



The Nicaragua Canal

Is the Assessment in line with National Environmental Law?

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ABSTRACT

In 2013, the Government of Nicaragua approved the concession for a 173-mile canal to the Hong Kong Nicaragua Canal Development Investment Group. As the Western Hemisphere's second poorest nation, Nicaragua is attracted the promises of economic growth that may come as a result of the Canal Project. However, potential economic benefits may be offset by environmental and social damages that would likely occur as a result of the project. The Canal would bisect 16 watersheds, 15 protected areas, and 25 percent of Nicaragua's rainforest, which would have high impacts on biodiversity, watershed services, and indigenous communities. In 1996, Law No. 217 was enacted to standardize the use and conservation of the environment and natural resources of Nicaragua. My research compares the Environmental and Social Impact Assessment of the Nicaragua Canal to the Environmental provisions of Law No. 217. This analysis can help understand the legal viability of the ESIA under Nicaragua environmental laws.

Chapter 1

PURPOSE OF THE STUDY

The Nicaragua Canal Project is an enormous industrial development project proposed to create a second passage in Central America between the Pacific and Atlantic Oceans. This canal proposal is designed to accommodate the largest cargo ships, and is intended to greatly extend the capacity and speed of transit through Central America, with concomitant economic benefits to Nicaragua, and to the receiving nations in Asia (particularly China). However, the scope and scale of this project are enormous, and destined to cause environmental and social disruptions on a large scale as well. Thus the project has generated considerable controversy, with both protest and promotion. Favored by the Nicaraguan government, the project has already been formally approved, yet the concerns run so deep, efforts are on-going to halt the project before the damage is irreparable.

The purpose of this study is to evaluate whether the Environmental and Social Impact Analysis (ESIA) for the Nicaragua Canal project is well aligned with Nicaragua's Environmental Laws. Given the immensity of the project, its impacts are widely expected to be severe, spawning widespread environmental and social concerns. Examining the consistency of the review process with the core environmental legislation in Nicaragua is thus an important step in evaluating the overall likelihood of substantive harm that might be caused by so large of an infrastructure project.

Nicaragua Canal Route

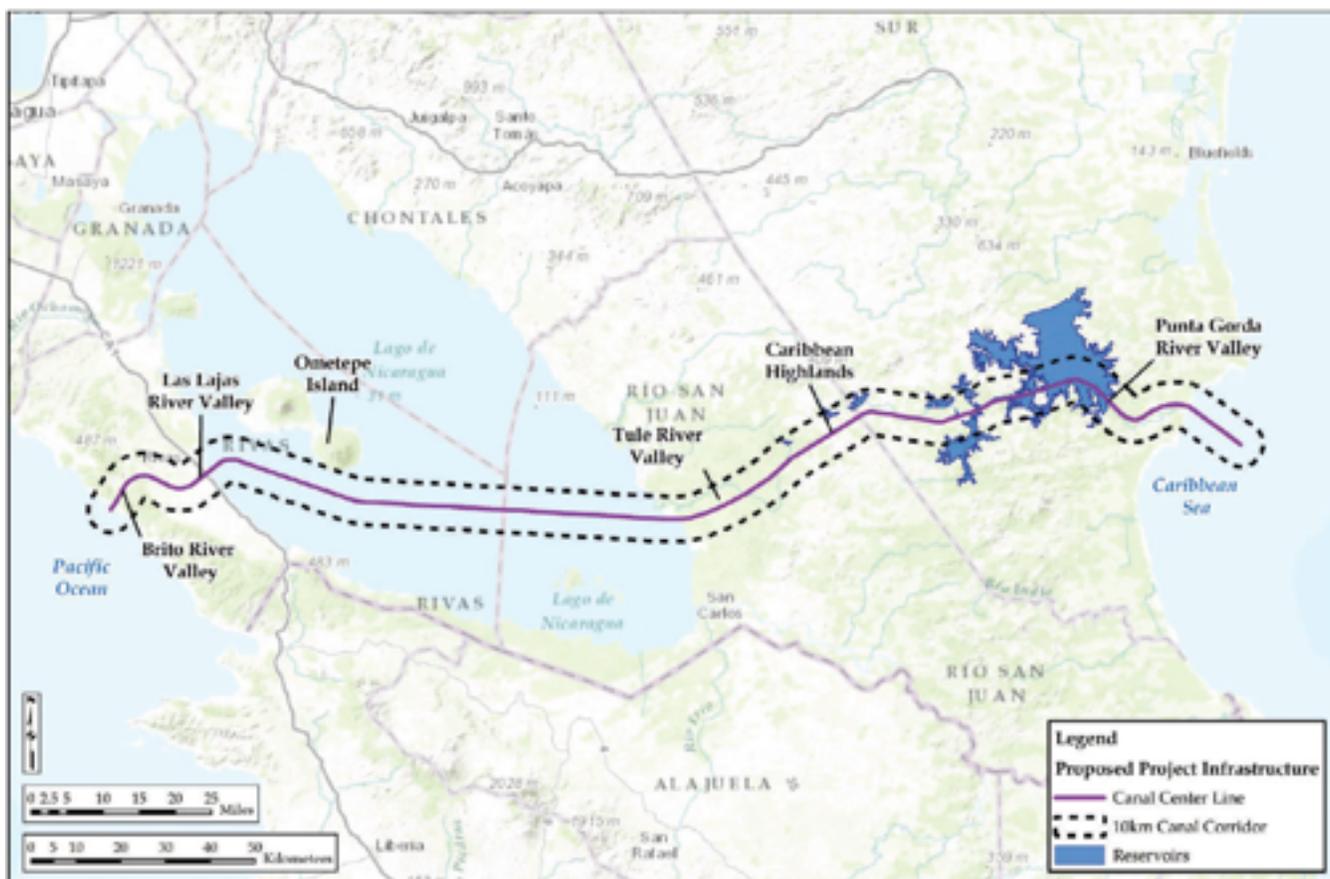


Figure 1: Source ESIA - Figure 3.2-1: Project Location

INTRODUCTION: HISTORY AND SCOPE OF THE NICARAGUA CANAL PROJECT

In 1826, Nicaragua constitutionally introduced the necessity for a canal (ESIA). A canal through Central America would dramatically alter international trade by providing a shorter route than had been available previously. The United States favored Nicaragua for the original Canal route, but ultimately investment was directed to construct the much shorter Panama Canal. For almost 200 years since the original proposal of a canal through Nicaragua, groups has shown continued interested in the possibility of canal traversing Nicaragua. The Nicaragua Canal Project has been fraught with controversy and doubt from both the national and international communities since the most recent development of the canal. On the June 13th of 2013, Nicaragua ratified an agreement with the Hong Kong Nicaragua Development Group (HKNDG) that granted the rights to plan, design, and arrange financing for the building, operation, and administration of the Nicaragua Grand Canal.

The Hong Kong Nicaragua Development Group (HKNDG) was granted a renewable concession for building the Canal from the Government of Nicaragua in September of 2012 (Guardado, 2014). The HKNDG is a private development firm interested in international development. Wang Jing is the Chairman and Chief Executive officer of HKND Group. While the company describes itself as having extensive experience in construction management and infrastructure development, as well as Wang Jing being a businessman and investor with over twenty years of experience in successful organizational management and investment, the HKND Group has no previous experience building any infrastructures, specifically of this magnitude.

The Nicaragua Canal Project is regarded as one of the largest industrial development projects in the world, (ESIA Executive Summary 1). The Canal will span 173 miles across the country to connect the Pacific and Atlantic Oceans and include two lock systems, three main channels, one dam, and breakwaters at either end of the Canal (Kraul, 2015). The pathway of the Canal will be directed through indigenous lands, agriculture, dense rainforest, wetlands, protected lands, and Lake Nicaragua (Silva, 2015). The physical specifications of the Canal require a depth of 30 meters and width of 520 meters along the entirety of the route (Silva, 2015). Originally the estimated to cost to build Canal was \$40 billion. However, investors now estimate the construction costs to reach \$50 billion (O'Grady, 2015). Other proponents question the validity of this estimation, suggesting that the Canal could end up costing closer to \$70 billion upon completion (O'Grady, 2015). The feasibility of cost and time frame is highly debated from the international community. The expected completion date has been extended in multiple instances, and currently stands as five years. Once the Nicaragua Canal is completed, it will be larger in every aspect, width, depth, and length, than any other canal in the world.

The stated justification for the construction of the Nicaragua Canal is to accommodate cargo vessels that are larger than can fit through canals today, particularly the Panama Canal. The goal of the Canal is to create an alternative route that would generate cost and time savings for ships that travel other routes, although

there is debate whether it would achieve these ends (Meyer and Huete-Perez 2014; O'Grady, 2015). The justification for the Canal Project cites an increase in trade between Asian and the East Coast of the United States. The Nicaragua Canal is the solution to the increased trade that has led to the use of alternative routes being taken through the Straits of Malacca and the Suez Canal and the expected overflow from the Panama Canal not being able to support future increased shipping capacity. The Canal plans are being designed to adapt to container ships carrying 25,000 twenty-foot equivalent (TEU) containers and accommodating vessel capacity of 320,000 deadweight tonnage (DWT). To compare, the Panama Canal has a limit of 13,000 TEU and a cargo ship vessel capacity of 170,000 DWT. Cargo vessels are already in use that utilize 17,000 and 19,000 TEU with the expected use of more in future years.

The Nicaragua Canal construction will also be accompanied by other industry development that help to construct, maintain, and entice other elements of the Canal, such as tourism that will contribute to economic growth. Power stations, cement factories, steel factories, ports, free trade zones, resorts, international airports, and transportation infrastructure will be built in connection with the Canal Project (HKND Group Nicaragua 2015). The Canal Project predicts a 200% increase in GDP for Nicaragua once the Canal is completed, promised jobs, industry, and tourism benefits for local economies, over 50,000 new jobs will be created to facilitate the construction of the Canal. Once complete, 12,700 jobs are required for the operation of the Canal. Canal proponents assert that the project will attract further international interest that would generate an increase in economic production, corporate diversity, and markets; increased job creation and reduced unemployment, increases in personal income and spending; improved skills and experience of working; and improvement in the transport infrastructure via the new roads and ports, in addition to the Canal itself (ESIA Executive Summary 1).

Nicaragua is the largest country in the Central American region. Nicaragua is also the second poorest nation across in the Western Hemisphere (Meyer and Huete-Perez, 2014), with forty-two percent of the population considered to be living in poverty (Silva 2015). Due to its low economic standing, economic growth is a high priority for the Nicaraguan government. The Nicaraguan Government is depending on the development of the Canal as its opportunity to pull its citizens out of poverty. The Canal proponents also believe the project would contribute to the development of Central America as a whole. The Canal is seen as a benefit to the Central American Customs Union, The Central American Free Trade Agreement with the United States, inter-regional trade in the Americas and the future trade agreement between Central America and the European Union. Finally, the Canal is seen as a source of greater integration of Central America into the rest of the world.

THE PROBLEM

The Government of Nicaragua and the HKNDG have substantial projections of job creation and economic growth resulting from the Canal. A range of concerns

regarding the environmental and social impacts of the Canal counters these expectations.

