becomes increasingly important.

In modern society, chemicals constitute an important part of our life as it is estimated that our society uses about 100,000 different chemicals.⁷⁸ Chemical substances can be found almost everywhere: in the food that we eat, the electronic devices that we use, and the medicines that we take. Without these substances, it is hard to imagine our everyday life. However, misuse, unsafe disposal, and accidental leaks of hazardous chemicals have the potential to seriously affect our health and the environment. In many developing countries, they lack proper management of chemicals and hazardous waste. For example, in Accra, Ghana, the city does not provide waste collection services or have its own solid waste disposal site, let alone chemical and hazardous waste sites.⁷⁹ With the rapid urbanization, growth in population, and globalization, chemical exposure is increasing in these countries. Thus, the United Nations, in collaboration with multiple nations, are developing national environmental governance frameworks such as the Bamako Convention to monitor the risks of chemical wastes and to respond effectively to its resulting environmental threats.

The United Nations and the international community are developing waste management frameworks for nuclear waste as well. Compared to other energy sources, nuclear energy has been efficient in producing massive amounts of electricity while creating very little waste and virtually no greenhouse gas emissions. This is because it generates power through nuclear fission or splitting of uranium atoms, releasing large amounts of heat and electricity compared to burning fossil fuels that produces harmful emissions.⁸⁰ To generate energy for more than a million people, only three cubic metres of

76 "Global Waste to Grow by 70 Percent by 2050 Unless Urgent Action is Taken: World Bank Report," *The World Bank*, September 20, 2018, <https://www.worldbank.org/en/news/press-release/2018/09/20/global-waste-to-grow-by-70-percent-by-2050-unless-urgent-action-is-taken-world-bank-report>.

77 "Wednesday: E-Waste," *Waste Reduction Week in Canada*, accessed November 28, 2020, <https://www.canada.com/en/2020-theme-days/wednesday-e-waste>.

78 "UNEP helps to manage chemical waste in Africa, Caribbean and Pacific," *United Nations Environmental Programme*, July 13, 2020, <https://www.unep.org/news-and-stories/story/unep-helps-manage-chemical-waste-africa-caribbean-and-pacific>.

79 "Solid Waste Management in Accra," *United Nations Environmental Programme*, accessed November 28, 2020, https://www.waste.ccacoalition.org/sites/default/files/files/city_fact_sheet/Accra_MSW_FactSheet_0.pdf.

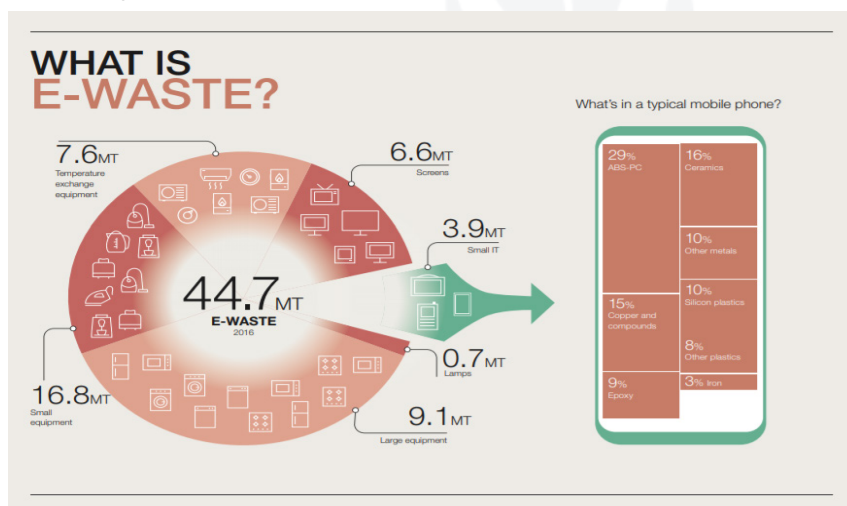
80 "3 Reasons Why Nuclear is Clean and Sustainable," *Office of Nuclear Energy*, April 30, 2020, <https://www.energy.gov/ne/articles/3-reasons-why-nuclear-clean-and-sustainable#:~:text=Nuclear%20is%20a%20zero%2Demission,byproducts%20emitted%20by%20fossil%20fuels>.

highly radioactive nuclear waste is produced, whereas, for coal to power the same amount, it would produce approximately 300,000 tonnes of ash and 6 million tonnes of carbon dioxide.⁸¹ However, safe management of nuclear waste is extremely difficult and costly as radioactivity can last thousands of years. Moreover, there has been a series of terrible nuclear disasters over the last 50 years, which poses a significant threat to the environment and human life. To prevent these crises, many countries are investing more in renewable energy sources that are much safer and greener for the environment.

Electronic Waste

What is Electronic Waste?

Electronic waste (e-waste) is generated when people discard unwanted or unusable pieces of electronics including electronic devices and equipment. Annually, the world produces about 50 million tons of e-waste, where only 20% of it is formally recycled.⁸² The largest producer of e-waste is China, generating more than 10 million tonnes in 2019.⁸³ In 2017, Canada generated 638,000 tonnes of e-waste.⁸⁴ The global annual production of e-waste is predicted to be worth over \$62.5 billion as it contains precious metals such as gold, platinum, and copper.⁸⁵ Therefore, it is more beneficial and cheaper to mine e-waste than to extract new minerals from the environment. E-waste also contains toxic chemicals such as lead and mercury, which can leak into soil and water if informally disposed of or recycled. This is why e-waste must be handled and disposed of safely.



