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Decolonizing Water: U.S. Water Policy and the Water Crisis in the *Diné Bikéyah* From 1849 to the Present

Since the beginning of the 21st century, due to the growing water crisis and drought in the Southwest, water policy in the United States has become a crucial field of conflict between federal, state and tribal interests. Since 2000, the American Southwest has been experiencing severe droughts that, combined with outdated river management and overallocation of limited water supplies, put the Colorado River at serious risk. The Navajo Nation (Diné), living in the water-scarce, arid region, is disproportionately impacted by the crisis, with almost one-third of households lacking running water on the reservation. Despite the reservation's historical and legal claims to water based on treaties and legal doctrines, the federal government has repeatedly failed to secure their water rights, leaving many Diné communities without basic water infrastructure, which leads to severe health, economic and cultural disparities. The article examines the intersection of historical, legal, social and environmental factors contributing to the Navajo Nation's limited access to safe drinking water. The analysis begins with an overview of the history of the people, including the treaty-making and relocation era, which greatly contributed to the lack of resources that the Navajo Nation experiences today. Thereafter, the article explores the legal side of the issue, along with the *Winters Doctrine* (1908), the Colorado River Compact, as well as the *Arizona v. California* (1963) and *Arizona v. Navajo Nation* (2023) cases. The article also explores the empirical data

regarding the current water crisis in the reservation, systemic barriers, such as industrial exploitation, infrastructure neglect, and the exacerbating effects of climate change, that perpetuate the crisis. Furthermore, it considers the cultural and spiritual significance of water for the Diné people, emphasizing its role as a cornerstone of sovereignty and resilience.

Keywords: Diné People, Navajo Nation, water crisis, Colorado River, Native Americans, Winters rights, *Arizona v. Navajo Nation*

Introduction

The lack of access to safe drinking water affects 2 billion people worldwide, and to safely manage sanitation — 3.6 billion (United Nations). The problem, contrary to appearances, also largely concerns the United States, one of the wealthiest countries in the world. According to the *Closing the Water Access Gap in the United States: A National Action Plan* report, “more than two million Americans live without running water and basic indoor plumbing, and many more without sanitation” (8).

Moreover, significant racial inequalities in access to water are noted. Indeed, according to the report, race is strongly associated with limited access to water in the country. While 0.3% of households lack access to indoor plumbing, the same situation is faced by 0.5% of Hispanic/Latino and African American households and 5.8% of Native American households (22). Native Americans are, therefore, the group most vulnerable to living without access to water. In general, Indigenous communities are 19 times more likely than other Americans to live without indoor plumbing (“Closing the Water Access Gap”, 13). This has serious implications for public health and social justice: according to the *Universal Access to Clean Water for Tribes in the Colorado River Basin* report, lack of access to clean and reliable water results in higher unemployment, poverty and mortality rates (7).

The problem of water stress significantly affects the American Southwest, an arid region of the United States. Since the beginning of the 21st century, the Colorado River Basin has been experiencing severe drought exacerbated by climate change, which has greatly impacted water supply and reservoir levels in the region (USGS). Consequently, water levels in the Colorado River system are decreasing, carrying the risk of drinking water shortages in the Lower Basin. Hydroelectric capacity in Lake Powell and Lake Mead is also declining, which could result in a potential loss of

power generation capacity in the latter. Moreover, during this period, the lowest 16-year inflow has occurred in the Basin in over 100 years of record keeping (USGS).

Nevertheless, water from the Colorado River is the lifeblood of the American Southwest and two states in northern Mexico. It supplies nearly 40 million Americans, provides irrigation for millions of acres of land and power to millions of people. Water from the river is also essential as an economic and cultural resource for 30 federally recognized tribes that live in the Basin. While 22 of the tribes have recognized rights to use water from the Colorado River system and can use 3.2 million acre-feet [approximately 3.95 billion cubic meters] of water annually, 12 of the tribes have unresolved claims to their water rights ("The Status of Tribal Water Rights", 1).

One of those tribes whose rights to the Colorado River remain unsettled is the Navajo Nation (Diné), the largest federally recognized tribe in the country (Navajo Times). Although the Navajos had already been using water from the Colorado River for several centuries before American settlers reached the West, they are still trying to legally regulate their access to the river's main stem. A lack of adequate financial resources and political representation, exclusion from negotiating agreements that shaped Colorado River law and a water shortage have led to a severe water crisis the Nation has faced for decades (Wilson et al., 783).

