

The Half Life of Environmental Racism:
Reproductive Justice and Nuclear Technology on Indigenous Lands

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Introduction

Nuclear power occupies a complicated space within narratives regarding climate change. On the one hand, nuclear waste presents a daunting contamination issue, exemplified by sites like Hanford in eastern Washington. On the other, nuclear power offers an alternative to fossil fuels and a way to reduce carbon emissions. In weighing these aspects of nuclear power in the climate change discussion, it is not enough to consider only the tradeoffs in terms of fossil fuels, greenhouse gases, and waste storage. The social factors that determine who bears the burden of nuclear power must be considered in these conversations. During the Cold War, increased nuclear weapons production was advanced as protection against nuclear apocalypse in a social climate dominated by fear. While weapons protection may have eased the fears of politicians and the dominant society, Indigenous communities like the Wanapum and the Navajo Nation faced the environmental consequences of weapons production. As Sarah Fox puts it in her book *Downwind*, “Apocalypse, in the shape of a mushroom cloud, was understood [by the U.S. public] to be on the doorstep.”¹ For many, apocalypse is once again on the doorstep but now in the form of climate change. While nuclear power presents some potential solutions to energy production issues, it does not stand apart from the Cold War history or the impact that nuclear technology has had and continues to have on Indigenous communities. Furthermore, this impact is part of a long history of harm to Indigenous communities. Because Indigenous communities have been structurally devalued by the dominant society, they have faced a range of reproductive justice

¹ Fox, *Downwind: A People's History of the Nuclear West*, 50.

and health issues from nuclear waste in or near their communities. This harm exists in the context of existing experiences of genocide and cultural loss for these communities. All questions about nuclear technology today whether they pertain to waste storage, weapons, or energy production exist in this historical context. To advocate for nuclear energy as a climate change mitigation strategy without considering past and present instances of environmental racism is to continue the structural violence perpetrated against Indigenous people by a system that does not adequately recognize their value, humanity, or cultural traditions. This violence demonstrates failures to achieve reproductive and environmental justice and to address environmental racism.

Reproductive justice is a concept originally developed by women of color to fully describe the need for reproductive rights and autonomy. The SisterSong Women of Color Reproductive Justice Collective defines reproductive justice as: “the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities.”² Rosalinda Pineda Ofreneo argues that reproductive justice considers the intersections of different forms of oppression and “takes an integrated and transformative approach, taking into consideration the totality of women’s lived experiences [...] any [...] place where they expend their creative energies and seek to alter power relations in their favour.”³ The concepts encompassed by reproductive justice are important because they holistically address the issues present in questions of reproductive rights. In contrast to mainstream reproductive rights activism that focuses on legal and medical access, a reproductive justice lens looks holistically at

² SisterSong, “Reproductive Justice,” [sistersong.net](https://www.sistersong.net/reproductive-justice), accessed August 15, 2019, <https://www.sistersong.net/reproductive-justice>

³ Rosalinda Pineda Ofreneo, “Economic and Reproductive Justice in the Context of Women in the Informal Economy,” *Asian Bioethics Review* 2, no. 1 (March 2010): 21.

the community. Recognizing the importance of a “safe and sustainable communit[y]” connects to questions of environmental justice.

The Environmental Protection Agency’s 2012 definition of environmental justice describes “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”⁴ Based on this definition of environmental justice, the work of reproductive justice activists, and a review of environmental contamination on Indigenous lands within the United States, Hoover et al. argue that the definition of reproductive justice should “include the capacity to raise children in culturally appropriate ways.”⁵ Environmental racism is central to the reproductive justice issues caused by nuclear waste on Indigenous lands. Described by some activists as genocide, environmental racism is racial discrimination in decision making around environmental regulation as well as racism within environmental activism.⁶ This discrimination in environmental regulation is part of structural racism with laws and policies that reflect racial prejudice. Both issues of reproductive justice and environmental racism reflect paternalistic assumptions that the dominant society knows what is best for individuals.

In this essay, I will use the concept of reproductive justice—including arguments regarding the importance of being able to raise children in culturally appropriate ways—to argue that nuclear waste on Indigenous lands is a reproductive justice issue. This is the result of systemic

⁴ Elizabeth Hoover, Katsi Cook, Ron Plain, Kathy Sanchez, Vi Waghiyi, Pamela Miller, Renee Dugault, Caitlin Sislin, and David O. Capenter, “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” *Environmental Health Perspectives* 120, no. 12 (Dec 2012): 1645.

⁵ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1648.

⁶ Karl Gorssman, “Environmental Racism.” In *People, Penguins, and Plastic Trees: Basic Issues in Environmental Ethics*, edited by Christine Pierce and Donald VanDeVeer, 39-44. Belmont, CA: Wadsworth Publishing Co., (1995): 39-44.

oppression and exploitation from the United States government and corporations that exists in the context of prior histories of genocide and forced cultural assimilation. Specifically, the Indian boarding schools taught specific views of the natural world through landscaping, agriculture, and language. Instances of forced and coerced sterilization contextualize the medical impacts of nuclear exposure through a shared impact on the ability to have children. I will begin by examining these examples of boarding schools and sterilization abuse to contextualize an analysis of several aspects of nuclear technology: uranium production, plutonium production, and waste storage. Finally, I will outline the concerns of present day Indigenous activists on climate change issues and nuclear power as an alternative. I argue that the historical context and reproductive justice aspect of nuclear technology must be considered in climate change mitigation. It is not enough to reduce carbon emissions without addressing the cultural paradigm that justifies the exploitation of land and the oppression of Indigenous peoples. We must consider the historical context of these issues and listen to the voices of Indigenous environmental activists and organizations who call for a paradigm shift to address issues of climate change mitigation.

Reproductive Justice, Cultural Assimilation, and the Indian Boarding Schools

Indian boarding schools are one historical example of reproductive justice issues impacting Indigenous people. In the late nineteenth and early twentieth century, the U.S. government ran boarding schools for Indian children and adolescents. While the schools themselves and the experiences of individual students varied, the purpose of these schools was to force Indians to assimilate into the dominant culture. Policy makers, philanthropists, and social reformers saw themselves as civilized and viewed Indians as uncivilized. They believed that

civilization evolved naturally and that the imposition of higher levels of civilization was necessary to save Indians, who they believed could not save themselves.⁷ Within this framework, being civilized necessitated

a commitment to the values of individualism, industry, and private property; [...] the acceptance of Christian doctrine and morality, [...] the abandonment of loyalty to the tribal community [...] and finally, an acceptance that man's conquest over nature constituted one of his noblest accomplishments.⁸

Boarding schools functioned to assimilate Indian youth into these cultural values, based on the principle "Kill the Indian in him and save the man."⁹ Significantly, these values included celebrating dominance over the natural world. Rooted in a paternalistic ideology, social reformers and policy makers saw themselves as acting benevolently—saving Indians from themselves through forced assimilation into the dominant, white culture's¹⁰ values. Forced assimilation through the boarding schools represents an issue of reproductive justice because officials did not respect the importance of children being raised in safe communities with their own culture's values.

Schools forced students to alter their outward presentation. One way they did this was by cutting students' hair. S.M. McCowan, superintendent of Fort Mohave Boarding School, wrote to a former student: "I compelled you to have your hair cut off, not because of any objections to the long hair in itself, but merely because the long hair was a symbol of savagery."¹¹ Adams describes the experience of having their hair cut as deeply traumatic for many students. He notes

⁷ David Wallace Adams, *Education for Extinction: American Indians and the Boarding School Experience 1875-1928*, University Press of Kansas, 1995: 12-21.

⁸ Adams, *Education for Extinction*, 15.

⁹ Adams, *Education for Extinction*, 52.