(Image: <https://www.weforum.org/agenda/2019/01/how-a-circular-approach-can-turn-e-waste-into-a-golden-opportunity/>)

81 "What is nuclear waste, and what do we do with it?" *World Nuclear Association*, accessed November 28, 2020, <https://www.world-nuclear.org/nuclear-essentials/what-is-nuclear-waste-and-what-do-we-do-with-it.aspx>.

82 "UN report: Time to seize opportunity, tackle challenge of e-waste," *United Nations Environment Programme*, January 24, 2019, <https://www.unenvironment.org/news-and-stories/press-release/un-report-time-seize-opportunity-tackle-challenge-e-waste>.

83 Ian Tiseo, "Leading countries based on generation of electronic waste worldwide in 2019," *Statista*, November 20, 2020, <https://www.statista.com/statistics/499952/ewaste-generation-worldwide-by-major-country/#:~:text=Globally%2C%20China%20is%20the%20largest,million%20metric%20tons%20in%202019>.

84 Christine Rankin, "This is what happens to the e-waste you drop off for recycling," *CBC*, April 20, 2019, <https://www.cbc.ca/news/technology/what-happens-to-the-e-waste-you-drop-off-for-recycling-1.5101357#:~:text=E%2Dwaste%20includes%20electronic%20equipment,homes%20and%20in%20our%20landfills>.

85 "UN report: Time to seize opportunity."

Method of Disposal

The best way of disposal is to reuse or recycle them at safely managed sites. Once e-waste gets sorted and melted down into varying elements, it can be sold back into the market. Buying recycled elements is a cost-effective choice as it is cheaper to recycle elements than to extract them from the environment. This is good for the economy and the environment as the scrap metal industry is a source of thousands of jobs in Canada directly and indirectly and recycling conserves precious metals rather than mining for a new ore.⁸⁶ Recycling an element only uses 20% of the energy that would be used to extract the same amount, and it also helps the environment as the recycling process produces very few emissions.⁸⁷

Case Studies: Accra and Guiyu

Unfortunately, due to high cost of recycling, 80% of e-waste ends up in landfills and illegally exported to developing countries like Ghana because waste management programs there are not properly managed, but also, its geographical region is particularly convenient for countries to dump their waste shipped by boats as it is located on the coast of West Africa. Ghana's capital, Accra is the largest informal e-waste dumpsite in the world, where 250,000 tonnes of e-waste gets dumped there every year.⁸⁸ In consequence, the toxic chemicals released from burning e-waste leaked toxins into soil and water, which caused them to contain hundred times the desirable limit of metals including mercury and lead. High levels of mercury exposure is known to cause birth defects and permanent damage to the organs, skeletal, nervous, and reproductive systems.⁸⁹ According to a 2012 study, the inhabitants of Guiyu, China, a former largest e-waste dumpsite, faced four times higher risk of stillbirth compared to other regions in China.⁹⁰ Lastly, this unsafe management resulted in significant loss of scarce and valuable minerals like gold and copper, which must be extracted from the environment due to the loss. The implication of this is the amount of resources and power that must be used to compensate for the loss. For example, to build a new computer, it takes 240kg of fossil fuels and 22kg of chemicals to manufacture.⁹¹

86 "The Importance of Recycling Metal," *Federal Metals*, September 28, 2017, <https://federalmetals.ca/the-importance-of-recycling-metal/>.

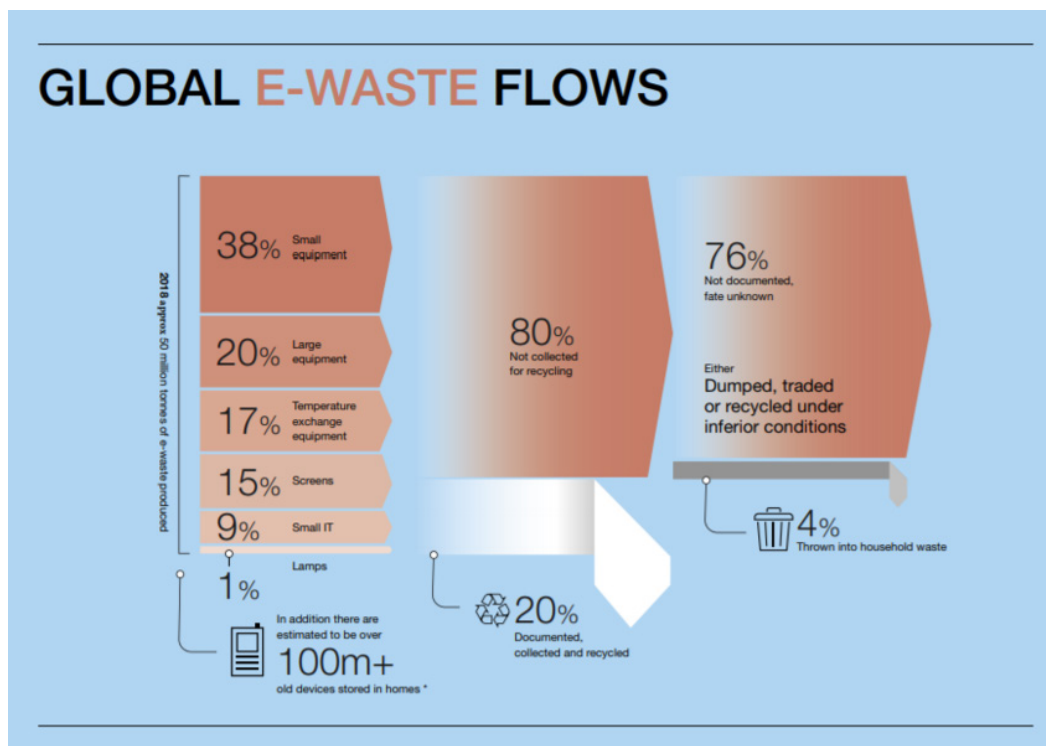
87 "Copper production & environmental impact," *Greenspec*, accessed November 28, 2020, <https://www.greenspec.co.uk/building-design/copper-production-environmental-impact/>.

