

Spring 2004

# Using the Trees to Understand the Forest: Evaluating the Risks of the Panama Canal Amplification Project

Caroline Gross  
*SIT Study Abroad*

Follow this and additional works at: [https://digitalcollections.sit.edu/isp\\_collection](https://digitalcollections.sit.edu/isp_collection)



Part of the [Natural Resources and Conservation Commons](#)

---

## Recommended Citation

Gross, Caroline, "Using the Trees to Understand the Forest: Evaluating the Risks of the Panama Canal Amplification Project" (2004).  
*Independent Study Project (ISP) Collection*. 518.  
[https://digitalcollections.sit.edu/isp\\_collection/518](https://digitalcollections.sit.edu/isp_collection/518)

This Unpublished Paper is brought to you for free and open access by the SIT Study Abroad at SIT Digital Collections. It has been accepted for inclusion in Independent Study Project (ISP) Collection by an authorized administrator of SIT Digital Collections. For more information, please contact [digitalcollections@sit.edu](mailto:digitalcollections@sit.edu).

**Using the Trees to Understand the Forest:  
Evaluating the Risks of the Panama Canal Amplification Project**

Caroline Gross

Independent Study Project  
School for International Training  
Panama, June 3, 2004

## Table of Contents

Abstract.....	2
Resumen Ejecutivo (Executive Summary).....	3
Introduction.....	4
The Existent Canal and Historic Expansion Attempts.....	5
The Tripartite Commission (1985-1993) Recommends New Locks.....	6
The Controversy over Law 44.....	7
The Campesino Coordinating Group against the <i>Embalses</i> .....	10
Social and Environmental Problems of Flooding.....	11
Technical Arguments against the <i>Embalses</i> .....	12
Words from the ACP.....	13
Pastoral Social-Cáritas's Critique of the ACP.....	15
Concerns of Foul Play.....	16
The Bigger Picture.....	17
Financial Concerns Unanswered.....	18
What Can Panama Hope to Gain?.....	20
Conclusion: ACP Has Explaining to Do.....	22
Works Cited.....	24
Works Consulted.....	27
Acknowledgements.....	30
Research Questions.....	30
Methodology.....	30

## List of Figures

Figure 1: The Panama Canal Watershed after Law 44, 1999.....	8
Figure 2: Container fleet development by TEU-size classes as of January 1, 1994-2003.....	22

**Abstract:** For over a decade, the Panama Canal Authority (ACP) and its United States predecessor have contemplated a Canal Amplification Project to allow larger boats to pass through the Panama Canal. This project, as it is currently understood, would involve the construction of a new, “third” set of locks with greater capacity, the widening of channels within the Canal, and the flooding of approximately 45,000 hectares of land currently occupied by *campesinos/as*. Since the passage of a 1999 law that expanded the definition of the Panama Canal Watershed by 63 percent, some *campesinos/as* have united to oppose the flooding of their communities. The social justice branch of the Catholic Church known as Pastoral Social-Cáritas Panamá has aided the opposition effort, criticizing the ACP’s secretive attitude toward the public and arguing that the artificial lakes, which the flooding would create, are not necessary. Indeed, alternatives exist that would save water without forcing these *campesinos/as* to relocate. The larger issue, though, is that the whole Canal Amplification Project is not financeable and will harm rather than benefit the Panamanian people for decades. This sober reality has yet to be recognized by more than a few concerned citizens. The creation of artificial lakes and possible flooding in the Panama Canal’s Western Watershed, even with its potential to emburden the lives of thousands of people, represents only a small fraction of the problematic aspects of the proposed Canal Amplification Project. However, when viewed as a microcosm of the project as a whole, the study of this conflict serves as a methodologically invaluable tool for understanding the dangers that the larger project poses to the Panamanian people. This paper will develop a detailed account of the flooding controversy and argue that the ACP, in trying to sell the Canal Amplification Project, uses the same practices of underestimating or hiding negative aspects and costs that have been widely opposed in the issue of the artificial lakes.

**Keywords:** Panama Canal, Canal expansion, megaprojects, social conflict, external debt

## Resumen Ejecutivo

Dentro de este mes, la Autoridad del Canal de Panamá anunciará los planes del Proyecto de la Ampliación del Canal, y la construcción podría empezar dentro de un año. Este proyecto involucrará la construcción de un tercer juego de esclusas con la capacidad de dejar pasar los barcos Post-Panamax, los cuales son demasiado grandes para pasar a través del Canal actual. En la historia de la República de Panamá, la idea de aumentar la capacidad de las esclusas se ha discutido varias veces. Hoy, la ACP dice que el proyecto es necesario para mantener un Canal competitivo en el comercio marítimo mundial, y cita el hecho de que cada año más barcos de tamaño Post-Panamax se construyen. La ACP también ha dicho que será necesario construir embalses en tres ríos oeste del Canal, en un área que se incorporó a la Cuenca Hidrográfica del Canal con la aprobación de la Ley 44 el último día de la presidencia de Ernesto Pérez Balladares, el 31 de agosto de 1999. Estos embalses inundarían 45,000 hectáreas de tierra donde viven 8,500 o más campesinos, mayormente en la provincia de Coclé.

Después de la aprobación de esta ley, que fue una sorpresa a toda la gente que vive en la nueva parte de la cuenca (la llamada Cuenca Occidental), un grupo de campesinos se reunieron en la Gran Asamblea Campesina Contra la Inundación con el propósito de rechazar cualquier proyecto que requiera su reubicación de sus tierras. Eventualmente, este grupo cambió su nombre a la Coordinadora Campesina Contra los Embalses (CCCE), y desde entonces ha opuesto el proyecto con ayuda de Pastoral Social-Cáritas Panamá (PSCP), una organización de justicia social de la Iglesia Católica. Según ellos, la ACP sigue escondiendo sus motivos desde que recibió la primera resistencia al proyecto. También, estos grupos han preparado literatura que explica las maneras de proveer el agua necesaria para las esclusas nuevas sin construir los embalses. Estas ideas, desarrolladas por ingenieros distinguidos, muestran que ni los embalses ni la reubicación de la gente es necesario para seguir con el Proyecto de la Ampliación del Canal, y es posible que la ACP anuncie este mes que no construirá estos embalses.

Hay un asunto más grande e importante que, hasta ahora, no ha recibido mucha atención pública. Es que la declaración de la ACP, que la Canal se volverá obsoleto sin la ampliación, está basada en datos irrelevantes de barcos que no usan el Canal de Panamá. Los datos *de los barcos que pasan a través del Canal* sugieren que el Canal seguirá siendo competitivo. Ningún usuario ofrece invertir en el proyecto, una señal de la baja rentabilidad del proyecto. Más grave, es probable que la ACP subestime el costo del proyecto para asegurar su aprobación, una práctica que ocurre en la mayoría de los proyectos de más de mil millones de dólares, según Bent Flyvberg, un profesor dinamarqués. Por eso, este ensayo argumenta que aunque la inundación posible en la Cuenca Occidental del Canal de Panamá puede dificultar las vidas de miles de personas, este tema representa sólo una fracción pequeña de los aspectos problemáticos del Proyecto de la Ampliación del Canal. Sin embargo, este conflicto sobre los embalses se puede ver como un microcosmo del proyecto entero, y así funciona como herramienta inapreciable para entender el peligro que el proyecto le causaría al pueblo panameño.

Usando información de la ACP, PSCP, académicos, economistas, y periódicos, este ensayo esboza una situación en la Cuenca Occidental en que la ACP rechaza contestarles a críticos responsables, ignora alternativas aceptables, y no comparte información importante con las personas afectadas. Además, las mismas acciones están ocurriendo actualmente con el proyecto en general, pero hay más en juego porque las personas afectadas son la entereza del país de Panamá.

## Introduction

Just one year after celebrating its centennial, the Republic of Panama in 2004 faces what President-elect Martín Torrijos has called Panama's "most important decision of the century."<sup>1</sup> The decision involves whether to move ahead with the Panama Canal Authority's (*Autoridad del Canal de Panama*, or ACP) Canal Amplification Project, the details of which are scheduled to be revealed to the public during the month of June. Indeed, considering the sheer size of the costs being discussed and the number of changes involved, the project would represent venturing into territory uncharted in the history of Panama. Among a sector of the academic and technical communities, the potential risks and benefits of this project have been discussed over the last several years; however, among the general population of Panama, only one aspect of the project has grown to be a public controversy. This aspect is the construction of three *embalses*, or artificial lakes created by damming a river, in what is known as the Western Region of the Canal's Watershed, or the Western Watershed, that would flood some 45,000 hectares, mainly in the provinces of Coclé and Colón and require relocating 8,500 people, by ACP estimates.<sup>2</sup> The people who live in these areas are known as *campesinos/as*, people who customarily live in rural areas and practice agriculture. Major opposition to the creation of the lakes began in 1999 and has involved coordinated education and opposition efforts over the last five years. This effort has come from a group of community leaders called the Campesino Coordinating Group Against the *Embalses* (*Coordinadora Campesina Contra los Embalses*, or CCCE), with support from *Pastoral Social-Cáritas Panamá* (PSCP), a social justice organization of the Catholic Church, and the groups have succeeded in bringing this *campesino/a* rights issue to the public consciousness.

Unlike the issue of the *embalses*, which has received a great deal of public attention due to the efforts of the CCCE and PSCP, the other aspects of the Canal Amplification Project have received little public opposition. Most people accept as fact the ACP's assertion that expansion is necessary to prevent obsolescence of the Canal in the world economy and to guarantee a sufficient supply of water for Canal operations and municipal use. However, abundant data suggest that the necessity of the project is not a given. The few writers who express this point of view urge a critical evaluation of world shipping rates and of the project's financial feasibility and potential profitability. Their concerns in terms of the project's future negative effects on the 2.8 million people of Panama are not generally understood as clearly as the concerns of those who oppose the construction of the *embalses* in the Western Watershed. The creation of *embalses* and possible flooding in the Panama Canal's Western Watershed, even with its potential to emburden the lives of thousands of people, represents only a small fraction of the problematic aspects of the proposed Canal Amplification Project. However, when viewed as a microcosm of the project as a whole, the study of this conflict serves as a methodologically invaluable tool for understanding the dangers that the larger project poses to the Panamanian people.

To develop such a tool, this paper will provide a brief overview of canal modernization projects over the last one hundred years in order to place the current

---

<sup>1</sup> Quoted in Eloy O. Aguilar, "Panama Leader to Decide on Canal Expansion," *Bucks County Courier Times*, 30 April 2004.

