Archiving the history of land-use, land-use planning, and territorial conflict in the Upper Bayano Basin of Panama

Archivo de la historia del uso del suelo, su planificacion, y el conflictot territorial en la cuenca Alta del Rio Bayano de Panamá

Environmental Research in Panama - ENVR 451 2013

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Internship Report Presented to Dr. Roberto Ibáñez

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**Host Institution:**

Our project was done in collaboration with the Smithsonian Tropical Research Institute located in Panama City, Panama. The Smithsonian Tropical Research Institute (STRI) was founded in 1923 in order to study and understand biological diversity in the Neotropics. STRI currently has four main research stations throughout Panama and hosts 900 visiting researchers and students per year. Our project was done under the supervision of Javier Mateo-Vega, PhD Candidate in the Neotropical Environment Option at McGill University and Dr. Catherine Potvin, McGill University professor and Staff Scientist at STRI. The two researchers are working on a land-use planning project in the Upper Bayano Basin in Eastern Panama, which was the area of study for our research project.
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**Time Allocation (1 day = 8 hours):**

Number of days spent conducting research in field = 5  
Number of days spent collecting documents and conducting interviews in Panama City = 12  
Additional days spent working on project = 26  
**Total number of days = 43**
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Executive Summary:

The Upper Bayano Basin is located in Eastern Panama and encompasses two Emberá tierra colectivas, one Kuna comarca, and a multitude of campesino cattle ranches and farms. The region has a complex history significantly influenced by the construction of the Bayano Hydroelectric Dam in the 1970s, the migration of campesinos from Los Santos to the Bayano in the 1970s and 1980s, and the large amount of economic development and land-use planning projects undertaken in the region. There has been a history of conflict between the two indigenous groups and the campesinos as the campesinos have been known to invade indigenous land to deforest areas and begin cattle ranches. In 2013, Catherine Potvin and Javier Mateo-Vega of the Smithsonian Tropical Research Institute (STRI) and McGill University in collaboration with the three groups of people in the region, began a project to create a land-use management plan for the entire region in order to effectively use the land and resolve the conflicts between the three groups.

Our objective at the outset of this project was to find, digitize, summarize, and categorize all documents pertaining to land-use, land-use planning and conflict in the Upper Bayano Region of Panama in order to reconstruct the history of the region and help guide the future of land-use planning in the region. Our research was targeted at helping Dr.
Potvin and Javier Mateo-Vega gain a better understanding of the history of the land-use planning in the region in order to avoid the mistakes made in the past.

In this report we start by discussing our research methodology to help guide others who may conduct similar research in the future. Our methodology included two distinct parts. Part I was the collection of information and it was comprised of informal interviews, a literature review, visits to libraries, public offices, and the representatives of the three communities, and semi-structured interviews with community members. Part II was the systematization of the collected information which included digitizing, summarizing, and classifying collected information.

We next discuss the results of our research and the product we created for our host institution. Our product for our host institution includes (1) a database of references, documents, articles, and laws that have all been summarized, categorized, and labeled for relevance to the topic of land-use, land-use planning, or conflicts in the region; (2) an archive organized by type of document and where the documents were found and; (3) an annotated bibliography of all references relevant to the topic (see Annex A). We discuss what type of information is available for future researchers and where there are gaps in information either from lack of research or because documents have been lost over time.

Finally, we present a temporal analysis of land-use planning in the region based on the results of our research. We identify the major drivers of land-use planning changes during the five major time periods of: (1) Pre-Bayano Hydroelectric Dam Construction, 1962-1969; (2) During and immediately following the construction of the Bayano Dam, 1968-1981; (3) Under the Norriegea government, 1982-1989; (4) During an increase in land-use planning, 1989-1994 and (5) The most recent influences of land-use planning, 1995-
2012. We conclude that there is the need for a more neutral agent monitoring land use planning in the Bayano region, given its biodiversity and cultural importance. The lessons learned from looking at the history of land use planning in the Upper Bayano Basin is intended to help guide the future of land use planning in the region.

**Resumen ejecutivo:**

La cuenca del Alto Bayano se encuentra en Panamá Este y abarca dos TColectivas Emberá tierra, una comarca Kuna, y una multitud de campesinos ranchos y granjas ganaderas. La región tiene una historia compleja influenciada significativamente por la construcción de la Presa Hidroeléctrica Bayano en la década de 1970, la migración de los campesinos de Los Santos de la Bayano en los años 1970 y 1980, y la gran cantidad de proyectos de ordenación del territorio y el desarrollo económico emprendido en la región a través del tiempo. Ha habido una historia de conflicto entre los dos grupos indígenas y los campesinos. Este último grupo como ha sido conocido por invadir tierras indígenas para deforestar áreas y comenzar haciendas ganaderas. En 2013, Catherine Potvin y Javier Mateo-Vega, del Instituto Smithsonian de Investigaciones Tropicales (STRI) y de la Universidad McGill, en colaboración con los tres grupos de personas en la región, iniciaron un proyecto de creación de un plan de ordenamiento territorial para toda la región con el fin de utilizar eficazmente la tierra y resolver los conflictos entre los tres grupos.

Nuestro objetivo con este proyecto era encontrar, digitalizar, resumir y clasificar todos los documentos relacionados con el uso del suelo, la ordenación del territorio y el conflicto en la región del Alto Bayano de Panamá con el fin de reconstruir la historia de la región y ayudar a orientar el futuro de la planificación del uso del suelo en la región. Nuestra investigación se dirige a ayudar a Dr. Potvin y Javier Mateo-Vega a obtener una
mejor comprensión de la historia de la planificación del uso del suelo en la región con el fin de evitar los errores cometidos en el pasado.

En este informe, empezamos por discutir la metodología de la investigación para ayudar a guiar a otras personas que puedan llevar a cabo investigaciones similares en el futuro. Nuestra metodología incluye dos partes bien diferenciadas. Parte I fue la recopilación de información y que estaba compuesta por entrevistas informales, una revisión de la literatura, visitas a bibliotecas, oficinas públicas, y los representantes de las tres comunidades, y entrevistas semi-estructuradas con miembros de la comunidad. Parte II fue la sistematización de la información recopilada, que incluye la digitalización, resumir y clasificar la información recogida.

A continuación analizaremos los resultados de nuestra investigación y el producto que hemos creado para nuestra institución anfitriona. Nuestro producto de nuestra institución anfitriona incluye (1) una base de datos de referencias, documentos, artículos y leyes, que han sido resumidos, categorizados y etiquetado para su relevancia con el tema del uso de la tierra, la planificación del uso de la tierra, o los conflictos en el región, (2) un archivo organizado por tipo de documento y donde se encontraron los documentos, y (3) una bibliografía anotada de todas las referencias pertinentes al tema (véase el Anexo A). Se discute qué tipo de información está disponible para los futuros investigadores y las lagunas en la información ya sea por la falta de investigación o porque los documentos se han perdido con el tiempo.

Por último, se presenta un análisis temporal de la planificación del uso del suelo en la región sobre la base de los resultados de nuestra investigación. Identificamos los principales impulsores de los cambios en la planificación del uso del suelo durante los cinco grandes períodos de tiempo de: (1) Pre-Hidroeléctrica Bayano construcción de presas,

Las lecciones aprendidas al ver la historia de la planificación del uso del suelo en la cuenca del Alto Bayano está diseñado para ayudar a guiar el futuro de la planificación del uso del suelo en la región.

**Introduction:**

The Upper Bayano Basin is located in the eastern edge of the province of Panama beginning at the Bayano Lake to past the town of Tortí and falling between the two cordilleras (see Figure 1). It is home to three main groups of people; the Kuna, who have occupied the area since before the arrival of the Spanish, the Emberá, who migrated there initially from further East in the Darien during the 1950s but also had two later waves of migration (Wali 1989); and the campesino farmers, some of whom occupied the area before the 1970s but the majority of whom migrated to the area from Los Santos in Western Panama during the 1970s and 1980s (Partridge 1984). The region has a unique and complex history shaped by various waves of migrations, the construction of the Bayano
Hydroelectric Dam during the 1970s, the influence of national and international development programs, and conflicts between the three groups over issues of territory.

From 1972 to 1976, the Bayano Hydroelectric Dam was built under the Torrijos regime with the hope of decreasing Panama’s reliance on external sources of energy and increasing Panama’s economic sovereignty versus the United State’s control over the Canal Zone (Wali 1989) (Heckadon-Moreno 2013). The construction of the dam flooded a large amount of area and caused the displacement in some form of all three groups of people. Initially, all three groups were going to be resettled outside of the region, however, the actual resettlement ended quite differently. Both of the indigenous groups were permitted to remain within the area because of their alleged ecologically-minded agriculture practices that posed no threat to the integrity of the Bayano Lake and Hydroelectric Dam. The Kuna resettled along the coast of the Bayano Lake and the Emberá further down along the Pan-American Highway. The campesinos, however, were all resettled outside of the region because their cattle ranching practices were though to pose a threat to the lake and the dam.
The resettlement was tied to issues of land demarcation and compensation promises for the indigenous groups that have still not been solved to this day (Wali 1989). Despite the renegotiations of the resettlement, the resettlement and the plans for the management of the region following the construction of the dam were originally thought to be quite acceptable. A team of social scientists that had social and ecological concerns in mind created the resettlement and management plans for the region.

