

The Effects of Globalization on Food Systems

The ongoing forces of colonization are the cause of food insecurity today. Systematic displacement of indigenous communities to access land provide a systematic barrier to food sovereignty and force them to rely on imported foods out of necessity. Policies on land use and the scarcity of traditional knowledge due to colonization limit their self-sufficiency and determination. Indigenous wisdom holds in its core oneness with and respect for the land. Contrarily, modern agriculture is like any other modern resource extraction system; it lacks reciprocity because it's exploitative. Therefore, there is no longer a sustainable relationship with the land. Natural ecosystems that produce food are being degraded and deforested in order to produce foods in large demand by the global north. Fertilizers, pesticides, modern seed varieties and machinery have transformed the landscape and thus, habitats, destroying food resources (D. Barber, 2014). This essay will look at the sustainable and spiritual history of agriculture and the globalization of agriculture industrialization. It will examine how colonialism has impacted relationships with the land and the negative health impacts it imposes on people and the planet. Lastly, it will observe the barriers that systemically limit Indigenous self-determination today.

It is a common theme in colonization to displace the preexisting people of that land in order to exploit it. Therefore, knowledge of how to care and reciprocate the ecosystem services of the land are displaced as well. This is still relevant today where

people are being pushed off their land for access to natural resources. For thousands of years, Indigenous peoples constructed beautiful gardens around them. Coastal Salish nations planted kelp forests, bringing herrings to lay eggs and feeding all life around them thus feeding the hand that feeds them (L. June 2022). “We were active agents in shaping the land to produce prolific abundance” says Dine activist Lyla June, PhD. “We expanded and designed grasslands and forests for the benefit of all life. We became what the world calls keystone species. Our cultures were keystone cultures.” The Dine have a spiritual relationship with plants and the food they provide. They address them with praise and treat them as relatives, sacred beings. They are taught not to exercise ownership or alteration over them just as they wouldn’t do such things to their relatives. They believe in the divine responsibility to care for and protect sacred life, living to serve all life around them. They assume the role of stewards of these relatives through the gifts of sacred language and thinking. (D. Eldridge et. al., 2014)

Historically, targeting food sources has been a genocidal tactic. When the Dine people were winning the war, the U.S. called for peace, creating the Fort Laramie treaty of 1868. The racist documentation included land control policy which states, “if any head of the family desires to commence farming, he shall have the “privilege” to select a track of land within said reservation not exceeding 160 acres with the assistance of the DIA agent in charge.” It also states that the construction of railways and roads would not be disputed and that communities will be recompensed if it goes through their territory (Navajo Nation Treaty 868). The treaty was broken by the US less than 10 years later when gold was discovered in the Black Hills. The completion

of the transcontinental railway accelerated the decimation of the buffalo, where the food source of the Prairie Clans was targeted as an assimilation tactic. The scorched-earth policy is an act of warfare where US army troops destroyed anything of importance to the lively hood of indigenous communities.

Part of the motivation for the genocidal acts of colonial settlers was for access to resource extraction and clear land for white settlers. Today, pipelines are used to transport fossil fuels, in the like manner of burrowing through reservations. Exploitation threatens climate equity as extraction process directly affect the natural resources of marginalized communities such as water and traditional foods and medicines.