<sup>2</sup> William Hughes, *Impacto de la Ampliación del Canal de Panamá* (Panama: Centro de Asistencia Legal Popular, 2002), 44, iv.

project in a historical trajectory. It will then explain the conflict in the Western Watershed, citing key players' opinions and positions acquired through interviews and literature. After establishing an understanding of this particular conflict's development, this paper will discuss some major points of contention relating to the Canal Amplification Project in general. Using the case study of the Western Watershed conflict as a rubric for studying the whole Amplification Project, it will apply lessons learned from the former to extrapolate the potential effects of the latter and stress the need for public awareness of the project's weak points.

### **The Existent Canal and Historical Expansion Attempts**

The history of the Republic of Panama is inextricably tied with the existence of the Panama Canal. Panama succeeded in achieving independence from Colombia in 1903 because of United States support, which the United States under President Theodore Roosevelt gladly provided in exchange for rights to construct a canal in Panama that would be wholly under U.S. sovereignty. Even before construction of the Canal was completed in 1914, and at several different points during the twentieth century, the Panama Canal Commission (and its predecessor, the Isthmian Canal Commission) debated ways to improve and modernize the Canal.<sup>3</sup> The first such debate in 1906 dealt with the issue of whether to build the Canal at sea level or to build a system of locks to pass boats through a canal 85 feet above sea level. Roosevelt appointed a thirteen-member Board of Consulting Engineers to study both plans in detail, and while an eight-member majority favored a sea-level canal, Roosevelt eventually found the arguments of the minority for the safety and efficiency of a lock canal more convincing. The minority wrote that a lock canal would save \$100,000,000 ("not a trifling sum, even for the resources of the United States"<sup>4</sup>) and six years of construction. These savings would come from the fact that much less excavation would be required and that the construction of the locks and the excavation at Culebra, the two most intense areas of work, could occur simultaneously. The minority also wrote that "if the sea-level canal should be built as now planned it would serve only a temporary purpose; a strong demand would arise within a few years for a broader and safer channel."<sup>5</sup> These two issues of how large a cost is manageable and how to make the Canal viable far into the future are the same issues that need to be examined critically with regard to the ACP's current Canal Amplification Project.

The issue of creating lakes to store enough water for all of the Canal's lockages, at the heart of the debate in the Western Watershed, similarly was first addressed many decades ago. The Panama Canal was built along the path of the Chagres River, and the lock design allowed it to maintain the river's freshwater status. A freshwater canal has the additional benefit of providing drinking water, but because no water from either ocean can be allowed to enter through the locks, it is important to ensure that the water level of the canal can be maintained through rainfall. The original engineers built Gatun Dam to accumulate and store water in Gatun Lake for the proper functioning of the canal. It soon became clear that more storage would be necessary. In the late 1920s plans began for the construction of Madden Dam, which in 1935 would fill Lake

---

<sup>3</sup> Ricardo Arias Calderon, Ricardo Bermúdez Dutari, et al, "Aporte para un Consenso Nacional sobre el Futuro del Canal," Panama, 2001.

<sup>4</sup> *Report of the Board of Consulting Engineers for the Panama Canal*, by George W. Davis, chairman, in U.S. Senate, document no. 231 (Washington, D.C.: Government Printing Office, 1906), 97.

<sup>5</sup> *Report of the Board of Consulting Engineers for the Panama Canal*, 91.

Alajuela.<sup>6</sup> However, during the rainiest months of the year, September and October, much fresh water is still sent straight to the ocean for lack of storage space.

The limiting factor in the size of ships that can pass through the Canal is the size of the locks, which have usable dimensions of 1,000 feet long by 110 feet wide by 41 feet deep. When a boat has dimensions (length and/or width) that are the maximum that can fit through the locks, the boat is referred to as Panamax, and Panamax boats have cargo capacities of up to 4,000 TEU (twenty-foot equivalent units, a measure of cargo). Boats with dimensions too large to fit in the locks are known as Post-Panamax. In order for boats of size Panamax and smaller to traverse the Canal, the boats must be raised and lowered by locks at three different locations. A boat passing from the Caribbean Sea (Atlantic Ocean) to the Pacific Ocean passes through an approach channel to a series of three locks at Gatun which raise the boat a total of 85 feet. It then passes through Gatun Lake, followed by the Culebra Cut through the Continental Divide, until it reaches Pedro Miguel Locks, where it is lowered 31 feet to Lake Miraflores. Another two locks at Miraflores lower the boat to the Pacific approach channel, from which the boat exits to the Pacific Ocean.<sup>7</sup>

As the limitations posed by the size of the locks became manifest, the debate over the relative merits of sea-level and lock canals from 1906 resurfaced on various occasions throughout the twentieth century, focusing on how to get around these limitations. The United States began work on a “third” set of locks, locks with a larger capacity than the existing locks, for the first time in 1939, with mainly military purposes in mind. These plans were halted in 1942 during World War II and did not continue.<sup>8</sup> In the 1950s, the United States again began studies on modernizing the Canal, investigating both the construction of a third set of locks and the potential for making the Canal sea level. In 1964, U.S. President Lyndon B. Johnson appointed a committee to study potential sea-level canal routes all along Central America, and in 1970, the commission announced that a sea-level canal would be more advantageous than the existing lock canal.<sup>9</sup> Also in the 1970s, Culebra Cut was widened to 500 feet (from 300) and deepened, and in the 1977 Torrijos-Carter Treaties, the United States agreed to transfer ownership rights of the Panama Canal to the Republic of Panama at the end of 1999.<sup>10</sup>

### **The Tripartite Commission (1985-1993) Recommends New Locks**

While the seeds of the desire to expand the Panama Canal go back to the 1930s, the roots of the modern Canal Amplification Project can be traced to 1985, when the Tripartite Commission for the Study of the Alternatives to the Panama Canal was formed with members from Panama, the United States, and Japan. The commission studied various alternatives, but it eventually selected two to study in greater detail. These alternatives were, not surprisingly, a High-Level Lock Canal (Third Set of Locks)

---

<sup>6</sup> Arias Calderon, Bermúdez Dutari, et al, 11.

<sup>7</sup> "Panama Canal," Encyclopædia Britannica Online, <<http://www.search.eb.com/eb/article?eu=120007>>, cited 30 May 2004.

<sup>8</sup> Arias Calderon, Bermúdez Dutari, et al, 11-12.

<sup>9</sup> Arias Calderon, Bermúdez Dutari, et al, 12-13.

<sup>10</sup> "Panama Canal," Encyclopædia Britannica Online, <<http://www.search.eb.com/eb/article?eu=120007>>, cited 30 May 2004; *Panama Canal Treaty and Related Documents between the United States of America and the Republic of Panama*, Washington, D.C., 7 September 1977, Panama Canal Authority, <<http://www.pancanal.com/eng/history/index.htm>>, cited 30 May 30, 2004.



and a Sea Level Canal, which would be constructed parallel to and 16 kilometers west of the Panama Canal. The commission estimated the first option, which would widen and deepen the Canal and build larger-capacity locks adjacent to the existent locks, to require ten years and to cost between \$5.4 and 8.5 billion, depending on whether to accommodate boats of maximum 150,000 or 200,000 DWT (dead weight tonnage) and whether to build one route or two. The commission estimated the second option, which would accommodate boats of maximum 250,000 DWT, to require fifteen years and to cost between \$10.9 and 13.5 billion, depending on whether to build one route or two. The commission studied economic, financial, sociocultural, environmental, structural, and political impacts of the alternatives, as well as impacts on the users and on Panama. The commission recommended that the Panamanian government undertake the the first alternative, the Third Set of Locks, with major advantages including the greater water supply it would ensure, the smaller number of highways whose construction would be required, and the smaller ecological impact on marine communities. The commission stated that both options would have a long-term beneficial impact on Panama by giving Panama “a source of sustainable income” and raising Panama’s “geographic value.”<sup>11</sup> During the eight years of the commission, Panamanian newspapers periodically reported announcements from the commission, and articles continued with moderate frequency throughout the 1990s. The studies reported during most of the 1990s received no major public opposition.

### **The Controversy over Law 44**

A major turning point occurred on August 31, 1999, when the Legislative Assembly of Panama passed Law 44. This law redefined the exact boundaries of the Panama Canal Watershed, adding a large section (213,112 hectares) of land west of the Canal that had never before been considered part of the Watershed, which had previously comprised 339,649 hectares in the provinces of Colón and Panamá. The passage of this law came as a surprise to most Panamanians, especially those who lived in the newly defined “Western Watershed” and who had never before considered their land in any way related to the Canal. The law said nothing about expansion nor any other sort of plans for the area added to the traditional watershed. Its political importance and cause for alarm are tied to the 1997 Law 19, known as the organic law of the ACP, which defined the roles, responsibilities, and powers of the organization that would supplant the Panama Canal Commission as of December 31, 1999. The organic law grants the ACP control over the water in the watershed. In addition, it states:

To safeguard said [hydic] resource, the Authority will coordinate...the administration, conservation and use of the natural resources of the watershed and will approve the strategies, policies, programs, and projects, public and private, that could affect the watershed [translation mine].<sup>12</sup>

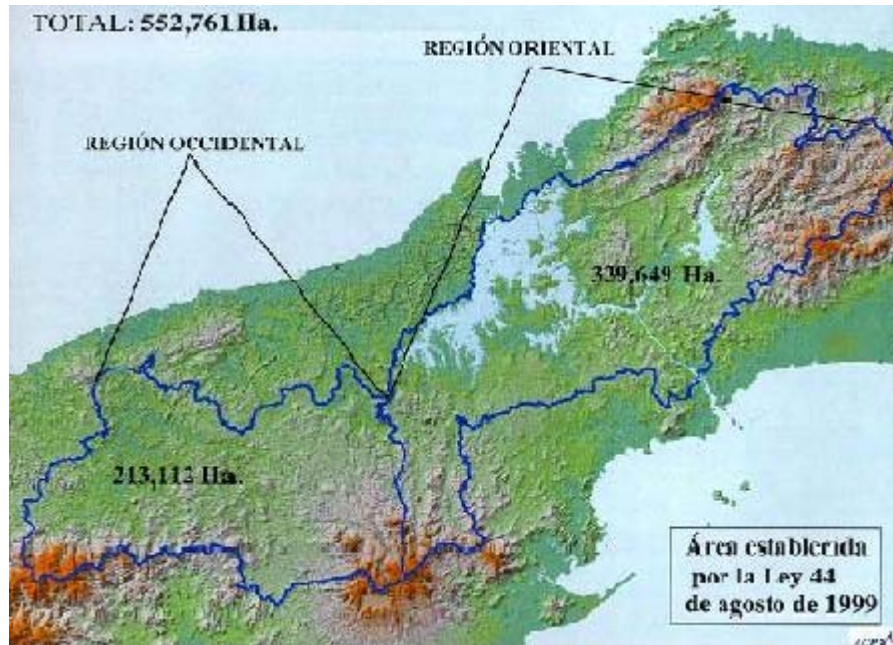
---

<sup>11</sup> Esteban Martínez Lasso, “Las Alternativas al Canal de Panamá y Sus Impactos a Nivel Local y Global,” presented at the *Encuentro Académico Internacional Sobre el Canal de Panamá*, Universidad Santa María la Antigua, Panamá, 4-5 September 1997, page 8; 8-12.