The concerns begin with the overall planning of the Canal. The planning and development of the Canal is in the hands of the Hong Kong Nicaragua Development Group, a company based out of China. The Nicaragua government granted the rights to the Canal Project to HKNDG under a no-bidding process, with no environmental impact assessment or other studies completed, and no input by the citizens of Nicaragua (Guardado, 2014). Following public outcry about the lack of review, the Nicaragua government entrusted the completion of a retroactive environmental assessment to the HKNDG (Guardado, 2014). These places the review initiative in the hands of the company already granted authority to act, while leaving participation by the Government of Nicaragua. Jorge A. Huete-Perez, the director of the Centro de Biología Molecular at the Universidad Centroamericana, points out the abnormality of Nicaragua's actions, stating "it is unusual that any government that has the best interests of the nation and its citizens as its top priorities would not unilaterally undertake the necessary groundwork for such a massive project" (Guardado, 2014). It is under international best practices that most countries follow intensive environmental guidelines before an attempt at approving large infrastructure projects are considered. Prior to the Nicaraguan Government concession, there was no public consultation, feasibility studies or environmental impact assessment completed (Huete-Perez, Jorge A., Axel Meyer, and Pedro J. Alvarez, 2015). I believe this concern is just one of many concerns attached to the construction of the Nicaragua Canal.

The environmental impacts of the Canal Project are profound and myriad. Nicaragua is part of the Mesoamerican Biological Corridor, which spans from Mexico to Panama. The Mesoamerican Biological Corridor is home to 7 to 10 percent of the world's known species. Nicaragua hosts the largest tropical rain forest, and the most extensive sea grass pastures in Central America (Weaver et al. 2003, 11). With its stretch of coral reefs, long rivers, large freshwater lakes, and rich volcanic soils, Nicaragua is unlike any other territory of a population so minimal in comparison (Weaver et al. 2003, 11). Nicaragua is home to over 100 species of freshwater fish, 200 species of mammals, 600 species of amphibians and reptiles, and 750 species of birds (Weaver et al. 2003, 11). According to the IUCN Red List as of November 2014, there are 134 threatened species in Nicaragua: 7 mammals, 16 birds, 9 reptiles, 10 amphibians, 31 fishes, 2 mollusks, 43 plants and 16 other invertebrates.

The Canal will bisect 16 watersheds, 15 protected areas, and 25 percent of Nicaragua's rainforest (Silva, 2015). There are 244 species of fauna and flora native to Nicaragua. Damaging implications from the Canal infrastructure will be apparent without any effective protection of native species, land or waterways (Weaver et al. 2003, 3).

The Canals route would cut through the Mesoamerican Biological Corridor, which is a network of protected areas used to allow migration of through the length of Central America (Kraul 2015). The Cerro Silva and Indio Maiz are two nature preserves that make up the Mesoamerican Biological Corridor that would border the

canal (Kraul 2015; Silva 2015). The Indio Maíz and Cerro Silva protected areas host 13 percent of the world's biodiversity, and approximately 90 percent of the country's flora and fauna (Silva 2015). It is irresponsible to suggest that a canal built through areas of such high levels of biodiversity would not have grave impacts.

Further, it would also lead ships through the second largest coral reef in the Caribbean, which is only partially protect by the Sunflower/Colombian Biosphere Reserve (Kraul 2015). While not as strongly impacted as these protected areas within Nicaragua, it is likely that severe impacts would accrue in the rich coral reef ecosystems as well.

As of now, the Government of Nicaragua enforces little regulation and enforcement to environmental laws. Existing laws are perceived to as adequate for environmental protection. (USAID/Nicaragua, 2003, 2-3). Currently, Nicaragua is losing forests, wildlife, jobs, and future alternatives (USAID/Nicaragua, 2003, 3). With the development of the Canal, the country is accelerating biodiversity and environmental losses, and the ecosystem services they provide are disappearing.

The potential environmental impact in Nicaragua as a result of the construction of the Canal is of immense concern and the basis of my research question. I wanted to look into the connection of the Environmental and Social Impact Assessment to the General Law of Environment and Natural Resources Law No. 217; Is the Environmental and Social Impact Assessment (ESIA) consistent with Nicaragua's Environmental Law No. 217? While the ESIA was drafted as a source of information to the Government of Nicaragua and to the HKNDG, it is important to ascertain whether the ESIA is consistent with environmental regulations of Nicaragua. I hypothesize that the ESIA significantly departs from the standards of Nicaraguan Environmental Law No. 217.

HKNDG contracted, with approval by the Government of Nicaragua, a variety of organizations to help with the planning, implementation, and management of the Nicaragua Canal. The Environmental Resource Management Company (ERM) was contracted to produce the ESIA. ERM describes themselves as a “leading global producer of environmental, health, safety, risk, social consulting services and sustainability related services” (Environmental Resources Management). The ESIA is constructed as an independent evaluation of the potential environmental and social impacts as a result of the Canal. The goal of the ESIA is to establish an objective, factual, and science-based assessment on the physical, biological, social and economic aspects that both applies to the impact of the Nicaragua Canal as well as the creation of the ESIA. In May of 2015, the Environmental and Social Impact Assessment was made publicly available. This information is for the government and people of Nicaragua, civil society, and the international community to make an informed decision about the facts of the Nicaragua Canal. The ESIA does not design, choose locations, or make planning decisions about the Canal.

ON June 1996, the General Law on the Environment and natural Resources was issued by the Government of Nicaragua, Law No. 217. This law set the standards for rational and sustainable use of the nation's natural resources and environment through conservation, protection, improvement, and restoration.

THE IMPORTANCE

The significance of the Nicaragua Canal can be embodied in many ways, both positively and negatively. The Canal potentially offers economic growth, development, stabilized economy, and international infrastructure in a nation that currently does not provide enough to support its citizens. The Canal also brings forth social protest, with the specters of environmental degradation, and questions of validity and transparency within government and HKNDG. The concept of an Interoceanic Canal through Nicaragua has peaked in and out of history. At this time, there are laws and agreements in place to make the Canal a reality. It is important to regard the Canal as serious threat to the environmental and indigenous rights of the Nicaragua people. As part of this effort, spreading knowledge about Nicaraguan laws intended for environmental and cultural protection, that ways in which the Canal Project is in conflict with those laws. This information is crucial to people currently fighting for their land, the environment, and their livelihood. Future generations will depend on the same information in order to mobilize their rights if concessions for the Canal become a reality again.

By reviewing Nicaragua's environmental laws, we can begin to understand the status of environmental priorities according to national political agreements. The General Law of Environment and Natural Resources, Law No. 217, sets out the agenda, agencies, priorities, responsibilities, and rights associated with the protection of the natural land and indigenous people. Dissecting Law No. 217 will enable us to see the environmental protection intensions before the Canal took national priority.

The most comprehensive plans for the Nicaragua Canal that are available is the Environmental and Social Impact Assessment (ESIA). The ESIA consists of all the plans, intentions, and information related to the Canal. The concessions for the Canal were granted in 2013. The ESIA was released to the public in November of 2015. The Canal is considered a national priority by the Government of Nicaragua. The ESIA is the best tool constructed that is available to assess the possible impacts of the Nicaragua Canal.

I selected the most salient articles from Law No. 217 and compared the details of the ESIA to evaluate whether these provisions of essential Nicaraguan environmental law are represented and adequately addressed in the development of the Canal plan through the ESIA. Looking at the ESIA through the lens of pre-established environmental laws identifies more specifically any accordance or dissonance between the Canal Project and established National environmental priorities. As stated, the Canal is of national importance. By looking at the planning of the Canal through the lens of Nicaragua's environmental laws we can see where the Canal is prioritized over other environmental priorities, and to what degree. My working hypothesis is that this analysis will reveal that protected areas, environmental health, and indigenous rights are, at best, secondary to the development of the Nicaragua Canal, as provisions of Law No. 217 are unaddressed or overridden in the ESIA.

Chapter 2

LITERATURE REVIEW

The most direct comparison of the Nicaragua Canal would be to the Panama Canal. The relativity in location, climate, and biodiversity make for easy comparisons. While similar, a disservice would be don't to make direct correlations if you take into account the drastic differences in size. The Nicaragua Canal is over three times the length of the Panama Canal and includes a direct route through the largest lake in Central America, Lake Nicaragua. The benefit of evaluating the Panama Canal is that a direct case study can be assessed. Measuring similar circumstances on the Panama Canal to compare to the Nicaragua Canal, will help contribute information about the impact of the Canal. Ashley Carse has done an evaluation of the Panama Canal that assists in understanding the implications of the Nicaragua Canal.

Additionally, I included a summary and discussion of the evaluation conducted by panel assembled to evaluate the ESIA. Such evaluations are a critical part of any ESIA process, and normally can have a large impact on the final decisions on whether or not to proceed with a project. As will be seen, despite a critical reception, the project was still approved.

BEYOND THE BIG DITCH: Learning from the impact of the Panama Canal

In his book *Beyond the Big Ditch*, Ashley Carse uses the Panama Canal as a case study of the complex relationship between infrastructure and the environment. Evaluating and applying what is known about the Panama Canal can help provide more detailed context to the implications and future of what the Nicaragua Canal holds. Indeed, it can serve as a particularly vivid set of cautions and novel concerns to those previously raised.

Carse separates his book into four sections of evaluation; Headwaters, Floodplains, The Interior, and Backwaters. Each section evaluated a different element of intersectionality between environment and infrastructure. Headwaters looks at the use of water and its finite existence as a resource. Carse found that the locks of the canal function as a freshwater staircase through the country, which requires 52 million gallons of water to support each cargo ship that passes through the Panama Canal. This is roughly half the daily water use in all of Panama.

The Nicaragua Canal would presumably need to supply an even greater amount of freshwater to power this much longer and larger canal. We have to consider where the water resources for the Canal will be found, and what the impacts of that level of water use will be for surrounding communities. In Panama, policies to protect the functioning of the Panama Canal drove the organization and use of water. When a drought happened, local farmers were blamed for their use of water. Over time, policies changed in ways that prioritizes locals, researchers, and consultants to work the land for more consistent water availability to the Canal, leaving local capacity for

agriculture as secondary. The Nicaragua Canal and communities will share the access to water resources, much like the Panama Canal. This section highlights the necessity of nurturing the balance of biodiversity so the environment can better support the transportation needs and agricultural livelihoods that would benefit the planning stages of the Nicaragua Canal.

Floodplains emphasizes how Panamas ideal natural advantages supported the construction of a canal, but still necessitate the engineering of water management. Much like the Nicaragua Canal, the Panama Canal required man-made reservoirs that resulted in the flooding of areas. Communities in the Panama Canal Zone were flooded in the process of water management. Learning to manage populated, or depopulated, areas became an issue of managing the land. The Panama Canal Zone left a constant question of how and by whom these areas should be managed. Panama's solution was to entice locals into banana plantations and trade, which utilized the Canal and helped GDP. Nicaragua has to consider how the changing geography of Nicaragua's lands will be used and by whom.