88 Nora Young, "The world's largest e-waste dump is also home to a vibrant community," *CBC*, November 2, 2018, <https://www.cbc.ca/radio/spark/412-1.4887497/the-world-s-largest-e-waste-dump-is-also-home-to-a-vibrant-community-1.4887509#:~:text=Agbogbloshie%2C%20an%20area%20in%20Ghana's,are%20sent%20there%20every%20year>.

89 "Harmful effects caused by improper computer & electronic waste recycling," *Greencitizen*, accessed November 28, 2020, <https://greencitizen.com/learn-more/harmful-effects/#:~:text=Electronic%20waste%20affects%20nearly%20every,retardants%2C%20barium%2C%20and%20lithium.&text=They%20will%20also%20significantly%20affect%20the%20human%20body's%20nervous%20and%20reproductive%20systems>.

90 "Human Rights Impacts of E-Waste," *Center for International Environmental Law*, accessed November 28, 2020, https://www.ciel.org/wp-content/uploads/2015/10/HR_EWaste.pdf.

91 "Wednesday: E-waste."



(Image:<https://www.weforum.org/agenda/2019/01/how-a-circular-approach-can-turn-e-waste-into-a-golden-opportunity/>)

International Effort: The Basel Convention, Sustainable Solutions, and Waste Management Programs

The Basel Convention is an international treaty that prohibits countries from exporting hazardous waste, including e-waste. However, the United States has not ratified this treaty due to the different interpretations of "hazardous waste" in the Convention and in its domestic waste management policy (Resource Conservation and Recovery Act) that does not align.⁹² This means that the United States must implement legislation regarding hazardous waste first, but in the meantime, there are no rules or regulations that prevent them from exporting. While exporting e-waste is illegal in Canada and many developed countries, there is still a lack of enforcement due to unclear standards and limited political will, which allows approximately 23% of the e-waste to be exported to developing countries each year.⁹³

By 2050, global e-waste production is estimated to reach 120 million tonnes if this trend continues.⁹⁴ To tackle the broader e-waste issue, the United Nations Environment Programme (UNEP) and other international organizations have emphasized the need to recycle and reuse electronic materials in order to prevent serious

⁹² Charles W. Schmidt, "Trading Trash: Why the U.S. Won't Sign On to the Basel Convention," *Environmental Health Perspectives* 107, no. 8 (1999): 411, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1566487/pdf/envhper00513-0030-color.pdf>.

⁹³ Laura Bradley, "E-Waste in Developing Countries Endangers Environment, Locals," *U.S. News*, August 1, 2014, <https://www.usnews.com/news/articles/2014/08/01/e-waste-in-developing-countries-endangers-environment-locals>.

⁹⁴ "UN report."

health and environmental implications while creating sustainable jobs. It came up with solutions such as durable product design, buy-back and return systems for used electronics, mining minerals from e-waste, and leasing ownership of electronic devices. In addition, with the partnership of the Nigerian Government, the UNEP announced to invest 2 million dollars to establish formal e-waste recycle centers in Nigeria, which has the capacity to recycle 500,000 tonnes of e-waste annually.⁹⁵ There is global recognition and effort to mine valuable materials from e-waste called “urban mining” to reproduce raw materials.⁹⁶ Therefore, e-waste is not pollution or waste. It is a vital source of valuable metals if countries start to appreciate, value, and recycle properly.

Chemical Waste

What is Chemical Waste?

In general terms, chemical waste is a waste material that is composed of harmful chemicals. It can be in a solid, liquid, or gaseous state and if improperly managed or disposed of, it may pose substantial hazards to health and the environment.⁹⁷ Chemical wastes include manufacturing or laboratory by-products, oil, pesticides, cleaning agents, and batteries. It is important to note that not all chemical wastes are hazardous. For example, balsamic vinegar that you spill while making a salad will not pose any threat to humans or the environment. However, chemical waste is considered hazardous if it exhibits one or more of the following characteristics: ignitable, corrosive, reactive, or toxic.⁹⁸ A bleaching agent like Clorox is an example of a corrosive chemical that contains sodium hypochlorite, which can irritate or burn the skin tissue.

Method of Disposal

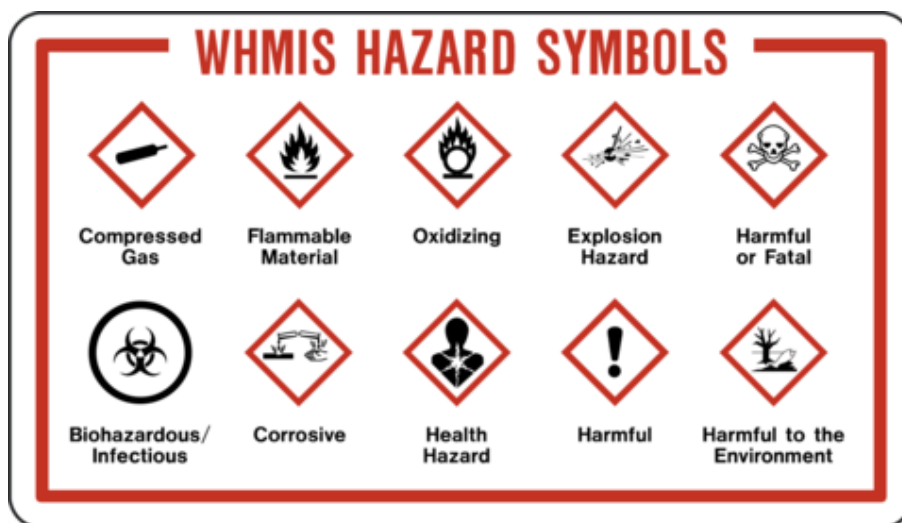
Chemical waste must be properly disposed following safety guidelines and disposal manuals. The method of disposal differs for non-hazardous and hazardous chemicals. First, to identify if the chemical waste is hazardous, it is important to check the container label of the product or the Safety Data Sheet for Workplace Hazardous Materials Information System (WHIMIS) symbols to determine if the waste contains any chemicals that have hazardous characteristics. If the chemical is confirmed to be a non-hazardous waste, then it can be disposed of via sewer drain. However, if the chemical is confirmed to be a regulated hazardous waste, it must be disposed of via a chemical waste program run by the city or the province. Depending on whether the hazardous waste is residential or industrial, the disposal process may be different. Chemical waste is hard to recycle because the chemical is likely to be contaminated after usage.

