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Pyaguapy Ita: Silencing the Singing Stone: the Impact of Modern Technology on Indigenous People in Brazil

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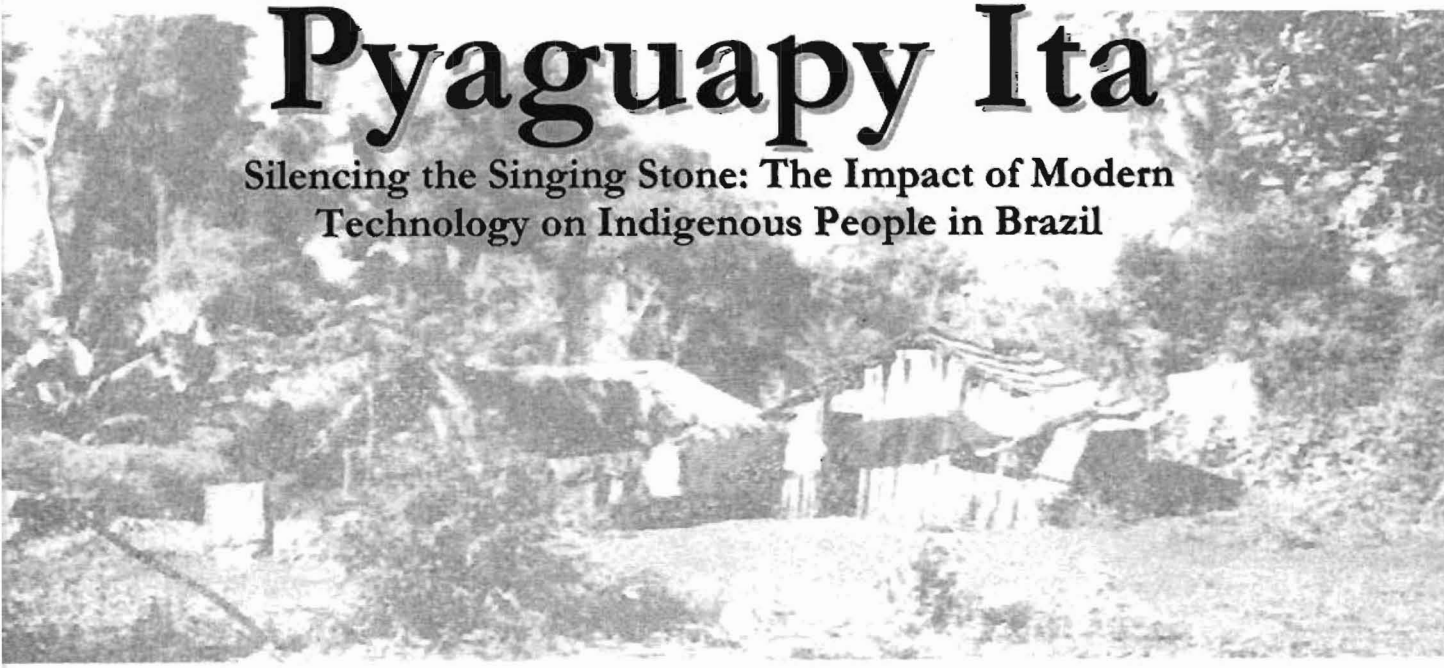

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for my parents, Patti and Jeff Cassis

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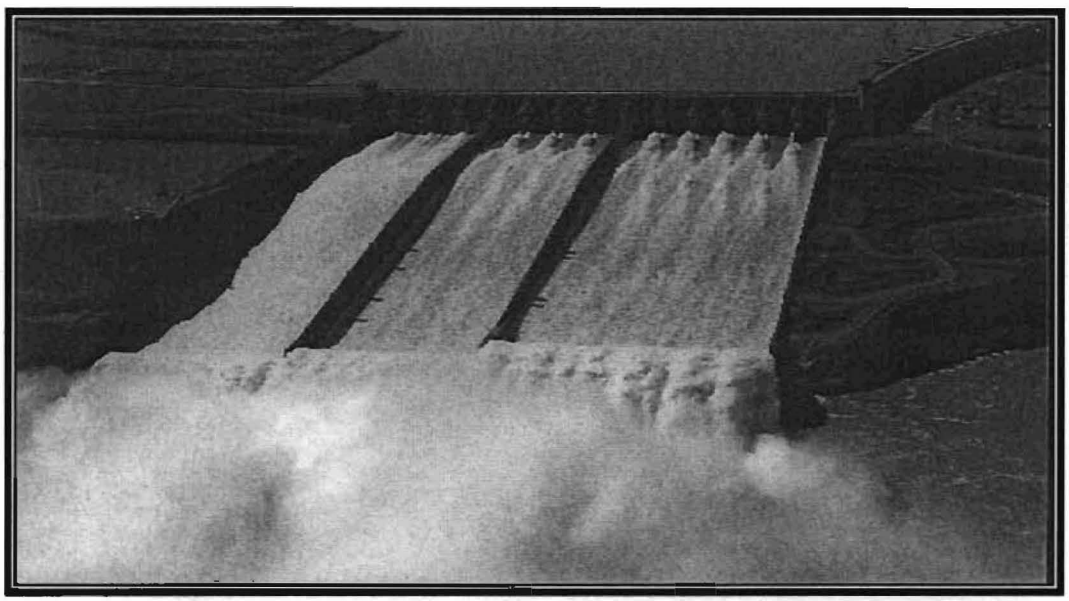

[1]

The name of the world's largest hydroelectric dam, Brazil's Itaipu Binacional, comes from an Ava-Guarani word meaning "singing stone." Before Itaipu became affiliated with dams it represented a smaller, but no less significant monument: a large rock formation in the middle of the Parana River that produced song when struck by water.[2] Today, neither the rock nor the Ava-Guarani tribe remain. In their place is a gargantuan hydroelectric dam that produces sounds more like a thunderous engine than song. When the Brazilian government, in conjunction with Itaipu Binacional officials, constructed the power plant, it not only silenced the singing stone, but also the voices of the indigenous Ava-Guarani people.

[1] Itaipu Binacional Historical Picture Archives, 2002.
[2] Iguacu, Um destino para o mundo: Guidebook. Brasil: Instituto Polo Internacional Iguacu, 2001-2002.

The scale and size of Itaipu Binacional overshadows the consideration of the Ava-Guarani community. Itaipu's titles like "world's biggest hydroelectric power plant," "one of the modern-day Seven Wonders of the World," as well as its bi-national nature (straddling the Brazilian-Paraguayan border) rouses interest and blinds observers to its environmental and social consequences.[3] Itaipu's construction radically changed its surrounding, creating ripping effects through Foz Do Iguaçu, the dam's host city. Before Itaipu was constructed Foz do Iguaçu consisted of rolling fields of erva mate plantations distributed over miles of thick rainforest, with unassuming houses scattered among the tangle. Today, even with increased urban sprawl and 3x as many residents, the enormous power plant still seems out of place. It was not a mere coincidence that Itaipu was sited in Foz do Iguaçu, but the deliberate selection of bureaucrats, scientists and policy-makers. They wanted to find a peripheral location where the resources were vast and the level of complaint in exploiting these resources was minimal. They succeeded in both pursuits.[4]

Standing in front of Itaipu, a 4.7-mile long, 12,600 MW hydroelectric power station, you see only the dam, not the displaced people, degraded environment or other significant socio-economic impacts. [5] The sheer size of the dam and the engineering prowess that went into its construction forces even the devout luddite to pause and admire its scale and technological sublimity. When I stood at the base of Itaipu with the former corporate employee João Carlos Zehnpfennig, who worked as the liaison between Itaipu and the displaced indigenous populations, the concrete Everest behind us relentlessly drew my gaze. (See penstocks in **Figure 1**).

[3] "Popular Mechanics" American Society of Civil Engineers (ASCE) Dec. 1995.
[4] "The Official Site of the Itaipu Binacional Hydroelectric Power Plant," Itaipu Binacional, 2004, <www.itaipu.gov.br>.
[5] "The Official Site of the Itaipu Binacional," 2004.

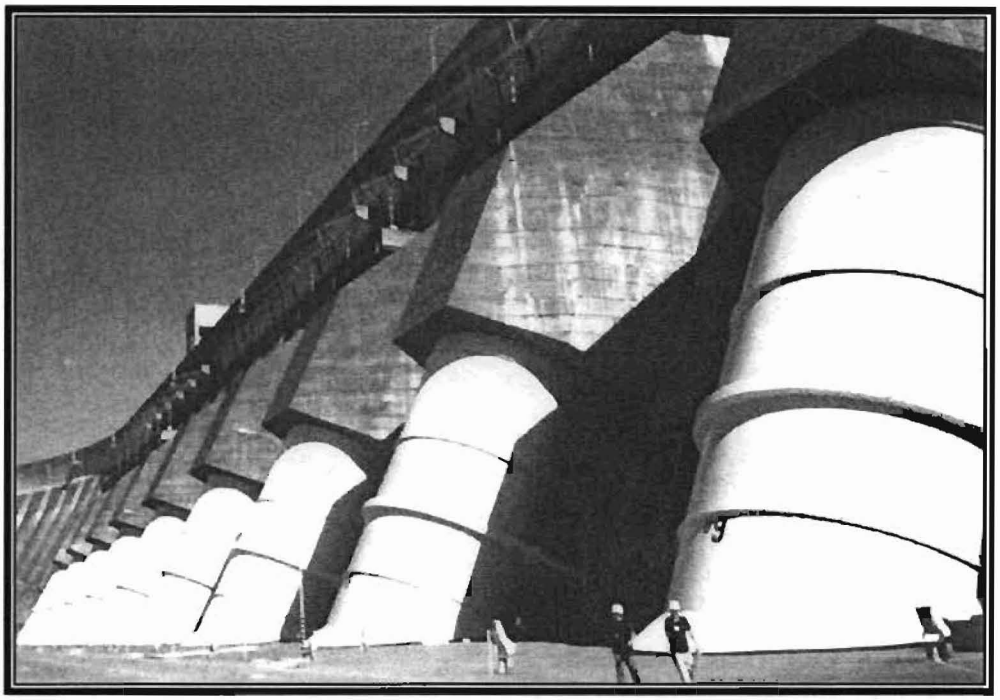

Figure 1

Zehnpfennig and I began to discuss how the Ava-Guarani, whom Itaipu management forcibly relocated in the early 1970s, are coping with the assimilation into dominant Western culture. As he recounted his memories of the resettlement, I noticed several errors in his story, including the number of families relocated, the limited area of their reserves, significant dates and events, etc. When I noted the inconsistencies, he quickly countered, asking if I knew everything pertaining to the costs, history and effects of the conquest of the North American Cherokee people. Although, admittedly I could recall only small details of information regarding the Cherokee's relocation, unlike Zehnpfennig, I had also never been their sole liaison with the world of bureaucracy and development. Only a year after retiring, Zehnpfennig, who had overseen the entire relocation process, did not seem concerned about his oversights. In fact, he remained proud of his accomplishments and those of his successor, believing that the Itaipu bureaucracy fully intended to help ease the Ava-Guarani transition by providing what they deemed necessary technologies to better the their quality of life.

Zehnpfennig never spoke of the lack of food, land/housing shortage, loss of cultural integrity or encroachment of "white" ideologies that the Ava-Guarani people still confront as they struggle to preserve their lifestyle in the face of these modernization pressures. He did not mention that a year ago 100 children faced malnutrition, or that Ava-Guarani land area would be insufficient to support them in only one generation. He was certainty aware of these realities, but chose to keep silent.

Whether this was apathy, embarrassment or misunderstanding, I am not sure. Zehnpfennig's sentiments exemplify the attitudes of the citizens of the towns of Brazil. As the 19th-century British Dramatist George Bernard Shaw states, "the worse sin towards our fellow creatures is not to hate them, but to be indifferent to them; that is the essence of inhumanity." This "inhumane" indifference toward the indigenous community on the part of Itaipu employees and citizens of Foz do Iguaçu and neighboring municipalities, has translated into inaction in counteracting the deteriorating conditions of the Ava-Guarani reserves. Three main factors lie behind this marked inaction: the notable benefits received from the Itaipu management, the perception of the indigenous communities as primitive and backward and the ideology of "progress."

