

Where blood and water flow:
Fighting the exploitation and privatization of water in Atlántida, Honduras

By

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DEDICATION

I would like to start off by expressing my gratitude to God for the many blessings and beautiful people they have placed in my life. This work is dedicated to the communities and individuals of Honduras, both past and present, whose lives have shaped and inspired it. In spite of all the obstacles and state enacted violence, my people continue to persevere and put down their lives to protect the Earth and those who are most in need. I would also like to thank the environmentalists who provided me with their time, knowledge, and guidance throughout this process. Thank you for teaching me about this issue and for your kindness throughout this process. To all of my beautiful committee members, thank you for being a part of this journey, your feedback, time, and support.

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TABLE OF CONTENTS

INTRODUCTION: WATER SYSTEMS IN HONDURAS - DECENTRALIZATION AND

CURRENT ISSUES 1

AIM AND RESEARCH OBJECTIVES	8
METHODS.....	10
<i>Positionality and Self-Reflexivity</i>	11

CHAPTER 2: LITERATURE REVIEW 14

2.1 GOVERNANCE AND RESOURCE MANAGEMENT IN LATIN AMERICA	14
2.2 FRAMEWORKS.....	19
<i>2.2.1 Political Ecology</i>	19
<i>2.2.2 Environmental Justice</i>	24
2.3 WATER GOVERNANCE ISSUES IN LATIN AMERICA.....	27
2.4 CORRUPTION.....	31
CONCLUSION	35

CHAPTER 3: METHODOLOGY 38

INTERVIEWS.....	38
DATA COLLECTION.....	40
LIMITATIONS.....	41

CHAPTER 4: RESULTS & ANALYSIS 43

4.1 POLITICAL HISTORICAL OVERVIEW OF HONDURAS.....	43
4.2 GEOGRAPHIC COMPONENTS.....	50

4.3 CLIMATE AND ECONOMIC COMPONENTS.....	52
4.4 POTABLE WATER AND SANITATION SERVICES MANAGEMENT MODELS.....	55
4.5 DRIVERS OF UNEQUAL WATER ACCESS IN THE DEPARTMENT OF ATLÁNTIDA	57
4.5.1 Mining Projects in the Area	59
4.5.2 Hydroelectric concessions	66
4.5.3 Deforestation Practices within the Department of Atlántida	75

CHAPTER 5: CONCLUSION 82

REFERENCE LIST 86

List of Figures

Figure 1. Map of Honduras and its 18 municipalities. Data from (Esri et al. 2023).	5
Figure 2. Depiction of the municipalities in the Department of Atlántida with 2021 total population count distribution. Data from (Esri et al. 2023).	6
Figure 3. Atlántida community members protesting to defend water resources in the area. Source: (Movimiento Amplio por la Dignidad y la Justicia (Madj) 2019).....	8
Figure 4. Map of Latin America. Map from (Gwynne & Cristóbal 2014, 4).	50
Figure 5. Water and Sanitation Sector Structure in Honduras. Adapted from (ERSAPS 2020).	56
Figure 6. Residents protesting against the Jilmito Hydroelectric Project in Arizona, Atlántida. Source: (MADJ 2021).....	67

List of Tables

Table 1. Coverage breakdown by forest type. Data from: (Instituto Nacional de Conservación y Desarrollo Forestal 2021).	75
Table 2. Data of total tree cover loss for the eight municipalities in Atlántida, Honduras for the years 2001-2021. Data from: (Global Forest Watch 2023).	76

ABSTRACT OF THE THESIS

Water is an element that not only keeps humans alive but powers the world. Access, quality, and safety are all dimensions of power when it comes to water—where gender, class, income, geography, and race are often the determinants. Access to clean water and issues surrounding mining and hydroelectric projects, deforestation, and human rights violations are becoming an increasing threat many communities in the country of Honduras. Before and after the murder of Berta Caceres, environmentalists and community leaders have organized to prevent the privatization of water and lands, and bring awareness to the imminent threat that all of these extractive practices are posing on water and ecosystems, along with other environmental issues that are threatening communities in the Department of Atlántida and other areas across the country. Access to safe drinking water and rivers is essential for the survival of communities, particularly in regions where drought poses a significant and ongoing threat. This is especially true for many communities in Honduras, especially those located in the mountainous western highlands. These highland areas are part of the Central American Dry Corridor, which experiences severe drought conditions for most of the year. Currently, Honduras has a population of over 9 million people and sadly only about 60% of the population have access to drinking water. In this thesis I aim to understand how deforestation practices, mining, and hydroelectric projects affect water access and quality for residents in Atlántida, Honduras and how this may affect the region's water management and provision strategies.

Introduction: Water Systems in Honduras - Decentralization and Current Issues

Throughout Honduras' history, disputes have frequently centered on the administration of water resources and access to them. As the late 1990s rolled around, Honduras' public sector was failing to meet people's demand for basic needs forcing the government to rely on private agencies to provide these services (Public-Private Infrastructure Advisory Facility (PPIAF) & World Bank 2003). In a move to promote competition and the separation of functions, Honduras decided to enact framework laws for various sectors, such as electricity, telecommunications, and also water and sanitation services. Within its water and sanitation sector, “a public-private cooperation model” was brought forth to generate advancement in the provision and coverage of these services to marginalized communities, especially those residing in rural areas (PPIAF & World Bank 2003, 2). The *Water Sanitation Sector Framework Law* known as *Ley de Marco* was implemented in 2003 and mandated the decentralization of Servicio Autónomo Nacional de Acueductos y Alcantarillados (SANAA, Autonomous National Service for Water and Sewer) and the concession of its governing power be passed to the 298 municipalities in the country.

SANAA was established in 1974 by *Decree Law 155*, “as an autonomous agency with its own legal capacity and assets to promote the development of water and sanitation services in the country,” (Moreno et al. 2011). Initially, SANAA was to function at a national scale but its inability to move outside the boundaries of Urban Areas, particularly Tegucigalpa, the country's capital, led to its failure as the main provider and governing body of water sources. Along with the decentralization of the entity, the framework led to the establishment of the Consejo Nacional de Agua y Saneamiento (CONASA, National Water and Sanitation Council) and Ente Regulador de los Servicios de Agua Potable y Saneamiento (ERSAPS, Water and Sanitation Service

Regulatory Authority). These agencies would, alongside SANAA, support municipalities with technical assistance in the management and service distribution of water and sanitation (Moreno et al. 2011). Although this process of decentralization was to be completed by 2008, four water distribution systems are yet to be under the management of municipalities: Tegucigalpa, La Ceiba (Department of Atlántida), Amapala, and Progreso (Silva 2018).

Along with the establishment of these Frameworks, the National Congress of Honduras has ratified various decrees and established *Article 145* in 2011, within its Constitution, to support the establishment and protection of water as a human right. *Article 145* of the Honduran Constitution states:

“The right to the protection of one’s health is hereby recognized. It is everyone’s duty to participate in the promotion and preservation of individual and community health. The State shall maintain a satisfactory environment for the protection of everyone’s health” (Honduras Constitution, Article § 145).

Additionally, in 2012, *Decree No. 270-2011* expanded on this article to include the following:

“Consequently, access to water and sanitation are declared to be a human right. Their enjoyment and use shall be equitable with preference to human consumption. Therefore, the preservation of sources of water is guaranteed such that they shall not put life and public health at risk. The activities of the State and public, and private entities shall be subject to this provision. The law shall regulate this subject” (La Gaceta 2013).

The latter changes to this article came after Organizacion Mundial de Salud (OMS) called upon all of its members in May of 2011 to guarantee strategies that would promulgate health nationally and advance the development of water and sanitation services within the member countries (Fundación Parque Nacional Pico Bonito (FUPNABIP) n.d., 16). Prior to this, in 2009,

the Honduran Government had issued *La Ley General de Aguas Nacionales* (The General Law of National Waters), *Decree N. 181-2009*, that “established the principles and regulations applicable to the proper management of water resources for the protection, conservation, valuation, and use of water resources to promote the integrated management of said resources at the national level” (FUPNABIP n.d., 19). This established community participation as essential and mandatory in the “management planning, use, protection and conversation of water resources” (Congreso Nacional de Honduras 2009, 3).

In a move to further promote water access to its residents, the country adopted the 2030 Agenda set by the United Nations in 2015 to achieve sustainable development, a task placed under the leadership of the General Government Coordinating Secretariat (SCGG). The agenda includes a total of 17 Sustainable Development Goals (SDGs) deemed essential to providing people with basic necessities that lead to a more prosperous and peaceful life, while at the same time dealing with the effects of climate change and the preservation of ecosystems (United Nations 2023). Of importance to the topic of water is SDG 6 which seeks to “ensure the [availability] and sustainable management of water and sanitation for all” (United Nations 2023). However, even though these laws, decrees, and provisional aims have been implemented or considered, they have been rendered ineffective by the state’s support of initiatives that center economic development over the safety and right of its citizens. Through a political ecology framework we see how these political processes demonstrate the varying tensions and contradictions that shape state actions leading to issues of exclusion and dilemmas surrounding the exploitation of people and ecological resources. Ultimately, facilitating the capitalist efforts of elites and showcasing how state power is leveraged to enable state violence that ensures a

“free market” that is indemnified from and rid of government regulation, weakening environmental regulation and “social protectionism” (Mascarenhas 2012, 65).

Research conducted by UNICEF and World Health Organization, in 2020, revealed that there is a great deal of variability in the levels of access to water for rural and urban communities in Honduras when assessing for accessibility on-premises, availability of water when needed, and water that is free from contamination. This report revealed that while about 78% of the rural population and 97-98% of urban populations have water access on-premises, only around 56% of urban and 65% of rural populations have access to water when they need it (WHO-UNICEF 2022). Furthermore, it revealed that only about 20% of the rural population has access to water that is free from contamination, an alarmingly low number (ibid.).

For municipalities that initiated their transition to Juntas de Agua, community-led water management systems, after the Ley de Marco was passed, challenges outside the boundaries of distribution quickly emerged. As climate change ramps up so have extreme weather events like hurricanes, droughts, and erratic rain patterns that decimate tropical areas like those of Honduras. The Department of Atlántida, this research’s focus, has seen an influx of immigrants from residents previously residing in the dry corridor of Honduras. The Dry Corridor is a region that encompasses parts of El Salvador, Honduras, Nicaragua, and Guatemala, “where 11.5 million people live in rural municipalities and more than half work in agriculture” (Food & Agriculture Organization of the United Nations (FAO) 2023). Long periods of drought, followed by intense rain patterns are threatening farmers' financial stability, and access to food and water (ibid.). As places within the Department of Atlántida become home for many of those fleeing the dry corridor, the maintenance and security of water management systems have become much more urgent, and yet, extremely difficult to sustain due to the rise of extractive projects.



Figure 1. Map of Honduras and its 18 municipalities. Data from (Esri et al. 2023).

Atlántida, like many other regions in Honduras, has seen a large increase in extractive hydroelectric, mining, deforestation from African Palm tree cultivation projects and illegal logging that endangers the dispossession of Indigenous communities, undermining their sovereignty and affecting the lives of thousands. This particular region was selected due to its diverse levels of urban development and ongoing environmental injustices (Figure 2).

Furthermore, it remains dependent on SANAA as its water supplier in La Ceiba, and it boasts a significant hydrologic reservoir comprising 13 rivers (Secretaría de Recursos Naturales y Ambiente 2010).



Figure 2. Depiction of the municipalities in the Department of Atlántida with 2021 total population count distribution. Data from (Esri et al. 2023).

The Department of Atlántida is projected to have a total population of 508,228, with 164,626 of that population being rural, and 343,602 residing in urban areas by 2023 (INE 2023) (Figure 2). The department is made up of 8 municipalities and borders the Gulf of Mexico: Tela, Jutiapa, San Francisco, El Porvenir, La Masica, Arizona, Esparta, and lastly, its departmental head, La Ceiba. La Ceiba, Tela, Arizona, Esparta, and San Francisco have varying degrees of urbanization. La Ceiba has the highest level of urbanization at 92.81%, San Francisco is second with 76.77%, Tela is third with 53.08%, Arizona is fourth with 50.55%, and Esparta is last with 100% rural (INE 2015). Interestingly, each area is being confronted with the same problems surrounding water supply shortages and struggling to meet those demands. As neoliberal development frameworks have prevailed across the nation, water sources have become commodities, sparking conflicts over access between citizens, the government, and businesses. According to Movimiento Amplio por la Dignidad y la Justicia, the Department of Atlántida has 73 rivers and streams, 42 of which are officially protected, that are being threatened by 24 hydroelectric concessions, 5 of which are already in operation (Radio Progreso 2017). The concession of these rivers and streams to businesses is oftentimes illegal as they violate the “*International Labor Organization (ILO) Convention No. 169* ratified by Honduras in 1994,

requiring the prior consultation of Indigenous peoples” (Climate Diplomacy 2023). These illegal and forced concessions don’t only jeopardize water sources but facilitate human rights violations and the murder of environmentalists and activists.

Across the country, 105 rivers have been conceded “for the installation of Hydroelectric Dams”, and 950 areas for mining concessions which have been granted with more than 800 already in progress (Radio Progreso 2017). This has led researchers to estimate that a total of 35% of the land of Honduras is currently exploited and in the hands of private companies (ibid.). The case of Atlántida demonstrates how the expansion of Western neoliberal ideology has eroded government structures in Honduras into tools for the marketization of the environment and its resources, resulting in increased violence and privatization of essential resources like water. The reliance on private and market-based solutions to solve social issues has led to state sanctioned violence, killings, and persecution of hundreds of environmentalists (Figure 3). In the global political economy, core countries such as the United States and Canada create a situation where Latin American countries are compelled to function as extraction zones, often referred to as periphery zones. This forces them into an ongoing pursuit of economic development that remains elusive, primarily because it aligns with the interests of countries relying on this specific status. According to authors like Robert Gwynne and Kay Cristóbal, globalization is not new nor unprecedented because “capitalism has always been an international system” (2014, 5). In order for countries to participate within a capitalistic system they need to join the larger global economic system, that is not only imbued with neoliberalism ideology that advocates for a free market with minimal government intervention, privatization, and deregulation, but controlled by a select few elites. Hence, in the context of the global political economy, Honduras finds itself

with limited political and economic influence. This compels the country to continue its reductionist role or risk exclusion from the system altogether.



Figure 3. Atlántida community members protesting to defend water resources in the area. Source: (Movimiento Amplio por la Dignidad y la Justicia (Madj) 2019).

Aim and Research Objectives

On the 7th of January of this year, two environmentalists, Jairo Bonilla and Aly Dominguez, were shot and killed by gunmen in the village of Guapinol (Department of Colón) for standing up against an illegal mining project, by the Emco-Inversiones Group and company Los Pinares, for polluting the national reserve water supplies (Guapinol Resiste 2023). After their deaths, on January 10th, the Human Rights Secretariat of Honduras (SEDH) put out a communication piece that stated that the two environmentalists were not part of any protected environmental group and had voluntarily left Guapinol Resiste prior to their deaths (2023). The

SEDH continued by stating that their goal, always, was to continue to protect the rights and lives of environmental groups, like Guapinol Resiste, implying that the death of these two individuals was in no way a failure on their part. Later that week, police reported this crime to be motivated by a robbery, a statement strongly opposed by the environmentalist group (Palencia et al. 2023). Guapinol Resiste, Municipal Committee for the Defense of Common and Public Goods for the city of Tocoa, co-founded by Jairo and Aly, and communities in the region have opposed these projects since 2011 when the government reduced the portion of protected areas to cater to companies and illegally grant them rights to mine the areas (Palencia et al. 2023; Ferrucci 2021). As of 2021, eight people who opposed this project have been killed and sadly Bonilla and Dominguez may not be the last (Ferrucci 2021). Even though many local and international organizations call for justice and the protection of environmentalists in Honduras, things continue to get worse.