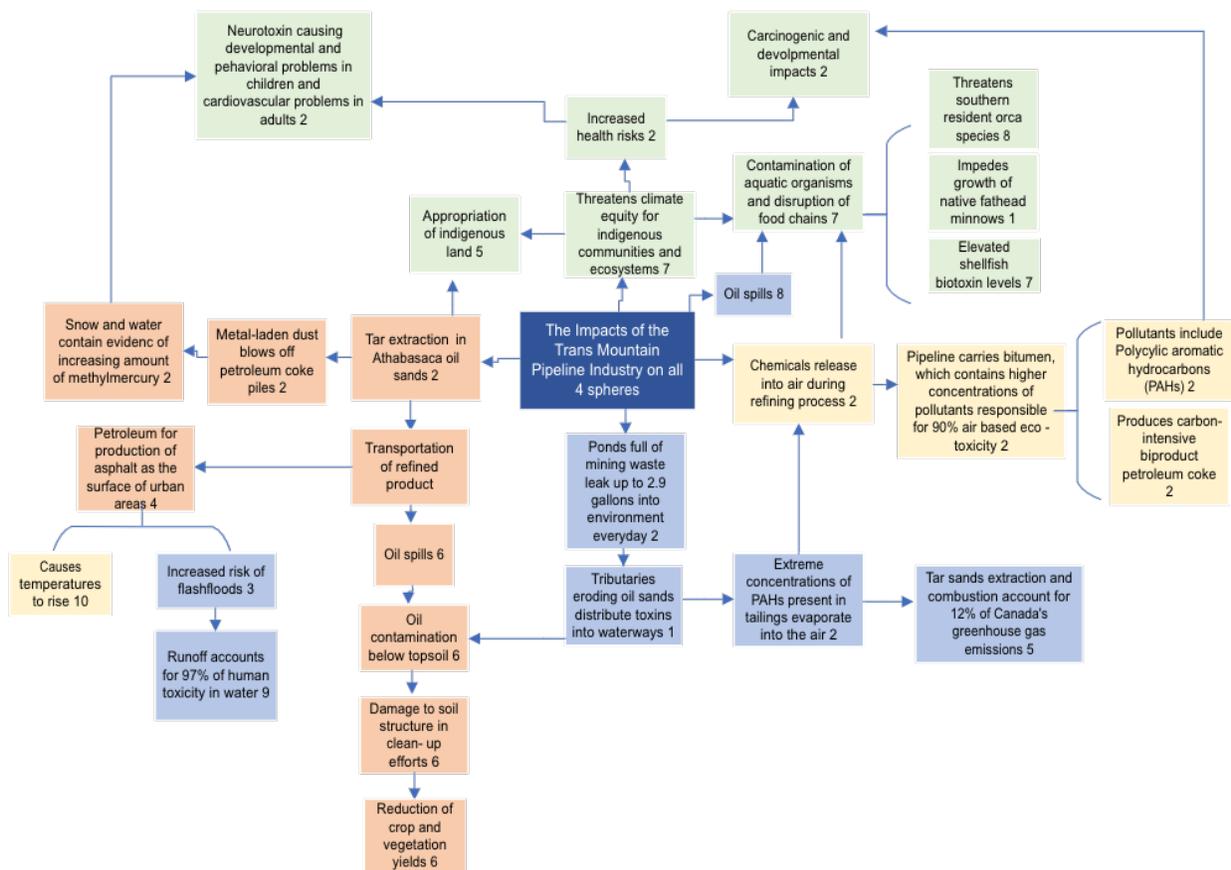
“Those who contribute least to environmental degradation are most impacted by its effects.” (L. Thomas, 2022) Pipelines in North America have been redirected to go through reservations. For example, the Keystone XL pipeline was originally to go through a predominantly white neighbourhood but as it was argued that it would affect water treatment. Ironically, they redirected it to go through Lakota burial grounds and the Missouri River (Shannon Kring, 2021). Along with the threat of oil spills and leakages, the processing of crude oil is detrimental for the environment. 62% of total CO₂ emitted into the atmosphere comes from power generation, creating the greenhouse effect which is causing an anthropogenic climate change (R. Venkataraman 2020).

The ancestors of Inuit people were self-reliant, moving between seasonal camps to harvest food throughout the year. In the early 1900s, multiple colonial initiatives altered Inuit society. Policies included relocations, settlement programs, strict harvesting regulations, the slaughtering of sled dogs, and residential schooling. This

inhibited participation in harvesting activities and the transfer of essential life skills, thus Inuit self-determination (N. Obed, et. al. 2014). This tactics force dependance of once sovereign nations on outside structures. As climate change takes the spotlight in neocolonialism, they are the most food insecure indigenous group in an industrialized country. Because of a lack of accessibility to traditional food systems, they must rely on imported foods, which are heavily taxed to due high the import costs of Northern air travel. Canada has yet to make a policy to end food insecurity in the North.

Along with the quantity being greatly reduced, the quality of the food is being threatened by the impacts of fossil fuels both directly through the hydrosphere and as well as atmospherically. Tar sands are one of the most environmentally devastating extraction methods in the world. Petroleum coke (petcoke) is a final production of oil refining, a carbon-rich solid material. Piles of this metal-laden dust blow off and end up in snow and water, with evidence showing increasing amounts of methylmercury. Methylmercury is a neurotoxin causing developmental and behavioural problems in children as well as cardiovascular problems in adults. Chemicals are released into the air during the refining process. Pipelines carry bitumen, which accounts for 90% of air-based eco-toxicity. (Droitsch, D. 2014) Pollutants include polyclinic aromatic hydrocarbons (PAHs) which cling to particles as they evaporate into the air. PAHs are associated with reduced lung function, exacerbation of asthma and increased rates of obstructive lung diseases and cardiovascular diseases. It can also impact cognitive or behavioural function in children (N. Obed, et. al. 2014). Ponds full of waste leak up to 2.9 gallons into the environment every day. Tributaries distribute toxins into waterways. Studies show that crude oil is directly related to the phenomena of Red Tide,

where biotoxins are found in the flesh of marine animals and can paralyze them and those above it on the food chain (Droitsch, D. 2014). This threatens food sovereignty, inhibiting local communities from relying on their environments for food. Organisms like clams are abundant and a praised food source for the ancestors of Coast Salish people. Yet with the threat of toxins in their food sources, they must depend on the global food system.