In The Interior, Carse looks at the externalities the Panama Canal has created. Not only was the Canal built, but additional construction and expansion was initiated and incompletely carried out across the country. The required infrastructure to capacitate all consignments associated with the Canal impede on extended rural areas away from the direct path of the Panama Canal. Additional roads had to be made to facilitate the Canal, and new movement of communities. Roads were often unpaved, and not maintained. Carse describes this as "a road that is always unfinished" as it always requires maintenance and upkeep or the natural environment will take over (Carse 2014, 204). Along with the Canal, Nicaragua has plans for additional infrastructure in roads, but whether these will meet the needs of the rest of the country is hard to tell. The additional commerce and environmental toll of the added infrastructure is yet to be evaluated in Nicaragua, but is vital to any planning.

In the final section, Backwaters, Carse talks about the infrastructure entrenched in natural environments. The Panama Canal was originally seen as an infrastructure that dominated landscape. Perspective evolved when engineering techniques couldn't produce sustainable reliable delivery of the natural resources that were required to operate the Canal. The environment could devastate the Panamas Canals functionality in any number of ways, drought, flooding, invasive plant life, indigenous land rights, etc. Eventually the Panama Canal was forced to redefine its relationship with the natural land for the prioritized success of transportation. Respect for the natural relationship of the environment and land was required. Nicaragua will be fighting an uphill battle during the construction and maintenance of the Canal if they do not reconstruct their relationship with the natural landscape of the land.

Carse highlights the dependence of the Panama Canal on the natural environment: "no rainforest, no canal." Drought, deforestation, and climate developments have some of the greatest impacts on the running of the Panama Canal. Any reliance on environmental resources demands the respect of the natural balance of nature and the people of the land. Engineering short cuts and safeguards are not

effective enough if the natural balance of an ecosystem is interrupted. If we use the Panama Canal as an example for the Nicaragua Canal, it would be best to a completely understand the environmental resources in Nicaragua. Carse forces us not only think about how infrastructure repositions the environment, but how the environment has the power to control infrastructure output. A canal is dependent on water resources, land structure, and the embedded nature of a balanced ecosystem. Understanding Nicaragua's current environment conditions is only one piece to understanding the future environmental status when considering the externalities as a result of the Nicaragua Canal. Carse makes us look at water as an environmental tool, and a resource to the environment, the community, and to infrastructure. Water is finite. Water is not guaranteed. The Nicaragua Canal needs to understand the access to water resources before a canal is built without enough environmental balance to support artificial reservoirs, man-made lakes, or pipes to transport water. If Nicaragua does not evaluate the water system available and environmental sustainability, it is likely the Nicaragua Canal will turn into an even bigger ditch.

ESIA INTERNATIONAL EXPERT REVIEW PANNEL

The ESIA was evaluated by in international review panel. In March of 2015, the goal was to assess drafted sections from the ESIA, which had not been available to the public yet. The ESIA was drafted by the Environmental Resource Management Company (ERM). ERM provides consulting services for environmental, health, safety, risk and social services. ERM was hired by the HKND, with approval from the Government of Nicaragua. Florida International University's Southeastern Environmental Research Center and College of Law organized the review panel of the ESIA to evaluate the likely environmental impacts resulting from the Canal. Experts from the United States and Germany in ecology, conservation, limnology, and water law were invited. Scientists took part in the review panel who represented the United States Geological Survey and the Smithsonian Tropical Research Institute in Panama. Fauna & Flora International, Wildlife Consecration Society, and Paso Pacifico represented non-governmental conservation organizations that were also involved. In total, 18 people were in attendance who each contributed their own perspectives.

Four sections of the environmental assessment were reviewed. The review panel had preliminary drafts to 4 chapters on the ESIA; Chapter 3: Project Description, Chapter 5: Baseline, Chapter 6: Physical Resources Impact Assessment, and Chapter 7: Biodiversity Impact Assessment. Over two days there were presentations by the ERM, time given to review each of the sections provided, and opportunity for discussions.

The review panel concluded with summary statement of feedback to ERM and the HKNDG, which is included in the ESIA under Appendix PI-7, *Expert Panel Summary*. In the summary statement provided by the review panel, it was concluded that the approved time by the HKNDG for the ERM to complete the analysis of 1.5 years, was insufficient and did not enable the adequate data collection or evaluation for the magnitude of the projects included. While it was stated that many of the impacts would be long term and irreversible, time restrictions and limited information did not

make it feasible to address all areas of concern. In many areas, it is suggested that more research, evaluations, and studies need to be completed to have an effective EISA product. The panel chose to focus on the environmental impacts to freshwater habitats. The statement addresses the need for climate change to be an important perspective engrained in the construction of the Canal. The panel also criticized the ESIA's singular perspective on the foot print of the Canal rather than the greater impacts to traverse a larger area than the direct path of the Canal. Overall, 15 main points of concern were highlighted, some of which include expressing concern about the future usability of Lake Nicaragua, lacking water data on the use of water resources and water quality effects from the Canal, the use of the wrong data in multiple areas, limited and insufficient data collection of current biodiversity, inconsistence verbiage that does not accurately represent criteria and definitions, lack of full analysis of the impact on the Mesoamerican Biological Corridor, and the absence of peer-reviewed literature to support claims.

Chapter 3

METHODOLOGY

My research is a case study of the Nicaragua Canal ESIA using qualitative content analysis to compare the ESIA and Law No. 217. The ESIA and Law No. 217 comprise two data sets, each created for different audiences and using different language. For my analysis, I translated Law No. 217 from Spanish to English using the Google Translate application. I searched the texts of each documenting for representation of similar ideas and evaluated differences, similarities, and omissions.

After becoming familiar with both the ESIA and Law No. 217 I compared sections of the ESIA that addressed sections in Law No. 217 that are particularly important for biodiversity conservation, and protection of public welfare, particularly vulnerable indigenous populations. The first step I took was to select articles of Law No. 217 that I thought were particularly important or that I knew were already reflected in the ESIA. Because the ESIA was not produced with any direction or influence from Law No. 217 I wanted to make sure that I would be able to evaluate the degree to which the ESIA addressed Law No. 217's provisions. All articles I selected were of critical importance to supporting Nicaragua's National heritage and natural environment. Each article represents a different aspect the environmental preservation. This analysis, in part, evaluates the degree to which the ESIA addressed these areas without any guidance. I analyzed eight articles from Law No. 217 that are vital aspects to environmental protection.

Because the ESIA consists of 14 Volumes and over 4,000 pages, and due to time constraints, I was not able to effectively read the entire assessment. Instead, I took two approaches to searching the ESIA for discussion of core concepts related to the selected provisions of Law No. 217. First, I searched for key words that were in the relevant articles of Law No. 217. I used direct words or phrases pulled from the articles to see if the same words or phrases were used in the ESIA and searched those key terms. The second way I search the ESIA was by searching section. I referred to the table of contents for topics connected with essential provisions of Law No. 217. For example, I examined Volume 6, PI-6 where the Indigenous Peoples Plan was outlined. The section titles gave me an overview of what information was available and how I could use that in relation to the articles I pulled from Law No. 217.

The goal of my analysis was to evaluate whether the ESIA is consistent with Nicaragua's Environmental Law No. 217. The ESIA was constructed without the guidelines expressed in Law No. 217. Thus, I hypothesized that the ESIA significantly departs from Law No. 217's standards. By connecting the ESIA and Law No. 217, we can see how the assessment for the Canal adheres to previous environmental laws that came before the high national priority of the Canal. Many critics have accused the ESIA of not being as complete or effective as it could be. This research attempts to apply a new perspective to evaluating the validity of the ESIA in relation to an establish legal standard, the environmental laws of Nicaragua.

Chapter 4

RESULTS AND DISCUSSION

Eight articles are assessed based on the information found in the ESIA. Each article is listed, discussed, evaluated, and is vetted for acceptance of Law No. 217 with information found from within the ESIA. These articles play an integral part in the environmental protection of Nicaragua's environmental laws. Planning, protected areas, indigenous rights, and responsibility are all vital environmental aspects that need to be prioritized for any infrastructure implementation process.

Requirement for Thorough Planning Processes

Title II, Chapter II, Section I, Article 12.- planning national, regional and municipal development of the country should integrate environmental elements into their plans, programs and economic and social projects, respecting the principles of openness and public participation. Within the scope of its jurisdiction, all agencies of government, decentralized agencies and municipal authorities should anticipate and plan no irreversible involvement and protection and restoration of the environment and natural resources to prevent deterioration and extinction.

Under Article 12, public participation must be an open collaboration, and environmental components must be integrated into all economic and social projects and programs. It requires that within the addenda there would be no irreversible involvement to the protection and restoration of the environment and natural resources to prevent deterioration and extinction. Article 12 is enforcing the concept of a thorough process with diversity in in planning process.

Outlining a plan for the prevention and sustainability of the environment and natural resources is an important aspect of the environmental laws in Nicaragua. Within the ESIA, it has made specific mention of the Environmental and Social Management and Monitoring Plan (ESMMP) needing to be developed to adhere to the environmental and social management requirements and industry good practice. Included in the ESMMP are the intentions of addressing the Canal's commitments and mitigation measures that have been included in Project Description, Chapter 3, of the ESIA as well as the Impact Assessments of Chapters 6, 7, 8, and 9. The ESMMP will develop plans to avoid, minimize, compensate, offset, or reduce destructive impacts from the Canal. As part of the ESMMP process, the Plan will be submitted to the MARENA for evaluation to be refined and adjusted as needed throughout the construction of the Canal.

The participation of the public on a plan for the ESMMP is an element to Article 12 that needs to be addressed. The ESIA has pointed out inadequate consultation and information sharing with the people who may be forced to relocate. The ESIA has

extended discussion on that topic stating that there has been no implementation of and Informed Consultation and Participation Process. As a result, the ESIA made the conclusion that the Canal does not appear to have “broad community support” in areas directly affected by the construction of the Canal. This is a requirement if the Canal wants to keep consistent with international standards.

The ESIA has 4 chapters, Chapters 6, 7, 8, and 9, assigned to outline the impacts on the environment. Chapter 7 Includes the Biodiversity Impact Assessment. Under Chapter seven the ESIA tries to address mitigation measures. Section 7.1.1 is the Embedded Controls Related to Biodiversity Considered in this Impact Assessment. Within the section it clarifies that the mitigation measures that are addressed are “pre-mitigation impact significance ratings defined in this impact assessment and are not considered as mitigation.” The information presented in the section is considered part of the planning of the Canal Project. The ESIA considers the ‘pre-mitigation’ actions as controlling impacts on the physical habitat and provide a number of functions. In the ESIA, there are no actions that would promote considerations for environmental developments or sustainability. Plans for an ESMMP that would contain mitigation and promotion of environmental sustainability is noted but not efficient for moving forward with Canal construction if they goal is to attain industry good practice.

Once an ESMMP is created, an evaluation of the plans to mitigate protection and restoration of the environmental and natural resources will be needed to make sure efforts are executed resourcefully. The ESMMP would need to incorporate the involvement and transparency with the public more than has already been performed by the Canal process to date. Public involvement with the integration of environmental elements with regards to the Canal, especially within people directly impacted by the Canal, is an important element to the ESMMP, ESIA, international standards, and the environmental laws of Nicaragua. The ESMMP is essential to environmental mitigation and sustainably efforts that move beyond the pre-mitigation statements that are provided. The ESIA does not represent the intentions or needs required to Article 12 of Law No. 217.