However, following the completion of the dam the political climate of Panama changed, placing new pressures on General Torrijos and resulting in significant consequences for the Bayano region. The economic exploitation of the area became under control of the Bayano Corporation, a regional semi-autonomous authority that permitted the migration of the campesinos both implicitly initially by not penalizing the migrations and later explicitly by granting “derechos posesorios,” or land rights granted because of occupation of the land (Wali 1989). The Bayano Corporation encouraged the cattle ranching practices of the campesinos and the logging of timber extraction companies because both promised economic development for Panama (Wali 1989). However, both of these actions threatened the lands of indigenous peoples. As campesinos moved into the area they often invaded the lands of indigenous peoples, deforesting their land and creating cattle ranches, thus creating an area of conflict between the two groups. These invasions and conflicts have continued since the 1970s amidst efforts to solve them, continued timber extraction, reforestation efforts, and various other development programs for the region.

Throughout the 1990s and 2000s the region experienced increased economic activity and as well as the involvement of various international and national development projects. During this time there was an effort to settle the differences between the three groups in a program called “The Mesas de Concertacion” the reconstruction of which was the subject of a
previous Panama Field Study Semester Report by Megan Smeaton and Jessie Rivera-Fagan in 2010. The region has also been the subject of development projects including the Darien Sustainable Development Project (1998) and considered as a testing ground for various REDD+ projects (Potvin 2007) (COONAPIP 2009). In 1998 the Louis Berger Study, funded by ANAM, University of Panama, Delca Consultores, and Louis Berger International, undertook a comprehensive study of the region and proposed a land-use management plan that was never carried out.

Recently, Dr. Catherine Potvin and Javier Mateo-Vega of the Smithsonian Tropical Research Institute and McGill University began a three-year project to create a land-use management plan for the entire region. The project follows extensive work in the region by both researchers. The initial three-year plan includes capacity building and participatory mapping in the first year, the development of land-use plans for each group in the second year, and the collaboration between all three groups to create a land-use plan for the entire region in the third year. Throughout the project the three groups will be engaging in intercultural programs to attempt to promote understanding and collaboration between the three groups. Following the initial three years, it is hoped that the project will continue for another seven during which the land-use plan will be implemented, monitored, and adapted (personal correspondence with Catherine Potvin and Javier Mateo-Vega).

The current status of relationships between the three groups, the economic activities in the region, and the development plans being undertaken in the area are all immersed in this complex history and cannot be understood fully without looking into the past. As STRI, McGill University, and the three groups in the region attempt to create a land-use management plan for the region, they must be conscious of the region’s past. Thus, our project was to help reconstruct the history of land-use, land-use planning, and conflict in
the region by creating an archive of documents, articles, plans, maps, and oral histories in order to assist with the future of land-use planning in the Bayano.

**Objective:**

Our objective at the outset of this project was to find, digitize, summarize, and categorize all documents pertaining to land-use, land-use planning and conflict in the Upper Bayano Region of Panama in order to reconstruct the history of the region and help guide the future of land-use planning in the region. Our research was targeted at helping Dr. Catherine Potvin and Javier Mateo-Vega of the Smithsonian Tropical Research Institute and McGill University who are helping to create a land use plan for the entire region of the Upper Bayano Basin.

**Methodology:**

Our methodology was designed to accumulate as many sources as possible on the topics of land use, land use planning, and territorial conflicts in the Bayano Region of Panama and to systematize them into a user-friendly database and archive so that future researchers would be able to easily access them. We created our methodology by reading previous Panama Field Study Semester reports that had attempted to undertake similar research projects as our own (Smeaton and Rivera-Fagan 2010), discussing our methodology with our supervisor, Javier Mateo-Vega and receiving feedback on archiving techniques from Professor Daviken Studiniki-Gizbert of McGill University. From our background research and discussions we identified how to begin finding information on the theme, the
importance of digitizing any information we found, and correctly classifying documents and sources with detailed information about where documents were found, who gave us documents, and how a future researcher may be able to locate these documents.

Thus, our methodology can be divided into two parts. Part I includes our methodology for finding information and Part II includes our methodology for digitizing and systematizing our information. Part I is divided into the five following steps: (1) Conduct exploratory interviews with key informants; (2) Undertake literature review of journal articles, books, and land-use plans in the region; (3) Visit libraries and archives to collect available information and fill in the gaps present in the literature review; (4) Visit representatives and groups from all three communities in the region to see what information they had in their archives and; (5) Conduct semi-structured interviews with community members about the history of and current status of land use, land use planning, and conflict to create an initial oral history targeted at filling in the gaps present in the literature review. Part II is divided into the following three steps: (1) Digitize documents of which there existed no known digital copy, (2) Summarize all documents, articles, and plans and; (3) Classify sources by theme and place into Bayano Database and Archive.

We next discuss how we undertook each parts of our methodology in the field during the course of our internship. As this project taught us the importance of documentation throughout history, we realize the importance of documenting our own work so that others may be able to follow it in the future.

Part I: Collection of information

*Step 1: Conduct exploratory interviews with key informants.*

We began our research by interviewing people we knew to be experts in the field or people who had done work in the region. These people included Stanley Heckadon-Moreno of the
Smithsonian Tropical Research Institute, Francisco Herrera of the University of Panama, Carlos Melgarejo of ANAM REDD+, and Omaira Cassaima, the first female cassique of Ipetí-Embera. Each of these key informants provided us with a different background and perspective on the history of the Bayano region. Furthermore, they were each able to guide us in the direction of different themes to pursue further and documents we should try to find. In other words, this step helped us create an initial ‘map’ of where to visit and people with whom to speak. The content of these exploratory interviews were as follows:

**Dr. Stanley Heckadon-Moreno of the Smithsonian Tropical Research Institute**

As an anthropologist and a member of the team that planned the resettlement of people in the Bayano following the construction of the Bayano Hydroelectric Dam, Stanley Heckadon-Moreno of STRI was able to provide us with an important interview on the background of the topic and point us in the direction of documents and topics of which to research the history.

*Content of informal interview:* He spoke of the government’s rationale for the construction of the dam and the geopolitics of the selection of the contractors for the construction of the dam. General Torrijos wanted to build the dam to decrease Panama’s dependence on foreign sources for energy. Furthermore, the selection of the company to build the dam was intended to gain strength in the non-aligned movement and increase Panama’s sovereignty vis-à-vis the United States. Dr. Heckadon-Moreno also spoke of his experience as a young college graduate working on the team that implemented the relocation. He visited the Kuna villages to tell them that their home was going to be flooded and the water was going to be higher than the tallest tree in their village.

Heckadon-Moreno felt torn about the moral implications of the dam. He said that while he can’t imagine what it would have been like for Panama during the oil shocks in the late
1970s had the Bayano Hydroelectric dam not been built, he also still can barely look when he drives through the Bayano because of all the changes that have taken place in the region and the moral implications of his role in the process.

*Recommendations for documents to pursue:* Heckadon-Moreno directed us towards Professor Francisco Herrera of the University of Panama who was also a member of the resettlement team and had written many articles on the region. Dr. Heckadon-Moreno also recommended finding the history of and plans for the construction of the Pan-American Highway and the establishment of the Pan-American Electric grid. The plans of each of these affect the Bayano area as they would necessarily need to pass through the region.

*Professor Francisco Herrera of the University of Panama*

Professor Herrera was part of the group of social scientists who facilitated the relocation of the indigenous groups following the construction of the Bayano Dam. He has also written many journal articles about the Bayano region (see Annex A) and supervised University students who have written theses about the Bayano.

*Recommendations for documents to pursue:* Professor Herrera suggested we weep tracking the Louis Berger Study and its lack of implementation. Moreover, he recommended visiting the Ministerio de Desarrollo Agropecuario in Chepo in order to look for compensation documents that were supposedly lost. However, there might be a copy left. Many efforts were carried through in order to find such documents without success. A neutral body needs to seek for that information.

*Carlos Melgarejo of ANAM REDD+*

*Content of informal interview:* No informal interview was conducted.

*Recommendations for documents to pursue:* Melgarejo provided us with documents about the companies involved in timber extraction in the Bayano and directed us to the ANAM
Documents Library to find historical documents pertaining to land-use planning in the region.

*Omaira Casama, First Female Cacique of Ipetí-Emberá*

**Recommendations for documents to pursue:** Sra. Casama directed us to Bornage Pacheco and Ultiminio Cabrera of Ipetí-Emberá who she said would be able to help us with locating any documents.

**Limitations**

Limitations in this step included being unfamiliar with the region and not knowing who were the best people with whom to talk or where to begin our research. The informants we spoke with to conduct exploratory interviews were necessarily dictated by the contacts of our supervisor, Javier Mateo-Vega.

