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The Place in Displacement: Stories of Loss from the Chan-75 Dam

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Thesis Summary

In 2008, AES (a U.S.-based, Fortune 500 power company) began construction on the Chan-75 dam in Nance del Risco, Panama. This dam flooded and displaced four indigenous Ngobe communities. However, this displacement represents more than just a relocation of people; it represents a fracturing of families and communities. While some impacts of displacement are obvious, other aspects of day-to-day loss are often ignored. Changes in family relations and sense of control, for example, cannot possibly be compensated by a corporation. This thesis examines both the history of the Chan-75 dam and the impacts its construction has had on one family.

Introduction

Francisco, the father of the Santos family, and I sit on the concrete porch of his new house. We look out over the large reservoir ahead of us (Figure 1). Underneath that reservoir, is Francisco's old farm. He points to where his old house used to be. Then, Francisco tells me about how the dam has changed his life:

Before the dam, life was peaceful. We did not worry about food or money. My family lived together in one house in the plains around the river. Now, our old house and farm are flooded, and [my family] cannot see each other. We are too far apart.

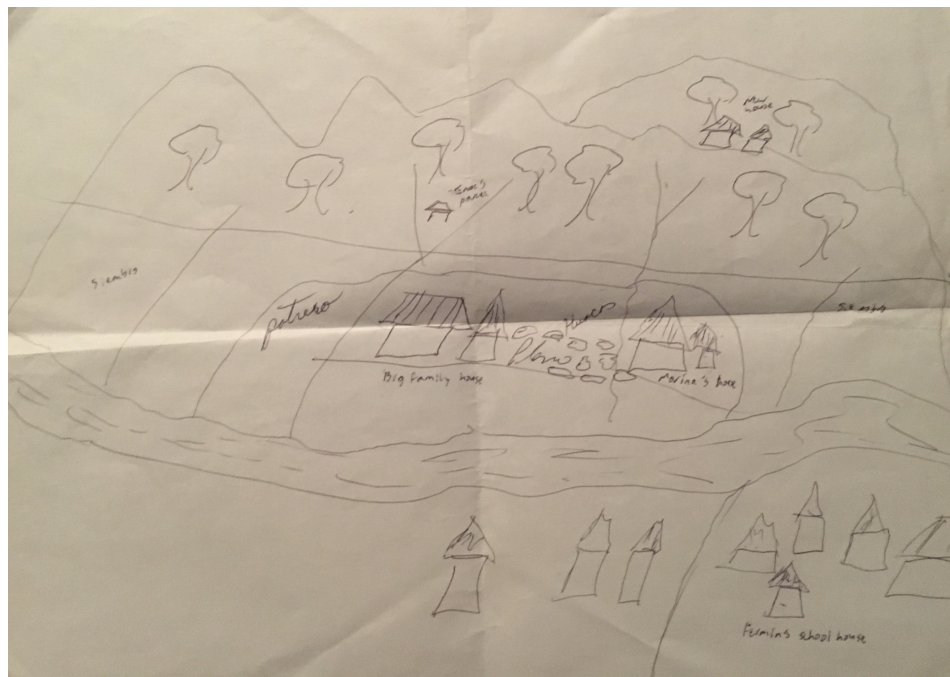
He shows me the deed to his old farm. According to the Panamanian Ministry of the Environment, this deed is worthless. It has been ten years since construction of the Chan-75 dam began and eight since the reservoir filled (Figure 2).

In 1980, Francisco bought an 83-hectare farm along the Changuinola River. He, his wife, and their nine children lived together on this farm. The Santos family was also one of the founding families of the community of Valle el Rey. Because of that, they were well respected by their neighbors. Francisco never told me where they lived before he bought the farm in Valle el Rey. When Francisco moved to the farm, he was 38 years old, and his wife was 23 years old. Of their nine children, only their eldest three daughters had been born, and the eldest of these three was only 7 years old. Their remaining daughter and five sons were all born on their old farm. Today, their children range from 44 years old to 15 years old, and they have 26 grandchildren and 2 greatgrandchildren. Francisco emphasized to me that, had the Chan-75 dam not been built, they would all still be living together on their old farm.

Francisco described the layout of their old farm to me. The farm had two sections: the plains and the mountains. The plains followed the river and represented the flat, fertile ground.

When the land grew too steep and could not be used for agriculture or pasture, the Santos family considered it the mountains. The 28 hectares of their old farm that flooded were the plains, while the 55 hectares that remained above the reservoir were the mountains. The Santos family lived and worked in the plains because they were relatively flat and near the river. One morning, as we looked out over the reservoir, Francisco told me how important the river was to his family:

Before, we lived lower on the mountain, very close to the river. The river was very beautiful. [My family] washed our clothes in it. We bathed in it. We ate from it. It had many fish of many different types then.



Map 1: Francisco Santos drew this map. It shows the state of his old farm before and after the dam. The line represents both the distinction between the plains and the current water level of the reservoir.

In the plains, they had both pasture and agriculture. In the pasture, they had 16-18 cows, 4-5 horses, 12-14 pigs, and 80-90 chickens. They also grew a wide variety of plants including bananas, plantains, taro, yucca, pineapple, yams, yampee, cacao, coconuts, oranges, and other

vegetables. 7 to 8 “huacas,” or large boulders carved by the Ngobe long ago, rested in the plains of their farm as well.