Objectives of Protected Areas

Title II, Chapter II, Section III, Article 18. - The establishment and legal declaration of protected natural areas, has the fundamental objective:

- 1. To preserve natural ecosystems representative of biogeographical and ecological regions of the country.*
- 2. Protect watersheds, hydrologic cycle, groundwater, samples of biotic communities, genetic resources and genetic diversity of wild flora and fauna.*
- 3. Encourage the development of appropriate improvement and rational and sustainable use of natural ecosystems technologies.*
- 4. To protect natural landscapes and environments of historical, archaeological and artistic monuments.*

5. *To promote recreational and tourism activities in harmony with nature.*
6. *Encourage environmental education, scientific research and the study of ecosystems.*

Article 18 outlines the objective of safeguarding protected natural areas. Preservation, diversity, sustainability, protection of monuments, eco-tourism, and environmental education are at the core of the objectives for protected areas of Nicaragua.

The ESIA addresses the impact of the Canal on all of the protected areas in Nicaragua. The ESIA does acknowledge that the protected areas are essentially considered “no-go areas,” “under normal situations.” The Canal would have significant environmental and social impacts in all routes that are considered economically feasible. There are 24 protected areas or municipal reserves that are either directly or near the Canal study area that will be impacted. The ESIA sees no economically feasible routes where the Canal would not cross internationally recognized protected areas. Four areas impacted by the Canal are internationally recognized protected areas, two biospheres reserves and two wetlands. The rest of the protected areas consist of ten private reserves, eight nature reserves, and two municipal reserves. (See Table 1)

Table 1: Protected Areas that will be impacted by the Nicaragua Canal Route

Protected Areas Directly On Or Near Canal Route	
Internationally Recognized Protected Areas	
Biosphere	Southeaster Nicaragua Reserve
Biosphere	Ometepe Island
Ramsar Wetland	Sistema de Humedales De San Miguelito
Ramsar Wetland	Los Guatuzos
Nationally Recognized Protected Areas	
Private	Toro Mixcal
Private	La Primavera
Private	La Tigra
Private	La Guacamaya
Private	La Conga
Private	Finca Pelibuey
Private	El Abuelo
Private	Finca Punta Mayales
Private	San Pedro
Private	El Aguacate
Nature - Biological Reserve	Indio Maiz Biological Reserve
Nature - Reserve	Punta Gorda
Nature - Reserve	Cerro Silva
Nature - Monument	Archipelago Solentiname
Nature - Reserve & Wildlife Refuge	Los Guatuzos
Nature - Reserve	Volcan Maderas
Nature - Reserve & Park	Isla Zapatera
Nature - Marine Reserve	La Anciana Island
Municipal	Los Angeles
Municipal	El Nancital

Table 1: Sourced From ESIA

The Canal construction will eliminate 125,200 hectares of terrestrial, freshwater, and marine habitats, as well as 19,600 hectares of Lake Nicaragua and 1,650 river kilometers of freshwater and estuarine habitats. 30 percent of areas lost will be from high and exceptionally high quality habitats. The Canal is expected to accelerate regional trends of habitat loss for the majority 70 percent of already degraded areas. Plans to mitigate environmental loss are outline in Chapter 7, Biodiversity Impact Assessment, and the ESIA states that it is of most importance that the implementation and mitigation measures outlined must be followed in full and successfully if there is any potential to decelerate or possible reverse of current trends.

Damage to protected areas is a necessity for the construction of the Canal. Private, national, and internationally protected areas will be used as the route for the Canal. Of the 78 protected areas, 24 will be have significantly measurable negative consequences as a result of the Canal.

The ESIA has a section addressing mitigation of environmental degradation. The concern lies in that this mitigation plan is completely dependent on full and successful implementation in every aspect. The mitigation process of the Canal would still prioritize the Canals impending economic benefits over the environmental damage. Fully accepting the mitigation processes proposed by the Canal would lead to an inherent disregard to environmental laws, specifically the security of internationally and nationally protected areas within Nicaragua. The HKNDG and the Government of Nicaragua have not proceeded with the Canal project with any consistency, transparency, or devotion to following accepted international standards. The HKNDG and the Government of Nicaragua have a long way to go to prove it can follow the implementation process fully and successfully before any environmental damage is irreplaceably damaged. There is no confidence that the implementation for mitigation to the environmental loss of protected areas will be applies fully or successfully.

While the ESIA addresses measures for preservation and security of protected areas, the scale of negative environmental influences cannot be efficiently mitigated at the current conditions the KHND and Nicaraguan Government are following international standard. The large-scale loss of protected areas is unavoidable to the construction of the Canal. The ESIA does include a plan for dealing with the impacts to protected areas. The full and successful implementation of the plan is vital to the contingency of Article 18 of the Environmental Laws of Nicaragua. Article 18 states the protection of protected lands, not the mitigation to damage of protected areas. Therefore, due to the mass destruction of various types of protected areas, the ESIA does not represent Article 18 of the Environmental Law No. 217.

Map of Protected Areas Along Canal Route

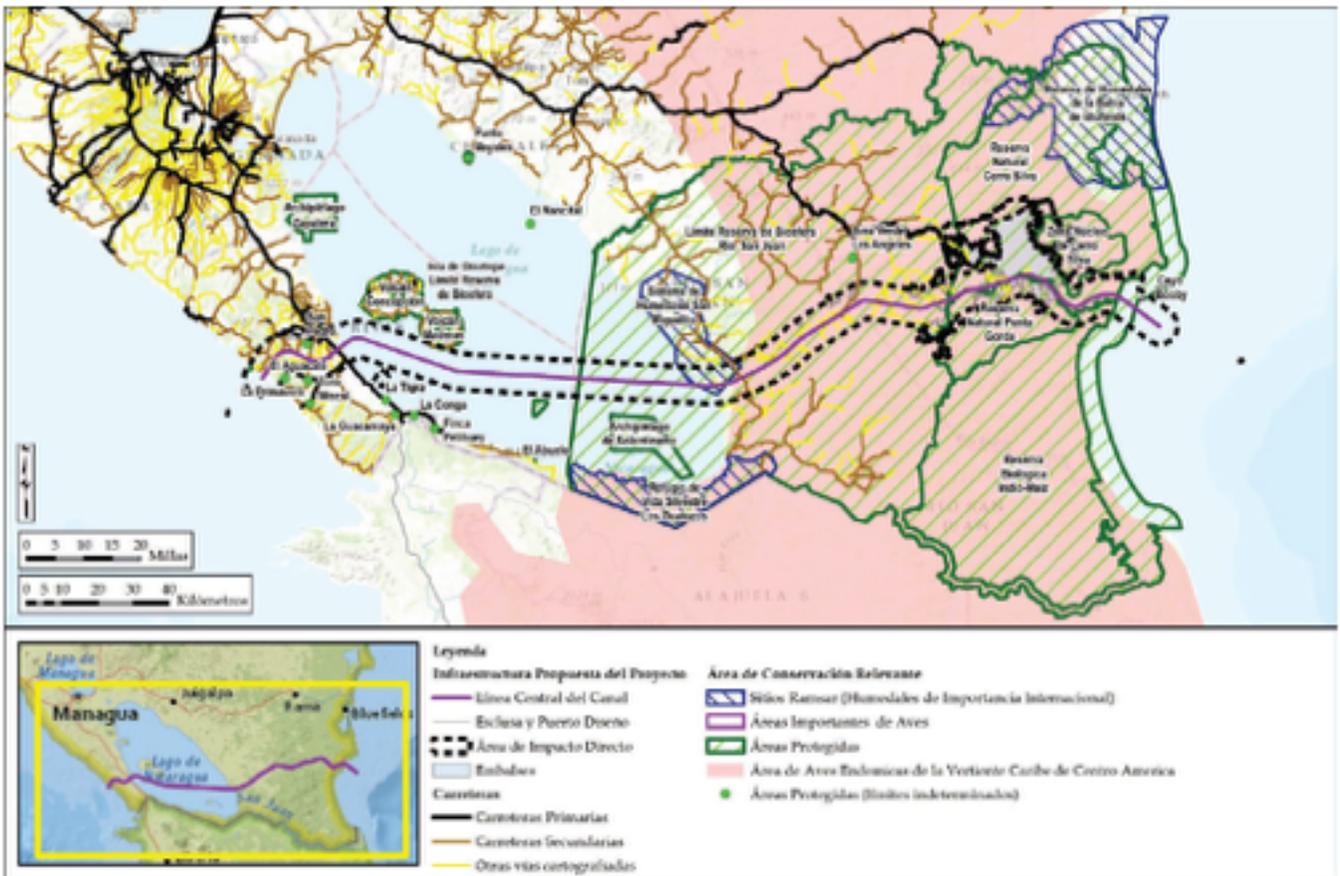


Figure 2: Source ESIA - Figure 5.8-1: Protected Areas near the Project

Designation and Rights of Indigenous Inhabitants of Protected Areas: ‘True Watchers’

Title II, Chapter II, Section III, Article 19. - The inhabitants of protected areas will be incorporated into and deemed the true watchers of those sites, given all rights and guarantees to which they are entitled.

Article 19 identifies the inhabitants, or the indigenous populations, who occupy protected areas as the guardians of those areas. It recognizes their legal right to the property as ‘true watchers’ and their incorporated rights to the area. The citizens of Nicaragua, specifically the indigenous populations have a right to oversee and participate in the activities taking place on the land they are designated as the true watchers of.

The ESIA is repetitious with regard to the lack of inclusion of the citizens of Nicaragua and more specifically, the indigenous populations and vulnerable populations inclusion of the Canal process. The ESIA is dependent and relying on a Settlement Action Plan and an Environmental and Social Management System to implement the inclusion of the Nicaragua population into the Canal planning process. Both of which have not yet been constructed.

The ESIA has noted the inadequate engagement of physically and economically displaced people of Nicaragua. A Settlement Action Plan that meets international standards is requested so that consultation, compensation, and resettlement locations are sufficiently agreed upon with the Canal and displaces population. Consultations and meeting with indigenous people are suggested as a way to identify, protect and mitigate any impacts to sites that are not identified by researchers. Plans to share Canal Project information with indigenous populations is suggested. More communication of Canal plans with indigenous communities is requested to ensure that there is complete understand of the use of land. The Mitigation Measures for displaces people include compensation at equal or better value of land, resettlement assistance in allowances and services, engagement and consultation, and providing grievance mechanisms.

As part of the Indigenous People Plan, The Canal conducted a set of workshops with the goal of consulting with indigenous communities and ethnic groups to obtain cultural and socio-economic characterization of the people, perceptions, and to gather information. Nine workshops were held in different locations with a total attendance of 475 peoples from nine indigenous communities or ethnic populations. As a result of the workshop, four recommendations are addressed that suggested to be taken into consideration by the Canal:

1. Promote the development of a Meeting with the GTR-K and with the representatives from each of the nine communities, in order to present the impacts that the Project may have upon the community, and to set forth possible management measures for prevention, mitigation and/or compensation aimed at managing identified impacts, as well and

establishing the position of each community in regards to implementation of the Nicaragua Canal Project.