In the face of these challenges facing Honduras, and Atlantida in particular, I ask the following question:

1. How are deforestation practices, mining, and hydroelectric projects affecting water access and quality for residents in Atlántida, Honduras? Furthermore, how does this affect each area's water management and provision strategies?

I hypothesize that hydroelectric projects and deforestation practices have a direct impact on water resources in the country. Additionally there is a high degree of correlation between resource exploitation/water management and state sanctioned violence. Using a political ecology approach and an environmental justice perspective, this thesis seeks to shed light on the relationship between water resource management and state sanctioned violence in rural Honduras. Through this project, I hope to shed light on our environmental defenders who

continue to be attacked, incarcerated, criminalized, targets of slander, and on many occasions, murdered to continue systems of oppression. Furthermore, I aim to illustrate how Honduras' engagement in the global political economy has undermined its capacity to uphold its own laws and safeguard people's fundamental rights to a clean environment and access to safe drinking water sources. This occurs simultaneously with the enforcement of a contradictory and violent regime built upon the principles of capitalist development, which ultimately perpetuates underdevelopment in the region and exacerbates the economic challenges faced by its people. Lastly, the intent is to showcase how even with extremely limited resources environmentalists have been able to protect the environment and people's homes by coupling these obstacles with bravery, grit, and determination to empower themselves and their communities.

Methods

The issues this thesis addresses are very complex and at times sensitive, particularly in the country of Honduras where the social and political landscape can hamper effort to access critical data. As such, it requires a range of research strategies to address the questions. Data for this research was collected through a series of interviews and reviews of scholarly literature, government reports, and investigative reports to provide insight into the decentralization of water resources and access to quality water in communities across the country. Though field observation would have added a new layer to the discussion to assess the impacts at the community level, Honduras' political landscape and violence, in particular, made it too risky to engage in any fieldwork. Nonetheless, the data collected provide a framework within which we can analyze water access, state sanction violence and global capitalist exploitation that characterized access to water in communities across the world. Two environmentalists were

interviewed to understand how hydroelectric projects, deforestation, and mining practices are affecting water resources and their management.

Positionality and Self-Reflexivity

There are various guiding processes that inspired me to engage in this research topic. I was born in La Tela, Atlántida, Honduras and was raised in the village of Siempreviva until the age of eight. I then migrated to the United States due to the lack of opportunities and poverty that made the living situation hard to bear for my mother and me. Even though I was young, some of the greatest things that I remember about my village are the lush trees, warm rainfall, abundance of rivers, plants, forests, animals, and the sense of community within all of those residing in the area. My father's family lived in the municipality of Esparta, where forests, farms, and wildlife surrounded the area. At this time, my father was still a part of my life and so I would visit him and my grandmother every now and then. My grandmother and I would often walk miles to collect water from a community well in the area or would ride horses to herd the cows to their pasture, which – to some degree – inspired me to choose this specific research topic and carry inherent biases that inform the development of this project. Upon my departure, due to my age, I experienced a loss of connection with most of my acquaintances and my cultural roots. I became deeply immersed in the American values of individuality, culture, education, and language. This loss, mingled with my exposure to environmental and social justice studies re-ignited my sense of longing to connect back to my country and culture. I wanted to learn about what had changed, had not, and learn more about the current political, environmental, and social injustices taking place in Honduras.

Subsequently, I reconnected with family members in the region who shared their concerns and recounted personal experiences of violence linked to the state. Learning about their

experiences and the ongoing struggle led by community members and Indigenous groups against extractive projects in the area, I felt a compelling sense of responsibility. A responsibility to do more and reconnect back to my home country. Research into the topic of environmental degradation in Honduras, led me to the story of the murder of Berta Cáceres, a mother, environmentalist, and Indigenous rights leader. Berta was murdered for defending the life of the Gualcarque River by leading protests to stop the construction of a hydroelectric dam on the premises. Sadly, Berta's story is not the only one; her death echoes a broader pattern, as numerous others have also perished defending their lands, rivers, and basic human rights since her passing. These stories, along with the various discussions with a particular environmentalist in the area inspired me to join the discussion in this field of research.

While I was born in Honduras, I find that my connection to my community has evolved over time and has oftentimes been lost. I must acknowledge that despite my past affiliation with this community, my current position is that of an outsider who currently resides within a country that grants me certain privileges. Unlike many individuals and groups currently engaged in the struggle, I haven't been actively involved. My studies were conducted within institutions that predominantly utilize Western-based research models and curricula, which have significantly influenced my thought process and initial approach to this research project. It is why, through this research I hope to, not only step away from Western-based models of learning, but also use my privilege to shed light on the struggle for access to water being faced by thousands in my homeland. Furthermore, to draw attention to the problematic adoption of neo-extractive policies that continue to perpetuate colonial violence and the destruction of peoples and Indigenous culture. At the same time, this research project enabled me to embark on a continuous journey of

learning and activist, while at the same time rekindling a profound connection to my heritage and community, that I once deemed lost forever.

This thesis is organized as follows: Chapter two consists of a literature review that takes a look at the evolution of water and resource governance in Latin America and interweaves two conceptual frameworks, political ecology, and environmental justice. Chapter three presents the methodology of the research and describes the interview process, data collection, and limitations encountered. Chapter four dives into the findings and provides more analysis and context of the issue at hand. Lastly, chapter five provides a conclusion to the thesis and closing remarks that outline future directions for research and activism.

Chapter 2: Literature Review

Within the current academic literature on water access a few key themes can be seen: the influence of neoliberal development policies in Latin America has transformed water management from favoring citizens and Indigenous communities to “a water governance that promotes private responsibilities while giving priority to the mining and agro-export industries,” and ultimately, the commercialization of water (Paerregaard et al. 2016, 198). Below, I review and reflect on the literature of governance and ecological resource management in Latin America as well as the literature surrounding political ecology and environmental justice as it pertains to issues of water access. I then address the emerging critiques of water governance and access.

2.1 Governance and Resource Management in Latin America

The governance of environmental resources in Latin America experienced a great shift around the mid-1980s as state-led initiatives took a back seat and privatization along with decentralization created “new approaches to national resource management [stressing] self-governance and higher levels of participation for civil society and private enterprises” (Baud et al. 2011, 81). This development opened way for the privatization of resources and the involvement of local and international organizations, such as NGOs, allowing for systems that linked both local and global forces, reproducing, as termed by the authors, “glocalization”, a process described as one that links the decision-making processes of resource management with international and regional stakeholders (ibid.). Such shift relegated the state’s power and regulatory role to the market and private sector (Bridge and Perreault 2009; Borgias 2018), leading to what is known as the “conservation boom” in many Latin American and Caribbean countries (Zimmerer & Carter 2002). This “boom” resulted from the need to protect lands from

neoliberal development strategies that were overexploiting natural resources in these areas and decimating forests. By 1997, “approximately 45% of the Caribbean, 16% of Central America, and 10% of South America were under IUCN (World Conservation Union/International Union for the Conservation of Nature) protected area status” (Zimmerer & Carter 2002, 208).

The involvement of international organizations like the World Bank helped cement the idea of “sustainable development as the guiding principle for natural resource management” (Bastida & Bustos 2017, 236). This, combined with processes of decentralization, helped create a pathway for local communities to regain control over resource management. However, for many communities in Latin America this has been a double-edged sword. On the one hand, this has empowered communities to advocate for the need of more robust and stronger environmental protection policies and initiatives that promote social justice (Delgado-Serrano et al. 2017). On the other hand, it has only increased their reliance on international and national organizations for financial support and management. In part, this is tied to the failure of local governments to provide such assistance and the region's dependence on the exportation of natural resources for economic development (ibid.). Such dependence has been facilitated by violent co-optation on behalf of powerful elites (ibid.). These processes, tied with the call by organizations like the World Bank, United Nations, the Food and Agriculture Organization, and many more, has allowed for a new frontier of violence and exclusion of marginalized communities hidden under the veil of mitigation and adaptation strategies that push for a transition to renewable forms of energy.

Countries around the world and in Latin America have experienced a push to transition to renewable forms of energy as a “solution” for climate change and a way to promote modernity. Various authors posit that this push is a form of ‘green colonialism’ that further entrenches Latin

America's pressure on its natural resources, posing the region as the supplier of the world's raw materials, and raising questions on how resources should be governed ([Dorn 2022](#)). The materials required to build greener infrastructures like cars and wind turbines are metals and raw materials like zinc, lithium copper, nickel, tellurium, silver, molybdenum, manganese, bauxite, graphite, and selenium (Dorn 2022, 139). This need pushes the rise of extractive industries such as mining in Latin America, and as Dorn explains, creates challenges within environmental justice debates as these countries become relied upon for the provision of these materials even though they have historically been among the small contributors to climate change and greenhouse gas emissions (*ibid.*). Today's discussion around climate change and its possible solutions are modes through which colonial structures of inequality, dispossession, and violence continue to be perpetuated. It is a system in which resource use and energy have been commodified, its solutions posed as non-political, yet its methods of deployment are modes through which "conservative accumulation[s] [...] that reproduce and deepen existing power relations" are established while destructive structures are justified (Dorn 2022, 143).

At the center of these debates is colonialism, devoid of boundaries, and the legacy that it continues to perpetuate across space, law, and time. Many countries in Latin America are stuck doing development while trying to achieve this push towards mitigating the effects of climate change. However, prevailing solutions for climate change are based on tenets of capitalism which are born out of colonial and Western ideologies of economic growth and capital accumulation and pose problems for marginalized communities not just due to the intensification of "natural disasters" but also because "solutions" are often achieved through violence. This leads many authors to argue that modern practices of energy transitions and solutions for climate change are neo-colonial. Struggles against power dynamics such as water conflicts are said to be

the representation of this ultimate fight against the pervasiveness of neoliberal logic that imbues all aspects of everyday life (Borgias 2018). In Chile, social movement groups have long led the fight against the building of the U.S.-owned Alto Maipo hydroelectric dam (ibid.). The country's government has categorized this project of high importance because it is a climate change mitigation strategy that will, allegedly, generate clean energy to help with the "impending energy crisis" (ibid., 91). AES Gener, the American electric company that owns the project, stated under the Environmental Assessment portion of the project that this dam will have limited environmental impacts, leading the project to be categorized "as a Mechanism for Clean Development under Act. 12 of the Kyoto Protocol" (ibid.). Unfortunately, this project diverts a large amount of water from the Santiago Metropolitan Region, where 40% of the country's population resides, and whose principal water source is the Maipo River (ibid.). This is a river relied on not only for sustenance but also for agricultural, recreational, and other economic-based activities. Investigations have revealed that this project has led to a reduction in streamflow and sedimentation along riverbeds, resulting in the degradation of riverbeds that are already being heavily impacted by mining projects in the area (ibid., 92). However, even though this project has been revealed to pose many negative impacts on the environment and surrounding communities, it is backed and protected by the Chilean government and other powerful international entities.

Projects such as the Alto Maipo hydroelectric dam demonstrate how extractive projects are falsely hidden under development opportunity models with "environmentally conscious goals" that end up facilitating the exclusion and displacement of people. Natacha Bruna argues that the calls made by "mainstream institutions" (i.e. World Bank, UN) to reduce greenhouse gas emissions through urgent measures such as these make the process through which these things

are achieved one of accumulation (ibid.). However, in order to achieve this accumulation, efficiency must be at the center, making the implementation of these extractive projects extremely dangerous and ineffective. One of the tenets of capitalism is being able to generate profit from any crisis it itself creates (Harvey 2005; Ekers & Prudham 2017), making climate change the newest frontier for wealth accumulation. Authors like Bruna argue that green policies and extractivism intersect making this a relationship that facilitates resource grabbing; this takes away the right of rural and poor communities from emission rights by removing, “their ability to rightfully use and benefit from ecological assets” (Bruna 2022, 842). Political ecology highlights how capital accumulation is fortified by these political processes of mitigating climate change as they are based on strategies “that are imagined and promulgated by powerful states and think-tanks” which end up reproducing the status quo and the systems which produced “the climate crisis in the first place” (Robbins 2012, 249). These processes don’t only not challenge our current regimes but instead, strengthen the power imbalance between government and business entities and communities as resources are accumulated and controlled by the hands of a select few. Bryant and Bailey (2005) elaborate this argument by demonstrating that the use of so-called sustainable development is merely a reproduction of a business as usual agenda and a demonstration of the long withstanding role of capitalism that has spread since the nineteenth century, promoting Third World Countries as sources of extraction and pollution dumps for more developed and richer countries. The success of mitigation and adaptation strategies in Latin America will stem from their opposition to the exploitative nature of development measure, as this economic development processes rely heavily on the exploitation of the land and the vulnerability, both economically and politically, of those who reside in those spaces (Spikin et al. 2016).

2.2 Frameworks

2.2.1 Political Ecology

Political ecology helps us dive into accessibility and political dilemmas as it focuses on understanding power dynamics, access, and stakeholders' ability to influence the decision-making process across various scales (Robbins 2012). Paul Robbins defines political ecology as “a field that seeks to unravel the political forces at work in environmental access, management, and transformation”. Through political ecology, researchers like Robbins reveal how ecology is political as it demonstrates that “environmental change and ecological conditions are products of political processes” (Robbins 2012, 16). This framework shows us the importance of understanding how both the good and the bad of the environment are unevenly distributed and ultimately demonstrates how actors come to embody and internalize norms that either push them toward being environmental stewards or opponents (*ibid.*, p. 74). Political ecology greatly alters how we understand and study the relationship between nature and society, especially the “social construction of nature”, and considers our interconnectedness with power structures, economy, ecology, and nonhuman actors (Blaikie 2007, 766; Grauer 2021). In Latin America, there is a concentration of power among a privileged few, resulting in a situation where the utilization of natural resources by these individuals is considered more valuable than the needs of marginalized groups who rely on these resources for their basic survival, leading to an increased favoring of water as an economic good rather than as a nurturing entity required for all beings basic survival.

Water plays a great role in Latin America's economic development. In the last 30 years, countries in Latin America have seen the fastest growth, only second to China, in hydropower; and although they are a region with one of the lowest energy consumption they account “for over

20 percent of the world's hydropower" (Rubio & Tafunell 2014, 323). This growth is due, in part, to the fact that 31% of the world's freshwater resources lie in this region (Wilkinson 2010; Wellenstein & Makino 2022). The presence of extensive water "resources" has facilitated mineral extraction projects, particularly mining, which rely heavily on abundant water sources. These developments make water a great point of contention because if this resource is being used for extractive projects such as energy production and mining, it often means that those who originally had access to that resource no longer do or are in the process of losing that access. The privatization of this resource, tied to the prevalent issues of distribution, have brought up the contentious question of regulation and "whether water supply management is by its very nature a task for state or for private enterprise" (Moncayo & Wichert 2017, 33). A debate that, ultimately, begs the follow-up question of whether water is a fundamental human right or a commodity that one should pay to have access to. Those arguing a market-based approach believe that free markets are the only ones able to solve the issue of distribution, allowing waste reduction and increasing efficiency in the supply of water (Moncayo & Wichert 2017). On the other hand, "proponents of state control call for the regulating force of the public sector to be able to guarantee that disadvantaged areas are also provided with a reliable water supply and to ensure a supply at low prices or even at no cost to the consumer" (ibid., 33). The process of urbanization adds to this dilemma as it is a system that is imbued "with relations of social power, and proceeds through multiple forms of sociospatial struggle in which (transformed) nature takes center stage" (Swyngedouw 1997, 328). It has become apparent that for cities to become urbanized, water has to be controlled and systems of distribution have to be developed. Therefore, "cities which have a problematic water-supply condition, mechanisms of exclusion from and access to water lay bare how the transformation of nature through urbanization is

infused with relations of power” (ibid., 312). This is the reason why in countries like Honduras and those going through a rise in urbanization, water supply for “final consumption, including drinking water and sanitation, has become an increasingly central issue” (Wilkinson 2010, 157).