On the other hand, they conserved the forests in the mountains that loomed over their farm; Francisco emphasized the importance of these forests to his family. The mountains were steep and densely forested. The forests were the source of the wood from which they built their houses. Four streams ran from the mountains, through the plains, and into the river. Because the Santos family had no irrigation for their farm, the streams from the mountains were the primary source of water for both their agriculture and their animals. These streams were also the source of their drinking water. The wild animals that lived in the forest were an important source of food. As Francisco described:

Back then, there was sufficient water. There was sufficient food. There was sufficient space for my family. Today, we have none of these things.

In 2005, representatives of AES (a Fortune 500, United States-based electrical power company), with the support of the Panamanian government, visited the Santos family in Valle el Rey. They told Francisco that they were building a hydroelectric dam and that his family would have to move, but they promised that he and his family would be given a better life. In 2008, AES brought Francisco to Panama City for formal negotiations. In compensation for their flooded land, the Santos family received two houses in the replacement community for Valle el Rey, built in the mountains approximately 200 meters above the reservoir (Figure 3). They also received what they described as “platita,” or a small amount of money. For their neighbors, compensation ranged from single houses to \$5,000 to nothing, seemingly at random. That money quickly “se fue,” or was gone.

Today, the community of Valle el Rey and most of their old farm is underwater, and Francisco’s family is fractured across Panama. Collectively, the Santos family now own 10.5

hectares of farmland, split between two farms, compared to the 83 hectares they owned before. Although the 55 hectares of the mountains of their old farm remain above the water, AES now owns the land and forbids them from using it. That said, they have made small patches of agriculture and pasture, hidden within the forests. They also now have four houses in four different communities that are hours apart. Many of Francisco's children struggle to earn enough money and eat enough food.

I lived with the Santos family for two weeks, visiting all of their farms and homes (both old and new). During that time, I interviewed nine members of the Santos family and members of six other families from the affected communities. The Santos family's story is not uncommon among those displaced by dams. What is interesting me is the depth of their story. Their story is about more than simply loss of land. It is about loss of family, loss of community, and loss of control. In this article, I want to explore what their stories mean in the larger context of dams and displacement.

First, I will give a brief overview of the literature of dams and displacement and a brief history of the Chan-75 dam. Then, I will discuss the different types of loss the Santos family have faced because of the Chan-75 dam. They have suffered from losses that are both legible and illegible within the framework of hydroelectric dams. Next, I will discuss some of the different types of "place" that are contained within the idea of displacement. Finally, I will talk a little bit about what these losses mean and what it would mean to truly account for them.

Literature Review

There are an estimated 800,000 small dams and 50,000 large dams in the world (Aiken & Leigh, 2015). More than 60% of the world's rivers have been impacted by dams and diversions (WCD, 2000). Dams are widely regarded as symbols of development and modernization and are

often touted as sources of cheap, renewable energy (Aiken & Leigh, 2015). States and corporations use dams as sources of power and profit. Nonetheless, dams have enormous social costs; displacement is one cause of these costs.

For the state, hydroelectric dams are a means of commodification and of extending control into rural areas (Bakker, 1999). They shift power to the state without equally distributing the costs and benefits and, in the Global South, almost always require foreign investment and knowledge (Bakker, 1999). They are also a way to create and alter the social, economic, and political spaces in which they are built (Hommes, 2016). As Arundhati Roy said, regarding the Narmada dam in India:

Big Dams are to a Nation's 'Development' what Nuclear Bombs are to its Military Arsenal. They're both weapons of mass destruction. They're both weapons Governments use to control their own people (1999).

For the dam industry hydroelectric dams are a means of profit. As the costs of preventing or reducing social impacts increases, profits decrease. Thus, companies try to minimize these costs, often leaving locals to deal with the externalities that arise (Bakker, 1999). Inevitably, the people living in the area the reservoir fills are displaced.

In 2000, hydroelectric projects were estimated to have caused the forced displacement of 40 to 80 million people globally (WCD, 2000). An additional estimated 472 million rural people living downstream have been affected by the 7,000 largest dams (Richter et al., 2010). Those displaced by dams are similar to other forced migrants (like political refugees) in that they are forced to move against their will. On the other hand, they are unique among forced migrants because, while refugees often return to their previous homes once the threat has resided, those displaced by dams have no chance of returning home (Heming et al., 2001).

As Patwardhan argues, while displacement is often viewed as a single event, in reality it is a long and arduous process (2000). We assume people simply move from one place to the next when, in reality, the process has many steps. Displaced families must often undergo negotiations, the process of moving, and the process of adjusting to their new situations. Even before construction begins on a dam, uncertainty about the coming dam can alter the cultural and economic lives of those that will be displaced. For example, the implementation of the Kaeng Suea Ten dam in Thailand, which had been uncertain for 36 years, caused extreme anxiety and reduced private investment among villagers near the suggested dam site (Kirchhnerr et al., 2016).

Resettlement programs largely focus on physical relocation and ignore economic and social development (WCD, 2000). In China, dam resettlement has historically resulted in economic impoverishment, social instability, and environmental degradation (Heming et al., 2001). For example, communities displaced by large hydropower dams in rural Yunnan, China faced reduced access to capital, increased debt, and worse labor-sharing networks. Further, the social effects of displacement last for generations, as those displaced face changed sources of incomes, access to land resources, and community identities (Tilt & Gerkey, 2016). In terms of the overall impacts of displacement, McCully observes:

In almost all of the resettlement operations for which reliable information is available, the majority of oustees have ended with lower incomes; less land than before; less work opportunities, inferior housing; less access to the resources of the commons such as fuel-wood and fodder; and worse nutrition and physical and mental health (1996).