Itaipu employees and other residents believe that "progress" and development is beneficial and inevitable, despite the prevailing recognition that the Ava-Guarani people face cultural ruin. "Progress," by definition, is a positive movement forward, an advancement to a better form or state. However this definition is misleading. Instead of "an advancement to a better state," "progress" is often used to imply the process of modern development. It is unsound to assume immediately that all development is positive as the Webster dictionary definition suggests. Progress as a euphemism for technological development is not only misleading, it is dangerous. By implying that progress, or development, is a way to "advance to a better state" we justify our forced transfer of technology to underdeveloped regions. Within

this work the ideology of progress will signify the ideology of development as an inevitable, even crucial, step to a better society. It is a worldview that is held by some members of the global community, but not all (particularly indigenous people like the Ava-Guarani). It is a notion that needs desperately to be reevaluated; as we push our ideology of progress on marginalized underdeveloped peoples we suffocate their culture. After all, Jensen reminds us "a strong ideology and a good dose of rationalization" is all it takes to completely eradicate indigenous cultures.[6] If we do not re-examine this rationale, we will ultimately destroy the Ava-Guarani cultural existence.

Itaipu management's relocation of the Ava-Guarani people is in no way an isolated case. Throughout human history, people in power's negative perceptions of ethnic minorities have led to their poor treatment. Large-scale technologies such as Itaipu have unanticipated and irreversible social consequences that are often placed almost entirely on ethnic minorities like the Ava-Guarani. In many cases, in many countries, development has been equated with economic growth and surplus and large-scale hydroelectric power plants have become symbols of this form of development. The social consequences of these massive developments are felt firsthand by the Maya Achi' people of Guatemala, the Adivasi of India and the Ibaloy people of the Philippines, as well as many other indigenous peoples worldwide. In all cases, local cultures were ignored, overshadowed and pushed aside by national interests. Only belatedly do these nations realize the irreversible destruction they leave in their wake. Proponents of relocating indigenous communities for large-scale technologies point to archaic logic: that a few people are sacrificing for the greater good. However, we must ask ourselves why the ethnic minorities are always the ones making these sacrifices. Critics assert that by relocating communities, alleged "developmental cleansing," may constitute a masked form of ethnic

[6] Jensen, Derrick, A Language Other Than Words (New York: Souvenir Press, 2002), p (p.) 42.

cleansing. [7] The hubris that fashions increasingly large technological constructions to tap hydroelectric reevaluated, for these large-scale developments often destroy more than they create and push indigenous societies from tradition to ruin. [8]

The need to arrest this global phenomenon and retain our respective indigenous cultures is pressing. Author Jenson states: "a frenetic monotony describes our culture's eradication of every indigenous community it encounters, and an even more frenetic monotony cloaks our inability to recognize this." [9] Recognition is a start, but ultimately to prevent indigenous cultural eradication we need to take action and struggle to maintain our global diversity. Even though Itaipu employees and Brazilian citizens are cognizant of the struggles the Ava-Guarani people face, their negative perceptions of the indigenous community, the benefits they receive and their ideology of progress, hinders their corrective action. If modern Brazilians remain passive, they will merely watch as the Ava-Guarani culture dissolves into modern, Western ideologies, ultimately witnessing the death of Ava-Guarani cultural existence.

History Repeats Itself: How Historical Perceptions of Indigenous Communities Translate into the Present

> Without land, the Indian becomes sad and begins to lose his language. He starts to speak with the borrowed language of the white man. He loses the memory of his people. Without land, the Indian has nowhere to plant, fish, look for natural foods and medicinal herbs, perform his celebrations, his religion. He begins to abandon all of this and starts to die.
>
> Severino
> President of the Aty Guasu,
> the Traditional Assembly of the Guarani[10]

[7] Colchester, Marcus, "Dams, Indigenous People and vulnerable ethnic minorities," World Commission on Dams 2000: Thematic Review 1.2.
[8] Josephson, Paul, Industrialized Nature: Brute Force Technology and the Transformation of the Natural World (Washington: A Shearwater Book / Island Press, 2002): p(p.) 3, 7-8.
[9] Jensen, A Language Other Than Words, p. 42.

Directed resettlement and subjugation of the Brazilian indigenous people dates back to the 16th century and the arrival of Spanish and Portuguese missionaries and settlers. They saw indigenous communities as uncivilized and still enmeshed in the natural wilderness. The past perceptions of the indigenous people as "illiterate, backward and primitive" have survived centuries and remain part of the cultural profile of the Ava-Guarani people. [11] Even in the connotations of the word Ava (short for Ava- Guarani)-, a Portuguese word to describe someone of low intellect, backward or obstinate, we see that Brazilian cultural attitudes toward these indigenous communities have not changed since the arrival of Europeans over 500 years ago. [12] What has changed is the number of indigenous people living in Brazil. In 1500, 5 to 6 million indigenous people inhabited present-day Brazil. Currently only 220,000 remain and this number is falling.[13]

In recent years the institution of development has replaced colonialism, and large technological enterprises such as Itaipu Binacional and national governments have replaced 15th century European settlers as the primary agents of indigenous relocation. During Itaipu's construction, Brazil was under an authoritarian military regime. Brazil's military leaders used electrification in an attempt to modernize and control the interior, despite inherent consequences to the flora and fauna, not to mention indigenous tribes. Many observers assert that Itaipu's scale was not driven by practicality, but rather the military's desire to physically represent their power. [14] However, these large-scale technologies have been constructed in all governmental regimes, from dictatorships to democracies. In Itaipu's case, national economic development and prestige were the driving forces behind its creation. Like many other governmental institutions in many other countries, the Brazilian military government

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[10] "Society, Media and Culture," Ecologist Mar. 2003: Vol. 33.2.
[11] Fausto, Boris, A Concise History of Brazil (United Kingdom: Cambridge University Press, United Kingdom 1999) p(p.) 201.
[12] Museo Barbero. 217 Avda Espana, Asunción, Paraguay.
[13] Josephson, Industrialized Nature, p.135.

completely disregarded the civil liberties of the Ava-Guarani people when constructing this massive hydroelectric facility. They placed the indigenous community in the "Environment" category as something needing to be preserved, stating: "the presence of indigenous communities represents one of the most complex *environmental problems* in the planning and implementation of hydroelectric transmission lines." [15]

Today, this notion of indigenous people as an "environmental problem" still prevails. In hundreds of Itaipu pamphlets describing every aspect of Itaipu from its technological processes to water conservation policies, the only paragraph on the "Indians" is in an obscure environmental booklet. This booklet briefly discusses topics ranging from limnology (study of water quality) to insect control. The short paragraph that talks about the "Indians" follows:

> During the survey for the expropriation of lands that would be flooded by Itaipu Lake, a few native Indian families were found in a nearby municipality, which were resettled in a 250 ha area alongside the reservoir. Presently, about 300 Indians make a living there out of fishing and subsistence farming.[16]

This is hardly an accurate description: it does not even mention their name. Furthermore, in a survey of Itaipu employees, when asked which projects Itaipu management was coordinating with the Ava-Guarani, the vast majority could only name projects such as "preservation of nature and Ava-Guarani tribe." [17] This echoes the 1970s military government's statement that the Ava-Guaranis were "part of nature and needed to be preserved." Even though thirty years have passed since the military government made that statement, the notion is still prevalent in Itaipu's workers and symbolized in the placement of the Ava-Guarani in the environmental pamphlet. If these notions continue to abound in dominant thought, there is a high probability

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[14] Josephson, Industrialized Nature, p.154.
[15] De Santos, Leinard A. and Andrade, Lucia M., Hydroelectric Dams on Brazil's Xingu River and Indigenous People (Cambridge MA: Cultural Survival Inc, 1990). [emphasis added]
[16] The Environment, Life with Lots of Energy. (Foz do Iguaçu: Itaipu Binacional, 1995).
[17] Rosa Angelica de Silva, Personal Interview. 16 Jan 2004.

that the indigenous communities will continue to be treated as second-class citizens, closer to nature than human beings. In reality, the Ava-Guarani people are humans, not trees. By defining the Ava-Guarani as fixtures in nature, their humanity is denied. This implies that one is not human unless a developed part of capitalist society. The fact that the Brazilian military government defined the need to remove indigenous communities from the path of development as an environmental problem exemplifies their mistreatment of the indigenous community. The historical and present day treatment of indigenous communities leads to Itaipu management's placement of all of the social costs on the Ava-Guarani peoples.

At the beginning of the 1960s, workers began clearing trees on the Ava-Guarani's land in preparation for the construction of Itaipu. Prior to the resettlement, the Ava-Guarani were migratory, inhabiting a large area of land. Their cultivation technique was called "rozado," and consisted of finding a small plot of land, removing the weeds and small trees, and planting maize. After clearing an area of land, planting and harvesting maize, they would pick up and move to another area and begin again. This way, the plantation areas had adequate time to re-fertilize before they were reused. When the Itaipu workers came in and began clearing lands, the Ava-Guarani's traditional migratory subsistence method was destroyed. Gradually, their territory shrank as they were forcefully relocated to smaller plots of land, largely inadequate for their survival considering their historical migratory subsistence methods. [18]

At 5:45 PM on October 13, 1982, the Brazilian military government and Itaipu Binacional began to flood all of the traditional lands of the Ava-Guarani people, making room for the 838-mile^2 Itaipu reservoir and expelling the tribe from their homeland. The precise number of Ava-Guarani pushed out is unclear due to the failure to gather data or carefully supervise the initial relocation. An estimated 150-500 indigenous people were forcibly moved to a tiny 593-acre plot of land in the town of San Miguel, an hour from Itaipu. Itaipu

management considered this land, once a national park, an ideal location to preserve the indigenous tribe along with the natural surroundings, reflecting the conceptions of the Ava-Guarani as a non-human part of the ecosystem. The San Miguel reservation area was too small for each community member to grow sufficient maize and did not have potable water. Instead of resigning themselves to this small reserve, many of the Ava-Guarani fled to Paraguay in search of a more stable existence.[19]

The Ava-Guarani have informed Itaipu management that each tribe member's individual plots are too small, not allowing them adequate space to provide for themselves. Itaipu management only belatedly acknowledged this land shortage. In 1996, after 14 years of negotiation between Itaipu representatives and the Ava-Guarani, Euclides Scalco, the director of Itaipu, made a public commitment to create a 3,705 acre reservation called Diamante Dioeste, (Diamond of the West) for the Ava-Guarani. It took nearly fifteen years for Itaipu officials to acknowledge that they had grossly underestimated the tribe's land needs and grant them a sizable tract in an attempt to recreate their previous existence on new grounds.[20] However, by that time tribe members had already crossed the Brazilian-Paraguayan border, dispersed and established themselves among those in Brazil. The Paraguayan reserves are inferior to the Brazilian due to smaller land area and inadequate government funding. Further, the Ava-Guarani culture is distinctive among the differing Guarani sects, and the fusion of groups reduces the Ava-Guarani cultural autonomy.

When the news spread that Itaipu officials were creating a new reservation for the indigenous population displaced by Itaipu, many Paraguayan Guarani sects sought to take advantage of this offer. Due to Itaipu management's deficient census records there was no way

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[18] Rosa Angelica de Silva, Personal Interview.
[19] Rosa Angelica de Silva, Personal Interview.
[20] "Ava-Guarani Indians make agreement with power plant." Indianist Military Council (CIDM). Article 204, Apr. (1996).

to verify which Guaranis were the originally displaced Ava-Guarani. When I surveyed those living in the reserves, over 70% admitted being Paraguayan and had no connection to those initially displaced by the dam. The belated attempt to provide adequate land for the Ava-Guarani proved futile, for the Itaipu managers could not pinpoint the first oustees among the many Guarani sects wanting to take advantage of this delayed rectification.[21]

The creation of Diamante Dioeste was by no means a panacea. First, the Ava-Guarani sect only constituted a small percentage of those inhabiting the reserves. Second, although the overall conditions of Diamante Dioeste were far superior to the San Miguel reservation, with more land, food and housing materials, the general living situation in Diamante Dioeste was still insufficient compared to their original land. This was largely due to the comparatively smaller area and infertility of the land at Diamante Dioeste.[22]

Due to the conditions in both reserves, many indigenous people began to protest for a better living situation. The mounting pressure on Itaipu bureaucrats to improve the conditions of the reserves led them to turn the Ava-Guarani reserves over to the National Foundation for Indians (Fundação Nacional do Índio or FUNAI). FUNAI is a Brazilian agency charged with establishing and executing policies related to indigenous people as outlined in the Constitution of 1988. In practice, this means promoting the demarcation and protection of indigenous communities' traditional lands, and upholding their constitutional rights.[23] Even after Itaipu officials and FUNAI agreed to give FUNAI full, legal responsibility for San Miguel and Diamente Dioeste, Itaipu managers retained a small percentage of financial responsibility.[24]

FUNAI's intervention was disastrous, leading to a series of errors that only aggravated the situation. From the start, FUNAI bureaucrats had overlooked the existence of the Ava-

[21] Rosa Angelica de Silva, Personal Interview.
[22] Rosa Angelica de Silva, Personal Interview.
[23] "Mission Statement," FUNAI, 2004 <http://www.funai.gov.br/funai.htm>.
[24] Rosa Angelica de Silva, Personal Interview.