2. Propose a resettlement plan and reach an agreement regarding the communities to be resettled as well as impact mitigation, taking into account the social and cultural particularities of indigenous and ethnic people. In addition, obtain permission from the GTR-K for use of the territory and to begin Project construction. Without explicit permission from the GTR-K it is not recommended that construction begin.

3. This meeting must include participation by representatives from the Hong Kong-Nicaragua Development Group (HKND), as Project executors and those responsible for the implementation of environmental administration and management plans representatives from the Nicaraguan Government, as guarantors of the duties and rights of the country's ethnic communities, must also be present.

4. Carry out a detailed study of the Nahoia communities of the Nicaraguan Pacific under the same working approach outlines in the document for the Rama-Kriol. Promote and implement an ethnic communities plan which is adequate for the Nahoia located on the Nicaraguan Pacific; which, while they do not currently have a duty demarcated and legalized collective territory are nonetheless recognized as minority ethnic communities that possess unique customs, traditions, forms of organization and governments furthermore, due to their locations in relation to the Canal, it is possible that some Nahoia communities may be resettled.

The work that has resulted from the workshops suggests more input and meetings with communities affected for the Indigenous People Plan to be successful

Much of the language around the indigenous populations in the ESIA revolves around the lack of information, consultation, and inclusion of these communities. Plans for inclusions and plans for addressing the displacement of communities are still not established. These measures need to incorporate the inclusions of the indigenous populations when creating plans. Addressing indigenous communities needs to be address more than the relocation process. Communities' engagement, with open communication, in Canal planning is necessary to fulfilling Article 19. Furthermore, indigenous communities have a right to their land. Land that is overseen by the indigenous populations that will be impacted by the Canal needs to be consulted with and terms agreed upon by the communities who oversee. The Canal planning has moved forward without the indigenous communities input.

The Canal Authority has made attempts to include the indigenous populations with little relief to the communities affected. The workshops left communities in need of more information regarding their rights, the Canal's impact on their living standards, resources, and livelihood. The biggest result of the workshops was the

clear communication from the communities' wanting and needing more accurate and definitive answers to the plans with the Canal in concerns to their land.

The ESIA repeatedly identified areas where the inclusion of communities is necessary to the Canal construction plans and moving forward. It is clear that the indigenous populations have not been adequately included in the Canal process. This ultimately leads to the rights of the indigenous communities and rights as the true watchers of the land they occupy as not being address according to Article 19 of Environmental Law No. 217. The ESIA does not meet the expectations of Article 19.

MARENA Regulation

Title II, Chapter II, Section III, Article 21. - All activities carried out in protected areas necessarily be carried out according to management plans supervised by the MARENA, which shall conform to the categories established for each area. Both in achieving the objectives of protection and surveillance management and will seek to integrate the community.

Article 21 gives authority and approval of all plans to MARENA that affect protected areas. MARENA's goal is to enforce protection, management, and seek inclusion of communities in protected areas.

The ESIA identifies MARENA as the entity of protection of the environmental and natural resources of Nicaragua. The allocate the duties of MARENA to manage regulation, formation of standards, environmental monitoring and quality control, the management and sustainability of renewable and non-renewable resources, as well as sanctions for the violation of environmental standards. MARENA is to work with over government agencies to pursuant to its roles required. Once the ESMMP document is created, MARENA will issues the reconstruction, refining, and adjustments necessary to appease the regulations of MARENA.

The effective and uninfluenced use of MARENA to fulfill its duties as originally created is crucial to the environmental success of Nicaragua during the Canal process. The ESIA specifically identifies the inclusion of MARENA in the Canal progress as required by Law No. 217. The inclusion and use of MARENA is satisfactory to Article 21 of the Environmental Laws of Nicaragua.

Environmental Impact Assessment Compliance

Title II, Chapter II, Section IV, Article 26. - The activities, works or public or private projects of national or foreign investment during its preliminary stage, implementation, expansion, rehabilitation or conversion will be subject to studies and environmental impact assessment, as a requirement for granting environmental permits.

Article 26 is the requirement for an environmental impact assessment. All permits granted for projects will be based off a completed version of an environmental impact assessment.

The HKNDG, as the Canal sponsor, is responsible for the preparation of the ESIA for the Canal construction. HKNDG has hired the Environmental Resource Management Company for the independent evaluations of the ESIA. The ESIA does not design the Canal Project, which is the responsibility of the HKNDG. Approval or denial of the ESIA for the Canal is the responsibility of the Government of Nicaragua. Under the agreement for the contracted work of the ESIA, HKNDG also agreed to a commitment of international standards.

There is debate about the validity of the ESIA concerning the short turnaround time of the completion, the number of missing components, and the approval process of the ESIA by the Government of Nicaragua. The ESIA was completed in June on 2015. The Government of Nicaragua reviewed the ESIA and 3,000 people in attendance for public meetings concerning the Canal (Environmental Permit Issued for Nicaraguan Canal). On November 5th the Government of Nicaragua issued the permits needed to begin the construction of the Canal (Environmental Permit Issued for Nicaraguan Canal). It was not until November 6th, that the ESIA was released to the public for review. According to international practice, an ESIA is usually established before any major planning or concessions of projects are established. The public has the right to comment and participate in the initial stages of planning. The retrospective establishment of the ESIA is noted as being performed after the Government of Nicaragua had granted the rights to the Canal to the HKNDG. The Canal has not shown to comply with international standards as they suggested within the ESIA. The completion of the ESIA shows complicity to Article 23 of the Environmental Laws.

Citizens' Environmental Rights and Duties

Title IV, Chapter I, Article 109. - All citizens have the right to enjoy a healthy environment of natural landscapes and the duty to contribute to its preservation. The State has a duty to ensure the prevention of adverse environmental factors affecting health and quality of life of the population, establishing the measures or rules concerned.

Article 109 entitles all citizens to the right of natural landscapes to provide a healthy environment. The Government of Nicaragua is held accountable to ensure that right. The citizens of Nicaragua have an obligation to contribute and to the preservation of their environment.

The ESIA has outlined some of the impacts intended from the Canal. Unavoidable impacts that could alter a healthy environment of natural landscape are listed as:

- Loss of intact primary and secondary rainforest;
- Fragmentation of the Mesoamerican Biological Corridor, functioning as a barrier to animal movement and gene flow, and isolation of populations;
- Conversion of the ecologically diverse Rio Punta Gorda from a natural free flowing river to a system of locks, canals, and impoundments;

- Loss of some nesting, foraging, and migratory habitat for critically endangered and endangered sea turtles;
- Loss of individuals or several Critically Endangered and Endangered species;
- Introduction of invasive species into the Rio Punta Gorda river system and lake Nicaragua;
- Increased sediment loads into the Pacific Ocean, Caribbean Sea, and Lago de Nicaragua during construction;
- Physical division of Nicaragua into areas north and south of the canal, with associated reductions in access and connectivity;
- Physical and economic displacement of approximately 30,000 people; and
- Displacement of the Rama village that still speaks the native language

Physical changes of biodiversity, species, accessibility, and displacement are considered unavoidable under the ESIA. This list does not include the increased risks and secondary impacts in other areas including increased development in culturally sensitive areas, increase in human trafficking and sexually transmitted disease, decrease in social cohesion, community identity, safety and security.

The ESIA suggest a public hearing process to include citizen participation, for all who are positively or negatively affected by the Canal. This means that citizens who's natural surrounding may be affected have the opportunity to voice their concerns publicly. Groups recommended to be involved are the Autonomous Regional Counsels, institutions, sectorial organizations, and municipal governments involved, as well as community leaders, ethnic and indigenous communities, and local businesses. These groups will have the prospect of presenting the impact to their communities based off the change in landscape and environmental degradation.

The ESIA tries to address the inclusion of citizens. Article 109 suggests a duty to for citizen's participation to environmental preservation. The public hearing process is only a plan at this point. If the public hearing process takes place with all groups available to attend and all questions are adequately answered so everybody has a clear understand of the intentions, the inclusion would be beneficial to adhering to Article 109. The opportunity for citizens to participate in the discussion of what is happening with their environmental surroundings shows an inclusionary effort. Potentially, citizens will have a say in how their natural environment is affected and can contribute to the final result to which they are at peace with.

The disconnect between the ESIA and Article 109 is in the construction of what natural landscapes and healthy environment consist of. I would consider major industrial barriers that reduce accessibility, the displacement on 30,000 people, loss of rainforest, and the reconstruction of the Rio Punta Gorda as an impediment to healthy environmental landscapes. The number of unavoidable natural landscape

disruptions will inevitably leave populations normal activities negatively impacted by industrial construction. While the plans for a public hearing are intended, there is no actual movement expressed in the ESIA of Article 109 that would show observance to Law No. 217.

Responsibility for Economic Damage

Title V, Chapter II, Article 143. - When in the commission of the act involving two or more people, they are collectively responsible for all the damages caused economic damage. In the case of legal persons, the liability under this article preliminary investigation be established to determine the persons involved in this damage. In the case of legal persons created ad hoc and cause such damage, the competent authority shall investigate the levels of responsibility third in this simulation contract.

Article 143 disbursts the responsibility of damages to all parties involved in the process of economic damage. Not one person may claim the responsibility of adverse effects. If needed, an authority will investigate to establish the levels of responsibility to the parties involved. Economic impact is addressed and responsibility for those who adversely affect the citizen's economic security will be held accountable.

The ESIA established that the HKNDG is the company responsible for the Construction of the Canal. HKNDG has made a number of commitments to the Government and the people of Nicaragua with concerns to the Canal, one of them being "to generate local training and employment growth and to stimulate local and regional economic development."

The ESIA has stated distinctly that there has not yet been an Environmental and Social Management System developed or implemented to mitigate the damages or designate the responsibility of damages. This is outlined as a piece that needs to be produced. Even without the Management System, the concerns of risk are included in the ESIA. Many scenarios lead to a conclusion that Nicaragua may be worse off if the Canal is built, rather than status quo. Concerns that could lead to high risk are if the Canal is not constructed to international good practice, if mitigation measures are not properly implemented, if business is not as expected for long term predictions, if indirect and direct benefits do not occur, and if Canal construction begins without ever being completed.

The ESIA has specifically addressed the concern of economic damage to farming and ranching persons. Compensation at less than fair market value will be given to farmers and ranchers as part of the expropriation process. For Temporary land that is expropriated, HKNDG has proposed to return the condition of land to the farmers and ranchers in the same-as or better condition than before construction had begun. This process is not confirmed as the Livelihood Restoration and Compensation Plan has not been constructed and formal consultations with affected people have not taken place.

The economic displacement of citizens is more likely to affect vulnerable groups such as people under the poverty line, people who depend on communal and forest resources, indigenous populations, and households with insecure land tenure. These vulnerable populations are outlined as being economically impacted but do not include any offerings of how to compensate for their additional economic displacement resulting from the Canal Project.