Many people who see water from an economic perspective consider it to be a commodity since it is a limited resource in high demand that requires expensive infrastructure for its efficient distribution (Moncayo & Wichert 2017, 33). This perspective, however, is highly problematic because it leaves out all the social, economic, and political factors that constrict peoples access to these services and resources alone. It also disregards the importance of this resource for people’s survival and well-being, forgetting that in order obtain access, one needs to have the means to do so. Control over water sources and systems through which water is distributed is power, after all “water is an inelastic good; demand for it remains fairly constant despite changes in cost” (Camacho 2021, 4). Therefore, for government agencies and officials seeking economic development, the concession for this resource is not going to go to just anyone. This promotes what political ecologists term “frameworks of inclusion and exclusion” that affect those who are most marginalized: Black and Indigenous people, women, children, and those lacking economic and political power. These processes don’t only empower neoliberal systems of power and disregard community-based management, but also completely exclude Indigenous practices and knowledge. In fact, “despite the ‘water war in Cochabamba’ and other evidence that treating water as a commodity leads to conflicts and exclusion of the poor, the international financial institutions are still pursuing these policies today” (Nowak 2017, 101). In 2004 Uruguay became the first country in Latin America to step away from this framework by taking a referendum that would officially add access to water as a human right to the constitution (ibid.). By 2012, Uruguay was reported to be the country with “the highest rates of access to safe drinking water

in Latin America,' reaching 98.1 percent of the population in urban areas and 94.2 percent in small locations” (ibid., 104). The example of Uruguay demonstrates the power that states have at combating policies that thrive of exclusion and can grant power to those who most need it.

For many Indigenous communities, water is a living being and rivers are sacred spiritual beings. This means that unlike the separation that is created by government entities between natural resources, water, land, and everything else - Indigenous communities view them all to be interconnected and the damaging of one of these aspects results in the damaging of all other ones (Roca-Servat & Palacio Ocando 2019). Through studying the effects on water resources from extractive mining projects in Colombia, Roca-Servat & Palacio Ocando (ibid.) found that by viewing water as a relationship rather than an object or material, four complex epistemological and ontological systems that interrelate and overlap are revealed. These hydrosocial relationships, as named by the authors, are grouped as follows:

- a. Water-mining, as a relationship of colonization and dispossession;
- b. Water-territory, as a relationship for the construction of collective history;
- c. Water-food, as a relationship of survival and care;
- d. Water-resistance, as a relationship seeking autonomy.

Although these relationships are not all encompassing, they reveal water as a relationship generator and as the connection between different communities: rural, Indigenous, and Urban (ibid.). They also reveal how due to the persistent nature of colonial and neoliberal ideologies in Latin America, water has become a symbol of resistance for communities around the world. These revelations ultimately portray how problematic it is to view water as something that ought to be commodified and under the direct control of market entities.

According to political ecologists, water governance is best “understood as the set of processes and mechanisms through which actors influence decision-making and conflict resolution related to water resources” (Bauer 2015; Borgias 2018, 88). This means that as the commodification of water and water sources has occurred, the role of money and social power have become intertwined to determine an individual’s access to this vital resource. Like in many parts of the world, social and economic standing also determine one’s political power or lack thereof, and how influential in the participation process of developing governance structures a community or individual will be.

Scholars have also been drawing the importance of understanding how access is not just predicated on understanding rights but also ability, in doing so we raise our awareness over the “relationships and processes” that affect this access (Sultana 2011). Feminist political ecology (FPE) adds to this area of water research by drawing the attention of political ecologists to the importance of gender and a need to focus on women’s agency and knowledge as a way to “create environmental justice at all scales” (Hanson & Buechler 2015, 7). Feminist political ecologists pose that “in the area of human-water research, multidisciplinary and ‘engaged’ research can explicitly link the social and ecological drivers of global change, and further explore the implications of these linkages for policy, science, environmental justice, and social action” (ibid.). They continue by stating that by incorporating a feminist analysis into political ecology, we can close the gap of resiliency that political ecology fails to address at various times (ibid.).

The political ecology framework is believed to be “one of the most overarching and critical interdisciplinary fields linking theorization of and practices pertaining to human-environment relations” and it is for these reasons that various other extensions of this framework have been created (Hanson & Buechler 2015, 6). These other extensions usually rise out of the

need to fill in some of the missing gaps within political ecology and to solve some the critiques given to the field. Indigenous scholars contributed and continue to add to this development by reminding us that many frameworks, such as political ecology, are centered around Euro-Western thought and that by incorporating other frames of reference we can obtain a bigger understanding and start to make political ecology a tool that can contribute greatly to decolonial perspectives (Watts 2013; Schultz 2017). Through Indigenous cosmologies Watts reminds us that “nonhuman beings are active members of society” (Watts 2013, 23). Termed ecosystems and habitats by scientists, Indigenous Knowledge posits that they are best understood as societies, “meaning they have ethical structures, inter-species treaties and agreements, and further their ability to interpret and implement [...] [therefore] not only are they active, they also directly influence how human organize themselves into that society” (ibid.). It is with this perspective that this interconnectedness between the human/nonhuman and political/apolitical can best be captured and we can disrupt the status quo by demonstrating how we are all interconnected. Although this is not the only part of political ecology that benefits from a decolonial and Indigenous perspective, it is one of the most important to this research. It also leads us, once again, to the distribution of power that favors certain categories of humans over other species (Rodríguez-Labajos & Martínez-Alier 2015).

2.2.2 Environmental Justice

The struggle for water access throughout Latin America has been continuous and deadly. As social movements to gain access and stop the privatization of rivers are persistently led by marginalized community members seeking to stop the exploitation of the land, environmental racism persists. This form of racism helped breed the environmental justice movement and field of studies, as it “emphasizes how low-income and racial minority communities are intentionally

or unintentionally targeted for disproportionate exposure to pollutants or degraded environments, compared with the general population” (Méndez 2020, 11). This racism is not only tied to the immediate environment but also to the “systematic exclusion of minorities in decisions on environmental policymaking, enforcement and remediation” (ibid.). Environmental racism helps us understand climate injustice, also known as environmental injustice, by drawing attention to the interconnectedness of our systems (economic, political, social, etc.) and demonstrating how those least at fault tend to bear the biggest burden when it comes to issues like climate change and ecological disruption (Pellow 2020). The environmental justice movement was born out of a 1982 protest in Warren County, North Carolina, a largely African American and rural community, against the installation of a hazardous waste landfill (Méndez 2020, 10). Although not the first of its kind, this environmental protest, led by people of color, amassed a lot of national attention bringing awareness to the concept of environmental racism and jumpstarting studies that demonstrated connections between race and “the siting of hazard waste facilities and toxics-producing facilities” (ibid., 11). Even though the protest didn’t help stop the installation of the landfill it generated a movement and field of study that government agencies could not ignore. In 1991, the First National People of Color Environmental Leadership Summit was held, resulting in the creation of the “17 Principles of Environmental Justice” and instituting the word “right” into the first half of those principles (Méndez 2020; Mohai 2020).

Over the years scholars have created their own definition of environmental justice but with the consensus being that no matter the gender, race, socio-economic status, etc. all individuals have the right to clean water, land, air, and food and discrimination free environmental policies (Mohai 2020; Méndez 2020, 12). This definition has been expanded by the Asian Pacific Environmental Network (APEN) to include the “ability for everyone to ‘feel

safe' in the environments 'where we live, work, and play' (Mohai 2020; Ryder 2017, 89). Scholar David Schlosberg offers more depth to environmental justice by recommending four aspects to justice: distributive justice, recognition justice, procedural justice, and the "building of capabilities" – participation justice (Schlosberg 2004; Méndez 2020, 12). What scholars like Schlosberg are trying to make us understand is that a just environment cannot be achieved without truly understanding the meaning of justice and what social movements across the world are demanding (2004). He argues that "the justice demanded by global environmental justice is really threefold: equity in the distribution of environmental risk, recognition of the diversity of the participants and experiences in affected communities, and participation in the political processes which create and manage environmental policy" (ibid., 517). This scope allows environmental justice to be more than just a field of study but a way through which true and everlasting change can occur.

Researchers like Beatriz Rodríguez-Labajos and Joan Martínez-Alier demonstrate how from the standpoint of environmental justice practitioners, water is deemed to "[run] in the direction of power or (at the same time) towards money" (2015, 539). It is therefore, through the lens of environmental justice and political ecology that we see how in many parts of Latin America access to water is determined way too often by your political and economic power – making all of these cases an environmental injustice. The fact that most mining projects, privatized rivers, and deforested lands reside within predominantly Indigenous, Black, or low-income communities showcases the persistence of environmental racism. International businesses and governmental organizations are acting on the established ideology that power is lacking within these communities and that even if these extractive projects ceased, restitutions do not have to be guaranteed or granted. Environmental justice as a field and framework are

extremely necessary to water research, as it moves beyond merely seeking ecological and environmental protection and into the realm of addressing the systemic issues that allow the perpetuation of this injustice in the first place (Vanderwarker 2012). Furthermore, environmental justice seeks to establish agency in the political decision-making process, especially when it comes to issues that surround water. In many Latin America countries, Indigenous, Black, and low-income peoples are left out of the process – oftentimes having their rights to their homes and rivers revoked without their knowledge or consent.

2.3 Water Governance Issues in Latin America

As I have described previously, under the neoliberal philosophy, climate change justifies the privatization of resources and the exclusion of marginalized groups through the prioritization of climate adaptation and mitigation models that simply serve accumulation processes. For these reasons, it is important to question who climate change policies are serving to prevent the cooptation of these efforts.

We will now turn to the ways that nature, more specifically water, is being appropriated by the state and market entities to enact violence on marginalized groups who choose to oppose these practices, demonstrating how the role of the state has become neutralized to a mere tool that serves neoliberal market interests. In 1992 the publishing of the “Dublin Principles” played a central role in fortifying the view that water would be best managed if it were treated as an economic good (Budd 2004). Principle number four in the “Dublin Principles” stated that water holds an economic value and therefore, to efficiently regulate freshwater sources, it should be managed as an economic good (United Nations 2013). These ideals were bolstered by the “success” of Chile’s neoliberal Water Code and unsubstantiated assumptions that the

marketization of water rights would have a number of positive outcomes, including efficient allocation, increased productivity, improvement in management and maintenance, reduction of waste, liberation of government resources for other purposes, benefits for poor communities, and increased conservation of natural resources (Budd 2004). After this perceived success many Latin American countries followed suit by adopting various reforms, among them allowing the privatization of their water and sanitation services, to increase the efficiency and access of residents (Adam et al. 2020). It is also important to note that this transition was not simply inspired by Chile's perceived success. Concessions to private operators also occurred because in order to get investments to improve the infrastructure and efficiency of water systems, international development banks like the World Bank demanded "privatization as a lending condition" (Hall & Lobina 2008, 26). Today, as a result of the adoption of these reforms, "most countries in Latin America have private companies managing water and sanitation services under autonomous regulatory bodies that are in charge of ensuring quality standards and cost-efficiency" (Camacho 2021, 3). However, the types of contracts most appealing to private companies and investors are those that allow higher decision-making power and new investment opportunities (Bertoméu-Sánchez & Serebisky 2018). If countries in Latin America are forced to often rely on international or private entities to provide these services, it will ultimately come at a great cost as it removes the resident's decision-making power from the process and allows an increase in prices for services provided. Research shows that although Latin America holds almost a third of the world's freshwater reserve, "up to 26 percent, roughly 166 million people, in Latin America and the Caribbean do not have adequate access to drinking water" (Camacho 2021, 2). Although there have been improvements in the provision of access to water sources, most of this improvement has been in urban areas and those largely without access tend to be

people who reside in rural areas and those in low-socioeconomic situations (ibid.). In fact, low-income areas don't just receive poorer water quality services by informal providers but also often pay more than those in richer areas to access water services or supplies (ibid.).

This transformation of governance resulted in the decentralization of power and responsibility, leading to the failure of government and organizational entities. According to sociologists like Vaughan, organizational failure can best be understood as “an event, activity, or circumstance, occurring in and/or produced by a formal organization, that deviates from both formal design goals and normative standards or expectations, either in the fact of its occurrence or in its consequences, and produces a suboptimal outcome as organizational deviance” (Vaughan 1999, 273). Such organizational deviance on part of the state can lead to the co-optation of governmental responsibilities to serve the interest of private investors seeking to privatize water sources, sparking social movements of resistance on behalf of community members and environmentalists. This co-optation leads to power imbalances that deeply affect not only the governance structures but the accessibility of water and environmental resources. Colombia's energy sector is a great example of this. Between 1980 and 2010 Colombia experienced a large influx of hydropower plants that were all built with the sole intent of being ‘generators,’ that would allow “[participation] in the wholesale [of the] national electricity market” (Martínez & Castillo 2016, 69). These plants however increased conflicts around economic distribution, as analysis revealed that the construction of these dams were greatly aligned with economic development models that serve “the interest of political elites and their expectations of [development] supported by economic growth, not only in Colombia, but also in other countries within the region” (ibid., 70). Decentralization and privatization of the state occurred between 1990 and 1999 to fortify these objectives (ibid.). The presidential

administration of that time implemented three significant neoliberal development strategies that: 1) removed barriers for international trade and capital to facilitate their movement 2) optimized conditions to increase the efficiency of markets, and 3) redrew the boundaries of natural areas to allow their use for economic growth by the state (ibid., 71). An implementation of these conditions that favored markets resulted in “eco-distributive conflicts” that were exacerbated by state led attacks on communities fighting to survive and obtain access to resources that have been privatized (ibid.). These types of processes demonstrate that resources are managed and governed through systems that facilitate market cooptation and state intervention for the sole purposes of increasing these claims by investors. Ultimately, a study conducted by the Inter-American Development Bank (IDB) (Stockholm International Water Institute (SIWI) 2023) identified five weaknesses within water and sanitation (W&S) service providers in Latin America, such as:

1. Lack of transparency and poor corporate governance;
2. Failure to provide clear, understandable, and easily accessible service information systems for all participants;
3. Inadequate handling of claims/complaints and overall, poor customer service and communication strategies;
4. Little to no accountability and “corporate governance systems of regulators and service providers”;
5. Poor collaboration amongst differing governing, supervising, and oversight committees in the sector.

These weaknesses have been found to impact close to 40 percent of the regulators, severely limiting the success of the sector and jeopardizing the accessibility of consumers (ibid.). This

makes the system more susceptible to corruption as it weakens the rules and responsibilities of those participating in the system.

2.4 Corruption

If the services provided by these entities were secure and effective, it would not be an issue. However, corruption in the W&S sector is high, posing significant setbacks and losses. Research on corruption in the Latin America W&S sector is scarce, but extremely important. Transparency International (2023), an NGO whose mission is to fight corruption worldwide, defines corruption as the “misuse of entrusted power for private gain”. Water is a unique good, one for which there is no replacement and from which monopolies have the unique position to rise out of. Authors like Donal O’Leary (2007) believe that these specific conditions make this sector the perfect arena for corruption as services are often distributed by monopolies, which allows for discretionary power and, oftentimes, lack of accountability due to reduced government involvement and regulatory oversight. The different ways that corruptive activities play out in the water sector differ, depending on the stage of development the concession or project may be in.