⁹⁵ “UN report.”

⁹⁶ Yvan Schulz, “Towards a New Waste Regime?” *China Perspectives* 3, no. 1 (2015): 45, <https://journals.openedition.org/chinaperspectives/6798>.

⁹⁷ “Chemical Waste Disposal,” *University of Toronto*, accessed November 29, 2020, <https://ehs.utoronto.ca/laboratory-hazardous-waste-management-and-disposal-manual/chemical-waste-disposal/>.

⁹⁸ “Chemical Waste Disposal.”



(Image: <https://acuteservices.com/whmis-symbols-7-changes-canada/>)

Environmental and Health Implications

Chemical exposure is increasing significantly due to today's massive urbanization, growing population, and expansion of agricultural production especially in developing countries. Furthermore, in many developing countries, the treatment of chemical waste is unregulated and uncontrolled; thus, they are prone to use conventional methods (ex. landfill, ocean dumping) to dispose of hazardous chemical waste, which poses serious risks to the public and the environment. When chemical waste runoff occurs after exposure to rainwater, hazardous chemicals will be washed away into soil or waterways, contaminating the soil and groundwater. Eutrophication, the increase in nutrients, can cause algae bloom, reduce oxygen levels, and increase temperature of the water bodies, which ultimately damage the ecosystem.⁹⁹ Excessive amounts of nitrogen and phosphorus are primarily what results in eutrophication, and in the United States alone, the damage of aquatic ecosystems from eutrophication is approximately \$2.2 billion annually.¹⁰⁰ While health effects depend on the type, amount, duration, and frequency of consumption of the chemical, it can impair the immune system, damage the organs, and cause reproductive problems and birth defects in serious situations.¹⁰¹ In Louisiana, there is a small town referred to as the "Cancer Alley" where chemical plants are concentrated. The risk of cancer in this community is 50 times higher than the United States national average due to toxic air pollution from those chemical plants.¹⁰²

99 "Impact on Chemical Waste on Water Streams," ENVA, accessed November 29, 2020, <https://enva.com/case-studies/impact-of-chemical-waste#:~:text=Improperly%20managed%20chemical%20waste%20may,on%20aquatic%20and%20human%20life.>

100 "Eutrophication: Causes, Consequences, and Controls in Aquatic Ecosystems," *Nature Education*, accessed November 29, 2020, <https://www.nature.com/scitable/knowledge/library/eutrophication-causes-consequences-and-controls-in-aquatic-102364466/>.

101 "Exposure and health effects of chemicals," *Government of Canada*, May 23, 2019, <https://www.canada.ca/en/health-canada/services/health-effects-chemical-exposure.html>.

102 Jamiles Lartey and Oliver Laughland, "Almost every household has someone that has died from cancer," *The Guardian*, May 6, 2019, <https://www.theguardian.com/us-news/ng-interactive/2019/may/06/cancertown-louisiana-reserve-special-report>.

Case Studies: Crude Oil and Deepwater Horizon and MV Wakashio Oil Spills

Crude oil is one of the examples of a hazardous chemical that is frequently leaked through massive oil spills, which causes detrimental environmental impact. The largest marine oil spill was in 2010, when the Deepwater Horizon oil drilling rig that was operating in the Gulf of Mexico exploded. The series of explosions was caused by a loss of control of the hydrocarbon pressure, which leaked 400,000 tonnes of oil and killed 11 people.¹⁰³ As a result, approximately 1,000 miles of shoreline has been oiled, which affected thousands of birds, hundreds of dolphins, and dozens of sea turtles.¹⁰⁴ It has been recorded that of the 6,100 birds that died, 2,200 birds were seen visibly oiled.¹⁰⁵ Moreover, at least 8 dolphins of the 153 that died were smeared with oil.¹⁰⁶ The immediate reaction from the local and global community was the rescue mission of affected wildlife from the oil spill and deployment of 10 different techniques used to clean up the leak. It is estimated that 54% of the crude oil has been cleaned up.¹⁰⁷[24]