Through the ESIA, HKNDG outlines one of the goals of the Canal to be local and regional economic development. HKNDG has hired and entrusted specific areas of the development to additional companies to help with the construction, completion, and success of the Canal. Specifically, the HKNDG proposes an attempt to compensate farmers and ranchers for their permanent or temporary displacement of their land only to be evaluated at less than fair market value. If you translate the compensation plan for farmers and ranchers as standard practice for economic compensation, the HKNDG actions of responsibility are not effective, or of international standard, especially with concern to the vulnerable populations that will be affected and the absence of obligation.

The attempts within the ESIA for the HKNDG to take accountability and enlist mitigation measures for the economic damage resulting from the Canal are illusions. The HKNDG has no formal or legal responsibility for any resulting damages caused from the Canal. The Government of Nicaragua has entrusted the HKNDG to satisfy the promises engulfed in the Canal Project, and in turn, has accepted the repercussions associated. Within the agreement for the Nicaragua Canal, the Government has forfeited taking legal action or holding HKNDG accountable for the negative economic impacts associated with the Canal on the citizens of Nicaragua. The Government of Nicaragua has accepted responsibility for the economic imbalances resulting from the Canal. The ESIA does not include information about the role the Government will take to pay reparations to those who are economically impacted.

The ESIA does not suggest any entity responsible for ensuring the risks outlined are addressed seriously. Mitigation efforts are not established as a legal responsibility to the citizens who are economically impacted by the Canal Project. An Environmental and Social Management System has still not been developed. Addressing this System will hopefully address the risk concerns of the Canal. Without addressing the risk concerns the Environmental and Social Management System will be incomplete. The ESIA shows no evidence of any entity or entities who will assume responsibility for the possibility of economic damage as a result of the Canal. The ESIA does not address Article 143 of the General Environmental Laws of Nicaragua.

Avoidance of Impacts Must Precede Exemption of Liability for Damages

Title V, Chapter II, Article 144. - the exemption from liability for damages caused, will only take place when it is established that they occurred despite all measures to avoid been adopted.

Article 144 required proof that all precautions were taken into account and implemented to prevent damages to the environment of Nicaragua. If all precautions

were proven to be exercised after damages were still incurred, exemption from liability will be attained.

In cases when damages occur, the environmental laws dictate that a person or persons must be held accountable. Within the ESIA, the Canal consistently identifies areas where no plan has been adopted to mitigate damages, there is no clear direction of gains or losses, and the need for more specific plans to be created. The ESIA states that the Canal is still at the Feasibility Study level of the Project implementation process and identified that more studies are required to commit to the final design and appropriately determine the impacts and mitigation measures needed. Not only does the ESIA state that there are no clear identifiers that the Canal will achieve no net loss, but it also states that there are no clear identifiers that it can achieve a net gain for biodiversity.

To address this, a robust Biodiversity Offset Management Plan has been suggested. The consultation with experts is suggested to ensure that the Biodiversity Offset Management Plan includes an impact-mitigation accounting that will address losses and gains, and recommendations to fill gaps. The Biodiversity Offset Management Plan would also address the physical and chemical characteristics of sediment in Lake Nicaragua as well as the waste rock for acid rock drainage. Both, of which are not adequately addressed or include any mitigation processes to alleviate the damage to be endured.

The ESIA sees a Livelihood Restoration and Compensation Plan useful to address man issues, including economically displaced people, farming and ranching property, and the value and functionality for all priority ecosystems for subsistence and commercial resources. A Livelihood Restoration and Compensation Plan has not been created as of yet.

The ESIA shows no evidence how it will address any damages caused directly or indirectly from the construction of the Canal. While they have identified multiple plans that could help to address the losses and damages, the plans are not yet constructed. The resources, studies, evaluations, and implementations of multiple plans that are needed to address any damages that might incur will take an abundant amount of time to complete, especially if done correctly. It is apparent that the ESIA has highlighted areas that are missing completed, or even started, the process of how to address problems that will, or may, arise throughout the process. According to the Environmental Laws, the Canal needs to ensure they have done their due diligence to prevent damages. The ESIA does not fulfill Article 144 of Nicaragua's Environmental Law No. 217.

Chapter 5

CONCLUSIONS

CONCLUSION

Of the eight articles analyzed, six of the eight do not comply with Nicaragua's environmental laws outlined in Law No. 217.

For two of the articles, 21 and 26, found sufficient information was found within the ESIA to conclude that they had been represented to the standards of Law No. 217. Articles 21 and 26 both fall under Title II, Environmental Management, and Chapter II, Instruments for Environmental Management of Law No. 217. Both articles refer to management systems of authority for environmental concerns. The articles require that certain processes are in place. It does not require their type of application, consistency, or usefulness of the processes.

Article 21 assigns management of environmental issues to be oversought by the protections and surveillance of MARENA. The ESIA acknowledges the utility MARENA provides to the Canal Project. The ESIA outlines the use of MARENA and in areas even shows allocation of duties to plans that have not yet been constructed. The ESIA shows its intent in using the services of MARENA. Processes still need to be developed where MARENA would be able to assist. It is not yet clear how much operation they will give or how cooperative the Canal Project will be with working with MARENA. Intentions for the use of MARENA are evident in the ESIA, which complies with Article 21, so far. It remains to be seen how well the Canal Project follows the outline of the ESIA.

Article 26 requires that all investments are subject to studies and environmental impact assessments. Clearly, by having access to an ESIA to evaluate there is some inherent unity to the law under Article 26. The conversation around the validity and thoroughness of the ESIA is not conclusive. There are presented doubts about the process and timeline circling the ESIA and approval process. While the product of an ESIA is formulated for the Canal, the confidence in the functionality of the assessment is called into question. Article 26 does not dissect the comprehensiveness, or public acceptance of an environmental assessment performed. It simply requires that studies and environmental impact assessments are completed.

Six articles were found to have insufficient evidence within the ESIA to be able to support the requirement of Law No. 217, Articles 12, 18, 19, 109, 143 and 144. The common thread of these six articles, compared to the two articles that did achieve compliance, is that they are rooted in communication, preservation, and accountability.

Article 12 is defined under Title II Environmental Management, Chapter II Instruments for Environmental Management, Section I Planning and Legislation. Article 12 identifies open collaboration to public participation and requires environmental component to be integrated into economic and social projects and programs. All

project and programs are obligated to prevent deterioration and extinction to the environment and natural resources. The ESIA is clear about the necessity of an Environmental and Social Management and Monitoring Plan and the inclusion of environmental plans that include environmental mitigation measures. The mitigation measures would need to clearly and successfully address the requirement of “no irreversible involvement and protection and restoration of the environmental resources natural to avoid deterioration and extinction” section of the article.

Two more articles that are not addressed in the ESIA are Articles 18 and 19. Both articles are under Title II Environmental Management, Chapter II Instruments for Environmental Management, Section III Protected Areas. These articles are crucial to the future of protected areas. Article 18 provides a declaration to protected natural areas. The ESIA does not show any respect to the assertion of security for the areas identified as protected. The number of areas the Canal comes in contact with is undoubtedly high. For the Canal to promptly respect for Article 18, routes would need to be reconsidered. However, virtually any route of the Canal would involve collision with protected areas, although routes that avoided bisection would be on minimal standard of protection to uphold. None of the proposed routes meet even this minimal standard.

Article 19 officially positions inhabitants and indigenous populations as the official guardians of protected areas. This article lawfully gives a systematic voice to the people who live in protected areas as conservators of the areas. Their opinions, participation, and voices are to be recognized and respected in conversations concerning their land. The exclusion of their rights in the Canal planning process is a violation of Article 19. There are many opportunities for the Canal to hear contributions from the inhabitants of the land. Engaging with these populations is a step forward in incorporating Article 19 into the ESIA.

Article 109 also is not expressed in the ESIA. It is under Title IV Environmental Quality, Chapter I Common Rules. The Common Rule of Article 109 establishes the “right to enjoy a health environment of natural landscapes and the duty to contribute to its preservation.” The government has a duty to ensure the natural environment is able to support its citizen’s health and wellbeing. This article makes a correlation of the health of the environment as directly related to the health of the people. Therefore, destruction of the environment would have an adverse effect on the health and quality of life for the people. The Canal is such an extensive infrastructure project that it would intensely overshadow the natural environment of Nicaragua. Yet the relationship between a healthy natural landscape and a healthy population is absent from the discussion in the ESIA. If the Canal applied Article 109 to the ESIA, the result of the Project would drastically change.

Article 144 can be connected to Article 143. Article 144 marks it necessary for the Canal to take all measures essential to decreasing risk of damages. Only if all measures were taken, will liability for damages be exempt from liability. The ESIA does not prove consideration for all measures, or provide action for the risks assessed. Various plans are missing for effective alleviation of issues. It is important for the ESIA to complete the plans suggested to prove the completeness of the assessment,

and to prove that all measures were fully considered, evaluated and applied. Completion of the missing plans need to applied before any physical construction of the Canal can begin for the ESIA to show true and full compliance with Article 144.

While this assessment of the Canal shows that there are areas of the ESIA that adhere to the regulations listed in Law No. 217, it also shows a severe imbalance of commitment to the environmental laws of Nicaragua. Six of eight of the articles assessed show no compliance to the environmental law. The Canal is the largest infrastructure investment to be seen in Nicaragua, and indeed much of the world. The environmental impact to Nicaragua will have long lasting impacts to biodiversity, human cultural diversity, and the capacity of the environment to support human well-being. The environmental laws provide recognition of the importance of the environment to Nicaragua. The Canal needs to fully comply with the laws in all infrastructure planning to ensure not only legal compliance, but respect to the natural lands and inhabitants of Nicaragua.

LIMITATIONS OF THE STUDY

I chose to do my research without taking into account Law No. 800. Law No. 800 is the Legal Regime of the Nicaraguan Interoceanic Grand Canal and the creation of the Nicaragua Interoceanic Canal Authority. It was enacted in July of 2012. This law designated the framework for the Nicaragua Canal. Under this law, the Nicaraguan Interoceanic Grand Canal Authority was created as the representative of the Nicaraguan Government. Under Law No. 800, it is guaranteed that the Canal would remain open under all circumstances as it is regarded as a national priority and safeguarded as the highest national interest. Law No. 800 also outlines the rights to natural resources for the benefit of the Canal. While the law secures Nicaragua 51 percent share of the Canal Project, there has been debate about the legality of this, and other aspects of the law, to which current lawsuits are filed (Wade 2015).

I chose to move forward with my research without taking into account Law No. 800, because there are ways in which Law No. 800 over-rides previous legislation. By focusing on Law No. 217, I was able to evaluate how the ESIA compares to a law that was established before the Canal became a project of high national interest

FUTURE STUDIES

The Canal is not at a point where its probable impacts can be evaluated accurately. I see future research being focused in different areas. I believe more research concerning the biodiversity and ecological environment of Nicaragua will be useful in helping to preserve protected areas. Nicaragua has many spaces that researches are still learning and discovering. By supporting and continuing to research the environmental capacity of Nicaragua, we can help to promote Nicaragua as an international leader in environmental conservation. Nicaragua has sufficient laws in place to protect its natural heritage, if they are applied. Additional research into the impacts on biodiversity can give context to the laws to help enforce the regulations already established.

I see much promise in further research and a stronger focus to support local and indigenous rights. The more the citizens of Nicaragua evaluate and enforce their rights, the more power they will have over their own lands and their lives. I think it's important not to discount the energy and attention necessary needed to progress the rights of the people. I believe more research is needed for the population to gain full understanding of their rights with respect to the Canal.

