United Nation Environment Programme (UNEP)

MetMUNC XLIX

Topic: Fracking

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Although officially birthed in the 1860's, it wasn't until the 1940's that hydraulic fracturing, also known as modern day fracking, was introduced and thereafter popularized.[1] In 1949, experiments were conducted to test the results of hydraulic fracturing. After proving successful, fracking quickly became commercialized throughout the world. By the 1970's, this extraction method was used in the Piceance Basin, the San Juan Basin, the Denver Basin, and the Green River Basin. This widespread spike in fracking usage piqued the interest of American President Gerald Ford, who went on to promote the development of shale oil resources through fracking in his overall energy plan to reduce foreign oil imports.[2]

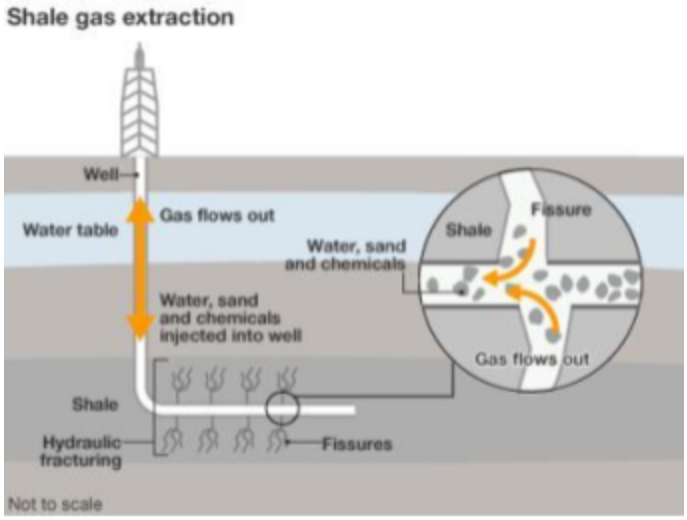

Figure 1: Depicts the process of fracking, where water, sand and chemicals are injected into a well while drilling into shale reserves to release underlying gases and oils.

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1 https://www.businessinsider.com/the-history-of-fracking-2015-4#:~:text=Even%20though%20the%20birth%20of,being%20used%20on%20each%20well.

2 https://www.google.com/books/edition/Power_Plays/5oaikeV0aeYC?hl=en&gbpv=1&printsec=frontcover

Following a rising support from the public, fracking quickly became an international tool for uncovering gases and oils from shale rock. Large energy firms, such as Cuadrilla Resources in the U.K., were since created to specialize solely in hydraulic fracturing. Despite this seemingly world-wide success, problems arose when evidence suggested fracking was impacting the world's environments poorly.

In 2011, Cuadrilla suspended its fracking operations near Blackpool, England after earthquakes of high magnitudes hit the area. Suspicions of fracking being the cause for these abnormally strong tremors surfaced, and later a government-appointed panel concluded that continuous fracking was the cause for the current and potential future tremors due to excessive fracturing of the earth's surface. They advised greater monitoring of the operations, but no action was taken to formally halt the process.

However, because of the detriment it has caused environments around the world, fracking is a fairly controversial practice. It requires large amounts of water which must be transported to the site at significant environmental cost, and as well as being the cause for earth tremors, environmentalists suspect that fracking may also release carcinogenic chemicals during drilling and contaminate the groundwater around the fracking site.[3] Further, fracking has distracted energy firms and governments around the world from investing in renewable sources of energy by instead encouraging a continued dependence on fossil fuels.

Today, hydraulic fracturing is used extensively in the United States and Canada, and has been increasing in use in countries within Asia, Europe, and South America. Places with known frackable gas reserves, such as these, are those who would use fracking to obtain fossil fuels and

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3 https://www.forbes.com/sites/jeffmcmahon/2013/04/07/six-reasons-fracking-has-flopped-overseas/#e884cb04ef78

oils. In the U.S. specifically, fracking produces two-thirds (67 percent) of the natural gas and approximately 50 percent of the nation's oil.[4] Despite this, several states in the U.S. have since banned the use of fracking, including New York, Maryland, Vermont and Washington.