Guarani living within the dam impact zone. For the duration that FUNAI was responsible for representing the Ava-Guarani community, they were largely ineffective in transferring the money Itaipu representatives allocated the indigenous community. [25] Furthermore, documents demonstrated FUNAI's desire to apply quick and easy mechanical solutions to the Ava-Guarani's plight, which resulted in half-hearted and unsound attempts to better the Ava-Guarani living situation. For instance, the FUNAI representatives gave money to many of the remaining Ava-Guarani, however they were not familiar with commercial economics. FUNAI sent working groups to the reservation that were largely underqualified and they presented a conjured reality to their supervisors, claiming that everything was "good" and would be "resolved shortly." [26] The supervisors were quick to accept these false depictions as fact. These mistakes, as well as others, multiplied, subdivided and created situations that did not favor the interests of the Ava-Guarani people, but instead the interests of the Itaipu management and FUNAI who did not want to put forth the effort and funds to remedy the situation. According to its critics, FUNAI has never capably defended any indigenous community under its authority. In many cases FUNAI has failed to provide adequate resources such as food and shelter, prevent outside aggression when outside parties sought to exploit resources within the indigenous reserves, and proved unsuccessful in preserving the cultural integrity of the indigenous tribes with which they work. [27] Thus, it was no surprise that in 2002 FUNAI handled the Ava-Guarani's situation poorly. In response, Itaipu representatives were forced by indigenous rights organizations to reinstate programs to assist the Ava-Guarani, renewing the Itaipu's involvement. [28]

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[25] Departmento do Geoniencias, "Os efietos sociais e ambientais provocados pela construcao da hidreletrica da Itaipu Binacional," diss., Fundaga o Universidade estadual do centro oeste, 1992.
[26] Almeida, Rubem T, Laudo Antropologico Sobre A Communidade Guarani-PR (Rio de Janeiro: Associcao de Pesquisa, 1995) 32.
[27] Almeida, Laudo Antropologico, 32.
[28] Josephson, Industrialized Nature, p.143.

In the last thirty years, the Ava-Guarani community has experienced the greatest change in their history, shouldering all of the socio-cultural cost associated with Itaipu, such as immigrant pressures, land-grabbing, modernization, environmental exploitation, economic ramifications, increased public health risks, increased tourism, change in river navigability, intertwine of rural and urban culture, cultural ruin and societal separation.[29] Even if we disregard the fact that many of the displaced Ava-Guarani community members are still unaccounted for, Itaipu's employees and management, citizens of Foz do Iguaçu and others affiliated with Itaipu lack the incentives to take action to change the quality of the reserves for the remaining Ava-Guarani. In looking at the basic necessities of life-- shelter, clothing, food and public health, the Ava-Guarani people are suffering. They confront Western ideologies of progress and technologies as they seep into their cultural existence through education, health facilities, agriculture tools and other means. The Itaipu employees and citizens need to acknowledge the Ava-Guarani reality, then take steps to change it by advocating for better living conditions.

I witnessed firsthand the difficult living situation at San Miguel, the first reserve, along with Carlos Edemad de Lima, a translator and professor of history and geography. As Carlos and I meandered down the poorly marked roads to the reservation, I noticed that the paved road became a clear-cut trail, and finally to a worn footpath interweaving through dense rainforest. In a matter of years, modernizers will likely will lay the concrete and pave the roads all the way up to the reserve, bringing complete development to allegedly backward people. As we approached the community's main meeting area, a group of children walked tentatively up to me and stared. Restricted by an inability to speak Guarani, all I could do was smile and stare back. Each child wore clothes stained red from the terra-cotta-colored soil. Since their relocation, the like their parents, the children had adopted the notion of wearing "white

[29] "Ava Guarani" Museo Barbero. Paraguay, 2003.

society's" clothing. The chief of the tribe, Jovini Tupa Jeguej, explained "many white people tell us we are no longer Indians if we wear these clothes." He continued, "They do not know, inside we are still pure Indians." Although many traditions can be retained while others (like wearing clothes) are changed, when the outside traditions overwhelm the ancestral culture, slowly the past traditions are lost.

The Ava-Guarani tribe lives on a reservation that is one-tenth the size of their ancestral land. This is largely inadequate due to its inability to ensure survival by allowing a continual level of subsistence. Many of the Ava-Guarani in San Miguel can still recall the day when their homes were flooded, animals slowly drowned, and their existence forever suffocated beneath 29 billion tons of water. Today, they remember this event by selling to tourists a simple wooden image of a tree with animals in its branches trying (unsuccessfully) to escape the

Figure 2a

Monkey in tree trying to escape flood, (left image, see arrow) depicted by Ava-Guarani's wooden sculpture (right).

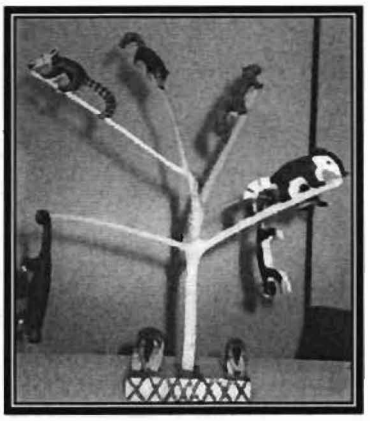

Figure 2b

flood (depicted in **Figures 2a and 2b**).[30]

San Miguel rests along a narrow branch of the Itaipu reservoir, where indistinguishable grids of small plantations have replaced dense rainforest. The one-room houses consisted of a thatched roof, made from a common rainforest tree, and a wooden structure as seen in **Figures 3a** and **3b**. The one-room wooden shelters sit patiently at the

edges of the small fields, waiting for the maize, manioc, peanuts and cassava to grow. Rough poles support the rooves, with garbage shoved in the cracks to keep out the rain. Paved roads clearly outline the borders of the reservation, perceptually setting aside the area and people to preserve, physically separating them from the outside world. [31] Even within this isolating infrastructure, the land allocated to preserve their tribe is insufficient.

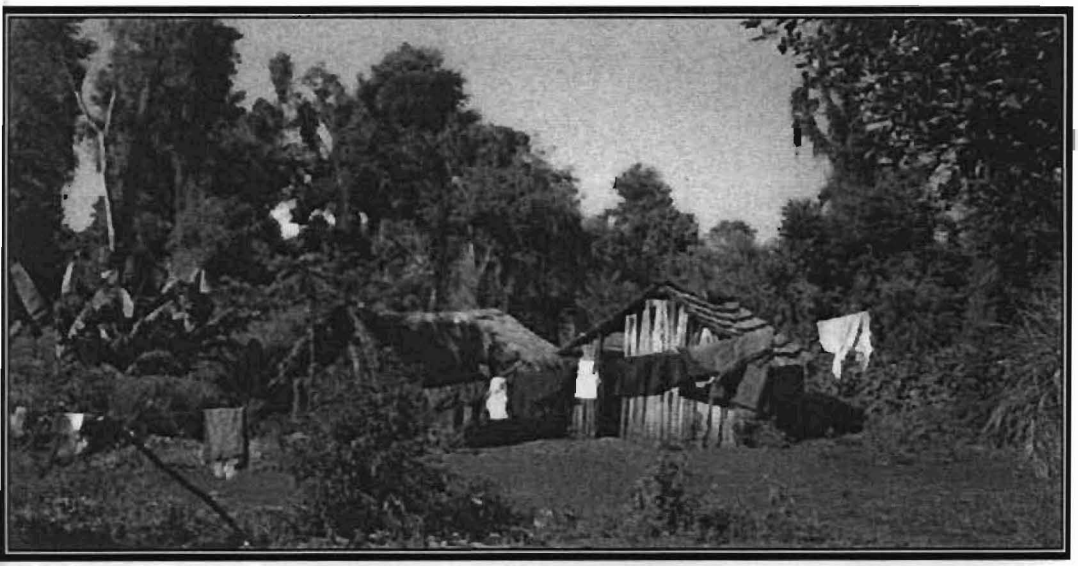

Figure 3a

Figure 3b

[30] Sotuyo, Patrice Claudia Godoy. Personal Interview. 12 Jan 2004.
[31] Carlos Edemar De Lima, Personal Interview. 14 Jan. 2004.

Inside, the houses are very bare, often containing only a fire pit, a homemade mattress and a pile of clothes (**Figure 4**).

Figure 4

By modern standards the houses suggest a level of poverty, but in reality reflect the simpler life, devoid of the extravagances found in the modern world. Still, their standard of living has fallen since the construction of Itaipu. In an attempt to alleviate this "poverty" contractors constructed "modern" houses as instructed by Itaipu officials. I was informed that the newer houses were built in an attempt improve the standard of living of the Ava-Guarani, but Itaipu management did not complete the project. Itaipu managers built the houses without talking to the Ava-Guarani people. When the construction workers came into the village and began to fashion "modern" houses, the Ava-Guarani chief quickly protested and the project was shut down. Jovini Tupa Jeguej, informed me that the Ava-Guarani people were pleased that Itaipu management did not finish the project because they did not want to live in the "modern" houses. They preferred their wooden framed houses rather than the modern replacement, desiring to hold onto their traditions instead of assimilating. They continued to

ask for more land which would supply additional and improved traditional housing materials. Their resistance to Itaipu management's offer to redesign their traditional homes should not be framed as resisting progress, but instead as a statement of their desire to remain culturally autonomous.

Since the initial relocation, the Ava-Guarani have had to adapt to other modern technologies and markets. Currently, they are forced to buy and sell food, not grow and gather as in the past. Now, they buy in stores what they can no longer find in nature.[32] As before, they grow manioc, rice, peanuts, bananas and mangos on their limited land. However, in the near future this land will be exhausted because the population is rapidly growing (each family average 5-10 children). They need more land or they will have no room to meet projected future subsistence levels. [33]

Itaipu management has attempted to sustain the Ava-Guarani with an agricultural program. The program claims to take into account the needs and customs of the indigenous community by creating a self-sustaining agricultural center with the help of Itaipu technicians. Although these programs were intended to assist, they are culturally insensitive. The program seeks to help the indigenous community in cultivating family and communal plots. The community plots are primarily for the widows, the sick and the community in general during times of low productivity. In addition, these plots are used to cultivate commercial crops such as maize and soybeans. However, the Ava-Guarani people are not used to the cultivation of crops with commercial value, like maize and soybeans, and have never sold food products. Currently, they do not even have a food surplus to sell. Furthermore, the new agricultural program is only being implemented at Diamante Dioeoste, not at the San Miguel reservation,

[32] Departamento do Geociencias, "Os efectos da hidreletrica da Itaipu Binacional."
[33] "The Official Site of the Itaipu Binacional, Indians" 2004.

an obvious inconsistency.[34] The standards need to be raised at both reserves, after all one group of people is no more deserving than another.