In the procurement stages, which may include “options selection, project planning, and bid evaluation (contracting),” what often tends to occur is that concessions are granted in a biased manner to the highest bidder, without a thorough, non-transparent analysis, and without the involvement of all necessary stakeholders (ibid.). In what O’Leary terms as the “construction or implementation” phase projects may be granted to contractors who among other things are willing to cut down on costs even if it means “executing substandard quality work at the expense of project sustainability” (ibid., 275). After the completion of the project comes the maintenance

of everyday operations, and in this phase, what is often seen is a lack of transparency, bribery to prevent regulatory enforcement, and failure to maintain proposed commitments leading to poor performance at the expense of marginalized individuals (ibid.). Sadly, this is not an expansive list of all the forms of corruption that can occur within the water sector, but it allows us to see the embeddedness of the issue.

According to the Stockholm International Water Institute (SIWI), “it is estimated that corruption can increase the cost of obtaining a connection to the water and sewerage network by 30 percent” and it impacts low-income individuals the most (2023). An actual financial estimate of the overall cost of corruption on the sector has not been conducted but it has been estimated that if 10% of investments are lost it results in an annual loss of more \$75 million (Barreto-Dillon et al. 2018; Camacho 2021). Corruption doesn’t only affect the cost of water services, it affects water quality, infrastructure, policy, the overall decision-making process, accountability, transparency, increases the privatization of water reservoirs, and can lead to the overextraction of water sources from endangered ecosystems (Camacho 2021). In addition, the Water Integrity Network found that scarcity is not the leading cause for the water crises but rather corruption which is exacerbated by weak governance structures that fail to uphold regulation standards (Jenkins 2017).

In Africa, it has been found that “[the] impact of corruption on the water sector is manifested by lack of sustainable delivery, inequitable investment and targeting of resources, and limited participation of affected communities in developmental processes” (Odiwuor 2013). In Latin America this plays out in a very similar fashion. It has been found that elites will bribe public officials to obtain access to water in times of drought or often to divert services from one place to another (Camacho 2021). Peri-urban, rural, and informal communities that lack proper

water piped systems are often faced with having to pay higher prices for lower quality water (Adams et al. 2020; Camacho 2021). Although some of these communities attempt to address the gaps by establishing their own water management systems, often called community water governance (CWG) in the research literature, the lack of institutional support and research into its potential creates several barriers (Adams et al. 2020). For example, in a region of Colombia known as the Montes de María, farmers, community members, and supporting NGOs have been fighting for the ability to have equal shares to the water systems in the area (Langrand 2021). Since the 1990s residents in the area have been in a decades-long fight for access to water after losing it to Oleoflores, “one of Colombia’s first palm oil producers, [who] currently controls the main water irrigation district, which communities increasingly depend on for drinking” (ibid.). However, the cultivation of palm oil, mining projects, and other monoculture projects has contaminated the water supplies affecting people’s intestinal health and killing fishes in the area damaging fishing economies (VerdadAbierta.com 2018). As a result, community members formed water governance systems and installed their own “suction taps to access the groundwater” (VerdadAbierta.com 2018; Herrera Arango et al., 2018). Although the quality of the groundwater has not been determined, the lack of support from official government structures has left community members with no alternatives. As of march of this year, residents in the area continue without proper aqueduct services, and rely on water sources located kilometers away from their homes, which are not safe for human consumption (Barrios 2023).

Water governance structures need a shift to be more inclusive. A study conducted by Plummer et al. (2014) “showed that themes of activities that enhance governance include forums/opportunities for participation, planning processes and tools to deal with disturbances, and improved transparency and legitimacy of decision making/planning processes” (cited in

Trimble et al. 2020, 114). This demonstrates that by being more inclusive, and allowing space for community representation and participation, more equitable and successful governance structures are created. However, political ecology and research done by political ecologists in the field of water governance and participatory governance in water basins have found that these same participatory tactics have also been used to exclude more marginalized community members (García & Bodin 2019). It is, therefore, imperative to find the balance when using these forms of governance structures as they all can be corrupted.

Overall, citizens across Latin America are losing the war for access to water due to mining, agribusiness, and mega-dams that privatize water sources for their own use. In Ecuador more than 20 farmers, environmentalists, and Indigenous groups led protests from the “Amazon region to Quito to demand equal access to water” (Vidal 2017). Unequal access to water for these groups has gotten increasingly worse as mining and agribusinesses have been granted privatization rights by a 2015 water law (ibid.). In the Ecuadorian constitution water is declared as a human right, but a report by Impunity Watch, led by Syracuse University, reveals that “forty-five percent of water resources have been privatized through legal concessions, [and] one percent of those using water resources consume sixty-four percent of the water available [while] eighty-six percent of Ecuadorians consume just thirteen percent of the country’s water” (Vidal 2017; Hager 2009). Sadly, the growing number of extractive projects in Latin America and appropriation of profits reveal not only a “re-strengthening of the state” in the management of these resources but also the cooptation of this control by market and elite participants (Burchardt & Dietz 2014, 470). Through a political ecology lens, we see how this results in “mechanisms of inclusion and exclusion” that changes nature into a commodity and ultimately, transforms social relations of domination that promote the destruction of nature, spaces, people, and culture (ibid.,

479). This growth is concerning for many reasons, some of which have already been discussed, but mostly because the political and social potential of extractive projects are touted by the state as the ultimate option for development, even though this has been proven time and time again not to be the case (ibid.). Burchardt and Dietz state that “even under ideal conditions for political reforms, [...]political elites usually refrain from using policies of redistribution that would boost social integration and participation,” meaning that wealth would remain consolidated within a select few (ibid., 476). It is, therefore, a naïve notion to assume that by selling land and water rights to international companies for the sake of creating avenues that will increase the production of renewal sources of energy will benefit all and bring about economic development.

Conclusion

Literature on water governance has been increasing over the years, as issues surrounding access and control over water sources has risen dramatically due to privatization of resources and the climate change. However, there remains a pressing need for further research in Latin America to address the gaps and challenges specific to the region. By linking political ecology and environmental justice, Robbins and Agyeman believe that “new ecological possibilities can be nurtured,” resulting in the creation of “Just Sustainabilities” (p. 74). By adopting a political ecology perspective, we can observe the application of the four tenets that propel a capital neoliberal agenda across Latin America. Governance structures are weakened and renegotiated to benefit specific group of people; natural resources are then privatized, promoting the enclosure of public places and resources; leading to the process of valuation of those ecosystems promoting the exclusion and dispossession of marginalized groups (Heynen & Robbins 2005, 6). Understanding how damaging these systems are in the water sector are essential if Sustainable

Development Goal 6 “clean water and sanitation for all” is to be accomplished by 2030. Overall, research concludes that within the water sector private operators are not more efficient than public ones (Hall & Lobina 2008). Private operators are often unwilling to participate in the market unless they know they can get a good return on their investments which usually means charging higher rates, skimping out on certain procedures that ensure safety to cut cost, or simply cutting back-deals. It is for these reasons that environmentalists, Indigenous communities, and farmers are all urging for equal access to the management of these resources and the support from state agencies to be able to do this in a safe and protected manner.

This year the United Nations had their first water dedicated conference since the 1977, in which they discussed the progress set forth by Social Development Goal 6 (UNESCO World Water Assessment Programme 2023). In their published report, where details about the convening are relayed, it is revealed that “at current rates, progress towards all the targets of SDG 6 is off-track and in some areas the rate of implementation needs to quadruple, or more” (ibid., 1). In Latin America and the Caribbean, one of the setbacks to making progress for SDG 6 is the challenges pertaining to “technical capacity, governance structures, and [more specifically], funding” (ibid., 6). Sadly, these setbacks are also due to the low inaction of government entities in passing water initiatives that connect to gender, education, job creation, environmental, and social justice issues (ibid., 6). Around the world 2 billion people “do not have access to clean and safe drinking water” and as extreme weather events continue to worsen due to “human-caused climate change” so will this insecurity (Bayram 2023). The UN finds that freshwater sources are depleting at a much faster unprecedented rate due to population growth (UNESCO 2023). The agricultural sector uses 70% of the global freshwater, leading an increased competition between urban areas and farming industries (ibid.). In this book, the UN urges

countries to adapt partnerships for good governance at all levels, to help deal with the impending water crisis. They call for a “whole-of-society approach” that goes beyond government structures to include both civil society and private sectors to devise policies geared towards a cross-sectoral integration system that accounts for all levels of water consumption: people, food, nature, and industry (Kjellén & Wong 2023, 173). As conflicts over water access continue to grow, the future will tell whether this form of partnership will come to fruition, however, this is dependent on how fast and willing we are to move away from destructive economies that rely on the overexploitation of natural resources.

Chapter 3: Methodology

Data collection for this thesis was collected through primary and secondary sources. Secondary data consisted primarily of evaluating relevant literature, books, government reports, legal and policy analysis, reports by environmental and activist groups, and internet sources relevant to the topics at hand. Another secondary data source was local radio stations that reported on recent and current events occurring in or nearby the Department of Atlántida. Primary sources constituted of two interviews with environmentalists/community members from the department of Atlántida. For their safety and well-being, all interviewees are anonymous and only notes were recorded during the phone interview process.

Interviews

At the beginning of the research process the intention was to do three rounds of interviews, consisting of 10 participants each for a total of 30 interviews. However, Honduras' current political climate made this extremely difficult. After asking several potential participants if they would be willing to participate in anonymous phone interviews only two felt comfortable and only after reassurance that no identifiers would be maintained. Another factor that contributed to the low-participant count was that community members no longer want to be interviewed by students or staff from universities. One of my methods for collecting interviewees was through family members and acquaintances. One of the acquaintances told me that due to the extractive nature of research led by universities, community members no longer feel safe nor want to contribute to the plethora of information collected by these institutions. One of the interviewees shared an incident where USAID personnel visited the villages to gather information about the various natural resources present in the department. They engaged with

community members, gained their trust, and collected details. However, this information was later co-opted and turned into a comprehensive inventory of the area's resources that international businesses could purchase or invest in. This fresh perspective on the community's lack of trust in research institutions and their apprehensions regarding possible repercussions from law enforcement agencies, including potential imprisonment or even fatality, motivated me to embrace research methods that are less intrusive and instead draw inspiration from decolonizing practices and Indigenous research methodologies (IRM).

Linda Tuhiwai Smith's book, *Decolonizing Methodologies*, and Schultz's conceptualization of her work are great reminders of how a "process of epistemic decolonization requires 'a more critical understanding of the underlying assumptions, motivations and values that inform research practices'" (Schultz 2017, 129). This means that it must become a "political commitment" to study with marginalized communities and not just perceived them as research subjects (ibid., 129). Decolonial epistemology allows us to "identify how new/old forms of colonialism, such as extractive capitalism, the digital surveillance of territories, the criminalization of Indigenous peoples as a weapon of neoliberal expansion, and the extractions of Native and Afro-descendent knowledges, all depend of prior civilizational projects, in which the Global south has long been constructed as a region of plunder, discovery, raw resources, taming, classification, and racist adventure" (Gómez-Barris 2017, 3). Therefore, in trying to consider my positionality and how UC Davis as a Western-based institution is grounded within Western forms of thinking I also sought to include Indigenous research methodologies (IRM) that center Indigenous knowledge and pushes for relational accountability (McGuire-Adams 2020; Johnston et al. 2018; Kovach 2010). Furthermore, it was through conversations with environmentalists, reading news articles and reports by Indigenous groups, and listening to

community radio broadcasts that I was able to obtain my footing within this research project. Before conducting interviews, my research process was approved by the UC Davis Institutional Review Board (IRB); the nature of these interviews was of an informal and more conversational form. Conversations with my interviewees would often last over an hour and a half, spanning the entire thesis writing process.

Because of the constraints in conducting interviews and guided by this particular epistemological perspective, I redirected my attention to developing a thesis that could provide supplementary research and contribute a moderate level of insight into the current living conditions of communities in Atlántida, primarily drawing upon secondary sources.

Data Collection

The data collection for this research was broken down into various steps that intermingled interview components to corroborate the data which I was finding online. In order to find my data, I primarily relied upon electronic databases, such as online repositories, academic journals, newspaper outlets, government databases, NGO databases, books, and other well-established and credible institutional databases like that of the United Nations. Data were also collected using the UC Davis academic library, both electronically, and in-person. Through the first round of data collection, I primarily sought to establish my footing within the research and discussion by searching for data related to the current economic, social, environmental, and political topics in Honduras. Subsequently, I engaged in multiple discussions with environmentalists to gain insights into their viewpoint on the presentation of data and to address any information gaps that emerged. Most journals selected were published within the past five years, but because research on Honduras and the Department of Atlántida on this specific topic is

severely scarce, I found it imperative to include scholarly journal articles, reports, and demographic data published 10 years or more ago. Furthermore, because this research was primarily qualitative, I had to ensure a data collection that was robust in nature to improve its validity (Bowen 2009). Although these data may be considered outdated their inclusion was instrumental as it laid the foundation for this research and provided historical context that I found to still be very relevant today.

Limitations

Although document analysis was instrumental to this research, it has its limitations. It is important to take into consideration that certain reports and documents from specific entities are often crafted to align with particular agendas, and as a result, they can carry inherent biases, obstructing the number of details given. Although I tried to account for this in my data collection process, it is a limitation present in this research that I must disclose. Another limitation encountered is the lack of research and coverage available about the Department of Atlántida and the current problems being faced by residents in the area. Oftentimes, I found myself having to rely on blog posts written by community organizations in the area to learn about the details of the problem. The lack of representation in news coverage sites, peer-reviewed journals, and government reports about the current situation in Honduras is enraging and heart-breaking. Blog posts by Indigenous or human right organizations are too often the only coverage of the true suffering of communities across the department. There are many reasons as to why only certain groups continue report on these injustices and one of the primary reasons is due to the attack on investigate journalism and journalists in Honduras.

According to the National Commissioner for Human Rights in Honduras (CONADEH), 97% of cases involving the murders of journalists remain unpunished and “in the last decade, more than 80 journalists have been murdered” (Higuera 2021). A documentary released in December of 2020 found that in Honduras “there is a market of hitmen financed by elites in the country” and especially, for those targeting Indigenous leaders (ibid.). In 2012, over 5,000 people, including journalists, protested in the streets of Tegucigalpa to draw attention to the violence faced by those in the journalism profession and to highlight state failure in punishing those responsible for the murder of journalists (BBC 2012). Protesters held banners that read “Journalists for Truth and Justice” while shouting “Killing journalists doesn’t kill the truth,” (ibid.). In the years since these protests nothing much has changed. In 2014, secrecy laws were passed, “[allowing] authorities to withhold information on security and national defense for up to 25 years,” (Freedom House 2022). Despite changes in leadership, Freedom House (2022) rates Honduras with a score of 1 out of 4 for its independent media, citing that “authorities systematically [continue to] violate the constitution’s press freedom guarantees.” The state's inability to safeguard journalists and those reporting on critical and controversial issues “from assaults, threats, blocked transmissions,” and even death contributes to this assessment (ibid.).

In spite of these limitations, this study strived to identify the factors affecting access to water resources in Atlántida based on relevant literature available and consolidating it into one document.

Chapter 4: Results & Analysis

4.1 Political Historical Overview of Honduras

Honduras has had a tumultuous presidential and militaristic history. In 2009 Manuel Zelaya, the 2006 elected president serving his term, was removed from office and exiled by a military coup authorized by Honduran Congress and upheld by the Supreme Court. Zelaya's coup came moments before voting began on a nonbinding referendum that would ask voters on whether they wanted to rewrite the constitution (Associated Press, 2009). Many critics, mainly military and businesses, accused Zelaya of spreading Venezuelan President Chavez's socialism and of trying to seek re-election (Rosenberg, 2009). Given that military coups have occurred in the past, it came to no surprise. In 1963 and 1972 two presidents were overthrown by military soldiers and government control was not returned to citizens until 1981, after the US intervened (Associated Press, 2009). Zelaya's coup and exile was proof that military control was still very much a thing of the present. Many report that the coup was organized by the U.S. since Honduras has continuously hosted American military soldiers, after a base was established in the early 1980s to fight off the Nicaraguan Sandinistas (Anderson, 1988). Although it was denied by President Obama, it is an allegation that cannot be dismissed since U.S. soldiers not only provide training to Honduras' military but also engage in counternarcotics operations, search and rescue, and disaster relief efforts across the country (Malkin 2009). Furthermore, the two country's relationship has deepened over the years due to various trade and business agreements. Although many elites and government officials supported Zelaya's exile, it is reported that labor unions and people in poverty supported him (ibid.).