Aside from just these states, fracking has also been banned from countries as a whole. In 2018, Ireland became the fourth European country and European Union (EU) member to ban fracking. The Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Bill was first introduced in 2016 as a private members bill, or a bill introduced by a legislator who is not acting on behalf of the executive branch. This bill was proposed by Fine Gael party lawmaker Tony McLoughlin, and began to raise support across the political spectrum. On July 6, 2018, President of the Republic of Ireland Michael D Higgins signed the bill into law.[5]

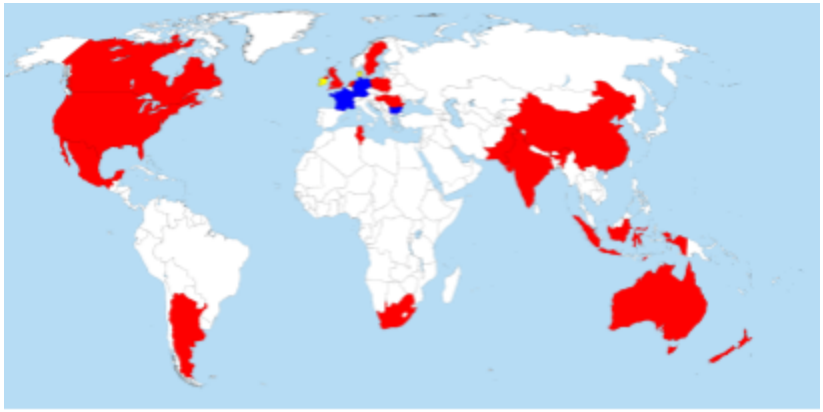

Figure 2: World map showing countries who have used or currently use fracking (red), countries an outright ban or suspension is in place (blue), and countries where research is ongoing but no shale gas has been drilled and produced yet (yellow).

Other countries that have taken a stand against fracking and the detriment it brings to environments include France, which banned the use of it in 2011, and Germany and the Netherlands, which both temporarily halted drilling operations.[6] Further, in 2019, the United

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[4] https://www.energy.gov/

[5] https://www.downtoearth.org.in/news/energy/ireland-becomes-the-fourth-eu-country-to-ban-fracking-61091

[6] https://www.forbes.com/sites/kensilverstein/2019/11/17/will-the-uks-temporary-ban-on-natural-gas-fracking-impact-us-policy/#674b986b5b5b

Kingdom's government issued a temporary ban on shale gas, the gas exported from hydraulic fracturing, as U.K. leaders who previously supported its development began to fear aggressive earth tremors rising from the use of fracking.

Like the United States, China has been practicing fracking for years in efforts to stop relying on major oil producing companies in the Middle East and reduce costs of oil imports. China National Petroleum Corporation (PetroChina) is the nation's second largest oil producer. Based in Beijing, the company has grown to be ranked No. 4 amongst companies worldwide.[7] Over the last 10 years, they have invested over $4 billion in fracking shale gas.

By doing so, China initiated its own fracking boom. Large, red fracking trucks span miles of China's flattened mountaintops, pumping chemicals and sand into 1,500-meter horizontal wells deep under the ground. The equipment was built by state-owned energy major, Sinopec, which was a result of China's decades-long government goal to develop low-cost domestic technology in order to use the country's vast shale gas resources buried within the mountainous terrain. The two energy giants Sinopec and PetroChina pumped 9 billion cubic meters of shale gas in 2017, which is equivalent to about 6 percent of China's total natural gas production.[8]

Figure 3: Photos from the ruin caused by the 2019 Gaochun hurricane

As a result, China's fracking is harming civilian life to an unbearable point. Between the 24th and 25th of February in 2019, 3 different earthquakes occurred in Gaochun, China, devastating villagers as they watched

[7] https://fortune.com/global500/2019/china-national-petroleum/

[8] https://www.reuters.com/article/us-china-shale-analysis/stepping-on-the-gas-chinas-home-built-fracking-boom-idUSKBN1JH0M5#:~:text=The%20equipment%20was%20designed%20and,in%20the%20region's%20mountainous%20terrain.

their homes crumble and loved ones suffer in pain from the destruction. Despite countless disputes and revolts against the fracking companies, they claim that their methods have no direct correlation to the earthquakes that have tortured those living near their drill sites. That being said, they have also admitted that their technology just causes existing faults to slip underground due to the pressure they apply when fracking.