¹⁰ In this essay, I use the term white culture to reflect the dominant, hegemonic values imposed on indigenous communities. The homogeneity implied by this term does not reflect an overall cultural homogeneity but rather the Indian's perception of the culture and the values the boarding schools sought to impose.

¹¹ As quoted in Adams, *Education for Extinction*, 102.

that students generally found having their hair cut to be more traumatic than the loss of their traditional clothing in exchange for a school uniform.¹² Nevertheless, Adams writes that students disliked the lack of individuality with the school uniforms and found them physically uncomfortable.¹³ Furthermore, the quality of clothing varied greatly—in part due to differences in funding and in part due to the fact that student sewing classes produced the uniforms. Additionally, the clothing school administrators took from students was sometimes of higher quality than what they received instead. The quality of the uniforms varied greatly. In Albuquerque in 1893, the school allowed girls to embellish their clothes because the girls compared their clothes to those fashionable among white girls.¹⁴ While this gave the students greater agency and nicer clothing, the purpose was to support cultural assimilation. At their core, uniforms, like haircuts, were intended to erase the students' different tribal cultures. "Many students," writes Adams, "must have seen the emphasis on uniform dress for what it was: yet another aspect of the school's design to turn Indians into carbon copies of their white overseers."¹⁵

The boarding school system also sought to change students values, including conceptions of space and time. For example, boarding schools forced different conceptions of space onto students with ordered, rectangular spaces. For some students this was particularly in opposition to their cultural background—e.g. Lakota culture focuses on circular spaces and objects. Conceptions of space also included placing greater value on order than on natural landscapes and actively transforming those landscapes to be more ordered.¹⁶ This focus on order had parallels to

¹⁴ Adams, *Education for Extinction*, 103-8.

¹⁵ Adams, *Education for Extinction*, 108.

¹⁶ Adams, *Education for Extinction*, 113.

the general focus on cultural assimilation: “The lesson in all this was clear: nature existed to serve man’s ends. In the interest of symmetry and order, the wild must be tamed, just as the Indian must be civilized.”¹⁷ This is an essential aspect of forced assimilation into a cultural paradigm that sets humans apart from the natural world.

Students also had to follow a schedule of “relentless regimentation”¹⁸ that focused on fostering white values. To this end, schools had extremely militaristic structures, especially off reservation schools; they organized both boys and girls into units and did marching drills. One student, Anna Moore Shaw, describes marching as initially difficult but said that once they learned, it was “impossible” to walk normally.¹⁹ The military structure of the school had several goals, including breaking up tribal groups and thus forcing students to use English as a common language. On a practical level, the military structure made organization easier. Overall, however, the essential function of the military structure and drills was to enforce discipline and control and to alter the students’ values and conceptions of time to match those of white society. The system emphasized discipline, order, punctuality, politeness, and patriotism.²⁰

Students at boarding schools also had their names changed by school officials. In part, this reflected an unwillingness to learn to pronounce new names. Additionally, when translated into English, many Indian names did not seem to make sense as names and reflected different cultural values. Name changes also served to promote cultural assimilation on a deeper level, emphasizing individualism and facilitate the transmission of private property. In general, the Indian Office preferred to use a shortened version of the student’s original name as a last name. Sometimes they used translations of Indian names as last names, but some Indian names were

¹⁷ Adams, *Education for Extinction*, 114.

¹⁸ Adams, *Education for Extinction*, 117.

¹⁹ Adams, *Education for Extinction*, 118.

²⁰ Adams, *Education for Extinction*, 118-21.

very long, had very nuanced meanings, or seemed strange or even rude when taken out of their context. Officials sometimes named children based on geographic features or wildlife connected to their culture. Other times, they selected names randomly or named them after historical figures. The use of random or historic names later became frowned upon, and school administrators used more names based on translations of students' father's names. These name changes were both an essential aspect of enforcing the transmission and value of private property and an assault on traditional, ritualized cultural practices around naming that often honored elders and relatives.²¹ As such, whether they chose random names or names that, from the perspective of the dominant culture, connected to their heritage, the name change was a tool of forced cultural assimilation.

The food provided to students at boarding schools was another method of cultural assimilation, and it often had negative impacts on students' health. Schools fed children food typical in the dominant white culture and produced by the school's farm and dairy. At some schools, students were well fed, but at others, they did not receive enough to eat.²² A former boarding school employee, Estelle Brown, said that she realized children did not have enough to eat within a week and that "I did not know that for sixteen years I was to see other children systematically underfed." Furthermore, she reflected, "I knew these girls were consistently overworked, knew that they were always hungry. Simply, they did not get enough to eat. We all knew it; most of us resented it, were powerless—or too cowardly—to try to do anything about it."²³ School officials also expected students to eat with regimented table manners and at specific times of day,²⁴ further enforcing the dominant cultural conceptions of etiquette and time.

²¹ Adams, *Education for Extinction*, 108-11.

²² Adams, *Education for Extinction*, 114-5.

²³ As quoted in Adams, *Education for Extinction*, 115.

²⁴ Adams, *Education for Extinction*, 116-7.

Beyond the health consequences of changing the students' diets, boarding schools had high rates of infectious disease. As a result, as Adams writes "death and disease were also aspects of the boarding school experience."²⁵ Tuberculosis and trachoma were the most common illnesses. Exact death rates are unknown as most superintendents only reported deaths that occurred at the school, and many students died shortly after returning home. Officials frequently dismissed ill students—this helped to reduce the spread of infectious disease, but it also lowered the reported death rates for schools.²⁶

The Indian Office attributed the high rates of death and disease to Indian culture. Officials cited poor hygiene in students' home communities and superstitious beliefs, including a distrust of Western medicine, among children and their parents.²⁷ A belief that Indian culture was responsible for morbidity and mortality rates was not isolated to white officials, and some Indians, such as Henry Sicade, cited poor sanitation and distrust of Western medicine as problems as well.²⁸ However, disease spread rapidly through schools, and concerns about hygiene in students' home communities could be ironic, as schools did not disinfect items shared among students, provide a nutritious diet, or provide all children with their own beds. Furthermore, the strict daily regimen and drills and the emotional pain of being separated from their families, communities, and cultures weakened students' immune system responses and emotional resilience.²⁹

²⁵ Adams, *Education for Extinction*, 125.

²⁶ Adams, *Education for Extinction*, 124-30.

²⁷ Adams, *Education for Extinction*, 132-3.

²⁸ "Hearings before the Joint commission of the Congress of the United States, Sixty-third Congress," 1914, Internet Archive, accessed Dec 20, 2019, <https://archive.org/details/hearingsbeforejo00unit/page/330>.

²⁹ Adams, *Education for Extinction*, 133.

Boarding schools also contributed to language loss within communities. Language is closely tied to cultural values. As a result, this loss represents a deeper level of forced assimilation. Robin Kimmerer writes about learning to understand the values imbedded in her culture's language, Potawatomi, as follows: "[t]he powers of assimilation did their work as my chance of hearing that language, and yours too, was washed from the mouths of Indian children in government boarding schools where speaking your native tongue was forbidden."³⁰ She describes how her language reflects values regarding the natural world. She notes that in Potawatomi and many other Indigenous languages "we use the same words to address the living world as we use for our family. Because they are our family."³¹ This places a higher value on other living beings. Furthermore, in Potawatomi, more parts of the world are understood as living. Kimmerer argues that "[s]aying *it* makes a living land into 'natural resources.'"³² In this way, the words used in English to describe the natural world reflect a value system that places humans apart from the natural world and allows for exploitation of that world. Kimmerer challenges the acceptance of human dominance over nature by describing how, in Potawatomi, "[t]he language reminds us, in every sentence, of our kinship with the nature world."³³ Kimmerer argues that "[l]earning the grammar of animacy could well be a restraint on our mindless exploitation of land."³⁴ In this way, she demonstrates how values that allow the exploitation of the natural world are embedded in the language we use. These values are the same values of dominance over the natural world taught in boarding schools.