Additionally, as part of the agriculture program, Itaipu spokesmen gave the community milk cows, pigs and 60 beehives for honey production, and have created a clean water program for all of the communities, indigenous or otherwise, living on the banks of the Itaipu reservoir.[35] However, prior to their relocation, the Ava-Guarani traditionally did not eat meat, having instead consumed large amounts of fish. They are unskilled in the process of abatage and securing future meat sources. [36]

The continued starvation of the Ava- Guarani people is the clearest indication that the subsistence programs are failing. In April of 2003, they appealed to Itaipu for assistance. Itaipu officials documented over 100 children suffering from malnutrition. Itaipu officials responded by asking representatives of a Catholic Church to come in attempt to resolve the situation by providing medical staff and proper nutrition. Today these 100 children are healthy, however many other tribe members are still going hungry unnoticed. [37]

I had a memorable conversation with a 19-year-old man named Pero, father of four children, who is one of the individuals who seems to be going hungry. Pero was married at 15, and asserted that overall he likes living on the San Miguel reserve. Born in Paraguay, as a child he and his family escaped to Brazil when they were forced off their land due to immigrant pressures. During his childhood, he recalls his father complaining about the lack of land, and now as a father, he feels similar anxieties. He was proud to show us a bag of rice and manioc, but appeared ashamed to inform me he had no maize. He also boasted that he had started a small chicken farm, and ate a chicken per month. I asked Pero if he needed anything to

[34] "The Official Site of the Itaipu Binacional, Indians" 2004.
[35] "The Official Site of the Itaipu Binacional, Indians" 2004.
[36] "Ava Guarani" Museo Barbero.
[37] Rosa Angelica de Silva, Personal Interview.

improve the quality of life of his family. Normally talkative, he merely shrugged and pointed to a bag of rice. When I asked if he was hungry, he did not answer but stared at the ground. When I asked the same questions of other Guarani people living in the reserve, they spoke of a lack of land as their primary worry. This response represents the reality of the subsistence level at San Miguel and the need for more land to meet the rising population pressures. Many individuals are hungry and they are anxious about their ability to provide for their children. When I asked Itaipu managers about the lack of land at San Miguel, they quickly asserted that San Miguel was the worse case scenario and urged me to visit Diamante Dioeste. Even if Diamente Dioeste were superior to San Miguel and attempted to observe the Ava-Guarani culture while providing land, which it does not, it was created 14 years too late, hardly a bonafide solution. San Miguel is home to the majority of the Ava-Guarani tribe members still living in Brazil; thus, this is the reserve needing reevaluation. [38]

Itaipu managers have also introduced health and educational facilities to the reserves. The neighboring municipalities provide the schools with teachers and pay their salaries. The school in San Miguel is open five days a week for 3 hours daily, but student attendance is sporadic. The medical facilities, one located on each reserve, are open 24 hours. They are adequately equipped with modern day medicines, vaccinations and tools to treat almost any ailment, though they do not provide an overnight infirmary. [39]

Many critics see these schools as yet another attempt to acculturate the indigenous communities into Brazilian "white" society. Although Itaipu management has seemingly good intentions, it has viewed education as a vehicle for oppression, assimilation and cultural intrusion. The educational material largely consists of Western skills and concepts, which repudiates the Ava-Guarani culture. The Ava-Guarani people reject the majority of the

[38] Rosa Angelica de Silva, Personal Interview.
[39] Carlos Edemar De Lima, Personal Interview.

information, for it is irrelevant to their current needs. [40] Furthermore, the Ava-Guarani children are not used to going to school, as their primary focus has traditionally been agricultural work. Many of the volunteer teachers who work at the reserves claim it is hard to educate the students when their parents need them to cultivate the fields. There needs to be more research or appropriate education for such indigenous communities as the Ava-Guarani, that balances work and education.

The health centers also face criticism. Many outsiders believe that the indigenous communities' bodies are soiled with viruses and bacteria. This view appears to mirror the 16th century perceptions of the indigenous community that the missionaries and settlers held when they first came into contact with the Guarani, and believed that their "souls were blackened by sin."[41] In attempt to "fix" the problem of introduced disease in the Itaipu reserves, management created health facilities. [42] When medical groups, such as the Red Cross, entered the Ava-Guarani reserve and attempted to alleviate many of the introduced diseases, they did so with good intent. However, when the Red Cross, taught the Ava-Guarani religious healers, the Avanju, how to use modern medicines these leaders came back to the indigenous communities demanding salaries equal to their modern counterparts. Since the Ava-Guarani people could not afford this request, they lost several of their traditional medical leaders.[43]

The issue of the Ava-Guarani's health must not be simply treated as a biophysical magnification of pathogens, but a social phenomenon created by economic development. By merely attempting to cure individual cases of diseases, that have been principally introduced by Western society, the underlying cause of the problem is being ignored, and indirectly

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[40] Linda Romelo, Personal Interview. 17 Jan. 2004.
[41] Reed, Richard K., "Medicine, Land Loss and the Guarani" Anthropological Quarterly, 69.3. (July 1996).
[42] "The Official Site of the Itaipu Binacional," 2004.
[43] Reed, "Medicine, Land Loss and the Guarani," p. 3.

legitimized. The attention to these new introduced diseases only masks the symptoms of the larger problem, that of land loss, forest destruction and the forced integration of cultures.[44]

Indirect and direct economic development has contributed to disease among the Ava-Guarani. Their relocation limited their hunting and gathering, agricultural and fishing activities, thus reducing nutritional levels. This, in combination with many introduced diseases and increased alcoholism, has led to the deterioration of the health of many Ava-Guarani people. This is seen in 1995 when 22 Guarani people killed themselves due to depression, brought on by illnesses and loss of land.[45] To counteract these situations Itaipu instituted modern health facilities. Although these medical facilities have good intentions, they are not getting to the root of the problem: economic development.

Clearly, Itaipu officials' work with the Ava-Guarani in the past as well as the present has failed. The Ava-Guarani are not alone; many Amazonian tribes have been pushed aside, inflicted with technologies and outside ideologies of progress. The Kayapo-Xikrin of the Bacaja region, Kararo of the Iriri River, Juruna on the middle Xingu River, the Arawete of Para and others, have all been displaced in the name of technological advancements.[46] These groups of indigenous people, many of whom had never had direct "contact" with outside cultures, inhabited the Brazilian Amazon region until displaced by hydropower projects. The majority of the displaced were not aware of the projects until water began to flood their homes. In protest, many tried to resist their relocation, only to be met with bullets from colonists' or highway workers' shotguns. In the end, many fled their huts, gardens and traditional lands and went deeper into the Amazon. However, they have not been able to establish a stable existence for themselves as they lack resources and land to re-create past conditions.[47]

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[44] Reed, "Medicine, Land Loss and the Guarani," p. 3.
[45] Reed, "Medicine, Land Loss and the Guaran," p. 5.
[46] De Santos, Leinard A. and Andrade, Lucia M., Hydroelectric Dams on Brazil's Xingu River and Indigenous People (Cambridge MA: Cultural Survival Inc, 1990) p(p.) 141-151.
[47] De Santos, and Andrade Hydroelectric Dams on Xingu

The Ava-Guarani and other indigenous relocation, is a product of a larger scheme that places technology and the notions of progress over the rights of ethnic minorities to inhabit their traditional land. For centuries, in every country on every continent, indigenous people have been conquered and assimilated in the name of religion, national growth, war, resource acquisition and development. The perceptions of the indigenous people as backward, primitive and part of nature have continually been used to justify this assimilation. Some even go so far as to claim it is a positive thing for the indigenous societies, by pulling them out of the wilderness and into modern developmental schemes. The outside communities benefit from obtaining something from the indigenous community -- land, slaves, resources and the like -- while, the costs are largely born by the indigenous communities. The citizens of Foz do Iguaçu and bordering towns, employees at Itaipu, students, scholars and journalists, are all aware of the unequal burdens being placed on the surrounding indigenous communities. However, their negative perceptions of the Ava-Guarani, their notions of progress and the benefits they receive hinder them from reacting and questioning Itaipu management's mistreatment of the Ava-Guarani.

When Awareness Is Not Enough

To determine the extent to which the Itaipu employees are cognizant of the plight of the Ava-Guarani tribe; I conducted a survey sampling 1/5 of the employee population at the Itaipu headquarters and interviewed additionally selected individuals. The survey instrument utilized was a multiple-choice questionnaire. This questionnaire consisted of 28 multiple-choice questions and three open ended questions. The multiple-choice question types used were yes or

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River, p. 151-175.

no, simple text and numerical choices. The questions were divided into six major groups: demography, job classification, personal awareness, company awareness, personal and company actions, and lessons learned.

Two of the three open-ended questions were focused on direct actions taken by the respondents and the company to assist the Ava-Guarani tribe, and the last open-ended question was focused on any personal lessons learned from past actions. The questionnaire took between 15 and 20 minutes to complete. The questionnaire was translated from English to Portuguese with the assistance of a local professor. The results were translated back to English. The multiple-choice format was selected to minimize any information lost in the translation and it also provided a simple and easy instrument to extract the information for quantitative analysis. The format allowed the information to be presented using a variety of chart types, including pie and bar.

With executive management approval, the 250 questionnaires were distributed equally among the major departments: shared services/human resources, finance, management, engineering and technical support. Executive management supported this survey and requested that all questionnaires be completed and returned to the executive office within 8 business days. After 8 business days, 65% of the questionnaires were returned completed. Each questionnaire was assigned a number and entered in an MS-Excel database. Open-ended answers were translated. A native, Portuguese professor verified the translation.

In addition to the multiple-choice questionnaire, 15 open-ended interviews were conducted with current employees and former employees. To gain a perspective outside of the company environment, interviews were conducted with local tourist guides, citizens of Foz do Iguaçu, professors and the Ava-Guarani chiefs and tribe members. The interviews were conducted in English, Portuguese, Spanish or Guarani. A native Portuguese person assisted in

the Portuguese/Guarani to English translation. I was able to conduct interviews in Spanish and English.

Eighty-five percent of employees surveyed were male, the majority between the ages of 40-55 years of age, seventy-percent who had worked at the company for at least 10 years and were married with children. This is a fair representation of the Itaipu employees as a whole, which is largely male-dominated with a high retention rate (**Figure 5**). In **Figure 6,** the distribution of age clearly shows the dominance of employees between 40-55 years of age.

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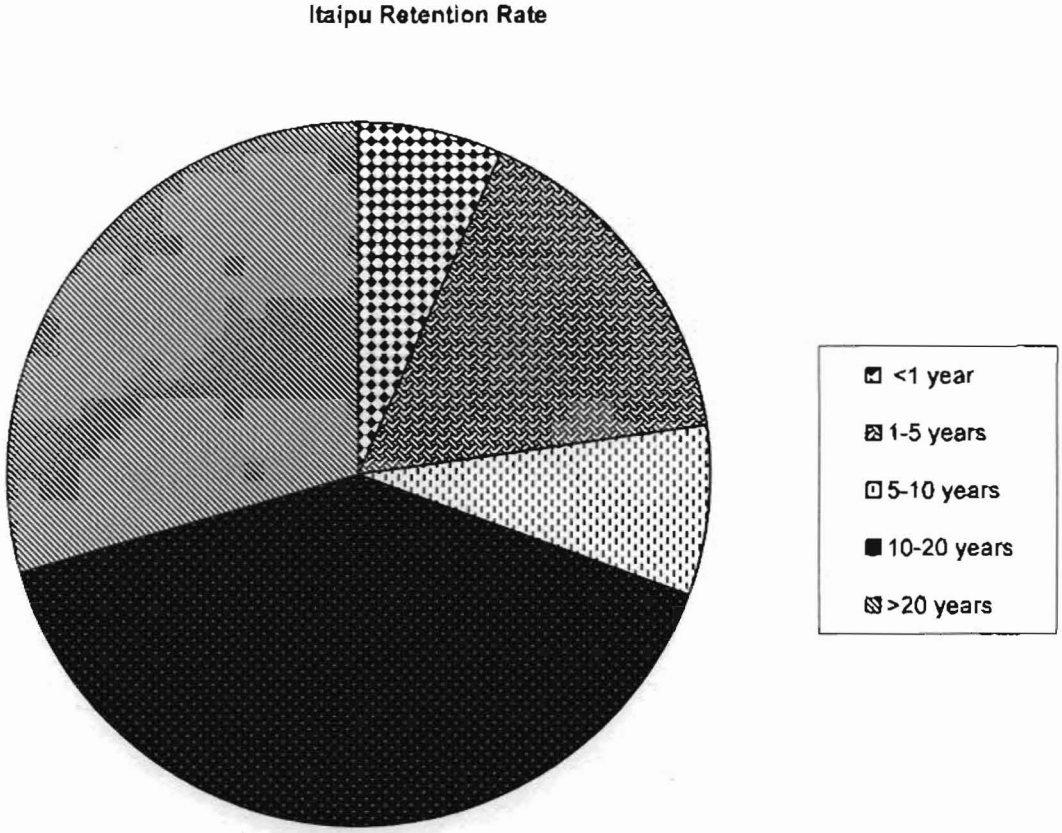