Soon after the exile, government officials chose Roberto Micheletti to replace Zelaya. Micheletti served in his role as interim de facto from 2009 to 2010 but lost his "re-election" to

Porfirio Lobo Sosa, a president that established several neoliberal policies. Some of the most recent defining moments in Honduras' political and economic extractive history was the Economic Conference hosted, in 2011, by ex-president Porfirio "Pepe" Lobo Sosa in which he declared "Honduras open for business," a government initiative meant to provide development but, in more ways, than one, an extremely destructive neoliberal practice (Council on Hemispheric Affairs 2011). This moment was welcomed by international investors, businessmen, and a few hopeful residents for the possibility of financial gain and employment opportunities but was criticized by humanitarians, environmentalists, activists, certain politicians, and organizations. The Lobo administration offered Honduras on a silver platter for investors, as he promised access to lands and its resources, located primarily on Indigenous lands, and all but guaranteed high profits with minimal risks, violating International Labor Organization Convention 169, "which requires that 'consultation with Indigenous peoples should be undertaken through appropriate procedures, in good faith, and through the representative institutions of these peoples,' and the United Nations Declaration on the Rights of Indigenous Peoples" (Carasik 2013). Like many other presidents before him, Lobo granted access to something that was not his, disregarding the safety and damage that this would impose on the very people he was meant to protect. A few of the policies passed under his leadership include the Law for the Promotion of Development and Reconversion of the Public debt, passed in 2016, authorizing "the administration to leverage the country's 'idle' resources as collateral to woo investment in resource extraction and agroindustry" (Pearson 2016, 7). Along with this, he also issued a decree that allowed members of the military to sell timber -- a longstanding illegal practice that results in the deforestation of indigenous forests (2016).

Other laws passed include: the Investment Promotion and Protection Acts, the Public-Private Partnership Promotion Act, and the unconstitutional Model Cities law to create Zones of Economic Development and Employment (ZEDE) passed in 2013 (2016). The Model Cities law, now known for their Spanish acronym ZEDEs, were zoned mandated by the government to be “subject to ‘special regime’ [...] in which investors control fiscal policy, security, and conflict resolution” (PBI Honduras 2021). However, since their inception they have not proven to provide any of their stated economic benefits and have been denounced by citizens and “Honduran civil society, which [warned] that their establishment entails the auctioning off of national territory, sovereignty, and the rights of all Hondurans, leading to serious social, economic, and environmental impacts” (Ibid.). After the 2009 coup d’état, these policies illustrate the deeply ingrained colonial and entrepreneurial ideology that has permeated Honduras' economic history through the Banana Republic of the past and is still evident in the fight against mining operations and hydroelectric projects that restrict citizens' access to water.

After Porfirio Lobo’s presidency came that of Juan Orlando Hernandez, one of the most controversial in Honduras’ history. Hernandez's presidency was filled with the same neoliberalist undertakings as that of Lobo’s. He promoted ZEDEs, and extractive projects, and under his tenure human rights violations ran rampant. Hernandez was denounced by citizens for embezzlement, autocratic propensities during his time in office, and for using “nepotism and illegal procedures to take control of various institutions of state power, including particular ministries and the Supreme Court, [...] [and] newly founded presidential commission called the National Security and Defense Council” (Geglia 2016, 354). During Hernandez’ presidency human right violations by military forces rose, leading to the assassinations of environmentalists and activist leaders, making the country the most dangerous for land defenders (ibid.). On April

22, 2022, the former Honduran president was extradited to the United States after a federal court found that he had “allegedly received millions of dollars to use his public office, law enforcement, and the military to support drug-trafficking organizations in Honduras, Mexico,” and other parts of the world (Department of Justice 2022). Hernandez occupied various positions in the Honduran Government before serving his two-term presidency, and investigations revealed that his support and protection of drug traffickers through his abuse of power dates back to 2004 (ibid.). This implies that three years into his political career he was already wielding power to set the stage for violence against environmentalists.

One of the most well-documented murders was that of Berta Cáceres Flores, co-founder of Consejo Cívico de Organizaciones Populares e Indígenas de Honduras (Civic Council of Popular and Indigenous Organizations of Honduras, COPINH) and leader of the protest against the Agua Zarca hydroelectric project that sought to install a dam in the Gualcarque River, a river known to be sacred and the livelihood to the Lenca people, an Indigenous group in Honduras. Berta was “gunned down on [the night] of March 2, 2016, at her home in La Esperanza” by two hitmen (Rodrigues 2016, 2). The Agua Zarca Dam project was a joint business venture between Chinese dam developers, Honduran company Desarrollos Energéticos SA (DESA), Dutch development banks, and Banco Financiero Comercial Hondureño (Honduran Commercial Financial Bank, FICOHSA) (Livingstone 2021). Public protests and worldwide media coverage led to an intense investigation that led to the arrest of 9 people who were convicted and sentenced to 30 to 50 years for connection to her murder: “1) David Castillo Mejía, the executive president of DESA, former Honduran military intelligence officer, and planner of her murder; 2) Sergio Ramón Rodríguez Orellana, a DESA manager; 3) Douglas Geovanny Bustillo, a former infantry officer and close friend of 4) Mariano Díaz Chávez, a special forces major who fought

with coalition forces in Iraq; 5) former soldier Henry Javier Hernández Rodríguez, the suspected point man on the night of the murder; the accused hitmen who are brothers 6) Edilson and 7) Emerson Duarte Meza; 8) Elvin Heriberto Rápalo Orellana and 9) Óscar Aroldo Torres Velásquez” (Lakhani 2018). DESA, one of the key players in the project, continuously defended the innocence of its employees, even after their conviction. After multiple letters from human and environmental protection organizations the Agua Zarca Project was finally canceled in June of 2017 after Dutch development banks, Finnfund and Entrepreneurial Development Bank (FMO), pulled out of the project by recalling their US\$60 million loan to FIHCOSA (BankTrack 2021). Sadly, Berta Caceres’ murder is just one of several in Honduras.

In the last decade, more than 150 environmentalists have been murdered in Honduras, with fourteen killed in 2019 alone, the highest per capita rate for killing of environmentalists of any country (Brigida 2020). In 2014, the NGO Global Witness reported that the majority of environmentalist and land defender deaths in Honduras were executed by members of the military or police agencies, and the orchestrators were elites, large land, and business owners, along with politicians and members of organized crimes (2015, 4). Furthermore, they found that “many of the killings in Honduras and other Central American countries are a result of the struggle against hydropower dams and their impacts on local communities” (ibid., 9). Although Honduras has made various commitments to investigate and punish human rights violations and to obtain consent from community members before allowing extractive projects, it fails to uphold them, a demonstration of why it is considered one of the countries with the highest levels of corruption (ibid.). The discussion of Berta’s murder is not only to showcase the level of violence that environmentalists and activists face in Honduras but to provide insights into the current extractivist issues taking place that are impacting water access and sustainability efforts in this

country in the name of economic development. In Central America, Honduras, El Salvador, and Guatemala makeup what is known as the Triangle of Violence, with Honduras being the most violent of the three, especially when it comes to matters involving environmental protection.

In 2022 Honduras elected its first woman president, Xiomara Castro de Zelaya, wife to ex-president Manuel Zelaya. Three months into her presidency the Castro administration unanimously repealed the Zones for Employment and Economic Development (ZEDEs) (Palencia 2022), and established the International Commission against Corruption and Impunity in Honduras (CICIH) (Rosas 2023), but through the end of her first year in office, no effort has been made to stop the numerous cases of human rights violations of environmental defenders in the country. In January of this year, Amnesty International wrote a letter to the Castro Administration describing the human rights violations being experienced by marginalized communities with a detailed list of recommendations. In the letter, Americas Director at Amnesty International reminded the President of the following:

“The violence that human rights defenders continue to face in Honduras, particularly those who defend territory and care for the environment, is extremely serious. Xiomara’s Castro’s government must take action immediately and prioritize their protection and the investigation of attacks and threats against human rights defenders and community leaders. It must also urgently stop the intervention of militarized forces in the streets and protect human rights of historically marginalized groups, such as women, LGBTIQ people, Indigenous Peoples, and Afro-Hondurans, among others.” (2023)

Furthermore, she reminded Castro of the thousands of communities and people that continue to be displaced within the country and are migrating outside of it to escape the inequality, violence, and effects of climate change that plague the country (ibid.). Although

many are hopeful that things can still change with her presidency that is still to be seen and, in the meantime, community leaders across the country continue to fight for the well-being of their communities and their access to vital sources such as water.

4.2 Geographic Components



Figure 4. Map of Latin America. Map from (Gwynne & Cristóbal 2014, 4).

Honduras is a Central American country that borders Nicaragua, El Salvador, Guatemala, and both the Caribbean Sea and the North Pacific Ocean (Figure 4). This placement has made Honduras extremely popular for drug trafficking schemes. The country has a population of 9.5 million people, with 55.4% of the population residing in urban areas and 44.6% in rural zones (INE 2022). The cities of Tegucigalpa, the country's capital, and San Pedro Sula have the highest urban dwelling population at 1.2 million and 650,769 residents, respectively. The country is ethnically diverse and composed of a population that identifies as either mestizo (90%), Amerindian (7%), Black (2%), and/or White (1%) (CIA 2022). Sadly, there is no concrete data that show the distribution of Amerindian populations per Indigenous groups and various reports indicate that the official Honduran census does not account for the actual number of Indigenous peoples. According to a census that was conducted in 2007 by Indigenous organizations, the Indigenous and Afro-descendant populations made up 20% (1.5 million) of the national population of 7.6 million, a much larger number than is depicted across various official Honduran reports (ONU 2016, 3). The Amerindian population is made up of 8 Indigenous groups: "Lenca (453,672), Miskito (80,007), Garifuna (Afro-Honduran) (43,111), Maya Chortí (Ch'orti) (33,256), Tolupán (19,033), Bay Creoles (12,337), Nahua (6,339), Pech (6,024), and Tawahka (2,690)" (ONU 2016; Minority Rights Group International 2018). The Afro-Honduran Creole population are not considered Indigenous but rather one of the main minority groups in the country and reside predominantly in the Bay Islands (Minority Rights Group International 2018). According to the Minority Rights Group International (ibid.), the areas of Honduras where Indigenous groups reside in are: Copán, Ocotepeque, Olancho, Colón, Gracias a Dios, Mosquitia, south-eastern Honduras, Lempira, Intibuca, and throughout other regions across the country (Figure 2).

The country of Honduras is broken into 18 departments: Ocotepeque, Copán, Lempira, Santa Bárbara, Intibucá, Comayagua, Cortés, La Paz, Atlántida, Islas de la Bahía, Valle, Choluteca, Francisco Morazán, Yoro, Olancho, Colon, El Paraíso, y Gracias a Dios (Figure 2). 50.7% of the population is between the ages of 19 and 59, while adolescents 18 and below make up 36.9%, and adults 60 and older constitute the smallest chunk of the population at only 12.4% (INE 2022). Survey results indicate that educational attainment is low as 11.8% of the population, 15 years and above, is illiterate, with the rural population (18.5%) having the highest rate of illiteracy and lowest average of educational attainment at just six years (ibid.). Although the official language is Spanish, many dialects have been preserved and continue to be spoken by Indigenous groups. Dialects spoken include Lenca, Tol, Pech, Miskito, Chorti, Mayangna, and Garifuna spoken by the Afro-Honduran community (Reynolds 2016).

4.3 Climate and Economic Components

A lot of the economic data for Honduras seems to be more consistent and reliable for the years dating before 2022, therefore most of the data used in this section will rely on whatever is available but more heavily on the year 2019. In 2019, Honduras had a Gini coefficient of .48, a relative change of -.11 since 1989 (World Bank 2023). Honduras' poverty rate is the second highest after Haiti with 48.2% of its population living below the poverty line and is considered one of the most unequal and poorest countries in the Latin America and Caribbean region (LAC) (World Bank 2021). 4.8 million of the population live on less than \$5.50 a day with over 60% of the rural and 38% of the urban population living under the poverty line (Gilreath 2020). The poverty levels are often maintained and/or increased due to the lack of employment opportunities and high levels of underemployment.

It is important to note that Honduras has one of the highest remittance rates in the world, ranking at number 10, which helped boost the rural and urban income, meaning that without help from family members outside of the country, people would be in a more precarious situation (World Bank 2021). In the year 2000, Honduras received a total of \$440 million in remittances and in 2020 that number grew to \$5.57 billion, making up 23 percent of the country's GDP for that year (Dunaville et al. 2022). This influx of remittances had a slight decrease in 2008, when world markets crashed, but continued to steadily grow throughout the COVID-19 pandemic, making 21% of the country's GDP in 2019 and 23% in 2020 (Dunaville et al. 2022; Lara-Arévalo et al. 2023). Remittance recipients on average tend to be 38 years of age, with about 22 percent of beneficiaries non-working women (Dunaville et al. 2022). 64 percent of the overall respondents work one job, while 30 percent do not have a job (ibid.). However, even with remittances, many residents are still not able to pay all their living expenses. 40 percent of remittance receivers have reported a monthly household income between \$408 and \$816 (ibid.). For 39.7 percent of recipients, their overall income was not enough to pay for all their expenses, 27.5 percent were not able to pay any of their expenses, and 19.6 percent were not able to afford their basic necessities (ibid.). A survey conducted by the Latin American Public Opinion Project (LAPOP) in 2018 and 2019 revealed that only 5.3% of the population has an income that allows them to save (Montalvo, n.d.).

Over the years, Honduras' propensity to storms and extreme weather events has been increasing, causing the country to rank 44th in a climate risk index from 2000-2019 (Lara-Arévalo et al. 2023). This is cause for concern as these events and climate change increases periods of drought and floods in the country leading to losses in agricultural production, the "second-largest sector [...] employing 40% of the labor force", affecting the availability and

accessibility of food as well as levels of employment (Sanders et al. 2019; Lara-Arévalo et al. 2023). Future climate predictions for Central America “include increased risks of food insecurity and famine, increased water stress and water availability problems, disruption of coastal marine resources, threats to human health, damage to infrastructure, greater vulnerability to and risk of disasters, and threatened livelihoods and culture of Indigenous people” (Sanders et al. 2019, 9). Honduras's geographic composition consists of three climatic zones and the increase of extreme weather events has further increased its weather unpredictability in these zones. Its northern region is very tropical and humid “with an average precipitation 2600 mm/yr,” while the southern area is less prone to rainfall and experiences drier climates and an average precipitation of “less than 1000 mm/yr” (Conrado Valdez et al. 2017, 878). These two regions are separated by its central mountainous area that has a “tropical savannah [like] climate with an average precipitation of 1600 mm/yr” (ibid., 878). The Department of Atlántida, this paper’s research interest, falls on the northern region of the country. On its northern side it is surrounded by the Caribbean Sea, on the south by the Department of Yoro, on its east side by the Department of Colón, and on its West side by the Departments of Cortés and Yoro (INE 2023). Due to its positionality, the region has very tropical climates with temperatures averaging 80 degrees Fahrenheit.