**Step 2: Undertake literature review of journal articles, books, and land-use plans in the region**

We next reviewed the available literature on the topic. We identified all relevant articles, books, and plans in order construct the history of the region and to see what type of research had been done on the region and where there were gaps in the history or in the research. By identifying what was available about the history of the region and what type of research had been done we were able to identify what gaps we needed to fill in by later conducting semi-structured interviews to create an oral history. The results of the literature review were compiled with the results of the documents and interviews we were able to obtain and will be discussed later in the report. Summaries of the sources reviewed in this step can be found in the annotated bibliography in Annex A.

**Step 3: Visit libraries and archives to collect available information**
After identifying places to visit in Step 1 and then identifying what gaps in information there were in the available literature in Step 2, we visited libraries and archives to find information to fill in the gaps in history and research.

*Smithsonian Tropical Research Institute Library*

At the STRI library we were able to find copies of studies done by the Instituto Recursos Hydroelectrico (IRHE) done in 1978 and 1983 assessing the health of the area surrounding the Bayano Lake and the status of the populations in the region. Although the Bayano Corporation supported the increased cattle ranching and timber extraction occurring in the region, the IRHE supported the Kuna and the Emberá’s struggle to receive demarcation of their lands and thus reduce the invasions into their land by the *campesinos* because the horticultural practices of the indigenous peoples posed less of a threat to the lake ecosystem and dam (Wali 1989).

The STRI library also contains the seminal work *Cuanda se Acaban los Montes*, edited by Stanley Heckadon-Moreno and Albert McKay (1984) that posits the “push” migration factors causing the *campesinos* to migrate from the Azuero peninsula east to the Darien. Finally, STRI holds the “Informe Finale – Manejo Integral de la Cuenca Alta Bayano” published in 2001 after the completion of the Louis Berger Study.

*ANAM Documents Library*

In the ANAM Documents Library we found documents about the involvement of the Bayano Commision and IRENARE in the region. We also found the only copy of the Louis Berger Study available in print.

*ANAM Office*

From the ANAM Office we obtained the ArcGIS files for the Louis Berger Study undertaken in the region in the late 1990s and published in 1998. We desired a digital copy
of the entire study, but were only able to obtain the ArcGIS files for the region by contacting Carmen Prieto of ANAM.

*University of Panama*

At the University of Panama we identified relevant theses on the topic. These theses were important to obtain because they often included primary research including interviews, data collection, etc that could be useful to a researcher trying to do historical analyses of land uses or the populations living in the area. These theses are also important because the bulk of them were carried out during the 1990s, when there is a dearth of information from journal articles or primary source documents.

*CATHALAC*

Jose Guardia of CATHALAC provided us with the ArcGIS information for land cover, land cover change, and socioeconomic data for the region for the years of 1992, 2000 and 2010. While we were unable to analyze this data, it is included in the database for future researchers to use.

*Step 4: Visiting representatives/groups from all three communities to acquire documents*

We next began meeting with representatives from all three communities to discuss the possibility of viewing any documents they possessed and the possibility of digitizing them. We met with representatives from each of the communities at least one time before acquiring documents in order to establish relationships with community members and to discuss whether or not they wanted us to digitize their documents for the archive and if so, what procedure we should take to carry out the task. Following the initial meetings, we then re-visited each of the two of the three communities to digitize, summarize, and categorize the documents they possessed.

*Congreso General in Ipetí-Emberá*
Ipetí-Emberá is an Emberá *tierra colectiva* located East of Panama City along the Pan-American Highway. We met with Bornage Pacheco in the USAID office once in March, 2013 to discuss the possibility of digitizing documents and a second time in April, 2013 to carry out the process. Bornage Pacheco and Manuel Ruiz selected the documents pertaining to land-use, land-use planning, and territorial conflicts that they wanted us to digitize and include in the archive. During the process of digitizing, Bornage Pacheco would tell us the background and significance of the document. The summary of the documents obtained during this meeting can be found in Annex A – Section “Congreso General”. Digital copies of the documents obtained are included in the EndNote Bayano Database.

*Assosacion Productores y Agropecuaries de Plantanilla (APAP)*

APAP is a *campesino* organization located in Plantanilla, Panama and it was founded in 2007 by Cassiano Cano in an effort to organize the *campesinos* in the region and change the nature of agricultural production. We met with Dionis Cano in March, 2013 to discuss the possibility of obtaining documents from APAP and he invited us to a monthly meeting of APAP members in April, 2013 in order to meet community members and also digitize documents. In April, 2013 we digitized two APAP documents about agriculture and land use projects that had been carried out in the community. Copies of these reports can be found in the EndNote Database.

*Congreso General Guna de Madungandi*

Madungandi is a Kuna Comarca located around the Bayano Lake in Eastern Panama. The Congreso General Office is located at the Puente Bayano. We met with Olvidio Espinosa in March, 2013 to discuss obtaining and digitizing any documents located in the Congreso General Office. We planned to meet again in April 2013, however, we were unable to meet in April due to engagements held by all the congreso general’s members. While we were
unable to obtain documents in Madungandi, the Congreso General should be visited again in the future as we were told they did have documents pertaining to land-use, land-use planning, and territorial conflict which they would be willing for us to digitize.

*Step 5: Conduct semi-structured interviews about the history of and current status of land use, land use planning, and conflict with community members to create an initial oral history targeted at filling in the gaps present in the literature review*

We were able to conduct two interviews with representatives from Ipeti-Embera. We were also able to conduct one focus group interview and three individual interviews with members from the campesino organization APAP. The interviews were semi-structured which allowed us to focus on the topic of land-use, land-use planning, and territorial conflict, but also allowed for interviews to discuss a wide range of topics. All interviews were conducted following McGill Code of Research Ethics and interviewees were given the opportunity to refuse answering questions, for answers to remain confidential, and were asked to sign an informed consent form before interviews.

**Part II: Categorizing, systematizing, classifying, summarizing, analyzing documents**

Following the collection of information, we compiled all information into three products for our host institution which included summaries, classifications, and digital copies of documents. All documents that we photographed in order to have digital copies of needed to be converted to PDFs and transferred into one file, which caused a significant limitation in time. Each document of approximately 80 pages required approximately 1 hour of work in order to digitize.

The three different products for our host institution are organized and produced in different manners in order to facilitate easier use and distribution for different audiences.
**End Note Database**

The End Note Database includes PDF copies, URL links if available, or the location of a physical copy for all collected sources in one easily searchable file. The Database includes the citation information, summaries, how the document could be useful, and identified relevant page numbers and information. Each source has been labeled as relevant to “land-use,” “land-use planning,” or “territorial conflicts.” The Database is important because future researchers can easily search for topics or themes in which they are interested and quickly find relevant documents, summaries, and further information.

**Bayano Archive**

The archive is organized differently than the End Notes Database in order to facilitate a different use. It is separated into different file folders by type of documents and location where the documents were found. Each file contains our notes about how we found a document, who we spoke with, when and what might be missing. The archive is easily transferrable on a USB and thus can be distributed to the communities from which we collected documents.

**Annotated Bibliography**

The annotated bibliography includes citation information, summaries and relevant pages and information from all of the sources we were able to obtain. As it is all compiled into one document, it is easily distributable to anyone who is interested in doing research on the Bayano. If a researcher finds a source they would like to consult, they can find a digital copy or the location of the physical copy of the document in the End Note Database. The annotated bibliography is included in Annex X of this report.
Historical Analysis of the Major Drivers of Change with Regards to Land Use Planning

Introduction

History can be our best teacher, if only information is not lost and remains accessible, thus opening the gates to empowerment. By compiling historical documents regarding land use planning, land use and territorial conflicts in the Cuenca Alta del Rio Bayano, we were able to understand and identify the main drivers of change with regards to land use planning. Although our scope of study was broader than land use planning, and given all the inter-related dynamics between all three, we focused on the former for practical purposes. First, land use in practice is directly related to land use planning, or the lack of thereof, at the micro and/or macro scale. Second, another outcome of land use planning is the presence or absence of territorial conflict. In other words, in order to understand a wider range of topics such as land use and territorial conflicts, land use planning was the main phenomenon that was analyzed throughout history.

Any change in deforestation, reforestation or conservation was used as a proxy to identify changes in land use planning. In the context of the Bayano region since the construction of the hydroelectric, proxies for deforestation will be population relocation, logging enterprises operating in the area, campesino migration into the area and changes in agricultural practices. Although campesinos are not a homogenous group, their impact on the environment, except when mentioned otherwise, has been to clear forests to make these productive. This group migrated from the Azuero peninsula in continuous waves of immigration, thus importing with them their exploitative land practices. Similarly, Guna de Madungandi and Embera del Bayano land use practices are not static through time and space, and such changes will also be mentioned.
Moreover, drivers of change which altered land use were separated into **micro and macro scale land use planning**. The latter included regional, national and, in some cases, international level land use planning, while the former included individual, kinship and community level land use initiatives.

While drivers of change can be inter-related in many ways, the purpose of this paper will be to analyze their **direct influence** on micro and macro scale land use planning. Therefore, although some relevant examples of indirect drivers of change will be mentioned, this analysis will focus on the main drivers of change which altered land use planning **directly**.

