

## **Human Rights and the Environment: A Study of Fracking**

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As early as 1972, the United Nations made it very clear that there is a connection between human rights and the environment when it stated at the UN Conference on the Human Environment (1972):

We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social health of man. (p.3)

This international acknowledgement of the relationship between humans and the environment set the precedent for future treaties and agreements that demonstrated a “recognition that a healthy environment is necessary for human rights and survival” (Downs, 1993, p.368). Protection of the environment is important not only for current populations but also the livelihood of all future generations (Boyle, 2007; Downs, 1993; Shelton, 1991).

Human rights and environmentalism have distinct purposes. Human rights focus on promoting freedom and justice by protecting the inherent dignity of all human beings. Environmentalism focuses on preserving nature and its resources for a sustainable future. Unlike human rights, environmentalism doesn’t solely focus on the benefit to human beings. It supports valuing nature for the sake of nature, not just for what it can provide to humans. Nevertheless, it is evident that these two priorities share “overlapping social values with a core of common goals” (Shelton, 1991, p.138).

The shared goals of human rights and environmentalism have made it possible to achieve environmental protection by using human rights (Boyle, 2007; Shelton, 1991). In *Powell v. United Kingdom*, residents successfully petitioned that noise pollution from Gatwick Airport violated their rights to privacy and property (Shelton, 1991). In *Maya Indigenous Community of the Toledo District v. Belize*, the petitioners successfully stopped government logging on their lands because of the damage to the natural environment that would hinder future agricultural production (Boyle, 2007). In both cases, petitioners demonstrated that the environmental disturbance/damage violated their human rights, such as the right to privacy and the right to property. Boyle (2007) refers to this strategy of obtaining environmental protection via human rights as the “greening” of human rights.

Despite the common interests, using the human rights framework to protect environmental rights has its limitations. There are times when environmental rights may conflict with other human rights, such as the right to economic development (Boyle, 2007; Shelton, 1991). Furthermore, as Shelton (1991) explains, environmental issues must be linked to an existing human right in order to be legitimate. Environmental concerns alone do not warrant a cause for complaint in human rights law. The “greening” of human rights frames environmental rights as interpreted, or derived from human rights, so they do not have the “clout nor the binding legal status” of actual human rights (Downs, 1993, p.378). The reduced status makes it difficult to enforce environmental rights that compete against legally binding human rights. The following essay will take a look at this issue through the specific case study of fracking in the United States. As we will see, connecting environmental degradation to human rights

violations is not sufficient to prohibit fracking. This finding supports the need for greater legitimacy of environmental rights in order to effectively combat competing priorities, namely economic development.

### **“Benefits” of Fracking**

Hydraulic fracturing, commonly known as “fracking”, is an extraction technique used to obtain oil and gas from tight shale formations that were previously unreachable (Mayer, 2016). This process requires pumping up to five millions gallons of surface water mixed with chemicals and sand under high pressure to create openings in the shale formations, which releases the gas (Finkel & Law, 2011). This technique, in recent years, has become increasingly more common in America. Fracking is largely contested because it is argued to have negative impacts on human health, the environment, and the economy (Finkel & Law, 2011). When discussing the negative impacts of fracking, it is important to acknowledge that there are benefits to fracking. While these benefits may not outweigh the consequences of hydraulic fracturing, it is important to understand the intentions of the use of this extraction method. The U.S. government and the fossil fuel industry are not involved in this extraction technique to cause harm to Americans and our planet, rather, there are clear, positive characteristics of fracking. Largely, the benefits of fracking are considered to be: providing jobs to marginalized areas of the country, ensuring readily available oil supply in the U.S., and even reducing America’s carbon footprint (Mayer, 2016). These perceived benefits serve as one explanation for why the number of active natural gas wells in the U.S. have nearly doubled since 2000 (Finkel & Law, 2011).

One of the greatest perceived benefits of hydraulic fracturing in the United States is the creation of jobs. Fracking involves both the building of new infrastructure, the extraction of oil, and the sale of oil. This entire supply chain of natural-gas creates thousands of new jobs. In Pennsylvania alone, it is estimated that over 200,000 individuals work in the natural-gas supply chain (Foran, 2014). Many of these jobs are low-skill levels, which are viewed as being extremely important for Americans. In America, it is getting increasingly difficult to maintain full-time employment without a college degree. Therefore, these low-skilled jobs are highly regarded among populations with low education levels. Additionally, these jobs are largely found in remote and marginalized areas of the country. This not only provides jobs to these disenfranchised groups, but also tax revenue to the area which can be used to help improve public goods and services such as the local schools.