Figure 5

Figure 6

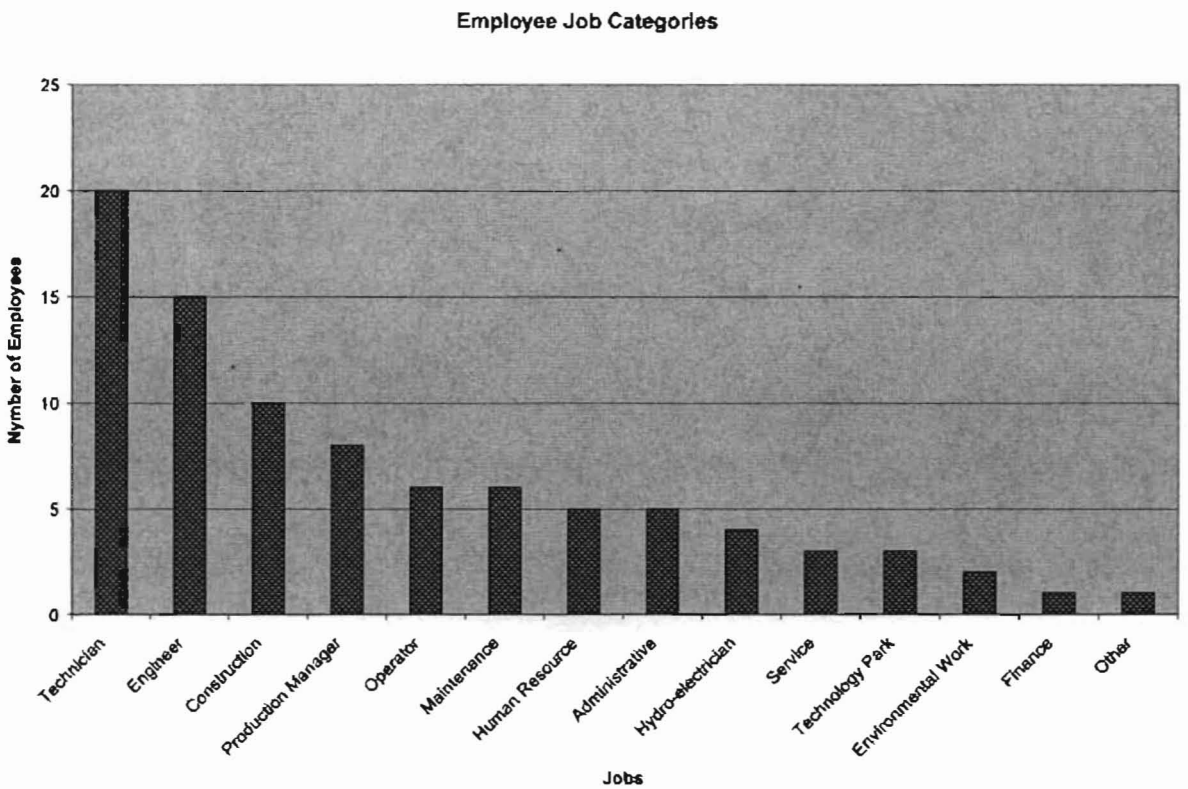

Figure 7

The employees represented a wide range of departments (**Figure 7**). The largest numbers of respondents were technicians, which is not surprising given the prevalence of technicians employed by Itaipu representatives compared to other departments. However, sixteen other departments also responded.

Itaipu employees were largely cognizant of the Ava-Guarani situation. Sixty six percent of the responders confirmed that Itaipu officials had informed them about the relocated indigenous populations. Further, seventy-two percent believed that land and cultural preservation were topical issues within the Ava-Guarani. If almost 3/4 of those surveyed were aware of the current cultural and land issues present in the Ava-Guarani society, they are undeniably aware that the indigenous peoples were struggling to maintain their land and cultural integrity. Furthermore, in interviewing many of the citizens of Foz do Iguaçu and the neighboring municipalities, the vast majority acknowledged the poor conditions of the Ava-Guarani reserve. However, acknowledgment and action are disconnected.

The benefits dispersed by Itaipu management can, in part, explain this separation. The Itaipu employees and citizens of Foz do Iguaçu and adjacent towns, recognize the socials costs born by the Ava-Guarani people, but may not do not directly link their benefits -- electricity, royalties, hospitals and housing complexes -- to the Ava-Guarani's burdens. Regardless, they benefit while the Ava-Guarani people bear the costs from the same large-scale hydroelectric creation. The majority of the Itaipu employees depend almost entirely on Itaipu for their familial/individual income (**Figure 8**). Seventy percent of them have been working for Itaipu for more than ten years, which indicates that the notable benefits can elicit high employee retention rates. It is easy to argue that some employee retention can be attributed to company loyalty, but this reasoning overlooks the high unemployment rates in Brazil and the meager

employee benefits received at other institutions. The absence of other jobs, with equitable or higher employee benefits, is clearly what drives the high retention rates.[48]

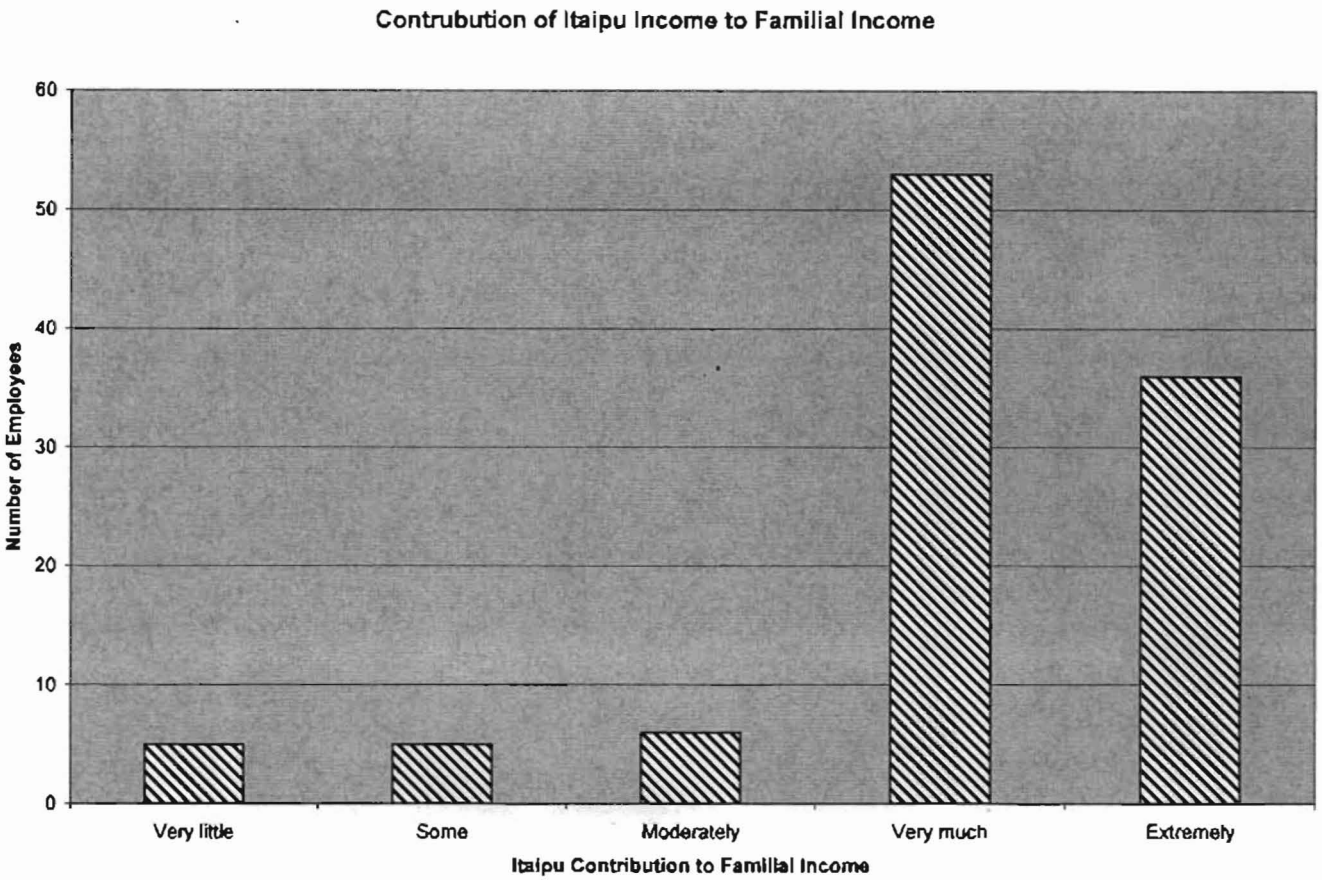

Figure 8

It is interesting to note that employees whose primary income source was almost entirely based on Itaipu tended to be more satisfied with the treatment of the indigenous population than those who received a lesser income percentage from Itaipu. Fifty two percent of those whose income source was entirely, or almost entirely, based on Itaipu were satisfied with Itaipu's treatment of the Ava-Guaranis, 26% were not and 22% did not know (See **Figure 9**). Thus, the more money they earned from Itaipu, the higher the probability they were satisfied with the treatment of the Ava-Guarani people. Therefore, it can be inferred that beneficiaries of

[48] Jorge Habib, Personal Interview. 13 Jan. 2004.

an institution are more likely to overlook its failures due their received benefits, as exemplified by Itaipu's high-income employees tendency to side with Itaipu management's decisions.

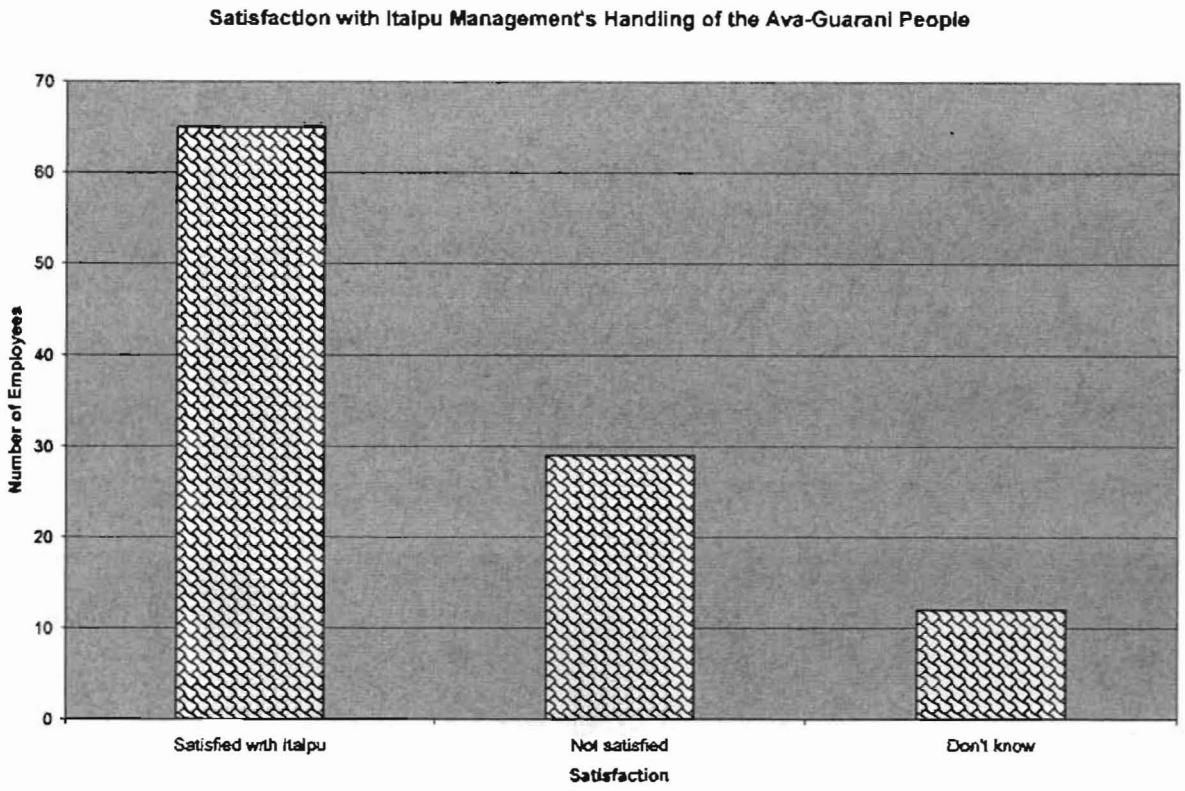

Figure 9

Itaipu Binacional management has made dreams of job security, nice housing and steady salaries a reality for many of the Itaipu employees and citizens of Foz do Iguaçu and neighboring towns. Itaipu paid for the construction of hospitals, schools, technological parks and provided extraordinary employment opportunities. These benefits shape the perceptions of large scale technologies and make it easier for the employees to look away from the heavy burdens being placed on indigenous community. [49]

[49] Ventura, Fihlo Antino, "Itaipu: A Binational Hydroelectric Powerplant, Its Benefits and Regional Context," The World Commission on Dams, 1998-2000, Ins. 237.