Lastly, direct drivers of change at the micro and macro scale will be analyzed starting in the **1960s**. Indeed, with the construction of the hydroelectric plant, it was the first time in history that the Bayano region was impacted by such drastic changes at the regional level. As such, land use planning in the region took its first steps in 1969, which is up to now in 2013 still a contentious debate; different cultures, realities and histories clash in that region, and thus the need to find a common ground from which all can benefit and grow.

This analysis is an attempt to use history as a guide to land use planning nowadays. This analysis through time however is not a complete one; there are some important historical gaps that can only be reconstructed through oral history combined with official documents. Although we carried some interviews, there is still a need for research covering the span of the last two decades. The archive and this analysis complement each other, although both components can be used individually.

In this analysis, people that are usually referred to as *colonos* in the literature will be referred as *campesinos*. Indeed, this wording allows for a more neutral connotation of these peoples' culture and lifestyle. Another correction is the replacement of *Kuna* by *Guna*,
given the recent lexical finding. In the archive, however, most literature still uses the previous terms.

**Eastern Panama under the spotlight, but not a star yet: 1962 to 1969**

While Western Panama was in its full swing of development according to the campesino lifestyle, such was not the case in Eastern Panama. Although Gunas de Madungandi had been exposed to external dynamics for a while, the region was predominantly a contrast to the rest of Panama. In addition to Gunas de Madungandi, there were a few Embera families, Bayaneros of slave descent from Panama who had escaped the regime, as well as afro-descendants from Colombia in search of land.

The agrarian reforms of 1962, however, opened the gate for campesino migration into the Bayano region through legal incentives to acquire land. Indeed, land belonging to the state was distributed and titled. This reform was done to counter the effects of a growing population in the Azuero peninsula coupled with a scarcity of land. Such incentives, however, were loaded with ethnocentric values on behalf of the government; their culture was perceived as economically beneficial and as representing the interests of the state. Consequently, as of 1962, a direct driver of change in land use planning had been the government through the Ministry of Agriculture, although its impact had been at a minor scale (Herrera(c), 52).

During that time, Guna and Embera reported their land was used mainly for subsistence agriculture; they grew avocados and citrus, for instance, on fertile soil. Therefore, land use planning at the micro level involved slash-and-burn practices combined with horticulture (Wali(b),3)

Overall, minor changes in government planning at the national scale altered the Bayano region's land use through conversion of forests into cattle-ranching and intensive
agriculture. Such forces, however, were not significant enough to alter agriculture practices among Gunas and Emberas.

**Dilemma between national ideas of progress and responsibility towards all sectors of society: 1968 to 1981**

The initial military coup by General Omar Torrijos in 1968 was supported by an array of sectors of society who wanted change; from the Panamanian elite to Communist members (Wali(a), 4). One goal sealed their alliance; to increase their independence from the United States through the appropriation of the Panama Canal. This convergence of different ideologies would ultimately lead to their own demise as internal fractions would impede coherent action.

The military regimes' nationalist vision encompassed a wide range of 'development' ideas, among which was the creation of a hydroelectric plant. The generation of electricity nationwide would decrease the country's reliance on exports of fossil fuels for the same purposes, as well decrease Panamanian's dependence on the Canal for national income. Given the volatility of the military coup, maintaining the momentum of popular support was seen as necessary for the perpetuity of the regime. Therefore, undertaking step for the 'benefit' of the country was seen as urgent, and the hydroelectric's construction was rushed into construction 1969.

Under such circumstances, the ultimate generation of electricity was where eyes were set on the prize; there was no environmental and socioeconomic regional land use planning. Given the expected flooding of the area; there would be a chaotic internal migration and unexpected environmental degradation consequences, such as deforestation.

Concern grew among the affected populations, and with the help of anthropologists, Guna de Madungandi leaders and students, the Patrimonio Historico and the Instituto Indigenista
Interamericano, seminars and congresses at the national scale was undertaken. Civil society therefore became an impulse for change in the way land was managed in the Bayano region, especially with regards to relocalization, compensation and the colonization of land (Herrera(a), 4). Between 1970 and 1973, they united to demand a more comprehensive territorial planning system with regards to the well-being of local populations. Their efforts, however, had to give birth to concrete action through the government given the state-owned hydroelectric plant. Most literature at that time focuses on relations between the state and local populations, as opposed to actual land use changes that were occurring at that time.

Upon the creation of an ad hoc field team to cater to civil society's demands, the regime turned civil society as a major driver of change with regards to land use planning at the regional level. On the other hand, however, the field team was under the control of a regime that soon turned to be contradictory in theory and in practice. Indeed, during the early stages of the military government, efforts to reconcile cultural pluralism could still, although awkwardly, go hand in hand with nationalist interests (Herrera(c), 47).

The field team was created under the Dirección General para el Desarrollo de la Comunidad (DIGEDECOM) and supported by the Departamento de Planificación Social, which was then a segment of the Dirección General de Planificación de la Presidencia (later on the Ministerio de Planificación y Política Económica) (Herrera(a), 4). In brief, although there were multiple agents affecting the faith of land use planning in the Bayano region, the common thread among all those agents was their tie to the government. Indeed, Omar Torrijos visited the Bayano field multiple times; there was a direct connexion between the dynamics on the field and the regime. For instance, deforestation, reforestation and conservation dynamics were all under the responsibility of the government, which could be held responsible and accountable. On the other hand, however, other factors within the
government structure, such as clientelism, proved to be counter-productive to the government's responsibility to cater for all sectors of society.

By creating the "Programa de Emergencia para el desarrollo Integral del Bayano" in March 1973, the monitoring of the region's population dynamics became more thorough (Herrera(a), 2). This program, however, was still not politically neutral; administrators were chosen according to their loyalty to the regime. For instance, Engineer Ascanio Villalaz, who was a partisan of Omar Torrijos, became the head of the Programa de Emergencia para el Desarrollo Integral del Bayano. This fidelity would prove to be unsustainable in the long-run. At that time, however, more practical and holistic land use plans were undertaken. For instance, with regards to local populations, suitable lands for displaced populations were sought after; population censuses were carried beyond the expected flooded area. In term on environmental planning, initiatives such as recuperation of forest resources and cleaning the vegetation in the soon to be flooded era, as well as an ecological inventory were carried (Herrera(a), 5). Overall, Gunas de Madungandi and Emberas del Bayano were displaced, although they were allowed to remain within the hydroelectric's buffer zone. On the other hand, campesinos were displaced outside the polygon of the buffer zone.

After the construction of the hydroelectric plant in 1976, changes in the country's political climate led, ultimately, to changes in land use planning, as well as the lack of thereof. To start with, the Programa de Emergencia para el desarrollo Integral del Bayano was converted into a semi-autonomous body under the name of the Bayano Corporation (Wali(a), 18). Different views on the next steps to 'develop' the country, intertwined with clientelism with government officials, started creating contradictions in the management of the Bayano region.
For instance, the Ley de Huacuco, which authorized the immigration of campesinos into the area, was adopted in 1978 (Herrera, interview available upon request). Such a law was an important determinant in deforesting the area while increasing social conflict. By 1979, the Bayano Corporation had become totally under the control of the military, and was used merely as an apparatus to exploit the Bayano region economically (Wali(a), 18). For instance, it managed lactose, cattle and agriculture intensive enterprises near Chepo, in addition to granting concessions to large scale logging enterprises (Wali(a), 18). Consequently, in 1980, the Corporation allowed non-authorized populations to resettle in the Bayano region by granting land titles (Wali(a), 19). Such legal incentives led to speculation of land in the area, thus increasing competition for resources and conflict. Overall, between the end of construction of the hydroelectric and 1980, the Bayano Corporation's mandate to incorporate environmentally and socially responsible management plans in the Bayano had lost its influence.

While macro-level planning on behalf of the Bayano Corporation focused more on population dynamics according to distinct cultures as well as environmental planning, little attention could be paid to mitigate the repercussions on agriculture and deforestation practices by Gunas de Madungandi, and to some extent among Emberas del Bayano. In the case of Gunas de Madungandi, for instance, micro-scale changes in land use occurred as a result of drivers of change at the regional level. Due to an increased wage economy in the region, and thus the reliance on capital for goods, deforestation encroaching on their territory, their relocation on less fertile land as well as the lack of secure land tenure, their use of land was heavily altered (Wali(a), 21). As such, agricultural practices changed from growing citrus and avocado to growing more resistant tuber. The Instituto de Recursos Hydroelectricos (IRHE) and the Instituto de Recursos Naturales Renovables (INRENARE)
tried to undertake training initiatives among Gunas and Emberas. The reasons why such training initiatives were not successful remain unclear. With regards to micro-scale changes in land use practices, there is an important historical gap; little information is available on any changes that could have occurred among campesinos. For instance, being in a different environment and responding to different market forces could also have altered their use of land.