Another perceived benefit of fracking is ensuring a plentiful supply of oil in the United States. The amount of reserves in the United States is vast, with the natural gas supply in New York, Pennsylvania, and Ohio alone totaling the equivalent of 45 years of U.S. consumption (Sovacool, 2014). Guaranteeing the U.S. energy security has numerous benefits, including a lessened reliance on foreign nations because we currently import a large amount of our consumed oil from other nations. This makes oil subject to political pressures, and may force us to have diplomatic relations with countries who we don't support politically. Another benefit of this is that shale gas is 50-66% cheaper than conventional gas, which depresses the value of natural gas and saves consumers money (Sovacool, 2014). In the United States, it is estimated that consumer surplus from lower gas prices to residential, commercial, and industrial consumers totals over \$75 billion

(Loomis & Haefele, 2017). This is money that can then be reinvested into other American industries, thus helping the American economy grow.

Finally, the last perceived benefit of fracking is reducing America's carbon footprint. While this may seem counterintuitive, transporting oil from foreign countries uses a great amount of fuel. By transporting natural gas within the US., the U.S. reduces its carbon footprint because travel emissions are lowered (Mayer, 2016). Additionally, shale gas has lower emissions of chemicals that harm our environment including mercury, nitrogen oxides, and sulfur oxides, than coal and oil. Therefore, the increased use of shale gas has lowered American carbon emissions.

Hydraulic fracturing is a practice that has become increasingly more common in the United States, and has the potential to continue growing. While this has sparked concern from both environmental and human rights activists, it is important to understand why this process is used in America today. The use of fracking is not necessarily intended by the industry and government to cause harm on the public. Instead, fracking is a practice that is used as it is believed to provide jobs to marginalized areas of the country, ensure readily available oil supply in the U.S., and even reduce America's carbon footprint. However, the issue of fracking does beg the question of accountability in terms of health. As argued by scholars, in the process of the progressive realization of health related rights, the state's efforts in policy implementation and resource allocation are vital (Yamin, 2016). However, in the circumstance of fracking, there are clear financial incentives of fracking which makes the state's responsibility to its citizens more complicated. Ultimately, the practice of fracking brings to question if a state's duty to

economically empower its citizens or if a state's duty to protect the health of its citizens and planet is more pervasive.

### **Environmental Concerns: Water Pollution**

Through the process of fracking clean water supplies are contaminated via the willful introduction of toxic chemicals into the natural environment. Protocol from the CDC and EPA includes substantial treatment through a series of five steps. First, coagulation and flocculation are used to compound dirt and sand which often contain disease-causing agents. Specifically, "chemicals with a positive charge are added to the water. The positive charge of these chemicals neutralizes the negative charge of dirt and other dissolved particles in the water. When this occurs, the particles bind with the chemicals and form larger particles, called floc" (Water Treatment, 2015). This is followed by sedimentation of the floc to the bottom of the container due to its higher weight. The clear water must then pass through various filters to remove such particles as, "dust, parasites, bacteria, viruses, and chemicals." (Water Treatment, 2015). In order to complete surface water treatment, a disinfectant is added to the water followed by storage of the "clean" water. However, there have been recent reports such as the publishing by *Environmental Science and Technology* entitled "Watershed-Scale Impacts from Surface Water Disposal of Oil and Gas Wastewater in Western Pennsylvania" which discovered that many wastewater treatment processes are not sufficient in removing a number of harmful contaminants.

The most harmful contaminants that remain in the treated water are a number of carcinogens and endocrine-disrupting compounds. Known carcinogens such as polyaromatic hydrocarbons may be found in high concentrations. Additionally, the

existence of bromine, a halogen, is described as the most dangerous substance to be found in this water, “bromide levels in the surface waters are — as far as in the human health impact realm — the potentially most direct.” (CMAJ, 2017). Endocrine-disrupting compounds are still found in high concentrations including, “radionuclides, salts and metals” (CMAJ, 2017). Furthermore, another group of organic compounds known as surfactants are found at elevated levels.