<sup>12</sup> Asamblea Legislativa, Ley 19, Panamá, 11 June 1997, article 6.

Suddenly, with the passage of Law 44, this power to administer natural resources was expanded to an area that occupies a full seven percent of Panama's area, roughly the size of the province of Herrera (see figure 1).<sup>13</sup>

**Figure 1: The Panama Canal Watershed after Law 44, 1999**



Source: Autoridad del Canal de Panamá, 1999.

According to the ACP, there was no ulterior motive behind the passage of Law 44. In a pamphlet entitled “Realities of the Panama Canal’s Hydrographic Watershed” (*Realidades de la Cuenca Hidrográfica del Canal de Panamá*), the ACP points out that the law has only two articles, neither of which says anything about the construction of lakes in the Watershed, and it assures its readers that the law does not change the ownership of the lands. The pamphlet further claims that the preservation of natural resources in the Watershed *requires* the ACP’s presence, based on the levels of deforestation and soil erosion that have already taken place.<sup>14</sup> The pamphlet’s defensive question-and-answer format seems to be arranged to dispel certain perceptions about the ACP and the law. For example, such leading questions as “Is it true that the ACP only talks with one group of campesinos?” and “Does the Canal need more water only to serve the interests of international maritime commerce?” [translation mine], which are set up to be negated, reveal awareness of what others have taken as problematic aspects of the law.<sup>15</sup> The pamphlet seeks to cement in the minds of the *campesinos/as* that live in the new Western Watershed that the passage of Law 44 was a simple act of defining, wholly separate from any plans to flood lands as part of a Canal expansion.

<sup>13</sup> Autoridad del Canal de Panamá, “La Cuenca Hidrográfica del Canal,” undated.

<sup>14</sup> Autoridad del Canal de Panamá, “Realidades de la Cuenca Hidrográfica del Canal de Panamá,” undated.

<sup>15</sup> Autoridad del Canal de Panamá, “Realidades de la Cuenca Hidrográfica del Canal de Panamá,” undated.

However, in the minds of many residents of the Western Watershed and their supporters, the passage of the law represents a violation of their rights that is not separable from ominous future plans. Much of the reason for this is the context of the passage of the law. Prior to the passage of the law, there had been no studies done to explain why, geologically or hydrologically, the new lands would be an appropriate addition to the Canal's watershed. Even without receiving any documentary evidence, the Legislative Assembly passed the law extraordinarily rapidly: all three debates and the passage occurred within a period of 15 days.<sup>16</sup> It was passed on the last day in office of Panamanian President Ernesto Pérez Balladares and his government, which meant that the president of the Republic and many of the legislators changed immediately after he signed the law. Such a tactic is often used to pass a law that is expected to receive opposition because the outgoing officials cannot be held accountable after leaving office. Just as the date precluded subsequent opposition, the secrecy of the law precluded antecedent opposition. To many *campesinos/as*, the fact that they were not consulted on nor alerted about the law, and the fact that the Panama Canal Commission initiated technical studies of the area almost immediately after the law's passage, signaled that the law must be a first step in the plans to expand the Canal.<sup>17</sup>

The Interdiocese Commission to Accompany the Communities Affected by Law 44 (*Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44*), a group that includes Pastoral Social-Cáritas Panamá, argues in its publication "A Voice Orientated toward the Problem of the *Embalses*" (*Una Voz Orientada sobre el Problema de los Embalses*) that there is no scientific legitimacy for adding the Western Watershed to the Panama Canal's watershed, so there must be a political reason. The ACP's organic law defines the Canal's hydrographic watershed as "the area whose surface and subterranean waters flow toward the canal or are emptied into it, as well as its *embalses* and lakes" [translation mine].<sup>18</sup> The PSCP publication points out that the three main rivers of the Western Watershed, Río Coclé del Norte, Río Caño Sucio, and Río Indio, drain to the Caribbean Sea, not to the Panama Canal. This suggests that they comprise, in fact, three distinct watersheds and are thus not included in the ACP organic law's definition of the Panama Canal Watershed.<sup>19</sup> For this reason, Eduardo A. Esquivel Ríos, in a 2002 opinion article in *El Panamá América*, argues that Law 44 is political and has intentions that are not transparent. He writes, "If we accept the ACP's reasons to consider this the watershed, the law could have easily said that the whole national territory should be preserved for the Canal's water supply" [translation mine], referring to the ACP's argument that defining the area as the watershed would allow the ACP to protect the environment in the area.<sup>20</sup>

Approximately one year after the passage of Law 44, the ACP released a document entitled "Concept of the Amplification of the Panama Canal," and this document specified and organized the components of the project, most of which were

---

<sup>16</sup> Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, "Una Voz Orientadora sobre el Problema de los Embalses," (Panama: Pastoral Social-Cáritas, 2002), 6.

<sup>17</sup> Herasto Reyes y Abdiel Zárate, "Ampliación de la cuenca del Canal: Incertidumbre en Coclesito," *La Prensa*, 11 October 1999, 6A.

<sup>18</sup> Asamblea Legislativa, Ley 19, Panamá, 11 June 1997, article 2.

<sup>19</sup> Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, 10.

<sup>20</sup> Eduardo A. Esquivel Ríos, "Sigue la Lucha de los Campesinos de la 'Cuenca del Canal,'" *El Panamá América*, 12 May 2002. Cited in Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, 11.

already popularly known. The project, which was estimated to cost \$6.055 billion included:

- The construction of a third set of locks.
- The widening of the channels at both entrances to the Canal.
- The widening of the channels of Gatun Lake and Culebra Cut.
- The construction of one bridge near the Atlantic side and one bridge near the Pacific side.
- The construction of a dam on Río Coclé del Norte with installed capacity of 150 megawatts (MW) and a dam on Río Indio with installed capacity of 25 MW:
- The creation of three *embalses* in the watersheds of Río Coclé del Norte, Río Caño Sucio, and Río Indio.
- All of the infrastructure, waste deposition areas, and road construction necessary to complete the project.<sup>21</sup>

Since the announcement of this project, based in large part on the results of the Tripartite Commission, the ACP has spent millions of dollars performing studies in the Western Watershed, while certain civilian groups have devoted themselves to opposing ACP action in the area. What follows is an explanation of the conflict as it has developed and as it stands now.

### **The Campesino Coordinating Group against the *Embalses***

Those living in the area that Law 44 added to the Watershed were quick to respond. Upon receiving the news of the passage of this surprise law, a group of concerned community members began meeting and planning what sort of action to take. In October of 1999, they solicited a meeting with members of *Cáritas Arquidiocesana*, a social service group affiliated with the Catholic Church, in order to receive information about the law and to see maps of the newly defined Western Watershed. They began disseminating the information, and in November of 1999, they held a meeting in the community of San Cristobal, which 1,200 *campesinos/as* attended. Several representatives were chosen to record the resolutions of the meeting, called “The Declaration of San Cristobal,” and these individuals would become the leaders of the Campesino Coordinating Group against the *Embalses* (CCCE). Throughout the next month, this smaller group help various meetings throughout the Western Watershed and even met with Panama Canal Commission engineer Agustín Arias.<sup>22</sup>

The group called another large meeting in December of 1999, and this meeting became known as the first Great Campesino Assembly against the Flooding (*La Gran Asamblea Campesina Contra la Inundación*). The Great Assembly created a “Message to the Panamanian People and to the International Community,” to express publically their conclusions. The people of the Great Assembly rejected Law 44 for its passage without consultation or discussion. They vowed not to abandon their lands, and they demanded that the benefits generated by the Canal be put to social use.<sup>23</sup> Those

---

<sup>21</sup> Hughes, 1.

<sup>22</sup> Hilario Sánchez, “Memoria o el Inicio de la CCCE;” in Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, appendix.

<sup>23</sup> Gran Asamblea Campesina Contra la Inundación, “Mensaje al pueblo panameño y a la comunidad internacional,” cited in “Campesinos Rechazan Ley 44 por Injusta,” *Canal de Panamá Hoy* 7, no. 41 (March, 2000), 5.

individuals who had arranged the Great Assembly came to be known as the Campesino Coordinating Group against the *Embalses* (CCCE). The leaders of the group include one representative from each of the major affected areas, which over time have come to include Río Indio-Lago, Coclé del Norte, Caño Sucio, Río Indio Centro, Trinidad, Ciri Grande, and Chiguirí Arriba. There are also leaders for each *corregimiento* (the smallest political division recognized by the State) as well as leaders at an even more local level. According to Ricardo Martínez, a member of the Pastoral Social-Cáritas team, approximately 85 percent of the people living in the Western Watershed support the work of the CCCE, and most of them consider themselves members of the group. This group continues to call Great Assemblies every year to evaluate their fight and plan for the next year, and large numbers of people attend from different parts of the Western Watershed.<sup>24</sup> They communicate mainly through travel and word of mouth, as many of the areas where they work lack telephone or computer access.

Pastoral Social-Cáritas Panamá joined the CCCE in November of 1999 to offer support and, with its more accessible Panama City office, has been able to provide help with communication and publicity.<sup>25</sup> Along with the Interdiocese Commission publication, which it helped to create, PSCP has two publications that regularly include articles and updates on the CCCE struggle in the Western Watershed: the extensive bimonthly bulletin known as *Construyendo, por un Panamá Nuevo con Nuevas y Renovadas Estructuras* (Building, for a new Panama with New and Renovated Structures), and the shorter monthly publication *La Carta* (The Letter). PSCP also created, in June of 2003, a popular series called “No to the Flooding!” (*¡No a la Inundación!*), the goal of which is to summarize and explain the different points of contention to a wide audience.