To conclude, the major drivers of change in terms of macro and micro scale land use planning between 1968 and 1981 were mainly government led. Although efforts were made to work effectively within such framework, contrasting visions of national 'development' led to internal fractions. Such internal struggles ultimately undermined the environmentally and socially-oriented mandate of the Bayano Corporation. There was a discrepancy between land-use planning accords with local populations on the one hand, and clientelism which increased the disorganized settlement of the region on the other hand. Indeed, priorities were in pursuing national sovereignty goals along economic lines, as opposed to pursuing a comprehensive long-term regional plan (Herrera(a), 2). One of the factors was the economically profitable motive of nationwide interests surpassing the wellbeing of a few. Moreover, although the government was directly accountable for the region's development, such a role was not enough to apply theory into practice. External drivers of change led to pressures on agriculture practices by Gunas de Madungandi and Embera del Bayano, which were to be further exacerbated in the following decade. On the other hand, little is known on changes in changes agricultural practices, if any, among campesinos throughout the 1970s. Indeed, campesinos ranging from subsistence farmers to large landowners are faced with different realities, especially in a new environment such as the Bayano region.
Opportunism under Noriega: changes in land use from 1982 to 1989

Following Omar Torrijos' decease in 1981, Manuel Antonio Noriega took power as the de facto leader of the Partido Revolucionario Democratico (Wali(a), 25). This change was an important milestone in changing the landscape of the Bayano given Noriega's much more aggressive vision of national development than his precedent. Moreover, the Bayano Corporation became increasingly entangled under military control in order to serve economic and political interests, thus losing its influence with regards to environmental and internal as well as external migration patterns (Wali(a), 25). Indeed, under the premises of "returning to the land", the "development" of the Bayano region at a much faster pace was seen as necessary to solve socioeconomic issues nationwide (Corporacion para el Desarrollo Integral del Bayano–Informe final).

Eastern Panama was becoming increasingly the area of focus for development; first with the hydroelectric plant, and now with the advance of frontier by campesinos still migrating from the Azuero Peninsula. In fact, the campesino population in the Bayano region increased eight fold from 1980 to 1990 (Wali(a), 28). Some campesinos were allowed to return to their land before the 1970s displacement. Through campesino-military alliances, other campesinos were allowed to settle in the Bayano region, creating a flux with its peak in 1987. This phenomenon led to the monopolization of landscapes by agriculture and cattle-ranching plots of land (Wali(a), 4).

In addition to campesinos advancing the frontier, deforestation was also occurring at a large scale. For instance, logging concession were sold to private enterprises, such as MADECA, even within the hydroelectric plant's buffer zone (Wali(a), 25).

Overall, clientelism, corruption and economic motives were all inter-related processes that came into full effect under Noriega's regime. The main victims of this opportunistic regime
were the politically marginalized poor campesinos, Gunas de Madungandi, Emberas del Bayano and, of course, the environment.

Indeed, changes among local populations were taking place with regards to their land use. Among Gunas de Madungandi, their loss of land was occurring at a faster pace, legal costs to protect their land were increasing, while the Bayano Corporation was powerless to counter such negative repercussions (Wali(a), 29). Consequently, larger concessions to logging enterprises were sold, especially in 1984, thus perpetuating the cycle of loss of land. Moreover, the latter community had to increase profitable agriculture, thus decreasing their subsistence agriculture practices (Wali(a), 29). Among Emberas del Bayano, similar pressures led them to environmental degradation practices (Wali(a), 29).

Among poor campesinos, changes in cattle-ranching practices at a small scale were supported by the Bayano Corporation and the Agriculture Ministry. The latter provided technical assistance and credit to cultivate rice, fruits and vegetables, for instance (Wali(a), 28). These initiatives, however, were a mild attempt to mitigate deforestation and further encroaching on Kuna territory. Indeed, with no secure land titling, the lack of technical and credit assistance and a constant flux of immigration from the Azuero peninsula, poor campesinos were pressured into encroaching on conflictual territory (Wali(a), 28).

While the Bayano landscape was increasingly under stress for exploitative uses, pro-conservation organizations were starting to have a role in mitigating such degradation and deforestation. Through United States and European multilateral organizations, a Comision Bayano was created to study ecological phenomenon in the region. Through this commission, one of the conditions to receive loans from abroad now had environmental requirements (Wali(a), 26). On the other hand, however, this pro-conservation driver of change, being an foreign type of control, raised questions of national sovereignty in Panama, as well as the
threat of being swept under this "one size fits all" model regardless of local populations' needs.

To conclude, between 1981 and 1989, the political turmoil, economic incentives, clientelism as well as ethnocentrism were all drivers of change impeding land use planning in theory to be put into practice. More than those factors, however, was the lack of sustainable long-term vision of the nation; natural resources, at the loss of Bayano local populations, were given for the sake of short-term benefits. While changes were drastically occurring in the region, training initiatives among some Gunas de Madungandi, Emberas del Bayano and campesinos were not enough to counter-act deforestation, degradation, and market-oriented agriculture practices.

**The invasion of land use planning in 1989 to 1994**

In the aftermath of the United States' invasion of Panama in 1989, Guillermo Endera was put into power. Changes affected all sectors of society and nature, starting with the classification of public bodies into 3 categories in a descending order according to their economically profitable potential (Wali(a), 32). According to such adjustments, two institutions which also had influence on the Bayano region were marginalized, such as the Instituto Nacional de Cultura (INAC) and the Instituto Nacional de Recursos Renovables (INRENARE). Yet, three anthropologists were assigned to the INRENARE, Oficina de Asuntos Indigenas and the Ministry of Justice in the hopes of improving the planning of the region. Internal conflicts in addition to the spectre of Noriega's regime, however, were still impeding the provision of such resources due to debts acquired during his rule.

Still, six laws were passed pertaining to environmental education, incentives for reforestation, forestry management, the ratification of the Rio Biodiversity agreement, for the conservation of biodiversity and native species in Central America, the ratification of
agreement on climate change and lastly, the procedure of environmental impact assessment on infrastructure projects (Herrera(d), 4). These initiatives demonstrate an attempt to change the nationwide approach to the environment.

At a smaller scale, and as the result of inadequate compensation by the government after displacement agreements, Guna non-governmental organizations (NGOs) started to arise (Wali(a), 32). They were receiving minor funds from the INRENARE and the IRHE.

In brief, regional planning was now under the rule of a new government, which in turn was under the command of the United States' vision of national development. On the other hand, however, civil society was starting to organize as NGOs.

**Neoliberal multiculturalism and environmentalism from 1995 to 2013**

While Panama has been one of the fastest economically growing countries in Latin America between 2002 and 2012, the major drivers of land use planning are varied given the increasing role of private enterprises and multinational NGOs, while the government's direct role has been decreasing.

Starting in 1995, the electricity was privatized nationwide. Henceforth, in 1999, a land use management plan was undertaken by a private enterprise, Louis Berger and Delta Consultants S.A. (Herrera, interview available upon request). In order to fulfill goals such as conservation, sustainable natural resource use and community development in the Bayano and Maje regions, the latter plan covered areas ranging from agriculture production to ecotourism. Such a plan was financed by the Interamerican Development Bank and the National Government through the Autoridad Nacional del Ambiente (ANAM). As such, having an array of actors can have pros and cons. On the one hand, the latter steps were a way to avoid political corruption. On the other hand, however, having an array of actors whose interests diverge can make it difficult to find a common ground, and thus become
counterproductive. Up until now with AES Panama, the Bayano hydroelectric is privately owned. This can lead to issues of environmental and social responsibility, which is why the role of civil society at the local scale is essential.

Another example of the increasing role of private enterprises is in ANAM’s registry named "Plantaciones forestales establecidas en Panama hasta el ano 2001 e inscritas en el registro forestal de la Autoridad Nacional del Ambiente". This registry demonstrates that there are various reforestation initiatives nationwide, especially financed by private enterprises (ANAM, available upon request). So far, no statistics have been carried with reforestation data in the report. By estimating the data, however, the Torti corregimiento (a union of villages) seems to be far behind the reforestation rate of other regions in Panama. This report demonstrates the role of private enterprises, or in this case, lack of thereof, with regards to reforestation initiatives. Moreover, this registry deserves closer attention in order to understand reforestation rates at the regional level in contrast to the national level.

What has been reported regarding land use among campesinos, Gunas de Madungandi and Emberas del Bayano demonstrates a) an increased pressure to deforest land and/or carry changes in agriculture and b) mobilization at the local scale to counter-act such dynamics.

First, land use change among all three groups has been studied by Simmons. According to his study, there were no statistically significant difference in economic activities such as wage labor, agriculture and timber extraction practices between Gunas, Emberas and campesinos. (Simmons, 7). In fact, the main factors that affected such practices were distance from the highway. However, there might be differences among all three groups with regards to different land production and intensity practices within agriculture that were not accounted for in this study. This study further concludes that Indigenous groups participate more frequently in reforestation practices. Conversely, such an aggregation of
data might be misleading given the cultural variations that exist among Gunas and Emberas.