Upon consumption, surfactants are known to disturb the endocrine system which greatly jeopardizes the hormonal balance necessary for reactionary behaviors, chemical processes, and homeostasis. These ineffective treatment plans leave humans and animals at risk, predisposing them to a host of diseases which further separates communities from the ideal of global health. Furthermore, these practices compromise individuals’ deservingness.

One of many facets of deservingness is described as, “deservingness assessments are often conditional on presumed or actual features of those whose deservingness is in question—intrinsic or extrinsic, mutable or immutable—regardless of their salience. In short, rights are presumed to have universal significance, even when they are not universally enjoyed in practice, whereas deservingness is always reckoned in conditional terms” (Willen, 2016).

A condition that fracking fails to adequately recognize is the health impact. Environmental stability is a condition that majorly contribute to human health. Due to deservingness, society needs to shift its frame of reference and understand the implications of cheaper gas and the other benefits of fracking. Deservingness must be

adjusted to fit the conditions in which people are involved, yet deservingness itself is not conditional.

### **Environmental Concerns: Water Shortage**

Another concern stemming from polluting water supplies, is that fracking requires a high demand of the water supply available to extract the natural gases and oil. As mentioned before, one well can require up to five millions gallons of surface water to create openings in the shale formations. Between January 2011 and May 2013, it is estimated that 97 billion gallons of water were used for fracking (Freyman, 2014). As a result of fracking polluting clean water supplies and requiring a high demand for fresh and ground water that could have been used as drinking water, there is a depletion of adequate water supplies, which in turn results to areas experiencing water stress. Water stress is defined as “the demand for water [exceeding] the available amount during a certain period or when poor quality restricts its use,” such as being polluted through fracking and “causes deterioration of fresh water resources in terms of quantity and quality,” (eea.europa.eu). The limited water that may be available could likely be contaminated from the fracking process, thus putting the health of the exposed population at risk. In an analysis conducted by the nonprofit Ceres on the rising use of water in fracking in the United States, they found that “nearly half of the wells hydraulically fractured since 2011 were in regions with high or extremely high water stress, and over 55 percent were in areas experiencing drought” (Freyman, 2014). Allocating freshwater resources towards fracking rather than the communities it is depriving it from contributes to the water shortage experienced particularly in areas experiencing high water stress and water competition. “Texas is ground zero for water sourcing risks due to intense shale

energy production in recent years and a projected doubling of hydraulic fracturing-related water use over the next decade,” (Freyman, 2014). Additionally, fresh water is becoming so scarce in some areas that “non-freshwater resources are increasingly [being] treated to meet drinking water demand,” (US EPA, 2016). It is essential to ensure that an adequate abundance of water is available for humans, as well as other species, to secure the future of human rights and environmental rights as human rights. The economic and political interest for continuing the usage of fracking must not outweigh the resulting water depletions outcomes as a result of the practice. With the current global struggle of increasing climate temperatures, the overall consumption of freshwater use in fracking should be reduced or halted to reduce or stop water scarcity, as well as reduce fresh water becoming polluted when used for fracking.

In the Committee on Economic, Social and Cultural Rights General Comment 14, Article 12.2 (b) states that:

“[t]he improvement of all aspects of environmental and industrial hygiene’ comprises, ...; the requirement to ensure an adequate supply of safe and potable water and basic sanitation; the prevention and reductions of the population’s exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health.”

As mentioned before, the polluting of water during the cycle of the fracking process can result in the water becoming contaminated with carcinogens, which can expose the community to these harmful substances. This impacts human health and jeopardizes the right of an adequate standard of living. Water shortage, in particular, can lead to all of the

problems stated. The depletion of water supplies does not ensure an adequate supply of potable water available. Water stress can also indirectly and directly affect humans by affecting the agricultural means of the area. An adequate supply of safe freshwater is needed to ensure the growth of crops and feeding livestock. A shortage of supply can reduce the amount of food an area may be able to produce. This will infringe people's right to live an adequate standard of life if they do not have enough to eat, to drink, or simply survive due to the contamination and shortage of freshwater.