Finally, more research could be done in other areas where canals have already been built. For this reason, Ashley Carse's research is of critical importance in helping better understand what the future may hold for Nicaragua if the Canal is built. Even though the Panama Canal is roughly 3.5 times smaller than the proposed route of the Nicaragua Canal, the environmental implications and concerns brought forth in Panama should cast grave doubt on the project.

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Appendix

DATA MATRIX: Mapping of Core Elements of Law No. 217 and the ESIA

Article of Law No. 217	Does ESIA Support Law No. 217?	Where Found in ESIA	What ESIA Says
<p>Title II, Chapter II, Section I, Article 12. - planning national, regional and municipal development of the country should integrate environmental elements into their plans, programs and economic and social projects, respecting the principles of openness and public participation. Within the scope of its jurisdiction, all agencies of government, decentralized agencies and municipal authorities should anticipate and plan no irreversible involvement and protection and restoration of the environment and natural resources to prevent deterioration and extinction.</p>	NO	NOTES	<p>NOTES: Under Chapter 3 Project Description, I see no consideration for incorporating environmental elements into plans</p>
		<p>Volume 3, 7.1.1</p>	<p>Embedded control consists of measure sand control included in the Project design (see Section 3, Project Description). Many of these are minimum standards, best practices, and customary activities and plans for environmental management and conformance to minimum international performance standards. These control are accounted for in the pre-mitigation impact significance ratings defined in this impact assessment and are not considered as mitigation. Further, because they are considered part of the Project design, they are not individually discussed in the impact assessment unless there is a specific reason for doing so. Each embedded control would provide a specific function (e.g., minimize emissions, control erosion and sedimentation, etc.). Some measures are directly related to biodiversity receptors (e.g., vegetation or marine mammals), while others indirectly minimize impacts to biodiversity by controlling impacts on a physical habitat component (e.g., air or water quality). Many embedded controls provide multiple functions. Table 7.1-2 presents the embedded controls that relate to marine, freshwater, and/or terrestrial biodiversity.</p>

		Volume 5, 13.4	<p>The Project ESMMMP will be prepared to address both the construction and operations phases for the key Project activities and issues identified in the ESIA, and these set out management strategies in accordance with proposed performance criteria for specified acceptable levels of environmental and social performance. The individual management plans for the Project will identify:</p> <ul style="list-style-type: none"> • Potential impacts on environmental receptors and social values • Mitigation strategies • Performance monitoring • Indicators and performance criteria • Reporting requirements • Appropriate corrective actions should be an undesirable impact or unforeseen level of impact occurs. <p>HKND is committed to providing resources essential to the implementation and control of the ESMMMP and is in the process of developing a comprehensive Environmental and Social management and Monitoring System.</p>
		Volume 5, 14.1-1	<p>Consultation and information sharing with people potentially subject to involuntary resettlement has been especially inadequate</p>
		Volume 5, 14.1-1	<p>The Project has not implemented an effective Informed Consultation and Participation Process and the Project does not appear to have "Broad community support" by Project Affected Communities, as required by international standards.</p>
<p>Title II, Chapter II, Section III, Article 18. The establishment and legal declaration of protected natural areas, has the fundamental objective:</p> <ol style="list-style-type: none"> 1) To preserve natural ecosystems representative of biogeographical and ecological regions of the country. 2) Protect watersheds, hydrologic cycle, groundwater, samples of biotic communities, genetic resources and genetic diversity of wild flora and fauna. 	NO	Volume 1, 5.8-1	<p>There are 78 protected areas and 22 municipio reserves in Nicaragua, 24 of which lie within or occur near the Study Area (see Figure 5.8-1 and Table 5.8-1). Of these, four are internationally recognized areas, including two biosphere reserves and two wetlands of international importance ("Ramsar sites" based on the Ramsar Convention). The remaining 20 areas are nationally designated and include eight nature, ten private, and two municipio reserves (Table 5.8-1).</p>

<p>3) Encourage the development of appropriate improvement and rational and sustainable use of natural ecosystems technologies.</p> <p>4) To protect natural landscapes and environments of historical, archaeological and artistic monuments.</p> <p>5) To promote recreational and tourism activities in harmony with nature.</p> <p>6) Encourage environmental education, scientific research and the study of ecosystems.</p>		<p>Volume 5, 11.2-20</p>	<p>Overall, Project construction would result in the loss of conversion of approximately 125,200 hectares of terrestrial, freshwater, and marine habitats, including approximately 103,400 hectares of terrestrial habitat, about 19,600 hectares of Lago de Nicaragua, about 2,200 hectares of marine habitat, and about 1,650 river kilometers of freshwater and estuarine Habitats. Much of the terrestrial habitat loss would occur in already degraded areas (e.g., pasture or other human-modified land cover) but roughly 30 percent would occur in high and exception quality habitats, including primary forest</p>
		<p>Volume 5, 11.2-20</p>	<p>It is clear that the remaining intact natural areas in southeast Nicaragua, within the Project area and outside it within the protected areas, are highly vulnerable, Encroachment into even these repost areas is already happening without the Project. The full and successful implementation of the mitigation measures defined in chapter 7, Biodiversity Impact Assessment, could decelerate or even reverse these regional trends. Without this, the Project would be expected to significantly accelerate these regional trends</p>
		<p>Volume 5, 14.1-1</p>	<p>All routes for a Canal de Nicaragua through the Study Area would have Significant environmental and social impacts, as essentially all the economically feasible routes would need to traverse internationally recognized protected areas, legally-recognized indigenous lands, and Lago de Nicaragua, all of which under normal situations would be considered no-go areas.</p>
<p>Title II, Chapter II, Section III, Article 19.-The inhabitants of protected areas will be incorporated into and deemed the true watchers of those sites, given all rights and guarantees to which they are entitled.</p>	<p>NO</p>	<p>Volume 5, 14.1-28</p>	<p>ERM-Recommended Additional Mitigation Measures: Consult with key stakeholders regarding offset mitigation for impacts that cannot be mitigated with site-specific measures.</p>

Volume 5, 14.1-28	<p>ERM-Recommended Additional Mitigation Measures:</p> <ul style="list-style-type: none"> • HKND should actively support and ensure that consultation with the Nohoa and Rama and Kriol Territorial Government (GTR-K) are in accordance with Nicaraguan law, ILO 169, and international standards, and free Prior and informed Consent should be secured before any canal construction begins. • Further explore options to avoid or minimized impacts on the indigenous traditional lands and avoid resettlement of indigenous people. • Coordinate with the Government of Nicaragua to ensure that any indigenous people who need to be displaced are resettled in a single communal, geographically continuous territory allowing for the same level of physical proximity and cohesion, and which allows for continued communal land ownership and attachment, if they so desire. • Engage in robust stakeholder consultation with the GTR-k to identify measures to ensure preservation of the Rama Language. • Build community partnerships and investments to support the passing of traditional knowledge through culturally appropriate means determined the GTR-K through engagement and consultation. • Providing training to local communities on grievance mechanism use
Volume 5, 14.1-28	Consult with the indigenous people to identity, protect and or mitigate any impacts to specific sites of cultural value and intangible cultural importance

Volume 5, 14.1-27	<p>ERM-Recommended Additional Mitigation Measures</p> <ul style="list-style-type: none"> • Compensating both property owners and tenants such that they are equal to or better off than they were prior to expropriation; • Ensure security of tenure for all replacement housing and land-for-land compensation by registering land titles with the Urban or Rural Titling Office; • Provide transitional allowances to any households that would be displaced prior to the availability of replacement housing; • Provide additional non-monetary resettlement assistance as necessary to vulnerable groups throughout the engagement, displacement, resettlement, compensation, and livelihood restoration process; • Provide reasonable relocation costs to vulnerable populations such as tenants, encroachers, and squatters who may be particularly vulnerable due to lack of formal legal right or land title
Volume 5, 14.1-30	Has not yet established an Environmental and Social management system (ESMS)
Volume 5, 14.1-31	Inadequate engagement with physically and economically displaced persons. Consult and share relevant information with physically and economically displaced persons.
Volume 5, 14.1-31	Law 840 allows for compensation at below full replacement cost. A Settlement Action Plan meeting international standards has not been made available. Complete a RAP that meets international standards, including appropriate consultation with physically displaced person. Ensure selection of resettlement locations do not conflict with other proposed mitigation measures.
Volume 6, PI-6	NOTES: The Indigenous People Plan must be implemented.
Volume 5, 14.1-1	Additional efforts are needed to help stakeholder better understand the Project and the extent to which they and other resources of interest would be affected by the project.
Volume 5, 14.1-27	ERM-Recommended Additional Mitigation Measures: Providing training to local communities on grievance mechanism use

Volume 5, 14.1-30	Stakeholders engagement has not been commensurate with Project's potential Impacts. HKND needs to meet with affected parties for meaningful consultation, possibly using a third party facilitator to rebuild trust.
Volume 5, 14.1-30	No evidence of an Informed Consultation and Participation process with Project Affected Communities given the potentially significant Impacts. Immediately establish an ICP Process with Project affected Communities, perhaps using a neutral third party to help restore trust, to work toward achieving broad community support.
Volume 6, 5.4, 124	In general, the community wants more information regarding the projects activities, in particular considers taken in defining the canal route. For the local population, it is particularly important the company take into account the direct and indirect impacts that the Project, and its associated facilities, may have upon their natural resource use areas, especially fishing areas. As indicated by participants in the meeting at Monkey Point: "(...) We are surprised because one impact study was done for the route, but not for the other areas parallel to the canal, such as ports, and I imagine that they will build homes for workers of a town for them to live in. that is what the study has yielded. The ecosystem will be affected. On the other hand, fishing, the nearest ricer with abundant flow is Punta Gorda, where many species are caught. So, what will happen in these two communities?" This needs to include Punta de Aguila.