### **Social and Environmental Problems of Flooding**

In its various publications, PSCP argues that the construction of the *embalses* will bring more and greater negative consequences than the ACP suggests. First, PSCP claims that the population is much greater than 35,727, which the ACP calculated using the 2000 Census.<sup>26</sup> PSCP says that there are many families that were not counted in the census, and that the real number is closer to 80,000. Similarly, PSCP says that the number of people directly affected by the flooding would be 35,000, not 8,500.<sup>27</sup> Relocating the people from flooded land to other land in the Western Watershed, even using the ACP’s 8,500 figure, would crowd them into land that is already populated and already farmed.<sup>28</sup> The alternative would be to move to urban areas of other provinces, but according to James E. Bernard V., Secretary General of the Public Defender of Panama, this move would require a complete change of lifestyle. These *campesinos/as* have lived by subsistence for generations and would not be prepared to find work in more urban environments.<sup>29</sup>

---

<sup>24</sup> Ricardo Martínez, interview by author, Pastoral Social-Cáritas, Panamá, 2 June 2004.

<sup>25</sup> Ricardo Martínez, 2 June 2004.

<sup>26</sup> Autoridad del Canal de Panamá, “Resumen del estudio 2003: Recopilación y Presentación de Datos Socioeconómicos de la Región Occidental de la Cuenca del Canal,” 2003.

<sup>27</sup> “¿Qué Consecuencias Traen los Embalses?” *¡No a la Inundación!* Cartilla no. 4 (Panama: Pastoral Social-Cáritas, 2003), 4.

<sup>28</sup> “¿Qué Consecuencias Traen los Embalses?” 5-6.

<sup>29</sup> James E. Bernard V., interview by author, Defensoría del Pueblo, Panamá, 21 May 2004.

PSCP also points to the environmental damage that the *embalses* would cause. Forests would have to be cut, not only in the flooded areas, but also in the areas where the ACP would build dams, penetration roads, transmission towers, waste sites, and security areas.<sup>30</sup> Much of these lands constitute forests in Panama's section of the Mesoamerican Biological Corridor, which is a project to conserve forests of the seven Central American countries and Mexico.<sup>31</sup> The idea of a biological corridor is to maintain an area without interruption that species can occupy because so doing may help to prevent the extinction of threatened species that can occur from being too close to roads, factories, and other human-made structures.<sup>32</sup> Building artificial lakes would create interruption along the Corridor. Hughes enumerates other environmental effects that usually accompany the creation of dams, which include: loss of biodiversity along the rivers, loss of whole terrestrial ecosystems (from flooding), death of aquatic species due to the reduced oxygen content of stationary waters in created lakes, and prevention of fish migration.<sup>33</sup>

### **Technical Arguments against the *Embalses***

Social and environmental effects aside, PSCP shows that the construction of artificial lakes in the Western Watershed is not technically viable. They cite World Bank criteria, established in 1997, that set minimum standards that a dam project must fulfill in order to be considered viable. First, the ratio of money invested in the project over kilowatts (KW) of installed potential should be no higher than \$2,500 per KW. In the Western Watershed project, the ratio would be \$24,000 per KW. Second, a good site for an artificial lake is compact and deep. The land to be flooded in the Western Watershed is flat, so the lakes would have to flood a much larger area. Third, the ratio of hectares flooded to megawatts (MW) of installed electrical potential should be no higher than 50 hectares per MW. The Western Watershed project would flood nearly 900 hectares per MW.<sup>34</sup> These data indicate that, as a way to provide water for the new set of locks, the creation of *embalses* in the Western Watershed would be an incredibly unviable alternative.

According to engineer Felipe A. Len-Ríos, an alternative exists that would not flood any new land but would instead put to better use the water in the traditional watershed. The way the locks function currently, and have functioned since the construction of the Panama Canal, is that each time a ship is lowered to sea level to exit the Canal, the 55 million gallons of water present in the last lockage is sent to the ocean. Multiplied by the 38-43 boats that pass through the Canal daily,<sup>35</sup> this is a vast amount of freshwater that the Canal can only use once. The purpose of dumping this freshwater to the ocean is to prevent the Canal from salt-water contamination. According to the ACP, this water would go directly to the sea, anyway, so by using the freshwater in the lockages, the Canal takes advantage of the water before it faces eventual contamination

---

<sup>30</sup> “¿Qué Consecuencias Traen los Embalses?” 8-9.

<sup>31</sup> Autoridad Nacional del Ambiente (National Environmental Authority), “Proyecto Corredor Biológico Mesoamericano del Atlántico Panameño,” 2002.

<sup>32</sup> Michael Roy, “Biodiversity,” lecture, Parque Nacional General D. Omar Torrijos Herrera, Panama, 19 March 2004.

<sup>33</sup> Hughes, 128-29.

<sup>34</sup> Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, 20.

<sup>35</sup> Autoridad del Canal de Panamá, “El Canal de Panamá,” Panama, 2003.

by the natural route.<sup>36</sup> Len-Ríos has invented a system that would maintain the separation between fresh and salt water but allow for much of the freshwater to be recycled. The system involves the construction of several lateral basins for each lock chamber. As the ship descends from the level of the Canal, the water from the locks fills these lateral basins, beginning with the highest basin. When the ship reaches sea level, the water in the lock at sea level will have to be sent to the ocean, so a certain (smaller) quantity of water would not be recycled. To begin raising another ship with the same locks, approximately the same quantity of water will have to be taken from the lake supply. However, the rest of the process of raising the second ship can be completed with the fresh water already saved in the lateral basins, beginning with the lowest basin. The key to the system is the separation of the basins by altitude. This would take advantage of the potential energy of the water and its tendency to fall due to gravity, which would remove the necessity for pumping. Depending on the number of chambers constructed, 60 percent or more of the water can be recycled by this method, drastically reducing the extra water supply that the ACP would need for lock functioning and municipal water supply.<sup>37</sup>

Beyond recycling the water the Canal already uses, there is a source of new water that could be acquired without the social struggle involved in the plan that is unviable by World Bank standards: rain. Currently, an average of more than 40 percent of the annual rainwater in the traditional watershed is lost for lack of space to store it. Former Chief Engineer of the Panama Canal Tomás Drohan Ruiz explains that this water could be saved by modernization work that would be less costly and less traumatic than the project in the Western Watershed. It would require deepening the existent navigation channels by one meter and constructing an artificial lake in the traditional watershed, adjacent to Gatun Lake.<sup>38</sup> The ACP has claimed that the subsoil rock in the area where this new lake, called Lake Trinidad, would be built is too soft, but Drohan argues that the project is indeed possible and safe and that in Japan and other places, dams have successfully been built on softer rock.<sup>39</sup> The ACP is correct in its desire to be cautious—dam failures are tremendous catastrophes that can kill thousands of people—but many different independent engineers' opinions should be consulted before ruling out the project.

### Words from the ACP

The reality is that the ACP does not say a great deal. Today, in 2004, the ACP does not publish any material that refers to the construction of *embalses* in the Western Watershed. When asked about the issue, Canal officials say that nothing has been decided. According to Executive Administration Manager Stanley Muschett, the ACP has never made a public statement that mentioned the creation of the *embalses* in the Western Watershed, and that all discussion of the issue is pure speculation.<sup>40</sup> Instead, they point to the fact that studies are still underway and that decisions will be announced this June. Indeed, the ACP has ordered more than 150 studies to be done on

---

<sup>36</sup> Autoridad del Canal de Panamá, "Realidades de la Cuenca Hidrográfica del Canal de Panamá," undated.

<sup>37</sup> Anonymous informant, 2004.

<sup>38</sup> Tomás Drohan Ruiz, "La Nueva Cuenca Occidental No es Necesaria," *El Panamá América*, 12 July 2001.

<sup>39</sup> Tomás Drohan Ruiz, "Trinidad y la Nueva Cuenca," *El Panamá América*, 13 September 2002.

<sup>40</sup> Stanley Muschett, Autoridad del Canal de Panamá, Panama, 1 June 2004.

the project.<sup>41</sup> However, according to PSCP coordinator Héctor Endara Hill and the Team of the PSCP National Office, Alberto Alemán Zubieta, Administrator of the Panama Canal (this is the highest position in the ACP and is considered second only to the president in the Panamanian power structure), has made the plans known. The PSCP team writes in an “Open Letter to Engineer Alberto Alemán Zubieta” that Alemán Zubieta told Panamanian legislators during the second and third debates prior to approving Law 44 that dams would be built in the new area of the watershed on Río Indio, Río Coclé del Norte, and Río Caño Sucio. Endara directly quotes Alemán Zubieta as saying, “the people that are there will have to be relocated” [translation mine].<sup>42</sup> Hughes’s book also cites the 2000 ACP document “Concept of the Amplification of the Panama Canal” as mentioning the creation of *embalses* on these three rivers.<sup>43</sup>

The ACP established a Community Relations Team, or Social Team (*Equipo Social*) made up of sociologists and social workers in 2001, with the goal of easing the tensions that had developed since the passage of Law 44. According to sociologist Milton Martínez, a member of the team, the ACP’s organic law (1997) incorporated “new, complex responsibilities,” beyond merely passing ships through the Canal, that would require some exploration and experimentation.<sup>44</sup> Martínez acknowledges that before the creation of the team, there were conflicts in the communities due to the absence of information, and so the team’s goal is to make the ACP’s presence in the Western Watershed better understood. He says that to establish open dialogue with the communities, there have been several work tables with representatives from the communities, as well as two *Campesino* meetings (*Encuentros Campesinos*), in September of 2001 and 2003, at which Alemán Zubieta has informed, consulted with, and acquired the cooperation of the communities.<sup>45</sup>

The result of these *Campesino* meetings has been the publication of materials dealing with the Western Watershed that, while interesting, do not begin to address the social or technical criticisms of the *embalse* project. According to Alemán Zubieta, the purpose of these studies is to satisfy the request *campesinos/as* made at these meetings for more information “about the natural resources of the place where they live and work,” as well as a description of “the quality of life of the people who inhabit the area” [translation mine].<sup>46</sup> These studies were performed in collaboration with the Louis Berger Group, Inc., the University of Panama, and the Smithsonian Tropical Research Institute. They provide information about the endangered species living in the Western Watershed, the different habitats that exist, the number of species of birds, insects, reptiles, amphibians, and mammals, the land use patterns, and such factors as health and education levels of the inhabitants. The ACP has also commissioned studies that

---

<sup>41</sup> Neil King, Jr., “Panama Canal at Crossroads,” *The Wall Street Journal*, 7 January 2004.

<sup>42</sup> Quotation cited in Equipo de la Oficina Nacional de Pastoral Social-Cáritas Panamá, “Carta Abierta al Ingeniero Alberto Alemán Zubieta,” *La Carta* 84 (July, 2002), 2.

<sup>43</sup> Hughes, 1.

<sup>44</sup> Milton Martínez, interview by author, Corozal, Panama, 27 May 2004.

<sup>45</sup> Milton Martínez, interview by author, Corozal, Panama, 27 May 2004.