### **Environmental Concerns: Earth Tremors**

Among the other environmental concerns that hydraulic fracturing brings are localized earthquakes in regions where gas extraction occurs. The effects that these earth tremors bring are multifaceted, with direct, physical consequences and indirect, social impacts. A particularly important case study in observing these impacts are the people in the province of Groningen, in the Northern Netherlands. In the last couple of decades, the number of earthquakes in this region has increased when a 1993 commission concluded that “that earthquakes can be caused by gas production in certain circumstances”, although the company, NAM (*Nederlandse Aardolie Maatschappij* or Dutch Petroleum Company), refused to pay for damages until 1997, contending that the process of fracking only induces earthquakes of magnitude 3.3 which is far too small to produce any significant damage (Voort and Vanclay, 2015).

What NAM did not account for is the impact of disposing waste water by injection which can induce even larger earthquakes, and the intensity of the earthquakes induces is proportional to the volume of wastewater injected (Ellsworth, 2013). The impacts of such earthquakes can be categorized into: “first, second and higher order

impacts. The first order impacts of the gas extraction are earthquakes and subsidence, lead to the second order impacts, like damaged buildings and increased anxiety. Damaged buildings cause economic impacts, which are third order impacts” (Voort and Vanclay, 2015). In Groningen, cumulative earthquakes first caused damage as innocent as loose wall tiles and cracks in the walls to aggressive effects like damage roofs and even some outright collapses of houses. This damage has also led to a disruption of farmwork. Connected to this property damage are the lowering of house prices of the area which adds to post-recession fears of financial instability and inability to sell one’s home after retirement.

Along with these very clear effects come a general feeling of insecurity and increased stress levels. “Damage to property, especially in visible, vital spots like walls and beams, can lead to a feeling of insecurity in one's own home.” This had led to a variety of stress-related health issues among the inhabitants of Groningen as well as an overall distrust in the public institutions that are partly responsible for these occurrences. Some “reported that the knowledge a heavier earthquake may occur leads to a feeling of discomfort” and others “claimed to have various health issues related to the earthquakes, including stress, anxiety, insomnia and depression” (Voort and Vanclay, 2015). Amongst the mental health concerns of the earthquakes, there is always the very real threat of damage to homes and property leading to physical harm.

Although the social effects of fracking-induced earthquakes has been extensively studied in one particular Dutch community, these impacts are neither special nor are they isolated to them. In fact, large surges of earthquakes related to wastewater disposal in fracking have been seen in American states such as Texas, Oklahoma, Ohio, and

Arkansas - some occurring as far away as 35 kilometers from the wells they originate from. Oklahoma, in particular, has been extremely sensitive to fracking-induced earthquakes and sees a particularly large risk of extreme damage since “four disposal wells lie close to the Nemaha fault, which runs through Oklahoma City and is large enough to host a devastating magnitude-7 earthquake” (Hand, 2014). As was observed with the people of Groningen, these earthquakes can prove to be extremely detrimental to the health of the communities affected by them.

Instability caused by natural disaster (or, more appropriately, artificially-induced disaster) can affect the way one lives his or her life and have a negative impact on a community’s social determinants of health, which are “the conditions in which people are born, grow, live, work, and age” (Chapman, 2011); just as drinking non-potable water, extreme thirst and famine, and earthquakes can cause bodily harm in one form or another, the social, cultural, and economic contexts in which a person lives out his or her life can have just as much of an impact. This has already been seen with the people of Groningen with their increased prevalence of stress, insomnia and anxiety.

If the costs and benefits of hydraulic fracturing are looked at about using a human rights framework, it would be tremendously important to look at the impact it has on the social determinants of health on a community. As Chapman (2011) notes, the right to health has not only to do with timely and appropriate health care, but also “the underlying determinants of health, including access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition, and housing, healthy occupational and environmental conditions, and access to health-related education and information”. Seeing as their impacts have already been seen to have negative effects on an otherwise

healthy community (Voort and Vanclay, 2015), it would be imperative not to neglect what fracking-induced earthquakes could do to a community. It is also important to note that in Groningen, the community affected by the earthquakes were bearing the brunt of the harm done by fracking near them, but were not directly feeling the economic benefits of the operation, meaning that they were not being rightfully compensated to the change in lifestyle experienced by them.