The manner in which Itaipu Binacional management dealt with the non-indigenous communities sharply contrasts with the way they neglect the indigenous communities. One could argue that non-indigenous communities are better off after the construction of Itaipu, due to the increased standard of living felt by the people living near the project site. This increased standard of living is a result of the payment of royalties, construction of education and health faculties and increased economic activity (largely from to tourism). An Itaipu organization called Occupational Health claims that the physical, mental and social well being of its employees has increased since Itaipu's construction. This organization promotes the maintenance of high quality of life standards for its employees, through programs including, cancer and diabetes support groups, chemical dependence groups and physical fitness programs. [50]

Yet, the indigenous communities did not benefit from Itaipu. Instead they lost their land, their culture and their existence as they had known it for thousands of years. The men and women who benefited from Itaipu's construction do not want to impugn the institution that provided them the benefits, for fear they might lose what they gained. Although many of them were aware of the plight of the indigenous people, it was more comfortable to plead neutrality, not jeopardizing their own benefits and "bite the hand that feeds them."[51]

The first key advantage the non-indigenous communities received occurred prior to the construction of Itaipu, when Itaipu Binacional teams assisted the soon-to-be relocated non-indigenous communities in the process of relocation. The process of relocating non-indigenous communities' began in 1975, seven years before the creation of the reservoir. In four different decrees, the Brazil and Paraguayan governments decided to set aside 261,703-acre public relocation plot for the communities. This is 441 times larger, and 21 years prior, to the land

[50] Occupational Health and Workers Quality of Life (Foz do Iguaçu: Itaipu Binacional, 2003).
[51] Patricia Sotuyo, Professor at the University of Unioeste

area given to the indigenous communities.[52] The municipalities that were relocated to make way for the Itaipu reservoir are currently named: Foz do Iguaçu, Santa Terezinha de Itaipu, Medianeira, Itaipulandia, Missal, Santa Helena, Sao Jose das Palmeiras, Entre Rios Doeste, Pato Bragado, Marechal Candid Rondon, Mercedes, Terra Roxa and Guaira. Prior to the construction of the dam, Itaipu management worked with each of these communities to ease their relocation. Itaipu representatives excavated and translocated the cemeteries and incorporated the municipalities in each step of relocation the process. By listening to their opinions, and by simply recognizing the loss, Itaipu Binacional upheld the dignity of the relocated community. Although relocation assistance and recognition of loss are benefits difficult to quantify, comparing them to the treatment of the indigenous communities who were treated as part of nature, who did not even know the reservoir was being built until a month before it flooded their land, the immense advantage of the non-indigenous communities becomes more apparent.[53] Everything was decided for the indigenous peoples, denying them their right to informed participation in the decision-making process and a choice in their future.

Itaipu Binacional management not only publicly recognized the loss felt by the non-indigenous communities, they granted economic reparations to the non-indigenous municipalities, as outlined by the Treaty of Itaipu (Annex C), the Constitution of 1988 and the 1991 Brazilian Federal Decree No. 1. The Constitution of the Federal Republic of Brazil (1988) states that electric utilities companies have an obligation to pay a financial compensation for the exploitation of hydraulic resources. The later amendment in 1991 outlines the specific parties percentage of the reparations: 45% to the state, 45% to the Municipalities, 8% to ANNNEL, the National Agency of Energy, and 2% to the Ministry of

[52] Departmento do Geoniencias, "Os efietos da hidreletrica da Itaipu Binacional."
[53] Danubia Soares, Personal Interview, 14 Jan. 2004.

Science and Technology. [54] In the case of Itaipu, the royalties were paid through the Brazilian National Treasury by the plant to each respective country, Paraguay and Brazil, and they totaled $US 13 million monthly.[55]

In comparison, FUNAI's annual budget is roughly $US 9-10 million. However, the National treasury repeatedly failed to grant FUNAI full funding. It was not just the Ava-Guarani who did not receive proper funding. FUNAI could not provide adequate financial support to any of its representative indigenous communities. (See **Table 1**)

Table 1: FUNAI's Percentage of Funding from the Brazilian National Treasury [56]

1989	1991	1993
59.9%	7.2%	4.8%

From 1989 to 1993, FUNAI's funding annually averaged 24%, which equates to US $ 7.13 per capita

The royalty payments provide the municipalities with the monetary means to improve their quality of life that sets them apart from other Brazilian cities. Many of the individual living in the towns have admitted to having more money then they know what to do with, spending it on gargantuan water / theme parks (Itaipulandia), extensive beach-front facilities (Santa Helena- See **Figure 10**), massive tourism buildings, extensive Christmas, Carnival and Easter decorations and other public projects. For example, Santa Helena, located 193 miles

[54] "The Official Site of the Itaipu Binacional, Royalties" 2004.
[55] Ventura, "Itaipu: A Binational Hydroelectric Powerplant."
[56] Trujillo, Gary S., "Brazil: Indigenous News" Servico Brasilero de Justita e Paz (SEJUP).117, Feb (1994).

from Foz do Iguaçu, has the best tourist complexes in western Brazilian, attracting on average 300,000 visitors during the peak summer season to vacation along its artificial beaches.

Figure 10

Itaipulandia is another striking example, as its population receives an annual per capita income of $US 2,000 dollars from Itaipu royalties. [57] The average Brazilian annual income is $US 2,830.[58] Royalties constitute an important source of resources for the municipalities, totaling on average more than half their annual revenue. For certain towns, royalties make up most of their revenue, constituting 75% of the annual revenue in six towns.[59] The towns themselves are highly prosperous and meticulously manicured, contrasting sharply with the often crowded, polluted and crime ridden, representative Brazilian city.

The royalties are so large that the cities could potentially donate some of their surplus royalties to the Guarani people. When I asked the executive manager and engineer at Itaipu,

[57] "The Official Site of the Itaipu Binacional, Royalties" 2004.
[58] "Brazil at a Glance." World Bank. 2003. < http://www.worldbank.org/data/countrydata/aag/bra_aag.pdf>
[59] Ventura, Fihlo. Itaipu: Its Benefits and Regional Context.

Jorge Habib El Khouri, if the surplus could be given to the indigenous people, he flatly answered "no." He noted that Indians have different monetary needs, and do not need the luxuries of modern society. However, financial support could purchase clean drinking water, housing materials and especially more land. Since the municipalities receiving the money have not responded to the plight of the Ava-Guaranis, they do not recognize their needs, and consequently the money is used for indulgences, from excessive Christmas decorations to water parks. [60]

Aside from the royalties, Itaipu management created three housing complexes or "Villas" in Foz do Iguaçu, containing about 10,000 housing units for its employees to live in, free of charge. Each Villa has paved roads, electricity, water supplies and sewage systems. [61] The Villas were created from 1975-1977, almost a decade before the creation of the dam and 20 years prior to the creation of the reserves for the indigenous people. However, only Villa B is currently owned by Itaipu. The three villas, A, B and C, are segregated by specific social classes and strengthens the process of identification with a determined social group. Villa C housed primarily the manual labor force of Itaipu, and the houses are of lower quality than that of Villa A and B. Villa A is for average salary employees and Villa B is the high-end residencies of the upper-level managers and executives of Itaipu. Each villa has its own security, community center and maintenance crews paid for by Itaipu.[62] The aerial photograph of Villa B below, shows the housing complexes and the community meeting area (in center). These houses appear similar to the US upper middle-class's housing (See **Figure 11**).

[60] Jorge Habib, Personal Interview. 15 Jan. 2004.
[61] "The Official Site of the Itaipu Binacional," 2004.
[62] However, Villa A and C not longer belong to Itaipu, thus Itaipu has stopped paying for these services.

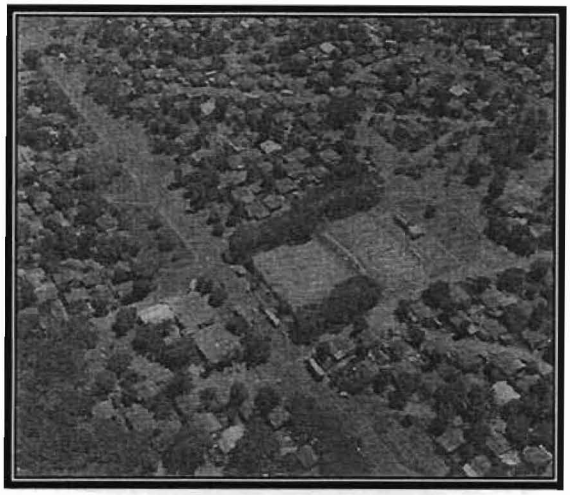

Figure 11

Together, the housing facilities take up 23% of the city's total area, a vast tract in comparison to what was initially given to the Ava-Guaranis. [63]

Employees also receive extensive health insurance plans (including dental coverage), annual month's vacation, access to cars, ability to take necessary university level classes, etc. These exceptional employee benefits account for the high employee retention rates. Itaipu officials created these impressive benefits to lure top technicians, engineers and management into the once isolated Foz do Iguaçu, but almost thirty years later the same benefits hold and continue to maintain the high retention rates. [64]

Additionally, for the towns of Foz do Iguaçu, Itaipu representatives have created a hospital and extensive educational facilities. The fully staffed hospital is opened 24 hours and houses an emergency medicine, in-out patient care, maternity ward, surgical units, psychiatric department, general patient care/ primary care as well as many other departments. The hospital itself is almost overshadowed by the massive Itaipu logo that stands two stories high in front of the hospital, making it clear to the town of Foz do Iguaçu who built the hospital.

[63] Sotuyo, Patrice Claudia Godoy, Segregacio Urbana: Estudo de Caso das Vilas de Itaipu, diss., 1998, Universidade Federal de Santa Catarina.

[64] Data gathered by survey done by: Caitlin Cassis, January 2004.

Furthermore, occupational health at Itaipu strives to promote the physical, mental and social well being of its employees by creating programs to ensure these pursuits. These programs include, regular medical checkups, urgent and emergency care and REVIVER (a health awareness program that attempts to teach employees how to maintain a healthy lifestyle).[65]

There are 116 teaching facilities in Foz do Iguaçu, one half of them somehow connected to Itaipu.[66] The educational facilities are for all levels, kindergarten to university level and are free for those who work at Itaipu and/or their family members. The lower-level schools are ranked the best in the region, attracting experienced teachers to their prestigious facilities. Itaipu representatives also supports the university level institutions in the region, including the Universidad Unioeste, CesoFoz, Tres Fronteiras and Unio Dinamica de Faculdades Cataratats, by providing knowledgeable Itaipu employees to work as part-time professors.[67]

Individuals who work at Itaipu or live in the neighboring municipalities see only the benefits of large-scale technological creations and believe progress to be crucial and inevitable. They are used to modern life from microwave to bicycles. But, modern Brazilians have to step back from their faith in the entirely positive benefits of development and comtemplate what progress means to different people. The hesitancy in questioning something one benefits from has been attributed to "human nature." If that is the case, we need to change our "nature," and learn to question bureaucracies and institutions that provide benefits, for nothing comes with costs.

[65] Occupational Health and Workers Quality of Life.
[66] Jorge Habib, Personal Interview, 14 Jan. 2004.
[67] Jorge Habib, Personal Interview, 14 Jan. 2004.

Itaipu Employees, Progress and Indigenous People

> Today my people see their land invaded, their forest destroyed, their animals exterminated and their hearts lacerated by this brutal weapon that is civilization. For the white and so-called civilized people, this may seem like romanticism. But for us, it is our life. [68]
>
> Guarani Kaingang Woman, 1975

Thus far, it is evident that Itaipu employees and Brazilian citizens' negative perceptions of indigenous communities have perpetuated their poor treatment. It is also clear that the Itaipu employees and Brazilian citizens are aware of the deficient conditions of the Ava-Guarani reserve, but their benefits hinder their actions. However, additional factors contribute to the perpetuation of the Ava-Guarani's conditions, particularly their ideology of progress.

Brazil's pursuit of hydroelectric power represents the government's desire for development, autonomy, prestige and progress. To overcome their status as a developing economy, the Brazilian government constructed the world's largest hydroelectric power plant, in an attempt to close the gap between developing and developed. [69] To Brazil's national government, as well as many of its citizens, progress is closely linked to science and technology, and the achievement of international parity in these pursuits. Further, progress is seen as inevitable, even crucial, for societal advancement. However, progress in terms of technological development is by no means inevitable, but should be a choice. Such scientists as Galileo, Newton and Descartes chose to explore, and their followers chose to build upon these findings. Human beings should have the choice too, to use or reject technological innovations instead of being forced to integrate them into their respective cultures. This ideology of

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[68] Ecologist, Society, Media and Culture, p 3-4.
[69] Byrne, John and Hoffman, Steven M, "The Ideology of Progress and the Globalization of Nuclear Power," Governing the Atom the Politics of Risk - Energy & Environmental Policy: (1995),p. 1-3, 23.

developmental progress as beneficial and inevitable did not end with Itaipu, but has been brought deep into the undeveloped San Miguel rainforest.