Even though the federal government, through the Treaty of 1868, promised the Diné people a permanent homeland where they could farm land and own animals, the United States has never fully honoured the commitments (Yin, 1396). According to Dig Deep, an indigenous-led non-profit organization that runs projects to bring clean, running water to homes in scarce regions, around 30% of Navajo Reservation residents, 51,000 people, do not have access to safe water in their taps ("Closing the Water Access Gap", 38). Although the Navajo Nation has its water rights guaranteed by the treaty, as the Supreme Court of the United States held in 1908 (*Winters v. United States*), political and legal barriers prevent their full enactment. The crisis is exacerbating already existing social inequalities among Navajo residents, as well as triggering serious health, economic and cultural costs for the Nation.

The work analyzes the intersection of historical, legal, political and environmental circumstances that have contributed to the lack of full access to the water system in the Navajo Nation. It begins with an overview of the history of the Diné people in the American Southwest, paying particular attention to their attachment to land and water, the Navajo tragedy surrounding their relocation to Fort Sumner and the treaty-making era.

Subsequently, the article explains the legal dimensions of the problem, including landmark cases such as *Winters v. United States* (1908), *Arizona v. California* (1963) as well as *Arizona v. Navajo Nation* (2023).

Moreover, the article analyzes the Colorado River Compact (1922) and Native American water settlements that enable tribes to regulate water rights. Then, the discussion focuses on empirical data regarding the water crisis, its consequences and systemic barriers such as the legacy of uranium mining and water infrastructure deficiencies. Finally, the paper examines the spiritual significance of water for the Navajo people, emphasizing its importance for the Nation's sovereignty and their ability for self-determination. The article concludes by considering the impact of colonial water practices on water availability and asking what steps should be taken to ensure that the Navajo Nation has access to a safe water source in the future and, thereby, can live in "prosperity and happiness" promised for them by the federal government.

Navajo Nation Population Profile and Historical Overview

The Navajo Nation is one of the largest federally recognized tribes in the United States. There are 423,412 individuals claiming Navajo ancestry, with 165,158 living on the reservation (United States Census Bureau). Moreover, the Navajo Nation has the largest reservation among Native Nations in the country, nearly sixteen million acres (Indian Health Service). *Diné Bikéyah*, or Navajoland, lies in the Four Corners Region in Arizona, New Mexico and Utah, overlapping the Nation's ancestral homeland situated within the four sacred mountains of Mt. Taylor in New Mexico, San Francisco Peaks in Arizona, Hesperus Peak and Blanca Peak in Colorado, as well as within the San Juan River, the Little Colorado River and the main stem of the Colorado River (Navajo Nation).

The *Diné people*, as the Navajos called themselves before Spanish colonization, are closely related to the Apache tribe and, like the Apache, are of Athabascan heritage and belong to the Athabaskan language family (Spicer, 210). Both tribes migrated to the Southwest region of the United States from subarctic Canada a few centuries before Christopher Columbus arrived.

The exact date of arrival of the Navajo and Apache in the territory of the future United States is disputed. Until now, the consensus has been for the 14th or 15th century, but archaeologists have begun to indicate that a Navajo culture separate from the Apache was already crystallizing in

the 14th century (Iverson, 25). It is, therefore, more likely that the Apaches — the Navajo and the Apache — arrived in the Southwest in the twelfth or thirteenth century (Iverson 16).

The cultural heritage of the Diné is complex, with influences from both the Hopi, Apache and Pueblos, as well as Spanish settlers. When the Navajos and Apache first arrived in the Southwest, they represented a culturally close group of Indigenous people. Over time, however, their ways of life began to differ significantly. The Apache moved further south and west, continuing their hunter-gatherer lifestyle. The Navajos, initially also trading and hunting people, settled in the northwestern part of modern New Mexico and Colorado, adopting a more sedentary lifestyle based on crop cultivation and pastoralism. They interacted and intermarried with the Pueblos and adopted the knowledge of cultivating the land and farming, mainly traditional “Three Sisters” — beans, corn and squash (Dunbar-Ortiz, 23).

When the Spanish colonizers arrived in the American Southwest, the Diné people were in transition between a nomadic and a settled lifestyle. They lived in a dispersed manner, constituting numerous autonomous groups, which made it difficult for the Spanish colonizers to identify which group of Indigenous people they were dealing with. Although the Spaniards initially settled in the Rio Grande Valley located to the east of Navajo country, over time their expansion progressed and the two cultures met. The encounter with the Spanish fundamentally changed the Navajo way of life. The Diné people acquired sheep, horses, cattle, goats and firearms from Spanish settlers, which led to the growth of Navajo power in the region. This enabled them to trade with other tribes, produce wool, obtain food and conduct raids on other hostile tribes and Spaniards to gain more livestock, crops, agricultural products, properties and capture women and children (Iverson, 22-24).

Although the Navajos managed to maintain control of their territory during Spanish colonisation, relations with the Spaniards remained tense and complex, characterized by alternating periods of peace and cooperation as well as conflict and war. The Navajos led raids on Spanish settlements; in return, the Spanish organized expeditions to the north to capture the raiders. They took hundreds of Diné men and women captive and used them as slaves in the silver mines or as domestic servants (McPherson, 8).