³⁰ Robin Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*, Milkweed Editions, 2013: 49.

³¹ Kimmerer, *Braiding Sweetgrass*, 55.

³² Kimmerer, *Braiding Sweetgrass*, 57.

³³ Kimmerer, *Braiding Sweetgrass*, 56.

³⁴ Kimmerer, *Braiding Sweetgrass*, 58.

Overall, the Indian boarding schools represent a lack of reproductive justice. In terms of health impacts, many children were underfed, overworked, and faced high rates of infectious disease. Furthermore, the stated purpose of the schools was to assimilate Indians into the dominant culture; as a result, the schools separated children from their cultural practices. Because so many of the cultural values emphasized in the schools pertained to land use, private property, and privileging humans over the natural world, the impact of the boarding schools have further implications for environmental justice.

Reproductive Justice and Sterilization Abuse

Sterilization abuse is another historical example of a reproductive justice issue impacting Indigenous communities and Indigenous women in particular. In the 1960s and 1970s, it was common for Native American women to be sterilized through forceful, coercive, or otherwise non-consensual means.³⁵ One woman, then twenty years old and struggling with alcoholism, consented to a hysterectomy, but she did so with the understanding from Indian Health Services (IHS) doctors that the procedure was reversible. In another case, two fifteen year-olds were sterilized while getting appendectomies; their parents were not even informed that the procedure had been done.³⁶ Another woman—Norma Jean Serena—was asked to consent to a sterilization procedure after the delivery of her child, while she was still under anesthesia; the form was witnessed and dated the day after the sterilization occurred. The doctors had told her that she

³⁵ Jane Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” *The American Indian Quarterly* 24, no. 3 (Summer 2000): 400.

³⁶ Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” 400.

“had enough children,” but she was not informed that she had been sterilized and did not know for a year after it happened.³⁷

Sterilization abuse was largely motivated by racism and colonialism. Because of these motivations and the impact on women, sterilization abuse represents an intersection of colonialism and patriarchy.³⁸ As one scholar put it: “Native women threaten colonial structures through their ability to reproduce the next generation of colonial resistance.”³⁹ A study in 1974 by Doctor Connie Pinkerton-Uri found that IHS sterilization abuse targeted “full-blood Indian women.”⁴⁰ An earlier study in 1972 found that physicians were more likely to support sterilization over birth control for women of color and those on welfare with multiple children. Eugenic philosophy persisted—unacknowledged—within medical ethics.⁴¹ To some extent, these practices—like the Indian boarding schools—reflected a paternalistic benevolence. Pinkerton-Uri argues that, despite the impact, sterilization abuse did not stem from “any plan to exterminate American Indians” and came instead from “the warped thinking of doctors who think the solution to poverty is not to allow people to be born.”⁴² This paternalism is rooted in racist and colonial assumptions of the inferiority of Indigenous peoples. While some physicians had benevolent intentions, sterilization abuse stripped Indigenous women of their autonomy, and communities experienced these practices as a continuation of histories of genocide.⁴³

³⁷ Myla Vicenti Caprio, “The Lost Generation: American Indian Women and Sterilization Abuse,” *Social Justice* 31, no. 4 (2004): 46.

³⁸ Caprio, “The Lost Generation,” 40.

³⁹ Caprio, “The Lost Generation,” 41.

⁴⁰ Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” 411.

⁴¹ Gregory W. Rutecki, “Forced Sterilization of Native Americans: Later Twentieth Century Physician Cooperation with National Eugenic Policies?” *Ethics and Medicine* 27, no. 1 (Spring 2011): 37-8.

⁴² As quoted in Lawrence, “The Indian Health Service and the Sterilization of Native American Women,” 412.

⁴³ Rutecki, “Forced Sterilization of Native Americans,” 33.

Additionally, economic factors influenced sterilization abuse. In some instances, physicians viewed sterilization as a beneficial method of fertility control for a low socioeconomic status population,⁴⁴ reflecting a paternalistic assumption that Indigenous women could not make their own reproductive and financial decisions. In other cases, physicians benefited financially from sterilization abuse. IHS physicians themselves did not have a financial incentive to sterilize women, but IHS also contracted with private practice physicians. IHS paid these physicians based on the procedures they performed. As a result, contracted private practice physicians made more money when performing sterilizations and abortions instead of prescribing birth control.⁴⁵ In this way, both paternalistic assumptions about Indigenous women and financial incentives for physicians played a role in sterilization abuse.

IHS and physicians coerced Native American women through a variety of methods. In some cases, they lied to women about the procedures or about their own health needs. One woman received pills that she was told were vitamins but were actually birth control pills.⁴⁶ Women received forms that did not comply with regulations and did not demonstrate informed consent. A 1974 U.S. District Court Order required that patients be informed that no government or healthcare services would be withheld as punishment for withdrawing or withholding consent.⁴⁷ In fact, despite the court order, many agreed to sterilization because their physicians threatened them with a loss of welfare benefits or custody of their children.⁴⁸ Physicians also threatened to withhold future healthcare services.⁴⁹

⁴⁴ Caprio, "The Lost Generation," 40.

⁴⁵ Rutecki, "Forced Sterilization of Native Americans," 37-8.

⁴⁶ Caprio, "The Lost Generation," 41-2 and 46.

⁴⁷ Caprio, "The Lost Generation," 44.

⁴⁸ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 411-2.

⁴⁹ Rutecki, "Forced Sterilization of Native Americans," 35.

In 1970 in the case *Dolores Madrigal et al. Plaintiff v. E.J. Quilligan et al.* a group of Chicanas sued the Los Angeles County Medical Hospital for sterilization abuse. The plaintiffs reported being pressured to consent while sedated and/or in labor and that their husbands were also pressured to give consent.⁵⁰ This was not an uncommon experience. Physicians largely obtained consent from women while they were sedated or in labor.⁵¹ Both written and oral language barriers further impacted women's ability to consent. Most consent forms were beyond the patients' reading level, and IHS did not provide translators to address language barriers.⁵²

Sterilization abuse also reflects assumptions about the dominance of Western medicine. Many Native American women did not want to use Western birth control for a variety of reasons. Some, wanted to have more children, in many instances influenced by declining Native American populations. Others preferred to use traditional birth control practices, including herbal medicine.⁵³ Emphasizing Western biomedical interventions over traditional practices reflects the cultural aspect of reproductive justice. Within a different cultural tradition there are different reproductive options which carry different meanings. Sterilization abuse prevented women from making reproductive choices in ways consistent with their own cultures.

Forced sterilization tremendously impacted Native American communities. Fear and shame have silenced many women, making this violence invisible.⁵⁴ Overall, Native Americans accuse IHS of sterilizing at least 25% of Native American women between ages fifteen and forty-four during the 1970s.⁵⁵ This loss of a generation has had a huge impact on all aspects of Indigenous

⁵⁰ Caprio, "The Lost Generation," 45.

⁵¹ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 411-2.

⁵² Caprio, "The Lost Generation," 48.

⁵³ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 412.

⁵⁴ Caprio, "The Lost Generation," 41.

⁵⁵ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 400.

communities.⁵⁶ Sterilization had political impacts on tribal council and national pan-Indian organizations based on representation by population size. Some activists believe that sterilization was an attempt to undermine tribal sovereignty and economic stability in order to steal land. Many Native Americans are now unwilling to access healthcare out of fear that physicians will not respect them, their autonomy, or their cultural practices. Sterilization abuse also further damaged the relationship between Native Americans and the U.S. government.⁵⁷

Sterilization also had significant interpersonal and cultural impacts which must be considered from a reproductive justice lens. The loss of a generation has made the continuation of cultural practices and keeping languages alive more difficult.⁵⁸ Sterilization also had impacts on interpersonal relationships between husbands and wives and mothers and children.⁵⁹ Furthermore, infertility, childlessness, and gender are understood differently in different cultures. As a result, women suffered unique harms based on the relationship between their culture and their experience. For example, Pueblo women must have children to participate in certain religious ceremonies.⁶⁰ Thus, sterilization abuse also shaped how individual women related to their cultures and communities. Acting from a paternalistic, Western biomedical framework, IHS and contracted physicians did not value these cultural practices and relationships.