The Department of Atlántida is projected to have a total population of 508,228, with 164,626 of that population being rural, and 343,602 residing in urban areas by 2023 (ibid.). The department is made up of 8 municipalities and borders the Gulf of Mexico: Tela, Jutiapa, San Francisco, El Porvenir, La Masica, Arizona, Esparta, and lastly, its departmental head, La Ceiba. La Ceiba, Tela, Arizona, Esparta, and San Francisco have varying degrees of urbanization. La Ceiba has the highest level of urbanization at 92.81%, San Francisco is second with 76.77%,

Tela is third with 53.08%, Arizona is fourth with 50.55%, and Esparta is last with 100% rural (INE 2015). Interestingly, each area is being confronted with the same problems surrounding water supply shortages and struggling to meet those demands.

4.4 Potable water and Sanitation Services Management Models

The country has seven different water and sanitation management models. These consist of centralized management, municipal direct management, concession management, mixed company management, decentralized municipal unit management, decentralized municipal joint unit management, and community management (Juntas Administradoras de Agua) (Caraccioli et al. 2020, 4). The centralized management system describes the system under which SANAA falls under, it is public based system whose funds are approved and granted by government entities (ibid.). A municipal direct management system is operated by the municipality, while allowing transparency of funds and services provided (ibid.). Decentralized municipal unit management/ decentralized municipal joint unit management are “decentralized entities of municipal government management” (ibid.). In this model, the municipality has the responsibility of creating annual budgets, plans of investments, and of approving rates (ibid.). Furthermore, the mayor of the municipality chairs the Board of Directors (ibid.). Under a mixed company management model there exists a partnership between public social aspects and private participation (ibid.). The second to last model constitutes of community-based management approaches known as Juntas Administradoras de Agua (JAA’s). ERSAPS defines JAA’s as “non-profit social organizations that have a legal authority and are made up of a General Assembly that is the highest authority and by the Board of Directors, whose positions are honorary and are held by prominent people from the community. The community owns the

[potable water and sanitation] systems and is in charge of their operation and maintenance” (ibid., 5). Since JAA’s are community-based they rely on the guidance of ERSAPS, CONASA, and SANAA, as dictated by the 2003 - *Ley de Marco* (Figure 5). This is important as this leads into some of the issues affecting community-based water management systems, referred as JAA’s, in the department of Atlántida.

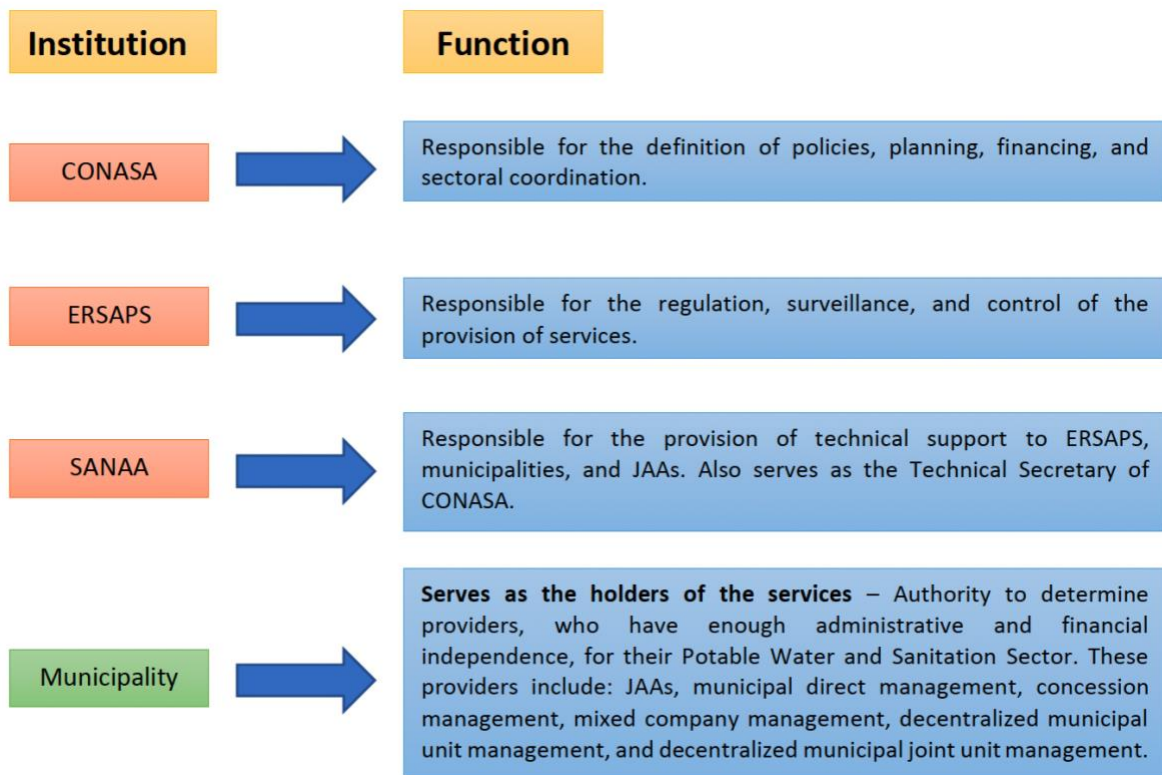


Figure 5. *Water and Sanitation Sector Structure in Honduras. Adapted from (ERSAPS 2020).*

In the Department of Atlántida, the following municipalities are served by JAAs: El Porvenir, Esparta, La Masica, San Francisco, and Arizona (Borjas 2007). These five municipalities host a total of 102 JAAs in the area. In the municipality of Tela, 74% of the area is served by the División de Agua de Tela (DIMATELA) and the other 26% by seven JAAs (DIMATELA 2016). Lastly, the regions departmental head, La Ceiba, is served by Servicio

Autónomo Nacional de Acueductos y Alcantarillados (SANAA) for 51% of the area, while the other is served by JAAs and other non-registered providers (MiAmbiente+ 2019). However, as of June of this year, the water crisis in this municipality has reached an all-time high due to El Niño, leaving SANAA to operate on only 10% of the areas “natural flow of rivers and other regions to rely on wells and private water trucks (Ortez 2023). This crisis has left 70% of residents in the area without water and has spread to other municipalities in the department like Arizona, La Masica, Esparta, and San Francisco (Molina 2023). Recent statistics country reveals that across the country 7.5 million people lack access to safe drinking water, leading numerous families to pay 40 or 60 lempiras (\$1.62 or \$2.43) per water barrel, an expense that often proves unaffordable for many households (Swissinfo.ch 2023). People’s access to water is not only due to extreme weather events but also due to poor water management practices from providing entities. This next section will examine other drivers of unequal water access in the Department of Atlántida.

4.5 Drivers of Unequal Water Access in the Department of Atlántida

The unequal access to water resources in the Department of Atlántida can be attributed to a complex interplay of drivers, including mining and hydroelectric projects, deforestation practices, and human rights violations that seek to forcibly oppress communities into submission. Equipo de Reflexión, Investigación y Comunicación (ERIC - Reflection, Research and Communication Team) has found that from 2008 to 2021, the Department of Atlántida, has had to fight off a total of 53 concessions, 25 hydroelectric and 28 mining projects, all dispersed across their 8 municipalities (Mejía Guerra 2021). Out of the 28 mining concessions, 27 of them were non-metallic mining projects (ibid.). Furthermore, 20 of the mining concessions are

currently operational and exploiting territories while 8 of them are on an “exploration only” based permit (ibid.). The duration of the contract varies, 19 of the concessions were granted a duration of ten years, “three for two years, and six of them were granted for an indefinite period” (ibid.). The Municipality of Tela has four of the operating concessions, encompassing 4,900 hectares, and La Ceiba has nine, covering 1,646 hectares (ibid.).

When it comes to hydroelectric concessions, Mejía Guerra reports that only five of the hydroelectric concessions in the area have been successfully built and the last granted concession was in 2021 (Mejía Guerra 2021). This last concession was one of six granted throughout the country with the intention that these dams will help Honduras with Sustainable Development Goal 6 and meet the 2030 Agenda (Banco Centroamericano de Integración Económica (BCIE) 2022). The projects are expected to incur a cost of US\$4.6 million, financed by the Central American Bank for Economic Integration (BCIE) and the Honduran government, with funding expected to cover various studies, among them “hydrological and topographic analysis, evaluation of environmental impacts” (ibid.). These projects are expected to benefit 2.7 million people (ibid.). The location of the five concessions in Atlántida are in the rivers San Juancito and Los Laureles, both located in the department of La Masica, and the other three in the rivers of Mezapita, Matarras, and Mangungo, all within the municipality of Arizona (Mejía Guerra 2021). The installation of these projects was not because the concessions met all the requirements but rather because successful community organizing had not yet taken place (ibid.). However, since then, no other projects have been built within the department and it is all due to the community's mobilization and resistance efforts (ibid.).

An interview with an environmentalist demonstrated that even though Honduras adopted the International Labor Organization (ILO) Convention No. 169, it has not set up a legal

framework of how the community consultations should occur, often relying on companies to foster that communication. Furthermore, environmentalists declare that by doing so, companies pay off community members and falsify documents to claim that these consultations and community approval has been granted. In the upcoming sections, we will explore the impact of mining and hydroelectric concessions, as well as deforestation practices in the area, on people's access to water.

4.5.1 Mining Projects in the Area

As there are no available data on the location of all mines within the Department of Atlántida, nor the reports detailing the full impact of these projects on this specific area, I assess the impact of mining projects on water allocation and quality in the department based from the overall data available for the country as a whole. As of 2022, it was reported that “there are 217 mining concessions and reserves in the country, covering 131,515 hectares [...] [and] in 2020, more than 130 of them were near of inside Indigenous territory,” with majority of them distributed amongst the departments of La Paz, Lempira, Yoro, Intibucá (Radwin 2022; Foro Social de Deuda Externa y Desarrollo de Honduras (FOSDEH) 2020). In Honduras, one of the most contentious and common forms of mining is open-pit mining, which as of 2022 it has been announced that it will no longer be permitted (Radwin 2022). This form of mining “involves the removal of soil and rock on top of the ore via drilling or blasting, which is put aside for future reclamation purposes after the useful content of the mine has been extracted” leaving an open pit (Piro & Lipkina 2020, 319). This forces the clearing of vegetation, deforestation, loss of biodiversity, soil displacement, and pollution (Radwin 2022). Although many environmentalists and NGOs have applauded this decision, various mining unions in the country have “expressed their concern for the [80,000] jobs that could be lost” (Radwin 2022; Winters 2022). The date of

when this proposed ban would go into effect was never announced and as of 2023, only the announcement that pre-existing contracts will continue to be allowed until their expiration and “under strict surveillance” has been made (Agence France Presse 2022).

The expansion of the mining sector in Honduras came after the 1998 Hurricane Mitch, to compensate for the economic gap that the “end of the WTO quota system for garment and textile exports” had (Middeldorp et al. 2016, 931). The country’s friendly mining policies allowed the establishment of “two Canadian-owned open-pit gold mines” known as “the San Andrés mine and the San Martín mine” (ibid.). However due to the detrimental effects posed by the sector on communities, very quickly groups successfully mobilized to stop the expansion of the sector for a few years until 2009 when the Coup took place and Presidents Micheletti and Porfirio Lobo Sosa ascended into office (ibid.). Ever since then, community members, Indigenous groups, NGOs, environmentalists, and land defenders have been leading the fight to stop the establishment of mining projects and the ensuing land grabs.

Last year, “in the early morning of February 22 [...], a team of engineers and machinists at the service of Aura Minerals, accompanied by the mayor of La Unión, Copán, and guarded by soldiers and police, entered the cemetery of the Azacualpa community and proceeded to its immediate destructions” to extract 338 million ounces of gold that lie under the cemetery lands (Mejia Guerra 2022). The Azacualpa cemetery is sacred ground to the Maya-Chortí people. In 2016, El Movimiento Amplio por la Dignidad y la Justicia (MADJ), through a court lawsuit was able to obtain a Constitutional Chamber ruling that reaffirmed the sacredness and patrimony of the cemetery to the Maya-Chortí community and ordered the “flat rejection of any exhumation indicating that the municipal and public authorities are obliged to do whatever is necessary to guarantee the decision of the 2015 open council to protect the cemetery” (Mejía Guerra 2022).

However, in 2021, Judge Rafael Rivera nullified this ruling and allowed the exhumation of bodies from the more than 200 year old cemetery so that the Canadian Aura Minerals could prepared the land for the mining company, Minerales de Occidente S.A. de C.V. (Minosa) (Burgos 2022; Lira 2022). Records dating back to 1556 demonstrate the sacredness of cemeteries for the Maya-Chortí community, describing how cemeteries are a space where peace and continuous life is celebrated, it “is configured as a new place where social change is visualized in the aesthetic and moral orders, where criteria for new interethnic, interreligious or interclass social relations are synthesized and agreed upon” (Mejía Guerra 2022). Interviews with environmentalists revealed that as of July of 2023, despite lawyers’ efforts, the cemetery is in complete ruins and the Maya-Chortí community has still not regained access to the area. For many this demonstrates the impunity that these extractivist companies and projects have in Honduras. It also demonstrates the lack of respect that human life, Indigenous communities and traditions have within neo-extractivism. By using a political ecology lens we can see how as a marginalized community, the Maya-Chortí have become forced to experience a plunder that re-establishes their social positioning and lack of power within processes of accumulation. These actions embody how much power elites and businesses hold over residents within Honduras, and how ecological systems are inherently political as it is the concerns of those with economic advantages that get represented even if those processes signify environmental and cultural eradication.

Artisanal and small-scale mining (referred to as ASM from now on) is another form of mining that occurs in the area but often through informal methods and at a community level (Intergovernmental Forum (IGF) 2021). Due to the unskilled labor force within this sector, those who participate often expose themselves and their community to “hazardous environmental,

health, and safety practices,” leading to regular accidents and illnesses from exposure to toxic chemicals and materials (ibid.). The community of Agua Fría, located in the eastern mountains of Honduras, engages in ASM operations and has gone through safety and regulatory training provided by NGOs, after a big push by the World bank and divisions in the United Nations, to formalize the sector (IGF 2021; Hilson & Maconachie 2017). As a result, the government authorized “65 mining areas for formalized activities that host 20 artisanal and 45 small-scale operations,” allowing those who participate to join the formal economy (IGF 2021). Recent literature has heeded warnings against the formalization and proliferation of ASM. In rural communities, where subsistence farming is common and people turn to artisanal and small-scale mining (ASM) to supplement their income, the widespread adoption of ASM could lead to significant conflicts (Hilson & Maconachie 2017; Oforu et al. 2020). Since ASM, like any other form of mining, is an extractive process that disrupts soil it is often in direct competition with agriculture and poses significant environmental harms such as the polluting of water sources (Oforu et al. 2020). Furthermore, ASM practices involves increased deforestation, “over-stripping of overburden, burning of bushes and use of harmful chemicals like mercury,” diminishing the tree coverage and land available for cattle grazing (Ncube-Phiri et al. 2015; Oforu et al. 2020). On the regulatory side of things, mining regulations are often weak, leading to corruptive practices where assigning mining registrations and the high registration fees dissuades people from registering their operations (Oforu et al. 2020). Data from the IGF demonstrate that although the

“Latin America ASM sector has strict regulations on informal operators and the use of certain substances, [it] has limited capacity to implement these regulations [making it] particularly difficult to control informal mining where there are large numbers of miners

such as in Colombia where about 87 percent of 4,134 Colombia gold mining operations are illegal and 95 percent of all gold mines have no environmental permit” (Fritz et al. 2018).

Even when cleaner and environmentally friendly alternatives are presented, the cost of adopting these practices and their aversion to risk will keep operators from” changing their practices until the benefits have been clearly demonstrated to them” (ibid.). This hesitancy from operators and lack of regulatory power from government institutions demonstrates why these projects are such an issue in the first place.