The situation remained unresolved until the Americans took control of the northern part of Mexico. Under the 1848 Treaty of Guadalupe Hidalgo, which ended the US war with Mexico, the United States took control of much of the land now comprising the Southwestern United States,

extending through present-day California, Nevada, Utah, New Mexico, most of Arizona and Colorado, and parts of Oklahoma, Kansas and Wyoming. The Native tribes inhabiting the region, including the Navajos, came under the exclusive administration of the United States government, which was committed to stopping all native incursions into Mexico (Treaty of Guadalupe Hidalgo, 1848, art. XI).

For the Indigenous people living in the region that passed from Mexican to American possession under the Treaty of Guadalupe Hidalgo, the change that came with the Treaty was fundamental. They were subjected to American domination, attempts at assimilation and tragic displacement. The United States federal government began the process of signing treaties with Indigenous tribes in 1778 and continued the practice in the newly conquered American Southwest (BIA). The primary purpose of the treaties with Native Americans was to displace Indigenous people from their tribal lands to create conditions for expanding white settlement while conquering the West (Office of the Historian).

The first treaty ratified by Congress between the Navajo Nation and the federal government was signed in September 1849 and ratified a year later. The document stated that the Navajo Nation was "lawfully placed under the exclusive jurisdiction and protection of the Government of the said United States and that they are now, and will forever remain, under the aforesaid jurisdiction and protection" (Treaty with the Navaho, 1849, art. I). Under the treaty, the United States government promised to ensure "prosperity and happiness" for the Navajos and was supposed to establish peace between the Navajos and the federal government (Ibid, art. IX). However, the decade and a half following 1849 was marked by warfare and suffering for the Diné.

The US government failed to protect Diné families from non-Indigenous slave raids. The number of Navajo slaves was unknown, but by 1865, by some estimates, "at least 3,000 were living in Mexican homes" (McPherson, "A History of San Juan County", 63). Moreover, during that time, the Diné people were forced to forsake their ancestral home to enable the US government to, as Americans described it, secure the frontier (Hopkins 52-55). The US Army burned the Navajo cornfields, captured their livestock and contaminated water wells (Iverson, 54-56).

Subsequently, in 1863, the Diné were forced to move to Fort Sumner, 400 miles away, which was to become their new home. The event contemporaneously referred to by historians as "The Long Walk" became a tragedy for the Navajos. They lived crowded on a small patch of land, starved, and more than 2,000 people died within a few months (Spicer, 220). The

land was infertile, and the soil and water were heavily alkaline, which made growing crops nearly impossible (Iverson, 59). The Navajos could not engage in agriculture in Fort Sumner and wanted to return to their homeland, where the soil was more productive and they could support themselves.

When in 1868 both parties returned to negotiations, the Navajo delegates insisted on an agreement that would allow them to return to their original homeland. They wished to live within the four sacred mountains and four sacred rivers, on a land that, according to their origin story, they should never have left because it could have brought them misfortune (*Arizona v. Navajo Nation*. Brief amicus curiae of Daniel McCool, Ezra Rosser and David E. Wilkins, 13-16).

Indeed, a more detailed treaty was signed that allowed the Navajos to return to their land, *Diné Bideyah*, after a four-year detainment in Fort Sumner. The Treaty of 1868 created bilateral diplomatic relations between the federal government and the Navajo Nation, binding the United States with a duty to protect the Tribe (Treaty with the Navaho, 1868, art. I). Under this treaty, the reservation was created and the federal government pledged to establish “a permanent homeland” for the Nation there (Treaty with the Navaho, 1868, art. XIII). Both sides agreed in the document that the Diné people would base their economy on farming and grazing from then on. Furthermore, the United States authorities agreed to the “purchase of fifteen thousand sheep and goats, at a cost not to exceed thirty thousand dollars” for the Navajo Nation so that they could recover from the crisis caused by the past five years (Ibid. art. XII, sec. 2).

The relationship between the Navajos and the representatives of the federal government was deeply unequal, with these negotiations being unfair. The Diné people were forcibly displaced and subsequently had to surrender an extensive portion of their sacred land to create a “reservation”. To return to their ancestral homeland, they had to agree to conditions imposed by the federal government driven by westward expansion and sacrifice extensive landholdings for the use of white settlers.