Mining and Milling: Uranium Production and Reproductive Justice

Occurring in the context of reproductive justice issues including the Indian boarding schools and sterilization abuse, uranium production for nuclear technology also impacts both

⁵⁶ Caprio, "The Lost Generation," 50.

⁵⁷ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 411-14.

⁵⁸ Caprio, "The Lost Generation," 51.

⁵⁹ Lawrence, "The Indian Health Service and the Sterilization of Native American Women," 414.

⁶⁰ Caprio, "The Lost Generation," 50.

cultural and biomedical aspects of reproductive justice. Uranium mines have caused ongoing issues and negative health outcomes for Indigenous communities—particularly in South Dakota and the Southwestern part of the U.S. On the Pine Ridge Reservation in South Dakota, the Ojibwe Lakota people have faced contamination because of uranium mining and milling. This has resulted in a range of health issues for their community. The combination of radioactivity and direct metal toxicity means that uranium had extremely negative impacts and led to increased rates of kidney disease, cancer, and birth defects. Lakota women have also faced high rates of miscarriages and reproductive cancers. In New Mexico, the Tewa Pueblo community face similar issues from mining and weapons testing at the Los Alamos National Laboratory.⁶¹

Mining has also had a significant impact on the Navajo Reservation. The Navajo community has been impacted both by working in the uranium production industry and by living near uranium mines and mills. This impact is partially the result of active deception as officials told local residents and uranium miners that the mines were not dangerous to them or their families.⁶² While low income white communities have also been negatively impacted by the prevalence of uranium mines in the area, policies in the industry targeted Indigenous people in distinct ways. Interviews with miners indicate that they forced Navajo miners to enter the mines right after blasting, unlike their white counterparts, exposing Navajo miners to greater quantities of dust in the mines.⁶³ This demonstrates the role of racism in policy producing greater impacts on Indigenous people.

⁶¹ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1646.

⁶² Sarah Alisabeth Fox, *Downwind: A People’s History of the Nuclear West*, University of Nebraska, 2010: 6-7.

⁶³ Fox, *Downwind: A People’s History of the Nuclear West*, 39.

Additionally, officials did not provide miners with adequate information about risks or protective equipment. The specific dangers of uranium mining had already been demonstrated by uranium mining in Europe in the late 1800s.⁶⁴ Communication to miners in the Southwest about dangers was late, limited, and did not account for language barriers.⁶⁵ Failure to account for language barriers further demonstrates the lack of concern for the wellbeing of Indigenous people impacted by the Uranium industry. They did not provide uranium workers with information or protective gear; this was not merely the result of insufficient knowledge in a developing discipline but rather the consequence of racism and classism directed at miners and mill workers. Classism is systemic oppression based on socioeconomic status, including wealth, occupation, and income level. Both the Navajo miners and their white counterparts came from poor or working class communities that are devalued by the dominant U.S. society. A 1952 study from Public Health Services said mill workers should receive personal protect equipment; interviews with workers reveal they first received personal protective equipment in 1970.⁶⁶ Thus, active disregard for the safety of the mill workers had a profound impact on exposure to contaminants and the overall health of the community. This further impacted the safety of the Navajo communities for raising children.

Mining operations on the Navajo reservation also disregarded the land rights of the Indigenous community. Geologist William Chenoweth said that to access uranium on the reservation, they needed a Navajo individual involved to get the permit, so they would use

⁶⁴ Susan E. Dawson and Gary E. Madsen, "Uranium Mine Workers, Atomic Downwinders, and the Radiation Exposure Compensation Act (RECA): The Nuclear Legacy," In *Half-Lives and Half-Truths: Confronting the Radioactive Legacies of the Cold War*, edited by Barbara Rose Johnston, 117-144. Santa Fe, N.M.: School for Advanced Research Press, 2007: 119.

⁶⁵ Fox, *Downwind: A People's History of the Nuclear West*, 36.

⁶⁶ Fox, *Downwind: A People's History of the Nuclear West*, 42.

people to get permits with small royalties and displace families from the land.⁶⁷ Displacing Indigenous families for profitable weapons production activities is an issue of reproductive justice because both the displacement from the land and the impact of mining on the land took “safe and sustainable communities”⁶⁸ in which to raise children away from Navajo families.

The presence of mines and the resulting waste in their communities also impacted miners and their families. While working in the mines, miners did not have clean water to drink and drank water they found in the mines. Not warned of the dangers, miners also brought mine water back home to their families. Phil Harrison recounts how his six month old brother and many other young children in the community died after drinking baby formula mixed with mine water.⁶⁹ Mining operations left mine tailings near communities. Children played in the mine tailings, and people used them to construct homes with traditional methods that mixed mud and dirt to form parts of the home. Individuals living in these homes received three times the U.S. average annual exposure to radiation.⁷⁰ The presence of mine tailings in residential communities violate the principles of reproductive justice in a myriad of ways: unsafe environments for children to play in, high exposure to people in their own homes, and the cultural impact of increased exposure through maintaining traditional practices.

Plutonium Production and Reproductive Justice: the Hanford Site

The Hanford Site further illustrates how nuclear waste on Indigenous lands is a multifaceted reproductive justice issue. At the Hanford Site, the U.S. military produced the

⁶⁷ Fox, *Downwind: A People's History of the Nuclear West*, 25-6.

⁶⁸ SisterSong, “Reproductive Justice,” sistersong.net, [https://www.sistersong.net/reproductive justice](https://www.sistersong.net/reproductive-justice) (accessed August 15, 2019).

⁶⁹ Fox, *Downwind: A People's History of the Nuclear West*, 40-1.

⁷⁰ Fox, *Downwind: A People's History of the Nuclear West*, 44.

plutonium for the Trinity Test Site and the bomb dropped on Nagasaki.⁷¹ They chose the location because of low population density, given concern that a potential accident in a more populated area would draw attention to the project.⁷² To make space for the site, they forced a range of communities in the area, including the Wanapum people, to relocate.⁷³ The government even exhumed burial sites, promising the Wanapum that they would treat their graves with respect.⁷⁴ The Wanapum's understanding was that they would be able to return when World War II ended; that was not the case. Rex Buck, a member of the Wanapum tribe, has described how displacement has impacted cultural practices, including localized fishing practices.⁷⁵ The Wanapum refused to relinquish their fishing rights, and ultimately, after negotiations, Cornel Matthias allowed them day access, under army supervision, during the fishing season.⁷⁶ While the Wanapum did have some success in advocating for their rights, they could not stay overnight and could only practice this aspect of their culture under military supervision.

Systemic racism (the way that institutions privilege white people and harm people of color) is evident in the choice of site because the government valued the secrecy of the project and the wellbeing of wealthier and whiter communities over the safety and culture of the Indigenous people in that area, including the Wanapum. The fact that the Wanapum were led to believe that relocation was temporary indicates the lack of concern from the federal government for their

⁷¹ Gephert, "A Short History of Waste Management at the Hanford Site," 299.

⁷² Gephert, "A Short History of Waste Management at the Hanford Site," 298.

⁷³ Like the Wanapum, rural white communities were also forced to relocate to create space for the site. While these communities had colonized the area, the government also displaced them—and their cemeteries—for the creation of the Hanford Site.