In terms of mental health effects, in the Garhwal Himalayas of North India, older resettlers displaced by the Tehri dam have been found to be vulnerable to depression and anxiety. Their poor mental health is contributed to by feelings of nostalgia for their home, alienation from

their new economic base, and disrupted social interaction due to their families being physically separated (Kedia & Van Willigen, 2001).

Because of the costs associated with displacement, there are often systems of compensation for those displaced by dams, usually by the state or corporation building the dam. Compensation is meant to “make good the losses suffered by people affected by the dam” and usually comes as a single payment either in cash or in kind for land or housing. However, even with compensation, those resettled rarely regain their sources of livelihood (WCD, 2000). To counter this, resettlement plans have begun to include livelihood restoration and improvement activities, including skills training and job placement, but these programs are usually only implemented after displacement has occurred and within a limited transition period. These programs also generally focus on access to rather than achievement of goals like employment and housing. Ultimately, compensation often still does equate to the cost of replacement (McDonald-Wilmsen & Webber, 2010).

Further, many of those displaced are not recognized as such and thus receive no compensation (WCD, 2000). This is especially true for people without official land rights in affected areas that often have no recourse if developers fail to compensate them (Bakker, 1999). Often, unofficial land rights go hand in hand with marginalized, indigenous communities. Vulnerable indigenous people are often dispossessed in favor of private and state accumulation. For example, in the cases of the Sungai Selangor, Batang Ai, and Bakun dams in Malaysia, the majority of those displaced were indigenous communities that had been granted the right to live on the state-owned land, only to have it then revoked by the state for these dams (Aiken & Leigh, 2015). Similarly, in India, tribal people make up almost 40% of those displaced by dams despite making up only 8% of the total population (Patwardhan, 2000). Thus, displaced populations have often already been historically marginalized.

Of course, the idea of displacement is inherently linked to the idea of place, and it is essential to define what is meant by place. Agnew describes three fundamental aspects that construct a place: location, locale, and sense of place. For a given place, its location represents its “fixed objective co-ordinates on the Earth’s surface.” Its locale represents its material, concrete form, and its sense of place represents “the subjective and emotional attachment people have” to it (Cresswell, 2004; Agnew, 1987). Still, place is as prescriptive of an idea as it is descriptive. As Cresswell explains, “place is also a way of seeing, knowing and understanding the world” (2004). Further, ideas of place are not permanent. As Massey observes, places are “bound up with the histories which are told of them, how those histories are told, and which history turns out to be dominant” and these relationships are constantly subject to change (1995).

There is a compelling push to tell the stories of dams with large numbers. These numbers establish the enormous scale of the impacts of displacement, but they lose the stories of individuals and how they are affected. I want to build on some of the ways that research has focused on the unseen impacts of displacement but examine those unseen impacts at the scale of a single family. I also want to think more about the different ideas of place that are displaced by dams. The stories of individuals, like those of the Santos family presented here, are essential to understanding the story of dams and displacement in its entirety.

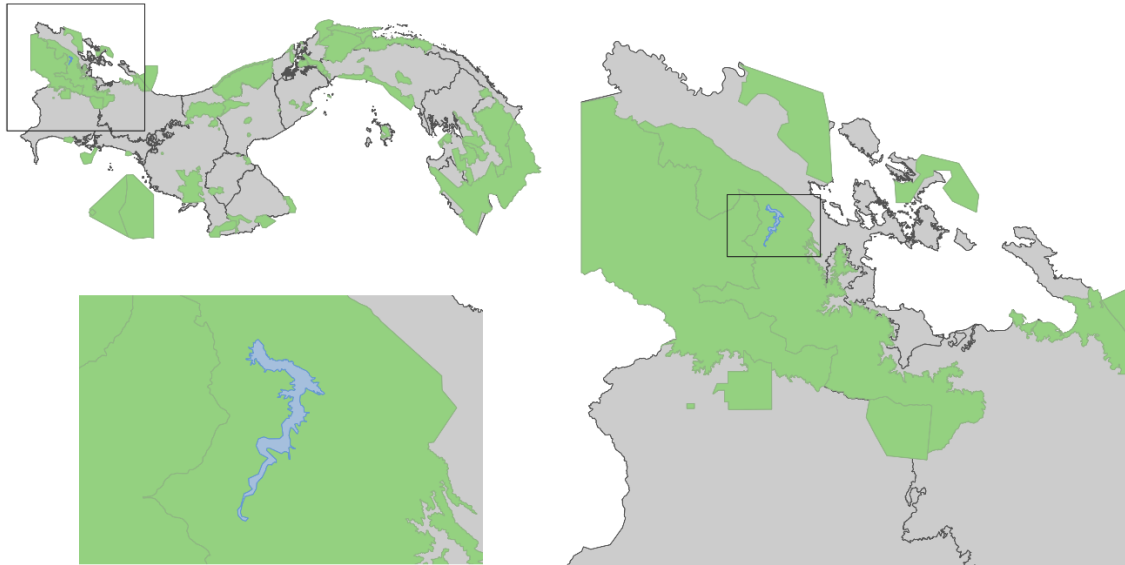
History of the Chan-75 Dam

The Santos family is Ngobe. The Ngobe are the largest and most impoverished indigenous group in Panama (Stoike, 2009). They have traditionally relied on subsistence agriculture, hunting, fishing, and gathering wild plants to survive (Del Rosario, 2011). Panama has semi-autonomous indigenous administrative areas known as comarcas; the Ngobe-Bugle

Comarca was created in 1997. Within the Ngobe-Bugle comarca, there is collective land ownership and legal recognition of Ngobe institutions (Del Rosario, 2011). However, an estimated 40% of Ngobe live outside of the comarca (Barber, 2008).