The Diné people believed that the aim of the treaty was to secure the future of farming and grazing. Given the desert location of the Southwest, ensuring an adequate water supply to support the purpose of the reservation seems crucial for fulfilling the responsibilities held by the federal government toward the Navajo Nation. Ensuring the “prosperity and happiness” committed to by the US in the 1849 treaty and the “permanent homeland” to be established by the 1868 treaty clearly indicates a promise to secure the basic needs of the Nation, including water. Under those premises, the

Navajos logically expected the federal government to provide them with adequate water (*Arizona v. Navajo Nation*. Brief amicus curiae of Daniel McCool, Ezra Rosser and David E. Wilkins, 5). As it turned out, however, US colonial settlement practices excluded the Navajo Nation from participating in the equal sharing of natural resources they had enjoyed just a few decades earlier. Despite the premises of the treaties, the settler government prioritized white interests in the Southwest, and the Navajo Nation was excluded from participation in the law-making process regarding the Colorado River and, subsequently, from profits such as water infrastructure projects in the region (Ross).

Legal Context of the Navajo Nation Water Rights

For centuries, Indigenous communities had used the land and its resources as a common good, a sacred and living entity. For Native Americans, the land was not only the source of vital resources and the place where they grew crops and raised animals, but also the source of life itself. "Water is life" is a phrase that has become a popular and oft-repeated slogan to draw attention to activities that infringe on Indigenous communities' access to water as well as to the unique relationship they have had with that resource for generations (LaPier).

Diné were taught by their ancestors that they have specific responsibilities towards Mother Earth and Father Sky, so they must honour them to survive. As the Diné Natural Law, Diné Bi beehaz'áanii, states: "The four sacred elements of life, air, light/fire, water and earth/pollen in all their forms must be respected, honoured and protected for they sustain life" (Navajo Nation Code Annotated, § 205, sec. A). For the Diné, all creation has natural right to exist, and they cannot dominate it but must love and protect it (Ibid. sec. E).

The attitude behind the white settler's pursuit of water policy in the American Southwest was fundamentally incompatible with the Indigenous people's logic on natural resource management. At the time of colonization, there was a clash not only between two distinct cultures and people, but also between two distinct understandings of water and land ownership. American settlers, with their colonization of the West, attempted to subjugate both the lands of Indigenous people and their water resources. From then on, it would not be the traditional knowledge of Indigenous people, but a series of compacts and agreements that would shape the contours of water law in the United States. Indian-federal law represents

a set of practices within the US political-legal system that limits Indigenous people's claims to water and treats their jurisdiction as subordinate to the rights of settlers (Curley 707-709).

Although the Treaty of 1868 postulated the establishment of a permanent homeland on the reservation and envisioned that Navajos would base their economy on agriculture, it did not directly address the Nation's water rights. The Supreme Court first recognized tribal reserved water rights in the *Winters v. United States* decision, stating that those rights were necessary to establish a permanent homeland for the tribes (207 US 564 [1908]). Therefore, when Congress established the reservation, it implicitly reserved water needed to serve the purposes of that land. As the Court held, considering the arid nature of many reservations, Indians could not live and farm successfully without adequate water supplies. In that case, the Court referred to treaties between the tribes and the federal government as the source of all water rights for Indigenous people and, in practice, concluded that tribes have the water rights. However, the Court did not specify how much water tribes could claim (Ibid.).

Nevertheless, in the years following the *Winters* decision, the federal government not only repeatedly failed to protect tribal water rights, but also aided white settlers in using tribal water. As the National Water Commission wrote in a 1973 report: "Many large irrigation projects were constructed on streams that flowed through or bordered Indian reservations. With few exceptions, the projects were planned and built by the Federal Government without any attempt to define, let alone protect, prior rights that Indian tribes might have had in the waters used for the projects" (474-75).

In contrast, tribes living in the Colorado River Basin were often left out of infrastructure programs, such as the National Reclamation Act that funded irrigation and supply projects in the western states. Federal policy has supported the development of water infrastructure throughout the West, often at the expense of the water rights of Indigenous communities (Holyoke, 146-147). Indeed, the Bureau of Indian Affairs began irrigation projects on Native American reservations as early as the 1870s, but Congress refused to allocate even minimal funds for the purpose. For federal authorities, bringing water supplies to low population density areas was not cost-effective. With such a slow infrastructure building process, some projects began to disintegrate even before they were completed (McCool, 112).

When the Colorado River Compact, which allocated the water from the Upper Basin and Lower Basin between seven basin states — Arizona, California, Nevada, New Mexico, Utah, Colorado and Wyoming — was signed in 1922, Native Americans living in the Basin were excluded from

the decision-making process as well as from sharing and quantifying water from the river. The document addressed tribal water rights in only one sentence: "Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes", not guaranteeing any water for the tribes (Colorado River Compact, 1922, art. VII). Each state, on the other hand, was guaranteed the right to use 7.5 million acre-feet [approximately 9.25 billion cubic meters] of water annually for beneficial consumptive use (Ibid., art. III, sec. A). The Colorado River Compact allowed states to develop water infrastructure, water projects and to reserve water for future reservoirs and dams. As a direct result of the ratification of the Colorado River Compact, the Boulder Canyon Project Act of 1928 authorized the construction of Hoover Dam on the Colorado River and the All-American Canal.