⁷⁴ John M. Findlay and Bruce William Hevly, *Atomic Frontier Days: Hanford and the American West*. Emil and Kathleen Sick Lecture-book Series in Western History and Biography. Seattle: Center for the Study of the Pacific Northwest in Association with University of Washington Press, 2011: 21.

⁷⁵ AtomicHeritage, "A Broken Promise." *YouTube* video, 0:55-1:48, December 4th, 2015. https://www.youtube.com/watch?v=mrM_0jmLrcc

⁷⁶ Findlay and Hevly, *Atomic Frontier Days*, 21.

autonomy and connection to the land. Being blocked from the land and from significant sites creates a barrier to the transmission of cultural knowledge to the next generation. This is an issue of reproductive justice as the Wanapum community does not have the ability to raise their children in “culturally appropriate ways.”⁷⁷

One reason the Wanapum cannot fully return to the Hanford site is the fact that waste was not safely stored, permanently impacting the safety of the site. Safety was an ongoing problem during operation of the site and has continued since the site’s closure in 1990. The government spends six million dollars per day on waste management at Hanford.⁷⁸ During the first months of reprocessing in 1944 “mildly contaminated materials were simply dumped into depressions on the ground.”⁷⁹ Before 1970, storage methods at the Hanford Site did not allow for later retrieval, presenting safety hazards as storage facilities are damaged or corrode. As a result, Hanford houses “the largest accumulation of nuclear waste in the Western Hemisphere.”⁸⁰ However, Hanford’s early waste management followed the standards for dealing with toxic materials set by other contemporary industries. Hanford officials saw themselves as concerned with environmental protection, meaning protection of agricultural and fishing industries. Officials also strove to protect workers and the community. In fact, Hanford was the model for AEC facilities in waste management.⁸¹ Nevertheless, the Hanford Site remains one of the most toxic sites in the world. This demonstrates the limits of technological protections against waste and highlights that good intentions do not necessarily lead to positive outcomes. Nuclear waste at Hanford is a

⁷⁷ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1648.

⁷⁸ Roy E Gephart, “A Short History of Waste Management at the Hanford Site,” *Physics and Chemistry of the Earth* 35, (2010): 298.

⁷⁹ Gephart, “A Short History of Waste Management at the Hanford Site,” 302.

⁸⁰ Gephart, “A Short History of Waste Management at the Hanford Site,” 298.

⁸¹ Ian Stacy, “Roads to Ruin on the Atomic Frontier: Environmental Decision Making at the Hanford Nuclear Reservation, 1942-1952.” *Environmental History* 15, no. 3 (2010): 416-30.

reproductive justice issue. While the concern for workers and environment and the lack of precedent for safe waste storage made the Hanford Site different from mining and milling on the Navajo Reservation, this still represents an issue of reproductive justice. Both displacement and the presence of waste at the Hanford Site impact the ability of Indigenous communities in the area to raise their children with cultural practices in a safe and sustainable community.

Not all pollution from nuclear sites is radioactive, and non-radioactive waste also presents reproductive justice issues. Near the Hanford Site, there are higher rates of polychlorinated biphenyls (PCBs) in fish, likely linked to operations at the site.⁸² Indigenous communities downstream of Hanford may also experience higher rates of radiation due to consumption of contaminated fish.⁸³ Different types of contamination from the site still impact the ability of Indigenous communities to raise children safely and preserve their cultural practices for subsequent generations. While PCBs associated with the site are non-radioactive waste, they represent further contamination caused by nuclear technology. This demonstrates the wide range of ways that nuclear technology can impact reproductive justice.

Nuclear Waste Storage, Conceptions of Nature, and Reproductive Justice

Questions of reproductive justice are also present in conversations about nuclear waste storage. In 1996, the Indigenous Women's Network (IWN) in Saskatchewan opposed the Meadow Lake Tribal Council's interest in building a nuclear waste repository on tribal land. The council cited the potential for economic benefits from a repository. In contrast, INW objected to the negative and irreparable impact of nuclear technology on land and people, describing placing

⁸² Damon Delistraty, "Ecotoxicity and Risk to Human Fish Consumers of Polychlorinated Biphenyls in Fish Near the Hanford Site," *Science of the Total Environment* (2013): 14.

⁸³ Gephart, "A Short History of Waste Management at the Hanford Site," 304.

the repository on tribal land as an example of environmental racism. Members of IWN cited the impact on women and culture: “[Adele] Ratt [of IWN] says women have suffered from resource extraction in the north and therefore deserve a say in future development plans. ‘We have a strong connection to the Earth, we are the female manifestation of the Earth,’ she says.”⁸⁴ This language demonstrates the harm done to Indigenous people by nuclear technology. Ratt describes how Indigenous women grapple simultaneously with issues of environmental racism and misogyny and the importance of having their voices heard in these decisions.

In the U.S., many questions about storage have focused on the proposal to create a national nuclear waste repository at Yucca Mountain, though the Obama administration discontinued the project.⁸⁵ While the project has been discontinued, it remains significant because of the questions raised regarding the relationship between the federal government and Native American Nations in the context of ongoing problems of nuclear waste storage. Nuclear storage sites are disproportionately located in and around marginalized communities whose agency to oppose the sites is limited by structural oppression. In the specific case of Yucca Mountain, the Shoshone and Paiute peoples cited environmental justice and nuclear colonialism as reasons for opposition to the site.⁸⁶

Enders argues that the conflict between the Shoshone and Paiute peoples and the U.S. federal government stems from incommensurable differences in values, and the elevation of one set of values by the dominant culture and legal system. These values are reflected in the ways the two groups view the land and question of storage. For the Shoshone and Paiute nations, “Yucca

⁸⁴ Fiona Muldrew, “Indigenous Women Dump on Nuclear Waste Storage,” *Herizons* 10, no. 1 (Winter 1996): 8.

⁸⁵ Danielle Enders, “Sacred Land or National Sacrifice Zone: The Role of Values in the Yucca Mountain Participation Process,” *Environmental Communication* 6, no. 3 (Sept 2012): 329.

⁸⁶ Enders, “Sacred Land or National Sacrifice Zone,” 329.

Mountain and the surrounding land is a unique sacred place steeped in culture, history, spirituality, sense of place, and struggles for sovereignty.”⁸⁷ This land has been the home of the Shoshone and Paiute peoples since time immemorial, and “they argue that the presence of radioactive waste at a sacred site, whether or not it leaks, would alter the meaning of that site.”⁸⁸ Noting the change regardless of waste leaking is very important because it highlights the fact that physical harm done by uncontained radioactive waste is not the only factor to be considered. A change to the site—regardless of how effective containment is—will have an impact on the place. The consequences of such an impact speaks to the importance of including cultural transmission within reproductive justice. While mere technical safety might be enough to address questions of public health and limiting radiation exposure, the spiritual impact on a historically marginalized population must be considered as well. Altering the meaning of a sacred site would fundamentally change the ability of the Shoshone and Paiute peoples to transmit their cultural knowledge between generations. Thus, regardless of the ability to protect physical health, storing nuclear waste at a sacred site or on Indigenous lands represents a reproductive justice issue due to the cultural impact.

In contrast to the Shoshone and Paiute perspective, for the U.S. federal government, Yucca Mountain does not hold this spiritual significance. For the federal government, Yucca Mountain “is a geological resource to be used for its utilitarian function” and the consequences for the Shoshone and Paiute peoples are a “sacrifice made by a small group to benefit the entire nation.”⁸⁹ Likewise, Enders argues that the federal government sees the site’s value as “instrumental [...] storing high-level nuclear waste to protect the national interest.”⁹⁰ This

⁸⁷ Enders, “Sacred Land or National Sacrifice Zone,” 333.

⁸⁸ Enders, “Sacred Land or National Sacrifice Zone,” 336.