Byrne and Hoffman have equated modern ideologies of progress to social success, national wealth and scientific and technological prowess. As Aldous Huxley remarked, "because we use a hundred and ten times as much coal as our ancestors, we believe ourselves a hundred and tens times better intellectually, morally and spiritually." [70] This notion of progress, that equates it with energy consumption and the accumulation of wealth, creates cultural hierarchies, in which those with power create the standards that fuel cultural imperialism and determines the power structures. These hierarchies delineate what the Ava-Guarani people have to change to modernize effectively under this scheme. But by modernizing, they will radically alter and possibly destroy their culture. Itaipu is a tangible example of how this model of progress, though beneficial to some, destroys those who do not embrace its ideologies. The model precludes certain traditional behaviors of the Ava-Guarani, which they must modify to mirror the capitalistic society that seeks to assimilate them.

In the case of the Ava-Guarani peoples, such modern technologies as showers, bicycles and radios slowly encroached on their culture. The introduction of small-scale technologies is the beginning of a series of technological advances. Small-scale technologies create a form of dependence that allows expansion of others into that domain, and many proponents of development believe that this technological expansion will serve to improve societies. Numerous Itaipu employees assert that the Ava-Guarani would have an advantage in their access to these modern day technologies, some even believing that Itaipu management must assist them in developing further. However, the Ava-Guarani are much more hesitant to embrace modern technology developments, claiming that development should be a choice.

[70] Byrne and Hoffman, "The Ideology of Progress and Globalization, p.1-3, 23.

Itaipu employees and Foz do Iguaçu citizens enjoy many modern, technological amenities. This contributes to their belief that progress is advantageous since they directly benefit from it. Beneficiaries are reluctant to question the inevitability of this form of progress fearing the loss of those benefits. However, it is in this type of situation, where the quantifiable benefits seem to outweigh the costs, that we must weigh the uncalculated costs. These costs are not born by those who make the decisions, but by those who are excluded from the benefits. We must learn to question the scientists, policy makers and general public notions of progress and consider the uncalculated social costs that marginalized peoples will be force to incur as result of these large-scale technologies.[71]

The debate over the construction of large hydroelectric facilities often leaves public opinion polarized between two positions: insulating against or allowing the indigenous communities to develop or acculturate into the modern world, building or not building.[72] The Itaipu employees who responded, encapsulate the views of the later, claiming that the Ava-Guarani should develop. Largely representative of these notions of progress were three people with Helio Teixeira, the Senior Executive of the Social Commission, Linda Ramelo, an Itaipu tour guide, and Danubia Soares, the Head of Public Relations within the Itaipu EcoMuseo.

"So you are the girl concerned about the Indians?" Helio Teixeira greeted me in Spanish, as he puffed on his cigar. Everything about him told me he was high a high ranking executive, as four different waiters scurried around filling water and coffee mugs. He began our talk stating that,

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[71] Josephson, Paul. Industrialized Nature, p. 11.
[72] "Themes." World Commission on Dams, 2003 <www.dams.org >.

> Every city has problems. The media always concentrates on the negatives. Since there is nothing in the world like Itaipu, people focus on it. With the Indians, it is a question of how you look at it, the good or the bad. When the reserve was created, the Indians got to choose the land, Itaipu representatives hired an anthropologist to help them find a good place that most fit their old land.

I asked when Itaipu officials hired the anthropologist. He replied that the anthropologist was hired in 1998 for the Diamante Dioeste reserve. I wondered what this anthropologist might have done had he been hired 14 years earlier. Teixeira continued,

> What about your country, have you ever done something bad to the Indians? All the money from the illumination [a light show at the dam once a month] goes to them, and now an architect is constructing their houses according to their dreams. We give them modern medicines. We have technicians go over there to provide technologies to help them produce more food. We've set up schools. We give them new age housing materials. It's an ongoing process.

Before I could ask any more questions, he was on the phone redirecting me to the former head of Indian Relations, João Carlos Zehnpfennig. The interview was cut short, with a businessman smile and hug as he escorts me out the door and I leave to talk with Zehnfennig.[73]

When I met with the majority of upper-level executives at Itaipu, like Teixeira, I received the same response, quick defense and then a referral to another employee. When I attempted to pry deeper, the subject was always changed to the American Indians or my personal experience in Brazil. Many of the employees, like Teixeira, were defensive when it came to Itaipu's record with indigenous people, quick to list what they are doing to better the Ava-Guarani's living situation. In Teixeira's list of accomplishments, every item reflected a particular notion of progress. I had seen the new housing materials he spoke of at San Miguel, which were steel strip roofing instead of their traditional roofing. The Ava-Guarani complained about the new materials and asked instead for their traditional material, because the steel

[73] Helio Teixeira, Personal Interview, 16 Jan. 2004.

stressed the wall structure and led to much hotter interiors. (Refer to **Figure 3a,** left side of roofing is old material, right side is new). As Itaipu managers like Teixeira continue to replace traditional cultural practices with modern solutions, --even when they mean well-- the Ava-Guarani will be converted into modern Westernized Brazilians.

Linda Romelo is an Itaipu tour guide, who speaks Portuguese, Spanish and English. During our hour long interview, we discussed the Ava-Guarani situation. She informed me, "Many tourists ask us about the Indians, and we are like 'oh no' [shrugs shoulders], they [Itaipu management] don't tell us anything about them. I would be interested in knowing more." She seemed surprised as I explained to her the current situation facing the Ava-Guarani in the reserves. "I had no idea, I never really thought too much about it," she said in an apologetic tone. Linda was not alone, many of the individuals with whom I spoke with did not know the specifics about the treatment of the displaced indigenous tribes. When asked if she believed the Ava-Guarani should be acculturated into Brazilian modern society, she replied, "They already are. Lots of Indians from other reserves, I am not sure if it's the one you are talking about, I see all the time here in Foz do Iguaçu. I think it is beneficial to them. They can't stay isolated forever, we can't build a wall around them." I agreed, building a wall is not a solution.[74]

Romelo raised an important point, concerning whether it is possible to have a society remain forever isolated from outside aggressors or development. The modern-day world affects all communities no matter how isolated. Earth as a unified biosphere will indiscriminately transmit the effects of pollution to the areas that did not produce this pollution. [75] Earth systems recognize no borders based on culture. However, just because communities can not avoid the impacts of modern day society does not mean they have to be incorporated into it.

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[74] Danubia Soares, Personal Interview, 10 Jan. 2004.
[75] Jensen, A Language Other Than Words, p. 279 [paraphrased].

Pockets of indigenous societies remain that have remained largely secluded from mainstream societies. When aggressors enter these communities, to exploit resources, acquire land or establish authority, they often seek to transfer their ideologies of development to these underdeveloped areas. Indigenous communities must be allowed the freedom to chose or refuse to accept development. In the case of the Ava-Guarani, they did not choose to be relocated, educated or acquire modern day technologies. Itaipu officials gave them modern life without asking, believing that technologies would enhance the Ava-Guarani's lives.

Danubia Soares works at the Itaipu EcoMuseo, and speaks Spanish and Portuguese. Prior to our interview, she gave me a four-hour tour of the EcoMuseo, which was founded in 1987 on the principle of gaining a more intimate working knowledge of the environment, in order to be able to preserve it. The museum claims to "portray the bonds between mankind, their achievements and the nature of this region, both in scientific and cultural terms." It is ironic to claim the museum portrays the bonds of mankind, when for $US 3 a tourist can view life-size statues of indigenous people alongside stuffed wild animals, construed as part of nature rather than mankind. The museum also claims that it is an echo of the community, citing the "eco" in EcoMuseo as the Portuguese word for echo, as well an abbreviation of eco (short for ecosistema, meaning ecosystem). One example of this is the display of community art, created by local people in attempt to portray the area and its culture. Additionally, the EcoMuseo offers many activities that include the exchange of information with area schools and communities to entice local people to visit it exhibits. Inside, the museum houses many impressive and beautiful displays relating to Itaipu, including: plants/animals in the area, turbines, indigenous artifacts, a timeline of events and worker's memorial. To preserve native vegetation, the museum constructed a greenhouse which displays hundreds of plant species, many of which are endangered. A large tank also houses endangered fish, with an

identification chart to help visitors spot individual species. [76] The EcoMusueo presentation of endangered "species" to include flora, fauna and indigenous communities betrays their conceptions of the indigenous community as part of nature, dehumanizing them. Many species and communities that are now "endangered" because of the creation of Itaipu Binacional.

Soares explained, "Itaipu is not just energy, it is a necessity that helps the social conditions of the people." Remembering the poor conditions of the Ava-Guarani reserve, I questioned her use of "all." She responded, "There will always be some people that are not happy with what the government is doing, but many were [happy] and benefited." Her statement follows the logic that a few should sacrifice for the benefit of the greater good. But throughout history it has continuously been the ethnic minorities, the poor and powerless, the indigenous people who have been asked to make this sacrifice. Soares continues, "It's funny, before Itaipu the whites were taking away the culture of the indigenous community, now we are giving it back to them." To Soares, the statues and indigenous artifacts in glass cases represented the preservation of the Ava-Guarani culture. When asked how we are giving back their culture, she paused and thought for a minute, then said, "We are helping them with their agriculture, providing clean water and so on." I asked her about the impact of bicycles, cattle and radios on the Ava-Guarani culture. She told me that she had not thought about this. I felt she sincerely believed that Itaipu management was assisting the Ava-Guarani by providing them with access to modern technology. She explained to me that Itaipu officials had good intentions, in furnishing such technologies as radios and bicycles, which are seen in modern Brazilian society as emblems of prestige and wealth.

Teixeira, Ramelo and Soares are representative of the Itaipu employees. Each individual recognizes the Ava-Guarani's need for more support to meet basic human needs and

[76] Ecomuseo de Itaipu statement on wall in Musuem. Av. Tancredo Neves, 6001 85866-900-Foz do Iguacu-PR-Brasil.

believes the answer lies in development. Modern Brazilians support the notion of progress by simply being part of it. Gradually, as the technological developments slip quietly into the Ava-Guarani world, their culture will be pervaded by modern "advances" and slowly lost.

The loss of culture is a loss of history, tradition and identity for the Ava-Guarani. As one man stated, "Our culture is a true inheritance that is transmitted by the souls of our ancestors to those who revere them." [77] The Ava-Guarani people call their culture "teko ete," which consists of three main categories: including 1) ava ñe'e, their language 2) tamôi, their mythical traditions and ancestors, and 3) ava teko, their societal structure that gives them the means to understand their world and supplies them with the social guidelines, norms and behaviors to socially interact within their culture. [78] Since their relocation, their traditional language is slowly being replaced by Portuguese and their myths and societal structures have been lost as Western traditions replace their centuries-old beliefs. The replacement of the Ava-Guarani myths, language and social structures with modern alternates is not an equal substitute, but a stop-gap solution to a complete loss of identity. The loss of their native language destroys their form of communication and their group identity, and ultimately their culture. For Itaipu programs led them to squander this connection to their identity and past, they will be left with nothing to build a future on, with "souls" to pass onto the following generation.

Cultural integrity is difficult to maintain and restore. To isolate an intangible concept like culture and endeavor to maintain it in isolation from outside cultures may be impossible. But Itaipu accelerated the process and its managers have not helped to postpone this loss. As a result of the relocation, the Ava-Guarani found themselves in closer proximity to other indigenous communities, as well as the modern Brazilian civilian community. Inevitably, the

[77] Museo Barbero. 217 Avda España, Asunción, Paraguay.

Ava-Guarani culture was mixed with the modern" or "outside" culture, which generated transformations within their society. Today, signs of "white" are encroachment everywhere. Itaipu officials presented the tribe with some "modern" additions to their existence, like the bicycle. Since indigenous houses have grown farther apart as the community augments, the bicycle has been a quick way to maintain the close-knit community. Further, radios enable the Ava-Guarani people to enjoy an assortment of music. However, if the bicycles facilitate locomotion and the radio entertains them, the same objects serve to adversely affect their lives with the introduction of capitalist complications. In due time, a car and TV will replace the bicycle and the radio, furthering the Ava-Guarani's complete assimilation into modern Brazilian culture. [79] Itaipu managers, by simply neglecting the cultural traditions of the Ava-Guarani, distributed modern technologies instead of assisting them in their desire to retain their own culture.