Literature surrounding the environmental costs and impacts on human health of large-scale mining projects is vast. This literature shows that although the effects of mining activities on people’s health is dependent on the proximity and number of mines to residential areas, winds and rainfall can increase the dispersion of pollutants into these areas, posing very imminent threats on communities and their well-being (Badakhshan et al. 2023; Mardonova & Han 2023). Mining plays a great role in the economy of many countries, but it is extremely water intensive and industries in this sector have been found to be “the primary consumers of water resources” (Mardonova & Han 2023, 1). In the United States, 2015 data demonstrated that 72% of the 4000 mega gallons of water a day used for mining purposes were drawn from groundwater sources (Mardonova & Han 2023; Dieter 2018). Although the impact on water use and contamination from mining project is often dependent on the area it is occurring, the policies set in place, and the scale of mining activity (Northey et al. 2016), it can often lead to underground water pollution, posing serious negative effects on human health, increased levels of turbidity due to contamination by metals and chemicals, destruction of river banks, increased costs to water

companies due to a higher need for water treatment practices, and the killing of fish and other aquatic species, hurting economic activities in this sector (Emmanuel et al. 2018).

When it comes to agriculture and environmental costs, mining can lead to an increase in soil erosion and land degradation, creating severe impacts on farming communities (ibid.). In the Municipality of Obuasi, Ghana, surface mining has led to the displacement of farmers due to the “removal of top soil, trees and vegetation with heavy machines [that] divests the land of its nutrients and renders the land infertile and unproductive for agricultural purposes” (ibid., 48). Other impacts of mining include air and noise pollution (ibid.). The list of danger that mining practices poses for communities and the environment is vast. In Mongolia where policies facilitated the growth of the mining industry, “The Ministry of Environment and Tourism reported that 551 rivers, 483 lakes and 1587 springs disappeared by 2011 because of the excessive water withdrawals (including ground water) for supporting the mining industry” (Amartuvshin et al. 2021, 2). This significant impact on the decrease of water resources and destruction of ecosystems are some of the reasons why Indigenous communities and environmental groups are fighting against concessions granted to mining companies across Honduras.

The big contradiction when it comes to water resources is that government organizations and, international ones, emphasize the need for humans, primarily residents, to reduce the waste of water because it is such an important resource. However, time and time again, we see how these regulations are not enforced on the economic sector because this is the process that must occur for the economic development of the country. Francisco Molina Camacho refers to this as the “dissonance between the rationality – understood here as a system of concepts, values, and meaning – of the mining company and Indigenous community affected by water scarcity”

(Amartuvshin et al. 2012, 94). He continues by saying how this rationality is based on the dominance these entities have in the economic, political, and technological level and it is often, legitimized by the need to increase “productivity and efficiency” (ibid., 95). So, while Indigenous communities are too often pushed out of their homes and forced to go through scarcity, it demonstrates the states’ preference for certain values. Furthermore, “political [ecology’s] of competing rationalities,” reveal how even though water is a finite resource and something that people are dying for to gain access to and preserve, its identity as a tool to push the neoliberal agenda is much more important and upheld through any means necessary (Molina Camacho 2012, 93). In the Municipality of Guapinol, located within the Department of Colón, the Honduran Secretary of Natural Resources has allowed the illegal mining operations of Inversiones Ecotek S.A. de C.V., owned by Lenir Perez, for over five years even after proof has been brought forth that the entity no longer has a valid environmental license and has falsified records to meet “community socialization requirements” (Palmese 2023, 2). Community members and lawyers have denounced these actions before the Fiscalía Especial para la Transparencia y el Combate a la Corrupción Pública (FETCCOP - Special Prosecutor for Transparency and the Fight against Public Corruption) and SERNA, but a formal investigation is yet to be put into place (ibid.). IDAMHO believes that this is a demonstration of the “institutional weakness of the state [...] to guarantee communities the protection of their right to a healthy environment in which their health and life will not be impacted by a mining megaproject in their territory” (ibid.2). This same narrative can be seen across the concessions granted to install hydroelectric projects across the country.

4.5.2 Hydroelectric concessions

There are numerous hydroelectric projects across Honduras, but this section will seek to understand the effects of hydroelectric concessions in the Department of Atlántida through the case of Proyecto Hidroeléctrico denominado Jilamito (Jilamito Hydroelectric Project) in the Municipality of Arizona. A total of 26 villages comprises the municipality of Arizona whose primary economic activity include the cultivation of the African Palm tree, bananas, and coffee along with the animal husbandry of sheep, pigs, rabbits, and poultry. INE data predict that in 2023 Arizona will have a population of 26,117 (INE 2015). Residents are distributed almost equally, with 50.55% of the population residing in urban areas and 49.45% living in rural areas (ibid.). Estimates for a 2020 municipal profile demonstrated that although 93.6% of individuals in the area have access to water, the quality of that water is unknown and 6.4% still lack access (Gobierno de la República 2022). For 79.5% of the community, private systems are their primary water distributors, while only 14.1% rely on public systems to get water to their homes, and less than 7% use other sources like wells (Pozo Malacate), springs, rivers, streams, or a well with a pump (INE 2018). Currently, the municipality has three hydroelectric plants and as stated by journalist Marcia Perdonomo, “no, their electricity bills are not lower than the rest of the country” (Perdomo 2022). In fact, the community is facing hardships caused by water scarcity, which was exacerbated by the Secretary of Natural Resources granting the operation for 30 years of a fourth hydroelectric concession in the area in 2014, known as Proyecto Hidroeléctrico Jilamito (Jilamito Hydroelectric Project) (Perdonomo 2022; MacDonald 2019). The community’s struggle against this concession helps to encapsulate the fights being led all across the country to stop extractivist projects that end up benefiting only a select few, while

dispossessing Indigenous and community members of their lands and access to safe potable drinking water.



Figure 6. Residents protesting against the Jilmito Hydroelectric Project in Arizona, Atlántida. Source: (MADJ 2021).

The fight for the Jilamito River started in 2015 when, then Mayor Adolfo Alfonso Pagoda of Arizona, Atlántida held an open town meeting to announce that the Jilamito hydroelectric project, which majority of the town residents opposed earlier that year and again in 2019 (Ruiz 2021), had been approved by the community and was going to be headed by the company Generación Eléctricas Sociedad Anónima (Ingelsa), owned by Emin Abufefe (Redacción Criterio.Hn 2021) (Figure 5). This project had already secured a significant portion of its funding from the Inter-American Development Bank Group (IDB) and the U.S. International Development Finance Corporation (DFC) ((Knight 2021; Vesey & Juaneda 2021). The IDB approved a loan of \$20.25 million, and the DFC approved a loan of \$35.7 million, making up a total of \$55.95 million out of the project's \$75.6 million total cost (Knight 2021;

Vesey & Juaneda 2021). The rest of the money came from Ingelsa, a Honduran company that focuses on electric energy related projects.

As a result of this decision, groups of 200-300 community members and leaders organized protests in the construction areas, catching the project engineers by surprise, as they were initially informed that the community supported the project. In order to protect the Jilamito River, the community set up camps and remained there even though in May of 2017, the government sent the National Police to forcibly remove them from the premises. Then, in January of 2018, Magda Diaz, a resident of the El Retiro Community, lost her husband when the government sent a group of 300 soldiers to stop the protest against corruption being led by 80 residents. Mrs. Diaz's husband was shot by a bullet and as he was bleeding to death, was tortured by the excessive use of tear gas. Witnesses reported that hours after Diaz's husband was killed, another community leader was shot execution style by men dressed in police uniforms. Later that year, Carlos Hernández, a human rights activist and lawyer hired to defend the Mayor of Arizona Arnoldo Chacón, and other community leaders who had been charged for protesting against the Jilamito Dam project was murdered.

Although it has not been confirmed, it is believed that Ingelsa is the culprit and reason behind these deaths. After years of pleading and human rights violation, in May of 2021, the Biden administration announced that the United States government would withdraw the financial support granted by the DFC but continued to maintain its support and influence through the IDB (Knight 2021; Vesey & Juaneda 2021). Vesey and Juaneda (2021) call this “an overt contradiction,” demonstrating “glaring policy inconsistencies between the DFC and U.S. posture at [Multilateral Development Banks] MDBs, weakening U.S. credibility across the development landscape”. Environmental and human rights protection groups, along with local residents,

composed a letter addressed to the IDB's Treasury Secretary, Janet Yellen, urging her to revoke the bank's support. They drew parallels between the Agua Zarca hydroelectric project and the tragic event of Berta's death, appealing for her intervention in light of these concerns. In this letter, environmental and human rights protection groups and residents go on to state how all of their legal denunciations of the project, as well as their official statements establishing their opposition to not only this project but any and all projects within the municipality, have been ignored by government and legal institutions without a formal investigation (MADJ et al. 2021). In addition, they included the results of an investigation conducted by an engineer from MADJ in which he found that the river was getting contaminated and certain parts were becoming stagnant because of the projects construction, consequently affecting water access for “thousands of families across 16 communities” in the municipality (ibid., 3). This investigation further revealed that the project not only caused environmental impacts and violated the Honduras General Water Laws but was also the root cause for the criminalization and assassination of community activists, environmental leaders, and local officials who voiced opposition to the project (ibid.).

Furthermore, the letter includes the findings of an investigation conducted by an engineer from MADJ, in which it was revealed that the river is being contaminated and certain areas have become stagnant due to the construction of the project. As a result, water access for "thousands of families across 16 communities" in the municipality is being adversely affected (ibid., 3).

The letter went on to draw more parallels between the two projects by pin-pointing that the person in the governmental agency who signed the contract, granting the concession, was the same one who signed the concession for the Agua Zarca project and is currently awaiting criminal charges for corruption and favoritism practices (ibid., 5). Groups finalized their letter by stating the following:

“It is disturbing that in December 2020, IDB Invest approved a loan for the Jilamito Hydroelectric Project given the threats, human rights violations, and credible allegations of corruption and irregularities described [in this letter]. Impunity in the Honduran judicial system is not an excuse to ignore corruption and human rights violations. IDB Invest’s decision to involve MFC Social and Environmental Performance Ltd (MFC) and the declaration that IDB Invest’s participation will help ensure that this project meets ‘rigorous environmental and social standards to mitigate and manage potential project impacts’ does not allay our concerns about the project. MFC also served as a consultant for the Agua Zarca Project; their reports served to whitewash the serious human rights problems surrounding the project. The development banks claimed that their involvement would bring the project to higher standards, but Berta Cáceres was killed after repeatedly warning the Dutch Development Bank about threats and violations related to the project. We do not want a high profile assassination to have to happen for IDB Invest [...] to withdraw from this project” (ibid., 5).

Although on their website Ingelsa states that they are still in the construction phase of the project (Ingelsa 2022), interviews with an environmentalist and community member in the area revealed that this will no longer be the case. They revealed that the community of Arizona has had various meetings with the head representative of the ENEE and Mi Ambiente to discuss all the corrupt practices that occurred in the area, along with human rights violations, that ultimately make the project illegal. As it currently stands, the community has reconfirmed their decision to declare the Jilamito river solely for human consumption, and the ENEE has committed to terminating the project. In addition, five people involved with the corrupt granting of the project

are awaiting trial to be convicted on these and other charges. Whether the ENEE will follow through with their promise is yet to be seen, community members fear that they will wake up one morning to find machines ready for construction by the river.

According to the Our World in Data, the country derives most of its energy from oil, hydropower, solar, bioenergy, wind, coal, and other renewable sources (listed from largest contributor to smallest) (Ritchie et al. 2022). The country's use of hydropower, for its own consumption, has grown by .46 terawatts-hour from 2000-2021, constituting 22.56% of the country's share of electricity production (ibid.). In 2019, it was reported that 85% of the country had electricity coverage, but the quality and interruptions experienced of that service is unknown (European Union 2023). Within the electricity market 83% of the participation is by the private sector with the distinction that it is by only a select few of distributors, creating a heavily monopolized sector (ibid.). This approach, mixed with the "implementation of neoliberal reforms and the creations of incentives for private investment in the electricity sector radically transformed it" producing major sources of inequality, unaccountability, exploitation, evictions, and ultimately, winners and losers (Martínez & Castillo 2016, 482). Martínez and Castillo (ibid.) found that in areas of Colombia where large dams were built in rural areas it resulted in not only a battle of territories, where rural residents lost, but in a false sense of progress since urban residents got to benefit from the electricity being generated by these dams. If we reference political ecologists and look at this by scales, the areas with the least amount of political and economic power are being dispossessed time and time again to create development and comfortability for the life of others. This is reinforced by the utilization of military and legal resources to criminalize and prioritize the rights of private investors at the expense of the well-being and rights of Indigenous and rural communities, as well as the environment. This concept

applies not only to the distinction between rural and urban areas but also when examining the disparities between developed and "under-developed" countries.

According to interviews and the literature on the inequalities that result from hydroelectric projects, the issue is that in order to support the building of these infrastructures and their economic viability land has to be used and cleared, often times of fauna, forests, and people (Martínez & Castillo 2016). This means "formal or non-formal territory ownership [...] and the [preservation of] of other ways of life" are not (ibid., 76). Environmentalists in Honduras are not opposed towards projects that move the country towards systems that are more environmentally friendly, they do oppose, however, the neo-extractivist and violent approach that the country has adopted in order to achieve it. Ultimately, these approaches are not in agreement with community values because it commodifies natural resources at the expense of human lives.

In a 2023 publication the Instituto de Derecho Ambiental de Honduras (IDAMHO- Institution of Environmental Rights of Honduras), declared that "we must demand an energy transition that is fair, sustainable, responsible and democratic [...] we cannot allow the energy transition to be another source of social injustice and environmental degradation [...] but we must demand it now". These findings reveal that laws, court hearings, and institutions meant to uphold the safety and well-being of communities in Honduras are failing and will continue to do so until neoliberal and capitalistic practices are eradicated. Any positive changes made in Honduras are due to the resistance and persistence of environmental leaders and community members who are not afraid to die to defend mother earth from. Although the residents of Arizona were able to successfully protest the building of the Jilamito hydroelectric project. However, the numerous amounts of established hydroelectric dams demonstrate that other

communities have not had the same success leaving them to deal with scarcity issues. The World Wide Fund for Nature (WWF) found that most future dams worldwide are being designed by using historic hydrology, a dangerous approach since it does not account for climate change impacts (2022). Using the WWF Water Risk Filter (WRF) Opperman et al. found that

“a large proportion of existing (62%) and projected hydropower dams (80%) are located in regions with high or very high freshwater biodiversity importance, which could lead to potential regulatory or reputational risks for operators, particularly as approximately one-quarter of all dams (existing plus projected) are predicted to have medium to very high risk for both water scarcity and biodiversity impacts” (2022).

Opperman et al. (ibid.) also found that these are not the sole risks and that due to climate change the potential for floods is also increased. In 2020, two dams in the state of Michigan, USA overflowed due to increased rainfall, forcing the evacuation of thousands, and resulting in \$200 million (USD) worth of damages (Bosman et al. 2020; Opperman et al. 2022). For countries in Latin America where “hydropower accounts for over 45% of total electricity generation” these effects are expected to be the same (IEA 2021). A 2021 study conducted by IEA focused on 13 countries in the region, demonstrated that climate change will not only critically limit the capability of electricity generation by hydropower dams but also increase the susceptibility of flooding in regions experiencing higher precipitation rates. Conversely, regions prone to drought will face increased vulnerability of their infrastructure to the effects of climate change (ibid.). This implies that without the proper implementation of mitigation strategies, the promotion of hydropower dams will be in vain.