1. Colavecchia, Maria V. et. al. (2009) "Toxicity of oil sands to early life stages of fathead minnows (*Pimephales promelas*)" *Environmental Toxicology and Chemistry*. Accessed April 21, 2022 <https://doi.org/10.1897/03-412>
2. Droitsch, D. (2014). *Tar Sands Crude Oil: Health Effects of a Dirty and Destructive Fuel*. National Resources Defense Council Issue Brief. Accessed April 22 <https://assets.nrdc.org/sites/default/files/tar-sands-health-effects-IB.pdf>
3. Feng, B., Zhang, Y. & Bourke, R. (2021) Urbanization impacts on flood risks based on urban growth data and coupled flood models. *Nat Hazards* **106**, 613–627. April 21, 2022 <https://doi.org/10.1007/s11069-020-04480-0>

4. Gray, L. (2019). *Trans Mountain 1953: Public Response in Alberta and British Columbia* (Doctoral dissertation, The University of Victoria). April 21, 2022 <https://www.uvic.ca/humanities/history/assets/docs/honours-thesis---laura-gray-2019.pdf>
5. Jara, Emiliano Castillo, and Antje Bruns. (2022) "Contested Notions of Energy Justice and Energy Futures in Struggles over Tar Sands Development in British Columbia, Canada." *Futures*, Pergamon April 21, 2022 <https://doi.org/10.1016/j.futures.2022.102921>
6. Jong, E. de. (2003) The effect of a crude oil spill on cereals. *Environmental Pollution Series A, Ecological and Biological*. Retrieved April 21, 2022, [https://doi.org/10.1016/0143-1471\(80\)90013-6](https://doi.org/10.1016/0143-1471(80)90013-6)
7. Jonasson, M.E., Spiegel, S.J., Thomas, S. *et al.* (2019) Oil pipelines and food sovereignty: threat to health equity for Indigenous communities. *J Public Health Pol* **40**, 504–517. Accessed April 21, 2022 <https://doi.org/10.1057/s41271-019-00186-1>
8. Lacy, R. C., Balcomb III, K. C., Brent, L. J., Croft, D. P., Clark, C. W., & Paquet, P. C. (2015). Report on population viability analysis model investigations of threats to the southern resident killer whale population from Trans Mountain expansion project. *Raincoast Conservation Foundation*, 1-41. Retrieved April 21, 2022 [\[PDF\] raincoast.org](#)
9. Mazumder, M., Sriraman, V., Kim, H. H., & Lee, S.-J. (2016, June 11). Quantifying the environmental burdens of the Hot Mix Asphalt (HMA) pavements and the production of Warm Mix Asphalt (WMA). *International Journal of Pavement Research and Technology*. Retrieved April 21, 2022 <https://doi.org/10.1016/j.ijprt.2016.06.001>
10. Zhang, Y., & Sun, L. (2018, November 13). Spatial-temporal impacts of urban land use land cover on land surface temperature: Case studies of two Canadian urban areas. *International Journal of Applied Earth Observation and Geoinformation*. Retrieved April 21, 2022 <https://doi.org/10.1016/j.jag.2018.10.005>

Both modern agriculture and the global food system that rely on its' practices are yet another direct threat to food sovereignty. Traditional knowledge of agricultural practices are being forgotten because of the globalized industrialization of agriculture. Food is traditionally tied to spirituality; some Dine origin stories teach that people originated from corn (D. Eldridge et. al., 2014). Meals are a time to gather, such as at potlatches where distribution of wealth and knowledge is shared. Food, therefore, plays a large role in cultural identity. Being disconnected from spiritual and agricultural practices and not knowing where ones food comes from as a result of genocide leads to poor mental health (Oster RT et al. 2014). Addictions, substance use and suicide rates rise from a lack of cultural continuity and access to traditional foods. Declines in health and inclines in diabetes arise from lack of access to genetically compatible foods. Studies show that 33% of the Navajo nation are either diagnosed with diabetes or are pre-diabetic (Oster RT et al. 2014). This is a new phenomena of illness, and is directly correlated to the colonization of food systems. The