### **Attempts at a Ban on Fracking**

It is clear that fracking has become a concern for human rights due to environmental complications, negative impacts on human health, the economy, as well as imposed new threats to human rights. Environmentalists have recognized fracking as a public health concern and have been proactive in making efforts that would lead to a complete prohibition of fracking. However, banning fracking hasn't been easy and has caused conflict because the economic benefits of fracking are too robust to let go. Despite the protests, petitions, and rallies that expose the environmental damage and human rights violations of this practice, in the present day, fracking still occurs in the United States.

One of the biggest benefits of fracking, as mentioned earlier, is the creation of jobs. The jobs require little to no education, which is something that is highly valued in our current society where finding a steady job without a degree is difficult. The U.S. Chamber of Commerce found that if fracking were to be banned right now it would cost the country 14.8 million jobs by 2022, which will also impact infrastructure. Fracking has resulted in ample amounts of oil, and the shale gas which is significantly cheaper than conventional gas. If fracking were banned it would result in gas and electricity prices

almost doubling and thus increase the cost of living. Overall, as a nation, the U.S. is benefiting greatly from fracking from an economic domain.

Despite the conflicts that have arisen from trying to ban fracking, there are some initiatives that can be taken to still move towards the direction of banning, or at least reduce the practice. Suggestions are split up into categories of having corporations manage and govern water risk, improve and modify operational practices, engaging stakeholders, and set guidelines fracking companies should take to limit their use of freshwater supply (Freyman, 2014). These recommendations try to ensure that the safety of the people is put as the main priority rather than prioritizing the economic benefits, thus further protecting human rights and fulfilling the duties stakeholders have in ensuring the delivery of human rights. These initiatives also encourage the involvement and engagement of the community, since the community knows best how the industry has directly and indirectly affected them. The community should be engaged before fracking starts taking place in the area and should continue the involvement of the community once fracking as started to ensure that any concerns are being immediately addressed (Freyman, 2014). By following these recommendations not only is the protection of human rights further secured, but it also aims to reduce issues surrounding contaminating the local freshwater supply, ensuring the freshwater supply available is always enough for the community, and reduce earthquakes. It enforces that protecting the environment and its rights is essential in protecting human rights.

Nonetheless, the goal should be to stop the practice, as fracking has shown to be a human rights concern because the health of the people is being jeopardized. As much as we know that fracking has posed a serious threat to human health, it can be argued that as

a sovereign state we are too focused on the short-term economic benefits of fracking.

This poses the issue of us putting economic progress over human health. It is dangerous to continue a pattern in which economic benefits override long-term environmental and health concerns. This is especially troubling in that overturning negative environmental impacts is difficult to do, which in the long run adds to the threats to human rights.

According to the reading *The Idea of Human Rights*, Beitz discusses how there has been great difficulty in just defining human rights and having a solid idea of what they are.

Beitz continues to argue how this will lead to the difficulty of reinforcement. Thus, it is also important to think about the role the government is legally responsible for respecting and protecting human rights based on international law and documents (Yamin 2016).

People who live close to fracking sites are at risk for many health complications if fracking is not banned. These health concerns can be directly correlated with the pollution of the water, the shortage of freshwater supplies, and the earth tremors.

### **Conclusion**

Even though the process of fracking causes various environmental issues and results in human rights violations, it still occurs in the United States. Policy makers have decided that the immediate economic benefits of fracking outweigh the damaging environmental effects and human rights concerns. In this instance, tying environmental damage to human rights is not enough to stop this destructive practice. This case study makes it clear that using environmental rights as a derivation of existing human rights is not sufficient to address environmental abuses. The continued practice of fracking in the United States reveals a need for a human right to a “clean and ecologically balanced” environment in order to put environmental rights on an equal plane with human rights

(Downs, 1993, p.352). Without this legitimacy, environmental concerns will always be subordinated to legally binding human rights (Boyle, 2007; Downs, 1993; Shelton, 1991).

Recognition of environmental rights as human rights must be international because effective change cannot be made by a single state alone, and environmental effects transcend all state boundaries. As Downs (1993) states, “the health of the world environment cannot be influenced to any significant degree by the actions of a single nation; yet the environmental transgressions of a single nation, unlike other human rights violations, may affect the life and health of persons all over the world” (p.385). It is time the international community acknowledges the imminent threat environmental degradation poses to mankind and takes the necessary steps to combat it.

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