On December 29 of 2021, Fundación Parque Nacional Pico Bonito (FUPNAPIB, Pico Bonito National Park Foundation) and Asociación Nacional para el Fomento de la Agricultura

Ecológica (ANAFEA, National Association for the Promotion of Organic Agriculture) wrote to the Department of Territory Defense Commission of newly elected President Xiomara Castro to notify her of the direst issues facing the Department of Atlántida when it comes to water, in the report the following issues were identified:

1. Violation of the Derechos Humano al Agua y al Saneamiento (DHAS, Human Rights to Water and Sanitation) of communities, by the approval of mining, hydroelectric, ZEDE concessions, and other extractive activities (coffee, mining, forest exploitation).
2. Water is considered a commodity and not a human right.
3. The municipal and community declarations of water-producing micro-watersheds are disrespected by the central government (laws/policies).
4. The water boards are permeated by a mercantilist neoliberal vision/payment for environmental services.
5. Communities do not have control over water production zones.
6. Conflicts between communities and extractive/productive projects.
7. There is logging (legal and illegal) in the harvesting areas and water sources.
8. Many communities do not have domestic water system.
9. Many water systems have reached the end of their useful life.
10. There is a trend toward privatization and municipalization of the water service at the municipal level. For this purpose, a law has been created that eliminates the Juntas de Agua, as a service provider.
11. Deforestation and degradation of the forest cover of the micro-watersheds.
12. Contamination by the use of pesticides for agricultural production.

13. Overexploitation of surface and underground aquifers especially by agribusiness.

This list of issues is sadly, not going away unless Honduras creates significant and meaningful changes to the way it treats Indigenous and other marginalized communities and its environment.

4.5.3 Deforestation Practices within the Department of Atlántida

Over the years, water sources have been affected by deforestation practices in the area. As of 2020, forests covered 6,314 million hectares of land in Honduras, accounting for 56.06% of the country's territory (Instituto Nacional de Conservación y Desarrollo Forestal (ICF) 2021). These forests are distributed among three types: broadleaf forest, coniferous forest, and mangrove forest (ibid.) (Table 1). In 2018, forestry and the production of wood and wood products made up .80% of the country's GDP, bringing in 1,522.30 million Lempiras (\$61,796.04) (United Nations Framework Convention on Climate Change (UNFCCC) REDD+ et al. 2020).

Table 1. Coverage breakdown by forest type. Data from: (Instituto Nacional de Conservación y Desarrollo Forestal 2021).

Forest type	Distribution by Hectares	Percentage
Broadleaf Forest	4,312,771.59 ha	68.30%
Coniferous Forest	1,951,977.81 ha	30.91%
Mangrove Forest	50,065.14 ha	0.79%

According to reports by Global Forest Watch and the World Resources Institute (2023), “in 2010, Atlántida had 316 thousand hectares (kha) of natural forest, extending over 78% of its

land area [and from] 2001 to 2021 [it] lost 51.5kha of tree cover, equivalent to a 15% decrease in tree cover since 2000, and 25.0 metric tons (Mt) of Carbon Dioxide emissions”. Three municipalities accounted for 60% of tree cover loss within the Department and of the total loss only 11% was due to fires, which were primarily caused by humans (Global Forest Watch 2023; United Nations Framework Convention on Climate Change (UNFCCC) REDD+ et al. 2020) (Table 2). From 2001 to 2021, Tela had the highest loss at 15.2kha, Jutiapa was second in line with 8.57kha, and La Masica was third with 7.24kh. Some of the repeating factors leading to deforestation and the degradation of forests in Honduras are extensive cattle grazing, expanding agriculture, drug trafficking schemes, illegal logging, forest fires, lack of rainfall, monoculture for export purposes, corruption, and appropriation of forest lands (ICF 2011; Fontaine 2023).

Table 2. Data of total tree cover loss for the eight municipalities in Atlántida, Honduras for the years 2001-2021. Data from: (Global Forest Watch 2023).

Municipality	Tree Cover Loss	Percentage of Total
1. <i>Tela</i>	15.2kha	29.5%
2. <i>Jutiapa</i>	8.57kha	16.6%
3. <i>La Masica</i>	7.24kha	14.1%
4. <i>Esparta</i>	6.18kha	12.0%
5. <i>Arizona</i>	5.47kha	10.6%
6. <i>La Ceiba</i>	5.36kha	10.4%
7. <i>San Francisco</i>	2.54kha	4.9%

8. <i>El Porvernir</i>	922ha	1.8%
Total	<i>51.5kha</i>	<i>100%</i>

In February of 2022, the ICF released a report where they found that in January of 2022 alone, 490 hectares of forests were affected by 37 forest fires throughout the departments of Francisco Morazán, Calle, Gracias a Dios, and Santa Bárbara (Valle 2022) and in 2021, over 90,000 hectares were affected due to 816 fires that were used to prepare the land for the cultivation of illegal crops and grazing activities (ICF 2022). Some of the forest’s lands are being destroyed by drug dealers to set up illegal farms, cattle grazing pastures as a front to launder money, and drug laboratories, resulting in death threats for Indigenous communities and forest and environmental defenders that seek to establish regulations in the area (McSweeney & Pearson 2014; Valle 2022; Fontaine 2023). The region of La Moskitia is one of the most publicized and researched areas for where these types of illicit activities take place and where residents are often threatened or killed if they refuse to sell their lands to drug dealers or their middlemen (McSweeney 2018). Increasing land grabs have been destroying local food production, since most of the labor is being re-oriented towards wage-based work, increasing violence within and outside communities as they erode communal land rights, and diminish the little autonomy that Indigenous communities have by silencing people through violent means (ibid.).

Through a historical study, researcher Mario Vallejo Larios and the ICF (2011) determined that forest degradation and deforestation practices are due to various factors that intermingle at different structural levels:

- the lack of ineffective or non-existent **policies** that protect forest areas.

- **legislation** that is contradictory to the preservation of lands
- weak **institutions** that allow corrupt structures that often conflict and are inadequate at establishing rules and regulations
- Inappropriate use of agricultural forestry techniques by **specialist**
- **Social elements**, like migration, poverty, landlessness that leads to encroachment of forest lands, and vulnerability of community forestry management.
- **Economic elements**, like incentives and disincentives that promote deforestation.
- And lastly, **cultural elements** like lack of environmental stewardship, agricultural culture, use of wood for fires and other forms of subsistence, and illiteracy.

Researchers and entities like the ICF (ibid.) admit that most of these elements have, at one time or another, been seen as economic development pathways for the country, but ultimately, due to their method of implementation have greatly failed, causing the degradation of lands and essential forest areas (Larios & ICF 2011).

Some of the threats of rising deforestation and forest degradation rates is the impact it has on people's access to safe potable water. A study conducted in Malawi, one of the countries with the highest deforestation rates in sub-Saharan Africa (decrease in forest cover from 51% to 33% from 1990 to 2010), demonstrated that deforestation practices augment soil erosion by reducing water infiltration into the soil (Mapulanga & Naito 2019). Moreover, it revealed that,

“A lower level of soil infiltration and a higher level of soil erosion cause a high influx of sediment and a higher level of turbidity. This results in lower water quality and an increase in the cost of drinking water treatment, which imposes a serious constraint on the installation and maintenance of a water system for local communities in low-income countries” (ibid.).

Coupled with Malawi's low precipitation patterns, these processes exacerbate the severity of the issue that to offset a 5.6% decrease in forest cover the region would need a 9% increase in rainfall (ibid.). Given these reasons, Annie M. Mapulanga and Hisahiro Naito (ibid.) recommend that government entities consider implementing policy initiatives to enhance community members' understanding of best forest practices, thereby preventing water inaccessibility issues in times of drought or other extreme weather effects. In addition, a study done in Haiti corroborated these results showing that increasing 25% to 100% of afforested areas created an increase in streamflow within watersheds by 2-7% (Mompremier et al. 2022). In Haiti, deforestation is increasing the vulnerability of agricultural productions by increasing areas' susceptibility to drought and increasing the variability of watershed streamflow (ibid.). Data demonstrated that by having the least possible levels of afforestation (25%), the yield of dry bean production was increased by 8%, showing the interconnectedness of “the natural environment and agroecosystem and the importance of watershed and forest planning and management for improved agricultural sustainability” (ibid., 12). As pinpointed by political ecologists this interconnected goes beyond the immediate surrounding areas.

In 2019, scientists warned then President of Brazil, Jair Bolsonaro, against the destructive impact of his extractive mining and logging practices that were destroying the Amazon Forest because “it would release tremendous quantities of planet-warming greenhouse gases, which would hasten the decline of whatever forest [that remained]” and greatly increase carbon dioxide emissions (Welch 2019). Furthermore, this reduction in forest cover also affects the water cycle because it means less water will be absorbed by plants and tree roots, decreasing the amount of moisture in the atmosphere, and overall, reducing the amount of water vapor molecules that get recycled within the system and end up in the Andes (ibid.). In the Department of Atlántida, the

same warnings have been recently shared, and scientists have been urging the country to adopt more conservation and sustainable practices for forests in the area. The rate at which the forests in the Department of Atlántida are being deforested and degraded are disrupting the regions high potential of capturing carbon, mitigating climate change effects, conserving biodiversity, and decreasing the protection of soils and bodies of water (Calderón Enamorado 2023). Population growth, intensive cultivation projects, and other activities for subsistence are also threatening multiple national parks in other parts of the country such as El Parque Nacional Jeannette Kawas (also known as Punta Sal), Refugio de Vida Silvestre Cuero y Salado, and Parque Nacional Pico Bonito (United Nations Development Program 2021). Therefore, in order to prevent the further deforestation of areas the Secretary of Natural Resources and Atmosphere (MiAmbiente+), will launch an intervention project known as Proyecto RECOVER, funded by the United Nations Development Program (UNDP), in more than 295 thousand hectares of protected areas across the department (ibid.). These deforestation rates, tied with the privatization of rivers due to mining concessions and hydroelectric projects within the department, are furthering resident's vulnerability and inaccessibility to safe potable water.

Projects like those being led by the Secretary of Natural Resources and the United Nations Development Program need to be under strict scrutiny. By coupling Environmental Justice and political ecology frameworks we can assess the degree to which these programs represent and respect the concerns of marginalized communities that reside within and around those areas. Are the Indigenous and local residents present in the decision-making process? If not, what is the basis of exclusion from the process? Will this project mean the dispossession of community members? And, lastly, who is this project meant to benefit? It is with these same questions in mind that all these other mining, hydroelectric concessions, and deforestation

practices should be assessed. When majority of the conferred materials are obtained through destructive processes and exported without benefiting the community or region of origin, instead primarily benefiting those who process and sell the final product, often elites, this constitutes an unsustainable extractive practice (Acosta 2013). Authors like Alberto Acosta remind us that “a process is only sustainable when it can be maintained over time, without outside assistance and without creating a scarcity of the resource in question” (ibid., 63). Within the context of Honduras, the development projects that it has for years been undertaking such as mining, hydroelectric concessions, and deforestation practices are incredibly unsustainable and unequitably burdening communities within the region they are taking place. Within the backdrop of water resources, these projects are interconnected and have dual consequences. They not only exacerbate the scarcity of the resource they depend on but also intensify challenges related to community governance, participation, and access to water creating a systemic injustice.

Chapter 5: Conclusion

There is no question that extractive projects exacerbate inequalities faced by marginalized groups and render “Native populations invisible” (Gómez-Barris 2017, 6). The aim of this thesis was twofold: to illuminate factors influencing water access and quality in Atlántida, Honduras, while also to contribute additional research to this region of the country that is currently underrepresented in the existing literature. Throughout the literature on water access, quality, and management I found that one of the biggest factors affecting people’s access is the long history of extractive economies that are fueled by neoliberalist policies. These policies are rooted with settler colonialist ideology that seemingly cannot function without the use of violence and the exploitation of peoples and the earth. To combat these policies, we must be aware of how they are being presented and the damage that they are causing. In Honduras, just like in many other parts of Latin America, progress is heavily tied to the exploitation and destruction of the earth while simultaneously “[relegating] Indigenous peoples to a mythical past and thus [rendering] contemporary Indigenous peoples’ existence and political vitality” (Loperena 2017, 802). This destruction of Indigenous ways of knowing and living is simply another form of oppression and demonstration of power on behalf of the state that reinstates the “inferiority” of Indigenous and Black peoples (ibid.). This erasure, however, is also tied to the racist ideology that only certain possessions of land are deemed valuable (Harris 1993). Land that is “left in its natural state, untilled and unmarked by human hands,” is “waste, and, therefore, the appropriate object of settlement and appropriation” (ibid., 1722). These ideologies are what established whiteness as an identifier for superiority, legitimized land ownership, and attributed value to land in the United States. It is with this ideology, that frontiers of accumulation continue to be perpetuated and legitimized across Honduras, forcing the devaluation of Indigenous and

Black peoples, culture, and ways of life (Altamirano-Jiménez 2023). It is this same ideology that leading to the privatization of rivers and bodies of water necessary for the survival of communities, animals, and forests.

Across Honduras people have not given up. Many groups are working hard to protect the earth and through its defense revindicating the lives lost and the lives of those who continue in the struggle (Gabiola 2022). The fight to access water sources is only one of the many battles being led by community members. At the end of the day true and equitable change cannot be achieved without our acknowledgment of the interconnected of our systems. The lack of access being faced by marginalized communities is a systemic issue. Through the use of a political ecology framework, authors like Bryant and Bailey argue that due to the deep rootedness and complexity of environmental problems faced by [countries like Honduras] the solution will not be a quick fix, therefore we must question why “sustainable development” is promoted and by whom (2005, 3). They continue by stating that “these changes will not occur without considerable struggle since they necessitate the transformation of a series of highly unequal power relationships upon which the present system is based: First/Third World, rich/poor or rulers/ruled [...] radical change is required if a solution of the Third World’s environmental crisis is to be effected” (3). Therefore, in order for changes to occur in Honduras, changes must also occur in the United States and any other first world country that uses these countries as zones of extraction and cheap labor.

Even though throughout this research process I was not able to find much literature pertaining to the Department of Atlántida, I am not going to sit here and say that more research is what the community needs in order for these issues to be resolved. However, do not misinterpret this as me saying not to write about these issues, far from it. These issues need to be talked about

more and brought to the forefront of any political, human rights, economic development, and environmental agenda whenever possible. But, I also believe that it has come to the point where community members need action, actual solutions to the problems they are facing, and for those in power to become accountable for their actions. Therefore, instead of assigning specific questions for future researchers, I will provide closing remarks that outline a distinct set of demands expressed by a Honduran environmentalist and community leader. This individual is actively at the forefront of the battle against the injustices experienced by residents across Honduras:

The following text was translated from Spanish to English:

In Honduras there are many challenges, like the rest of Latin America, the democratic crisis due to the little existing institutionally, the interference of transnational capital and interests of the United States and Europe play a determining role in the governability of our countries. Honduras better known and valued by the North American government as the Banana Republic, where governments respond to external interests, to the point of having an embassy involved in internal affairs and trying to interfere in the election of government, election of the Supreme Court of Justice, Prosecutor general, and in the creation of laws.

If we Hondureñ@s dream of something, it is the emancipation of the people, the longed-for autonomy, democratic respect. For this, the following will be necessary:

1. We demand that the international community respect the self-determination of the peoples, that through democratic means the government that is elected under transparent processes be respected through elections.

2. Contribute from each political space to recover the institutionality, the strengthening and support must be oriented under the respect of the Human Rights of each citizen, framed in international agreements.

3. The International Community must be guarantors that their investors will be subject to a legal framework of each country, at no time should they violate or seek impunity for their acts.

We dream of a Homeland for each Hondureñ@ where we do not have miserable people, in the midst of so much wealth, nor see ourselves in the painful need of being expelled from our territory.

Sincerely,

Anonymous

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