<sup>46</sup> Autoridad del Canal de Panamá, “Resumen del Estudio 2003: Recopilación y Presentación de Datos Ambientales y Culturales de la Región Occidental de la Cuenca del Canal de Panamá,” and “Resumen del Estudio 2003: Recopilación y Presentación de Datos Socioeconómicos de la Región Occidental de la Cuenca del Canal.” The first of these two quotations by Alemán Zubieta can also be found in “Fauna Terrestre: Resumen del Inventario de Especies de Animales Terrestres en la Región Occidental de la Cuenca del Canal de Panamá,” 2002.



addressed the issue of the artificial lakes in the Western Watershed, prepared by Montgomery Watson Harza and TAM Consultants, Inc.: “Río Indio Water Supply Project: Feasibility Study,” “The Río Coclé del Norte and Caño Sucio Water Supply Project,” “The Upper Chagres Water Supply Project,” and “Long-term Forecast for Municipal and Industrial Water Demand and Raw Water Consumption/Comparative Analysis of Cost and Pricing.” However, these documents, while listed in the ACP Library’s computer system, are confidential until the ACP Board of Directors (*Junta Directiva*) approves them, and they are thus unavailable to the public. Until then, those interested in the results of the feasibility studies can bide their time reading about what percentage of the Western Watershed is used for agriculture.

### **Pastoral Social-Cáritas’s Critique of the ACP**

The major problem that PSCP literature cites again and again is not that the ACP desires to modernize the Canal, but rather the authoritarian and secretive manner with which the ACP has dealt with the Western Watershed project and presented it to the public and to the people who live there. In the words of three bishops at the Panamanian Episcopal Conference, “It seems to us that the lack of clarity in the intentions of the ACP as regards the project of the expansion of the Canal’s Watershed is the cause of the anxiety and disquiet of those who dwell in these areas” [translation mine].<sup>47</sup> The PSCP laments in its open letter to Alemán Zubieta that the ACP originally presented information and then retracted that information, acting as if it had never provided the information in the first place. For this reason, it appears to the PSCP team that when the ACP says that no decision has been made, in reality the ACP is hiding the truth in order to tranquilize the people whose land is in danger. Similarly, the members of the team find unacceptable the ACP’s silence in the face of criticism of the project:

We do not understand your silence, and that of the Panama Canal Authority that you administer, in the face of questions formulated by people recognized in the fields of engineering, sociology, economics, law, and ecology...making serious and well-founded arguments...Silence can never be a response when the life and future of thousands of families are at stake [translation mine].<sup>48</sup>

It is to be seen whether the announcement this month will break this silence.

Another major general cause of concern is that, for nearly five years, the people living in the watersheds of Río Indio, Río Caño Sucio, and Río Coclé del Norte do not have a reason to feel secure. The only assurance that they may be able to keep their land is that the ACP says that nothing has been decided yet, and, if they lose their land, the only assurance that they will be compensated adequately is the ACP’s suggestion that the *embalses* and/or the relocation will improve their quality of life; a 1999 Community Bulletin that the ACP released (which never made it past the first issue) wrote that quality of life would be raised by such factors as, “new work opportunities, more roads, new sources of water, new sources of electricity, technical assistance programs, and economic development through tourism and commerce” [translation

---

<sup>47</sup> José Dimas Cedeño, Uriah Ashley, and Carlos María Ariz, letter to Silvia Vergara de Batista, 27 February 2003; published in *La Carta* 93 (May, 2003), 3.

<sup>48</sup> Equipo de la Oficina Nacional de Pastoral Social-Cáritas Panamá, “Carta Abierta al Ingeniero Alberto Alemán Zubieta,” *La Carta* 84 (July, 2002), 2.

mine].<sup>49</sup> However, after publishing this bulletin in 1999, the ACP has not repeated this idea in any successive publication, so even this meager source of assurance has dissolved.

The PSCP team explains that, while there is a law that gives the ACP authority over the lands of the Western Watershed, “there is neither law nor document that guarantees the *campesinos/as* the compensation that they deserve for losing their lands, and this has created desolation among this population” [translation mine].<sup>50</sup> The ACP, perhaps in an attempt to provide this type of assurance, has begun a \$4.2-million National Land-Titling Program (*Programa Nacional de Titulación de Tierras*, or PRONAT), granting titles to farmers who had previously worked the land without ownership. According to Martínez of the ACP, this is an attempt to prove to doubters that Law 44 does not automatically mean appropriation of their lands.<sup>51</sup> However, according to University of Panama Professor of Sociology Marco A. Gandásegui, hijo, unless the people are incorporated into the market practice, land titles on their own are meaningless. He explains that the benefit of having title to land is that the property represents capital that can potentially be invested. If the person receiving the title is not incorporated into the market, he or she will simply continue to work the land, the same as prior to receiving the title, and will likely sell the title when a speculator comes along.<sup>52</sup> How can these *campesinos/as* be incorporated into the market process? Gandásegui suggests that the first steps to stimulating *campesinos/as* to produce more than they consume are social investments, such as roads and schools. However, Gandásegui warns that “transforming them from non-capitalist peasants to capitalist farmers is a complicated process. It takes time and more effort than simply handing over a piece of paper.”<sup>53</sup>

### Concerns of Foul Play

The other way that the ACP has attempted to demonstrate that it is concerned with the well-being of the *campesinos/as* in the Western Watershed is through a series of Work Tables (*mesas del trabajo*) between ACP officials and, supposedly, *campesino/a* delegates elected by their communities. However, according to the oral and written testimonies that the Interdiocese Commission collected, these delegates were never elected and were instead hand-picked by the ACP. In addition, the ACP rewarded these delegates handsomely, so not surprisingly, the delegates often returned from the work tables with opinions supportive of the ACP. To a person who earns an average of only \$150 per year,<sup>54</sup> payments of \$10 for a signature verifying attendance, \$10 for each neighbor or relative brought, and compensation for transportation and work days lost are incredibly large sums. In addition, the ACP rewarded these *campesinos/as* by paying them double or triple the norm for tasks such as mailing

---

<sup>49</sup> Autoridad del Canal de Panamá, “Comunidades: Noticias de la Cuenca del Canal de Panamá,” (Panama: November, 1999); cited in Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, 57.

<sup>50</sup> Equipo de la Oficina de Pastoral Social-Cáritas Panamá, “¡Lo Primero es la Patria!: Antes Que Cualquiera Otra Cosa, está Panamá Entero,” *La Carta* 67 (November, 2000), 2.

<sup>51</sup> Milton Martínez, interview by author, Corozal, Panamá, 27 May 2004.

<sup>52</sup> Marco A. Gandásegui, hijo, interview by author, Centro de Estudios Latinoamericanos, Panama, 25 May 2004.

<sup>53</sup> Gandásegui, 25 May 2004.

<sup>54</sup> Gandásegui, 25 May 2004.

letters, clearing trails, and carrying packages up and down rivers.<sup>55</sup> In other words, the ACP has taken advantage of these *campesinos/as*'s extreme poverty to buy support and complicity and to divide the communities.

Perhaps the most alarming aspect of the conflict has been the attempts to suppress the efforts of the members of PSCP and the CCCE. Two recent incidents have no proven connection to these groups nor to the ACP, but they have nevertheless impeded the work and personal liberty of individuals and of the groups in general. The first was the refusal by the Panamanian government to renew the permanent visa of Francisco Aperador, a Spanish missionary who has worked with PSCP in opposition to Law 44 and to the construction of the *embalses* in the Western Watershed. While governmental authorities have called Aperador "a danger to public safety," they have not answered the Catholic Church's requests for explanation or evidence.<sup>56</sup> Along with PSCP, groups such as the Commission for Justice and Peace and the Christian Brotherhood of Sick Persons maintain that Aperador represented no danger and argue instead that the expulsion is an attempt "to impede the social labor of the church" [translation mine].<sup>57</sup> The second incident is the abduction and beating of Francisco Hernández, the CCCE leader of the central Río Indio area, which occurred the morning of May 30, 2004. At a CCCE press conference June 2, 2004, Hernández explained that after losing consciousness from blows to the head, he did not awake until the following evening, 200 kilometers from where he was abducted. While he could not identify the two men who gave him the blows because he lost consciousness almost immediately, he does not doubt that the incident is related to his position opposing the *embalses*.<sup>58</sup> The majority of the approximately 60 people in attendance were *campesinos/as* who had traveled to the city to demonstrate their support for Hernández. These two incidents are unarguably troubling, and they have reinforced to the groups that their opposition efforts have not been appreciated by some, perhaps powerful, individuals.

### The Bigger Picture

Later this month, the ACP will announce its official plan for the Canal Amplification Project, and among the information to be disclosed will be the decision as to whether to dam the three rivers in the so-called Western Watershed and flood the villages. Regardless of how this conflict resolves, its development over the last five years reveals a pattern of behavior on the part of the ACP that includes pursuing only one of many alternatives, obscuring its motives, and acting without consultation from those who will be affected most directly. For these *campesinos/as*, concepts such as lakes drowning homes and obligatory relocation have been concrete enough to understand in personal terms. The ACP's assurance that nothing had been decided was not enough to keep them from worrying and organizing in an effort to prevent a project from occurring that was not in their best interests. If the ACP announces that its amplification plans will not involve *embalses* or will only require one *embalse*, both of which are quite possible, the efforts of the CCCE and PSCP will have been successful. Even if the ACP affirms that it will dam the rivers, the groups will have achieved a certain level of success in raising the issue to the level of common awareness outside of

---

<sup>55</sup> Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44, 63-65.

<sup>56</sup> Eduardo Martínez F., "Rechazan Expulsión de Misionero Aperador," *El Panamá América*, 25 May 2004.

<sup>57</sup> Eduardo Martínez F., "Rechazan Expulsión de Misionero Aperador."

<sup>58</sup> Francisco Hernandez, CCCE press conference, Plaza Cinco de Mayo, Panama, 2 June 2004.

the Western Watershed. The integral first step to these modest successes was to suspect the potential personal damage that the project could cause.