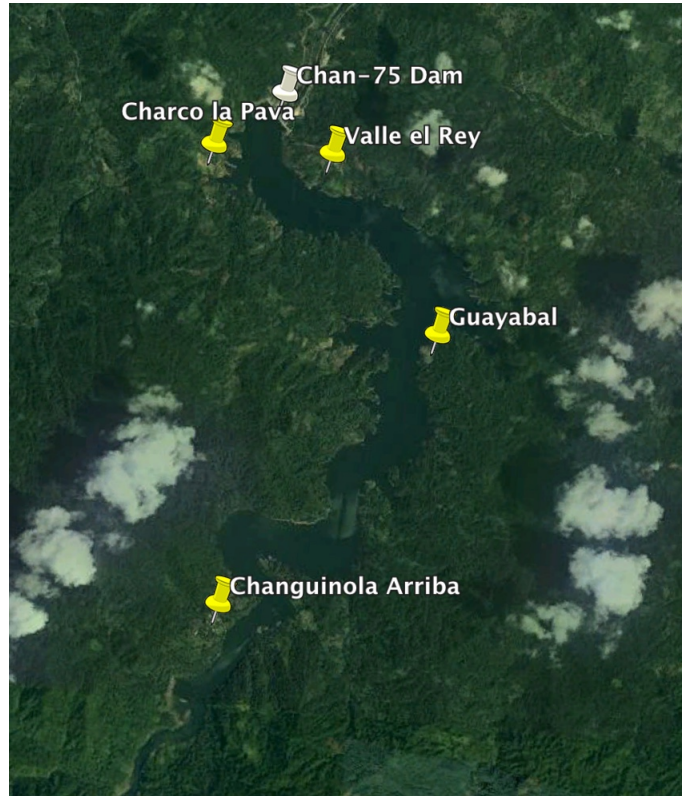
When the comarca was established, additional annex areas were named that were meant to receive the same land rights as the comarca, including collective ownership. 15 of these annex areas were expressly named. They were meant to be demarcated within 20 months of the creation of the comarca, but the extents of these annex areas have still not yet been described and thus hold little to no power (Lux, 2010). The valley that has become the Chan-75 reservoir is in one of these annex areas.

Ngobe control over this land was further diminished through the creation of the Palo Seco Forest Reserve. The 167,410-hectare protected area was created by Executive Decree in 1983, despite existing Ngobe settlements in the area (Lux, 2010). These settlements included all four of the communities displaced by Chan-75. As part of the reasoning for the protected area, the Executive Decree directly mentions that “the State has been promoting the hydroelectric project in that region” (Anaya, 2009). Even after its creation, Ngobe communities have persisted within the protected area. These communities buy, sell, and lease land within Palo Seco, but the Panamanian government has refused to acknowledge these possessions and titles (Lux, 2010). Thus, there is no legal ownership within the protected area, allowing the government to use the land for the Chan-75 dam despite opposition from affected Ngobe communities.



Map 2: Map of the Chan 75 reservoir within Palo Seco Forest Reserve and Bocas del Toro. Green represents protected areas in Panama.

In 2004, as corporate interest for the dam grew, 14 surrounding communities released a joint declaration against the dam. Despite this opposition, the Panamanian government approved the construction of the dam by Hydro Teribe in 2005. After Hydro Teribe was bought out by AES, AES assumed control over the project (Barber, 2008). AES is the largest energy provider in Panama (Giardinella et al., 2011). In 2007, the Panamanian government granted AES a 6,215-hectare concession in the Palo Seco Forest Reserve to build the Chan-75 dam (Barber, 2008). The Chan-75 reservoir displaced approximately 1,000 people from four Ngobe communities: Valle el Rey, Charco la Pava, Guayabal, and Changuinola Arriba (Stoike, 2009).



Map 3: Map of the Chan-75 dam and reservoir and the current locations of the four displaced communities.

According to Francisco, between 2005 and 2006, AES sent representatives to speak with community members in the area. These representatives described the dam and explained that the community members would need to move. The representatives made many unfulfilled promises to the community members to compel them to move. Francisco described the promises they made to him:

They promised me that I could continue working my old farm. They promised me a new, better farm. They promised me new, better houses with running water and free electricity. They promised a new health center, a new, better school, and a road for our community. They promised me and my family a better life, but they did not complete their promises.

Another community member was promised \$300,000 in compensation. He ultimately lost his entire farm and received nothing. Now, he told me, “Solo tengo mi gatito.”

In 2007, construction of the Chan-75 dam began. In 2008, some community members negotiated with AES in Panama City for compensation, while others were ignored entirely. Construction of the dam finished in 2010, and the reservoir filled soon after, flooding almost all of the farmland of the old communities. Those that received any compensation received new houses and/or small amounts of money, but many community members received no compensation. From my conversations with these community members, there seemed to be no process determining who was compensated and who was ignored, but they consistently emphasized the unevenness of the outcomes. Nevertheless, AES has stated that every family that was affected directly or indirectly by the development of the Chan-75 dam was fully compensated. When describing people that not been compensated, AES stated that they were “not linked to the negotiation processes” and that they “have made claims about nonexistent damages.” In reality, AES completed only “189 final compensation agreements” when an estimated 1,000 people were displaced.