The Navajo Nation waited until 1964, when their unresolved water rights were addressed at the federal level again. It was the Supreme Court's landmark case, *Arizona v. California*, that addressed the issue of quantifying tribal water. When the State of Arizona sued California in 1952 in the Supreme Court to resolve the disagreement between those two states over how much water they could legally use from the Colorado River and its tributaries, the federal government intervened on behalf of tribes claiming water for them under the *Winters* doctrine. Thus, the Supreme Court provided in its decision a measure that tribes should use to quantify their water needs — all practical irrigable acres (PIA) stating that the tribes have rights to as much water from the river as needed to irrigate all the land capable of cultivation on the reservation (373 US 546 [1963]).

Navajo Reservation was created for agricultural purposes, so the "practically irrigable acres" standard can be crucial to reserving sufficient water resources to meet this purpose. Although the Supreme Court's decisions in *Winter v United States* and *Arizona v California* gave the Navajos a legal means to make water claims, it remained unclear who would conduct the assessment. The Navajo Nation still could not fund projects to use the water they received, and their further claims caused severe hostility with the other water users in the Basin (Holyoke, 147).

Indian water rights settlements offered a solution to those disputes and could secure water quantity for the tribes, as well as funds to develop water infrastructure or improve water access (Holyoke, 147). Settlements could provide a sense of certainty regarding the allocation of water and money to build irrigation and supply projects. However, the resolution of the claims requires effort from the tribes. To resolve their water claims for each water basin, the Navajo Nation must sign an agreement with each state the basin

borders. The Nation has water claims in the Arizona, New Mexico and Utah river basins. Even though the Navajo Nation successfully settled its claims in the San Juan River Basin in Utah in 2022 and in Mexico in 2005, much of its water claims remain unresolved (NNWRC). Presently, the Nation is working to quantify its water rights in the main stem of the Colorado River, in the Upper Basin of the Colorado River in Arizona and in the Little Colorado River Basin in Arizona and Mexico ("Water Study" 5.5-10 – 5.5-13).

The Navajo Nation faced significant resistance in negotiating water settlements with Arizona. The Arizona State Government has repeatedly delayed discussions and forced tribal representatives to give up substantial amounts of water rights to reach an agreement (Holyoke 149). In that situation, the Nation asked the federal government to quantify its practicable irrigable acres. When rejected, the Navajo sued the United States via the Department of the Interior and other federal agencies, arguing that the US government breached its trust responsibilities by failing to consider and protect the Navajo Nation's water rights (Schwartz and Hite, 2-3). The Nation stated that the United States could have taken affirmative steps by: "Assessing the Tribe's water needs, developing a plan to secure the needed water, and potentially building pipelines, pumps, wells or other water infrastructure – either to facilitate better access to water on the reservation or to transport off-reservation water onto the reservation" (599 US 555 [2023]).

Arizona, Nevada and several states and other entities intervened in the case to protect their interests in the Colorado River waters (Schwartz and Hite, 2-3). In June 2023, the case reached the Supreme Court, which, in a 5-4 decision, ruled that the United States government has no duty to the Navajo Nation to support the Tribe's water or infrastructure access. The majority opinion held that the peace treaty of 1868 did not impose a federal obligation to "take affirmative steps to secure water for the Tribe" (599 US 555 [2023]). Thus, the Supreme Court analyzed the language of the treaty literally, stating that only a direct reference to water in the document could obligate the US federal government to secure the Nation's water needs, regardless of their reserved water rights guaranteed by the *Winters* decision.

Water Scarcity and Mining Legacy on the Navajo Nation — Data Overview

Water insecurity among Native communities in the American Southwest had already been observed in 1928, when the *Meriam Report*, a document commissioned by the Department of the Interior, was published. The report

was a general study of Native American living conditions in 26 states and documented the inadequate availability of water on Indian reservations in the Southwest. It concluded: "Sometimes it is difficult even to get enough to drink, so lack of cleanliness of body, clothing, and homes is a natural consequence and is found with discouraging frequency" (220).

Nowadays, the problem seems to be similarly acute, particularly in the Navajo Nation. Around 50,000 Navajo residents do not have access to reliable water sources in their homes. The average daily water consumption on the reservation is 7 gallons per household [26.49 litres], both for drinking and cleaning ("Water Delayed is Water Denied", 5). The numbers are worth comparing with national data on access to water and the amount of water consumed daily. Namely, the average American uses about 88-100 gallons of water per day at home (USGS Water Use Data for the Nation). In the states surrounding the Navajo Nation, those inequalities are even more visible. Utah's daily public-supply water use is 169 gallons per household, Arizona's is 146 gallons, Colorado's is 123 and New Mexico's is 81 (Ibid.).