	Volume 6, PI-6, 124	<p>In order to complete the IPP, the recommendations cited as follows should be taken into consideration.</p> <ol style="list-style-type: none"> 1. Promote the development of a Meeting with the GTR-K and with the representatives from each of the nine communities, in order to present the impacts that the project may have upon the community, and to set forth possible management measures for prevention, mitigation and/or compensation aimed at managing identified impacts, as well and establishing the position of each community in regards to implementation of the Nicaragua Canal Project. 2. Propose a resettlement plan and reach an agreement regarding the communities to will be resettles as well as impact mitigation, taking into account the social and cultural particularities of indigenous and ethnic people. In addition, obtain permission form the GTR-K for use of the territory and to begin project construction. Without explicit permission from the GTR-K it is not recommended that construction begin. 3. This meeting must include participation by representatives from the Hong Kong-Nicaragua Development Group (HKND), as Project executors and those responsible for the implementation of environmental administration and management plans representatives from the Nicaraguan Government, as guarantors of the duties and rights of the country's ethnic communities, must also be present. 4. Carry out a detailed study of the Nahoia communities of the Nicaraguan Pacific under the same working approach outlines in the document for the Rama-Kriol. Promote and implement an ethnic communities plan which is adequate for the Nahoia located on the Nicaraguan Pacific; which, while they do not currently have a duty demarcated and legalized collective territory are nonetheless recognized as minority ethnic communities that possess unique customs, traditions, forms of organization and governments furthermore, due to their locations in relation to the canal, it is possible that some Nahoia communities may be resettled.
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<p>Title II, Chapter II, Section III, Article 21.- All activities carried out in protected areas necessarily be carried out according to management plans supervised by the MARENA, which shall conform to the categories established for each area. Both in achieving the objectives of protection and surveillance management and will seek to integrate the community.</p>	YES	Volume 1, 2.2-1	MARENA is the national competent authority created by the Government of Nicaragua for the purpose of protecting Nicaragua's environment and natural resources. Pursuant to Law No. 217, the General Law on the Environment and natural Resources and other current legislation (as mentioned in Section 2.1.1 above), MARENA is the entity charged with regulation, formulation of standards, environmental monitoring and quality control, the management and sustainable use of renewable and non-renewable natural resources, and administrative sanctions for the violation of environmental standards, in coordination with other state organizations and the relevant regional authorities. MARENA oversees the environmental permits for Category I projects (see Section 2.3), as well as conservation projects for catchment basins, the habitat, wildlife, and the national parks.
		Volume 1, 2.3-1	As stipulated in Article 6 of Decree No. 76-2006, category I projects (such as this Project), are administered by the MARENA Central official through the General Department of Environmental Quality, in coordination with the pertinent Sectoral Environment Units, MARENA's Territorial Delegations, and the Municipal governments, according to the specific case and type of work, project, industry, or activity.
		Volume 5, 13.1-1	The ESMMP is an evolving document that will be refined and adjusted throughout the life of the Project. Revisions may be required during the ESIA approval process and as a result of specific conditions requested by the MARENA
<p>Title II, Chapter II, Section IV, Article 26.- The activities, works or public or private projects of national or foreign investment during its preliminary stage, implementation, expansion, rehabilitation or conversion will be</p>	YES	NOTES	NOTES: While an ESIA Study was completed it was initiated retrospectively after the agreement and signed concession of the construction of the canal in 2013

subject to studies and environmental impact assessment, as a requirement for granting environmental permits.

Those who do not meet the requirements, recommendations or controls that are set will be sanctioned by the Ministry of Environment and Natural Resources. The cost of the environmental impact study will be conducted by interested in developing the work or project.

Volume
1, 1.1-1

"The Government of Nicaragua and the company HK-Nicaragua Canal Development Investment Co., Limited (together with Empresa Desarrolladora de Grandes Infraestructuras S.A. and its other affiliates, [HKND]), are assessing the technical, economic, social, and environmental feasibility for the construction of an interoceanic canal through Nicaragua (Canal de Nicaragua [Project]). For this reason, on 5 September 2012, HKND signed a Memorandum of Understand with the Government of Nicaragua, which granted HKND to exclusive right to structure and manage the financing of the canal and to undertake construction, operation, and administration of the canal. On 13 June 2013, the Nicaragua National Assembly ratified the exclusive commercial agreement between the Government of Nicaragua and HKND to develop and Project.

According to the provisions of Decree No. 76-2006 and its implementing procedure (see Chapter 2, Legal and Administrative Framework), Nicaragua's legal framework requires this Environmental and Social Impact Assessment (ESIA) to be prepared for the Project in order to identify and assess the possible environmental, social, and economic impacts of the construction and operation of the canal.

HKND, and the Projects sponsor, is responsible for the preparation of the Project's ESIA. HKND has contracted the services of Environmental Resources Management (ERM) to conduct the correspond studies and prepare the ESIA (See Section 1.1.1, Consultants).

In addition to the requirements of the Government of Nicaragua, HKND has committed to complying with good practices recognized worldwide, offering important benefits to Nicaragua and its population, generating employment and economic development, and paying tribute to the local population and national heritage throughout the Project's development. The ESIA has been prepared according to Nicaraguan and international practices, and the corporate standards of HKND as defined in Chapter 2, Legal and Administrative Framework.

		Volume 1, 1.1-3	<p>ERM is the global sustainability consultancy contracted by HKND to provide an independent evaluation of the environmental and social impacts of the proposed Project and to advise HKND on international environmental and social norms. In the role as Environmental and Social Consultant, ERM's intent is to:</p> <ul style="list-style-type: none"> • Provide independent advice regarding international best practices for managing environmental and social impacts of the proposed Project • Commit to an open and transparent ESIA process - carefully consider the suggestions and concerns of the interest parties, and collaborate with groups of independent experts that could be establish to review the proposed Project • Lease the preparation of an ESIA report that will provide the government and citizens of Nicaragua, as well as the interested parties, with independent, objective, and scientifically based information with which to make informed decisions about the projects merits. <p>ERM was contracted under the understanding that HKND would commit to comply with international standards and that it would evaluate the proposed Project in relations to generally accepted international best practices.ERM is not responsible for the design of the Project, which is the responsibility of HKND and its team of engineers, or to approve/deny the Project, which is the responsibility of the Government of Nicaragua.</p>
Title IV, Chapter I, Article 109. All citizens have the right to enjoy a healthy environment of natural landscapes and the duty to contribute to its preservation. The State has a duty to ensure the prevention of adverse environmental factors affecting health and quality of life of the population, establishing the measures or rules concerned.	NO	Volume 1, 2.3-3	The Public hearing process should involve the Autonomous Regional Counsels, institutions, sectorial organizations, and municipal governments involved, as well as community leaders, ethnic and indigenous communities, local businesses, and coaciency in general, in particular those who may be positively or negatively affected by the project.

	Volume 5, 14.1-7	<p>Project Costs (Impacts)The major unavoidable adverse impacts would include:</p> <ul style="list-style-type: none"> • Loss of intact primary and secondary rainforest; • Fragmentation of the Mesoamerican Biological Corridor, functioning as a barrier to animal movement and gene flow, and isolation of populations; • Conversion of the ecology diverse Rio Punta Gorda from a natural free flowing river to a system of locks, canals, and impoundments; • Loss of some nesting, foraging, and migratory habitat for critically endangered and endangered sea turtles; • Loss of individuals or several Critically Endangered and Endangered species; • Introduction of invasive species into the Rio Punta Gorda river system; • Increased sediment loads into the Pacific Ocean, Caribbean Sea, and Lago de Nicaragua during construction; • Physical division of Nicaragua into areas north and south of the canal, with associated reductions in access and connectivity; • Physical and economic displacement of approximately 30,000 people; and • Displacement of the Rama village that still speaks the native language. <p>In addition to these known impacts, the Project would also increase the risk of other impacts occurring, including:</p> <ul style="list-style-type: none"> • Increased risk of influx and induced development in ecological and culturally sensitive areas, such as the eastern Caribbean rainforest and adjacent coastal area; • Increased risk of spills in, and introduction of invasive species to, Lago de Nicaragua, and the Pacific and Caribbean coastal areas; • Increased risk of localized deterioration of Lago de Nicaragua water quality as a result of initial and on-going maintenance dredging and resuspension of sediment by ship traffic; • Increased risk of marine mammal and turtle ship strikes because of increased shipping activity in known migratory, foraging, and nesting areas; • Increased prevalence of human trafficking and associated sexually transmitted disease as a result of influx; and • Decrease in social cohesion, community identity, safety and security, and strain on infrastructure due to anticipated influx near both port and near worker camps.
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<p>Title IV, Chapter I, Article 143. When in the commission of the act involving two or more people, they are collectively responsible for all the damages caused economic damage. In the case of legal persons, the liability under this article preliminary investigation be established to determine the persons involved in this damage. In the case of legal persons created ad hoc and cause such damage, the competent authority shall investigate the levels of responsibility third in this simulation contract.</p>	NO	Volume 1, 2.2.5	<p>HKND is the company responsible for the construction of the Project. Throughout the Project's life cycle, HKND has committed to the Nicaraguan nation, including its people and its ecosystem, to meet the following objectives:</p> <ul style="list-style-type: none"> • To provide significant benefits to Nicaragua and its people; • To protect the natural ecosystems and wildlife of Nicaragua; • To serve the best interest of the region; • To generate local training and employment growth and to stimulate local and regional economic development; • To respect the local population, culture, and the heritage of the country; and • To facilitate the efficient flow of trade and international maritime transport
		Volume 5, 11.2.-27	<p>Loss of access to land used for farming and ranching would affect households across most of the canal route. Farmers and ranchers who lose access to land would be compensated for their land as part of the expropriation process: however, according to Law 840 they may not receive fair market value. HKND also proposes to return temporarily expropriated farmland back to farmers in similar or better condition than when it was expropriated, and to rehabilitate the EMPAs along the canal route for agriculture and forestry purposes. As the LRCF has not yet been prepared and formal consultation with affected people has not occurred, the level of proposed mitigation measures related to effects on land-based livelihoods is unknown. Vulnerable groups that may be impacted more significantly by economic displacement include poor households, people who are heavily dependent upon communal and forest resources, and households with insecure land tenure, who may not be fully compensated for land take.</p>
		Volume 5, 14.1-11	<p>The Project, however, is fraught with risks. If the Project is not constructed in accordance with international good practice and the proposed mitigation measures are not properly implemented, or if the Project's business case is not realized and the predicted longer term indirect and induced benefits from the Project do not occur; or if constructions of the canal is not completed, Nicaragua may be worse off than doing nothing.</p>

		Volume 5, 14.1-30	Has not yet established and Environmental and Social management system (ESMS). Develop and implement ESMS.
Title IV, Chapter I, Article 144. the exemption from liability for damages caused, will only take place when it is established that they occurred despite all measures to avoid been adopted.	NO	Volume 5, 14.1-2	The Project is still at an early Feasibility Study level of design and additional studies are required to finalize the design, so that Project impacts and the adequacy of proposed mitigation measures can be conclusively determined.
		Volume 5, 14.1-31	Has not adequately characterized the physical and chemical characteristics of sediment in Lago de Nicaragua. Characterized Lago de Nicaragua sediment stratigraphy and chemical/ physical properties to support dredging design strategy.
		Volume 5, 14.1-31	Has not yet characterized waste rock for the potential to generate acid rock drainage. Characterize waste rock for acid rock drainage potential and develop a management plan is necessary.
		Volume 5, 14.1-31	Proposed mitigation does not adequately address the value and functionality for all priority ecosystem services. Development of Livelihood Restoration Plan to include both subsistence and commercial resources use.
		Volume 5, 14.1-31	It is not clear if Project can achieve no net loss over a reasonable period of time. Implement a robust biodiversity management and monitoring program including adaptive management and expert oversight.
		Volume 5, 14.1-31	It is not clear that the Project could achieve net gain for the biodiversity values in critical Habitat. The Project would unavoidably impact primary rainforest and the Rio Punta Gorda, which have biodiversity values which cannot be replaced. Develop a robust Biodiversity Offset Management Plan in consultation with experts that includes impact-mitigation accounting to quantify losses and potential gains and includes recommendations to fill any gaps.
		Volume 5, 14.1-31	A Livelihood Restoration and Compensation Plan has not yet been prepared. Prepare a Livelihood Restoration and Compensation Plan for Economically displaced people.