Campesino’s land use was studied by Sloan from 2000 to 2006. He demonstrates how economic pressures can lead to deforestation on the one hand, and reforestation through different economic incentives on the other hand. Reforestation is occurring in the Bayano-Darien region due to various incentives, in addition to natural re-growth. First, in the case of forest scarcity, ecosystem services are taken into account in a degrading environment. Second, tree prices also play a role in reforestation given the likelihood to reforest after deforesting (Sloan, 79). Therefore, there is this cycle of deforestation and reforestation that is noticeable on the landscape matrix. This "replenishment" cycle, on the other hand, is highly dependent on market driven forces, which are highly attractive to campesinos that rely more heavily on wage labor than Kunas and Emberas (Simmons, 8). The main challenge is to not only replace deforestation rates by reforestation ones, but to also exceed the latter by the former. In this case, among campesinos, economic incentives more than demographic dynamics were altering the deforestation and reforestation balance (Sloan, 82).

Second, while there are many drivers of change altering land use dynamics, there is a response to counter-act such effects at the local level. For instance, Emberas del Bayano and Gunas de Madungandi, two historically enemy groups, are collaborating to seek compensation to the government from the post-hydroelectric plant displacement (Pliego de Peticiones). More recently over the past decade, Panama has grown economically while "embracing" multiculturalism, but in practice, there is still this power battle between natural resources rights between the state and distinct Indigenous peoples. As such, while many reforms sought to empower Indigenous peoples, such as legal land-holding; legal rights to
water, flora and minerals are all subsurface processes that are not included in Indigenous peoples’ legal rights (Velasquez R., 17). Consequently, Velasquez R. noticed that Reducing Emissions for Deforestation and Forest Degradation (REDD) programs might be ambiguous with regards to who benefits from such programs, as long as legal rights are ambiguous (Velasquez R. 18). Land panning in the future needs to heavily monitor Panamanian laws as there is this cultural paradox between granting culture-related and natural resource rights. Therefore, legal changes at the local level that are currently being initiated are primordial for a successful land use planning system.

In addition to collaborating, there are separate initiatives that are undertaken. For instance, there was an increase in NGOs by Gunas de Madungandi; 30 were created between 1993 and 2003 (Herrera(b), 17). Some Emberas del Bayano are also actively seeking ways to respond to land-related pressures, such as by organizing themselves at the corregimiento level and claiming land titling to the Ministry of Justice (Creacion del consejo de autoridades, Pliego de peticiones).

Campesinos have also been responding to such land pressures in order to alter their use of land. According to Santley Heckadon Moreno, quoted in Wali’s article, campesinos are almost inherently incapable of organizing collectively (Wali(a), 27). Conversely, some campesinos have started to organize into associations, whether being for environmental or other more opportunistic reasons. For instance, the Asociacion de Productores Agropecuarios de Platanilla, whose goal is to move towards environmentally sustainable agriculture practices, has been founded in the 2000s (APAP interview available upon request). To do so, they seek to incorporate agro-forestry methods in the long-term and participate in REDD+ programs, for example.
To conclude, from 1995 to 2013, there has been an increased role of various actors in land use planning, ranging from ANAM to AES and Guna-led NGOs. This “mixture” of variables affecting the planning of land-use in the Bayano region has altered the way land use is managed and used by local populations. Understanding these dynamics are primordial to predict the faith of the survival of the forest in the Darien in the long-run, and at a larger scale. The dynamics of land use change by local populations are as follow. First, there has been an increase in the organization of local populations into associations (for campesinos) and into Indigenous groups through Embera del Bayano-Guna de Madungandi collaborations. Second, there has been an increase in the role of private enterprises in the region, as well as an increased need for civil society, both national and international, to mitigate negative repercussions. On the other hand, there has been a decrease role of the Panamanian state and citizens with regards to the well-being of local populations and sustainable management of land. This withdrawal the government as a direct driver of change has raised issues of accountability and responsibility. Therefore, in the academic realm, more emphasis needs to be put on the way the state is linked to land use processes.

**Conclusion**

One of the major failures throughout history of external actors dealing with local populations has been the compensation scheme. It is not merely about compensating financially, but about empowering them when entering further into the “mainstream” Panamanian economic system. Of course, there are many debatable ways of how local populations can enter such economic system. Nonetheless, if local populations are to become more exposed to external forces and drivers of change, they ought to be empowered, according to their strengths, in order to better understand and manage such drivers of change.
Another error that was made when planning at the regional level was the lack of monitoring regarding land use by Gunas de Madungandi and Embera del Bayano. Indeed, land use practices by local populations have not been static through time, even among campesinos. Indeed, they are part of an interconnected web through which they are related to, and responsive to, external forces. The main challenge, therefore, is to find a) the best practices that currently exist and/or that are part of their knowledge base, and b) to incorporate new technologies and knowledge to complement the former.

Overall, the academic literature regarding land use planning throughout the 1970s and 1980s analyzed land use planning mostly from an anthropology perspective. Indeed, while this type of analysis has its strength in understanding state-populations dynamics, its weakness was the lack of information on land use management by local populations. As such, reforestation and deforestation dynamics at the micro scale are difficult to analyze through the 1970s and 1980s.

The "trend" starting at the end of the 1990s, however, emphasizes much more on drivers of change which modified land use practices at the micro-scale. For instance, local populations' change in land use practices were attributed to distance from highway (Simmons, 1997) and incentives for reforestation in frontier zones (Sloan, 2007).

While both trends in academic literature complement each other, they poorly do so through time. Drivers of change between the macro and micro scale are constantly in flux, and such a holistic picture of land use planning is important to grasp.

Additionally, monitoring land use in the Bayano region, in the name of protecting rich biodiversity and ecosystems as well as diverse cultural strength, should be as politically and economically neutral as possible. To do so, there could be an interest research group in
academic institutions focused on the Bayano-Darien region. This group could then serve as reference with regards to land use planning, land use and territorial conflict through time.

Lastly, there is a need to have a common vision of development in the region; one common denominator that will make land use planning effective for the preservation of cultural strength, biodiversity and one of the most important lungs of our planet.

Appendix A: Annotated Bibliography

Annotated Bibliography for the history of the Upper Bayano Basin of Panama – With a focus on the themes of ‘land-use’, ‘land-use planning’, and ‘territorial conflicts’

Journal Articles and Plans


Burton discusses the impact the Pan-American Highway will have on the areas further east in the Darien by describing the impacts already present in the Bayano region. He speaks of how the forest has already been cleared and the areas is being used for cattle cultivation. He has some accounts of the species he sees and their decline. He suggests the Darien should be used for tourism rather than opening it up for forest extraction. Burton’s article is relevant for its descriptions of the Bayano during that time.

Relevant pages: all

Coloane et. al, reports on the successes and failures of the Sustainable Development Program for the Darién during the previous ten years (1998-2008). The report states that the rehabilitation of the Puente Bayano and the rehabilitation of the Pan-American Highway were both successful and reduced travel time by five hours. It also briefly discusses results and limitations of the titulation project.

Relevant pages: 4 (Section 4 – Results of the bridge and road reconstruction); 12 (Section 1.1-1.4 – Results of titulation and demarcation projects)


Very similar to article by Tscakert et al (see below).


Aunque el proyecto Bayano tuvo consecuencias negativas en la región, hubo dialogo y acuerdos, sin confrontaciones directas. Entre 1970 y 1972, la sociedad civil identifico el problema de una falta de politica del Esta da en cuanto a la situación de la poblacion del Bayano. Cinco grupos vivian en la Cuenca Alta del Rio Bayano; campesinos (“colonos”), Kunas, Emberas, bayaneros y Colombianos del Choco. Demandas para solucionar esos errores fueron elaboradas y presentadas al Gobierno en 1973; cual respondió y creó un equipo, el Programa de Emergencia para el Desarrollo Integral del Bayano. Datos sobre la
planificación y ejecución de la hidroeléctrica están presentados, además de datos sobre el proceso de indemnización de parte del Estado para las poblaciones afectadas. Los problemas en el terreno fueron varios; la organización que se necesitaba de parte de las poblaciones locales no hacía parte de la cultura campesina o Embera. Además, funcionarios del Estado en el campo tuvieron otros problemas como la falta de tierras adecuadas para cada grupo relocalizado. Se describe también el proceso de negociación con los Kunas que fue complejo, proceso que permitió los Kunas y Emberas quedarse en el área del Bayano, pero bajo varias condiciones. Se describe el proceso de relocalización y de negociación con los campesinos; la mayoría fueron relocalizados en Torti. Hubo bastante flexibilidad con la reubicación de los colonos también; algunos se quedaron en el área del Bayano. Para concluir, durante todo el proceso de negociación, reubicación y compensación, varios criterios socioeconómicos y socioculturales fueron utilizados. Pero muchas consecuencias negativas resultaron de ese “manejo integral”, como el desarrollo desordenado del Bayano cuando campesinos reocuparon la tierra del Bayano. Claro, para el gobierno, la balanza entre el clientelismo y la protección ambiental y sociocultural bien frágil hizo que varios campesinos fueron informalmente autorizados de reubicarse en la Cuenca Bayano.