As a result of legal and infrastructural limitations, groundwater resources remain the most dependable water resource for the Navajo Nation. However, access to these resources is constrained by poor water quality in some aquifers and limited development potential. Due to its geographic location, the reservation is home to rich reserves of uranium, a radioactive ore for which demand became particularly important after the development of atomic weapons. Between 1944 and 1986, approximately thirty million tons of uranium ore were mined near the Navajo Nation Reservation (EPA). Even though the mines eventually closed, the legacy of contamination is still visible. There are 523 abandoned uranium mines in the Navajo Nation, and not all of them have been properly cleaned up (Ibid.). Indeed, the federal government addressed this issue by allocating significant funds to reduce the risk of radiation exposure, but still, the resources were only able to ensure the cleanup of 230 abandoned mines (Ibid.).

Consequently, the Navajo residents were exposed to uranium, arsenic, copper, lead and cadmium for decades — and the contaminated dust has seeped into groundwater, causing pollution of the already scarce Navajo water supply. The lack of adequate access to water supply lines and developed infrastructure on Navajo Nation land means its members are forced to draw water from unregulated sources such as springs, livestock wells and community wells that often fail to meet federal drinking water standards for radioactive particles ("Water Delayed is Water Denied", 4-5).

Moreover, those unregulated sources are not systematically tested for contaminants, are not very deep or professionally constructed and are

not covered by The Safe Drinking Water Act, which sets limits for acceptable amounts of pollutants in drinking water ("Water Delayed is Water Denied", 4). Testing of numerous unregulated water sources in the reservation revealed that more than 12% exceeded the EPA's drinking water standards for uranium (EPA, "Navajo Nation Contaminated Unregulated Water Sources", Table 2).

In 1979, in Church Rock, NM, the largest radioactive waste spill in the history of the United States took place. As a result of a breach in the dam of the uranium waste pond, more than 1,000 tons of solid radioactive waste and 93 gallons (352.04 litres) of acidic liquid poured into the Puerto River (*Arizona v. Navajo Nation*. Brief amicus curiae of Dig Deep, 17). Following the spill, elevated uranium levels were observed in drinking water in Sanders, Arizona, a town located in close proximity to the Navajo Reservation, with 80% of the residents being Navajo (Ibid.). Tests of uranium concentration in water samples conducted by the Arizona Department of Environmental Quality showed that water collected from Sanders School Well contained uranium at 69.3 parts per billion, an amount over two times higher than the uranium maximum contamination level set by the Environmental Protection Agency (Ibid. 18). Furthermore, despite the studies, their results did not come to light until 2015, when environmental scientist and Navajo Nation member Dr. Tommy Rock examined water samples in July 2015 (Ibid. 19).

Health, Economic, Educational and Cultural Costs of the Water Crisis

The water crisis in the Navajo Nation and inadequate access to clean water and sanitation result in destructive health, economic, educational and cultural consequences that affect every member of the community. Water insecurity can contribute to high rates of mortality and morbidity among Native Americans, as well as diarrheal disease and malnutrition ("Water Delayed is Water Denied", 3).

Furthermore, families that face poor water quality and lack access to a stable water supply are "30 times more likely to contract [waterborne] illnesses than those living in houses with basic services." ("Draining: The Economic Impact", 39). Moreover, the crisis in the Navajo Nation contributes to chronic illnesses such as obesity and diabetes. Navajo residents, to conserve water resources, are often forced to make choices that harm their health. Many of them choose less nutritious meals because their preparation consumes less water.

Additionally, soda and other sugary beverages are often cheaper and more readily available than potable water ("Universal Access to Clean Water", 15). Considering the data, it seems unsurprising that the obesity epidemic disproportionately affects Indigenous communities, with Native American children living on reservations suffering the highest rates of child obesity in the United States (Johnson-Jennings et al.). Furthermore, data shows that chronic exposure to uranium is associated with liver disease, kidney issues or cancer ("Water Denied is Water Delayed", 4).

The COVID-19 pandemic crisis has disproportionately affected Navajo Nation residents, where the highest number of cases and deaths per capita in the United States have been reported (Klar). The lack of water in the homes of Navajo residents made CDC (Centers for Disease Control and Prevention) recommendations for frequent hand washing for at least 20 seconds nearly impossible to fulfil. Additionally, the necessity to haul water over long distances made social distancing requirements difficult to maintain.