One recurring theme regarding dam construction is that it will bring economic development to surrounding communities, largely through improvements in infrastructure. In compensation for the dam, AES stated that it has completed \$54 million worth of infrastructure and public service works in the communities of Charco la Pava, Valle el Rey, Changuinola Arriba, and Nance del Risco. For example AES built replacement houses in new communities at the tops of the mountains surrounding the Chan-75 reservoir (Figure 4). New communities were built for Valle el Rey and Charco la Pava. Currently, the new community for Changuinola Arriba is still under construction, but Guayabal will not receive a new community. AES has also stated that they “support projects designed to improve the quality of education in public schools and

encourage students to remain in school.” However, community members had not experienced these projects, and Guayabal does not even have a school. In Nance del Risco, the capital of the administrative area that contains the Chan-75 dam, AES claims that “important infrastructure projects for the school were achieved,” but the school still does not even have electricity.

Further, AES claimed that its Rural Electrification Plan project would benefit 1,500 people in the neighboring communities of Ojo de Agua, Nance del Risco, Valle Risco, Valle el Rey and Charco la Pava (Figure 5). Even if the infrastructure exists, almost no one in these communities can afford electricity. AES has described operating “hand in hand with the community leaders” and has stated that the dam will have a positive impact on the affected communities, yet none of the community members interviewed believed that their lives were better after the dam was built. AES has described the dam construction as a “participatory resettlement process” in which the community members defined the damages that were compensated. However, participatory approaches for environmental management are “decentralized, community oriented, and holistic.” They aim for decision-making to be more “socially inclusive and environmentally sustainable” (Kapoor, 2001). By this definition, AES’s approach to resettlement has been anything but participatory, with community members feeling as though they have had no input in or control over the process.

Another recurring theme of dams is that they are branded as sources of environmentally friendly electricity (Johnston, 2010). States and developers often frame dams as using rather than wasting water, ignoring the politicization of water and the impacts on those affected, and complex issues are simplified through problem definition and solving, creating narratives to unite actors (Bakker, 1999). Pro-dam actors also frame dams in strongly depoliticized language revolving around progress, development, and water management (Hommes, 2016). Likewise, in the case of Chan-75, AES has touted the dam’s environmental benefits. According to AES, the

dam prevents the use of 1.5 million barrels of fuel per year and the emission of 600,000 tons of carbon dioxide. AES has used this rhetoric to deflect criticisms of the Chan-75 dam.

Panama relies heavily on hydroelectric dams, like Chan-75, to supply its power. Hydroelectric dams generate 57.4% of the electricity in Panama, producing 1,623 megawatts of power. 223 of these megawatts come from the Chan-75 dam. Panama plans to expand this power generation to 2,389 megawatts through 95 identified new hydroelectric projects (Secretaria Nacional de Energia, 2016).

On the other hand, Panama also has an existing history of controversy surrounding its dams. The Bayano dam, completed in 1976, was Panama's first major dam. The dam was estimated to only displace 450 people, but ultimately displaced 4,500, many of whom were indigenous. Many of those affected received only \$4,500 each in compensation (Finley-Brook and Thomas, 2010). By 1989, the displaced indigenous communities had been largely economically and socially marginalized by new migrants (Scudder, 2005). Similarly, the Bonyik dam was built in indigenous Naso territory in Palo Seco Forest Reserve. This dam's construction created social and political conflict among the Naso communities and is suspected to have prevented the Naso from being given a comarca (World Bank Inspection Panel, 2010). The Chan-75 dam is no exception to this controversial history; it has caused significant and ongoing loss for those affected and displaced by its construction.

What is Lost: The Types of Place in Displacement

In examining how the Chan-75 dam has affected displaced community members, two types of loss have occurred: legible and illegible loss. Scott defines legibility as arranging the population in ways that simplify the functions of the state. It is "a condition of manipulation" in which the units being manipulated must be visible and organized "in a manner that permits them

to be identified, observed, recorded, counted, aggregated, and monitored” (Scott, 1998). Within the framework of displacement it is imagined that “land, natural resources, means of livelihood, social and cultural loss resulting from displacement can be quantified and compensated in monetary terms” (Patwardhan, 2000). For the sake of this argument, I am describing legibility from the perspective of AES. Thus, this legibility does not represent an abstract, ultimate legibility but rather legibility through the system and framework of the hydroelectric dam company. The aspects of loss that fit well within this framework are legible; they have easily discernible financial values.

AES has openly acknowledged the legible loss that the Chan-75 dam caused. It has sought to rectify this damage through compensation, either in the form of houses or money. AES now states that the legible losses have all been handled, and the dam has no longer caused any harm. The Santos family received two houses and small sums of money for the older children in compensation. Other families have also received replacement houses and similarly small amounts of money.

While AES has acknowledged and compensated legible loss to an extent, their compensation has involved selective use of accounting. First and foremost, AES has designated the displaced community of Guayabal as a “cultivation area” and has thus chosen not to compensate them with replacement houses or as much money (Figure 6). For example, a man from Guayabal whom I interviewed had received only \$5,000 despite his entire farm and his old home now being underwater.

Within communities, AES selectively chose whom to negotiate with and whom ultimately to compensate. I spoke with families that had lived in Valle el Rey before the dam’s construction that were never approached by AES at all and others that had been promised

compensation but never received it. Given that AES claims to have completed all of its compensation agreements, the company has no intention of accounting for this loss.