As Itaipu management and other representative of big technologies introduce modern ideologies and artifacts of progress into less developed cultures, they are in essence forcing our world views on them and destroying their culture. Take for example the Saami tribe in Norway, who were assimilated into modern Norwegian culture when a hydroelectric dam was created at Alata Elva. Three generations ago, the Saami herded reindeer across the broad Finnmark Plateau using a tent and reindeer-drawn sleds. Today, a four wheel all terrain vehicle (ATV) has replaced their sled. With the ATV the Saami rip the heather and lichen out of the soil, gradually transforming their tundra into a barren wasteland. Not only does this technology slowly replace their traditional cultural practices, it destroys their land. As the ATV replaces the dog sled, soon skies will replace boots. The old traditional Saami culture will disappear,

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[78] Almeida, Rubem T. Laudo Antropologico Sobre A Comunidad Guarani-PR. Associcao de Pesquisa. Rió de Janeiro, Brazil. Octuber, 1995.

[79] Trans. and paraphrased from "If the bicycles....white culture." Departamento do Geoniencias, 1992.

and the Saami will no longer exist. [80] If the Alata Elva dam was not constructed, the ATV would not have been introduced into the Saami society by modernizers attempting to develop them. Consequently, the initiation of dependence on modern technologies would not have commenced, and the traditional Saami culture would not have been slowly stamped out by modern society's notions of progress.

The Ava-Guarani and Saami are not the only indigenous tribes fearing the developmental encroachment. Another Brazilian tribe, the Xingu, "are worried for [their] children and grandchildren, [their] home is an island [and the oldest reserve in Brazil], and if the white man enters with his machines, he'll break it all down in no time." The Xingu culture, has existed for thousands of years. They fear that by losing their cultural identity, and acculturating into the modern world, they will lose their sense of self. Regrettably, their fear has already materialized as satellites dishes sit outside their longhouses.[81]

These people of these last isolated indigenous cultures appear to want to remain separate from mainstream modernization. Yet, as we introduce bicycles, ATVs and satellites dishes into their societies, their cultures are slowly homogenized by Western notions of consumerism, progress and development. Even less concrete forms of modernization, like the introduction of formal education and health facilities, displaces more traditional views with modern ideologies of progress. Both introduced medical and educational facilities are means to transmit and propagate the notions of outside cultures onto indigenous societies. Whatever the means to push modern notions on remote ethnic minorities, we must realize its costs. Itaipu representatives and other large-scale technological enterprises are not mixing cultures, but allowing dominating cultural ideologies to stamp out traditional cultural practices. If they

[80] Bandowowki, Contanze. "Norway's Saami: Not much Nostalgia." World Press Review, Feb (2004), Vol. 51.2, pg. 33.
[81] Ibid. pg 34-35.

continue down this path the only global diversity human beings will possess will be on display in museums.

Big Technologies and Social Change

> On the terms imposed by technocratic society, there is no hope for mankind except by "going with" its plans for accelerated technological progress, even though man's vital organs will all be cannibalized in order to prolong the mega-machines meaningless existence. But for those of us who have thrown off the myth of the machine, the next move is ours: for the gate of the technocratic prison will open automatically, despite its rusty hinges, as soon as we choose to walk out.[82]
>
> Lewis Mumford, Myth of the Machine[83]

In the San Miguel reserve, I listen as an elderly man clicks down the dirt path on his bicycle. It seems strange to see tire tracks in this remote wilderness. In a nearby home, I hear the static scramble of a radio, the almost inaudible mumble of a broadcaster and someone's frustration as the radio is suddenly turned off. These archetypes of technology, seemingly innocuous, have opened the gateway to more invasive modern technological creations. When Itaipu Binacional was constructed, it relocated and exposed the Ava-Guarani society. Today, wherever the Ava-Guarani reside -- Paraguay, Argentina or Brazil -- they are enduring drastic changes, some of which have completely engulfed and extinguished their cultural existence.

The Ava-Guarani community has been radically changed by the creation of the world's largest hydroelectric facility, Itaipu Binacional. Although the Ava-Guarani have suffered "territorial confinement and expropriation, demographic reduction, political subjugation, demographic reduction and planned socio-cultural destruction" since the end of the 16th

[82] Jensen, A Language Other Than Words, p. 278.
[83] Mumford, Lewis, The Myth of the Machine: The Pentagon of Power, Volume Two. (New York: HBJ Book, 1970), p. 435.

century, nothing has altered their lives as much as the creation of Itaipu. [84] Itaipu management's land acquisition, forced the indigenous community to relocate to foreign lands or compact reserves, altering their migratory lifestyle and subsistence methods. Now, they are forced either to eat meat, sell food surpluses and adopt modern agricultural technologies, or to starve. These westernized notions of development, from meat to educational facilities, have irreversibly changed their mode of life and, thus, their culture. In belatedly attempting to counteract the land loss by giving the Ava-Guarani modern technologies, Itaipu representatives' seemingly good intents actually worsen the situation and avoid the root of the problem: cultural eradication. The Ava-Guarani have born the majority, if not all, of the social costs generated by the creation of such a large scale hydroelectric facility. To them, development and acculturation were never a choice, they simply chose to survive.

Artifacts, from the world's largest hydroelectric power plant to the bicycle, have unanticipated impacts on marginalized societies. The eradication of native peoples is "like a haunting question that floats in the wind-why did we allow this to happen?"[85] In the case of Itaipu, there are three chief underlying causes of the Ava-Guarani's deteriorating conditions. First, the negative profiling of indigenous communities as "primitive," "backward" and "undeveloped," allowed those who developed them to feel as if they were providing an invaluable service, not destroying a culture. By imparting modern technologies to "backward" indigenous communities, developers believed that they were helping the Ava-Guarani move forward. They did not see this type of development as cultural eradication, but as the powerful culture assisting the powerless culture. The belief that the Ava-Guarani are backward and primitive justifies the desire to assist them in becoming modernized and developed with technologies such as agricultural equipment and radios. Pushed aside, relocated and

[84] De Santos and Andrade, Hydroelectric Dams on Xingu River, p.1.

acculturated, their futures look bleak. If we believe that the destruction of these ethnic minorities is just an unfortunate by-product or tradeoff for the greater good, we will forever continue to exploit human and non-human resources.[86]

Second, the myriad benefits received by non-indigenous communities made them more reluctant to question Itaipu's failures. Itaipu created job security for its employees and provided unprecedented benefits to both its workers and adjoining municipalities. If these groups of individuals questioned how Itaipu was handling the indigenous community, they would be in turn jeopardizing their benefits. Consequently, they often neglected to question, explore or protest the Ava-Guarani living conditions.

Third, supporting Itaipu management's development of the Ava-Guarani tribe is the belief in a particular mode of development to achieve progress and that this progress is crucial and inevitable. However, technological developments are not predestined, they did not evolve through external forces of which human beings had no control over. The multitudes of technological inventions have been consciously fashioned by humans, and throughout the recent centuries many humans have chosen to utilize these creations. Hardly inevitable, technological development is a choice, and should be treated as such.

To the Guarani, Itaipu means "singing stone." Itaipu representatives chose the name to tie the dam to its historical roots and to the Ava-Guarani culture that had existed before its creation. However, Itaipu serves as a monument to everything the Ava-Guarani were not. Its grandiose complexities **juxtapose** the Ava-Guarani simplicity and symbiotic relationship to their natural world. The hyper-consumerism of modern civilization generated the demand for increasing amounts of energy, which manifested into constructions like Itaipu Binacional. Such large-scale solutions to energy demands have large-scale repercussions, most commonly felt by

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[85] Nelson Mandela, President of South Africa, 1998.
[86] Jensen, A Language Other Than Words, p. 124.

ethnic, poor and underrepresented minorities. Itaipu silenced the singing stone that once rested in the Parana River, as well as the voices of the Ava-Guarani indigenous community. This irreversibly altered their way of life and threw them into a cultural melting pot that will eventually assimilate them. We need to find a balance between destruction and creation, tradition and modernity. Itaipu, and its predecessors, should alert humanity to the need to find this balance.

Historically speaking, power structures can collapse, and those who once held authority will lose their clout. Previously dominant cultures can slowly be marginalized, losing their abilities to dictate societal norms and behaviors. If this occurs, the new prevailing culture can use their power to determine the fate of groups of "others" and the can chose to silence minority groups or listen to their voices. If dominant societies continue to use their authority to annihilate humans and resources, we will be heading down a path of self-destruction. We must realize that in the spectrum of history, power is fleeting. Those in power must empathize and look after the powerless, for time can shift, even reverse, power balances. If those with power do not, the human race risks losing its global, cultural diversity, forever silencing all those who do not fit the narrow definition of the future. We, as humans, should follow Mumford's advice: push through "the gate of the technocratic prison, [which will] open automatically, despite its rusty hinges" and choose to walk out. [87]

[87] Jensen, A Language Other Than Words, p. 278.

Appendices

A. 1 Interview Questions

1. Gender
    a. Male
    b. Female

2. Age
    a. 20-30
    b. 35-40
    c. 40-45
    d. 45-55
    e. 55 or older

3. Birth Location
    a. In Foz do Iguaçu
    b. In the Parana Region
    c. In southeastern Brazil
    d. In Brazil
    e. Outside Brazil, Country:_____

4. How long have you lived in the town?
    a. < 1 year
    b. 1-5 years
    c. 5-10 years
    d. 10-15 years
    e. >15 years
5. Do you live near the tribe or reservations?
    a. Yes
    b. No

6. Are you married?
    a. Yes
    b. No

7. Do you have children
    a. Yes
    b. No

8. How much do you believe the Itaipu Dam has benefited you, and if applicable, your family?
    a. Not at all
    b. A little
    c. A moderate amount

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[87] Jensen, A Language Other Than Words, p. 278.

d. Very much
e. An extreme amount

9. How long have you worked at the Itaipu hydroelectric power plant?
   a. < 1 year
   b. 1 to 5 years
   c. 5 to 10 years
   d. 10 to 20 years
   e. > 20 years

10. What is your job at the plant?
   a. Sr. Management
   b. General Management
   c. Production Manager
   d. Finance
   e. Human Resource
   f. Construction
   g. Other, please specify_____

11. Were you aware that a local tribe had to move their homes because the power plant had to create a reservoir?
   a. Yes
   b. No

12. Do you know the name of the tribe?
   a. Yes, it is _____
   b. No

13. Do you have any relations to the tribe?
   a. No
   b. Yes, family member
   c. Yes, friend

14. How many tribe members do you believe were relocated during the construction of Itaipu?
   a. < 100
   b. 100-200
   c. 200-400
   d. 400-500
   e. > 500

15. During your orientation session, did your company discuss the Indian tribe and its heritage?
   a. If yes, what did they tell you?
   b. No

16. Do you know if any tribe members work at the company?
   a. Yes, their position _____
   b. No

c. Do not know

17. Have you visited/used the Itaipu reservoir, corridor of biodiversity and/or Iguaçu national park?
    a. Yes, I have visited the _____
    b. No

18. If answered YES to question 16, how many times did you visit?
    a. 1
    b. 2- 5
    c. 5-10
    d. 10-15
    e. >15

19. Have you visited the Eco-Museum? How often?
    a. Yes
    b. No

20. I answered YES to question 19, how many times did you visit?
    a. 1
    b. 2- 5
    c. 5-10
    d. 10-15
    e. >15

21. What do you think the top priority issues facing your company regarding how to deal with the Indians is?
    a. Land
    b. Culture
    c. Family
    d. Employment
    e. Monetary Reimbursement

22. How much do you think of your company's revenue goes to the Indians each year?
    a. <3%
    b. 3-5%
    c. 5-10%
    d. 10-15%
    e. >15%

23. Is there one person in the Company responsible for dealing with the Indians?
    a. Yes, it is _____
    b. No

24. Are you satisfied with the way your company dealt with the Indians?
    a. Very dissatisfied
    b. Dissatisfied
    c. Neither satisfied or dissatisfied
    d. Satisfied

e. Very satisfied

25. Do you believe the Company has kept its promises to the Indians in a timely fashion?
    a. Not at all
    b. Somewhat
    c. Definitely
    d. Do not know

26. Do you believe the Indians live in a safe and secure environment?
    a. Not at all
    b. Somewhat
    c. Definitely
    d. Do not know

27. Do you believe the Indians quality of life is better today than before the dam?
    a. Not at all
    b. A little
    c. A moderate amount
    d. Very much
    e. An extreme amount

28. How long do you think the company will continue to work with and assist the tribe?
    a. < 1 year
    b. 1-5 years
    c. 5- 15 years
    d. 15-30 years
    e. >30 years

29. Do you think that your company listened and incorporated the Indians in the process of constructing Itaipu?
    a. Yes
    b. No

30. What direct projects have you worked on that you believe benefited the Indians?

31. What direct projects has the power plant undertaken that you have knowledge?

32. What lessons have you learned regarding the handling of Indians? What are your concerns, if any, regarding the indigenous community?

A. 2. Method of Investigation

1. Interview
2. Research
3. Photo journal

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