A lack of sufficient access to water also carries serious economic consequences for Navajo members, threatening the development of the Reservation and the sustainment of the permanent homeland guaranteed by the 1849 and 1868 treaties (Treaty with the Navaho, 1849, art. IX, Treaty with the Navaho, 1868, art. XIII). Lack of water access implies that Navajo members are forced to spend a disproportionate amount of time and money to satisfy their needs for only one resource. Since hauling water incurs additional costs such as fuel expenses, maintenance of vehicles and costs of barrels, Navajo individuals who haul water spend "67 times more for water that they haul versus water that is delivered via a municipal water system into their homes." ("Testimony of President Jonathan Nez of the Navajo Nation", 2).

As a result, while the average American water user spends around \$600 per acre-foot of water, Navajos forced to transport water spend \$43,000 ("Water Study" 5.5-26). Moreover, water scarcity also restrains overall economic development on the reservation, making it particularly difficult for businesses to run and maintain. One of the primary industries in the Navajo Nation is agriculture, mainly cattle and hay, which require a sufficient water supply for productivity. Hay and forage represent around 67% of all crop acreage on the reservation, and livestock sales account for 21% of all agricultural sales (Drugova et al., 32). The lack of access to water, thus, poses a serious threat to the prosperity of Navajo members and sustainable development. Not only does it prevent farming and irrigation, but it also deters businesses and investments that are necessary to create jobs. Indeed, access

to water is one of the key issues that companies consider when deciding whether to place business facilities in a particular location.

The limitations are well reflected in the surveys, which clearly show how harsh living conditions are on the reservation. According to the United States Census Bureau, the poverty rate of the Navajo Nation is 38% and the unemployment rate amounts to 57%. By contrast, the poverty rate for the United States as a whole is 12.5% and the unemployment rate is 4.2% (The United States Census Bureau).

Furthermore, the lack of adequate water supplies has been associated with educational disparities for Native American children living on reservations. In fact, Native youth have the lowest high school graduation rate in the United States and the lowest achievement scores ("Water Delayed is Water Denied", 5). When essentials such as clean water and sanitation are missing, schools often have to close. The inability to wash hands facilitates the spread of infectious diseases such as influenza and diarrheal illnesses. Moreover, children usually help their parents transport water from communal wells, which takes hours each week that could be spent studying or attending school. Consequently, education time is often shorter, contributing to the education gap and poorer academic performance (Ibid.).

Since the relationship between the Navajo Nation and the surrounding elements, especially water, land, air and fire, is governed by the Diné Natural Law, the connection is deeply rooted in Navajo culture and spirituality. For the Diné people, water is an essential resource not only for the most basic life needs, but also for spiritual purposes. For them, water is life and a living entity, and every drop is unique and connected to the land and the people. It is a key element of their identity and culture. Their shared history, traditions and ceremonies are inseparably linked to water, and when access to water is under threat, their spirituality, cultural practices and whole existence are under threat too ("Water is Life: Tradition and Transition in the Navajo Nation").

Most Indigenous tribes in the United States have a creation story that explains their origin, portraying their cultural and spiritual connection with the natural resources they honor. According to the Diné creation story, the Holy People wished for them to live within four sacred mountains and four sacred rivers and forbade them from leaving the holy land (Iverson 17). Thus, in Fort Sumner, they could not continue their agricultural traditions or perform practices and ceremonies related to water. When Navajo representatives negotiated with federal officials to return to their ancestral land from Bosque Redondo, it was the order that guided them. As Barboncito, who represented the Navajo Nation in those negotiations, explained:

“When the Navajos were first created, four mountains and four rivers were pointed out to us, inside of which we should live; that was to be our country and was given to us by the first woman of the Navajo tribe” (Iverson, 63).

The necessity of living on ancestral land is part of a larger concept that is pivotal to understanding the Diné way of thinking about the surrounding reality. The concept is *hózhó*, a state of balance and harmony, when everything functions well (Austin, 54). For the Navajo, it is a holy condition they seek their entire lives, and they are thought to live according to it (Ibid.). On the other hand, *hóchxo'* is the opposite, a state of disharmony caused by *naayéé'* (Ibid. 55). The Diné people found themselves in a state of disharmony while residing in Bosque Redondo and suffering harsh conditions and hunger. Currently, the inhabitants of the Navajo Nation are also in that state, which violates their peace and right to a dignified life on their traditional land. The lack of adequate access to water means that the spiritual bond with the land and with every living being is obviously disturbed, and abiding by customs that are fundamental for preserving the traditional way of life for the Diné is becoming increasingly difficult.

Conclusion: Sovereignty and Social Justice Dilemmas

Thus, despite the treaty promises to guarantee a permanent homeland for the Navajos, the United States government has repeatedly failed to secure the Nation's most basic need — access to a safe, reliable water source. The exclusion described in this article was not incidental, but systemic. The Diné people faced brutal displacement that was followed by the theft of land and its resources. Subsequently, the Navajo Nation was excluded from participating in the decision-making process regarding Colorado River law, and then from profit-sharing from the development of water infrastructure in the Colorado River Basin. Instead, their resources were further exploited by the coal and uranium mining industry, and their water became contaminated. The Navajo Nation water crisis, with all its consequences, illustrates the profound socio-environmental crisis taking place in the United States, which should not be tolerated in light of treaty provisions.