Finally, AES even used selective accounting within families. For example, in the Santos family, Francisco and his older children (seemingly those over 18 years old at the time) received compensation, but his wife and younger children did not. The amount of that compensation also varied between the older children. In another family from Valle el Rey that negotiated with AES, their younger children were promised only \$25 each in compensation, but even that amount was not delivered. That said, even if AES had compensated everyone affected for all of their legible value, this compensation would still only include things of obvious financial value. While it would include the value of the submerged land and houses, it would ignore the many forms of illegible loss.

On the other hand, illegible loss represents the aspects of everyday loss that do not fit well within this framework of displacement. For example, while economic losses are visible and measurable, social well-being can neither be measured nor compensated once lost because of relocation (Heming et al., 2001). Often, the “non-quantifiable nature of numerous human and ecological costs are not even acknowledged” (Patwardhan, 2000). This is the case for AES and Chan-75. While AES has acknowledged the legible loss caused by the dam, it entirely ignores the illegible loss. This is because losses are both harder to identify and harder to rectify, but these are the losses that the Santos family expressed the most concern about. Here, we will examine the “place” in displacement and pick apart the various forms of place that were lost and unacknowledged.

Place in the Family

Likely the most discussed loss for the members of the Santos family was the loss of their

place in their family. They expressed concern over the relationships they had lost, both with their old home and with the other members of their family.

First, despite the financial compensation some of the Santos family received for the loss of their old home and farm, compensation for the emotional loss of home is impossible. When describing their old home, the Santos family talked about life being peaceful. They describe a beautiful river that supplied plentiful food and water. They remember living and spending time with their family. They have a deep emotional attachment to their old land. Their new homes, on the other hand, have no such attachment.

When I first arrived at the replacement home in Valle el Rey, Francisco took me on a tour of the house. The house has four large but empty bedrooms, a kitchen, and a bathroom. The kitchen and the bathroom are connected to a water system for the community, but the water runs out every couple of hours. I quickly picked up the Ngabere phrase “nyaka nyu toro,” there is no water. The only river access is a steep and muddy trail that descends 200 meters to the river below, so there is no other source of water available. Francisco keeps a couple of buckets in the bathroom and fills them with water when he gets the chance. These buckets are used for drinking, showering, and cooking. Thus, Francisco has largely lost control over his source of water, where before he could easily access the streams and the river.

I asked Francisco what he thought of the house. He complained to me that the roof leaks and that there is never any water. He also complained that the kitchen is wrong. His old house had a separate building for cooking where they would cook on large fire pit. The new one only has a small gas stove. I asked if there was anything that he liked better about the new house, and he told me no. Additionally, the “huacas” on their old farm, that were lost under the reservoir, provided the Santos family with a sense of historical belonging. They represented a connection to that land through their Ngobe heritage that no longer exists.

Although the location of the Francisco's home has only barely changed, its locale and sense of place have changed enormously (Agnew, 1987). The new home's locale at the top of the mountain, far from the water of reservoir below, makes day-to-day tasks that require water difficult. Still, from Francisco's commentary, I believe the more important change to him is in the home's sense of place. His old house was emotionally tied to his family and his community, while his new house is emotionally tied to the Chan-75 dam and to his displacement. Further, he no longer has the emotional connection to his heritage that the "huacas" provided. These changes to his sense of place are entirely illegible and have no means of compensation.

Next, the physical separation of the Santos family has caused profound negative impacts among them. Before dam construction began, the Santos family lived together on one farm, in one house. They worked that farm together, and their family was close, both spatially and emotionally. After the dam, their family is fractured, spread throughout Panama. The father moves between his two farms and his home in the city, with each location around an hour apart by taxi. The mother lives only in the city and takes care of some of their grandchildren. Their children are scattered between five different communities, towns, and cities. No one in the family has a car, and buses are few and far between in some of these areas. Most of the family said that they rarely got to see the other members anymore, and they felt like the dam had destroyed their family. Disruption of social interaction because of physical separation from families has been shown to contribute to poor mental health among older indigenous people that have been displaced (Kedia & Van Willigen, 2001). Many of Francisco's children attested to this with him, saying that the traveling and separation have hurt his health.

Place in the Community

Similarly, the Santos family expressed concern about the loss of their place in their old

community. This reflected changes in both the social hierarchy of their family and in their feelings of control over the future of their community.

Before the Chan-75 dam was constructed, the Santos family was one of the five founding families of Valle el Rey. Francisco, especially, was a community leader. He was well respected and held power within Valle el Rey. Now, his community is scattered like his family. Although the physical community of Valle el Rey was rebuilt in the mountains above the reservoir, for Francisco “it is not the same community that it was before.” As a community founder, Francisco had an origin story that he could tell about his community, a story in which he was an influential actor. He described his role in founding the community to me with great pride. Similarly, another founder I interviewed became very excited when discussing his own role in founding the first school in Charco la Pava. This harks back to Massey’s notion of places being bound with their histories, and those histories being subject to change (1995). Although Francisco’s new house is relatively close to his old one by distance, at the top of a mountain that overlooks his old farm, his relationship with the histories of the place and of the community has been permanently altered. Before he was a founder, an agent in history. Now, he has been placed here after being forced out of his home. Francisco, as well others I interviewed, no longer feels like he has a community, and that loss of social standing could not possibly be compensated.