Navajo Nation live in a food desert, which is an area without access to fresh and nutritional food. Often found in low-income communities, the foods that are accessible are often heavily processed. (D. Eldridge et. al. 2014)

Grocery stores provide convenience, rendering every ingredient imaginable regardless of its seasonality to a commodity. The dark side behind this convenience, is that the producers are often large scale extraterritorial farms, where settler colonies have altered natural terrain to accommodate their agricultural methods. Cash crops, crops to sell for profit have environmentally destructive agricultural practices such as tilling and monocultures which eradicated many native grains species. In the global south, cash crops are usually crops that attract demand in more developed nations. They are typically purchased by foreign parties separate from the farm. Many corporations continue to create underpaid and unsafe work conditions and pay their workers poorly. With most yields being exported out of necessity, local food insecurity is prevalent. Today, clans around the world are food insecure and even food insufficient. There is a growing need for food assistance programs because of rising costs from imported food. The food assistance programs themselves lack nutritional balance.

Industrialization of agriculture in the production and business of foods transformed the relationship humans have with the planet. In the 1940s, the Green Revolution brought new technologies that damaged the environment and would not be sustainable (J.H. Perkins 1990). For one, the cropping method uses non-renewable perennial produce rather than annual vegetation. Technological inputs include large amounts of freshwater use, chemical fertilizer and pesticides that find their way into the soil table and waterways. The runoff from these agriculture activities lead to

ocean acidification, which is where the carbon gone into the ocean exceeds its capacity to sequester it. This leads to toxic algal blooms and it eats away at the minerals used by organisms to build their shells and skeletons. Heavily reliant on fossil fuels and pesticides, 26% of greenhouse gasses come from food production. Our food systems make up 1/4 of the worlds emissions (H. Ritchie et. al. 2020). These gasses include methane, carbon dioxide, and nitrous oxide. Methane is 28x more powerful than CO₂. Today's crops take up 50% of the land on earth and is a major reason for a lack of biodiversity (H. Ritchie et. al. 2020). Most of it isn't even to feed humans, its to feed the livestock that feeds humans. Food system has narrowed concentration on a select few species. Resulted in the disappearance of genetic diversity, exhaustion of fertilizers and petrol chemicals, soil salinization from irrigation, definition, dangers of pest outbreaks from mono cropping. It displaces marginalized farmers and increases hunger. In addition to displacement and malnourishment of people, this has similar impacts on the environment. This intended withholding of resources make growing difficult. These agriculture malpractices were enforced by settler colonies who brought their own seeds and forced the earth into submission with these invasive technologies rather than using native species. Many of the 2,000 varieties of indigenous grains, roots, fruits, and other food plants have been 'lost', at least from the daily diet of most Africans (E. Vallianatos, 2011). Ongoing colonial violence is apparent today as the Gates foundation and Monsanto, manufacturer of the glyphosate based herbicide Roundup are pushing genetically engineered crops on African farmers (E. Vallianatos, 2011). A return of the land to its rightful owners is a return to sustainable land use.

Land and water use policies provide barriers to community growers. Solving this leads to a rekindling of community togetherness and values. Since last few centuries, these resources have been heavily controlled and even destroyed as assimilation tactics. However, to quote Chief Seattle, “whatever we do to the web of life, we do to ourselves.” The intended erasure of Indigenous knowledge has affected the entire planet through non-renewable resource extraction causing climate change. Most unjust, is that climate change directly impacts the sovereignty of indigenous groups. The inaction of climate justice is colonialism in itself. Part of the healing of a genocidal past includes the healing of the land and the rejection of the ongoing destruction of landscapes for the purpose of growing food and extracting other non-renewable energy resources. For thousands of years, indigenous groups from the tropical forests to the temperate forests contributed to the flourishing of these forests, utilizing the ecosystem to their benefit as edible plants grew together in harmony. Trees play an important role in agro-forests, providing habitats for pollinators, providing shade, regulating water and enriching soil. Micorrhizae play the important role of distributing nutrients equitably. Every organism in this complex system plays a vital role. As development from outside interests and climate change persists, challenges to return the landscape to its original form arise, despite it being part of the solution to combatting climate change.