More recently, in July 2020, a Japanese carrier, MV Wakashio, struck a coral reef on the lagoons of south-east Mauritius, leaking more than 1,000 tonnes of oil.¹⁰⁸ Even though the spill is relatively low compared to the Deepwater Horizon oil spill, the damage is predicted to be serious and long-lasting as the spill took place near environmentally protected marine ecosystems and reserves of international importance.¹⁰⁹ The Mauritian marine environment is one of the few marine areas left with rich biodiversity: a home to 1,700 species. Therefore, one of the main environmental concerns is coral bleaching, the release of symbiotic algae in coral tissues and making them vulnerable to disease and death due to stress and lack of food source. Healthy coral reefs are essential for the ecosystem as 25% of the fish depend on them.¹¹⁰ However, once they die from toxic chemicals like hydrocarbons, it can potentially wipe out the entire ecosystem as wildlife can no longer find food. Moreover, bioaccumulation, the accumulation of toxic chemicals like crude oil in wildlife poses a great threat to the top predators on the food chain.¹¹¹ For example, seals that are higher in the food chain will consume increased concentration of chemicals as small fish with accumulated toxic chemicals will be eaten by large fish, which will inherit the chemicals in addition to its own toxic chemicals in its system and finally be eaten by the seals, consuming high amounts of toxic chemicals from its food source. This process is called biomagnification. While the Mauritian government and the coastal guards are working hard to clean up the spill, it is estimated that only 10% of the oil will be successfully cleaned up, leaving an everlasting impact on marine life.¹¹²

103 "Deepwater Horizon and the Gulf oil spill - the key questions answered," *The Guardian*, April 20, 2011, <https://www.theguardian.com/environment/2011/apr/20/deepwater-horizon-key-questions-answered>.

104 "Deepwater Horizon and the Gulf oil spill."

105 "Deepwater Horizon and the Gulf oil spill."

106 "Deepwater Horizon and the Gulf oil spill."

107 "Deepwater Horizon and the Gulf oil spill."

108 "Why the Mauritius oil spill is so serious," *BBC*, August 12, 2020, <https://www.bbc.com/news/world-africa-53754751>.

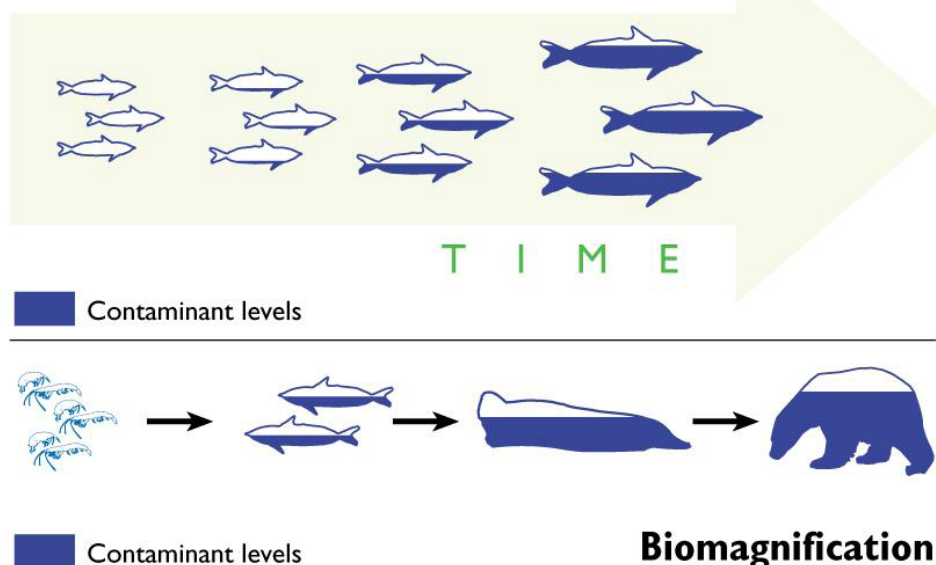
109 "Why the Mauritius oil spill is so serious."

110 "Why the Mauritius oil spill is so serious."

111 "Food Webs and Bioaccumulation," *United States Geological Survey*, accessed November 29, 2020, https://www.pwrc.usgs.gov/contaminants-online/pages/toolsteachers/tfiles/lesson2/activity%202_foodweb_key.pdf.

112 "Why the Mauritius oil spill is so serious."

Bioaccumulation



(Image: https://www.feu.awsassets.panda.org/img/original/bioaccumulation_graphic.jpg)

International Efforts: The Bamako Convention

Currently, the UNEP is striving towards achieving safe chemical waste management in Africa, Caribbean, and Pacific by supporting the Conference of the Parties to the Bamako Convention. The Bamako Convention emerged from the limitations of the Basel Convention, which ensures environmentally safe disposal of waste including chemical waste.¹¹³ This conference, which took place in February 2020, discussed ways to minimize the impact of chemical waste on the environment and human health by recognizing the need for international waste management frameworks and multilateral environmental agreements (MEAs).¹¹⁴ With African, Caribbean, and Pacific countries, the UNEP developed the MEAs programme to work with the Bamako Convention in order to improve legislation related to chemical wastes and to educate the public around its impact.¹¹⁵

Nuclear Waste

What is Nuclear Waste?

Nuclear waste ranges from leftover nuclear fuel that has been produced after being used inside of a nuclear reactor to any objects that are contaminated with radioactive substances. Nuclear waste can be in forms of solid, liquid, or gas. It can remain radioactive from a few hours to hundreds of thousands of years. There are three types of nuclear waste according to their radioactivity: high-, intermediate-, and low-level waste. Only

¹¹³ "The Bamako Convention," *United Nations Environment Programme*, accessed November 29, 2020, <https://www.unep.org/explore-topics/environmental-rights-and-governance/what-we-do/meeting-international-environmental>.

¹¹⁴ "UNEP helps to manage chemical waste in Africa, Caribbean and Pacific."

¹¹⁵ "UNEP helps to manage chemical waste."