That sense of community is further shattered by the newly present fear of losing their community again. The construction of the Chan-75 dam made the community and the Santos family painfully aware of the fragility of their lack of land rights. They now know from experience that legally only the Panamanian government and AES have rights to the lands they live on because of the creation of Palo Seco Forest Reserve. This is true despite most of the people living in these communities predating the creation of that protected area. Francisco, for example, showed me the deed to their old land and described to me the exact boundaries it once

had. This goes hand in hand with Li's argument regarding land grabbing, in which she describes how circumstances with partial but not full recognition of land rights often allow land deals to either overlook customary rights or legitimize exclusion in market terms through compensation. The ambiguity of land rights, thus, drives the land deals themselves (Li, 2014). Similarly, Patwardhan noted that in India, tribal people are often considered "illegal 'encroachers' on government land" because their traditional land rights are not recognized (2000).

After the reservoir flooded, AES told community members that they were no longer allowed to farm the land within a certain distance of the reservoir because it was part of AES's concession. Francisco believed this stemmed out of both a fear of erosion into the reservoir and an agreement with the Panamanian government. This rule essentially excluded community members from using any of the land they held before the dam, even the parts that were not underwater. However, many community members still made new farms on their old land and have continued to farm there because they have no other options. The Santos family has tucked these farms away in the forests of the mountains so that they cannot be spotted from the reservoir. Even their new farms are still within Palo Seco Forest Reserve, meaning that they too could be taken away at any time. They have no way to know if they or their children will continue to be able to use this land because AES or the government could decide to stop them from farming the land at any time.

Further, for the houses that AES provided to displaced community members, there has been no transfer of legal ownership in any form. Francisco nervously told me on numerous occasions that he had no idea if his children would be able to continue living in his replacement house, or if AES would kick them out. If AES does choose to kick them out, they have no legal recourse. Overall, many community members expressed fear for their land rights in the future and especially for the rights of their children. Before the construction of the dam, this was not a

concern. I interpret this fear as similar to the anxiety that Kirchhnerr et al. described. Just as uncertainty regarding the construction of the Kaeng Suea Ten dam in Thailand created extreme anxiety among villagers that would be displaced, uncertainty regarding continuing land tenureship creates anxiety in the replacement communities among those that have already been displaced (Kirchhnerr et al., 2016).

Place in Society

Further, the Santos family was faced with a loss of their place in society. This loss was manifested in changes in the women's role in society and the reinforcement of the Ngobe's place within Panamanian society.

In the case of the Tehri Dam in India, Bisht argues that women experience displacement differently from men and that displacement undermines both the economic independence and social autonomy of women. This difference came from both gender bias in resettlement policy and changes in women's roles due to displacement (Bisht, 2009). I found both of these cases to be true for the Santos family as well.

First, AES's compensation policy for Chan-75 resulted in gender bias during resettlement. Although I did not get a full understanding of gender and household dynamics among these communities and within the Santos family specifically. Their commentary portrayed Francisco and Mrs. Santos as dual heads of the family, although seemingly with different roles. Further, their commentary made it clear that there is some distinction in property rights between Francisco and Mrs. Santos, with both of them feeling robbed that she was not brought to Panama City as well to negotiate for her land. Thus, despite both Francisco and Mrs. Santos being heads of the Santos family, AES only brought Francisco to Panama City to negotiate for his family's compensation. This was also the case with compensation for the Tehri

Dam, in which only the male head of the family represented the family (Bisht, 2009). Further, although Mrs. Santos had implicit property rights within the Santos family that were distinct from Francisco's, AES refused to give her any compensation, instead only compensating Francisco and their older children.

Next, women's roles in the Santos family changed after displacement. Before the dam, each child, regardless of age or gender, had a designated part of the farm that was theirs, and both the women and men worked on the farm. Now, all of the adult men in the family work on one of their farms, and none of the women do. Instead, most of the daughters live in the city, raising their children and grandchildren. Their food and money must be brought to them by their male family members that live and work on the farms. They are thus now more reliant on these male family members.

Further, one sister received some monetary compensation from AES but used it to improve her husband's house and moved in with him. Now, she lives with her husband apart from the rest of her family and has neither her own farm nor access to food from the other farms. Instead, she must walk 3 to 4 hours just to purchase vegetables. She repairs clothes as her only source of income, and with that she supports herself, her husband, and their children. Thus, the women in the Santos family have been further disadvantaged by their displacement, and their expected place in society has changed as a result. Similarly, before the Tehri Dam in India was built, both men and women shared certain aspects of labor as subsistence farmers, sharing both the physical and social spaces this entailed. After the dam was built, their spaces became more distinct (Bisht, 2009).

In terms of the Ngobe's place within Panamanian society, the Ngobe have historically been disadvantaged. In my time in Panama, I noticed that prejudice against the Ngobe was common. I met people living both in Panama City and in rural areas who described The Ngobe

as lazy and unintelligent. Further, the Chan-75 dam would not have ever been constructed if that had their proper rights. The lack of demarcation of the annex areas and the creation of the Palo Seco Forest Reserve allowed for the dam to be constructed at all. Its construction further cements the Ngobe as a marginalized group within Panamanian society.

Place in Relation to Other Places

Finally, the Santos family's place in the relation to other places shifted drastically with the construction of the Chan-75 dam. This was manifested through their loss of access to transportation and their loss of control over their role in the capitalist market.