Marginalized communities around the world call for the return of land in their hands. Calls to action include the Inuit Nunangat Food Security Strategy which seeks the partnership of the government to improve food security. “Action and investments are needed to support harvesting activities and Inuit wildlife management decision-

making, to subsidize and regulate food transportation, to support regional food production through the development of local food markets, as well as to develop effective public policy initiatives, food security programs, and interventions.” This call for policy making is a call for justice, to relieve the Inuit of the suffering the government previously put them in. The Dine College pushes for a change to policies that restrict land use. In a 2014 survey led by the Dine Policy Institute, local growers called for a reform of land use policy and permits to allow for efficient utilization of the land. (D. Eldridge et. al. 2014) They also noted that local control of the permit process would be more appropriate to empower and promote community well-being. Similarly, the African journal of Pambazuka of Voices for Freedom and Justice suggests giving the land back to its rightful owners. “In Africa, agriculture will nurture freedom and democracy when all land from the cash crop plantations passes on to the peasants,” writes Vallianatos, who stresses the importance of self-sufficiency, namely food self-sufficiency. This is the context for Landback, an intergenerational movement started on Turtle Island. Its origins lie within the breaking of the treaty of 1886 and the invasive gold mining of the sacred and ancestral Black Hills on Lakota territory. Four white supremacists have since had their faces carved into the stone of the sacred mountain Tunkasila Sake Paha, renaming it Mount Rushmore, as an act of further disrespect to the people and the land. Today, it is a tourist attraction. “To truly dismantle white supremacy and systems of oppression, we have to go back to its’ roots. Which, for us, is putting Indigenous Lands back in Indigenous hands” (Landback, 2021). Without land, it is extremely difficult to facilitate cultural continuation. Language, food, art, cere-

mony and more are geographically informed. Therefore, there can be no price placed on decolonization. It is a matter of concrete action (Tuck & Yang 2012).

Works Cited

- B. Daniel (2014) *The Third Plate*, The Penguin Press, New York
- . D. Droitsch (2014) *Tar Sands Crude Oil: Health Effects of a Dirty and Destructive Fuel*. National Resources Defence Council Issue Brief. Published online at [assets.nrdc.org](https://assets.nrdc.org/sites/default/files/tar-sands-health-effects-IB.pdf) Accessed April 2022 <https://assets.nrdc.org/sites/default/files/tar-sands-health-effects-IB.pdf>
- D. Eldridge et. al. (2014) *Dine Food Sovereignty*, Dine Policy Institute. Published online at [dinecollege.edu](https://www.dinecollege.edu) Accessed November 2022 <https://www.dinecollege.edu/wp-content/uploads/2018/04/dpi-food-sovereignty-report.pdf>
- E. Vallianatos (2011) *Cash Crop Colonialism and the Attack on African Agriculture*, Pambazuka News. Accessed November 2022 <https://www.pambazuka.org/food-health/cash-crop-colonialism-and-attack-african-agriculture>
- H. Ritchie et. al. (2020) “Environmental Impacts of Food Production” Published Online at ourworldindata.org Accessed November 2022 from ourworldindata.org/environmental-impacts-of-food#you-want-to-reduce-the-carbon-footprint-of-your-food-focus-on-what-you-eat-not-whether-your-food-is-local
- Landback (2021) “Landback” Published on landback.org Accessed November 2022 from <https://landback.org>
- L. June (2022) *3000 Years Old Solutions to Modern Problems*, TEDX, Published online on [youtube.com](https://www.youtube.com/watch?v=eH5zJxQETI4) Retrieved November 28, 2022 from <https://www.youtube.com/watch?v=eH5zJxQETI4>

L. Thomas (2022) *The Intersectional Environmentalist*, Voracious Books, California

Navajo Nation Treaty (1868) "Treaty between the United States and the Navajo Tribe of Indians" Accessed Published online at courts.navajo-nsn.gov November 2022 from <https://courts.navajo-nsn.gov/Treaty1868.htm>

N. Obed, et. al. (2014) *Inuit Nunangat Food Security Strategy* Inuit Tapiriit Kanatami Published on [its.ca](https://www.itk.ca) at <https://www.itk.ca/projects/inuit-nunangat-food-security-strategy/>

Oster, R.T., Grier, A., Lightning, R. *et al.* (2014) "Cultural continuity, traditional Indigenous language, and diabetes in Alberta First Nations: a mixed methods study." Accessed online from *Biomedical Health* Accessed November 2022 at <https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-014-0092-4> <https://doi.org/10.1186/s12939-014-0092-4>

R. Venkataraman (2020) "Greenhouse Gas Emissions and Oil Refining" Published online at towardsdatascience.com, Accessed November 2022 from <https://towardsdatascience.com/greenhouse-gas-co2-emissions-and-oil-refining-b13082469a0c>

J.H. Perkins (1990) "The Rockefeller Foundation and The Green Revolution" <https://link.springer.com/content/pdf/10.1007/BF01557305.pdf>