3% of all nuclear waste is composed of high-level waste, most often leftover nuclear fuel, which contains 95% of radioactivity.¹¹⁶ Filters and components used in the nuclear reactors and refining processes will contain 4% of the radioactivity, which is categorized as intermediate-level waste.¹¹⁷ The majority of the waste, about 90%, is low-level waste: lightly contaminated tools and clothing containing 1% of radioactivity.¹¹⁸

Method of Disposal

Method of disposal differs for waste according to the levels of radioactivity. For nuclear fuel, it will be placed in steel canisters, which will be stored in cylinders made of concrete for further protection. Then it would be placed in deep pools of water in a nuclear facility to cool the waste or placed in deep tunnels underground sealed with rocks and clay. However, for low-level nuclear waste, it does not require any handling and can be disposed of at a landfill, which is considered safe as remaining radioactivity is very minimal.¹¹⁹ Until the 1990s, sea disposal of radioactive waste has been an option for waste management in many countries such as Germany, Sweden, Japan, the United Kingdom, and the United States. It is reported that nuclear waste has been dumped in oceans at over 80 different locations worldwide.¹²⁰ The reason why these countries chose this unsafe method of disposal is due to the extremely high cost of nuclear waste management. In Canada, it costs more than \$24 billion to safely dispose of high-level nuclear waste, which must be stored in nuclear facilities for thousands of years.¹²¹ [37] When radiological surveys were conducted in old dumping sites such as the Northeast and the Northwest Atlantic Ocean and the Northeast Pacific Ocean dumping sites, the radioactivity of these sites were measurable, but thankfully, very trivial. Therefore, the findings indicated that the oceans were not in danger and before it became a major problem, ocean dumping has been totally prohibited.¹²²

116 "What is nuclear waste, and what do we do with it?"

117 "What is nuclear waste."

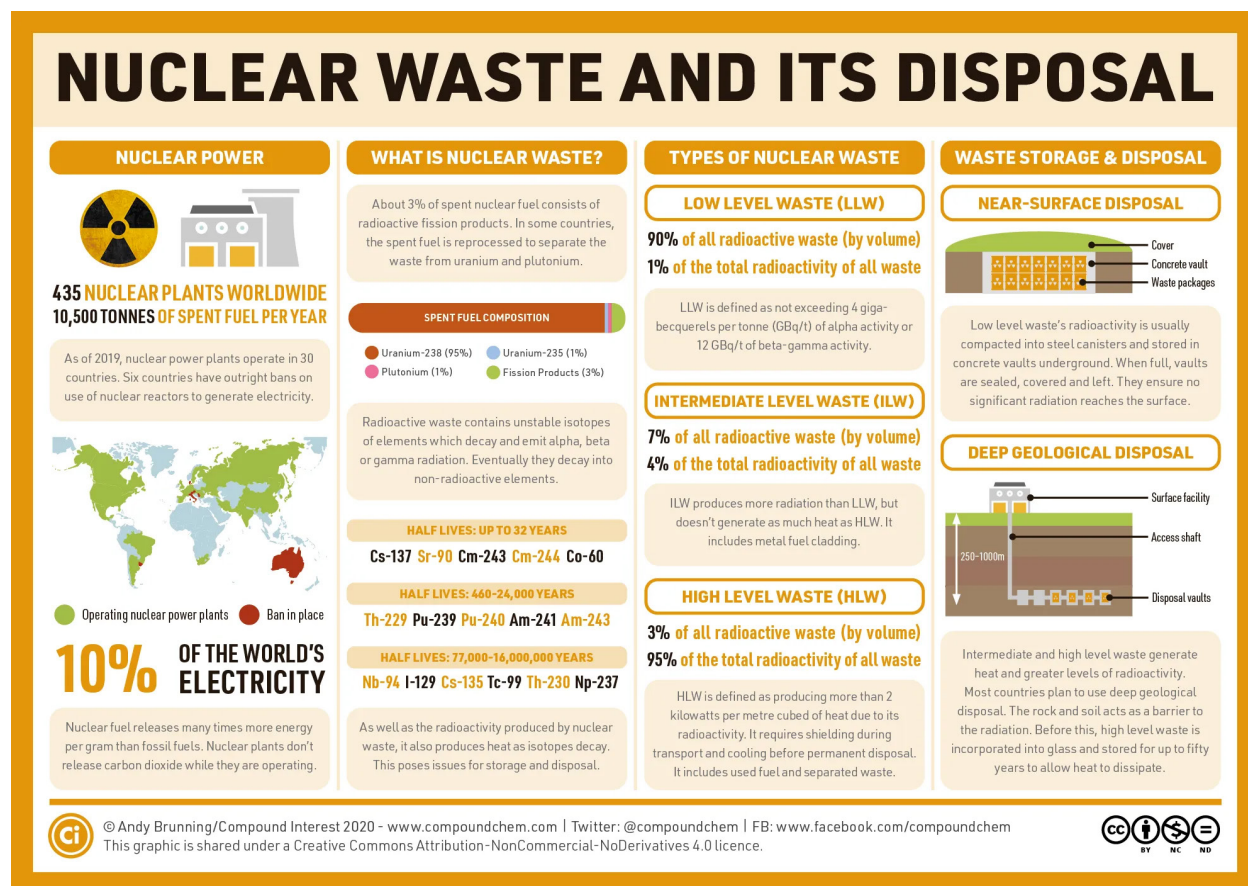
118 "What is nuclear waste."

119 "What is nuclear waste."

120 "Radioactive Substances," *United Nations Environment Programme*, accessed November 29, 2020, <https://www.unenvironment.org/cep/radioactive-substances>.

121 "Storing nuclear waste a \$24-billion dollar problem," *CBC*, August 18, 2009, <https://www.cbc.ca/news/canada/storing-nuclear-waste-a-24-billion-problem-1.794488>.