Unfortunately, the behavior pattern described above is not limited to the conflict surrounding the Western Watershed, nor is it unique to the ACP. The ominous failure to reveal key information has characterized the entire amplification project, especially relating to questions of financing the project. The most basic example relates to the ACP's estimates of the cost of the project. The Tripartite Commission estimated in 1993 that the construction of a third set of locks Post-Panamax would cost \$6.9 billion in 1990 prices, which would be more than \$10 billion in 2002 considering inflation. The ACP declared that the cost of a third set of locks Post-Panamax almost identical to the plans of the Tripartite Commission would cost only \$4 billion in 2002. As Drohan observes, it is unlikely that the ACP could have devised a way to spend so much less on a plan whose costs were carefully estimated by experts from Panama, the United States, and Japan.<sup>59</sup>

What would motivate the ACP to underestimate sharply the cost of the project? According to University of Aalborg (Denmark) Professor Bent Flyvberg in his 2003 book *Megaprojects and Risk: An Anatomy of Ambition*, purposefully underestimating costs is a strategy that promoters of multibillion-dollar infrastructure projects regularly use to sell their megaprojects. Flyvberg and colleagues performed a study published in 2002 of 258 transport infrastructure projects worth approximately \$90 billion (1995 prices), the first such study with a large enough N to establish statistically significant conclusions. Findings include that in nine out of ten such projects costs are underestimated, that there is no decrease in cost underestimation and overrun over the last seventy years, that, in data for rail projects, the underestimation and overrun phenomena seem more severe in developing nations than in North America and Europe, and that error alone cannot explain the phenomena.<sup>60</sup> Using data from this study as well as case studies in greater detail, Flyvberg concludes that:

The cost estimates used in public debates, media coverage, and decision making for transport infrastructure development are highly, systematically, and significantly deceptive. So are the cost-benefit analyses into which cost estimates are routinely fed to calculate the viability and ranking of projects.<sup>61</sup>

With these findings in mind, it is advisable that Panamanians view all ACP cost estimates of the new locks, especially those that are lower than \$10 billion, with a critical eye. As such, it is possible that a decision not to build *embalses* in the Western Watershed could represent, not a success of the CCCE/PSCP, but a strategic move by the ACP to be able to estimate a lower price for the project and increase their chance of approval. In any case, with the high (ninety percent in the above study) likelihood of overcosts, Panamanian decision makers must question not only if the estimates are financeable but where the money will come from if there are cost overruns.

---

<sup>59</sup> Tomás Drohan Ruiz, "La Nueva Esclusa Post-Panamax," *La Prensa*, 20 November 2002, 13A.

<sup>60</sup> Bent Flyvberg, Mette K. Holm, and Soren L. Buhl, "Underestimating Costs in Public Works Projects: Error or Lie?" in *Journal of the American Planning Association* 68, no. 3 (Summer, 2002), 279-95; cited in Bent Flyvberg, Nils Bruzelius, and Werner Rothengatter, *Megaprojects and Risk: An Anatomy of Ambition* (Cambridge: Cambridge University Press, 2003), 15-16.

<sup>61</sup> Flyvberg, 20.

## Financial Concerns Unanswered

The question of how the Canal Amplification project will be funded is another area where scrutiny is needed to judge the validity of the ACP's public statements. Alberto Alemán Zubieta, the Administrator of the Panama Canal, told the public in 1997 that the Panama Canal could self-finance the construction of the third set of locks.<sup>62</sup> Even using the ACP's cost estimates, which, as discussed above, are likely underestimates, the prospects for self-funding of the project are doubtful. William Hughes, professor of economics at the University of Panama, shows that at the very least, self-financing will take 29 years to pay for the project. He uses the ACP's 2000 estimate for the cost of the whole project of \$6.055 billion, and the fact that the Canal gives to Panama an average of \$165 million per year, which subtracts the \$35 million per year for water that Panama pays the ACP from the \$200 million that the ACP gives to the National Treasury. Even though in the last twenty years, the amount of maritime cargo has been increasing at an annual rate of 2.1 percent, Hughes considers rates of both 2.1 and 3 percent, and he considers interest rates of 6.5 and 9 percent for financing. These four situations predict 29 years for a cargo increase rate of 3 percent and interest rate of 6.5 percent but 48, 51, and more than 60 years for the other, more likely, outcomes.<sup>63</sup> These data are alarming because the numbers (using the ACP's possible cost underestimate) mean that if the ACP self-finances the project, there will be between thirty and sixty years when Panama receives no money from the Panama Canal's operations. This will force the government to spend \$165-200 billion less per year (which would mean less money going to schools, roads, health care, and services) or to take out loans and increase the national debt.

The ACP continues to claim that the project will not cost Panama anything. Assistant Administrator of the Canal Ricauter Vazquez told the Associated Press this April that the ACP "would not expect the central government to participate in the financing" of the Canal expansion and suggested that funding may be available from interested international financial institutions.<sup>64</sup> Francisco Miguez, coordinator of the Master Plan for the Canal, also recently said, "Once we have a project that would include an expansion, if it is profitable, there will be no lack of funding."<sup>65</sup> However, Drohan points out in a November, 2003, article in *El Panamá América* that none of the companies that pass boats through the Panama Canal, those that would supposedly benefit most from an expanded canal, is willing to contribute to the project. To avoid a half-century without income from the Canal, which could occur from Panama Canal self-financing, the ACP will need to prove that Miguez's assertion is correct. In order to do this, the ACP will need to convince private companies or foreign governments that the investment will be a profitable one, a challenge in which, according to Drohan, the ACP has not yet succeeded.

Drohan urges that if no users, corporations, or governments are willing to invest in a project, it means that all these groups think that the project is not likely to succeed. Drohan explains, "the naval industry does not need a Post-Panamax lock urgently

---

<sup>62</sup> Rolando Rodríguez B., "Canal Puede Financiar Nuevas Esclusas: Alemán," *La Prensa*, 19 March 1997, 3A.

<sup>63</sup> Hughes, 30-32.

<sup>64</sup> Aguilar, 30 April 2004.

<sup>65</sup> Aguilar, 30 April 2004.

enough to take responsibility for such an investment” [translation mine].<sup>66</sup> If the opinions of so many other institutions worldwide is that the project is a bad investment, Panama ought to wonder if the same is not true for the country, especially with 2.8 million people depending on it. This observation is in line with one of Flyvberg’s criteria for project security, which is the investment of private risk capital. Flyvberg suggests that a multibillion-dollar megaproject should only be undertaken if private financiers are willing to invest their own money to begin the project. By doing this, and “by letting them bear the consequences of a wrong decision, there will be a better guarantee that a project will indeed only be implemented if there is a demand for it.”<sup>67</sup> This criterion is especially essential when the sovereign state that would otherwise have to accept the risk is one as vulnerable to debt as Panama. Panama’s external debt, which reached \$5.632 billion in 1999, continues to grow despite the hundreds of millions of dollars spent every year servicing the debt.<sup>68</sup> Economists Eduard Niesten and John Reid warn that “if Panama were to undertake the Expansion of the Panama Canal Watershed, it would double its level of indebtedness and slow its payment of capital or interests” [translation mine].<sup>69</sup> Thus, before Panamanians support the expansion plan, they must demand external risk capital or carefully consider whether the potential gains from the project are worth compromising the future growth of the country by severely increasing the debt which has crippled Panama’s economic autonomy for more than twenty years.

### **What Can Panama Hope to Gain?**

It is not solely the ACP’s responsibility to ensure that the Canal Amplification Project does not turn the Panamanian economy upside-down; the Panamanian government, too, should take responsibility in preparing Panama for the changes that the project will bring in the next several decades. As Gandásegui notes, the Canal expansion will require a host of specialists, technicians, engineers, and workers, most of whom Panama is not ready to provide. As a result, Panama will not stop depending on technologies developed elsewhere. He argues that if Panama continues lagging in the production of competent scientists, Panama will be accused, “with reason, of being incapable of making the technical decisions necessary to face future challenges” [translation mine].<sup>70</sup> In such a situation, Panama will have missed a valuable opportunity for progress, growth, and learning. This lost opportunity is not only a theoretical concept anymore; a French-Belgian consortium has been hired to create the blueprints for new locks at the Pacific entrance to the Canal, and the U.S. Army Corps of Engineers is doing the same for the Atlantic side.<sup>71</sup> Gandásegui suggests that the government, the country’s scientific institutions, and the ACP work together now to develop an education system that will be capable of producing the specialists that the project will need. This would give Panama an active role in its own future (unlike its observer role during the Canal construction), and it would provide a way for a much larger sector of the Panamanian people to benefit from the Canal expansion.<sup>72</sup>

---

<sup>66</sup> Drohan, “La Nueva Esclusa Post-Panamax.”

<sup>67</sup> Flyvberg, 121.

<sup>68</sup> Eduard Niesten and John Reid, *Expansion del Canal de Panamá: Consideraciones Económicas* (Panama: Centro de Asistencia Legal Popular, 2002), 25.

<sup>69</sup> Niesten and Reid, 26.

<sup>70</sup> Marco A. Gandásegui, hijo, “Los Retos Que Enfrentan el País y el Canal de Panamá,” *Tareas* no. 113 (Panama, January-April 2003), 46.

<sup>71</sup> King, “Panama Canal at Crossroads.”

<sup>72</sup> Gandásegui, 46-47.

Beyond benefitting ideally from involvement in the project, Panamanians must be certain that the project will result in real economic gains for the country. To do this, they must critically evaluate the claims of the ACP that the Canal will become obsolete if they do not expand the canal and build Post-Panamax locks. Currently, the largest boats that can fit through the Panama Canal (Panamax) hold up to 4,000 TEU. The new Post-Panamax locks that the ACP is considering constructing would fit Post-Panamax boats of up to 12,000 TEU capacity. A 2003 *La Prensa* article states that 25-30 percent of new boat orders for 2003 are Post-Panamax (larger than 4,000 TEU), and that of those boats, 78 percent are larger than 8,000 TEU.<sup>73</sup> The ACP literature and the Niesten and Reid book verify that larger boats are being built. However, this does not automatically lead to the conclusion that many people seem to accept. A recent *New York Times* article states (without citing data) that “the 90-year-old canal is at risk of becoming obsolete as vessels being built in Asia—as long as the Empire State building is tall—will be too big to squeeze through its locks.”<sup>74</sup> In order to claim that increasing numbers of Post-Panamax boats means Panama Canal obsolescence, one has to prove that these Post-Panamax boats *would* go through the Panama Canal if they could. However, many of these boats are built to traverse routes that do not involve the Panama Canal, for example, Asia to the West Coast of the United States, or Europe to the East Coast of the United States. Even among those from Asia destined for the East Coast of the United States, the route through the Suez Canal is shorter for all ports south of Hong Kong, the number one container port in Asia.<sup>75</sup> For those north of Hong Kong, the extra travel time (between several hours and two days) required through the Suez Canal may still be worthwhile if Panama significantly raises tolls to finance the Canal Amplification Project.<sup>76</sup> The fact that many of the new large boats have no interest in using the Panama Canal diminishes the significance of the fact that they cannot fit through the Panama Canal.