⁸⁹ Enders, “Sacred Land or National Sacrifice Zone,” 334.

⁹⁰ Enders, “Sacred Land or National Sacrifice Zone,” 336.

utilitarian, technocratic approach to the site looks solely at the potential benefits to the dominant society rather than viewing the land holistically. Based on these very different perspectives, Enders argues that both the Shoshone and Paiute nations and the U.S. federal government approach the issue of storage in general—and the Yucca Mountain site in particular—from incommensurable value systems. The presence of incommensurable differences in values emphasizes the importance of including cultural practices in reproductive justice rather than focusing exclusively on access to biomedical intervention.

Enders further argues that this incommensurability stems from the animist intersubjectivity perspective of Indigenous worldviews. From the perspective of animist intersubjectivity, “sensing subjects expand beyond humans to include animals, plants, mountains, and landscapes” in contrast to “the Western philosophical tradition’s tendency to view sensing, communicating, and meaning-making as the unique realm of humans.”⁹¹ In contrast to this mechanistic view of the natural world, from the animist perspective, “all beings in the natural world—animals, plants, mountains—[...] sense and communicate with each other.”⁹² This understanding of the natural world is essential to understanding the incommensurability of different values in addressing questions of waste storage. The Shoshone and Paiute peoples’ animist intersubjectivity framework recognizes very different consequences from placing a nuclear waste repository under Yucca Mountain than technocratic perspectives and those placing humanity apart from the natural world. Boarding schools advanced technocratic views of nature, including through the impact on language. As a result, their legacy is tied to this debate. From a

⁹¹ Danielle Enders, “Animist Intersubjectivity as Argumentation: Western Shoshone and Southern Paiute Arguments Against a Nuclear Site at Yucca Mountain,” *Argumentation* 27, (2013): 186.

⁹² Enders, “Animist Intersubjectivity as Argumentation,” 187.

reproductive justice framework, animist intersubjectivity means that this profound cultural and spiritual impact on the ecosystem must be seen as relevant.

Contemporary Debates About Climate Change

Reproductive and environmental justice continue to impact Indigenous communities and inform the work of Indigenous environmental activists. Many Indigenous activists are highly critical of nuclear power as a potential climate change mitigation strategy. Activist Tom Goldtooth, for example, argues that Indigenous people have

already disproportionately suffered the negative compounding effects of global warming and a changing climate, including the negative effects of the extractive fossil fuel industry and its processing systems.⁹³

The experiences of Indigenous people both in the Southwestern U.S. and near the Hanford Site demonstrate the ways that Indigenous people also disproportionately bear the burden of the nuclear industry. In 1998 in response to the proposed nuclear storage facility at Yucca Mountain in Nevada, the Navajo Nation considered legal methods for blocking the transportation of nuclear waste across their reservation. Anna Rondon of the Southwest Indigenous Uranium Forum argued that “[w]e already have more than enough radiation exposure with the fallout of the bomb tests and all of the nuclear accidents that have occurred here in the last 50 years of uranium mining.” At the time, seventy-five other “native tribes and bands [had] declared themselves nuclear-free,” indicating widespread resistance to nuclear technology from Indigenous peoples.⁹⁴

⁹³ “For a change of paradigm’: Interview with Tom Goldtooth from the Indigenous Environmental Network,” World Rainforest Network, accessed November 13, 2019, <https://wrm.org.uy/articles-from-the-wrm-bulletin/section1/for-a-change-of-paradigm-interview-with-tom-goldtooth-from-the-indigenous-environmental-network/>.

⁹⁴ Cate Gilles, “Navajos May Say No To Nuclear,” *High Country News*, June 8th, 1998, <https://www.hcn.org/issues/132/4213>.

Issues of the impact of both climate change and climate change mitigation on Indigenous people continue currently. In March of 2019, New Mexico passed landmark legislation, the Energy Transition Act, requiring a shift to 40% renewable energy by 2025, 50% by 2030, and at least 80% by 2050. These regulations are in line with similar legislation in California and Hawaii. Currently, New Mexico is the third biggest oil producer in US. In 2018, the state had record high oil production, increased by forty-two percent from 2017. At the same time, natural gas production increased by thirteen percent.⁹⁵ Local news coverage of the issue has cited the involvement of the Navajo Nation, stating “a new governor who campaigned on requiring utilities use more renewable energy [*sic*], the electric companies, environmentalists and the Navajo Nation were all able to get something they wanted out of the legislation.”⁹⁶ However, some members of the Navajo Nation have a different perspective. Jonathan Nez, president of the Navajo Nation, supports the bill, but many local tribal leaders and activists have serious criticisms.⁹⁷ Specifically, many tribal members argue that the legislature did not consult any “indigenous grassroots representation” and the bill fails to block nuclear power.⁹⁸

Indigenous people and organizations from the region as well as allies submitted an open letter to Governor Michelle Lujan Girsham and state legislators titled “No Just Transition without Indigenous Consultation.”⁹⁹ In the opening paragraph of the letter, they argue that

⁹⁵ Yessenia Funes, “New Mexico Passes Landmark Clean Energy Bill, But Some Tribal Groups Feel Left Out,” *Gizmodo*, March 15, 2019, <https://earth.gizmodo.com/new-mexico-passes-landmark-clean-energy-bill-but-some-1833296299>.

⁹⁶ Andrew Oxford, “Lujan Grisham Signs Landmark Clean Energy Bill,” *Santa Fe New Mexican*, March 22, 2019, https://www.santafenewmexican.com/news/legislature/lujan-grisham-signs-landmark-clean-energy-bill/article_2f688134-3b7c-58f7-ba0a-4d520036657e.html.

⁹⁷ Funes, “New Mexico Passes Landmark Clean Energy Bill, But Some Tribal Groups Feel Left Out.”

⁹⁸ Funes, “New Mexico Passes Landmark Clean Energy Bill, But Some Tribal Groups Feel Left Out.”

⁹⁹ Funes, “New Mexico Passes Landmark Clean Energy Bill, But Some Tribal Groups Feel Left Out.”; and “No Just Transition without Indigenous Consultation: Open Letter to Governor Michell Lujan Grisham and New Mexico Legislators from Indigenous Peoples of the Southwest & Allies,” *whatsnextnm*, accessed December 20th, 2019, <https://www.whatsnextnm.com>.

Energy policy decisions directly and disproportionately impact our communities. Our ancestral lands in the Four Corners region was officially designated a national sacrifice zone by the Department of Energy under the Nixon administration in 1973. Being from frontline communities, we bear the biggest impacts to our health and the devastation of our land, water, air, plants and animals. In an era of climate change we must stand united for a Just Transition that is inclusive of all Indigenous communities.¹⁰⁰

In this argument, Indigenous activists place their experiences of climate change in a historical context—noting the sacrifice of their communities to weapons and energy production. They further stress the impact on their lands and health and demand just treatment in climate change policy. In the letter and in their suggested amendments to the bill, they argue that the bill does not address the concerns of Indigenous communities. Namely, the bill does not contain language supporting restoration work, confronting the long-term health impacts of energy production, and reducing infrastructure inequities. Furthermore, they argue for “support for traditional economic lifeways” and “consultation with Indigenous communities in all stages of decision-making.”¹⁰¹ They also argue for splitting up the energy company monopolies and for funding to support renewable energy at schools, chapter houses, and tribal colleges. One important criticism included in the letter is that the bill does not ban nuclear power.¹⁰² Overall, the writers of the letter state that:

Entities that have benefited from the extraction of natural resources and exploitation of Indigenous lands and peoples must be held accountable and contribute to the cleanup and just transition of impacted communities and economies. Based on our analysis of the bill, we have asked the large environmental groups that support this bill to address the lack of inclusion of Indigenous people by including our amendments that address our biggest concerns. Those who should be our strongest allies have dismissed our voices.¹⁰³

¹⁰⁰ “No Just Transition without Indigenous Consultation,” 1.