122 Aaron Jones, "Ocean Dumping of Nuclear Waste," *Stanford University*, March 7, 2018, <http://large.stanford.edu/courses/2017/ph241/jones-a2/>.



(Image: <https://www.compoundchem.com/2020/04/22/nuclear-waste/>)

International Efforts: The Cartagena Convention and UN Resolution

Moreover, developed countries are exporting their nuclear waste to other places to escape the high cost of management. While exporting and importing nuclear waste is illegal in most countries, the Wider Caribbean Region and the Caribbean Sea has been targeted as a nuclear waste dumpsite.¹²³[38] Thus, the Cartagena Convention was ratified by 26 United Nations Member States to prevent radioactive pollution in the Wider Caribbean Region, which focuses on pollution caused by dumping via ships.¹²⁴[39] In addition, there has been a resolution, "Towards the Sustainable Development of the Caribbean Sea for present and future generations" adopted by the United Nations General Assembly in 2016 to recognize the vulnerability of the Caribbean region, to protect it by enforcing stricter control of ship routing measures, and to provide financial aid and assistance for the development of sustainable waste management.¹²⁵

Case Studies: Chernobyl and Fukushima Daiichi Accidents

¹²³ "Radioactive Substances."

¹²⁴ "Cartagena Convention," United Nations Environment Programme, accessed November 29, 2020, <https://www.unenvironment.org/cep/who-we-are/cartagena-convention>.

¹²⁵ "Radioactive Substances."

When nuclear waste is safely disposed of, there are no consequences. However, there were cases of serious nuclear accidents that released large-scale radiation in the environment such as the Chernobyl and Fukushima disasters. The 1986 Chernobyl accident was the worst nuclear accident in history that took place in Ukraine. A flawed reactor design and poor training of personnel resulted in overpressure of the reactor, which caused a series of explosions and the release of 5% of the radioactive reactor core into the environment.¹²⁶ Areas of Belarus, Ukraine, Russia, and other surrounding countries were impacted from leaked radiation and approximately 350,000 people were evacuated and displaced.¹²⁷

Furthermore, the Fukushima Daiichi Accident in 2011 was the most serious accident since the Chernobyl disaster. This nuclear accident in Japan was caused by a major earthquake of 9.0 magnitude and a 15-meter tsunami that followed after.¹²⁸ Due to heavy flooding, the cooling system for nuclear reactors were disabled, causing them to overheat, and eventually result in hydrogen explosions. As a result, over 100,000 people were forced to evacuate from the accident while more than 267,000 tsunami survivors were displaced in Fukushima.¹²⁹

It is important to note that there are numerous minor nuclear leaks as well such as the Pickering nuclear plant leak in 2011. The nuclear plant in Pickering, Ontario, released 73,000 litres of demineralized water caused by a pump seal failure.¹³⁰ Although the leaked water was reported to have negligible traces of radiation, many people are worried about environmental and health implications since it could affect Lake Ontario, a main source of drinking water for Ontarians.¹³¹

Environmental and Health Implications

The environmental and health impact from these major disasters were serious and long-lasting. Radioactive substances such as iodine-131 were released into the water system causing eutrophication and coral bleaching, leading to a high number of deaths of aquatic life. Moreover, it produced cancerous growths, genetic problems, and reproductive complications in animals and humans that were inhabiting a contaminated region or had consumed substances that were contaminated. From the Chernobyl disaster, 28 people died from acute radiation syndrome almost immediately while more than 100 people were in treatment from radiation exposure.¹³² Moreover, 2259 deaths from the Fukushima accident has been reported from radiation and post-traumatic stress in the aftermath of the disaster.¹³³ Even today, efforts to remove nuclear contamination in these places are still taking place and permanent return of refugees to their home remains a high priority. To prevent these accidents from happening, many countries are investing and utilizing renewable energy. According to

126 "Chernobyl Accident 1986," *World Nuclear Association*, April 2020, <https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/chernobyl-accident.aspx>.

127 "Chernobyl Accident 1986."

128 "Fukushima Daiichi Accident," *World Nuclear Association*, May 2020, <https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-daiichi-accident.aspx>.

129 "Fukushima Daiichi Accident."

130 "Pickering nuclear plant reports water leak," *CBC*, March 16, 2011, <https://www.cbc.ca/news/canada/toronto/pickering-nuclear-plant-reports-water-leak-1.1096682>.

131 "Pickering nuclear plant reports water leak."

132 "Chernobyl Accident 1986."

133 "Fukushima Daiichi Accident."

the 2014 World Nuclear Status Report, the world supply of nuclear energy has decreased 6.8% since 1996.¹³⁴

Renewable energy

Renewable energy is energy that is derived from renewable resources including solar, wind, geothermal, and hydropower. In Canada, renewable energy accounts for 16% of its total energy supply where 67.5% of energy is generated using hydropower.¹³⁵ The advantages of using renewable energy is that it is very reliable and efficient in generating large amounts of electricity and heat. Moreover, it produces energy without emitting any greenhouse gas emissions from fossil fuels and it is cheap to operate as energy sources do not cost anything. However, some of the disadvantages are the initial set-up cost that are expensive and the dependence on weather, but the benefits can greatly outweigh the drawback in terms of sustainable development.¹³⁶ Once the world shifts to using more renewable energy, it would be able to prevent health and environment risks related to harmful energy sources, decrease the impacts of climate change, ensure clean water, and create sustainable communities. These are some of the main goals of the Sustainable Development Goals (SDGs) that are adopted by the United Nations General Assembly in 2015: Clean Water and Sanitation (Goal 6), Affordable and Clean Energy (Goal 7), Sustainable Cities and Communities (Goal 11), Climate Action (Goal 13).¹³⁷ The United Nations makes an urgent call for all nations, organizations, businesses, and global citizens to learn about and take action to realize these goals. By 2030, the United Nations hopes to address harmful global practices that interfere with the progress towards achieving the SDGs and reach these goals for a better and sustainable future.