Similarly, another criticism of the argument that boats are outgrowing the Panama Canal is that traffic depends on cargo, not on boat size. If new locks are built to fit much larger ships but the amount of cargo passing through the Canal continues to increase at an annual rate of only 2.1 percent, traffic will decrease significantly, as all the necessary cargo will fit in a smaller number of boats.<sup>77</sup> This will benefit some shipping companies, because they will be able to send the same amount of cargo with fewer ships, but it will not benefit Panama because the new locks will not increase the amount of cargo passing through the Canal. Many companies may opt to continue to send Panamax and smaller boats because the amount of cargo they send may not justify a larger boat.

Furthermore, the amount of cargo that Panamax and smaller sized boats carried between 1994 and 2003 increased much more significantly than the amount of cargo all Post-Panamax boats carried, even though each individual Panamax and smaller boat has a lower capacity. According to a 2003 Institute of Shipping Logistics (ISL) study of the

---

<sup>73</sup> Dustin Guerra, “El Canal y los Barcos ‘Fantasmas’,” *La Prensa*, 23 November 2003, 43a.

<sup>74</sup> Ginger Thompson, “Panama Canal Thinks Big, Bringing Fear to the Jungle,” *New York Times*, 27 May 2004, A4.

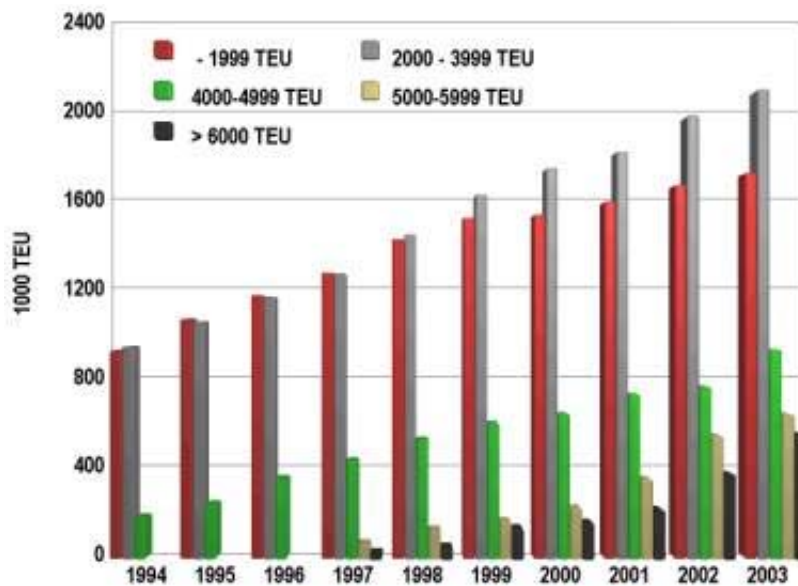
<sup>75</sup> Institute of Shipping Economics and Logistics, “ISL Shipping Statistics and Market Review,” cited 31 May 2004, <[http://www.isl.org/products\\_services/publications/samples/cargo.shtml.en](http://www.isl.org/products_services/publications/samples/cargo.shtml.en)>.

<sup>76</sup> Anonymous informant, 2004.

<sup>77</sup> William Hughes, interview by author, University of Panama, 27 May 2004.

period 1994-2003, in every year of the study boats up to 3,999 TEU carried more cargo annually than boats greater than 4,000 TEU. Not only do Panamax and smaller boats carry more cargo than Post-Panamax boats, their 10-year increase in annual cargo was 150,000 TEU higher than the increase in annual cargo of Post-Panamax boats (see figure 2).<sup>78</sup> These data suggest that the increasing construction of Post-Panamax boats is only marginally relevant to the Panama Canal's operations. The world-wide use of Panamax and smaller boats is increasing even faster, and this explains how the Panama Canal consistently served approximately four percent of world maritime commerce throughout the 1990s, even as world maritime commerce experienced solid growth.<sup>79</sup>

**Figure 2: Container fleet development by TEU-size classes as of January 1, 1994-2003**



Source: Institute of Shipping Economics and Logistics, "ISL Shipping Statistics and Market Review 2003," <[http://www.isl.org/products\\_services/publications/samples/cargo.shtml.en](http://www.isl.org/products_services/publications/samples/cargo.shtml.en)>.

### **Conclusion: ACP Has Explaining to Do**

The ACP must go beyond simply claiming that increases in worldwide cargo and ship sizes will make the Panama Canal obsolete; rather, the Canal Authority must show studies that support their claims. These studies, if they exist, are not available to the public. This is exactly what has happened in the microcosm of the Western Watershed, and this is why those who have fought so vigorously against the construction of the artificial lakes must not let their guard down if the ACP announces that it will not build the lakes. The risks to the Panamanian people ten or twenty years in the future will remain even if the immediate risks to the *campesinos/as* in the Western Watershed pass. The larger risks are hard to see, especially when evasive rhetoric may seem on the surface to negate them. As seen above, even the *New York Times* did not question the concept of Panama Canal obsolescence or demand relevant facts.

<sup>78</sup> Institute of Shipping Economics and Logistics, "ISL Shipping Statistics and Market Review," cited 31 May 2004, <[http://www.isl.org/products\\_services/publications/samples/cargo.shtml.en](http://www.isl.org/products_services/publications/samples/cargo.shtml.en)>.

<sup>79</sup> Niesten and Reid, 15.



Unfortunately, the same secrecy and lack of transparency that characterized the ACP's behavior in the issue of artificial lakes is what obscures the public's understanding of the financeability and profitability of the project as a whole. As shown in this paper, the ACP has employed all of the following behaviors in pursuing its agenda in the Western Watershed:

- Expanding its authority through the passage of Legislative Assembly laws;
- Underestimating the number of people to be affected;
- Ignoring less destructive alternatives;
- Denying having spoken documented words;
- Failing to address criticism;
- Buying complaisance from extremely poor people.

In addition, the suspicious expulsion of missionary Aperador and beating of CCCE leader Hernández complete the picture of the difficulties those who oppose the ACP's Western Watershed *embalse* project have faced. These must not be forgotten when the time comes for the public to consider the Canal Amplification Project. All of the concerns that have been cited in this paper, from the estimation of costs to the names of the supposedly interested international financing institutions to the estimation of traffic increases based on prior data, need to be addressed individually and specifically. For this to happen, the ACP will have to change its authoritarian, secretive policies. The ACP must disprove the fears of those who, faced with a scarcity of apparent benefits to the Panamanian people, conjecture personal gain and corruption as the true forces propelling this project.

## WORKS CITED

### **Books, journals, etc.**

- Arias Calderon, Ricardo, Ricardo Bermúdez Dutari, Omar Jaén Suárez, Guillermo Quijano Castillo, Jorge Eduardo Ritter, Carlos F: Rodríguez Fernández-Miranda, and David Samudio Meléndez. 2001. Aporte para un consenso nacional sobre el futuro del Canal. Panama.
- Asamblea Legislativa. 1997. Ley 19. Panamá, 11 June.
- Asamblea Legislativa. 1999. Ley 44. Panamá, 31 August.
- Autoridad del Canal de Panamá. 2003. El Canal de Panamá. Panamá.
- Autoridad del Canal de Panamá. Undated. La Cuenca Hidrográfica del Canal.
- Autoridad del Canal de Panamá. Undated. Realidades de la Cuenca Hidrográfica del Canal de Panamá.
- Autoridad del Canal de Panamá. 2002. Fauna terrestre: Resumen del inventario de especies de animales terrestres en la Región Occidental de la Cuenca del Canal de Panamá.
- Autoridad del Canal de Panamá. 2003. Resumen del Estudio 2003: Recopilación y presentación de datos ambientales y culturales de la Región Occidental de la Cuenca del Canal de Panamá.
- Autoridad del Canal de Panamá. 2003. Resumen del estudio 2003: Recopilación y presentación de datos socioeconómicos de la Región Occidental de la Cuenca del Canal.
- Autoridad Nacional del Ambiente. 2002. Proyecto Corredor Biológico Mesoamericano del Atlántico Panameño.
- “Campesinos rechazan Ley 44 por injusta.” 2000. *Canal de Panamá Hoy* 7, no. 41 (March): 5.
- Comisión Interdiocesana de Acompañamiento a las Comunidades Afectadas por la Ley 44. 2002. Una voz orientadora sobre el problema de los embalses. Panama: Pastoral Social-Cáritas.
- Contraloría General de la República de Panamá, Dirección de Estadística y Censo. 2000. *Censos Nacionales, x de población, VI de vivienda*. Volumen I-Tomo 2. Lugares poblados de la República. Panamá.
- Dimas Cedeño, José, Uriah Ashley, and Carlos María Ariz. 2003. Letter to Silvia Vergara de Batista, 27 February 2003. *La Carta* 93 (May): 3.

- Equipo de la Oficina de Pastoral Social-Cáritas Panamá. 2000. ¡Lo primero es la patria!: Antes que cualquier otra cosa, está Panamá entero. *La Carta* 67 (November): 2.
- Equipo de la Oficina Nacional de Pastoral Social-Cáritas Panamá. 2002. Carta abierta al Ingeniero Alberto Alemán Zubieta. *La Carta* 84 (July): 2.
- Flyvberg, Bent, Nils Bruzelius, and Werner Rothengatter. 2003. *Megaprojects and risk: An anatomy of ambition*. Cambridge: Cambridge University Press.
- Gandásegui, hijo, Marco A.. 2003. Los retos que enfrentan el país y el Canal de Panamá. *Tareas* no. 113 (Panama, January-April): 39-51.
- Hernández, Francisco. 2004. Conferencia de prensa de la Coordinadora Campesina Contra los Embalses. Plaza Cinco de Mayo. Panamá. 2 June.
- Hughes, William. 2002. *Impacto de la ampliación del Canal de Panamá*. Panama: Centro de Asistencia Legal Popular.
- Institute of Shipping Economics and Logistics. 2003. ISL shipping statistics and market review. 31 May 2004. <[http://www.isl.org/products\\_services/publications/samples/cargo.shtml.en](http://www.isl.org/products_services/publications/samples/cargo.shtml.en)>.
- Martinez Lasso, Esteban. 1997. Las alternativas al Canal de Panamá y sus impactos a nivel local y global. Presented at the *Encuentro Académico Internacional Sobre el Canal de Panamá*. Universidad Santa María la Antigua, Panamá, 4-5 September.
- Nielsen, Eduard and John Reid. 2002. *Expansion del Canal de Panamá: Consideraciones económicas*. Panama: Centro de Asistencia Legal Popular.
- “Panama Canal.” *Encyclopædia Britannica*. 2004. Encyclopædia Britannica Online. 30 May. <<http://www.search.eb.com/eb/article?eu=120007>>.
- Panama Canal Treaty and related documents between the United States of America and the Republic of Panama*. 1977. In: Autoridad del Canal de Panama website. 30 May 2004. <<http://www.pancanal.com/eng/history/index.htm>>.
- “¿Qué consecuencias traen los embalses?” 2003. *¡No a la Inundación!* Cartilla no. 4. Panama: Pastoral Social-Cáritas.
- Roy, Michael. 2004. Lecture: Biodiversity. Parque Nacional General D. Omar Torrijos Herrera. Panamá. 19 March.
- U.S. Senate. Document no. 231. 1906. *Message from the President of the United States transmitting the Report of the Board of Consulting Engineers and of the Isthmian Canal Commission on the Panama Canal*. Washington, D.C.: Government Printing Office.