Comentarios: Paginas importante: En el censo inicial los campesinos declararon 30 000 hectáreas de respaldo- bosque para conversión en potrero (p.9-10). Derecho Posesorio y campesinos (p.10). Un programa de relocalización de campesinos en tierras bajo un manejo de cooperativas fracaso; falto la orientación social y productiva que se necesitaba en las primeras etapas de reasentamiento para tal objetivo (p.10). Hubo resistencia por los colonos sobre su desplazo; un profesor organizó un sindicato de agricultores (p.11). Corporación para el Desarrollo Integral del Bayano , a través de la Ley 93, señala entre sus objetivos: plantear y ejecutar programas para el desarrollo integral y armónico de la
región del Bayano, con el propósito de proteger las cuencas hidrográficas mediante la racionalización del uso de los recursos naturales existentes (p.12) El rol del Instituto de Recursos Hidráulicos y Electrificación, IRHE, en crear una mesa redonda sobre el tema de la Cuenca Alta del Bayano para replantear tareas que el Estado no había realizado (p.13)

Herrera(b), Francisco. Las Comunidades Indígenas en el Umbral del Nuevo Milenio.

Resumen de la historia de los Indígenas de Panamá desde 1903 en cuanto a las consecuencias de su integración a la economía y política nacional bajo un modelo Europeo. Analiza como se puede respetar las culturas al aprender de otros países.

Paginas importante: Analysis sobre la historia reciente de las relaciones entre el ambiente y los recursos naturales con los pueblos Indígenas, sobre todo los Kunas (p.17) Se analiza el rol de las ONGs y iniciativas ambientales por los Congreso Generales creadas por pueblos Indígenas y de las intermedias entre tales iniciativas (p.17)

Herrera(c), Francisco. La evolución de las demandas indígenas sobre la tierra y las respuestas del Estado en Panamá. Institut Catala d’Antropologia. Número 17 (1) Any 2012 pp. 44-59.

El artículo discute el desarrollo del modelo de comarcas indígenas en Panamá, pasando por figuras como el de resguardos indígenas, reserva indígena, la ultima tomada en préstamo a través de la experiencia norteamericana y el actual de Comarca, cuyas intenciones político administrativas tienen distintos significados, en un contexto de clientelismo y tolerancia, como valores de la cultura política. El artículo revisa igualmente el proceso de negociación de la propuesta de las comarcas entre 1977 y 1997, las tácticas de dilación realizadas por
los sectores de poder económico y el propio estado, durante el gobierno de los militares (1968-1989). Finalmente se incluye el nuevo modelo de tierras colectivas para poblaciones pequeñas y dispersas.

Herrera (d), Francisco. La Agenda Ambiental del Estado y la Sociedad Civil en Panama. CEASPA/Universidad de Panama, consultado el 19 de abril 2013.

“Una evaluación del movimiento ambiental; en este trabajo distinguimos tres, pero nos concentraremos principalmente en la última que corresponde al periodo post-invasión, de 1990 a 1995.”


This report elaborates the Sustainable Development Program for the Darién written in 1998 and implemented during the following ten years. Most of the plan focuses on areas further east in the Darién, but there are three projects financed by this program that affected the Bayano Region. The projects relating to the Bayanoa are as follows: (1) the rehabiliting of the Puente Bayano; (2) the rehabilitation of the Bayano-Torti stretch of the Pan-American Highway and; (3) the titulation of indigenous lands in the Bayano region. It was believed that there could be problems with the construction of the highway if the lands in the area were not properly titled. While this program was not directly targeted at the Bayano Region, its projects involved the Bayano Region and should thus be considered part of the history of land-use planning in the Bayano.

*Relevant pages in English Version: 28-29 (Section 3.14, Work Front No. 1); Annex – Environment and Social Sequencing Matrix (Work Front No. 1). Database also includes a copy of the Program in Spanish*


Partridge synthesizes the literature on the migration of cattle ranchers in Panama and reviews the various articles in the book *Colonizacion y Destruccion de Bosques en Panama* edited by Stanley Heckadon-Moreno and Alberto McKay (1982). He notes that Heckadon-Moreno and McKay address not just the “pull” factors in migration theory, but also the “push” factors influencing the movement of cattle ranchers east. Heckadon-Moreno argues that short fallow cultivators prefer *acahual* land, land that was cultivated and then lain fallow for four to five years. Furthermore, the incentive to clear forests is not high enough in itself because the return on the labor investment is not high enough. He argues that the consolidation of land into larger cattle ranchers is the largest factor influencing the
movement of small-scale cattle ranchers into the tropical forests. The consolidation of large cattle ranches is due to (1) investment by international development banks (World Bank, Interamerican Development Bank, OPEC, etc) and private corporate interests and; (2) increased internal demand for beef. See the article by Joly for more information on the investment patterns of international organizations. As the colonists from the West move to the East, so do the interests of the international development banks. The East of Panama begins to see the increase in government initiatives (agricultural credit, health services, etc) that it had not previously experienced. Partridge’s article is important because it summarizes the various theories about the cattle ranching complex in Panama during the 1970s and 1980s. To find more in depth articles on the topic see the aforementioned texts.

Relevant pages: all

Potvin, C. T., Petra; Lebel, Frédéric; Kirby, Kate; Barrios, Hector; Bocariza, Judith; Caisamo, Jaime; Caisamo, Leonel; Cansari, Charianito; Casamá, Juan; Casamá, Maribel; Chamorra, Laura; Dumasa, Nesar; Goldenberg, Shira; Guainora, Villalaz; Hayes, Patrick; Moore, Tim; Ruíz, Johana (2007). "A participatory approach to the establishment of a baseline scenario for a reforestation Clean Development Mechanism project." Mitig Adapt Strat Glob Change 12: 1341-1362.


Simmons evaluates the differences in land uses between colonist and indigenous populations to test the commonly held belief that colonist populations are responsible for forest degradation while indigenous populations practice sustainable land use. She argues that because policies to reduce forest degradation in Panama have been shaped by supposed
behavioral differences between colonists and indigenous populations, it is important to test this assumption. Simmons looks at (1) economic integration into the market, (2) forest use, and (3) management practices (reforestation efforts) in both groups by randomly sampling three Emberá villages, two Kuna villages, and three colonist and verifying the interview results with outside data sources. After reviewing the resulting data, Simmons concludes that the results demonstrate that there is little difference in land use practices between indigenous and colonist populations. Simmons’s work has substantial implications for policy regarding the reduction of forest degradation and is an initial step towards evaluating the differences in land-use practices between the two groups. However, it appears to be the only work of this kind in the literature. The results that Simmons posits are not corroborated elsewhere in the literature and could be tested. Relevant pages: all


Tschakert et al evaluates the implementation challenges for the afforestation/reforestation projects under the Clean Development Mechanism of the Kyoto Protocol using the case study of Ipetá-Emberá in eastern Panama. While the CDM-AR projects would sequester significant carbon, the economic benefits of the program would not be felt equally between low-income and high-income households. The economic risks are prohibitive for low-income households because of the next best alternative land-use, thus, only high-income households would be able to participate. The study discusses the costs of implementing the program overall and the household decision-making in regards to land use. Households decide between engaging in afforestation/reforestation programs, or the engaging in cattle ranching, the next best alternative land use. Tschakert et al conclude by arguing that if the
CDM program also included payments for deforestation avoided, it would be able to reach the low-income households in the community as well. This article is important because it discusses the land use practices amongst households in Ipetí-Emberá and also the decision-making process an individual household considers when considering land-use practices. A successful land-use management plan for the entire region would need to consider these decision-making processes of individual households in order to assess if households will make changes to land-use practices or not.

Relevant pages: 809-810 -- Methodology: 810-817 -- Results


Velázquez-Runk examines three case studies of indigenous peoples in Panama, including ‘Collective Land Rights among Emberá and Wounaan’, ‘Tourism Encroachment in and towards the Comarca Gunayala’ and ‘Hydroelectric Dam and Mining Conflicts in the Ngäbe and Buglé Lands’, to argue that neoliberal economic reforms in Panama are diminishing the rights of indigenous peoples. In the case of the Emberá and Wounaan, Velázquez-Runk catalogues the struggles of the Emberá and Wounaan to receive legal recognition of their collective lands. She discusses key dates and legislation that impacted the creation of the collective land Rights. While most of her work focuses on the Emberá further East in the Darién, she states the Emberá in the Bayano Region lead the efforts to receive legal titling and the Emberá and Wounaan in the Darién followed the example of the Emberá in the Bayano. Velázquez-Runk’s article is an important contribution to literature because it concisely summarizes the legal issues about collective land for the
Emberá and Wounaan in Eastern Panama, which no other article has done to date. Relevant pages: 31-33


Wali first discusses the history of the Kuna, the Emberá and the campesinos in the Bayano region. She profiles the population, locations, and agricultural techniques of the three different groups of people at the time of writing (pg 1-2) and the resettlement plans for each of the three groups following the construction of the Bayano Hydroelectric dam in 1972-1976 built during the Torrijos regime to expand Panama’s control of energy resources. While initially all three groups were going to be moved out of the area around the lake, the Kuna were permitted to settle around the lake and the Emberá were allowed to stay in the region as well because of both groups perceived low ecological impact. The small number of campesinos that had been living there, however, were displaced out of the region because of their cattle ranching practice. Throughout the 1970s and 1980s, campesinos began to return to the area from which they were displaced and new campesinos immigrated from Los Santos to the Bayano. In 1988, the Bayano Corporation, a regional semi-autonomous authority that was created to manage the economic development in the region allowed, officially, for some campesino families to return to their previous settlements. With the immigration of campesinos back to the region, Wali states that primary economic activity in the region shifted from horticulture to lumbering and cattle ranching. She argues this shift was a grave threat to the region’s ecology and non-cattle ranchers or lumberers to make a sustained livelihood.
Wali ends by describing the current status of the indigenous people’s struggle to demarcate their territory at the time of her writing (1989). Both the Emberá and the Kuna were engaged in struggles to have their territory demarcated and Wali argues it was not in the interest of the government of the businesses in the region to grant the indigenous groups the right to their lands at that time. Wali had hope that because the IRHE supported autonomous reserves, it may help influence the government to grant demarcation rights. Furthermore, she encouraged the two groups to attract international support in their struggle for demarcation.