¹⁰¹ “No Just Transition without Indigenous Consultation,” 1.

¹⁰² “No Just Transition without Indigenous Consultation,” 3.

¹⁰³ “No Just Transition without Indigenous Consultation,” 2.

Here, they express a strong frustration with the ways that their communities and their land have been exploited, and their voices have not been valued in conversations about addressing environmental problems.

In contrast to the work of these Indigenous activists, some environmentalists promote the use of nuclear power as a climate change mitigation strategy. Writing for *Yale Environment 360*, Richard Rhodes argues that nuclear power is not given the consideration that it deserves by drawing on the history of coal. He argues that in the late 1500s opposition of clergymen to coal as “literally, the Devil’s excrement” slowed the adoption of coal in contrast to increasingly expensive wood. He acknowledges that their objections were “certainly justified environmentally [but] further complicated and delayed the timely resolution of an urgent problem in energy supply.”¹⁰⁴ Rhodes’ own defense of nuclear power based on this history shows the potential short-sightedness of technological solutions. Rhodes acknowledges the environmental consequences and further argues that coal power produces more radiation than nuclear power. These environmental impacts justify the opposition to coal that Rhodes attempts to use to discredit opposition to nuclear power. Rhodes goes on to downplay the dangers of meltdown, suggesting that Three Mile Island, Chernobyl, and Fukushima were less serious than people believe. In the case of Chernobyl, he notes that twenty-nine response workers died because of radiation exposure and downplays the long-term impacts. He states that research from the United Nations has

identified no long-term health consequences to populations exposed to Chernobyl fallout except for thyroid cancer in residents of Belarus, Ukraine and western Russia who were children or adolescents at the time of the accident, who drank milk contaminated with ¹³¹Iodine, and who were not evacuated.¹⁰⁵

¹⁰⁴ Richard Rhodes, “Why Nuclear Power Must Be Part of the Energy Solution,” *YaleEnvironment360*, July 19, 2018, <https://e360.yale.edu/features/why-nuclear-power-must-be-part-of-the-energy-solution-environmentalists-climate>.

¹⁰⁵ Rhodes, “Why Nuclear Power Must Be Part of the Energy Solution.”

Here, Rhodes downplays the impact of Chernobyl on the health of the community. He minimizes the impact by presenting the group as inconsequentially small. Rhodes also presents the issue of nuclear waste storage as irrelevant. He argues that “waste disposal, although a continuing political problem in the U.S., is not any longer a technological problem.” He goes on to argue that the WIPP site in Carlsbad, New Mexico “could easily accommodate the entire world’s nuclear waste for the next thousand years.”¹⁰⁶ Ultimately, Rhodes argues that “nuclear deserves better than the anti-nuclear prejudices and fears that have plagued it. It isn’t the 21st century’s version of the Devil’s excrement. It’s a valuable, even an irreplaceable, part of the solution of the greatest energy threat in the history of humankind.” However, while Rhodes downplays the negative impact of nuclear technology, the experiences of Indigenous people clearly demonstrate that this type of power has had a profound impact on their community. Furthermore, while the WIPP site is able to store large amounts of nuclear waste, the perspectives of the Shoshone and Paiute peoples at Yucca Mountain demonstrate that technical safety is insufficient when considering storage options. While Rhodes and others argue that nuclear presents a viable alternative to fossil fuels, many Indigenous activists argue that the only solution is a dramatic reduction of consumption.

Mainstream environmental activists who oppose nuclear power also dismiss the concerns of Indigenous peoples. Writing for *Popular Mechanics*, Avery Thompson endorses the exclusion of nuclear power from the Green New Deal—but not for the reasons raised by Indigenous activists. Thompson’s main argument against increasing nuclear power centers around the difficulty and cost of building new nuclear plants. Comparing the present day to the 1970s and

¹⁰⁶ Rhodes, “Why Nuclear Power Must Be Part of the Energy Solution.”

1980s, he argues that “Regulations are tighter, communities are less enthusiastic, and competition from other power sources is higher. Increasingly, nuclear power plants have to worry about where they store their waste, with disastrous results if they make a mistake.”¹⁰⁷

While Thompson does mention community responses and the issue of waste, the majority of the article focuses on how these questions impact cost and the timeline of construction projects, rather than on the human and ecological impacts.

Many Indigenous activists call for a paradigm shift towards the use of less energy rather than shifting energy production to methods such as nuclear power. In a 2009 interview on nuclear colonialism, Tom Goldtooth expressed concern that Democrats would compromise on issues of nuclear power in order to pass climate change legislation. He argues that “[w]ith all of us working and mobilizing together, we can stop this nuclear nonsense and begin building an energy policy for our future, one that is nuclear-free and carbon-free.”¹⁰⁸ Goldtooth’s use of the word nonsense expresses strong opposition to the idea that nuclear presents a valuable alternative to fossil fuels. He goes on to argue that

[w]e must reject false solutions to climate change including bio/agro-fuels, carbon trading and offsetting, nuclear power, large hydro dams and carbon capture and storage. These are not true solutions, but green washing tactics that promote dangerous business-as-usual fossil fuel extraction from coal, oil, gas to unconventional fossil fuels such as oil shale and the tar sands, with governmental plans for building more polluting coal fired power plants and oil refineries.¹⁰⁹

¹⁰⁷ Avery Thompson, “The Alexandria Ocasio-Cortez ‘Green New Deal’ Wants to Get Rid on Nuclear Power. That’s a Great Idea,” *Popular Mechanics*, February 8, 2019, <https://www.popularmechanics.com/science/energy/a26255413/green-new-deal-nuclear-power/>.

¹⁰⁸ “Statement Against Toxic Nuclear Colonialism by Tom Goldtooth, Executive Director, IEN,” Indigenous Environmental Network, accessed November 13, 2019, <https://www.ienearth.org/statement-against-toxic-nuclear-colonialism-by-tom-goldtooth-executive-director-ien/>.

¹⁰⁹ “Statement Against Toxic Nuclear Colonialism by Tom Goldtooth, Executive Director, IEN,” Indigenous Environmental Network, accessed November 13, 2019, <https://www.ienearth.org/statement-against-toxic-nuclear-colonialism-by-tom-goldtooth-executive-director-ien/>.

For Goldtooth, simply altering the sources of energy does not address the bigger issues of exploitation. These issues of exploitation are closely connected to the experiences of Indigenous people, as demonstrated by the experiences of those impacted by the Hanford Site and uranium production in the Southwest. Goldtooth expresses this sentiment when he states:

There is a direct relationship between the denial of Native land and water rights, along with the appropriation without consent of Native Peoples' natural resources, of our sacred areas, and the causes of global climate change today.¹¹⁰

Goldtooth relates issues of exploitation to the values of the dominant U.S. culture. He “believe[s] this dominant society now has a value system of no respect for the sacredness of the female creative principles of Mother Earth and the relationship with Father Sky” and he argues that:

They have created neoliberal policies of globalization, liberalization, privatization, deregulation and denationalization that constantly intensify the violation of our inherent rights as Indigenous peoples and violating the natural laws of our Mother Earth, of her biodiversity.¹¹¹

Goldtooth clearly articulates a connection between the treatment of Indigenous peoples and the treatment of the land, applying a gender based analysis. Furthermore, the values on which Goldtooth blames climate change are those that boarding schools sought to impose on Native American youth. Thus, these issues of values and society's relationship to the natural world are deeply embedded in a history of governmental policies emphasizing assimilation and genocide. Goldtooth describes many supposed solutions to climate change as a “new wave of colonization and privatization of nature.” He argues that:

The capitalism of nature is a perverse attempt by corporations, extractive industries and governments to cash in on Creation by privatizing, commodifying, and selling off the

¹¹⁰ “Statement Against Toxic Nuclear Colonialism by Tom Goldtooth, Executive Director, IEN,” Indigenous Environmental Network, accessed November 13, 2019, <https://www.ienearth.org/statement-against-toxic-nuclear-colonialism-by-tom-goldtooth-executive-director-ien/>.