## **Newspaper articles**

- 19 March 1997. Rolando Rodríguez B. Canal puede financiar nuevas esclusas: Alemán. *La Prensa*, page 3a.
- 11 October 1999. Herasto Reyes y Abdiel Zárate. 1999. Ampliación de la cuenca del Canal: Incertidumbre en Coclesito. *La Prensa*, page 6A.
- 12 July 2001. Tomás Drohan Ruiz. La nueva Cuenca Occidental no es necesaria. *El Panamá América*.
- 13 September 2002. Tomás Drohan Ruiz. Trinidad y la nueva Cuenca. *El Panamá América*.
- 20 November 2002. Tomás Drohan Ruiz. La nueva esclusa Post-Panamax. *La Prensa*, page 13A.
- 23 November 2003. Dustin Guerra. El Canal y los barcos 'fantasmas'. *La Prensa*, page 43a.
- 7 January 2004. Neil King, Jr. Panama Canal at Crossroads. *The Wall Street Journal*.
- 30 April 2004. Eloy O. Aguilar. Panama leader to decide on Canal expansion. *Bucks County Courier Times*.
- 25 May 2004. Eduardo Martínez F. Rechazan expulsión de misionero Aperador. *El Panamá América*.
- 27 May 2004. Ginger Thompson. Panama Canal thinks big, bringing fear to the jungle. *New York Times*, page A4.

## **Interviews by author**

- Bernard V., James E. 2004. Defensoría del Pueblo. Panamá. 21 May.
- Gandásegui, hijo, Marco A. 2004. Centro de Estudios Latinoamericanos. Panamá. 18, 25 May.
- Hughes, William. 2004. Universidad Nacional de Panamá. Panamá. 27 May.
- Len-Ríos, Felipe A. 2004. Biblioteca de la Autoridad del Canal de Panamá. Panamá. 27 May.
- Martínez, Milton. 2004. Corozal. Panamá. 27 May.
- Martínez, Ricardo. 2004. Pastoral Social-Cáritas Office. Panamá. 2 June.
- Muschett, Stanley. 2004. Telephone interview. Panamá. 1 June.

## WORKS CONSULTED

### **Books, Journals, etc.**

- Antinori-Bolaños, Italo Isaac. 2001. *Informe especial: El Dr. Italo Isaac Antinori-Bolaños, Primer Defensor del Pueblo de la República de Panamá, presenta un informe especial sobre la Cuenca del Canal de Panamá*. Panamá: Impresora Panamá.
- Arias, Agustín A. 1998. La modernización del Canal y el tercer juego de esclusas. Presented at *Canal de Panamá: Modernización para competir*. Universidad de Panamá, 20 January.
- Castro, Guillermo. 2003. The Management of the Panama Canal Watershed.
- Castro, Guillermo. 2003. Pro Mundi Beneficio: Elementos para una historia ambiental de Panamá (sin publicar).
- Comisión de Estudio de las Alternativas al Canal de Panamá. 1990. *Plan detallado del estudio de las alternativas al Canal de Panamá*.
- Isthmian Canal Commission. 1911. "Official handbook of the Panama Canal." Ancon, Canal Zone.
- Jaén Suárez, Omar. 1990. El Canal de Panamá: Los efectos sobre el medio ambiente de su construcción y operación hasta el presente. *Cuadernos Nacionales* no. 4: *Medio Ambiente y Desarrollo en Panamá* (Universidad de Panamá: Instituto de Estudios Nacionales): 9-14.
- Ohtake, Kunihiro. 1998. The present situation and the future forecast of the Panama Canal Traffic. In *El Canal de Panamá en el siglo XXI: Encuentro académico internacional sobre el Canal de Panamá*. Panama: Instituto de Estudios Nacionales. 139-47.
- "Proyecto de ampliación del Canal de Panamá carece visión." 2001. *Tareas* 107 (January-April): 131-37.
- Torres A., José E. 1998. ¿Cuál es la alternativa de modernización al Canal que más conviene a Panamá y a sus usuarios? In *El Canal de Panamá en el siglo XXI: Encuentro académico internacional sobre el Canal de Panamá*. Panama: Instituto de Estudios Nacionales. 125-36.
- University of Panamá Institute of National Studies. 1998. Assessment of the impacts on the environment of the alternatives to the Panama Canal: Terms of reference for study. Panama.
- Urriola Candanedo, Gregorio A. 1998. Construyendo el futuro: Prospectiva tecnológica, la reversión canalera y el desarrollo nacional. In *El Canal de Panamá en el siglo*

XXI: *Encuentro académico internacional sobre el Canal de Panamá*. Panama: Instituto de Estudios Nacionales. 187-95.

Zárate, Manuel F. 2003. El Canal de Panamá, el agua y la sociedad panameña: Una agenda nacional de discusión. *Cuadernos Nacionales* 2, no. 2 (Universidad de Panamá: Instituto de Estudios Nacionales): 35-44.

#### **Newspaper articles:**

3 August 1993. Diferencias atrasan decisión para ampliar el Canal. *La Prensa*.

7 November 1997. Juan Manuel Castulovich. ¿Y si no se construye el tercer juego de esclusas? *El Panamá América*.

24 June 2000. José Quintero. Panamá no debe endeudarse para ampliar el Canal. *La Prensa*.

9 August 2000. Michell De la Ossa. Ampliación del Canal sometida a debate nacional. *El Universal*, page C1.

4 September 2000. Luis Gonzalo Mateo. El pueblo campesino y el Canal. *El Panamá América*, page A9.

5 October 2000. F. Manfredo, Jr. Los retos del tercer juego de esclusas. *El Panamá América*, page A7.

15 December 2000. Beth Daley. Enormous ships pose dilemma for tiny Panama. *Boston Globe*, page A1.

26 April 2001. Yuriela Sagel. Coclé es el mejor lugar para embalses, Alemán Zubieta. *El Panamá América*, page A4.

7 May 2001. Mario A. Muñoz. Una cuenca para dos 'Cáritas.' *La Prensa*.

23 May 2001. José María Velarde. La cuenca ampliada: ¿necesidad o necesidad? *La Prensa*.

30 July 2001. Aileen Cho. Panama's Canal holds visions of new growth. *Engineering News Record*, pages 45-49.

11 May 2002. Alma Montenegro de Fletcher. Preocupa a la Procuraduría situación de los campesinos de la cuenca del Canal. *El Universal*, page 10.

26 November 2003. Tomás Drohan Ruiz. El Post-Panamax. *El Panamá América*, page C10.

6 March 2004. Jean Marcel Chery. Usuarios deben pagar ampliación del Canal. *La Prensa*.

25 March 2004. Rubén Darío Paredes. Ensanche del Canal sacrificaría a los panameños. *El Panamá América*.

27 April 2004. Cynthia Sánchez. Casi listos estudios del Canal. *La Prensa*.

2 May 2004. Felipe A. Len-Ríos. Globalización y el Canal. *El Panamá América*.

9 May 2004. Betty Brannen Jaén. Dudas sobre la ampliación del Canal. *La Prensa*.

23 May 2004. Felipe A. Len-Ríos. Ampliación de la Cuenca vs. Sistema de reciclaje. *El Panamá América*.

29 May 2004. Francisco Moreno Pascal. Movimiento Cívico pro-Panamá. *La Prensa*.

### **Interviews by author**

Aperador, Francisco. 2004. Pastoral Social-Cáritas. Panamá. 18 May.

Castro, Guillermo. 2004. Ciudad del Saber. Panamá. 17 May.

Escudero, Renaul. 2004. Asistencia Legal Alternativa de Panamá. Panamá. 20, 21 May.

Hernández, Francisco. 2004. Universidad Nacional de Panamá. Panamá. 18 May.

Quintero, Iván. 2004. Panamá. 17 May.

Sanjur, Conrado. 2004. Coordinadora Popular de Derechos Humanos de Panamá. Panamá. 20 May.

Sarsanedas, Maricarmen. 2004. Telephone interview. Panamá. 20 May.

## Acknowledgements

The following individuals have provided me with an incredible amount of support and assistance, especially in finding resources and making contacts: William Hughes, Briseida Allard, Guillermo Castro, Marco Gandásegui, Gilberto Marulanda, Ricardo Martínez, Iván Quintero, Renaul Escudero, Francisco Hernández, Tomás Drohan Ruiz, Antonio Díaz, Yaneth Minda, Alyson Dagang, and Luis Domínguez.

## Research Questions

- How has the current conflict surrounding the Western Watershed of the Panama Canal developed?
- How does this conflict compare with the conflict surrounding the Canal Amplification Project in general?
- What can be learned from these conflicts?

## Methodology

Structured and unstructured interviews, along with library and Internet research, have been the primary methods of data collection. Both structured and unstructured interviews involve devising a set of questions to ask ahead of time, asking the questions planned, and recording the answers. The difference between them is that in structured interviews, questions are asked in a pre-conceived order, while in unstructured interviews, the interviewer does not reveal that the questions have an order and asks them in a manner that is most appropriate with the flow of the conversation. Structured interviews were used in interviewing professors, ACP employees, and leaders of popular organizations, such as Pastoral Social-Cáritas, the Campesino Coordinating Group against the *Embalses* (CCCE), the Popular Coordinating Group for Human Rights in Panama (*Coordinadora Popular de Derechos Humanos en Panamá*, or COPODEHUPA), Alternative Legal Assistance of Panama (*Asistencia Legal Alternativa de Panamá*, or ALAP), and the Public Defender (*Defensoría del Pueblo*). Unstructured interviews were used with engineers and with *campesinos/as* who attended the CCCE press conference. Interviews were mainly conducted with pen and paper. Occasionally, a tape recorder was used if prior consent was given, but this was found to be less successful due to the poor quality of the tape recorder used and the discomfort it caused to those being interviewed. Each time, people being interviewed were asked for suggestions of other people and resources to consult, and this method helped both to find more obscure information and to succeed in contacting important by using the recommender as a reference.