Fracking has been utilized in Canada so heavily that over 80 percent of the country's oil is drilled using fracking techniques. [9] Upwards of 200,000 fracking wells have been drilled in Canada and create many jobs for the nation's economy. The downside to these practices include the fact that no one knows exactly what the long term aftermath could entail. Many Canadians have voiced concerns over the growing issues over water contamination as well as greenhouse gas emissions due to fracking.

Fracking poses a threat to freshwater because of the substantial amount of chemicals that goes into the oil and gas production. When fracking fluids leak through the drill sites and are dumped into freshwater ecosystems, the main concern for Canadian's is the health of the fish living in the water and the overall quality of the water after being polluted by the fracking wastewater.

In addition to harming Canada's water, the air quality is also taking a toll as a result of fracking. Large amounts of methane are released when operators are drilling in fracking sites, which are known to trap heat in the atmosphere when they are released and not burned. This contributes to the global warming crisis we face today and should be a focal point in debate for

[9] https://thenarwhal.ca/what-is-fracking-in-canada/

delegates. While the government is trying to reduce methane emissions, they're going to have to work with other countries to make sure they do so while also abiding to climate change laws.

To address the atrocities ensuing from fracking, many environmentalist programs advise the ban of fracking world-wide by federal officials. Specifically, the organization Environment America asserts that these bans should be focused on protecting public lands, national parks, national forests, and sources of drinking water.[10] Many of said organizations agree that the oil and gas industries should pay the costs of damage caused by fracking, not taxpayers, communities or families.

In a more realistic light, others suggest that fracking is made a cleaner process instead of placing an outright ban. For example, waterless fracking systems would save lots of water while also using just one-eighth of the liquid normally used, as it pumps the liquid at a lower rate. Aside from going completely waterless, recycled water and brine, a high-concentration solution of salt in water, also work well in a fracking system. This would conserve freshwater as well as reduce the water pollution caused by traditional fracking systems. Another impactful way to stifle the damages caused by fracking to the environment would be to reduce methane leaks, as it is once of the main concerns because it not only damages wildlife but also results in the loss of a major component of valuable gases. Such can be done by using infrared cameras that can detect leaks at fracking sites, or replacing traditional pressure-monitoring pneumatic controllers to lower-bleed designs.[11]

In committee, delegates will discuss the advantages and disadvantages of fracking being a major part of the oil industry and interpret the damages it has cost world-wide environments. It

[10] https://environmentamericacenter.org/programs/azc/stop-fracking-our-future
[11] https://u.osu.edu/engr2367publicdocument3/alternatives-to-fracking/new-methods-to-fracking/

will also be important to suggest solutions and/or alternatives to fracking, as delegates must be realistic and account for disagreements from countries who rely heavily on this process as a means for oil and gas exports. Delegates must also keep in mind the actions already taken by this committee, the United Nations Environment Programme (UNEP), in order to make the most impactful and efficient changes during debate. It is our job as UNEP to weigh the impacts of fracking and work to create a safer and more sustainable atmosphere for our world's environments.

Questions to Consider:

1. What stance has your country taken on fracking?
2. Has your country passed any legislation/taken any action to ban or halt fracking in their region?
3. Is your country concerned with working towards a cleaner and more sustainable world?
4. Does your country rely on fracking for its oil and gas exports?
5. What would your country be willing to do to address this problem, both short-term and long-term?

Helpful Links:

1. https://www.investopedia.com/investing/worlds-top-oil-producers/
2. https://www.factorfinders.com/fracking-restrictions-imposed-by-the-federal-government
3. https://keeptapwatersafe.org/global-bans-on-fracking/
4. https://gnhre.org/2020/01/06/the-legal-status-of-fracking-worldwide-an-environmental-law-and-human-rights-perspective/
5. https://www.investopedia.com/ask/answers/011915/what-are-effects-fracking-environment.asp