Based on both the historical and legal analysis and the empirical data on water consumption in the states neighboring the Navajo Nation, it can be assumed that it is not so much the result of geographic constraints as of political and legal barriers that have successively marginalized the rights of the Navajos to live in the “happiness and prosperity” guaranteed by the 1849 Treaty. Indeed, the drought in the Colorado River region is

progressing and resulting in declining surface water levels. However, the water crisis is due not to the need to combat drought, but to centuries of neglect of Indigenous people's rights to equal access to safe and reliable sources of water. The American Southwest has been experiencing drought since the early 21st century, and the Navajo Nation struggled to access water over 100 years ago, according to the previously mentioned *Meriam Report*. The states of the Colorado River Basin are able to meet the needs of their residents by using groundwater and surface water sources even in drought conditions, but well-constructed infrastructure and clear legal status are necessary. The Navajo Nation lacks both.

The ongoing water crisis poses a serious threat to the sovereignty of the Navajo Nation, making it unable to become a completely independent entity in the United States and to decide for itself fully. Lack of access to safe water sources limits the Navajo Nation's ability to develop and grow economically, as well as its right to live a life of dignity, health, prosperity and in accordance with its cultural principle of balance with all surrounding elements. Difficulties in successfully negotiating water settlements with certain states demonstrate the existing tensions between the principles of American federalism and tribal autonomy. States adjacent to the Navajo Nation prioritize their water needs with a dominant voice in water management in the American Southwest, leading to a situation where Navajos must fight for their water rights in state and federal courts. However, as the *Arizona v. Navajo Nation* case showed, the legal battle is not often successful, and tribal water rights, although guaranteed under the *Winters* case, are not always reflected in reality — especially if it is not politically convenient. In fact, it clearly exemplifies the US colonial government's systemic discrimination against the Navajo Nation and constant neglect of Navajo water claims.

To address the crisis effectively, decisive action is needed at both the legislative and infrastructural levels, as well as the incorporation of traditional Diné knowledge into water resource management. It can be an effective source of knowledge in drought and water stress and contribute to a more sustainable and equitable use of water resources. Navajos, as well as other Indigenous communities, approach natural resources in a substantially different way from the exploitative nature of American settlers. Native Americans often managed water collectively and sustainably, based on cultural and spiritual connections to the land. They were connected to Mother Earth for thousands of years and instead of conquering it, they wanted to use it responsibly and protect it. They knew that water was a limited resource that could not be owned but could be used

collaboratively. This way of thinking is part of Diné Natural Law that requires that "the sacred elements of life, air, light/fire, water and earth/pollen in all their forms must be respected, honored, and protected for they sustain life" ("Fundamental Laws of the Diné"). They should remember that water is sacred and crucial for their life. The imposition of colonial law and colonial water management made it incredibly difficult for the Diné people to maintain this connection with Mother Earth and to live according to Natural Law. To this day, the Diné have this respect, but the colonial ideology of exploitation of natural resources has marginalized Indigenous practices and alienated Native Americans from their land and water sources (Curley, "Our Winters' Rights", 60-73).

According to some predictions, by 2050 Navajo members' water demand could exceed four times the capacity of the current water system ("Colorado River Basin: Water Study" 5.5-27). Unless there is a fundamental change in how water resources are managed, the crisis will only worsen. From the social justice perspective, a re-evaluation of colonial thinking about natural resources is crucial if their distribution in the United States is to be conducted using an equity-based approach. The colonial approach to water management ignored its long-term effects on the environment and Native American communities, resulting in significant disparities in access to water between Native and white households. As climate change progresses, water in the arid Southwest will become an increasingly scarce and precious resource, and communities already facing a lack of access to reliable water sources will find themselves under even more severe stress.

With this ongoing climate crisis and its challenges, it may well turn out that incorporating Indigenous epistemologies into the law-making process is not only desirable, but also critical. The water needs of the Native communities have been ignored over the centuries, and their representatives have themselves been forgotten citizens of their country. However, the implementation of Navajo perspectives into modern water management practices could provide an opportunity to address historical injustices and systemic discrimination against the Diné people and other Native communities, as well as offer new practices that are more resilient to the effects of climate change. Acknowledging and respecting Diné knowledge is a step towards justice and a more equal society. Therefore, a shift from exploitative water management practices to those that prioritize sustainability could ensure water security for all residents in the Colorado River Basin and reduce inequalities. Nevertheless, it is crucial to recognize the colonial roots of this crisis and the need to change the system to one that does not exclude any communities in the country.

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