¹¹¹ “For a change of paradigm?: Interview with Tom Goldtooth from the Indigenous Environmental Network,” World Rainforest Network, accessed November 13, 2019, <https://wrm.org.uy/articles-from-the-wrm-bulletin/section1/for-a-change-of-paradigm-interview-with-tom-goldtooth-from-the-indigenous-environmental-network/>.

Sacred and all forms of life in the sky, including the air we breathe, the water we drink and all the genes, plants, traditional seeds, trees, animals, fish, biological and cultural diversity, ecosystems and traditional knowledge that make life on Earth possible and enjoyable.¹¹²

Furthermore, Indigenous climate activists see protecting human rights as essential in addressing climate change because of this history of reproductive justice, including forced assimilation into the paradigm that created climate change. Goldtooth states:

We had demanded the inclusion of strong language on humans rights and the rights of Indigenous Peoples in the operative text [of the Paris Agreement] (human rights including migrant rights). We had demanded the inclusion of indigenous rights, migrant rights, and the rights of women in the operative text. This would recognize the rights of the peoples most directly impacted by climate change.¹¹³

Goldtooth argues for the importance of centering those who face the greatest impact in the context of gender, noting that cultural practices and gender roles may mean that climate change impacting access to water has a greater impact on women in communities; thus, language specifically protecting women should be included. Similarly, he emphasizes migrant rights because of the issues of displacement caused by climate change.

Goldtooth and other activists argue that cultural values must be addressed in tackling these problems. At the second Native Peoples Native Homelands Climate Change Workshop, participants “agreed the United States and other industrialized countries are too addicted to the high consumption of energy, a path that cannot be sustained by the Earth.”¹¹⁴ They also noted the

¹¹² “‘For a change of paradigm’: Interview with Tom Goldtooth from the Indigenous Environmental Network,” World Rainforest Network, accessed November 13, 2019, <https://wrm.org.uy/articles-from-the-wrm-bulletin/section1/for-a-change-of-paradigm-interview-with-tom-goldtooth-from-the-indigenous-environmental-network/>.

¹¹³ Elizabeth Walsh, “Mobilizing for COP21: Interview with Tom Goldtooth, Part I,” *Intercontinental Cry*, June 8, 2016, <https://intercontinentalcry.org/mobilizing-for-cop21-interview-with-tom-goldtooth-part-i/>.

¹¹⁴ Rave, “Climate Workshop Stresses Sustainability, Indigenous Knowledge”

importance of supporting tribal colleges and language revitalization because of the ecological knowledge in those languages, as Kimerer describes.

Conclusions

Reproductive justice issues exist across all aspects of the nuclear industry—from mining and milling to weapons and energy production—and systematically impact Indigenous communities. The disproportionate impact on Indigenous peoples is not by coincidence but rather the result of an ongoing history of systemic oppression. The harmful side effects of nuclear power disproportionately impact people of color, low income communities, and rural populations because these communities have been structurally devalued and exploited by the dominant society.¹¹⁵

Indigenous communities are particularly impacted because of relocation to reservations and the poverty caused by decades of genocide and violence. It is often easier under federal and state laws to pollute on tribal lands, and the regulations that apply to tribal lands are unjust and lack consistency.¹¹⁶ The environmental and cultural rights of Indigenous people are not adequately protected under Federal Indian Law and have not been effectively protected by the courts. As a result, lack of enforcement, oversight, and consistency of environmental regulations from the government have made—and continue to make—tribal lands appealing for corporations.¹¹⁷

The U.S. government has not, however, merely been negligent in protecting Indigenous communities from corporate greed. Rather, the U.S. government deliberately exploited

¹¹⁵ Robert C. Kiste, Review of *Half-Lives and Half-Truths: Confronting the Radioactive Legacies of the Cold War*, edited by Barbara Rose Johnston. *The Contemporary Pacific* 20, no. 2 (Fall 2008): 500-3.

¹¹⁶ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1647.

¹¹⁷ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1647.

Indigenous peoples and left toxic waste in their communities in the name of national security through all phases of nuclear weapons production. This can be seen at Hanford through the displacement of the Wanapum and the lack of value placed on the Indigenous communities in that area demonstrated by the choice of site. On the Navajo reservation, the U.S. government and corporations exploited Indigenous people's labor in uranium mines and mills without communicating known information about health risks.

The violations of the principles of reproductive justice brought on by the atomic era and nuclear technology are part of a history of genocide and cultural loss for Indigenous people through forced relocation, forced sterilization, boarding schools, and other methods. These issues range from biomedical impacts on physical health to impacts on community health and cultural transmission. Indigenous communities often experience higher rates of exposure to pollutants in the environment because of close contact with nature as a part of cultural practices.¹¹⁸ Seen from this framework, the nuclear waste impedes the transmission of cultural knowledge and creates barriers to people trying to maintain and revive cultural practices. The barriers the Hanford Site poses for the Wanapum and other Columbia River tribes trying to maintain fishing practices is one such example. On the Navajo reservation, uranium mining presented a financial opportunity to youth in a community facing cultural loss and economic hardship,¹¹⁹ but it also brought a range of reproductive justice issues to the community and led to greater exposure through traditional building practices.

This connection between nuclear waste and reproductive justice has been addressed by Indigenous activists. Since the 1970s, the organization Women of All Red Nations, or WARN,

¹¹⁸ Hoover et al. "Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice," 1647.

¹¹⁹ Fox, *Downwind: A People's History of the Nuclear West*, 21-2.

has suspected links between health issues among Lakota people and the history of uranium mining.¹²⁰ In connecting environmental racism, including nuclear waste, and reproductive justice, Indigenous activists have raised concerns about whether pollutants in their communities impact the safety of breastmilk and how pollution impacts the reproduction of cultural knowledge.¹²¹

The concerns of Indigenous communities regarding safe breast milk and cultural transmission connect to multiple aspects of reproductive justice—considering whether people have the ability and agency to reproduce, whether communities are safe for children, and to what extent communities can raise children with cultural traditions. The transmission of cultural knowledge may be impacted by an environment that is no longer safe or an environment that has changes beyond recognition. Cabrera et al. have noted that environmental degradation has implications for mental health, particularly in cultures that emphasize a close relationship with the land.¹²²

Given the ongoing history of reproductive justice issues impacting Indigenous communities, it is not enough to replace fossil fuels with carbon neutral energy. Sources like nuclear power have historically disproportionately impacted Indigenous communities in a range of ways from toxicity to displacement to impacting the ability to transmit cultural knowledge. Further privatizing and exploiting other natural resources reflects the values that led to creating climate change. Ultimately, the problem of over consumption cannot be solved through

¹²⁰ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1646.

¹²¹ Hoover et al. “Indigenous Peoples of North America: Environmental Exposures and Reproductive Justice,” 1647-8.

¹²² Laura Y. Cabrera, Jordan Tesluk, Michelle Chakraborti, Ralph Matthews, and Judy Illes. “Brain Matters: From Environmental Ethics to Environmental Neuroethics,” *Environmental Health* 15, no. 20 (Feb 2016), 3.

consumption. Indigenous people have disproportionately borne the burden of nuclear technology—be it for weapons or energy—while the dominant society has benefited. We as a society must acknowledge this history and listen to the voices of Indigenous activists who call for a paradigm shift to address the interconnected issues of environmental and reproductive justice.

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