Transportation represents a community's access to, and thus place in, the world at large. Before the Chan-75 dam was built, it took around 4 to 5 hours to leave Valle el Rey by foot, following alongside the Changuinola River. This time could be sped up by taking a boat or a horse. Although the new road built for the dam allows for cars to speed that time up significantly (taking only around one hour), for many transportation has only become more difficult (Figure 7). Cars and taxis are expensive, and most community members cannot afford them. I frequently had to wait more than an hour for a taxi to even reach Valle el Rey, and members of the Santos family frequently emphasized how difficult it was for them to afford taxis at all. Further, because of the dam, it is no longer possible to take a boat down the Changuinola River, and because the plains are now flooded, horses can no longer walk through the mountainous terrain left above the water. The Santos family and other interviewed have had to sell their horses because they are no longer useful.

Transportation within these communities has also become more difficult. Before, community members lived on their farms. Now, they live at the tops of mountains. To reach their old farms, they must hike through treacherous, steep, muddy terrain. Many must descend from

the mountains, cross the reservoir, and then ascend back to where their farms are now. The Santos family, for example, crosses the reservoir by canoe to reach what is left of their old farm (Figure 8).

One of Francisco's sons Miguel took me from their home in Valle el Rey to the old farm one morning. First, we descended about 200 meters in elevation along slippery and steep mud paths. Miguel mentioned that Francisco can no longer make the journey because it is too dangerous. When we reached the canoe, it was nearly filled with water from the previous day's rain. Miguel pulled off one of his boots and spent the next 15 minutes dumping enough water out of the boat for us to sit in it. It took another 30 minutes to reach the other side of the reservoir. During this ride, Miguel stopped and pointed to some cut tree tops poking above the water (Figure 9). He became solemn and quiet as he told me that these were the tops of their old coconut trees. Then, he pointed to the murky water and said that his old home was somewhere beneath us. We finished the ride in silence.

For many, the time it takes for their children to get to school or the time it takes them to get to their farm has also increased, both of which used to be within a few minutes' walk. To reach the communities of Guayabal or Changuinola Arriba requires hours now by canoe, where before it was possible to reach them faster by foot or by horse. Again, the time between members of the Santos family has been drastically increased as well, with many family members now hours away where before they lived in the same house.

Further, the Santos family has lost their control over their access to the capitalist market. Before, they were able to survive solely off their own subsistence agriculture. Although they could access the market, they did not need to, and they largely did not need money. Anything they need could be bartered for. Now, the Santos family complain that everything costs money, and making money is difficult. As Dove observes, smallholders are not removed from the global

markets but rather use both subsistence agriculture and commodity production to control their circumstances (2011). In the case of the Santos family, they have lost this control by being thrust fully into the capitalist market without the ability to retreat to subsistence alone.

With the money from their compensation, different members within the Santos family responded differently. One brother spent all of his money on clothes and food. Another bought a new farm and uses that for income. He and another brother live and work on their old farm and the farm their father bought, respectively. Their sisters largely moved to the city, live in one house there, and take care of the family's children while they go to school. One sister is currently attending a university on the other side of the country. Finally, the last sister lives with her husband, separate from the family and with no farm. She struggles to feed her children, and their only source of income is her sewing.

For families that received no compensation, the loss of control has been even more difficult. Some have built wooden houses among the concrete houses built by AES (Figure 10). These wooden houses have no connection to the community's water, and these community members must borrow water from their neighbors. Some moved in with their extended family or neighbors because they have no house and no farm. Without compensation, these community members have no source of income and no way to acquire a new source of income.

Accounting for Loss

Accounting for loss within the framework of the hydroelectric dam is thus difficult. Some of the losses associated with displacement are legible, representing the simple, financial aspects of life that are lost. However, many of the losses are illegible. These losses signify disruptions of social and cultural dynamics that are inherent to the process of displacement. They represent the "place" in displacement.

Thinking of place as a combination of location, locale, and sense of place, for the Santos family, it is evident that what was displaced is more than just a physical location. Further, while the flooding of Valle el Rey certainly changed its material form, this too does not fully encompass the Santos family's complaints. Instead, most of what was displaced is actually their sense of place, their emotional attachment to the land. For the Santos family, their sense of place represented feelings of home, of closeness to their family, and of control over their lives. These notions were entangled with the place from which they were displaced.

The Santos family's story is familiar; it is commonplace among those affected by dams. Each displaced family likely has similar stories of loss, but each family also likely has a distinct sense of place that was lost. While changes in the location and locale of Valle el Rey are shared experiences, changes to their senses of place are only shared in part. Thus, the place in displacement is almost entirely illegible through the framework of the hydroelectric dam because that place is unique to each family and each individual.

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Appendix I



Figure 1: The view of the Chan-75 reservoir from the porch of Francisco Santos's new house.



Figure 2: The Chan-75 dam.



Figure 3: The replacement houses built by AES.



Figure 4: A view of the entire new community of Valle el Rey, at the top of the mountain overlooking the reservoir.



Figure 5: Sign in Nance del Risco, detailing the rural electrification project by AES.



Figure 6: What remains of the community of Guayabal above the water. They have received no replacement houses.



Figure 7: The road built by AES to reach the new community of Valle el Rey. It is both steep and treacherous.



Figure 8: The Santos family's canoe. What remains of their old farm is on the other side of the reservoir. It takes approximately 30 minutes by canoe to reach the other side.



Figure 9: The remaining trunks of the coconut trees from the Santos family's old farm.



Figure 10: A wooden house built in the new community of Valle el Rey by one of the families that received no compensation from AES.