¹³⁴ Mycle Schneider and Antony Froggatt, "The World Nuclear Industry Status Report," A Mycle Schneider Consulting Project, 2014, <https://www.worldnuclearreport.org/WNISR2014-Online.html>.

¹³⁵ "Renewable energy facts," Government of Canada, October 6, 2020, <https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/renewable-energy-facts/20069>.

¹³⁶ "Generation of electricity," BBC, accessed November 29, 2020, <https://www.bbc.co.uk/bitesize/guides/zbsdmp3/revision/4>.

¹³⁷ "The 17 Goals," United Nations, accessed November 29, 2020, <https://sdgs.un.org/goals>.



(Image: <https://www.un.org/development/desa/disabilities/envision2030.html>)

Conclusion

With rapid globalization and industrialization, hazardous waste management is an utmost priority to ensure safety and well-being of the public and wildlife. Without a doubt, electronic, chemical, and nuclear waste has exacerbated climate change and pollution; but moreover, it placed developing nations in vulnerable positions to be forced into accepting hazardous waste, which widened the existing gap of inequality. As safe disposal of these hazardous wastes is expensive and time-consuming, developed countries are incentivized to export them to escape the cost and responsibility. While measures are taken by the international community to prevent this from happening, not all are compliant in addressing the issue and it is predicted the trend will rise. Through the examinations of accidents regarding hazardous wastes, disastrous consequences for ecosystems and human health were explored, which presents the negative implications of hazardous substances. Therefore, one of the solutions is a global shift in using renewable and sustainable energy to prevent environmental and health consequences, growing inequality, and serious accidents involving hazardous substances, along with proper waste management, heavier enforcement on regulating waste disposal, and many more solutions. As transition to green energy will not be easy and instantaneous, there must be an increasing emphasis on the process of reusing and recycling hazardous waste in order to save energy and resources and to ultimately create a sustainable society.

Questions to consider:

1. How did the COVID-19 pandemic exacerbate the hazardous waste crisis and the unsafe

- management of these wastes?
2. What are some effective strategies to prevent developed countries from exporting hazardous waste to vulnerable regions?
 3. How are countries ensuring access to affordable and sustainable energy for all?
 4. Renewable energy, proper waste management, and stricter disposal regulations were discussed as a solution to decrease hazardous waste production, but what are some other solutions to this waste crisis?

Topic C Key Resources

"Chemical Waste Disposal." *University of Toronto*. Accessed November 29, 2020. <https://ehs.utoronto.ca/laboratory-hazardous-waste-management-and-disposal-manual/chemical-waste-disposal/>.

This source defines what chemical waste is and outlines how chemical waste should be stored and disposed of. It offers examples of special chemical wastes that require special management and disposal.

"Renewable energy facts." *Government of Canada*. October 6, 2020. Accessed November 29, 2020. <https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/renewable-energy-facts/20069>.

This source provides facts and statistics about each renewable energy source. It explores where Canada stands on the use of renewable energy on the international scale.

"Wednesday: E-Waste." *Waste Reduction Week in Canada*. Accessed November 28, 2020. <https://wwwcanada.com/en/2020-theme-days/wednesday-e-waste>.

This source provides facts and statistics about electronic waste. It provides links to research studies that the delegates can use for further research on the impact and the current situation of the electronic waste crisis.

"What is nuclear waste, and what do we do with it?" *World Nuclear Association*. Accessed November 28, 2020. <https://www.world-nuclear.org/nuclear-essentials/what-is-nuclear-waste-and-what-do-we-do-with-it.aspx>.

This source defines and categorizes different types of nuclear waste. It explains the benefits and the consequences of nuclear waste and how it can be stored and disposed of.

Guide to Research and Position Paper

Once you have read this background guide constructed by your dais, you should have a knowledgeable understanding of all three of the topics you will discuss at the conference. Nonetheless, it is strongly encouraged that you utilize this guide as a starting point to your research which should go more in depth to how the topics relate to your specific delegation and for determining what reasonable solutions you can present at the conference. Please ensure a proper bibliography citing where you obtained your information and utilize reliable sources in your research process. The questions to consider at the end of each topic are provided for you to consider during your research process and answering them may be key to coming to resolutions at the conference.

For formatting, please utilize professional font, size 11, and default margins, limiting your papers to two pages maximum, preferably one, per topic. Delegates are encouraged to ensure concise high-quality writing to produce the most effective position papers. For the heading of your position paper, be sure to include identifying information including your school, name, delegation, and the topic you plan to cover.

Content-wise, there are no structural rules to writing a position paper. However, a common guideline for its construction entails five simple elements. First, a brief introduction on your country's background including general information that may be pertinent to the topic at hand. Next, a paragraph identifying the general issues the topic presents, the history of the issue, and the current global situation. Third, your next paragraph should address the issue you identified in the previous paragraph and its effects on your country. Additionally, you may include what actions your country may have taken to address the issue, the country's leaders' statements, and why your country is affected. Your fourth paragraph concerns a solution that embodies your country's needs while also considering the global community as a whole. A conclusion will summarize the key points stated in your paper and a statement of what your country wishes to achieve at the conference.

You are now fully prepared to move forward into your personal research and writing your position papers. I look forward to reading your papers and seeing your hard work come to fruition at the conference. If you have additional questions during your research or writing progress, do not hesitate to contact me by email as stated in the Letter from Your Director. Best of luck!

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