*Relevant pages: all*

**Laws:**


**Studies:**


IRHE (1978). La Mesa Redonda Lago Bayano: Formacion, Manejo y Control. Panama City, Instituto de Recursos Hidraulicos y Electrificacion.
**Theses:**


Capitulo 1: Descripción del tipo de madera en el area del Bayano. Capitulo II: La explotación forestal en la región del Bayano, entre otras por la Corporacion del Alto Bayano. Capitulo III: La industria maderera en Panama de un punto de vista económica, capacidad de la demanda, reglamentación y administración. Capitulo IV: Medidas para la explotación racional de la industria de la madera.

*Paginas importante: Importantes conclusiones, recomendaciones y anexos (legislación forestal, prevención y lucha contra incendios forestales, control de plagas y enfermedades, protección de aguas y suelos, infracciones forestales, etc.) (p.62).*


Seis hipotesis fueron desarrolladas. 1) La destruccion del medio ambiente, deforestacion y degradacion del nivel de vida fueron el producto de la mala administracion de los recursos naturales basada sobre subsistencia y ganaderia. 2) El mercado capitalista desde 1903 ha cambiado la estructura interna de la comunidades del interior. 3) Los altos costos de produccion de otras formas de explotacion de la tierra hace que los campesinos utilzan metodos tradicionales. 4) La escasez de recursos técnicos ha obligado campesinos a adoptar la agricultura de roza y la ganadería extensiva. 5) La comerciación rápida (demanda) y menos costosa del potrero hace que el campesino prefiere tal practica en vez
de agricultura (oferta). 6) Más se utilizan métodos rudimentarios de producción, mas se destrozan los bosques (p.19-21).


Analisis sobre el tereno de los campesinos. Capitulo II: Analisis historico de la estrategias de reubicacion de las poblaciones en la Cuenca Alta de Bayano antes y durante la construccion de la hidroelectrica Corporacion Bayano. Capitulo III: Informacion general sobre la poblacion de Chuluganti que sera reubicada. Capitulo IV y V: La hipotesis de la tesis fue confirmada; se nota que el funcionario encargado de la Unidad de Traslado de Chuluganti del Proyecto Bayano ha sido responsable en su roll de informar los campesinos sobre su reubicacion (p.79). Se habla mucho de las relaciones entre el gobierno y sus funcionarios y los campesinos y hay buenos graficos y imagines al fin.


El objetivo de esta tesis es de lograr el manejo correcto de la problemática humana por el medio de la conservación de los bosques, desde un punto de vista práctico y realista. Soluciones para la destrucción de los bosques, de una perspectiva económica y holística.


Guia practico para resolver la problematica del uso inadecuado de los recursos naturales que da paso a la colonizacion desordenada. Dos situaciones; la primera es del conflicto de las tierras reclamadas por Indigenas Embera ocupadas por campesinos/colonos. Problemas para cumplir proyectos entre instituciones y poblaciones locales estan discutidos, tal como el nivel desigual de conocimiento tecnico.


Paginas importante: Conclusion y recomendaciones importantes. Fotos de la infraestructura y del ambiente en esas épocas.


Summary: Landscape dynamics and atterns of deforestation and reforestation can be shaped by incentives to regrow trees. These incentives can be greater than deforestation incentives, such as economic and ecosystem services.

Congreso General Embera:

Informe que el caso esta en etapa de examen preliminar y de la necesidad de confirmar la representacion de las victimas

Tres temas discutidos: 1) Memorando de Entendimiento 2) Coordinación entre las autoridades del Congreso General, Regional y el Proyecto y 3) Coordinación y Ejecución de las Actividades. Acuerdo Alcanzado: los estudios de campo, en cada estudio del proyecto, serán ejecutados por profesionales de la dicha comunidad.


Mediante la cual se solicita subestación de Policía en las comunidades de Maje Emberá Drua, Piriatí e Ipetí Emberá.

Congreso General Kuna de Madungandi; Congreso General Emberá de Alto Bayano, Centro de Asistencia Legal Popular; American University, Washington College of Law (2012). Pedido de información adicional al estado de Panamá y de comentarios por los Pueblos Indígenas: 3. Ipetí Emberá – Archivos en el USAID office: 3.

Pedido de información adicional al Estado de Panamá, y de las observaciones de los Pueblos Indígenas Kuna de Madungandi y Emberá Bayano sobre tal información.


Condiciones del Estudio de Impacto Ambiental y Social del Proyecto de Interconexión Eléctrica Colombia Panama-ICP (Resolución 2).

Creacion del Consejo de Autoridades del Congreso General Embera de Alto Bayano (Resolucion 1). This is what allowed the congreso general to create a consejo de autoridades. The head is the Presidente Coordinator who oversees problems in the four communities and who reports to the cacique, who then communicates at a national level (Resolution 1).


Acuerdo de Cumplimiento de Adjudicacion de Propiedad Colectiva por el Gobierno Nacional y las Autoridades Tradicionales


1) Adjudicación de título de propiedad colectiva de los territorios de las comunidades Emberá de Alto Bayano 2) Desalojo de Colonos que invaden tierras colectivas en las comunidades Emberá de Alto Bayano 3) Atención y Solución a las demandas penales y persecución de los autoridades tradicionales por la defensa su territorios 4) Solución de problemas sociales de las comunidades emberá de Alta Bayano.

Informe Técnico - Gira de campo para evaluación y aprobación de tierras colectiva a nivel nacional según le 72. This document is important because there was no map in the government body of the area of Majé before:

*Paginas importante: Informe Técnico - Gira de campo para evaluación y aprobación de tierras colectiva a nivel nacional según le 72. Mapa #2 -- Mapa de Reserva Hidrológica de Isla Maje, de la ANAM. Año 2007.*

**Congreso General Emberá de Alto Bayano (2011). ANATI- Solicitud al Congreso General Corregidor Torti de Adjudicacion de Titulo de Propiedad Individual. Ipetí Embera – Archivos en el USAID Office: 2.**

ANATI- Solicitud al Congreso General Corregidor Torti de Adjudicacion de Titulo de Propiedad Individual. Resolution sent to Coregimiento Torti on behalf of ANATI in order to stop the granting of 'derechos posesorios individuales' especially regarding campesinos in the Tierra Colectiva.


Mapa del Uso del Suelo en Ipetí Embera.


Resumen del culture, artesania y realidades socioeconomics de Ipetí Embera.

Presupuesto para el medido de tierra de Emberá de Piriatí e Ipetí y la garantía de la suspensión de tramites de "derechos posesorios" en el area. Un proyecto con el gobierno Panameno y la provincia de Darien, financiado por el Banco de Desarrollo Interamericano.


Ipetí Emberá – Archivos en el USAID Office: 1.

Environmental history of the Bayano Lake; summary of species found by scientists since initial studies in 1913. Almost no malezas acuáticas left, but still large Tilapias. Speaks of the environmental studies done up to 2001.


Del régimen especial de propiedad intelectual sobre los derechos colectivos de los pueblos indígenas, para la protección y defensa de su identidad cultural y de sus conocimientos tradicionales, además se dictan otras disposiciones.


Un festival para la primera colaboración con Catherine.


Autorización de los Caciques por: "Esta serie por radio trato de documentar el tema sobre territorios indígenas que están desapareciendo y sobre grupos indígenas que han sido desplazados de sus territorias."
Appendix B: Interview Consent Form

Yo _____________________________

Me informe de los objetivos de la entrevista, que incluyen lo siguiente.

Coralie Thomas y Camila Gordillo somos estudiantes de McGill University haciendo una pasantía en Panam en partenariato con el Smithsonian Research Tropical Institute.

Los objetivos de nuestra pasantía son de colectar información sobre el uso del suelo, la planificación del uso del suelo (pasados y futuros), y conflictos territoriales en la Cuenca Alto Abayano.

Tal información puede ser en formato escrito o oral.

La persona entrevistada tiene derecho de no responder a algunas preguntas, de parar la entrevista cuando quiere y de no publicar su nombre (sería confidencial entre Catherine Potvin, Javier Mateo-Vega, Coralie Thomas y Camila Gordillo).

Esta entrevista y nuestra pasantía solo servirán para objetivos de educación y de investigación.

Fecha: ________________________________
Firma:_______________________________